Lipid-lowering strategies for primary prevention of coronary heart disease in the United Kingdom: A cost-effectiveness analysis

Protocol
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https://github.com/jimb0w/LDL

Jedidiah Morton
Research Fellow
Jedidiah.Morton@monash.edu

Monash University, Melbourne, Australia

Abstract

This is the protocol for the paper *Lipid-lowering strategies for primary prevention of coronary heart disease in the United Kingdom: A cost-effectiveness analysis.* In this protocol, the construction of a microsimulation model (based on the results of Mendelian randomisation analyses) that ages people from the UK Biobank study from 30-85 years, tracking coronary heart disease (CHD), is outlined. Using this model, the efficacy of different lipid-lowering strategies (LLS) for the primary prevention of coronary heart disease (CHD) are simulated. These strategies include: low/moderate intensity statins; high intensity statins; low/moderate intensity statins and ezetimibe; and inclisiran. All lead to varying to degress of low-density lipoprotein-cholesterol (LDL-C) reduction, come at a vast range of costs, and may have different levels of adherence, which makes comparison of cost-effectiveness of these agents interesting. These lipid lowering strategies are also tested across a range of ages at intervention, because the risk of CHD is proportional to the cumulative exposure to LDL-C, and, thus, earlier lowering of LDL-C will lead to greater benefit in the longer-term; however, even if it is more effective to lower LDL-C at a younger age, at what age it is most cost-effective to intervene is unclear. Therefore, we use the cumulative causal effect of LDL-C on CHD risk in this model to estimate the effectiveness and cost-effectiveness of each LLS at ages 30, 40, 50, and 60, from the UK healthcare perspective. These analyses mostly utilise data from the UK Biobank study, and for estimates not directly estimable from the UK Biobank, other UK sources are used (for utilities and healthcare costs). The analyses use the UK willingness-to-pay threshold range of £20,000-30,000.

The results show that LLS initiated earlier in life prevent more MIs and are more cost-effective than LLS initiated later in life. Moreover, because absolute risk is higher in males and people with higher LDL-C, cost-effectiveness improves by targeting these interventions to these clinical sub-groups. Indeed, some of the statin-based LLS were cost-saving in people with high LDL-C, although they were also cost-effective at all ages for most sub-groups. Inclisiran was not cost-effective in any subgroup or any simulation. These results demonstrate that statin-based LLS are a highly cost-effective method of reducing the lifetime risk of CHD when initiated from as young as 30 years of age and support a shift in the approach to primary prevention of CHD away from short-term absolute risk estimates to early and sustained lowering of LDL-C.

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Preface

This work was completed with funding from the National Health and Medical Research Council of Australia, Ideas grant, Application ID: 2012582, which was obtained by Zanfina Ademi as the Chief Investigator, who supervised this work. Contributors to this project include: Clara Marquina, Melanie Lloyd, Gerald Watts, Sophia Zoungas, Danny Liew, and Zanfina Ademi.

To generate this document, the Stata package texdoc [1] was used, which is available from: http://repec.sowi.unibe.ch/stata/texdoc/ (accessed 14 November 2022). The final Stata do file and this pdf are available at: https://github.com/jimb0w/LDL – The code in this pdf is 99.9999% complete, except for certain unicode characters used in some tables and figures, so for complete reproducibility use the do file. For most plots throughout, the colour schemes used are *inferno* and *viridis* from the *viridis* package [2].

Abbreviations

- CHD: Coronary heart disease
- LDL-C: Low-density lipoprotein-cholesterol
- LLS: Lipid lowering strategy
- MI: Myocardial infarction
- MR: Mendelian randomisation
- NHS: National Health Service (of the United Kingdom)
- OSA: One-way sensitivity analysis
- PSA: Probabilistic sensitivity analysis
- QALY: Quality-adjusted life year
- RR: Relative risk
- SE: Standard error
- UK: United Kingdom
- YLL: Years of life lived

1 Introduction

Coronary heart disease (CHD) remains a leading cause of morbidity and mortality worldwide [3]. An important causal determinant of CHD are low-density lipoproteins (LDL) [4], whereby exposure to high levels of LDL over time exerts a cumulative effect on the risk for CHD (i.e., risk is proportional to both magnitude and duration of exposure) [5]. However, robust estimates of the cost-effectiveness of strategies for early and intensive pharmacological lowering of LDL-cholesterol (LDL-C) on the lifetime risk of CHD based on this causal effect are lacking [6].

These estimates would ideally be derived from a randomized clinical trial; however, such a trial is unlikely to ever be undertaken given that it would take multiple decades and would be prohibitively expensive. Therefore, in this analysis, the causal effect of LDL-C on CHD derived from Mendelian randomisation (MR) analyses is used to develop a microsimulation model that integrates the cumulative, causal effect of lowering low-density lipoprotein-cholesterol (LDL-C) on risk of CHD. The rationale for this, and the proposed approach have been reviewed in detail previously [6]. The primary data source will be the UK Biobank [7], and where data from the UK Biobank is not directly available (utilities and healthcare costs), the best available sources are selected.

Specifically, here, I examine the effect of the following lipid-lowering strategies (LLS) for primary prevention of CHD: low/moderate intensity statins; high intensity statins; low/moderate intensity statins and ezetimibe; and inclisiran. Indeed, because these strategies lead to varying to degress of low-density lipoprotein-cholesterol (LDL-C) reduction, come at a vast range of costs, and may have different levels of adherence, comparison of cost-effectiveness of these agents is of considerable interest, and may help select the best agents to implement for primary prevention of CHD at scale.

Let us first outline why we would consider so many agents. Statins are undoubtedly the standard for LDL-C reduction, as they are efficacious and cheap. However, side effects occur, and statin intolerance occurs in a non-trivial number of people [8], and the risk of intolerance increases with increasing statin dose [8]. To combat these issues, other agents can be used in combination with, or instead of statins. Ezetimibe offers an option for intensifying LDL-C reduction when used in combination with low/moderate intensity statins, which leads to greater efficacy (in terms of LDL-C reduction) and less intolerance-related drug discontinuation [9, 10]. Alternatively, Inclisiran is injected twice a year, and achieves large and sustained LDL-C reductions with just this twice-yearly dosing scheme; Inclisiran may offer an advantage over the other therapies, as the others are all orally taken, and some have suggested the twice-yearly dosing scheme will improve adherence [11]. (Note: improved adherence to injectables is only speculation, and has not yet been demonstrated; it is also possible people are less likely to agree to use an injectable when a *much* cheaper pill is available.) This also explains why we wouldn't consider Monoclonal Antibodies to PCSK9 – they are injected much more frequently, come at a far higher cost, and could be very difficult to manufacture at scale, making them poor options for primary prevention of CHD.

So, with all this information, the question arises: Which of these LLS are cost-effective, and at what age should they be implemented for primary prevention of CHD? The answer to this question will of course vary for different groups in the population, especially based on absolute risk for CHD over the lifetime. Thus, in this analysis, the answer to this question will be sought for the overall UK Biobank population, and stratified by sub-groups (male and female, and by baseline LDL-C).

2 Model structure

To orient ourselves before even touching the data, let's first look at the structure of the model that I will be building here (figure 2.1). All individuals will start in the "No CHD" health state at age 30 years (the risk of CHD before age 30 is negligible). The model then simulates the cohort up to age 85 years, ageing individuals in 0.1-year increments. In each cycle, individuals in the "No CHD" health state can move out of the "No CHD" health state and into the "CHD" health state by experiencing a non-fatal MI, or move into the "Death" health state by dying from Non-CHD causes or from from a fatal MI or CHD death. "Death" is the only absorbing state in this model. The other transition is from "CHD" to "Death", which occurs when people with CHD experience death from any cause.

The focus of this model is for *primary prevention* of CHD. This has two consequences for the model. First, repeat events are not considered – once an individual experiences a non-fatal MI, they are only at risk of all-cause mortality (the disutilities and healthcare costs of repeat MIs are assumed to be captured in the chronic utilities and costs of this health state). Second, the risk of all-cause mortality in people with existing CHD is assumed to be unrelated to their LDL-C or cumulative LDL-C.

The UK Biobank will be used as the population of the model and to estimate all these transition probabilities, the methods of which are detailed in section 4. Briefly, the transitions out of the "No CHD" health state are estimated using age-period-cohort models [12], and the transition from "CHD" to "Death" using a similar model. The incidence of non-fatal MI and rate of Fatal MI/CHD death are assumed to be proportional to mean cumulative LDL-C; thus, these rates are adjusted as proportional to the mean cumulative LDL-C over the lifetime for each UK Biobank participant (calculated in section 5). These are the transition probabilities on which the interventions to lower LDL-C operate (through altering mean cumulative LDL-C).

This has now oriented us to what we hope to achieve with the data, so let's proceed to data cleaning.

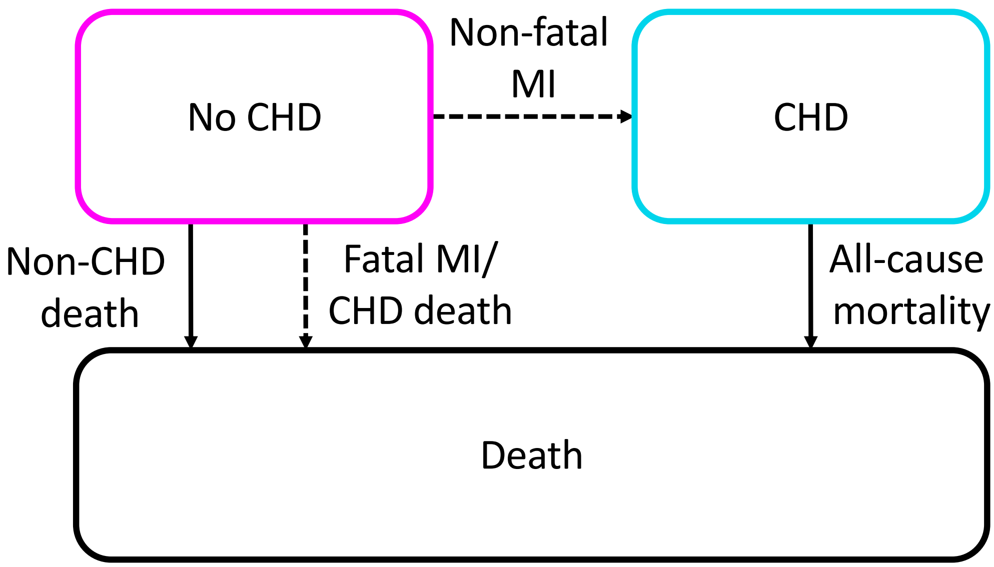

Figure 2.1: Model structure. Dashed lines are transition probabilities influenced by mean cumulative LDL-C; solid lines are transition probabilities not influenced by LDL-C.

3 Data cleaning

Even though the UK Biobank is curated and probably very sound, it is worth conducting data cleaning/sanity checks to minimise the probability of major mistakes, in addition to creating a usable working dataset.

First let's load the dataset, one variable at a time (for speed). The variables of interest for this study are:

- Participant ID (Unique Data Identifier (UDI): eid))
- Sex (UDI: 31-0.0)
- Date of assessment (UDI: 53-0.0–53-3.0)
- UK Biobank assessment centre (UDI: 54-0.0–54-3.0)
- Year of birth (UDI: 34-0.0)
- Month of birth (UDI: 52-0.0)
- Date and source of first myocardial infarction (MI) (UDI: 42000-0.0–42001-0.0)
- Date and causes of death (UDI: 40000-0.0–40002-1.14)
- LDL-C measurement and date (UDI: 30780-0.0–30781-1.0)
- Pre-coded medication use (UDI: 6153-0.0–6153-3.3 (females) & 6177-0.0–6177-3.2 (males))

Then I have to drop all the people who have withdrawn consent since the download of this data extract.

```
cd "/home/jed/Documents/LDL"
mkdir CSV
mkdir GPH
mkdir LDLtraj
mkdir MIrisk
mkdir OSA
mkdir PSA
mkdir SCE
mkdir statins2021
import delimited "ukb669154.csv", clear varnames(1) colrange(1:1)
save DS_1, replace
import delimited "ukb669154.csv", clear varnames(1) colrange(7:7)
rename v1 sex
save DS_2, replace
import delimited "ukb669154.csv", clear varnames(1) colrange(74:81)
rename (v1 v5) (DOA1 AC1)
keep DOA1 AC1
save DS_3, replace
import delimited "ukb669154.csv", clear varnames(1) colrange(8:8)
rename v1 YOB
save DS_4, replace
import delimited "ukb669154.csv", clear varnames(1) colrange(73:73)
rename v1 MOB
save DS_5, replace
import delimited "ukb669154.csv", clear varnames(1) colrange(13731:13732)
rename (v1 v2) (MIdate MIsource)
save DS_6, replace
import delimited "ukb669154.csv", clear varnames(1) colrange(11680:11682)
rename (v1 v2 v3) (dod1 dod2 ucod)
```

```
save DS_7, replace
import delimited "ukb669154.csv", clear varnames(1) colrange(11510:11513)
rename (v1 v2 v3 v4) (LDL1 LDL2 LDLdate1 LDLdate2)
save DS_8, replace
import delimited "ukb669154.csv", clear varnames(1) colrange(6070:6073)
forval i = 1/4 {
rename v`i´ F_meduse`i´
}
save DS_9, replace
import delimited "ukb669154.csv", clear varnames(1) colrange(6270:6272)
forval i = 1/3 {
rename v`i´ M_meduse`i´
}
save DS_10, replace
use DS_1, clear
forval i = 2/10 {
merge 1:1 _n using DS_`i´
drop _merge
}
save DS_comb, replace
import delimited w88775_2023-04-25.csv, clear
rename v1 eid
save eiddrop, replace
use DS_comb, clear
merge 1:1 eid using eiddrop
keep if _merge == 1
drop _merge
save DS, replace
```

```
. use DS, clear

. describe

Contains data from DS.dta
 Observations:       502,369
    Variables:            22                  10 Jul 2023 10:58
-----------------------------------------------------------------------------------------------------
Variable      Storage   Display    Value
    name         type    format    label      Variable label
-----------------------------------------------------------------------------------------------------
eid             long    %12.0g
sex             str6    %9s                   31-0.0
DOA1            str10   %10s                  53-0.0
AC1             str6    %9s                   54-0.0
YOB             str6    %9s                   34-0.0
MOB             str6    %9s                   52-0.0
MIdate          str10   %10s                  42000-0.0
MIsource        str9    %9s                   42001-0.0
dod1            str10   %10s                  40000-0.0
dod2            str10   %10s                  40000-1.0
ucod            str9    %9s                   40001-0.0
LDL1            str18   %18s                  30780-0.0
LDL2            str17   %17s                  30780-1.0
LDLdate1        str10   %10s                  30781-0.0
LDLdate2        str10   %10s                  30781-1.0
F_meduse1       str8    %9s                   6153-0.0
F_meduse2       str8    %9s                   6153-0.1
F_meduse3       str8    %9s                   6153-0.2
F_meduse4       str8    %9s                   6153-0.3
M_meduse1       str8    %9s                   6177-0.0
M_meduse2       str8    %9s                   6177-0.1
M_meduse3       str8    %9s                   6177-0.2
-----------------------------------------------------------------------------------------------------
Sorted by:

. ta sex

     31-0.0 |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    273,301       54.40       54.40
          1 |    229,068       45.60      100.00
```

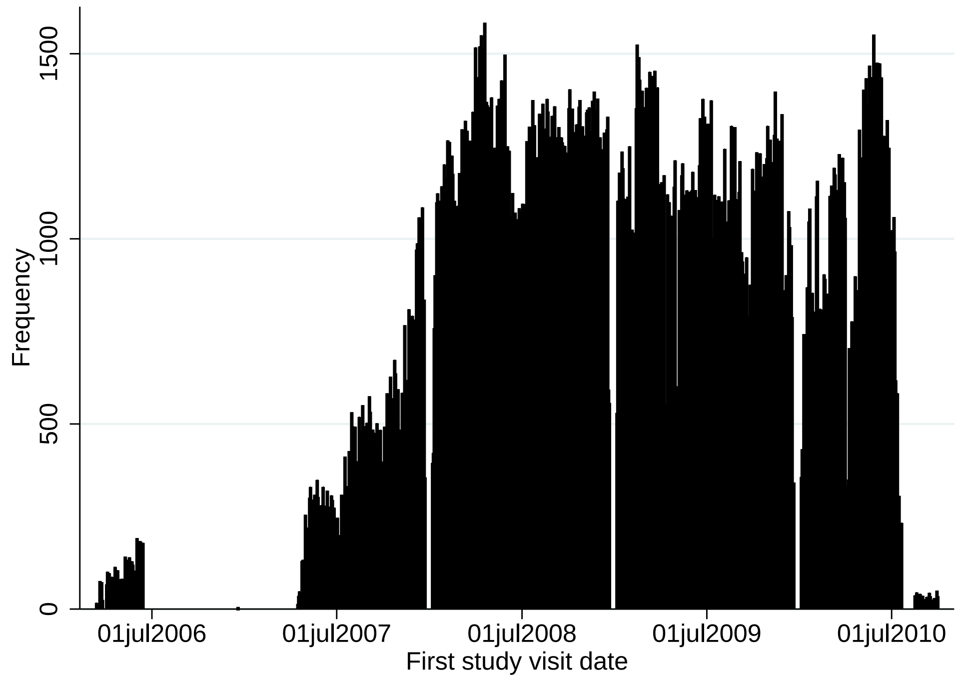

Figure 3.1: Initial study visit date for UK Biobank participants

```
     Total |    502,369      100.00
```

Date of assessment is the first variable of interest.

```
. use DS, clear

. destring sex, replace
sex: all characters numeric; replaced as byte

. gen DA1 = date(DOA1,"YMD")

. format DA1 %td

. count if missing(DOA1)
  0

. hist DA1, bin(1000) color(gs0) frequency graphregion(color(white)) xtitle("First study visit date"
> )
(bin=1000, start=16873, width=1.663)
```

In figure 3.1 the initial pilot study is evident before the main recruitment phase (that stops around Christmas evidently). All looks fine for this.

Now place of assessment. It's also worth placing people in England/Scotland/Wales as this will become important later when using hospital and mortality data.

```
. ta AC1
```

54-0.0	Freq.	Percent	Cum.
10003	3,794	0.76	0.76
11001	13,937	2.77	3.53
11002	14,054	2.80	6.33
11003	17,875	3.56	9.89
11004	18,644	3.71	13.60
11005	17,193	3.42	17.02

```
      11006 |     19,426        3.87       20.89
      11007 |     29,399        5.85       26.74
      11008 |     28,311        5.64       32.37
      11009 |     36,995        7.36       39.74
      11010 |     44,184        8.80       48.53
      11011 |     43,000        8.56       57.09
      11012 |     12,574        2.50       59.59
      11013 |     33,870        6.74       66.34
      11014 |     30,381        6.05       72.38
      11016 |     32,798        6.53       78.91
      11017 |     21,283        4.24       83.15
      11018 |     28,866        5.75       88.90
      11020 |     27,363        5.45       94.34
      11021 |     25,493        5.07       99.42
      11022 |      2,280        0.45       99.87
      11023 |        649        0.13      100.00
------------+-----------------------------------
      Total |    502,369      100.00

. gen AC = "England"

. replace AC = "Wales" if AC1 == "11003" | AC1 == "11022" | AC1 == "11023"
(20,804 real changes made)

. replace AC = "Scotland" if AC1 == "11004" | AC1 == "11005"
variable AC was str7 now str8
(35,837 real changes made)

. ta AC

         AC |      Freq.     Percent        Cum.
------------+-----------------------------------
    England |    445,728       88.73       88.73
   Scotland |     35,837        7.13       95.86
      Wales |     20,804        4.14      100.00
------------+-----------------------------------
      Total |    502,369      100.00
```

This extract doesn't have date of birth, so it must be created from month and year of birth.

```
set seed 616
gen DB = runiformint(1,28) if MOB == "2"
replace DB = runiformint(1,31) if MOB == "1" | MOB == "3" | MOB == "5" | MOB == "7" | MOB == "8" | M
> OB == "10" | MOB == "12"
replace DB = runiformint(1,30) if MOB == "4" | MOB == "6" | MOB == "9" | MOB == "11"
tostring DB, replace
replace DB = "0" + DB if length(DB)==1
replace MOB = "0" + MOB if length(MOB)==1
gen DBB = DB+MOB+YOB
gen DOB = date(DBB,"DMY")
format DOB %td

. count if missing(DOB)
  3

. count if missing(YOB) & missing(DOB)
  3

. count if missing(MOB) & missing(DOB)
  3
```

Only a small number of people (3) have no available year or month of birth, who will be excluded from analyses.

```
. hist DOB, bin(500) color(gs0) frequency graphregion(color(white)) xtitle("Date of birth") ///
> tlabel(01jan1940 01jan1950 01jan1960 01jan1970)
(bin=500, start=-9423, width=27.548)
```

Overall, date of birth looks sensible (figure 3.2). Next, MIs. Note for MIsource the values mean the following:

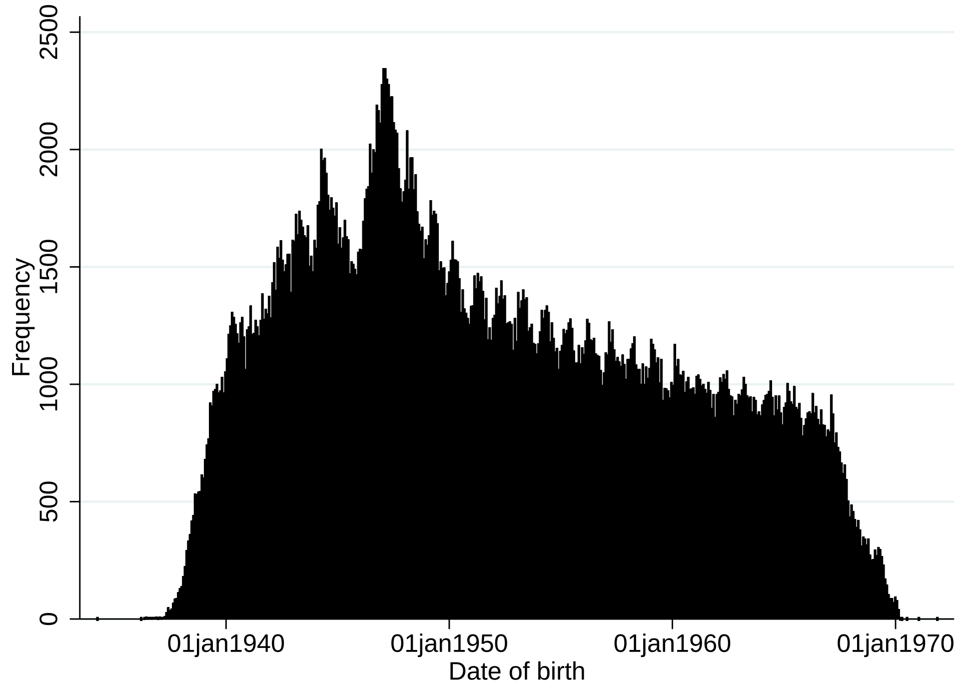

Figure 3.2: Date of birth for UK Biobank participants

- 0 Self-report only
- 11 Hospital primary
- 12 Death primary
- 21 Hospital secondary
- 22 Death secondary

```
. gen MId = date(MIdate, "YMD")
(474,442 missing values generated)

. format MId %td

. count if MId!=.
  27,927

. count if MId <= DA1
  12,042

. count if MId > DA1 & MId!=.
  15,885

. ta MIsource if MId == td(1,1,1900)

  42001-0.0 |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |        183      100.00      100.00
------------+-----------------------------------
      Total |        183      100.00

. ta MIsource if MId <= DA1

  42001-0.0 |      Freq.     Percent        Cum.
```

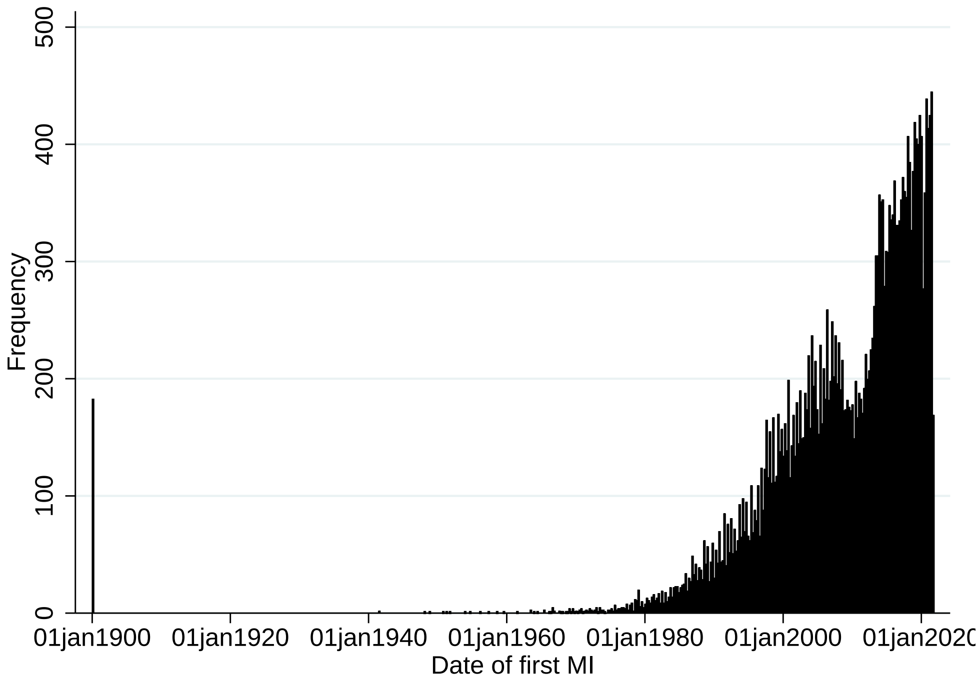

Figure 3.3: Date of first MI for UK Biobank participants

0	8,376	69.56	69.56
11	3,101	25.75	95.31
21	565	4.69	100.00
Total	12,042	100.00	

```
. ta MIsource if MId > DA1 & MId!=., matcell(A)
```

42001-0.0	Freq.	Percent	Cum.
0	30	0.19	0.19
11	8,846	55.69	55.88
12	844	5.31	61.19
21	6,069	38.21	99.40
22	96	0.60	100.00
Total	15,885	100.00	

```
. hist MId, bin(500) color(gs0) frequency graphregion(color(white)) xtitle("Date of first MI")
(bin=500, start=-21914, width=89.02)
```

So there are about 15885 incident MIs (I use about because dates of follow-up haven't been defined yet), which should give us some power. What is a bit concerning is that 39 % are from a secondary diagnosis on an admission, because you would expect that an MI would be the primary reason for a hospital admission and be coded as such, whereas a secondary diagnosis might indicate it is a historical MI (meaning the "date", and therefore the age, of the incident MI might be off). It's probably reasonable to assume that having an MI as any diagnosis is sufficient to indicate that this individual has had an MI. Also note that there are 183 missing dates for MI, but because the interest in this study is only incident MI and they're all self-reported, it's okay to assume these are just prevalent MI at first visit.

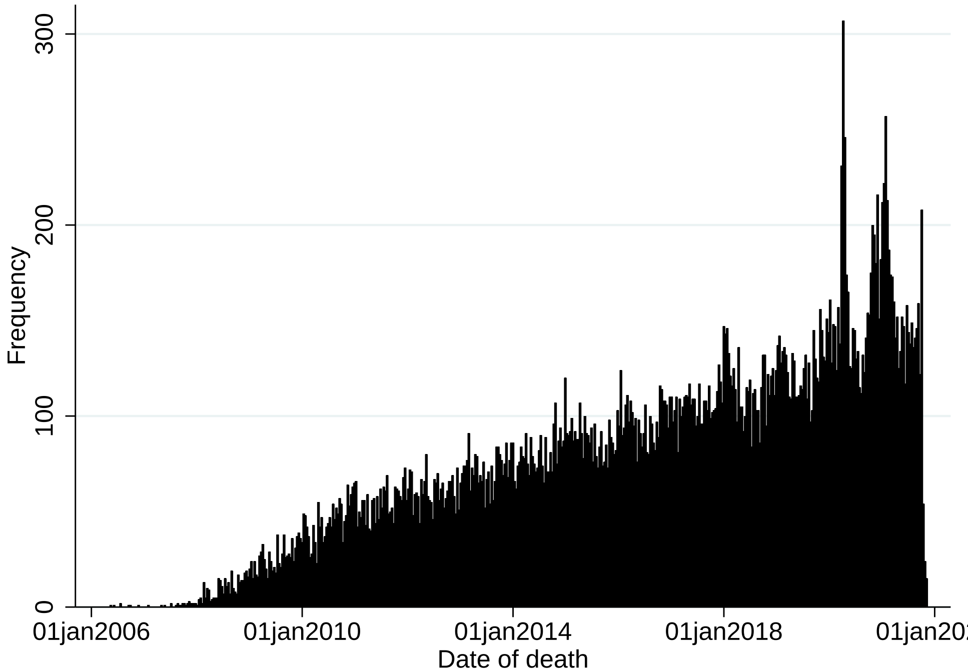

Figure 3.4: Date of death for UK Biobank participants

Date of death is next. Not sure why there are two fields ...

```
. count if dod2!=""
  60

. count if dod2!=dod1 & dod2!=""
  0
```

No one has two dates of death, so that's good.

```
. gen dod = date(dod1, "YMD")
(464,472 missing values generated)

. format dod %td

. count if dod!=.
  37,897

. count if dod <= DA1
  0

. count if dod > DA1 & dod!=.
  37,897

. hist dod, bin(500) color(gs0) frequency graphregion(color(white)) xtitle("Date of death") ///
> tlabel(01jan2006 01jan2010 01jan2014 01jan2018 01jan2022)
(bin=500, start=16931, width=11.33)

. count if MId > dod & MId!=.
  0

. count if dod == MId & MId!=.
  1,024

. ta MIsource if dod == MId & MId!=.

  42001-0.0 |      Freq.     Percent        Cum.
------------+-----------------------------------
         11 |         66        6.45        6.45
```

```
       12 |        844       82.42       88.87
       21 |         18        1.76       90.62
       22 |         96        9.38      100.00
------------+-----------------------------------
      Total |      1,024      100.00
. ta MIsource if dod != MId & MId!=.
  42001-0.0 |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |      8,406       31.25       31.25
         11 |     11,881       44.16       75.41
         21 |      6,616       24.59      100.00
------------+-----------------------------------
      Total |     26,903      100.00
```

So this makes sense, and the deaths that coincide with MIs seem reasonable, which is good.

In terms of cause of death, the only deaths of interest in this study are deaths from CHD, so it can be defined easily here. The definition of CHD death used will be the same as Ference et al. [5] because that's where the estimate of the effect of LDL-C on MI and coronary death will come from. However, it appears Ference et al. used all contributing causes of death to define coronary death, which was fine for their purposes. But for this study, it only makes sense to include coronary death if it is the underlying cause of death, as if someone dies of cancer/dementia or anything else with CVD, it's not really fair to assume that LDL reduction would have prevented that death.

```
. gen CHD_death = 1 if inrange(ucod,"I21","I249") | (inrange(ucod,"I25","I259") & ucod!="I254")
(498,334 missing values generated)
. count if CHD_death == 1
  4,035
. count if CHD_death == 1 & MId!=.
  2,540
. count if CHD_death == 1 & MId==.
  1,495
```

Now LDL-C. There are two values for LDL-C, of varying completeness:

```
. count if missing(LDL1)
  33,787
. count if missing(LDL2)
  484,534
. count if missing(LDL1) & missing(LDL2)
  32,488
. count if missing(LDL1)==0 & missing(LDL2)==0
  16,536
. count if missing(LDL1) & missing(LDL2)==0
  1,299
```

This will be collapsed into a single value for LDL-C, as most people have only one. While LDL-C will vary over time for some people, it is likely LDL-C at one point in time is a good proxy for LDL-C over the lifetime as most people don't have substantial variation in their LDL-C over time (unless they start a lipid-lowering therapy) [13].

```
. replace LDL1 = LDL2 if missing(LDL1) & missing(LDL2)==0
(1,299 real changes made)
. destring LDL1, replace
LDL1: all characters numeric; replaced as double
(32488 missing values generated)
. hist LDL1, bin(500) color(gs0) frequency graphregion(color(white)) xtitle("LDL-C (mmol/L)")
(bin=500, start=.266, width=.019062)
. su(LDL1), detail
```

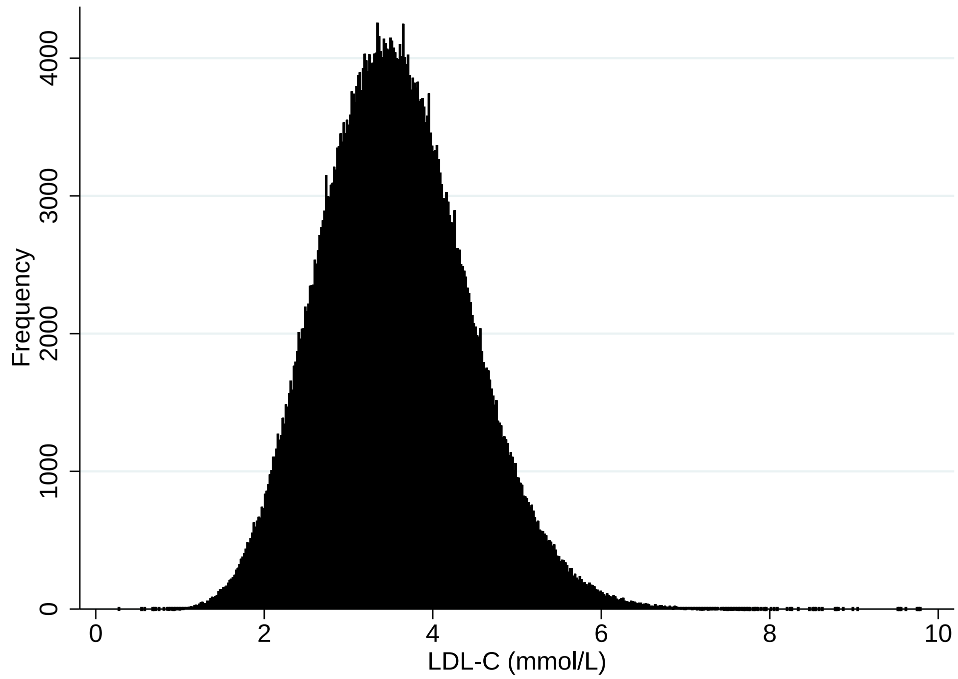

Figure 3.5: LDL-C for UK Biobank participants

```
                          30780-0.0
-------------------------------------------------------------
      Percentiles      Smallest
 1%        1.751           .266
 5%        2.202           .276
10%        2.468           .546       Obs             469,881
25%        2.944           .575       Sum of wgt.     469,881

50%        3.516                      Mean           3.556354
                        Largest       Std. dev.      .8700517
75%        4.117           9.61
90%        4.687          9.742       Variance         .75699
95%        5.049          9.764       Skewness       .3296052
99%        5.779          9.797       Kurtosis       3.235815
```

Again, still looking fine (figure 3.5), as expected for UK Biobank. Not everyone has a value, so again these individuals will need to be dropped for certain analyses.

It's also worth stratifying LDL-C by lipid-lowering therapy (LLT) use to ensure that field makes sense:

```
. gen LLT=0

. forval i = 1/4 {
  2. replace LLT = 1 if F_meduse`i´ == "1"
  3. }
(34,607 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)

. forval i = 1/3 {
  2. replace LLT = 1 if M_meduse`i´ == "1"
```

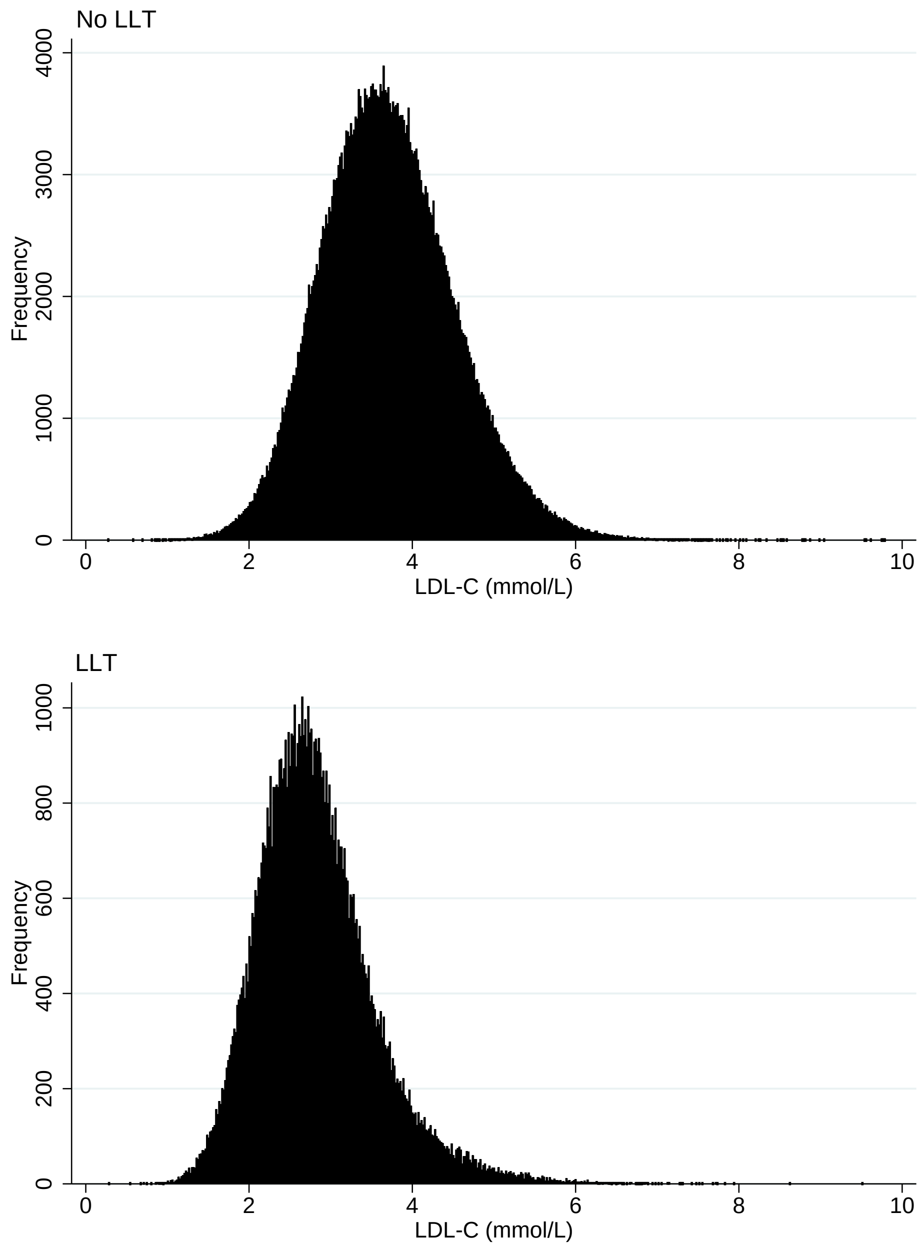

Figure 3.6: LDL-C for UK Biobank participants by LLT status

```
  3. }
(52,268 real changes made)
(0 real changes made)
(0 real changes made)

. su LDL1 if LLT==0

    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
        LDL1 |    388,194    3.709665    .8174577       .266      9.797

. su LDL1 if LLT==1

    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
        LDL1 |     81,687    2.827788    .7322996       .276      9.522

. hist LDL1 if LLT == 0, bin(500) color(gs0) frequency graphregion(color(white))  ///
> xtitle("LDL-C (mmol/L)") title("No LLT", placement(west) size(medium) color(gs0))
(bin=500, start=.266, width=.019062)

. graph save "Graph" GPH/LDLLLT0, replace
file GPH/LDLLLT0.gph saved

. hist LDL1 if LLT == 1, bin(500) color(gs0) frequency graphregion(color(white)) ///
> xtitle("LDL-C (mmol/L)") title("LLT", placement(west) size(medium) color(gs0))
(bin=500, start=.276, width=.018492)

. graph save "Graph" GPH/LDLLLT1, replace
file GPH/LDLLLT1.gph saved

. graph combine GPH/LDLLLT0.gph GPH/LDLLLT1.gph, altshrink cols(1) xsize(3) graphregion(color(white)
> )
```

Finally, strip the dataset to keep only what is needed.

```
keep eid sex DA1 AC DOB MId MIsource dod LDL1 CHD_death LLT
rename (DA1 LDL1 DOB MId AC MIsource CHD_death LLT) (dofa ldl dob mid ubc mis chd llt)
save UKB_working, replace
```

4 Transition probabilities

In this section, I outline the methods used to estimate the transition probabilities for the model (at this stage, unadjusted for LDL-C). The first step in this is converting the UK Biobank data to survival-time data. For that a censoring date is needed. According to UK Biobank (https://biobank.ctsu.ox.ac.uk/showcase/exinfo.cgi?src=Data_providers_and_dates ; accessed 14 November 2022), follow-up is complete up to:

- 30 September 2021 for mortality data from England and Wales
- 31 October 2021 for mortality data from Scotland
- 30 September 2021 for hospital data from England
- 31 July 2021 for hospital data from Scotland
- 28 February 2018 for hospital data from Wales

So it would make sense to censor at 28 February 2018 for Wales, 31 July 2021 for Scotland, and 30 September 2021 for England.

With this the survival time data can be assembled, dropping those with no available date of birth and with prevalent MI at their first assessment. Thus, follow-up starts from date of first assessment and continues until the first of a non-fatal MI, death, or end of follow-up. Also, any MI where death occurred within two weeks will be treated as fatal (and dealt with later as a fatal MI).

4.1 Non-fatal MI

```
use UKB_working, clear
drop if dob==.
drop if mid <= dofa
gen faildate = td(30,9,2021) if ubc == "England"
replace faildate = td(31,7,2021) if ubc == "Scotland"
replace faildate = td(28,2,2018) if ubc == "Wales"
replace faildate = min(dod,mid,faildate)
gen fail = 1 if mid==faildate & faildate!=dod
replace fail = . if inrange(dod-mid,0,14)
recode fail .=0
gen origin = td(1,1,2006)
```

```
. stset faildate, fail(fail==1) entry(dofa) origin(origin) scale(365.25) id(eid)
Survival-time data settings

           ID variable: eid
         Failure event: fail==1
Observed time interval: (faildate[_n-1], faildate]
     Enter on or after: time dofa
     Exit on or before: failure
     Time for analysis: (time-origin)/365.25
                Origin: time origin
--------------------------------------------------------------------------
    490,324  total observations
          0  exclusions
--------------------------------------------------------------------------
    490,324  observations remaining, representing
    490,324  subjects
     14,402  failures in single-failure-per-subject data
  5,907,888  total analysis time at risk and under observation
                                                At risk from t =         0
```

```
                                   Earliest observed entry t =  .1943874
                                       Last observed exit t =  15.74538
. strate, per(1000)
        Failure _d: fail==1
  Analysis time _t: (faildate-origin)/365.25
            Origin: time origin
  Enter on or after: time dofa
       ID variable: eid
Estimated failure rates
Number of records = 490324
```

D	Y	Rate	Lower	Upper
14402	5.9e+03	2.4378	2.3983	2.4779

```
   Notes: Rate = D/Y = failures/person-time (per 1000).
          Lower and Upper are bounds of 95% confidence intervals.
```

This makes sense as a rate, and there is a reasonable amount of power. Now by age and sex:

```
preserve
stsplit age, at(0(5)100) after(time=dob)
gen py = _t-_t0
collapse (sum) fail py, by(age sex)
gen rate = 1000*fail/py
gen age2 = age+4
tostring age-py age2, force format(%9.0f) replace
tostring rate, force format(%9.1f) replace
replace age = age + "-" + age2 if age!="85"
replace age = age+ "+" if age == "85"
drop age2
reshape wide fail py rate, i(age) j(sex)
export delimited using CSV/MINtable.csv, novarnames replace
restore
```

Table 4.1: Crude non-fatal MI counts

	Females			Males		
Age	*MIs*	*Person − years*	*Incidence* (per 1000py)	*MIs*	*Person − years*	*Incidence* (per 1000py)
35-39	0	0	0.0	0	5	0.0
40-44	7	60692	0.1	24	52903	0.5
45-49	52	227555	0.2	172	188629	0.9
50-54	200	410003	0.5	559	325290	1.7
55-59	383	514608	0.7	1007	390513	2.6
60-64	619	625344	1.0	1610	472260	3.4
65-69	1062	685400	1.5	2268	540262	4.2
70-74	1318	530637	2.5	2433	431454	5.6
75-79	881	219540	4.0	1463	181844	8.0
80-84	139	28283	4.9	205	22655	9.0
85+	0	2	0.0	0	6	0.0

Okay, so there is reasonable power from ages 40-80 (table 4.1), but not enough follow-up to do anything over age 80 with any confidence.

Now the age-specific incidence of non-fatal MI can be modelled. The method used will be the age-period-cohort (APC) model [12]. What will be done here is as follows: The data will be tabulated into 0.5-year intervals by age and year (i.e. date of follow-up). Each unit contains the number of events and person-years of follow-up. The model is then fit on this tabulated data, using the midpoint of each interval to represent the value of age and year in the model. The model is a Poisson model, with spline effects of age, year, and cohort (year minus age), using the log of person-time as the offset. Knot locations are those suggested by Frank Harrel [14]. Males and females are analysed in separate models. These models are then used to predict the incidence of non-fatal MI at each age (in 0.1-year increments, for use in the model later, which will have 0.1-year increments), with the prediction year set at 2016.

```
stsplit age, at(0(0.5)100) after(time=dob)
stsplit year, at(0(0.5)20)
gen py = _t-_t0
collapse (sum) fail py, by(age sex year)
save MIcollapseset, replace
forval s = 0/1 {
use MIcollapseset, clear
keep if sex == `s´
gen coh = year-age
replace age = age+0.25
replace year = year+0.25
pctile AA=age [weight=fail], nq(40)
foreach i in 2 11 20 29 38 {
local a`i´ = r(r`i´)
}
mkspline agesp = age, cubic knots(`a2´ `a11´ `a20´ `a29´ `a38´)
pctile BB=year [weight=fail], nq(40)
foreach i in 2 11 20 29 38 {
local b`i´ = r(r`i´)
}
mkspline yearsp = year, cubic knots(`b2´ `b11´ `b20´ `b29´ `b38´)
pctile CC=coh [weight=fail], nq(40)
foreach i in 2 11 20 29 38 {
local c`i´ = r(r`i´)
}
mkspline cohsp = coh, cubic knots(`c2´ `c11´ `c20´ `c29´ `c38´)
poisson fail agesp* yearsp* cohsp*, exposure(py)
clear
set obs 550
gen age = ((_n+299)/10)+0.05
gen year = 10
gen coh = year-age
gen py = 1
mkspline agesp = age, cubic knots(`a2´ `a11´ `a20´ `a29´ `a38´)
mkspline yearsp = year, cubic knots(`b2´ `b11´ `b20´ `b29´ `b38´)
mkspline cohsp = coh, cubic knots(`c2´ `c11´ `c20´ `c29´ `c38´)
predict rate, ir
predict errr, stdp
replace age = age-0.05
replace age = round(age,.1)
gen sex = `s´
keep age sex rate errr
save MI_inc_`s´, replace
}


clear
append using MI_inc_0
append using MI_inc_1
tostring age, replace force format(%9.1f)
destring age, replace
save MI_inc, replace
use MI_inc, clear
```

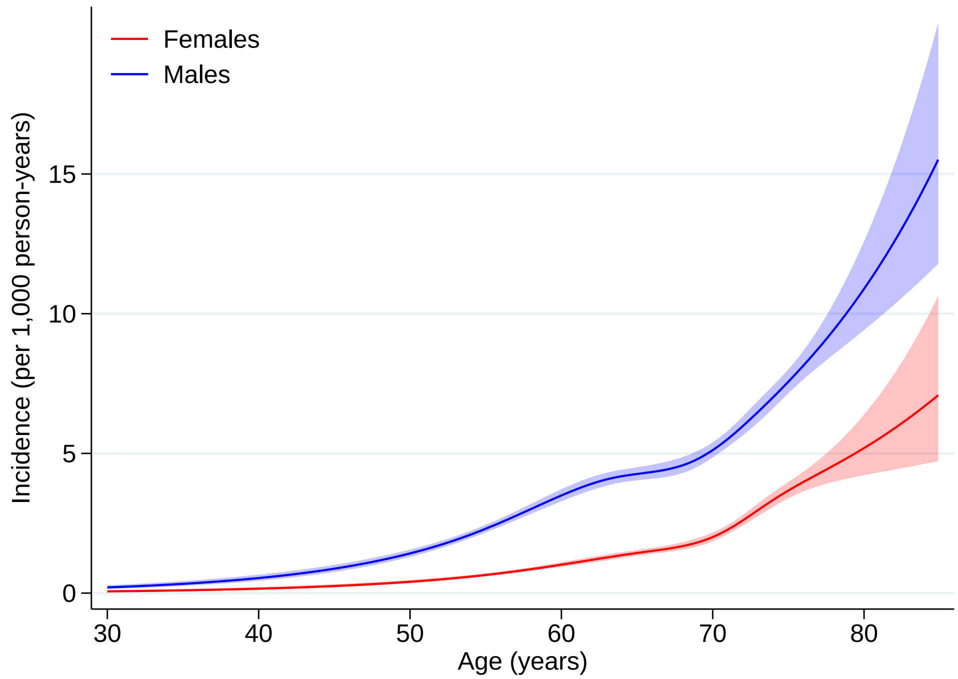

Figure 4.1: Age- and sex-specific incidence of non-fatal MI among UK Biobank participants

```
replace rate = rate*1000
gen lb = exp(ln(rate)-1.96*errr)
gen ub = exp(ln(rate)+1.96*errr)
twoway ///
(rarea ub lb age if sex == 0, color(red%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 0, color(red) lpattern(solid)) ///
(rarea ub lb age if sex == 1, color(blue%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 1, color(blue) lpattern(solid)) ///
, legend(symxsize(0.13cm) position(11) ring(0) region(lcolor(white) color(none)) ///
order(2 "Females" ///
4 "Males") ///
cols(1)) ///
graphregion(color(white)) ///
ylabel(0(5)15, format(%9.0f) angle(0)) ///
xlabel(30(10)80, nogrid) ///
ytitle("Incidence (per 1,000 person-years)") ///
xtitle("Age (years)")
> n-fatal MI among UK Biobank participants)
```

Realistically, it would have been good to limit prediction of rates to between 40 and 80, because those are the years for which there is reasonable data. However, I want to model the lifetime risk of MI up to age 85 years, as 80 is a bit too young to call a "lifetime risk". Admittedly, the general rule for extrapolating outside the range of your data is: don't; but the benefits probably outweigh the drawbacks here. It certainly won't be a problem under 40 as the very low rates won't really affect the model.

4.2 Fatal MI and mortality in people without MI

To complete the transition probabilities for the model age-specific mortality rates for people with and without MI will need to be estimated. Moreover, for people without MI, deaths will be split into MI/coronary (CHD) and non-CHD, as the model will assume CHD deaths are influenced by cumulative LDL, and non-CHD deaths are not.

As a reminder, the censoring dates are:

- 30 September 2021 for mortality data from England and Wales
- 31 October 2021 for mortality data from Scotland
- 30 September 2021 for hospital data from England
- 31 July 2021 for hospital data from Scotland
- 28 February 2018 for hospital data from Wales

Even though there is more follow-up time for mortality data, to be sure of MI status, the hospital follow-up time still needs to be factored in. So the censoring dates will be the same as those for non-fatal MI. This time, it's a bit more difficult for people with MI, because they need to be censored at development of MI, and then followed up with MI to estimate the mortality rate. Note that I will still exclude people with pre-existing MI at baseline, because to include them in this calculation would introduce selection bias (because they survived from their MI to inclusion in UK Biobank, biasing the mortality estimates).

First will be people without MI (again, fatal MIs are defined by mortality within 14 days). People are followed from date of first assessment until the first of a non-fatal MI, death (from MI/CHD or other causes), or end of follow-up:

```
use UKB_working, clear
drop if dob==.
drop if mid <= dofa
gen faildate = td(30,9,2021) if ubc == "England"
replace faildate = td(31,7,2021) if ubc == "Scotland"
replace faildate = td(28,2,2018) if ubc == "Wales"
replace faildate = min(dod,mid,faildate)
gen MIfail = 1 if dod==faildate & mid == dod
replace MIfail = 1 if mid==faildate & inrange(dod-mid,0,14)
replace MIfail = 1 if chd==1 & dod==faildate
gen NCfail = 1 if dod==faildate & MIfail==.
recode MIfail .=0
recode NCfail .=0
gen origin = td(1,1,2006)

. stset faildate, fail(MIfail==1) entry(dofa) origin(origin) scale(365.25) id(eid)

Survival-time data settings

           ID variable: eid
         Failure event: MIfail==1
Observed time interval: (faildate[_n-1], faildate]
     Enter on or after: time dofa
     Exit on or before: failure
     Time for analysis: (time-origin)/365.25
                Origin: time origin
------------------------------------------------------------------------
    490,324  total observations
          0  exclusions
------------------------------------------------------------------------
```

```
    490,324  observations remaining, representing
    490,324  subjects
      2,866  failures in single-failure-per-subject data
  5,907,888  total analysis time at risk and under observation
                                                At risk from t =         0
                                     Earliest observed entry t =  .1943874
                                          Last observed exit t =  15.74538

. strate, per(1000)

        Failure _d: MIfail==1
   Analysis time _t: (faildate-origin)/365.25
            Origin: time origin
  Enter on or after: time dofa
        ID variable: eid

Estimated failure rates
Number of records = 490324
```

D	Y	Rate	Lower	Upper
2866	5.9e+03	0.48511	0.46767	0.50320

```
   Notes: Rate = D/Y = failures/person-time (per 1000).
          Lower and Upper are bounds of 95% confidence intervals.

. stset faildate, fail(NCfail==1) entry(dofa) origin(origin) scale(365.25) id(eid)

Survival-time data settings

           ID variable: eid
         Failure event: NCfail==1
Observed time interval: (faildate[_n-1], faildate]
     Enter on or after: time dofa
     Exit on or before: failure
     Time for analysis: (time-origin)/365.25
                Origin: time origin
--------------------------------------------------------------------------
    490,324  total observations
          0  exclusions
--------------------------------------------------------------------------
    490,324  observations remaining, representing
    490,324  subjects
     28,883  failures in single-failure-per-subject data
  5,907,888  total analysis time at risk and under observation
                                                At risk from t =         0
                                     Earliest observed entry t =  .1943874
                                          Last observed exit t =  15.74538

. strate, per(1000)

        Failure _d: NCfail==1
   Analysis time _t: (faildate-origin)/365.25
            Origin: time origin
  Enter on or after: time dofa
        ID variable: eid

Estimated failure rates
Number of records = 490324
```

D	Y	Rate	Lower	Upper
28883	5.9e+03	4.8889	4.8328	4.9456

```
   Notes: Rate = D/Y = failures/person-time (per 1000).
          Lower and Upper are bounds of 95% confidence intervals.
```

The crude rates make sense for CHD and non-CHD, now by age and sex:

```
preserve
stset faildate, fail(MIfail==1) entry(dofa) origin(origin) scale(365.25) id(eid)
stsplit age, at(0(5)100) after(time=dob)
```

```
gen py = _t-_t0
collapse (sum) MIfail py, by(age sex)
gen rate = 1000*MIfail/py
gen age2 = age+4
tostring age-py age2, force format(%9.0f) replace
tostring rate, force format(%9.1f) replace
replace age = age + "-" + age2 if age!="85"
replace age = age+ "+" if age == "85"
drop age2
rename rate rateMI
save MIdcount, replace
restore
preserve
stset faildate, fail(NCfail==1) entry(dofa) origin(origin) scale(365.25) id(eid)
stsplit age, at(0(5)100) after(time=dob)
gen py = _t-_t0
collapse (sum) NCfail py, by(age sex)
gen rate = 1000*NCfail/py
gen age2 = age+4
tostring age-py age2, force format(%9.0f) replace
tostring rate, force format(%9.1f) replace
replace age = age + "-" + age2 if age!="85"
replace age = age+ "+" if age == "85"
drop age2
merge 1:1 sex age using MIdcount
drop _merge
tostring sex, force format(%9.0f) replace
replace sex ="" if _n!=1 & _n!= 12
replace sex = "Female" if sex == "0"
replace sex = "Male" if sex == "1"
order sex age py MIfail rateMI NCfail rate
export delimited using CSV/nCVDdeathNtable.csv, novarnames replace
restore
```

Again, APC models are used (methods exactly the same as for non-fatal MI above), fitting a separate model for each outcome and sex.

```
preserve
stset faildate, fail(MIfail==1) entry(dofa) origin(origin) scale(365.25) id(eid)
stsplit age, at(0(0.5)100) after(time=dob)
stsplit year, at(0(0.5)20)
gen py = _t-_t0
collapse (sum) MIfail py, by(age sex year)
save MIdeathcollapseset, replace
restore
stset faildate, fail(NCfail==1) entry(dofa) origin(origin) scale(365.25) id(eid)
stsplit double age, at(0(0.5)100) after(time=dob)
stsplit year, at(0(0.5)20)
gen py = _t-_t0
collapse (sum) NCfail py, by(age sex year)
save NCdeathcollapseset, replace
foreach z in MI NC {
forval s = 0/1 {
use `z´deathcollapseset, clear
rename `z´fail fail
keep if sex == `s´
gen coh = year-age
replace age = age+0.25
replace year = year+0.25
pctile AA=age [weight=fail], nq(40)
foreach i in 2 11 20 29 38 {
local a`i´ = r(r`i´)
}
mkspline agesp = age, cubic knots(`a2´ `a11´ `a20´ `a29´ `a38´)
pctile BB=year [weight=fail], nq(40)
foreach i in 2 11 20 29 38 {
local b`i´ = r(r`i´)
}
```

Table 4.2: Crude death counts for people without MI

Sex	*Age*	*Person − years*	CHD *Deaths*	CHD *Mortality* (per 1000py)	Non-CHD *Deaths*	Non-CHD *Mortality* (per 1000py)
Female	35-39	0	0	0.0	0	0.0
	40-44	60692	<5	0.0	44	0.7
	45-49	227555	7	0.0	177	0.8
	50-54	410003	19	0.0	527	1.3
	55-59	514608	27	0.1	936	1.8
	60-64	625344	67	0.1	1643	2.6
	65-69	685400	151	0.2	2736	4.0
	70-74	530637	203	0.4	3654	6.9
	75-79	219540	166	0.8	2813	12.8
	80-84	28283	61	2.2	620	21.9
	85+	<5	0	0.0	<5	595.1
Male	35-39	5	0	0.0	0	0.0
	40-44	52903	8	0.2	32	0.6
	45-49	188629	25	0.1	203	1.1
	50-54	325290	93	0.3	518	1.6
	55-59	390513	164	0.4	995	2.5
	60-64	472260	325	0.7	1745	3.7
	65-69	540262	492	0.9	3307	6.1
	70-74	431454	593	1.4	4630	10.7
	75-79	181844	377	2.1	3498	19.2
	80-84	22655	86	3.8	804	35.5
	85+	6	0	0.0	0	0.0

```
mkspline yearsp = year, cubic knots(`b2´ `b11´ `b20´ `b29´ `b38´)
pctile CC=coh [weight=fail], nq(40)
foreach i in 2 11 20 29 38 {
local c`i´ = r(r`i´)
}
mkspline cohsp = coh, cubic knots(`c2´ `c11´ `c20´ `c29´ `c38´)
poisson fail agesp* yearsp* cohsp*, exposure(py)
clear
set obs 550
gen age = ((_n+299)/10)+0.05
gen year = 10
gen coh = year-age
gen py = 1
mkspline agesp = age, cubic knots(`a2´ `a11´ `a20´ `a29´ `a38´)
mkspline yearsp = year, cubic knots(`b2´ `b11´ `b20´ `b29´ `b38´)
mkspline cohsp = coh, cubic knots(`c2´ `c11´ `c20´ `c29´ `c38´)
predict rate, ir
predict errr, stdp
replace age = age-0.05
replace age = round(age,.1)
gen sex = `s´
gen `z´ = 1
keep age sex rate errr `z´
```

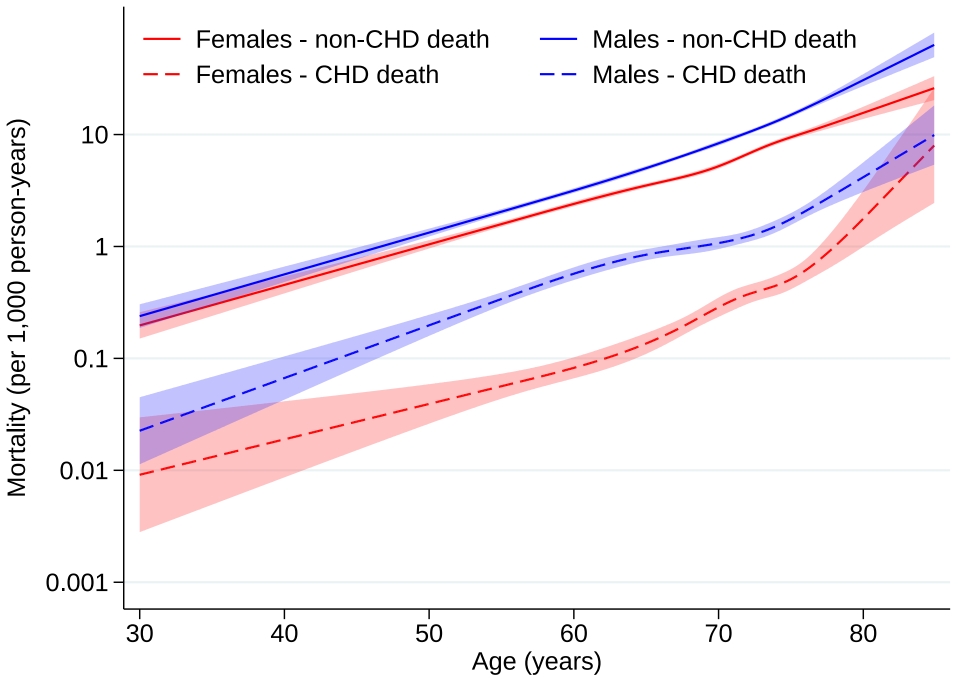

Figure 4.2: Age-, sex-, and cause-specific mortality among UK Biobank participants without CVD

```
save `z´d_`s´, replace
}
}
clear
append using MId_0 MId_1
tostring age, replace force format(%9.1f)
destring age, replace
save MIdrates, replace
clear
append using NCd_0 NCd_1
tostring age, replace force format(%9.1f)
destring age, replace
save NCdrates, replace


clear
append using MIdrates NCdrates
replace rate = rate*1000
gen lb = exp(ln(rate)-1.96*errr)
gen ub = exp(ln(rate)+1.96*errr)
twoway ///
(rarea ub lb age if sex == 0 & NC== 1, color(red%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 0 & NC == 1, color(red) lpattern(solid)) ///
(rarea ub lb age if sex == 1 & NC == 1, color(blue%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 1 & NC == 1, color(blue) lpattern(solid)) ///
(rarea ub lb age if sex == 0 & MI == 1, color(red%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 0 & MI == 1, color(red) lpattern(dash)) ///
(rarea ub lb age if sex == 1 & MI == 1, color(blue%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 1 & MI == 1, color(blue) lpattern(dash)) ///
, legend(symxsize(0.13cm) position(11) ring(0) region(lcolor(white) color(none)) ///
order(2 "Females - non-CHD death" ///
4 "Males - non-CHD death" ///
6 "Females - CHD death" ///
```

```
8 "Males - CHD death") ///
cols(2)) ///
graphregion(color(white)) ///
yscale(log range(0.0008 100)) ///
ylabel(0.001 "0.001" 0.01 "0.01" 0.1 "0.1" 1 "1" 10 "10", angle(0)) ///
xlabel(30(10)80, nogrid) ///
ytitle("Mortality (per 1,000 person-years)") ///
xtitle("Age (years)")
> rtality among UK Biobank participants without CVD)
```

4.3 Mortality following MI

Now for mortality in the other health state, "CHD" (i.e., pre-existing MI). Here, people are followed from date of first MI (plus 14 days as to not introduce immortal-time bias, given how fatal MI is defined) until death or end of follow-up:

```
use UKB_working, clear
drop if dob==.
drop if mid <= dofa
replace mid = mid+14
drop if mid >= dod & mid!=.
gen faildate = td(30,9,2021) if ubc == "England"
replace faildate = td(31,7,2021) if ubc == "Scotland"
replace faildate = td(28,2,2018) if ubc == "Wales"
replace faildate = dod if dod < faildate
drop if mid >= faildate
gen fail = 1 if dod==faildate
recode fail .=0
gen origin = td(1,1,2006)

. stset faildate, fail(fail==1) entry(mid) origin(origin) scale(365.25) id(eid)

Survival-time data settings

           ID variable: eid
         Failure event: fail==1
Observed time interval: (faildate[_n-1], faildate]
     Enter on or after: time mid
     Exit on or before: failure
     Time for analysis: (time-origin)/365.25
                Origin: time origin
--------------------------------------------------------------------------
     14,364  total observations
          0  exclusions
--------------------------------------------------------------------------
     14,364  observations remaining, representing
     14,364  subjects
      2,220  failures in single-failure-per-subject data
 69,165.202  total analysis time at risk and under observation
                                                At risk from t =         0
                                     Earliest observed entry t =   .550308
                                          Last observed exit t =  15.74538

. strate, per(1000)

        Failure _d: fail==1
  Analysis time _t: (faildate-origin)/365.25
            Origin: time origin
  Enter on or after: time mid
        ID variable: eid

Estimated failure rates
Number of records = 14364
```

D	Y	Rate	Lower	Upper
2220	69.1652	32.097	30.789	33.460

```
   Notes: Rate = D/Y = failures/person-time (per 1000).
          Lower and Upper are bounds of 95% confidence intervals.


preserve
stsplit age, at(0(5)100) after(time=dob)
gen py = _t-_t0
collapse (sum) fail py, by(age sex)
gen rate = 1000*fail/py
gen age2 = age+4
tostring age-py age2, force format(%9.0f) replace
tostring rate, force format(%9.1f) replace
replace age = age + "-" + age2 if age!="85"
replace age = age+ "+" if age == "85"
drop age2
reshape wide (fail py rate), i(age) j(sex)
gen A = "Post-MI"
order A
save PMIcount, replace
restore
preserve
stsplit durn, at(0 0.25 0.5 1 2 5) after(time=mid)
gen py = _t-_t0
collapse (sum) fail py, by(durn sex)
gen rate = 1000*fail/py
gen dur = "0-3 months" if durn == 0
replace dur = "3-6 months" if durn == 0.25
replace dur = "6-12 months" if durn == 0.5
replace dur = "1-2 years" if durn == 1
replace dur = "2-5 years" if durn == 2
replace dur = "5+ years" if durn == 5
tostring fail-py, force format(%9.0f) replace
tostring rate, force format(%9.1f) replace
reshape wide (fail py rate), i(durn dur) j(sex)
drop durn
gen A = "Post-MI"
order A
save PMIcountdur, replace
restore
stsplit age, at(0(0.5)100) after(time=dob)
stsplit durn, at(0(0.5)20) after(time=mid)
stsplit year, at(0(0.5)20)
gen py = _t-_t0
collapse (sum) fail py, by(age durn sex year)
save PMIcollapseset, replace
clear
append using PMIcount
replace A ="" if _n !=1
export delimited using CSV/PCVdeathtable.csv, novarnames replace
clear
append using PMIcountdur
replace A ="" if _n !=1
export delimited using CSV/PCVdeathtabledur.csv, novarnames replace
```

Table 4.3: Crude death counts for people with MI, by age and sex

		Females			Males		
Cohort	*Age*	*Deaths*	*Person − years*	*Mortality* (per 1000py)	*Deaths*	*Person − years*	*Mortality* (per 1000py)
Post-MI	40-44	0	10	0.0	0	38	0.0
	45-49	<5	124	8.1	<5	415	2.4
	50-54	9	666	13.5	22	2008	11.0
	55-59	18	1434	12.6	49	4044	12.1
	60-64	44	2542	17.3	102	6744	15.1
	65-69	111	4154	26.7	255	10457	24.4
	70-74	200	6045	33.1	496	13352	37.1
	75-79	223	5001	44.6	483	9446	51.1
	80-84	73	971	75.2	133	1715	77.6
	85+	0	0	0.0	0	<5	0.0

Table 4.4: Crude death counts for people with MI, by time since event and sex

		Females			Males		
Cohort	*Time − since − event*	*Deaths*	*Person − years*	*Mortality* (per 1000py)	*Deaths*	*Person − years*	*Mortality* (per 1000py)
Post-MI	0-3 months	127	1127	112.7	272	2357	115.4
	3-6 months	61	1074	56.8	116	2257	51.4
	6-12 months	68	2024	33.6	134	4285	31.3
	1-2 years	85	3623	23.5	194	7797	24.9
	2-5 years	208	7649	27.2	454	17434	26.0
	5+ years	130	5451	23.8	371	14087	26.3

The mortality rates are much higher than for people without MI, as expected. Mortality is also very high immediately after the event (i.e., is influenced by time since the event) (table 4.4). This can be factored in by including a time-since-event term in the Poisson model used to estimate mortality rates post-MI. Again, the methods will be drawn from Bendix Carstensen [15]. The methods are similar to those described above. In this analysis, data are tabulated into 0.5-year intervals by age, year (i.e. date of follow-up), and duration (i.e. time since the MI). Each unit contains the number of events and person-years of follow-up. The model is then fit on this tabulated data, using the midpoint of each interval to represent the value of age, year, and duration in the model. The model is a Poisson model, with spline effects of age, duration, and age at MI (age minus duration), a log-linear effect of time (year), using the log of person-time as the offset. Knot locations are those suggested by Frank Harrel [14], except for duration, because the majority of deaths occur very early on, so I had to specify knots specific to this data to avoid duplicated knot locations. Again, males and females are analysed in separate models. These models are then used to predict the incidence of non-fatal MI at each age (in 0.1-year increments, for use in the model later, which will have 0.1-year increments) and time-since MI (i.e., a much larger prediction matrix than before) , with the prediction year again set at 2016.

```
foreach z in MI {
forval s = 0/1 {
use P`z´collapseset, clear
keep if sex == `s´
gen adx = age-durn
replace age = age+0.25
replace durn = durn+0.25
replace year = year+0.25
pctile AA=age [weight=fail], nq(40)
foreach i in 2 11 20 29 38 {
local a`i´ = r(r`i´)
}
mkspline agesp = age, cubic knots(`a2´ `a11´ `a20´ `a29´ `a38´)
pctile BB=durn [weight=fail], nq(40)
foreach i in 2 11 20 29 38 {
local b`i´ = r(r`i´)
}
mkspline durnsp = durn, cubic knots(0 0.25 0.5 1.5 4 7)
pctile CC=adx [weight=fail], nq(40)
foreach i in 2 11 20 29 38 {
local c`i´ = r(r`i´)
}
mkspline adxsp = adx, cubic knots(`c2´ `c11´ `c20´ `c29´ `c38´)
poisson fail agesp* durnsp* adxsp* year, exposure(py)
clear
set obs 550
gen adx = ((_n+299)/10)+0.05
expand 550
bysort adx : gen durn = (_n-1)/10
gen year = 10
gen age = adx+durn
drop if age > 85
gen py = 1
mkspline agesp = age, cubic knots(`a2´ `a11´ `a20´ `a29´ `a38´)
mkspline durnsp = durn, cubic knots(0 0.25 0.5 1.5 4 7)
mkspline adxsp = adx, cubic knots(`c2´ `c11´ `c20´ `c29´ `c38´)
predict rate, ir
predict errr, stdp
replace adx = adx-0.05
replace age = age-0.05
replace age = round(age,.1)
gen sex = `s´
gen `z´ = 1
```

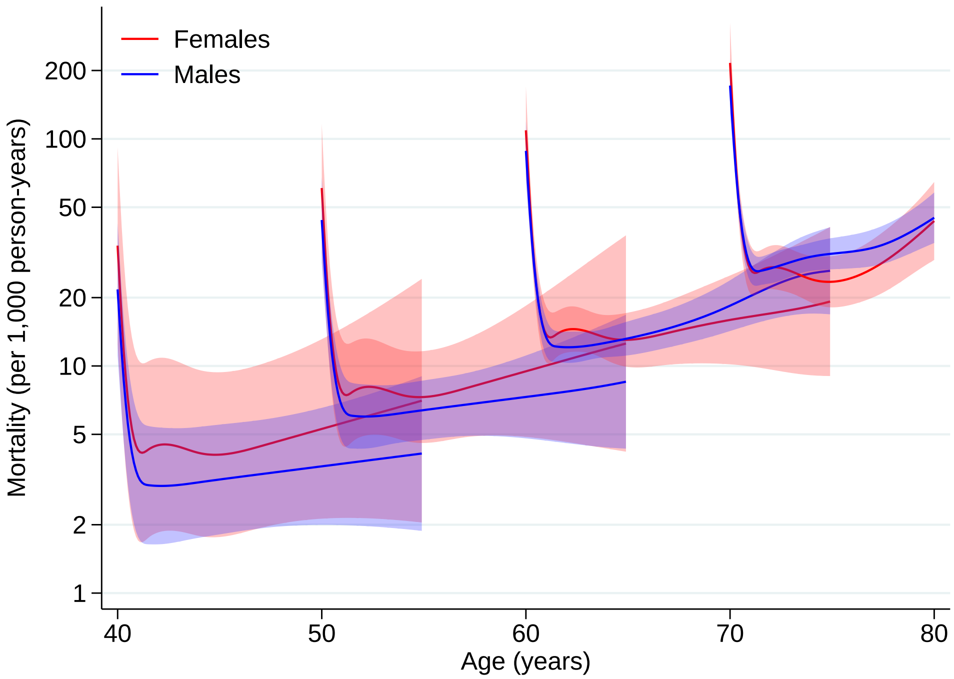

Figure 4.3: Age-, sex-, and time-since-MI-specific mortality among UK Biobank participants with MI

```
keep age durn adx sex rate errr `z´
save P`z´d_`s´, replace
}
}
clear
append using PMId_0 PMId_1
tostring age, replace force format(%9.1f)
destring age, replace
save PMId, replace


use PMId, clear
keep if adx == 40 | adx == 50 | adx == 60 | adx == 70
keep if durn < 15
replace rate = rate*1000
gen lb = exp(ln(rate)-1.96*errr)
gen ub = exp(ln(rate)+1.96*errr)
drop if age > 80
twoway ///
(rarea ub lb age if sex == 0 & adx == 40, color(red%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 0 & adx == 40, color(red) lpattern(solid)) ///
(rarea ub lb age if sex == 1 & adx == 40, color(blue%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 1 & adx == 40, color(blue) lpattern(solid)) ///
(rarea ub lb age if sex == 0 & adx == 50, color(red%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 0 & adx == 50, color(red) lpattern(solid)) ///
(rarea ub lb age if sex == 1 & adx == 50, color(blue%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 1 & adx == 50, color(blue) lpattern(solid)) ///
(rarea ub lb age if sex == 0 & adx == 60, color(red%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 0 & adx == 60, color(red) lpattern(solid)) ///
(rarea ub lb age if sex == 1 & adx == 60, color(blue%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 1 & adx == 60, color(blue) lpattern(solid)) ///
(rarea ub lb age if sex == 0 & adx == 70, color(red%30) fintensity(inten80) lwidth(none)) ///
```

```
(line rate age if sex == 0 & adx == 70, color(red) lpattern(solid)) ///
(rarea ub lb age if sex == 1 & adx == 70, color(blue%30) fintensity(inten80) lwidth(none)) ///
(line rate age if sex == 1 & adx == 70, color(blue) lpattern(solid)) ///
, legend(symxsize(0.13cm) position(11) ring(0) region(lcolor(white) color(none)) ///
order(2 "Females" ///
4 "Males" ) ///
cols(1)) ///
graphregion(color(white)) ///
yscale(log) ///
ylabel(1 2 5 10 20 50 100 200, angle(0)) ///
xlabel(40(10)80, nogrid) ///
ytitle("Mortality (per 1,000 person-years)") ///
xtitle("Age (years)")
> fic mortality among UK Biobank participants with MI)
```

As expected, uncertainty around these mortality rates is very high (figure 4.3), especially a few years after the event (for which there is little data). This is probably not going to be a major issue, given the interest in this study is primary prevention.

Finally, note these are just examples in figure 4.3 – a mortality rate has been predicted for every sex/age/time-since-event possible.

5 LDL-C trajectories

5.1 Mean LDL-C in UK Biobank

At this point, the relevant transition probabilities for the model have been estimated. However, they are currently independent of LDL-C, so this will need to be incorporated into the non-fatal MI and fatal MI/CHD death transition probabilities. For this study, the effect estimates of LDL-C on CHD will be derived from MR, as this gives a causal estimate of the effect. Specifically, the results of Ference et al. [5] will be used, which showed that for every 1 mmol/L reduction in LDL-C over the lifetime, the odds ratio for CHD was 0.46 (to be converted into a relative risk later on, see section 6). This number applies to the LDL-C over the lifetime, not instantaneous LDL-C at a given age. Thus, the model will require a projection of the lifetime LDL-C for everyone in the sample, which can be used to estimate the cumulative LDL-C at any given age or each individual, which in turn is compared to the mean mean [two means intentional] cumulative LDL-C of the entire sample (i.e., first calculate the mean cumulative LDL-C for each individual at a given age, and then estimate the mean of this value, for the "mean mean cumulative LDL-C") to calculate the reduction in MI risk. However, UK Biobank only has LDL-C at a single point in time (for the majority), and only assessed medication use at enrolment, so assumptions will need to be made to estimate cumulative LDL-C. These assumptions are as follows:

- LDL-C is constant from age 40 onwards. This is supported by some literature for people who don't take LLT [13].
- Mean LDL-C is 0.75 mmol/L at birth [16], increases linearly to a mean of 2 mmol/L by age 5 (assumption based on [17]), and after this increases linearly to whatever value the individual has recorded in UK Biobank by age 40.
- Where an individual sits on the LDL-C distribution is constant throughout life (i.e., someone in the 5th percentile of LDL-C will be in that percentile for life).
- People receiving LLT at baseline initiated therapy 5 years before their date of first assessment. Given how low LLT persistence is, [18, 19, 20] this is probably a reasonably conservative assumption.
- People persist on LLT forever once they start LLT. Now this is really unrealistic, but it's also really conservative, so it is probably suitable.
- People not on LLT at baseline initiate LLT at an average rate of approximately 10 people per 1,000 person-years. This estimate is taken from O'Keefe et al. [21], which also showed that LLT initiation is highly dependent on age, so the LLT initiation rate will be:
  - 1 per 1,000 person-years for people aged 40-49
  - 15 per 1,000 person-years for people aged 50-59
  - 35 per 1,000 person-years for people aged 60 and above

  These numbers are all interpreted from Figure 1C in the O'Keefe et al. paper. Moreover, it is reasonable to assume that LDL-C would affect probability of LLT initation, as would sex. The O'Keefe paper suggests that males are approximately 10-20% more likely to initiate

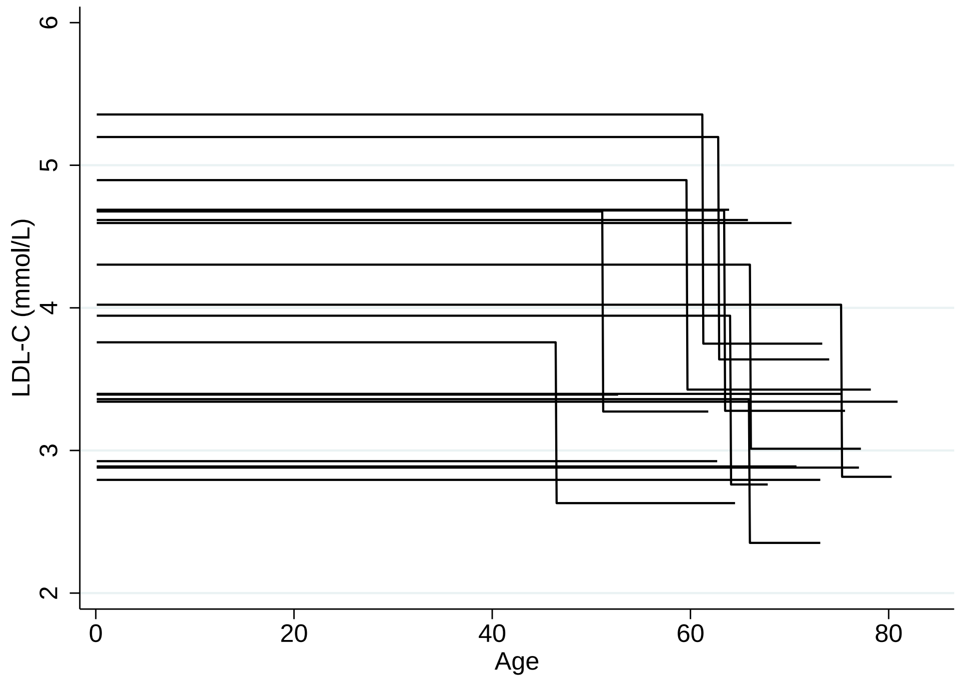

Figure 5.1: Uncorrected LDL-C trajectories in 20 UK Biobank participants

LLT; thus, males will be 10% more likely to initiate LLT than females. As for LDL-C, it's very unlikely robust data linking LDL-C, age, and sex to LLT initiation exists; thus, I will simply assume that for every standard deviation above the mean LDL-C that an individual is, they become 3 times more likely to initiate LLT (this may or may not reflect real clinical practice, which uses LDL-C cut-offs and risk calculators but is a very conserative approach in the absence of more data).

- LLT lowers LDL-C by 30%. This is an assumption based on real-world studies of statin effectiveness [22, 23].

Note that these assumptions are as generous as possible, to lower the LDL-C as much as possible for the sample (and thus, the control condition, which will come into play later). In other words, I have taken a very conservative approach so that the effect of the interventions is minimised.

Once LDL-C trajectories have been calculated for each person, these can then be used to model age- and sex-specific mean LDL-C, and in turn use those values to calculate LDL-C adjusted MI incidence (in the next section). Interventions will be modelled later on.

First, LDL-C trajectories for the UK Biobank cohort are estimated from age 0 to end of follow-up. To visualize the process, just 20 observations are kept at first, and I will then calculate trajectories for everyone.

```
use UKB_working, clear
drop if dob==.
drop if mid <= dofa
keep if ldl!=.
```

```
gen ldl1 = ldl
replace ldl1 = ldl*(1/0.7) if llt==1
su(ldl1)
gen ldldist = (ldl1-r(mean))/r(sd)
replace ldldist = -3 if ldldist < -3
gen njm = _n
keep if njm <= 20
gen faildate = td(30,9,2021) if ubc == "England"
replace faildate = td(31,7,2021) if ubc == "Scotland"
replace faildate = td(28,2,2018) if ubc == "Wales"
replace faildate = min(dod,mid,faildate)
gen agefail = (faildate-dob)/365.25
gen agellt = ((dofa-(365.25*5))-dob)/365.25  if llt==1
expand 850
bysort eid : gen age = _n/10
gen ldlorig = ldl
replace ldl = ldl*(1/0.7) if age < agellt & agellt!=.
gen lltpr = 0
replace lltpr = 0.0001 if inrange(age,39.99,49.99)
replace lltpr = 0.0015 if inrange(age,49.999,59.99)
replace lltpr = 0.0035 if age >= 59.999
gen agedofa = (dofa-dob)/365.25
replace lltpr = 0 if age < agedofa
replace lltpr = lltpr*(0.95) if sex == 0
replace lltpr = lltpr*(1.05) if sex == 1
replace lltpr = lltpr*(3^ldldist)
replace lltpr = 1-exp(-lltpr)
set seed 23254638
gen prllt = runiform()
gen lltinit = 1 if lltpr >= prllt & llt==0
bysort eid lltinit age : replace agellt = age if lltinit ==1 & _n == 1
bysort eid (age) : egen llt1 = min(lltinit)
bysort eid (age) : egen agellt1 = min(agellt) if llt1 == 1
replace ldl = ldl*0.7 if age >= agellt1 & llt1 == 1
sort eid age
replace ldl = . if age > agefail
twoway ///
(line ldl age if njm == 1, color(gs0)) ///
(line ldl age if njm == 2, color(gs0)) ///
(line ldl age if njm == 3, color(gs0)) ///
(line ldl age if njm == 4, color(gs0)) ///
(line ldl age if njm == 5, color(gs0)) ///
(line ldl age if njm == 6, color(gs0)) ///
(line ldl age if njm == 7, color(gs0)) ///
(line ldl age if njm == 8, color(gs0)) ///
(line ldl age if njm == 9, color(gs0)) ///
(line ldl age if njm == 10, color(gs0)) ///
(line ldl age if njm == 11, color(gs0)) ///
(line ldl age if njm == 12, color(gs0)) ///
(line ldl age if njm == 13, color(gs0)) ///
(line ldl age if njm == 14, color(gs0)) ///
(line ldl age if njm == 15, color(gs0)) ///
(line ldl age if njm == 16, color(gs0)) ///
(line ldl age if njm == 17, color(gs0)) ///
(line ldl age if njm == 18, color(gs0)) ///
(line ldl age if njm == 19, color(gs0)) ///
(line ldl age if njm == 20, color(gs0)) ///
, legend(off) graphregion(color(white)) ///
ytitle(LDL-C (mmol/L)) xtitle(Age)
>  UK Biobank participants)
```

At this point (figure 5.1), LDL-C is just constant over the lifetime until LLT initiation , but it needs to be adjusted at younger ages.

```
replace ldl = 0.75+(0.1875*ldldist) if inrange(age,0.09,0.11)
replace ldl = 2+(0.5*ldldist)  if inrange(age,4.99,5.01)
bysort eid (age) : replace ldl = (ldl[50]-ldl[1])/49 if inrange(age,0.11,4.99)
bysort eid (age) : replace ldl = (ldl[400]-ldl[50])/350 if inrange(age,5.01,39.99)
```

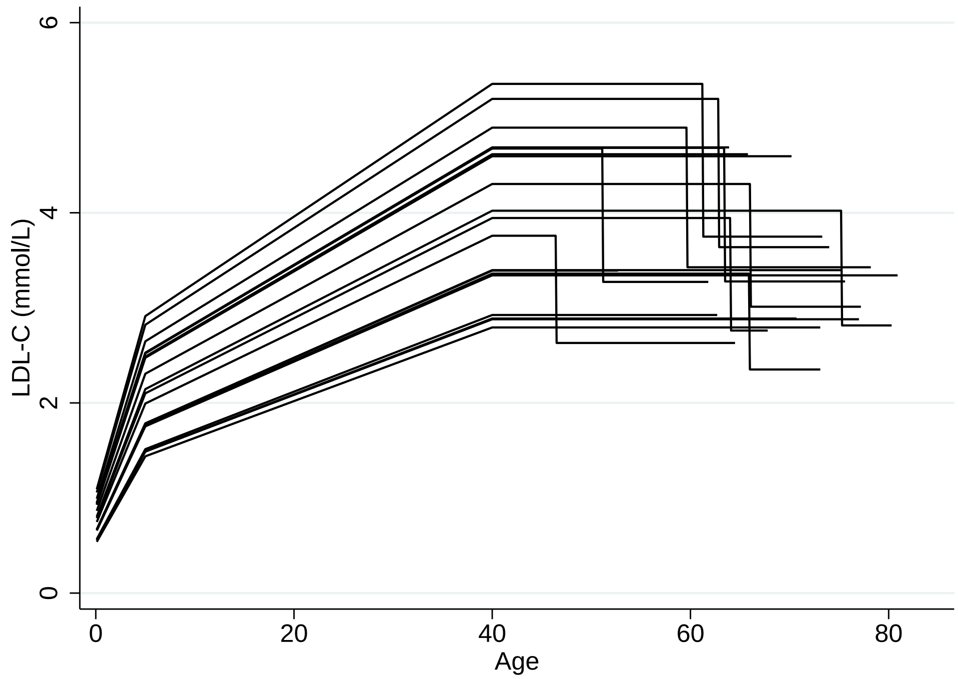

Figure 5.2: LDL-C trajectories in 20 UK Biobank participants

```
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,0.09,4.99)
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,4.99,39.99)
twoway ///
(line ldl age if njm == 1, color(gs0)) ///
(line ldl age if njm == 2, color(gs0)) ///
(line ldl age if njm == 3, color(gs0)) ///
(line ldl age if njm == 4, color(gs0)) ///
(line ldl age if njm == 5, color(gs0)) ///
(line ldl age if njm == 6, color(gs0)) ///
(line ldl age if njm == 7, color(gs0)) ///
(line ldl age if njm == 8, color(gs0)) ///
(line ldl age if njm == 9, color(gs0)) ///
(line ldl age if njm == 10, color(gs0)) ///
(line ldl age if njm == 11, color(gs0)) ///
(line ldl age if njm == 12, color(gs0)) ///
(line ldl age if njm == 13, color(gs0)) ///
(line ldl age if njm == 14, color(gs0)) ///
(line ldl age if njm == 15, color(gs0)) ///
(line ldl age if njm == 16, color(gs0)) ///
(line ldl age if njm == 17, color(gs0)) ///
(line ldl age if njm == 18, color(gs0)) ///
(line ldl age if njm == 19, color(gs0)) ///
(line ldl age if njm == 20, color(gs0)) ///
, legend(off) graphregion(color(white)) ///
ytitle(LDL-C (mmol/L)) xtitle(Age)
> k participants)
```

This is very clunky (figure 5.2), but better than assuming a constant lifetime LDL-C. Moreover, the model ultimately only uses mean cumulative LDL-C, so that will smooth the results.

```
bysort eid (age) : gen cumldl = sum(ldl)/10 if ldl!=.
gen aveldl = cumldl/age
```

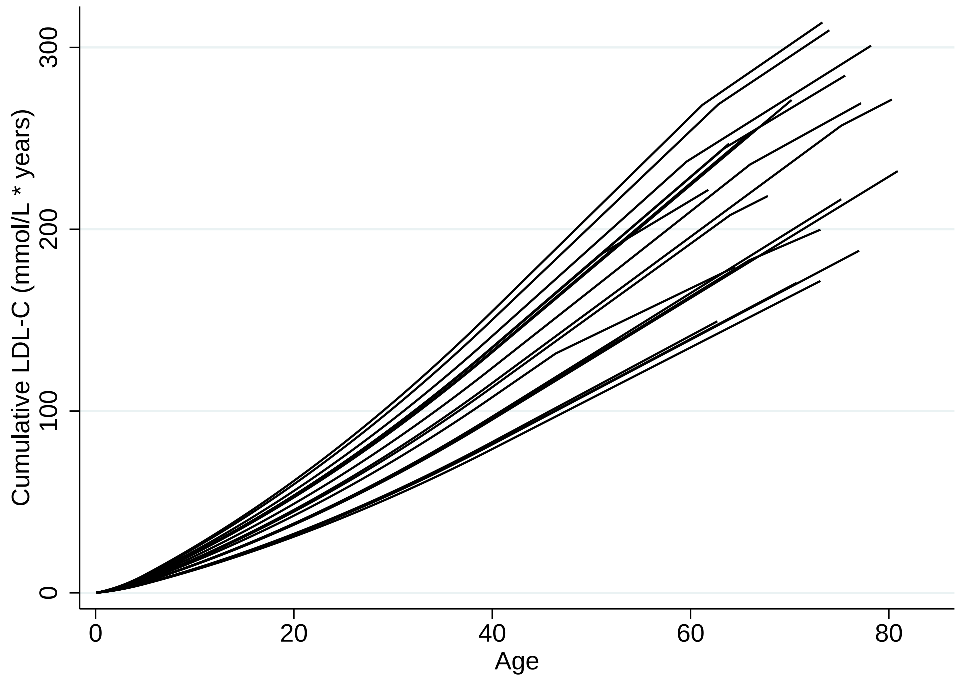

Figure 5.3: Cumulative LDL-C trajectories in 20 UK Biobank participants

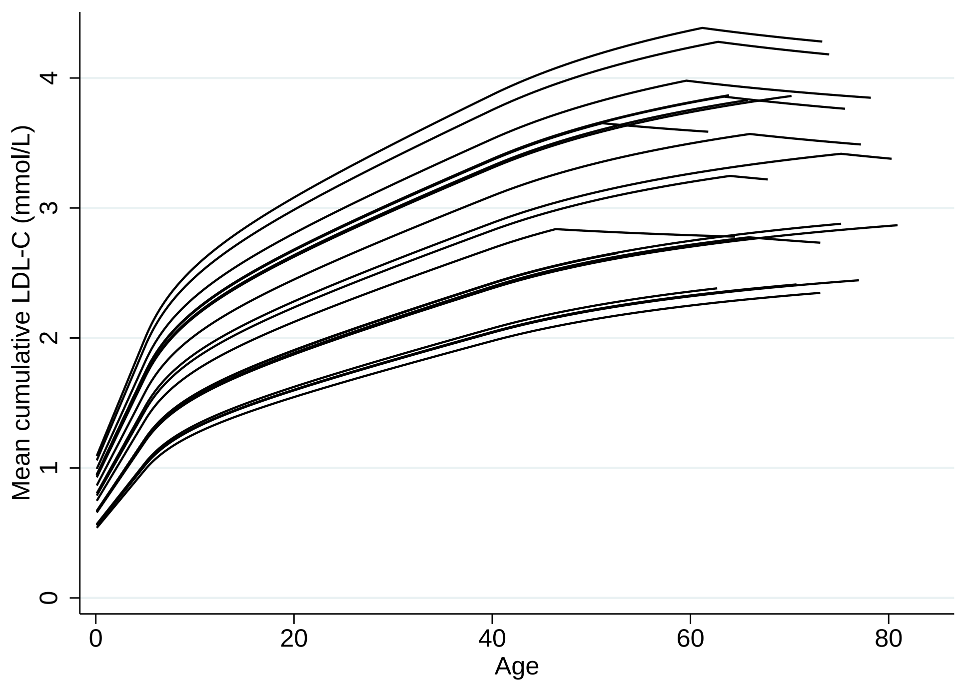

Figure 5.4: Mean cumulative LDL-C trajectories in 20 UK Biobank participants

```
sort eid age
twoway ///
(line cumldl age if njm == 1, color(gs0)) ///
(line cumldl age if njm == 2, color(gs0)) ///
(line cumldl age if njm == 3, color(gs0)) ///
(line cumldl age if njm == 4, color(gs0)) ///
(line cumldl age if njm == 5, color(gs0)) ///
(line cumldl age if njm == 6, color(gs0)) ///
(line cumldl age if njm == 7, color(gs0)) ///
(line cumldl age if njm == 8, color(gs0)) ///
(line cumldl age if njm == 9, color(gs0)) ///
(line cumldl age if njm == 10, color(gs0)) ///
(line cumldl age if njm == 11, color(gs0)) ///
(line cumldl age if njm == 12, color(gs0)) ///
(line cumldl age if njm == 13, color(gs0)) ///
(line cumldl age if njm == 14, color(gs0)) ///
(line cumldl age if njm == 15, color(gs0)) ///
(line cumldl age if njm == 16, color(gs0)) ///
(line cumldl age if njm == 17, color(gs0)) ///
(line cumldl age if njm == 18, color(gs0)) ///
(line cumldl age if njm == 19, color(gs0)) ///
(line cumldl age if njm == 20, color(gs0)) ///
, legend(off) graphregion(color(white)) ///
ytitle(Cumulative LDL-C (mmol/L * years)) xtitle(Age)
> n 20 UK Biobank participants)
twoway ///
(line aveldl age if njm == 1, color(gs0)) ///
(line aveldl age if njm == 2, color(gs0)) ///
(line aveldl age if njm == 3, color(gs0)) ///
(line aveldl age if njm == 4, color(gs0)) ///
(line aveldl age if njm == 5, color(gs0)) ///
(line aveldl age if njm == 6, color(gs0)) ///
(line aveldl age if njm == 7, color(gs0)) ///
(line aveldl age if njm == 8, color(gs0)) ///
(line aveldl age if njm == 9, color(gs0)) ///
(line aveldl age if njm == 10, color(gs0)) ///
(line aveldl age if njm == 11, color(gs0)) ///
(line aveldl age if njm == 12, color(gs0)) ///
(line aveldl age if njm == 13, color(gs0)) ///
(line aveldl age if njm == 14, color(gs0)) ///
(line aveldl age if njm == 15, color(gs0)) ///
(line aveldl age if njm == 16, color(gs0)) ///
(line aveldl age if njm == 17, color(gs0)) ///
(line aveldl age if njm == 18, color(gs0)) ///
(line aveldl age if njm == 19, color(gs0)) ///
(line aveldl age if njm == 20, color(gs0)) ///
, legend(off) graphregion(color(white)) ///
ytitle(Mean cumulative LDL-C (mmol/L)) xtitle(Age)
> ies in 20 UK Biobank participants)
```

These look okay (figures 5.3 & 5.4). Now this process can be repeated for the entire sample.

```
set seed 28371057
forval a = 1(1000)458001 {
use UKB_working, clear
drop if dob==.
drop if mid <= dofa
keep if ldl!=.
gen ldl1 = ldl
replace ldl1 = ldl*(1/0.7) if llt==1
su(ldl1)
gen ldldist = (ldl1-r(mean))/r(sd)
replace ldldist = -3 if ldldist < -3
gen njm = _n
local aa = `a´+999
keep if inrange(njm, `a´,`aa´)
gen faildate = td(30,9,2021) if ubc == "England"
replace faildate = td(31,7,2021) if ubc == "Scotland"
```

```
replace faildate = td(28,2,2018) if ubc == "Wales"
replace faildate = min(dod,mid,faildate)
gen agefail = (faildate-dob)/365.25
gen agellt = ((dofa-(365.25*5))-dob)/365.25  if llt==1
expand 850
bysort eid : gen age = _n/10
gen ldlorig = ldl
replace ldl = ldl*(1/0.7) if age < agellt & agellt!=.
gen lltpr = 0
replace lltpr = 0.0001 if inrange(age,39.99,49.99)
replace lltpr = 0.0015 if inrange(age,49.999,59.99)
replace lltpr = 0.0035 if age >= 59.999
gen agedofa = (dofa-dob)/365.25
replace lltpr = 0 if age < agedofa
replace lltpr = lltpr*(0.95) if sex == 0
replace lltpr = lltpr*(1.05) if sex == 1
replace lltpr = lltpr*(3^ldldist)
replace lltpr = 1-exp(-lltpr)
gen prllt = runiform()
gen lltinit = 1 if lltpr >= prllt & llt==0
bysort eid lltinit age : replace agellt = age if lltinit ==1 & _n == 1
bysort eid (age) : egen llt1 = min(lltinit)
bysort eid (age) : egen agellt1 = min(agellt) if llt1 == 1
replace ldl = ldl*0.7 if age >= agellt1 & llt1 == 1
sort eid age
replace ldl = . if age > agefail
replace ldl = 0.75+(0.1875*ldldist) if inrange(age,0.09,0.11)
replace ldl = 2+(0.5*ldldist)  if inrange(age,4.99,5.01)
bysort eid (age) : replace ldl = (ldl[50]-ldl[1])/49 if inrange(age,0.11,4.99)
bysort eid (age) : replace ldl = (ldl[400]-ldl[50])/350 if inrange(age,5.01,39.99)
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,0.09,4.99)
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,4.99,39.99)
bysort eid (age) : gen cumldl = sum(ldl)/10 if ldl!=.
gen aveldl = cumldl/age
sort eid age
matrix A = (.,.,.,.)
forval i = 30(0.1)84.9 {
local j = `i´-0.01
local k = `i´+0.01
su(aveldl) if inrange(age,`j´,`k´) & sex == 0
matrix A = (A\0,`i´,r(mean),r(N))
su(aveldl) if inrange(age,`j´,`k´) & sex == 1
matrix A = (A\1,`i´,r(mean),r(N))
}
clear
svmat double A
drop if A1==.
rename (A1 A2 A3 A4) (sex age ldlave N)
sort sex age
save LDLtraj/ldlave_`a´, replace
}
clear
forval a = 1(1000)458001 {
append using LDLtraj/ldlave_`a´
}
matrix A = (.,.,.,.)
forval i = 30(0.1)84.9 {
local j = `i´-0.01
local k = `i´+0.01
su(ldlave) [aweight=N] if inrange(age,`j´,`k´) & sex == 0
matrix A = (A\0,`i´,r(mean),r(sum_w))
su(ldlave) [aweight=N] if inrange(age,`j´,`k´) & sex == 1
matrix A = (A\1,`i´,r(mean),r(sum_w))
}
clear
svmat double A
drop if A1==.
rename (A1 A2 A3 A4) (sex age ldlave N)
```

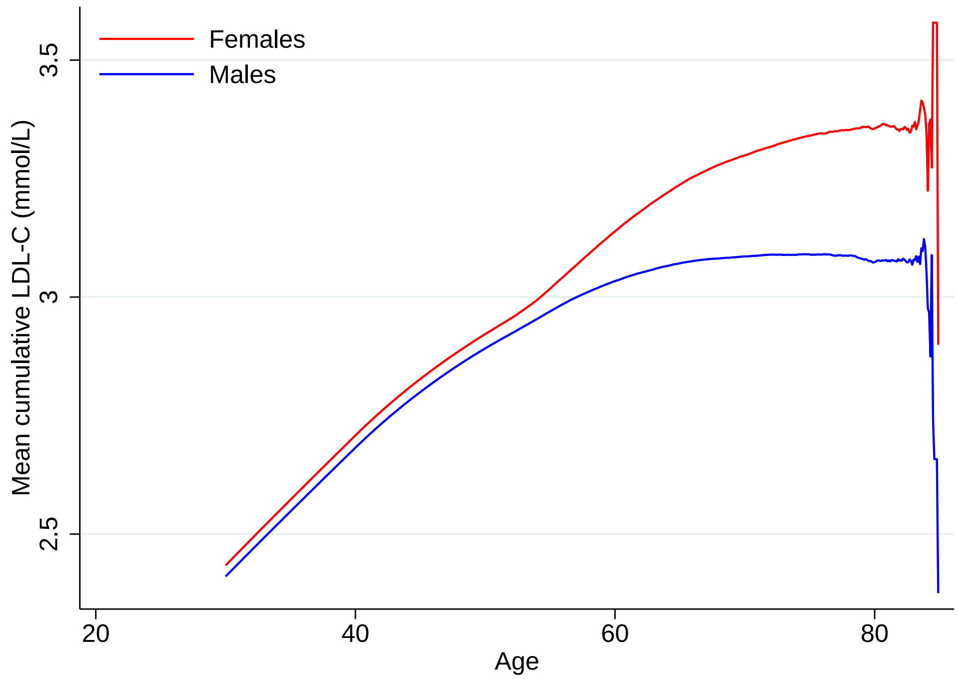

Figure 5.5: Mean cumulative LDL-C by sex

```
sort sex age
save ldlave, replace

use ldlave, clear
twoway ///
(line ldlave age if sex == 0, color(red)) ///
(line ldlave age if sex == 1, color(blue)) ///
, legend(order(1 "Females" 2 "Males") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none)) ) ///
graphregion(color(white)) ///
ytitle(Mean cumulative LDL-C (mmol/L)) xtitle(Age)
```

This is pretty nasty after age 80 (figure 5.5), so to fix that:

```
mkspline agesp = age, cubic knots(30(10)80)
reg ldlave agesp* [aweight=N] if sex == 0
predict ldlf if sex == 0
reg ldlave agesp* [aweight=N] if sex == 1
predict ldlm if sex == 1
twoway ///
(line ldlave age if sex == 0, color(red)) ///
(line ldlave age if sex == 1, color(blue)) ///
(line ldlf age if sex == 0, color(red) lpattern(dash)) ///
(line ldlm age if sex == 1, color(blue) lpattern(dash)) ///
, legend(order(1 "Females" 3 "Females - modelled" 2 "Males" 4 "Males - modelled") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none)) ) ///
graphregion(color(white)) ///
ytitle(Mean cumulative LDL-C (mmol/L)) xtitle(Age)
>  modelled)
replace ldlave = ldlf if sex == 0
replace ldlave = ldlm if sex == 1
keep sex age ldlave
```

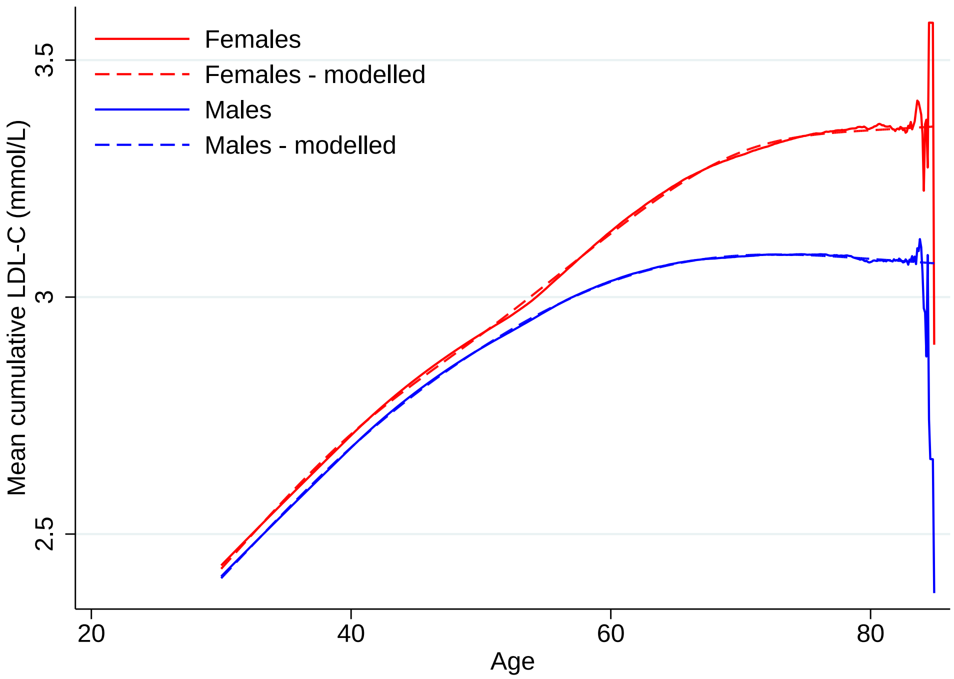

Figure 5.6: Mean cumulative LDL-C by sex, modelled

```
tostring age, replace force format(%9.1f)
destring age, replace
save ldlave_reg, replace
```

Much nicer (figure 5.6). To re-iterate, what I have calculated so far is the mean mean cumulative LDL-C estimates for the UK Biobank population, which is not the same as the standard of care/control scenario. That is done below. Before that, it is worth using this process to work out the proportion of people in the primary prevention population on LLT in the control scenario at ages 40, 50, 60, 70, and 80 (Table 5.1).

```
set seed 28371057
forval a = 1(1000)458001 {
use UKB_working, clear
drop if dob==.
drop if mid <= dofa
keep if ldl!=.
gen ldl1 = ldl
replace ldl1 = ldl*(1/0.7) if llt==1
su(ldl1)
gen ldldist = (ldl1-r(mean))/r(sd)
replace ldldist = -3 if ldldist < -3
gen njm = _n
local aa = `a´+999
keep if inrange(njm, `a´,`aa´)
gen faildate = td(30,9,2021) if ubc == "England"
replace faildate = td(31,7,2021) if ubc == "Scotland"
replace faildate = td(28,2,2018) if ubc == "Wales"
replace faildate = min(dod,mid,faildate)
gen agefail = (faildate-dob)/365.25
gen agellt = ((dofa-(365.25*5))-dob)/365.25  if llt==1
expand 850
```

Table 5.1: Proportion of primary prevention population in the control scenario on LLT at or before a given age, stratified by sex and LDL-C.

		LDL-C (mmol/L)			
Sex	Age	Overall	≥3.0	≥4.0	≥5.0
Females	40	0.17%	0.10%	0.08%	0.14%
	50	1.69%	1.04%	0.75%	1.00%
	60	13.46%	11.33%	13.14%	21.63%
	70	39.27%	40.38%	56.09%	81.71%
	80	54.85%	59.31%	79.88%	97.85%
Males	40	0.45%	0.30%	0.22%	0.33%
	50	3.45%	2.23%	1.80%	3.19%
	60	19.92%	15.85%	20.14%	38.58%
	70	46.60%	44.38%	61.03%	88.18%
	80	60.53%	62.17%	82.26%	98.73%

```
bysort eid : gen age = _n/10
gen ldlorig = ldl
replace ldl = ldl*(1/0.7) if age < agellt & agellt!=.
gen lltpr = 0
replace lltpr = 0.0001 if inrange(age,39.99,49.99)
replace lltpr = 0.0015 if inrange(age,49.999,59.99)
replace lltpr = 0.0035 if age >= 59.999
gen agedofa = (dofa-dob)/365.25
replace lltpr = 0 if age < agedofa
replace lltpr = lltpr*(0.95) if sex == 0
replace lltpr = lltpr*(1.05) if sex == 1
replace lltpr = lltpr*(3^ldldist)
replace lltpr = 1-exp(-lltpr)
gen prllt = runiform()
gen lltinit = 1 if lltpr >= prllt & llt==0
bysort eid lltinit age : replace agellt = age if lltinit ==1 & _n == 1
bysort eid (age) : egen llt1 = min(lltinit)
bysort eid (age) : egen agellt1 = min(agellt) if llt1 == 1
replace ldl = ldl*0.7 if age >= agellt1 & llt1 == 1
sort eid age
gen lltage = min(agellt,agellt1)
bysort eid (age) : keep if _n == 1
keep eid lltage
save LDLtraj/lltage_`a´, replace
}
clear
forval a = 1(1000)458001 {
append using LDLtraj/lltage_`a´
}
save lltage, replace
use lltage, clear
merge 1:1 eid using UKB_working
drop if _merge == 2
drop _merge
keep eid lltage ldl sex
matrix B = (.,.,.,.,.)
forval s = 0/1 {
foreach l in 0 3 4 5 {
count if sex == `s´ & ldl>=`l´
local b = (r(N))
forval i = 40(10)80 {
```

```
count if lltage <= `i´ & sex == `s´ & ldl>=`l´
matrix B = (B\0`s´,`l´,`i´,r(N),`b´)
}
}
}
clear
svmat B
drop if _n == 1
gen perc = 100*B4/B5
tostring perc, replace force format(%9.2f)
replace perc = perc + "\%"
drop B4 B5
reshape wide perc, i(B1 B3) j(B2)
tostring B1 B3, replace force format(%9.0f)
bysort B1 (B3) : replace B1 ="" if _n!=1
replace B1 = "Females" if B1 == "0"
replace B1 = "Males" if B1 == "1"
export delimited using CSV/statinprop.csv, delimiter(":") novarnames replace
forval a = 1(1000)458001 {
erase LDLtraj/lltage_`a´.dta
}
```

5.2 Interventions

Indeed, I now need to simulate LDL-C trajectories for our full cohort over the lifetime, and under several conditions (i.e., drugs). The conditions, and their respective LDL-C reductions, are as follows:

0. Standard of care/control. This is similar to that described above. In short, this arm is current standard of care, where: people receiving LLT at baseline are assumed to have initiated therapy 5 years before their date of first assessment; people persist on LLT forever once they start LLT; and people not on LLT at baseline initiate LLT at an average rate of approximately 10 people per 1,000 person-years, and this rate is affected by age, sex, and LDL-C. Again, all these assumptions are very generous to take the most conservative approach and minimise the effectiveness of the other interventions. The only difference between this control scenario with the estimation of average LDL-C during follow-up described above is that LLT will lower LDL-C by 45% (a generous (and therefore conservative) assumption based on the effects of low/moderate intensity statins, high intensity statins, and low/moderate intensity statins, outlined in the following dot points), not 30% as above.

1. Low/moderate intensity statins. The most common statin in this category (as defined by the ACC/AHA [24]) in the UK in June 2021 was Atorvastatin (20mg and 10mg; see below), and the best available evidence for the effect of atorvastatin on LDL-C comes from a systematic review, which estimated a 42.3% (95%CI: 42.0, 42.6) reduction at 20mg, and 37.1% (36.9, 37.3) for 10mg [25]. The next most common was Simvastatin (40mg and 20mg), which reduced LDL-C by 35% over follow up in the LDL-C Scandinavian Simvastatin Survival Study [26]. Thus, a reasonable estimate for LDL-C reduction on low/moderate intensity statins would be 40%, with a 95% CI of 39 to 41 (which happens to be the exact result from the Collaborative Atorvastatin Diabetes Study (CARDS) trial, the major primary prevention trial with atorvastatin [27]).

2. High intensity statins. Again, the most common in this category is Atorvastatin (40mg and 80mg), and the aforementioned systematic review puts the LDL-C reduction with 40mg of

Atorvastatin at 47.4% (46.9, 48.0), and 51.7% (51.2, 52.2) for 80mg [25]. Thus, 50% (49, 51) would be a reasonable estimate for LDL-C reduction with high-intensity statins.

3. Low/moderate intensity statins and ezetimibe. The best evidence for the effect of ezetimibe added to statins is taken from a systematic review [10], which estimates that adding ezetimibe to ongoing statin reduced LDL-C by 26.0% (25.2, 26.8), while switching to high-intensity Rosuvastatin 10mg reduced LDL-C by 19.7% (17.7, 21.7). This suggests that a reasonable estimate of the effect of low/moderate intensity statins on LDL-C (compared to nothing at all) would be 55% (54, 56).

4. Inclisiran. The LDL-C reduction for people taking Inclisiran is 51.5% (95% CI, 49.0 to 53.9), based on a weighted average of the results (time-weighted average reduction in LDL-C) of the ORION-10 and ORION-11 trials [28], which were selected as the most relevant evidence (phase III trials in a population where 99% of the people did not have familial hypercholesterolaemia).

For all interventions (i.e., everything above except the control), they are implemented at ages 30, 40, 50, and 60 years (i.e., 4 different strategies per intervention), and it is assumed that LLT initiation is as in the control arm until the age of the intervention, at which everyone gets the intervention.

This is how the current Statin use in the UK was assessed:

```
import delimited "epd_202106.csv", clear varname(1) rowrange(18000000:18999999)
forval i = 1(1000000)18000000 {
local j = `i´+999999
import delimited "epd_202106.csv", clear varnames(1) rowrange(`i´:`j´)
gen AA = ""
replace AA = substr(bnf_des,1,12) if substr(bnf_des,1,12)=="Atorvastatin"
replace AA = substr(bnf_des,1,11) if substr(bnf_des,1,11)=="Pravastatin"
replace AA = substr(bnf_des,1,11) if substr(bnf_des,1,11)=="Simvastatin"
replace AA = substr(bnf_des,1,12) if substr(bnf_des,1,12)=="Rosuvastatin"
replace AA = substr(bnf_des,1,11) if substr(bnf_des,1,11)=="Fluvastatin"
keep if AA !=""
save statins2021/st_`i´, replace
}

clear
forval i = 1(1000000)18000000 {
append using statins2021/st_`i´
}

. collapse (sum) items, by(bnf_description AA)
. ta AA [aweight=item]
          AA |      Freq.     Percent        Cum.
-------------+-----------------------------------
Atorvastatin |  22.0667742       68.96       68.96
 Fluvastatin |  .042075898        0.13       69.09
 Pravastatin | 1.012802495        3.17       72.26
Rosuvastatin |  1.30988745        4.09       76.35
 Simvastatin |  7.56845997       23.65      100.00
-------------+-----------------------------------
       Total |          32      100.00
. ta bnf_description [weight=items]
(frequency weights assumed)
                       BNF_DESCRIPTION |      Freq.     Percent        Cum.
---------------------------------------+-----------------------------------
Atorvastatin 10mg chewable tablets su.. |        520        0.01        0.01
              Atorvastatin 10mg tablets |    565,022        8.77        8.78
```

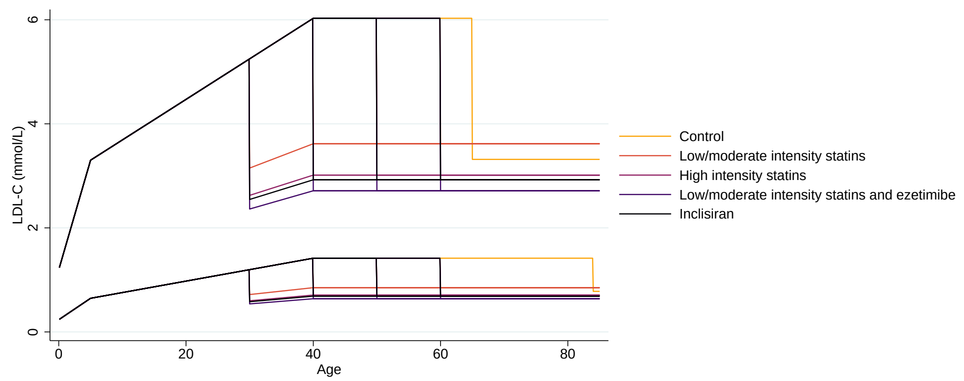

Figure 5.7: LDL-C with various interventions for 2 individuals

Atorvastatin 10mg/5ml oral liquid	17	0.00	8.78
Atorvastatin 20mg chewable tablets su..	1,309	0.02	8.80
Atorvastatin 20mg tablets	2,056,244	31.92	40.73
Atorvastatin 20mg/5ml oral solution	19	0.00	40.73
Atorvastatin 20mg/5ml oral suspension	231	0.00	40.73
Atorvastatin 30mg tablets	686	0.01	40.74
Atorvastatin 40mg tablets	1,224,000	19.00	59.74
Atorvastatin 60mg tablets	1,843	0.03	59.77
Atorvastatin 80mg tablets	591,690	9.19	68.96
Fluvastatin 20mg capsules	4,008	0.06	69.02
Fluvastatin 40mg capsules	3,279	0.05	69.07
Fluvastatin 80mg modified-release tab..	1,182	0.02	69.09
Pravastatin 10mg tablets	52,732	0.82	69.91
Pravastatin 20mg tablets	70,313	1.09	71.00
Pravastatin 40mg tablets	80,805	1.25	72.26
Pravastatin 40mg/5ml oral liquid	3	0.00	72.26
Pravastatin 5mg/5ml oral liquid	3	0.00	72.26
Rosuvastatin 10mg tablets	87,784	1.36	73.62
Rosuvastatin 20mg tablets	48,241	0.75	74.37
Rosuvastatin 40mg tablets	13,208	0.21	74.57
Rosuvastatin 5mg tablets	114,420	1.78	76.35
Simvastatin 10mg tablets	92,691	1.44	77.79
Simvastatin 20mg / Ezetimibe 10mg tab..	268	0.00	77.79
Simvastatin 20mg tablets	603,194	9.37	87.16
Simvastatin 20mg/5ml oral suspension ..	260	0.00	87.16
Simvastatin 40mg / Ezetimibe 10mg tab..	639	0.01	87.17
Simvastatin 40mg tablets	810,909	12.59	99.76
Simvastatin 40mg/5ml oral suspension ..	279	0.00	99.77
Simvastatin 80mg / Ezetimibe 10mg tab..	111	0.00	99.77
Simvastatin 80mg tablets	15,022	0.23	100.00
Total	6,440,932	100.00	

Back to calculation of LDL-C trajectories. For these calculations, mortality is not taken into account yet, as that will be part of the model. So, even if an individual lacks follow-up, I can still estimate an LDL-C trajectory across their entire lifespan.

Just to visualise it, the interventions will just be applied to two people at first , one with a very low LDL-C, the other very high.

```
use UKB_working, clear
drop if dob==.
drop if mid <= dofa
keep if ldl!=.
gen ldl1 = ldl
```

```
replace ldl1 = ldl*(1/0.7) if llt==1
su(ldl1)
gen ldldist = (ldl1-r(mean))/r(sd)
replace ldldist = -3 if ldldist < -3
keep if _n == 114 | _n == 115
gen njm = _n
gen agellt = ((dofa-(365.25*5))-dob)/365.25  if llt==1
expand 850
bysort eid : gen age = _n/10
gen ldlorig = ldl
replace ldl = ldl*(1/0.7) if age < agellt & agellt!=.
replace ldl = ldl*(1/0.7)*0.55 if age >= agellt & agellt!=.
gen lltpr = 0
replace lltpr = 0.0001 if inrange(age,39.99,49.99)
replace lltpr = 0.0015 if inrange(age,49.999,59.99)
replace lltpr = 0.0035 if age >= 59.999
gen agedofa = (dofa-dob)/365.25
replace lltpr = 0 if age < agedofa
replace lltpr = lltpr*(0.95) if sex == 0
replace lltpr = lltpr*(1.05) if sex == 1
replace lltpr = lltpr*(3^ldldist)
replace lltpr = 1-exp(-lltpr)
set seed 0240
gen prllt = runiform()
gen lltinit = 1 if lltpr >= prllt & llt==0
bysort eid lltinit age : gen agellt0 = age if lltinit ==1 & _n == 1
bysort eid (age) : egen llt1 = min(lltinit)
bysort eid (age) : egen agellt1 = min(agellt0) if llt1 == 1
ta agellt1
replace ldl = ldl*0.55 if age >= agellt1 & llt1 == 1
sort eid age
replace ldl = 0.75+(0.1875*ldldist) if inrange(age,0.09,0.11)
replace ldl = 2+(0.5*ldldist)  if inrange(age,4.99,5.01)
bysort eid (age) : replace ldl = (ldl[50]-ldl[1])/49 if inrange(age,0.11,4.99)
bysort eid (age) : replace ldl = (ldl[400]-ldl[50])/350 if inrange(age,5.01,39.99)
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,0.09,4.99)
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,4.99,39.99)
gen ldl_0_30 = ldl if age < 40
replace ldl_0_30 = ldl1 if age >= 40
gen ldl_0_40 = ldl_0_30
gen ldl_0_50 = ldl if age < 50
replace ldl_0_50 = ldl1 if age >= 50
gen ldl_0_60 = ldl if age < 60
replace ldl_0_60 = ldl1 if age >= 60
sort eid age
keep eid sex ldl age njm ldl_0_30-ldl_0_60
forval i = 30(10)60 {
forval ii = 1/4 {
gen ldl_`ii´_`i´ = ldl_0_`i´
}
replace ldl_1_`i´ = ldl_0_`i´*0.6 if age >= `i´
replace ldl_2_`i´ = ldl_0_`i´*0.5 if age >= `i´
replace ldl_3_`i´ = ldl_0_`i´*0.45 if age >= `i´
replace ldl_4_`i´ = ldl_0_`i´*0.485 if age >= `i´
}
bysort eid (age) : gen cumldl = sum(ldl)/10 if ldl!=.
gen aveldl = cumldl/age
forval i = 1/4 {
forval ii = 30(10)60 {
bysort eid (age) : gen cumldl_`i´_`ii´ = sum(ldl_`i´_`ii´)/10
gen aveldl_`i´_`ii´ = cumldl_`i´_`ii´/age
}
}
preserve
use inferno, clear
local col1 = var6[2]
local col2 = var6[3]
local col3 = var6[4]
```

```
local col4 = var6[5]
local col5 = var6[6]
restore
twoway ///
(line ldl age if njm == 1, color("`col1´")) ///
(line ldl_1_30 age if njm == 1, color("`col2´")) ///
(line ldl_1_40 age if njm == 1, color("`col2´")) ///
(line ldl_1_50 age if njm == 1, color("`col2´")) ///
(line ldl_1_60 age if njm == 1, color("`col2´")) ///
(line ldl_2_30 age if njm == 1, color("`col3´")) ///
(line ldl_2_40 age if njm == 1, color("`col3´")) ///
(line ldl_2_50 age if njm == 1, color("`col3´")) ///
(line ldl_2_60 age if njm == 1, color("`col3´")) ///
(line ldl_3_30 age if njm == 1, color("`col4´")) ///
(line ldl_3_40 age if njm == 1, color("`col4´")) ///
(line ldl_3_50 age if njm == 1, color("`col4´")) ///
(line ldl_3_60 age if njm == 1, color("`col4´")) ///
(line ldl_4_30 age if njm == 1, color("`col5´")) ///
(line ldl_4_40 age if njm == 1, color("`col5´")) ///
(line ldl_4_50 age if njm == 1, color("`col5´")) ///
(line ldl_4_60 age if njm == 1, color("`col5´")) ///
(line ldl age if njm == 2, color("`col1´")) ///
(line ldl_1_30 age if njm == 2, color("`col2´")) ///
(line ldl_1_40 age if njm == 2, color("`col2´")) ///
(line ldl_1_50 age if njm == 2, color("`col2´")) ///
(line ldl_1_60 age if njm == 2, color("`col2´")) ///
(line ldl_2_30 age if njm == 2, color("`col3´")) ///
(line ldl_2_40 age if njm == 2, color("`col3´")) ///
(line ldl_2_50 age if njm == 2, color("`col3´")) ///
(line ldl_2_60 age if njm == 2, color("`col3´")) ///
(line ldl_3_30 age if njm == 2, color("`col4´")) ///
(line ldl_3_40 age if njm == 2, color("`col4´")) ///
(line ldl_3_50 age if njm == 2, color("`col4´")) ///
(line ldl_3_60 age if njm == 2, color("`col4´")) ///
(line ldl_4_30 age if njm == 2, color("`col5´")) ///
(line ldl_4_40 age if njm == 2, color("`col5´")) ///
(line ldl_4_50 age if njm == 2, color("`col5´")) ///
(line ldl_4_60 age if njm == 2, color("`col5´")) ///
, legend(order(1 "Control" ///
2 "Low/moderate intensity statins" ///
6 "High intensity statins" ///
10 "Low/moderate intensity statins and ezetimibe" ///
14 "Inclisiran") ///
cols(1) position(3) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(LDL-C (mmol/L)) xtitle(Age) xsize(10)
>  for 2 individuals)
```

Some things to note here (figure 5.7): There's a large difference in absolute LDL-C reduction by baseline LDL-C (as expected/by definition). Also, the control condition can result in a lower LDL-C at the end of life than low/moderate intensity statins. This is good – this analysis is seeking to answer the question as to whether it's more cost-effective to intervene to lower LDL-C earlier in life, so comparing a strategy that usually results in intense LDL-C lowering later in life (the control) with a less intense strategy earlier in life is interesting.

```
preserve
use inferno, clear
local col1 = var6[2]
local col2 = var6[3]
local col3 = var6[4]
local col4 = var6[5]
local col5 = var6[6]
restore
twoway ///
(line cumldl age if njm == 1, color("`col1´")) ///
(line cumldl_1_30 age if njm == 1, color("`col2´")) ///
(line cumldl_1_40 age if njm == 1, color("`col2´")) ///
```

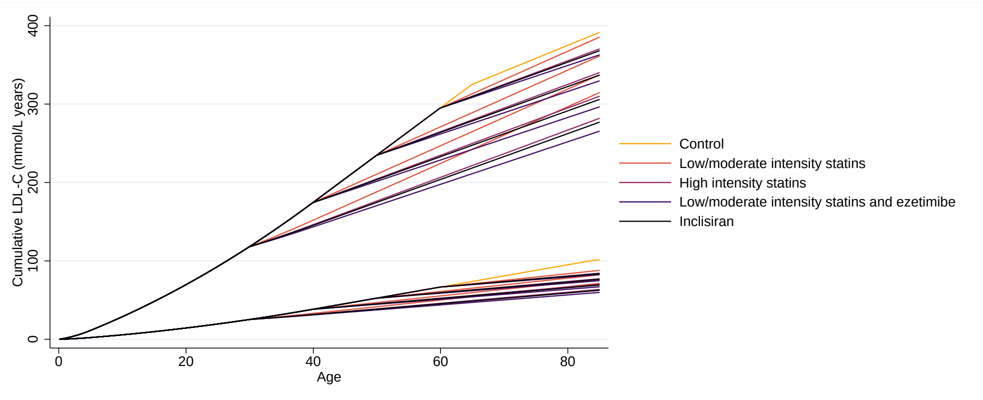

Figure 5.8: Cumulative LDL-C with various interventions for 2 individuals

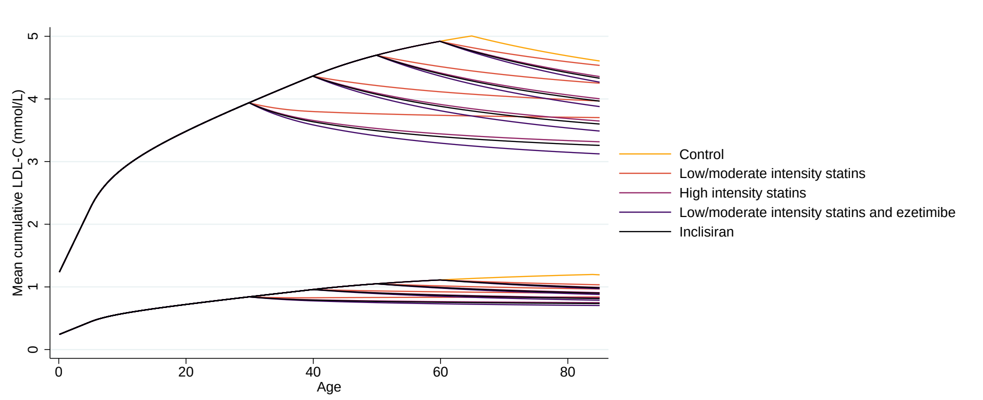

Figure 5.9: Mean cumulative LDL-C with various interventions for 2 individuals

```
(line cumldl_1_50 age if njm == 1, color("`col2´")) ///
(line cumldl_1_60 age if njm == 1, color("`col2´")) ///
(line cumldl_2_30 age if njm == 1, color("`col3´")) ///
(line cumldl_2_40 age if njm == 1, color("`col3´")) ///
(line cumldl_2_50 age if njm == 1, color("`col3´")) ///
(line cumldl_2_60 age if njm == 1, color("`col3´")) ///
(line cumldl_3_30 age if njm == 1, color("`col4´")) ///
(line cumldl_3_40 age if njm == 1, color("`col4´")) ///
(line cumldl_3_50 age if njm == 1, color("`col4´")) ///
(line cumldl_3_60 age if njm == 1, color("`col4´")) ///
(line cumldl_4_30 age if njm == 1, color("`col5´")) ///
(line cumldl_4_40 age if njm == 1, color("`col5´")) ///
(line cumldl_4_50 age if njm == 1, color("`col5´")) ///
(line cumldl_4_60 age if njm == 1, color("`col5´")) ///
(line cumldl age if njm == 2, color("`col1´")) ///
(line cumldl_1_30 age if njm == 2, color("`col2´")) ///
(line cumldl_1_40 age if njm == 2, color("`col2´")) ///
(line cumldl_1_50 age if njm == 2, color("`col2´")) ///
(line cumldl_1_60 age if njm == 2, color("`col2´")) ///
(line cumldl_2_30 age if njm == 2, color("`col3´")) ///
(line cumldl_2_40 age if njm == 2, color("`col3´")) ///
(line cumldl_2_50 age if njm == 2, color("`col3´")) ///
(line cumldl_2_60 age if njm == 2, color("`col3´")) ///
(line cumldl_3_30 age if njm == 2, color("`col4´")) ///
(line cumldl_3_40 age if njm == 2, color("`col4´")) ///
(line cumldl_3_50 age if njm == 2, color("`col4´")) ///
(line cumldl_3_60 age if njm == 2, color("`col4´")) ///
(line cumldl_4_30 age if njm == 2, color("`col5´")) ///
(line cumldl_4_40 age if njm == 2, color("`col5´")) ///
(line cumldl_4_50 age if njm == 2, color("`col5´")) ///
(line cumldl_4_60 age if njm == 2, color("`col5´")) ///
, legend(order(1 "Control" ///
2 "Low/moderate intensity statins" ///
6 "High intensity statins" ///
10 "Low/moderate intensity statins and ezetimibe" ///
14 "Inclisiran") ///
cols(1) position(3) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Cumulative LDL-C (mmol/L years)) xtitle(Age) xsize(10)
>  interventions for 2 individuals)
twoway ///
(line aveldl age if njm == 1, color("`col1´")) ///
(line aveldl_1_30 age if njm == 1, color("`col2´")) ///
(line aveldl_1_40 age if njm == 1, color("`col2´")) ///
(line aveldl_1_50 age if njm == 1, color("`col2´")) ///
(line aveldl_1_60 age if njm == 1, color("`col2´")) ///
(line aveldl_2_30 age if njm == 1, color("`col3´")) ///
(line aveldl_2_40 age if njm == 1, color("`col3´")) ///
(line aveldl_2_50 age if njm == 1, color("`col3´")) ///
(line aveldl_2_60 age if njm == 1, color("`col3´")) ///
(line aveldl_3_30 age if njm == 1, color("`col4´")) ///
(line aveldl_3_40 age if njm == 1, color("`col4´")) ///
(line aveldl_3_50 age if njm == 1, color("`col4´")) ///
(line aveldl_3_60 age if njm == 1, color("`col4´")) ///
(line aveldl_4_30 age if njm == 1, color("`col5´")) ///
(line aveldl_4_40 age if njm == 1, color("`col5´")) ///
(line aveldl_4_50 age if njm == 1, color("`col5´")) ///
(line aveldl_4_60 age if njm == 1, color("`col5´")) ///
(line aveldl age if njm == 2, color("`col1´")) ///
(line aveldl_1_30 age if njm == 2, color("`col2´")) ///
(line aveldl_1_40 age if njm == 2, color("`col2´")) ///
(line aveldl_1_50 age if njm == 2, color("`col2´")) ///
(line aveldl_1_60 age if njm == 2, color("`col2´")) ///
(line aveldl_2_30 age if njm == 2, color("`col3´")) ///
(line aveldl_2_40 age if njm == 2, color("`col3´")) ///
(line aveldl_2_50 age if njm == 2, color("`col3´")) ///
(line aveldl_2_60 age if njm == 2, color("`col3´")) ///
(line aveldl_3_30 age if njm == 2, color("`col4´")) ///
```

```
(line aveldl_3_40 age if njm == 2, color("`col4´")) ///
(line aveldl_3_50 age if njm == 2, color("`col4´")) ///
(line aveldl_3_60 age if njm == 2, color("`col4´")) ///
(line aveldl_4_30 age if njm == 2, color("`col5´")) ///
(line aveldl_4_40 age if njm == 2, color("`col5´")) ///
(line aveldl_4_50 age if njm == 2, color("`col5´")) ///
(line aveldl_4_60 age if njm == 2, color("`col5´")) ///
, legend(order(1 "Control" ///
2 "Low/moderate intensity statins" ///
6 "High intensity statins" ///
10 "Low/moderate intensity statins and ezetimibe" ///
14 "Inclisiran") ///
cols(1) position(3) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Mean cumulative LDL-C (mmol/L)) xtitle(Age) xsize(10)
> rious interventions for 2 individuals)
```

Now it can be repeated for everyone under all 17 scenarios (16 interventions and 1 control):

```
set seed 28371057
forval a = 1(1000)458001 {
use UKB_working, clear
drop if dob==.
drop if mid <= dofa
keep if ldl!=.
gen ldl1 = ldl
replace ldl1 = ldl*(1/0.7) if llt==1
su(ldl1)
gen ldldist = (ldl1-r(mean))/r(sd)
replace ldldist = -3 if ldldist < -3
gen njm = _n
local aa = `a´+999
keep if inrange(njm, `a´,`aa´)
gen agellt = ((dofa-(365.25*5))-dob)/365.25  if llt==1
expand 850
bysort eid : gen age = _n/10
gen ldlorig = ldl
replace ldl = ldl*(1/0.7) if age < agellt & agellt!=.
replace ldl = ldl*(1/0.7)*0.55 if age >= agellt & agellt!=.
gen lltpr = 0
replace lltpr = 0.0001 if inrange(age,39.99,49.99)
replace lltpr = 0.0015 if inrange(age,49.999,59.99)
replace lltpr = 0.0035 if age >= 59.999
gen agedofa = (dofa-dob)/365.25
replace lltpr = 0 if age < agedofa
replace lltpr = lltpr*(0.95) if sex == 0
replace lltpr = lltpr*(1.05) if sex == 1
replace lltpr = lltpr*(3^ldldist)
replace lltpr = 1-exp(-lltpr)
gen prllt = runiform()
gen lltinit = 1 if lltpr >= prllt & llt==0
bysort eid lltinit age : gen agellt0 = age if lltinit ==1 & _n == 1
bysort eid (age) : egen llt1 = min(lltinit)
bysort eid (age) : egen agellt1 = min(agellt0) if llt1 == 1
ta agellt1
replace ldl = ldl*0.55 if age >= agellt1 & llt1 == 1
sort eid age
replace ldl = 0.75+(0.1875*ldldist) if inrange(age,0.09,0.11)
replace ldl = 2+(0.5*ldldist)  if inrange(age,4.99,5.01)
bysort eid (age) : replace ldl = (ldl[50]-ldl[1])/49 if inrange(age,0.11,4.99)
bysort eid (age) : replace ldl = (ldl[400]-ldl[50])/350 if inrange(age,5.01,39.99)
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,0.09,4.99)
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,4.99,39.99)
gen ldl_0_30 = ldl if age < 40
replace ldl_0_30 = ldl1 if age >= 40
gen ldl_0_40 = ldl_0_30
gen ldl_0_50 = ldl if age < 50
replace ldl_0_50 = ldl1 if age >= 50
gen ldl_0_60 = ldl if age < 60
```

```
replace ldl_0_60 = ldl1 if age >= 60
sort eid age
preserve
bysort eid (age) : keep if _n == 1
gen agellt2 = min(agellt,agellt1)
keep eid agellt2
rename agellt2 agellt
replace agellt = round(agellt,0.1)
tostring agellt, force format(%9.1f) replace
destring agellt, replace
save LDLtraj/agellt_control_`a´, replace
restore
keep eid sex ldl age njm ldl_0_30-ldl_0_60
forval i = 30(10)60 {
forval ii = 1/4 {
gen ldl_`ii´_`i´ = ldl_0_`i´
}
replace ldl_1_`i´ = ldl_0_`i´*0.6 if age >= `i´
replace ldl_2_`i´ = ldl_0_`i´*0.5 if age >= `i´
replace ldl_3_`i´ = ldl_0_`i´*0.45 if age >= `i´
replace ldl_4_`i´ = ldl_0_`i´*0.485 if age >= `i´
}
bysort eid (age) : gen cumldl = sum(ldl)/10 if ldl!=.
gen aveldl = cumldl/age
forval i = 1/4 {
forval ii = 30(10)60 {
bysort eid (age) : gen cumldl_`i´_`ii´ = sum(ldl_`i´_`ii´)/10
gen aveldl_`i´_`ii´ = cumldl_`i´_`ii´/age
}
}
keep eid sex age aveldl ///
aveldl_1_30 aveldl_1_40 aveldl_1_50 aveldl_1_60 ///
aveldl_2_30 aveldl_2_40 aveldl_2_50 aveldl_2_60 ///
aveldl_3_30 aveldl_3_40 aveldl_3_50 aveldl_3_60 ///
aveldl_4_30 aveldl_4_40 aveldl_4_50 aveldl_4_60
keep if age >= 30
tostring age, replace force format(%9.1f)
destring age, replace
merge m:1 sex age using ldlave_reg
drop if _merge == 2
drop _merge
merge m:1 sex age using MI_inc
drop if _merge == 2
drop _merge
rename rate nfMIrate
rename errr nfMIerrr
merge m:1 sex age using MIdrates
drop if _merge == 2
drop _merge MI
rename rate fMIrate
rename errr fMIerrr
sort eid age
save LDLtraj/LDL_trajectories_`a´, replace
}
clear
forval a = 1(1000)458001 {
append using LDLtraj/agellt_control_`a´
}
save agellt_control, replace
forval a = 1(1000)458001 {
erase LDLtraj/agellt_control_`a´.dta
}
```

6 LDL-C–adjusted MI incidence

Now that LDL-C trajectories over the lifetime for everyone in the model population under all scenarios have been estimated, the incidence of MI at a given age, sex, and mean cumulative LDL-C can be estimated.

As mentioned above, the effect of LDL-C on CHD is summarised with the odds ratio for CHD of 0.46 per mmol/L reduction in (lifetime) LDL-C [5]. This needs to be converted into a relative risk before use in the model. This is done using the formula:

$$RR = \frac{OR}{(1-P_0)+(P_0 \times OR)}$$

where OR is the odds ratio, RR the relative risk, and P_0 the risk of the outcome in the unexposed group [29].

This yields a RR of:

$$\frac{0.46}{(1-0.064)+(0.064\times 0.46)} = 0.48$$

Which is the number that will be applied to estimate the relative risk for MI for the cohort using the following equation:

$$R_a = R \times 0.48^{(LDL_\mu - LDL_\tau)}$$

where R_a is the adjusted age-specific rate, R the original age-specific rate (estimated in section 4), LDL_μ the mean cumulative LDL-C for UK Biobank sample at that given age (estimated in section 5) , and LDL_τ the mean cumulative LDL-C for the specific UK Biobank participant at that given age (estimated in section 5).

Note how this is the primary way disease biology is incorporated into the model– the model uses cumulative LDL-C, not instantaneous LDL-C, to estimate the incidence of MI.

To visualise the process, again just two people are used – one with a very low LDL-C, the other very high – and just the high-intensity statin arm is displayed.

```
use inferno, clear
local viri60 = var6[6]
local viri61 = var6[5]
local viri62 = var6[4]
local viri63 = var6[3]
local viri64 = var6[2]
use LDLtraj/LDL_trajectories_1, clear
keep if inrange(_n,345478,346579)
gen nfMIadj = nfMIrate*(0.48^(ldlave-aveldl))
gen fMIadj = fMIrate*(0.48^(ldlave-aveldl))
forval i = 1/4 {
forval ii = 30(10)60 {
gen nfMIadj_`i´_`ii´ = nfMIrate*(0.48^(ldlave-aveldl_`i´_`ii´))
gen fMIadj_`i´_`ii´ = fMIrate*(0.48^(ldlave-aveldl_`i´_`ii´))
}
}
twoway ///
(line nfMIadj age if inrange(_n,1,551), col("`viri60´") lpattern(dash)) ///
(line nfMIadj_2_60 age if inrange(_n,1,551), col("`viri61´") lpattern(dash)) ///
(line nfMIadj_2_50 age if inrange(_n,1,551), col("`viri62´") lpattern(dash)) ///
(line nfMIadj_2_40 age if inrange(_n,1,551), col("`viri63´") lpattern(dash)) ///
(line nfMIadj_2_30 age if inrange(_n,1,551), col("`viri64´") lpattern(dash)) ///
(line nfMIadj age if inrange(_n,552,1102), col("`viri60´")) ///
(line nfMIadj_2_60 age if inrange(_n,552,1102), col("`viri61´")) ///
```

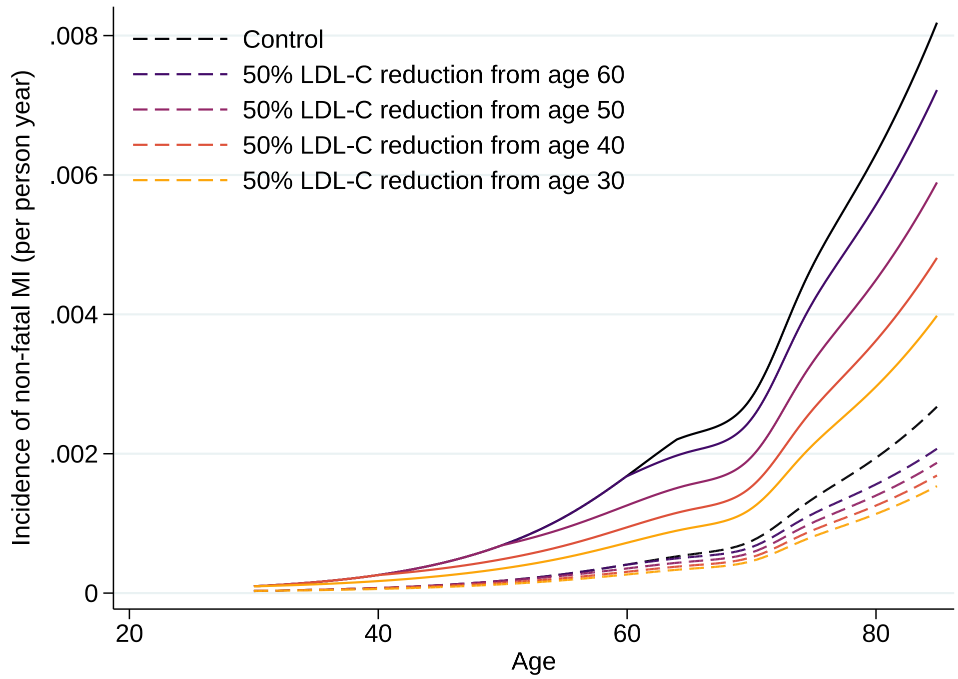

Figure 6.1: Incidence of non-fatal MI for 2 individuals by age of intervention

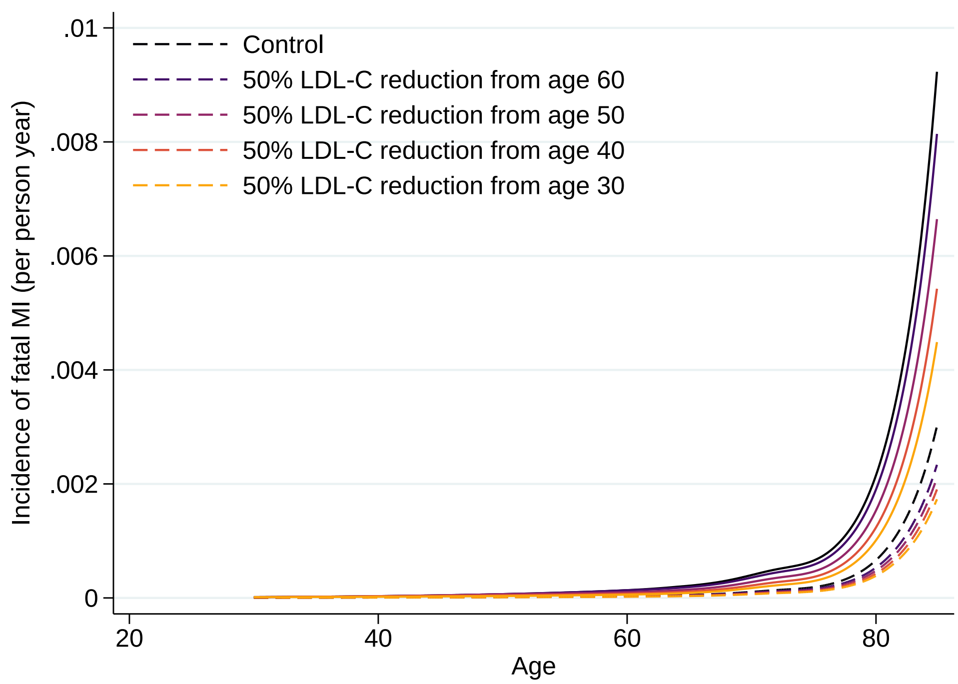

Figure 6.2: Incidence of fatal MI for 2 individuals by age of intervention

```
(line nfMIadj_2_50 age if inrange(_n,552,1102), col("`viri62´")) ///
(line nfMIadj_2_40 age if inrange(_n,552,1102), col("`viri63´")) ///
(line nfMIadj_2_30 age if inrange(_n,552,1102), col("`viri64´")) ///
, legend(order(1 "Control" ///
2 "50% LDL-C reduction from age 60" ///
3 "50% LDL-C reduction from age 50" ///
4 "50% LDL-C reduction from age 40" ///
5 "50% LDL-C reduction from age 30") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Incidence of non-fatal MI (per person year)) xtitle(Age) ///
ylabel(,angle(0))
>  individuals by age of intervention)
twoway ///
(line fMIadj age if inrange(_n,1,551), col("`viri60´") lpattern(dash)) ///
(line fMIadj_2_60 age if inrange(_n,1,551), col("`viri61´") lpattern(dash)) ///
(line fMIadj_2_50 age if inrange(_n,1,551), col("`viri62´") lpattern(dash)) ///
(line fMIadj_2_40 age if inrange(_n,1,551), col("`viri63´") lpattern(dash)) ///
(line fMIadj_2_30 age if inrange(_n,1,551), col("`viri64´") lpattern(dash)) ///
(line fMIadj age if inrange(_n,552,1102), col("`viri60´")) ///
(line fMIadj_2_60 age if inrange(_n,552,1102), col("`viri61´")) ///
(line fMIadj_2_50 age if inrange(_n,552,1102), col("`viri62´")) ///
(line fMIadj_2_40 age if inrange(_n,552,1102), col("`viri63´")) ///
(line fMIadj_2_30 age if inrange(_n,552,1102), col("`viri64´")) ///
, legend(order(1 "Control" ///
2 "50% LDL-C reduction from age 60" ///
3 "50% LDL-C reduction from age 50" ///
4 "50% LDL-C reduction from age 40" ///
5 "50% LDL-C reduction from age 30") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Incidence of fatal MI (per person year)) xtitle(Age) ///
ylabel(,angle(0))
> viduals by age of intervention)
```

A couple of things to note. First, LDL-C influences risk of MI (hardly groundbreaking science); second, the benefit of LDL-C reduction depends heavily on timing of the intervention and baseline LDL-C. What about the difference between interventions? For this, let's just use the person with high LDL-C and look at Low/moderate intensity vs. high-intensity statins.

```
twoway ///
(line nfMIadj age if inrange(_n,552,1102), col("`viri60´")) ///
(line nfMIadj_2_60 age if inrange(_n,552,1102), col("`viri61´")) ///
(line nfMIadj_2_50 age if inrange(_n,552,1102), col("`viri62´")) ///
(line nfMIadj_2_40 age if inrange(_n,552,1102), col("`viri63´")) ///
(line nfMIadj_2_30 age if inrange(_n,552,1102), col("`viri64´")) ///
(line nfMIadj_1_60 age if inrange(_n,552,1102), col("`viri61´") lpattern(dash)) ///
(line nfMIadj_1_50 age if inrange(_n,552,1102), col("`viri62´") lpattern(dash)) ///
(line nfMIadj_1_40 age if inrange(_n,552,1102), col("`viri63´") lpattern(dash)) ///
(line nfMIadj_1_30 age if inrange(_n,552,1102), col("`viri64´") lpattern(dash)) ///
, legend(order(1 "Control" ///
6 "40% LDL-C reduction from age 60" ///
2 "50% LDL-C reduction from age 60" ///
7 "40% LDL-C reduction from age 50" ///
3 "50% LDL-C reduction from age 50" ///
8 "40% LDL-C reduction from age 40" ///
4 "50% LDL-C reduction from age 40" ///
9 "40% LDL-C reduction from age 30" ///
5 "50% LDL-C reduction from age 30") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Incidence of non-fatal MI (per person year)) xtitle(Age) ///
ylabel(,angle(0))
>  individual by intervention)
twoway ///
(line fMIadj age if inrange(_n,552,1102), col("`viri60´")) ///
(line fMIadj_2_60 age if inrange(_n,552,1102), col("`viri61´")) ///
(line fMIadj_2_50 age if inrange(_n,552,1102), col("`viri62´")) ///
```

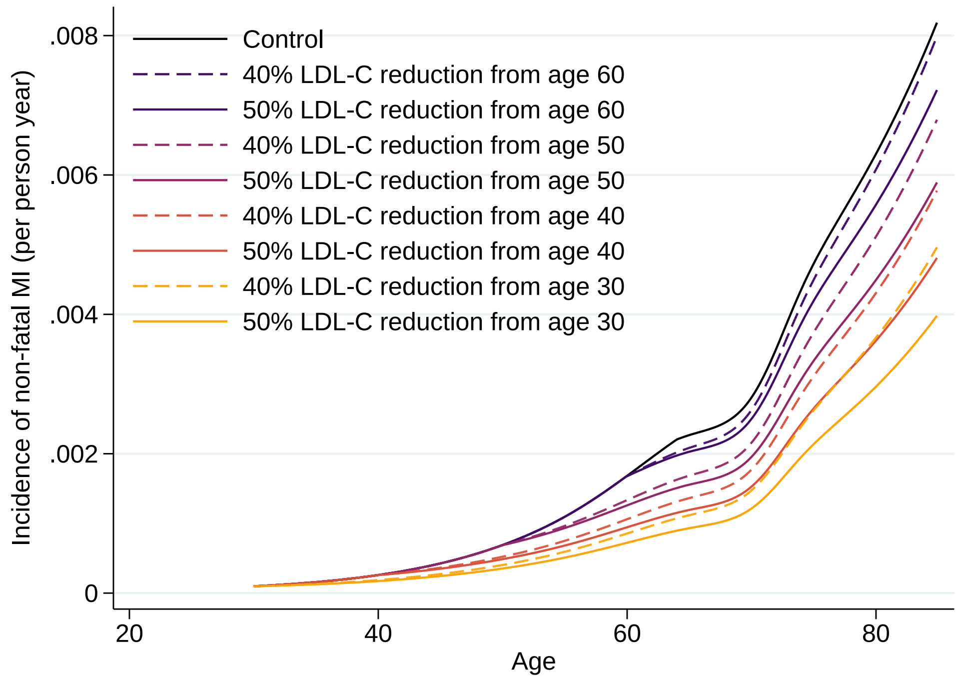

Figure 6.3: Incidence of non-fatal MI for 1 individual by intervention

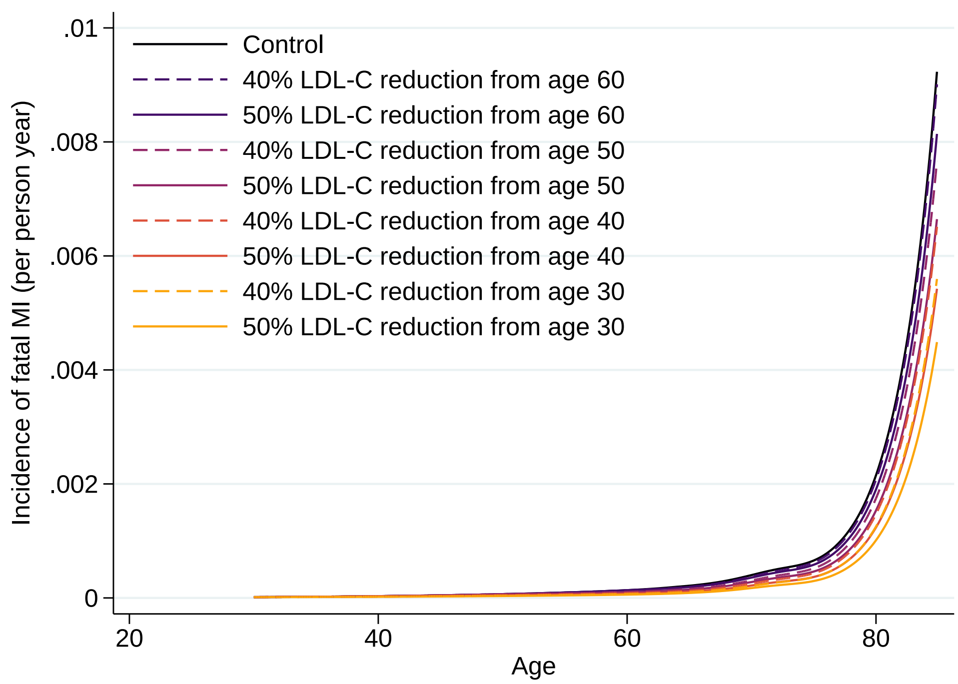

Figure 6.4: Incidence of fatal MI for 1 individual by intervention

```
(line fMIadj_2_40 age if inrange(_n,552,1102), col("`viri63´")) ///
(line fMIadj_2_30 age if inrange(_n,552,1102), col("`viri64´")) ///
(line fMIadj_1_60 age if inrange(_n,552,1102), col("`viri61´") lpattern(dash)) ///
(line fMIadj_1_50 age if inrange(_n,552,1102), col("`viri62´") lpattern(dash)) ///
(line fMIadj_1_40 age if inrange(_n,552,1102), col("`viri63´") lpattern(dash)) ///
(line fMIadj_1_30 age if inrange(_n,552,1102), col("`viri64´") lpattern(dash)) ///
, legend(order(1 "Control" ///
6 "40% LDL-C reduction from age 60" ///
2 "50% LDL-C reduction from age 60" ///
7 "40% LDL-C reduction from age 50" ///
3 "50% LDL-C reduction from age 50" ///
8 "40% LDL-C reduction from age 40" ///
4 "50% LDL-C reduction from age 40" ///
9 "40% LDL-C reduction from age 30" ///
5 "50% LDL-C reduction from age 30") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Incidence of fatal MI (per person year)) xtitle(Age) ///
ylabel(,angle(0))
> vidual by intervention)
```

Repeat the process for everyone:

```
forval a = 1(1000)458001 {
use LDLtraj/LDL_trajectories_`a´, clear
gen nfMIadj = nfMIrate*(0.48^(ldlave-aveldl))
gen fMIadj = fMIrate*(0.48^(ldlave-aveldl))
forval i = 1/4 {
forval ii = 30(10)60 {
gen nfMIadj_`i´_`ii´ = nfMIrate*(0.48^(ldlave-aveldl_`i´_`ii´))
gen fMIadj_`i´_`ii´ = fMIrate*(0.48^(ldlave-aveldl_`i´_`ii´))
}
}
keep eid sex age nfMIrate-fMIadj_4_60
forval i = 30(0.1)84.9 {
preserve
local ii = `i´-0.05
local iii = `i´+0.05
local iiii = round(`i´*10,1)
keep if inrange(age,`ii´,`iii´)
save MIrisk/MIrisk_`a´_`iiii´, replace
restore
}
}
forval i = 30(0.1)84.99 {
clear
local ii = `i´-0.05
local iii = `i´+0.05
local iiii = round(`i´*10,1)
forval a = 1(1000)458001 {
append using MIrisk/MIrisk_`a´_`iiii´
}
save MIrisk/MIrisk_com_`iiii´, replace
}
forval a = 1001(1000)458001 {
erase LDLtraj/LDL_trajectories_`a´.dta
}
forval a = 1(1000)458001 {
forval i = 30(0.1)84.99 {
local iiii = round(`i´*10,1)
erase MIrisk/MIrisk_`a´_`iiii´.dta
}
}
```

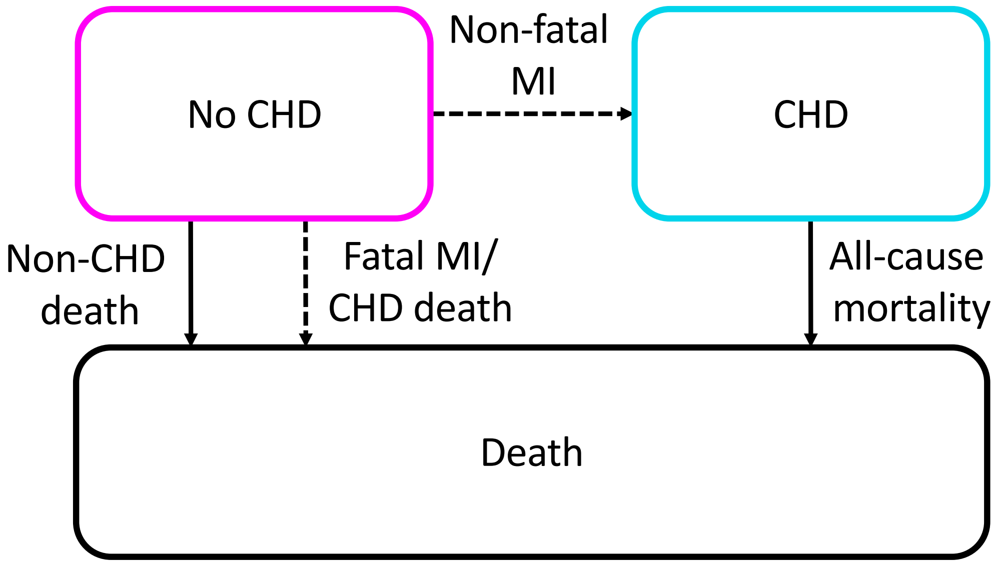

Figure 7.1: Model structure. Dashed lines are transition probabilities influenced by mean cumulative LDL-C; solid lines are transition probabilities not influenced by LDL-C.

7 Microsimulation model

At this point, everything required to construct the model has been estimated.

Recall the model structure (figure 7.1).

So far, the following have been estimated:

- Age- and sex-specific incidence of MI (fatal and non-fatal), adjusted for an individual's LDL-C trajectory over their lifetime under different scenarios.
- Age- and sex- non-CHD mortality for people without MI.
- Age-, sex-, and time-since-MI-specific mortality for people with MI.

These can be used to simulate the UK Biobank cohort over their lifetime in a microsimulation model. The model starts at age 30 and runs to age 85, ageing in 0.1-year increments. All individuals start free of MI, and in each cycle are at risk for non-fatal MI, fatal MI/CHD death, and non-CHD death. Once a non-fatal MI has occurred, individuals are at risk for death. *Repeat events are not tracked.* For health economic analyses, the costs of repeat events will be assumed to be captured in the ongoing cost of managing MI.

7.1 First cycle in detail

So, here I will first build the overall structure of the model. Health economic outcomes will be added later on. The first cycle is explained in detail:

```
use MIrisk/MIrisk_com_300, clear
replace age = age*10
save MIrisk/MIrisk_com10_300, replace

use UKB_working, clear
drop if dob==.
drop if mid <= dofa
keep if ldl!=.
keep eid sex
gen age = 30
gen MI = 0
gen durn = 0
gen Death = 0
gen rand = 0
save Microsim_30o, replace

. list sex-rand in 1/10 , separator(0)
```

	sex	age	MI	durn	Death	rand
1.	0	30	0	0	0	0
2.	1	30	0	0	0	0
3.	1	30	0	0	0	0
4.	0	30	0	0	0	0
5.	0	30	0	0	0	0
6.	0	30	0	0	0	0
7.	1	30	0	0	0	0
8.	1	30	0	0	0	0
9.	0	30	0	0	0	0
10.	0	30	0	0	0	0

This is the starting structure of the model. (Note the *eid* hasn't been listed for privacy reasons, but it is there, and will be used for individual LDL-C trajectories/MI risk). Next transition probabilities are merged in (well, rates are, then converted to transition probabilities):

```
merge 1:1 eid age using MIrisk/MIrisk_com_300
drop if _merge == 2
rename (nfMIadj fMIadj) (nfMI fMI)
keep eid-rand nfMI fMI
merge m:1 age sex using NCdrates
drop if _merge == 2
rename rate NCd
drop errr-_merge
gen ratesum = nfMI+fMI+NCd
gen tpsum = 1-exp(-ratesum*0.1)
replace nfMI = tpsum*nfMI/ratesum
replace fMI = tpsum*fMI/ratesum
replace NCd = tpsum*NCd/ratesum
drop ratesum tpsum
sort eid

. list sex age nfMI fMI NCd in 1/10 , separator(0)
```

	sex	age	nfMI	fMI	NCd
1.	0	30	5.05e-06	7.45e-07	.0000197
2.	1	30	.0000326	3.60e-06	.0000239
3.	1	30	.0000234	2.59e-06	.0000239
4.	0	30	4.00e-06	5.90e-07	.0000197
5.	0	30	5.13e-06	7.56e-07	.0000197
6.	0	30	.0000135	1.99e-06	.0000197
7.	1	30	.0000269	2.98e-06	.0000239
8.	1	30	.0000128	1.41e-06	.0000239
9.	0	30	6.74e-06	9.94e-07	.0000197

```
 10. |    0    30   9.71e-06   1.43e-06   .0000197 |
```

Note how the rate of MI is different for each person, but the non-CHD mortality is the same by sex. Next, people are transitioned between states:

```
. replace rand = runiform()
(458,692 real changes made)
. recode MI 0=1 if (nfMI > rand) & Death == 0
(14 changes made to MI)
. replace rand = runiform()
(458,692 real changes made)
. recode MI 0=1 if (fMI > rand) & Death == 0
(0 changes made to MI)
. recode Death 0=1 if (fMI > rand) & durn == 0
(0 changes made to Death)
. replace rand = runiform()
(458,692 real changes made)
. recode Death 0=1 if (NCd > rand) & MI == 0
(7 changes made to Death)
```

As expected, for people aged 30 the probability of an event or death is extremely low, so we don't see many transitions here. Just to show the mechanics of the model, the transition probabilities can be made higher:

```
. preserve
. replace nfMI = 0.3
(458,692 real changes made)
. replace fMI = 0.5
(458,692 real changes made)
. replace NCd = 0.5
(458,692 real changes made)
. replace rand = runiform()
(458,692 real changes made)
. recode MI 0=1 if (nfMI > rand) & Death == 0
(137780 changes made to MI)
. replace rand = runiform()
(458,692 real changes made)
. recode MI 0=1 if (fMI > rand) & Death == 0
(159923 changes made to MI)
. recode Death 0=1 if (fMI > rand) & durn == 0 & MI == 0
(0 changes made to Death)
. replace rand = runiform()
(458,692 real changes made)
. recode Death 0=1 if (NCd > rand) & MI == 0
(80281 changes made to Death)
. list sex-Death in 1/10 , separator(0)
```

	sex	age	MI	durn	Death
1.	0	30	1	0	0
2.	1	30	0	0	1
3.	1	30	1	0	0
4.	0	30	1	0	0
5.	0	30	1	0	0
6.	0	30	1	0	0
7.	1	30	0	0	0
8.	1	30	1	0	0
9.	0	30	1	0	0
10.	0	30	0	0	1

```
. restore
```

Also note the variable *MI* is used to track both non-fatal MI and coronary death. After events occur, the cohort is aged one cycle:

```
replace age = round(age+0.1,0.1) if Death == 0
replace durn = round(durn+0.1,0.1) if MI == 1 & Death == 0
drop nfMI-NCd

. list sex-Death in 1/10 , separator(0)
```

	sex	age	MI	durn	Death
1.	0	30.1	0	0	0
2.	1	30.1	0	0	0
3.	1	30.1	0	0	0
4.	0	30.1	0	0	0
5.	0	30.1	0	0	0
6.	0	30.1	0	0	0
7.	1	30.1	0	0	0
8.	1	30.1	0	0	0
9.	0	30.1	0	0	0
10.	0	30.1	0	0	0

This can be repeated to age 85. The only difference between these and the first cycle is that the population with MI is also aged, but the principles are the same. The populations are also saved at ages 40, 50, and 60 years for use in the interventions later.

7.2 Full model

Notice how seeds are set, this ensures the conditions for each simulation are exactly the same and thus, people serve directly as their own control for each intervention.

Additionally, merging on numeric variables with decimals is not a good idea, because they cannot be represented in binary, and so aren't always stored the same across datasets. Thus, I will first convert all ages/durations into integers to run the model.

```
forval i = 300/849 {
use MIrisk/MIrisk_com_`i´, clear
replace age = age*10
save MIrisk/MIrisk_com10_`i´, replace
}
forval i = 301/849 {
erase MIrisk/MIrisk_com_`i´.dta
}
use NCdrates, clear
replace age = age*10
save NCdrates10, replace
use PMId, clear
replace age = age*10
replace durn = durn*10
save PMId10, replace
use Microsim_30o, clear
replace age = age*10
save Microsim_30, replace
quietly {
use Microsim_30, clear
set seed 6746
forval i = 300/849 {
merge 1:1 eid age using MIrisk/MIrisk_com10_`i´
```

```
drop if _merge == 2
rename (nfMIadj fMIadj) (nfMI fMI)
keep eid-rand nfMI fMI
merge m:1 age sex using NCdrates10
drop if _merge == 2
rename rate NCd
drop errr-_merge
merge m:1 age sex durn MI using PMId10
drop if _merge == 2
rename rate PMId
drop adx errr _merge
gen ratesum = nfMI+fMI+NCd
gen tpsum = 1-exp(-ratesum*0.1)
replace nfMI = tpsum*nfMI/ratesum
replace fMI = tpsum*fMI/ratesum
replace NCd = tpsum*NCd/ratesum
replace PMId = 1-exp(-PMId*0.1)
drop ratesum tpsum
sort eid
replace rand = runiform()
recode MI 0=1 if (nfMI > rand) & Death == 0
replace rand = runiform()
recode MI 0=1 if (fMI > rand) & Death == 0
recode Death 0=1 if (fMI > rand) & durn == 0
replace rand = runiform()
recode Death 0=1 if (NCd > rand) & MI == 0
replace rand = runiform()
recode Death 0=1 if (PMId > rand) & MI == 1 & durn!=0
replace age = age+1 if Death == 0
replace durn = durn+1 if MI == 1 & Death == 0
drop nfMI-PMId
if `i´ == 399 {
save Microsim_40, replace
set seed 2791
}
if `i´ == 499 {
save Microsim_50, replace
set seed 9261
}
if `i´ == 599 {
save Microsim_60, replace
set seed 1467
}
}
replace age = age/10
replace durn = durn/10
save trial_control, replace
}

use trial_control, clear
sort eid
```

```
. list sex-Death in 1/11 , separator(0)
```

	sex	age	MI	durn	Death
1.	0	66.1	0	0	1
2.	1	85	0	0	0
3.	1	83.8	1	6	1
4.	0	85	0	0	0
5.	0	85	0	0	0
6.	0	84.3	0	0	1
7.	1	77.8	0	0	1
8.	1	85	0	0	0
9.	0	85	0	0	0
10.	0	85	0	0	0
11.	0	84.5	0	0	1

Once run, it is also seen that all the information required is saved at the end of the run (so events don't need to be tracked throughout) – because the model stops cycling people at death, the final dataset indicates the age people died, when and if they had an MI, and at what age. I.e., all the things necessary to track utilities and costs.

7.3 LDL-C adjustment check

Before going further, it would be prudent to check that the method of adjusting CHD risk via LDL-C has not biased our results dramatically. This can be done by comparing the results of the control simulation to one using the original MI rates (i.e., those unadjusted for LDL-C):

```
quietly {
use Microsim_30, clear
set seed 6746
forval i = 300/849 {
merge 1:1 eid age using MIrisk/MIrisk_com10_`i´
drop if _merge == 2
rename (nfMIrate fMIrate) (nfMI fMI)
keep eid-rand nfMI fMI
merge m:1 age sex using NCdrates10
drop if _merge == 2
rename rate NCd
drop errr-_merge
merge m:1 age sex durn MI using PMId10
drop if _merge == 2
rename rate PMId
drop adx errr _merge
gen ratesum = nfMI+fMI+NCd
gen tpsum = 1-exp(-ratesum*0.1)
replace nfMI = tpsum*nfMI/ratesum
replace fMI = tpsum*fMI/ratesum
replace NCd = tpsum*NCd/ratesum
replace PMId = 1-exp(-PMId*0.1)
drop ratesum tpsum
sort eid
replace rand = runiform()
recode MI 0=1 if (nfMI > rand) & Death == 0
replace rand = runiform()
recode MI 0=1 if (fMI > rand) & Death == 0
recode Death 0=1 if (fMI > rand) & durn == 0
replace rand = runiform()
recode Death 0=1 if (NCd > rand) & MI == 0
replace rand = runiform()
recode Death 0=1 if (PMId > rand) & MI == 1 & durn!=0
replace age = age+1 if Death == 0
replace durn = durn+1 if MI == 1 & Death == 0
drop nfMI-PMId
if `i´ == 399 {
set seed 2791
}
if `i´ == 499 {
set seed 9261
}
if `i´ == 599 {
set seed 1467
}
}
replace age = age/10
replace durn = durn/10
save trial_control_check, replace
}
```

```
. use trial_control, clear

. ta MI

         MI |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    390,800       85.20       85.20
          1 |     67,892       14.80      100.00
------------+-----------------------------------
      Total |    458,692      100.00

. ta Death

      Death |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    301,063       65.64       65.64
          1 |    157,629       34.36      100.00
------------+-----------------------------------
      Total |    458,692      100.00

. ta MI Death

           |         Death
        MI |         0          1 |     Total
-----------+----------------------+----------
         0 |   269,679    121,121 |   390,800
         1 |    31,384     36,508 |    67,892
-----------+----------------------+----------
     Total |   301,063    157,629 |   458,692

. ta MI if sex == 0

         MI |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    228,959       90.67       90.67
          1 |     23,572        9.33      100.00
------------+-----------------------------------
      Total |    252,531      100.00

. ta MI if sex == 1

         MI |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    161,841       78.50       78.50
          1 |     44,320       21.50      100.00
------------+-----------------------------------
      Total |    206,161      100.00

. use trial_control_check, clear

. ta MI

         MI |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    390,090       85.04       85.04
          1 |     68,602       14.96      100.00
------------+-----------------------------------
      Total |    458,692      100.00

. ta Death

      Death |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    300,320       65.47       65.47
          1 |    158,372       34.53      100.00
------------+-----------------------------------
      Total |    458,692      100.00

. ta MI Death

           |         Death
        MI |         0          1 |     Total
-----------+----------------------+----------
         0 |   268,615    121,475 |   390,090
         1 |    31,705     36,897 |    68,602
-----------+----------------------+----------
     Total |   300,320    158,372 |   458,692

. ta MI if sex == 0

         MI |      Freq.     Percent        Cum.
```

```
          0 │    227,331       90.02       90.02
          1 │     25,200        9.98      100.00
────────────┼──────────────────────────────────
      Total │    252,531      100.00
. ta MI if sex == 1
         MI │      Freq.     Percent        Cum.
────────────┼──────────────────────────────────
          0 │    162,759       78.95       78.95
          1 │     43,402       21.05      100.00
────────────┼──────────────────────────────────
      Total │    206,161      100.00
```

```
use trial_control, clear
gen ageMI = round(age-durn,0.1) if MI == 1
hist ageMI, bin(1000) color(gs0) frequency graphregion(color(white)) ///
xtitle("Age of first MI or coronary death") ylabel(0(100)600) ///
title("Adjusted rates", placement(west) size(medium) color(gs0))
graph save "Graph" GPH/ageMI_00, replace
use trial_control_check, clear
gen ageMI = round(age-durn,0.1) if MI == 1
hist ageMI, bin(1000) color(gs0) frequency graphregion(color(white)) ///
xtitle("Age of first MI or coronary death") ylabel(0(100)600) ///
title("Original rates", placement(west) size(medium) color(gs0))
graph save "Graph" GPH/ageMI_01, replace
graph combine GPH/ageMI_00.gph GPH/ageMI_01.gph, altshrink cols(1) xsize(3) graphregion(color(white)
> )
> ethod of estimating rates)
quietly {
use trial_control, clear
gen ageMI = round(age-durn,0.1) if MI == 1
count
local N = r(N)
matrix A_0 = (.,.)
forval i = 30(0.1)85 {
count if ageMI < `i´+0.05
matrix A_0 = (A_0\0`i´,100*r(N)/`N´)
}
use trial_control_check, clear
gen ageMI = round(age-durn,0.1) if MI == 1
count
local N = r(N)
matrix A_1 = (.)
forval i = 30(0.1)85 {
count if ageMI < `i´+0.05
matrix A_1 = (A_1\100*r(N)/`N´)
}
}
use inferno, clear
local col1 = var3[3]
local col2 = var3[2]
clear
svmat double A_0
svmat double A_1
rename A_01 age
twoway ///
(line A_02 age, col("`col1´")) ///
(line A_11 age, col("`col2´")) ///
, legend(order(1 "Adjusted rates" ///
2 "Original rates") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Cumulative incidence of MI (%)) xtitle(Age) ///
ylabel(,angle(0))
> ronary death by method of estimating rates)
```

So the adjustment makes little difference, which means there is reassurance that the method

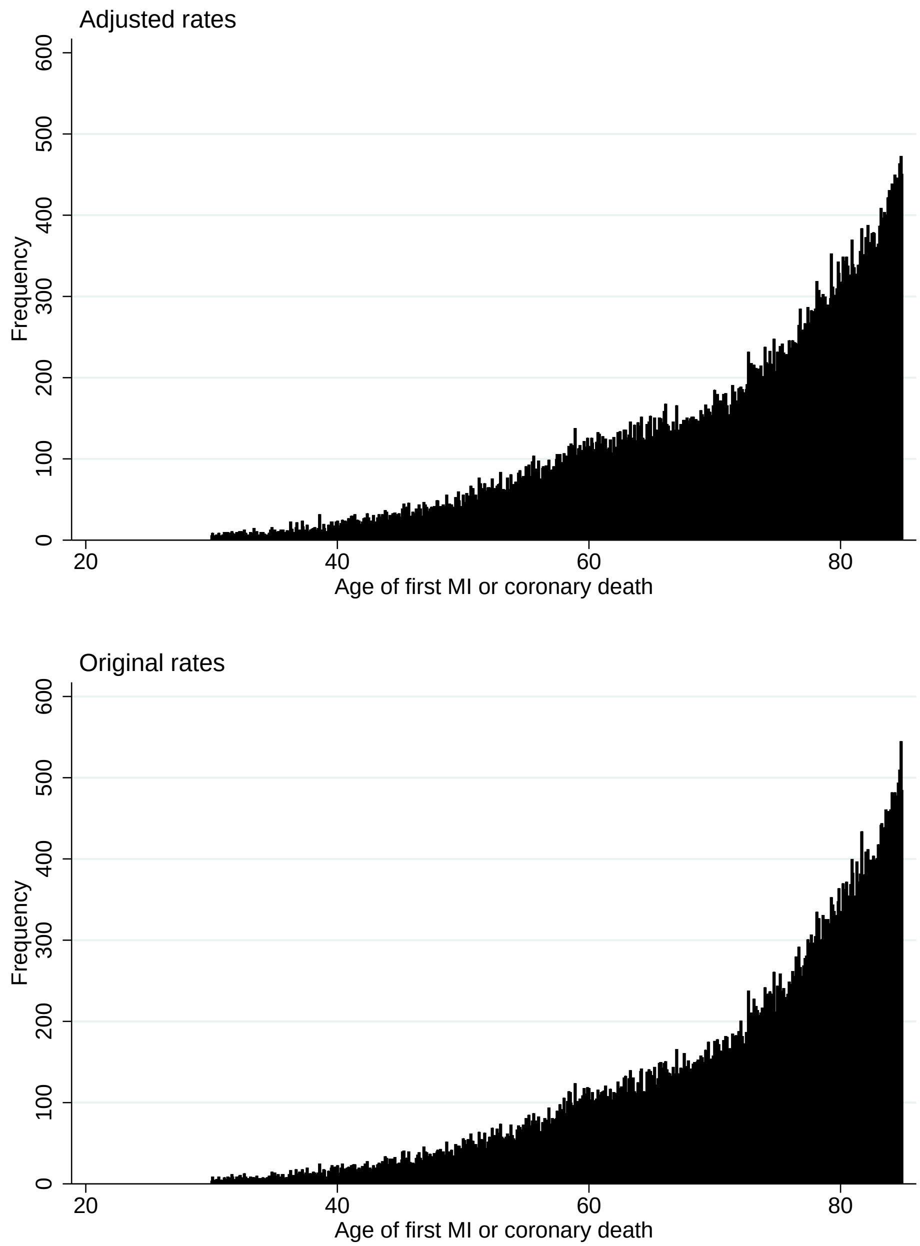

Figure 7.2: Age of MI or coronary death by method of estimating rates

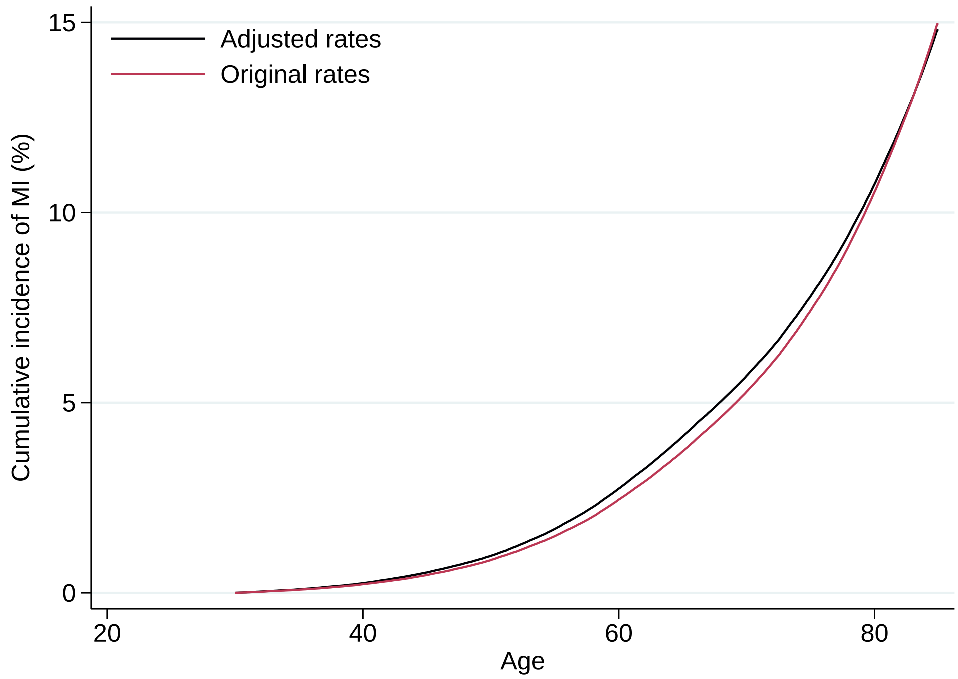

Figure 7.3: Cumulative incidence of MI or coronary death by method of estimating rates

of adjusting rates is not *very* wrong. It's also worth pointing out at this point that the lifetime risk of MI/coronary death under the control scenario is relatively consistent with the available literature, although estimates of lifetime risk vary considerably depending on definitions (many were all CHD, not just MI and coronary death) and country, but the estimate in the present study is higher than some [30, 31] considerably lower than others [32, 33], and similar to one [34]. This is a bit surprising given that UK Biobank is known to have an important "health volunteer" bias [35]. Thus, it is reassuring to know that the lifetime risk of MI does not appear to be massively under or over-estimated.

7.4 Interventions

Now to simulate the interventions:

```
quietly {
forval i = 1/4 {
forval ii = 30(10)60 {
if `ii´ == 30 {
local a = 300
set seed 6746
}
if `ii´ == 40 {
local a = 400
set seed 2791
}
if `ii´ == 50 {
local a = 500
set seed 9261
```

```
}
if `ii´ == 60 {
local a = 600
set seed 1467
}
use Microsim_`ii´, clear
forval iii = `a´/849 {
merge 1:1 eid age using MIrisk/MIrisk_com10_`iii´
drop if _merge == 2
rename (nfMIadj_`i´_`ii´ fMIadj_`i´_`ii´) (nfMI fMI)
keep eid-rand nfMI fMI
merge m:1 age sex using NCdrates10
drop if _merge == 2
rename rate NCd
drop errr-_merge
merge m:1 age sex durn MI using PMId10
drop if _merge == 2
rename rate PMId
drop adx errr _merge
gen ratesum = nfMI+fMI+NCd
gen tpsum = 1-exp(-ratesum*0.1)
replace nfMI = tpsum*nfMI/ratesum
replace fMI = tpsum*fMI/ratesum
replace NCd = tpsum*NCd/ratesum
replace PMId = 1-exp(-PMId*0.1)
drop ratesum tpsum
sort eid
replace rand = runiform()
recode MI 0=1 if (nfMI > rand) & Death == 0
replace rand = runiform()
recode MI 0=1 if (fMI > rand) & Death == 0
recode Death 0=1 if (fMI > rand) & durn == 0
replace rand = runiform()
recode Death 0=1 if (NCd > rand) & MI == 0
replace rand = runiform()
recode Death 0=1 if (PMId > rand) & MI == 1 & durn!=0
replace age = age+1 if Death == 0
replace durn = durn+1 if MI == 1 & Death == 0
drop nfMI-PMId
}
replace age = age/10
replace durn = durn/10
save trial_`i´_`ii´, replace
}
}
}
forval iii = 300/849 {
erase MIrisk/MIrisk_com10_`iii´.dta
}
```

7.5 Lifetime risk of MI

And to plot the lifetime risk of MI under all conditions:

```
quietly {
use trial_control, clear
gen ageMI = round(age-durn,0.1) if MI == 1
count
local N = r(N)
matrix A_0 = (.,.)
forval i = 30(0.1)85 {
count if ageMI < `i´+0.05
matrix A_0 = (A_0\0`i´,100*r(N)/`N´)
}
forval a = 1/4 {
forval b = 30(10)60 {
```

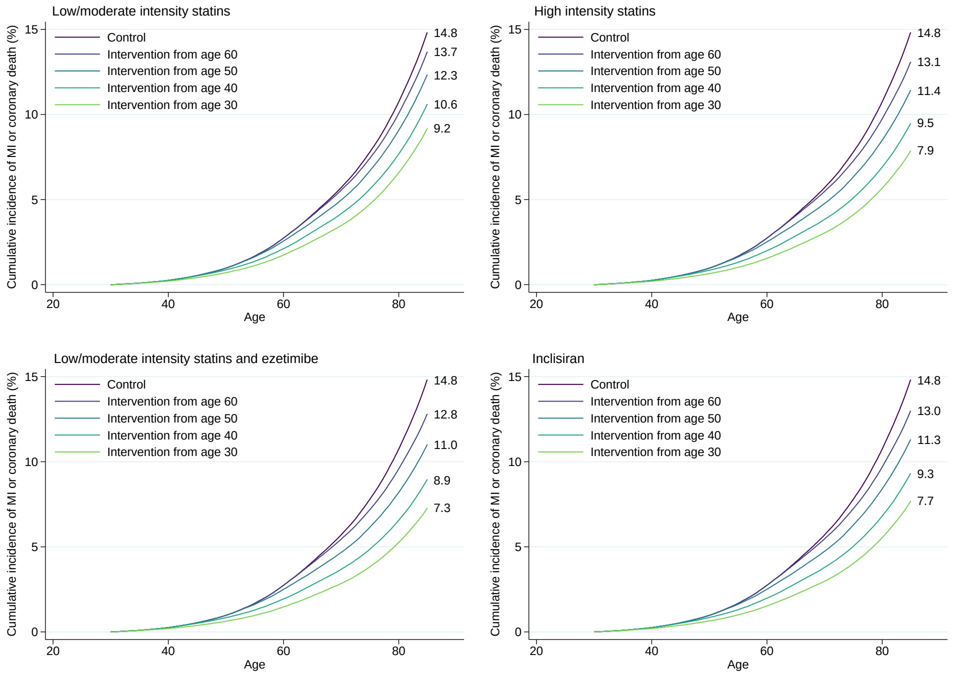

Figure 7.4: Cumulative incidence of MI or coronary death by intervention

```
use trial_`a´_`b´, clear
gen ageMI = round(age-durn,0.1) if MI == 1
count
local N = r(N)
matrix A_`a´_`b´ = (.)
forval i = 30(0.1)85 {
count if ageMI < `i´+0.05
matrix A_`a´_`b´ = (A_`a´_`b´\100*r(N)/`N´)
}
}
}
}
clear
svmat double A_0
svmat double A_1_30
svmat double A_1_40
svmat double A_1_50
svmat double A_1_60
svmat double A_2_30
svmat double A_2_40
svmat double A_2_50
svmat double A_2_60
svmat double A_3_30
svmat double A_3_40
svmat double A_3_50
svmat double A_3_60
svmat double A_4_30
svmat double A_4_40
svmat double A_4_50
svmat double A_4_60
rename A_01 age
save CumMIfig_overall, replace
```

```
use viridis, clear
local viri60 = var6[6]
local viri61 = var6[5]
local viri62 = var6[4]
local viri63 = var6[3]
local viri64 = var6[2]
forval a = 1/4 {
if `a´ == 1 {
local aa = "Low/moderate intensity statins"
}
if `a´ == 2 {
local aa = "High intensity statins"
}
if `a´ == 3 {
local aa = "Low/moderate intensity statins and ezetimibe"
}
if `a´ == 4 {
local aa = "Inclisiran"
}
use CumMIfig_overall, clear
preserve
tostring _all, force format(%9.1f) replace
local p0 = A_02[552]
local p1 = A_`a´_301[552]
local p2 = A_`a´_401[552]
local p3 = A_`a´_501[552]
local p4 = A_`a´_601[552]
restore
twoway ///
(line A_02 age, col("`viri60´")) ///
(line A_`a´_601 age, col("`viri61´")) ///
(line A_`a´_501 age, col("`viri62´")) ///
(line A_`a´_401 age, col("`viri63´")) ///
(line A_`a´_301 age, col("`viri64´")) ///
, legend(order(1 "Control" ///
2 "Intervention from age 60" ///
3 "Intervention from age 50" ///
4 "Intervention from age 40" ///
5 "Intervention from age 30") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Cumulative incidence of MI or coronary death (%)) xtitle(Age) ///
ylabel(,angle(0)) xscale(range(30 90)) ///
text(`p0´ 86 "`p0´", color(black) placement(east)) ///
text(`p1´ 86 "`p1´", color(black) placement(east)) ///
text(`p2´ 86 "`p2´", color(black) placement(east)) ///
text(`p3´ 86 "`p3´", color(black) placement(east)) ///
text(`p4´ 86 "`p4´", color(black) placement(east)) ///
title("`aa´", placement(west) col(black) size(medium))
graph save "Graph" GPH/cumMIfigoverall_`a´, replace
}
graph combine ///
GPH/cumMIfigoverall_1.gph ///
GPH/cumMIfigoverall_2.gph ///
GPH/cumMIfigoverall_3.gph ///
GPH/cumMIfigoverall_4.gph ///
, altshrink graphregion(color(white)) cols(2)
> nary death by intervention)
```

It can be seen from figure 7.4 that earlier and more aggressive lowering of LDL-C is clearly a better strategy for the prevention of MI and coronary death.

7.6 Utilities and costs

The question now is whether the extra decades of treatment are justified from a cost-effectiveness perspective. To assess this, the incremental cost-effectiveness ratio (ICER; from the UK healthcare perspective) will be calculated, which requires calculating the incremental quality-adjusted life years (QALYs) and incremental healthcare costs. To do this, the following inputs are used:

- Utility values for people without MI in the UK, set using the following equation: $0.9454933 + 0.0256466 * male - 0.0002213 * age - 0.0000294 * age^2$, derived from Ara and Brazier [36], which appears to be a standard for health economic analyses in the UK.

- Utility values for people with MI, set at 0.79 (95%CI 0.73, 0.85), derived from a systematic review of utility values in CVD [37]. People with MI also incurred an acute disutility associated with the initial MI, which was set at 0.12 [38] and applied for 3 months, for a final acute disutility of 0.03 per year in the year the event occured in.

- Cost of acute MI in the UK, set at £2047.31. This is derived directly from the National Health Service Cost Schedule for 2020/21 ([39]). See Table 7.1 for details.

- Excess chronic costs of managing MI (including subsequent events) in the UK. This is set at £4705.45 (Standard error (SE): 112.71) for the first 6 months, and £1015.21 (SE: 171.23) per year thereafter (values adjusted from 2014 £to 2021 £using the NHS cost inflation index (from: [40], which was a mean of 1.38% from 2014-2021; thus the conversion formula was $cost_{2014} \times 1.0138^7$). These values were derived from a cohort study using the Clinical Practice Research Datalink in the UK [41] (the original unadjusted values: 4275.41 (SE: 102.41) and £922.43 (SE: 155.58)).

- The average annual cost of statins in the UK, for the control arm. This is set at £19.00, derived directly from the NHS Drug Tariff data [42], with the distribution of statin use derived from the English Prescribing Dataset in June 2021 [43] (see below for details on how this was calculated).

- The cost of low/moderate intensity statins. As above, the most common in this class was Atorvastatin 20mg, which also happens to be the most expensive in the NHS drug tariff (out of Atorvastatin 10mg and 20mg, and Simvastatin 20mg and 40mg), and is thus the most conservative, at a price of £1.41 per 28 tablets, which leads to an annual cost of $\frac{1.41}{28} \times 365.25 =$ £18.39

- The cost of high intensity statins. As above, the most common in this class was Atorvastatin 40mg, but to be conservative, it's best to use the price of Atorvastatin 80mg, which has a packet cost of £2.10, leading to an annual cost of $\frac{2.10}{28} \times 365.25 =$ £27.39

- The cost of low/moderate intensity statins and ezetimibe. The cost of a packet of 28 ezetimibe (10mg) tablets is £2.37, leading to an annual cost of $\frac{2.37}{28} \times 365.25 =$ £30.92, which we can add to the annual cost of low-moderate intensity statins used above for an annual cost of $18.39 + 30.92 =$ £49.31

- The cost of Inclisiran. This wasn't available on the drug tariff in June 2021, but is available under a special agreement at a price of £1987.36 per injection [44], leading to an annual cost of $1987.36 \times 2 =$ £3,974.72. This is very high, probably because Inclisiran is currently only indicated for very high-risk people. Thus, the price at which it is cost-effective for primary prevention is probably going to be considerably lower than in these high-risk populations. As such, later on, I will run threshold analyses later to determine the maximum cost at which

Inclisiran is cost-effective in the primary prevention setting (with considerable confidence in my assumption that it won't be cost-effective at this price).

The ICERs calculated here will be compared to the The U.K. National Institute for Health and Care Excellence (NICE) willingness-to-pay threshold, which is a range – £20,000 to £30,000 per QALY [45].

These cost-effectiveness analyses will also require the following assumptions:

- 18% of all fatal MI's occur in hospital (and therefore accrue 18% of the cost of a non-fatal MI; see below for details).
- The interventions continue after an MI, and add to the ongoing costs of management.
- Similarly, statin use is initiated after an MI for everyone in the control arm, adding to the ongoing cost of management.
- Discounting starts from the age of intervention (meaning the control scenario QALYs and costs will vary depending on the intervention). The discounting rate in the primary analysis will be 3.5%, as recommended by NICE [45].

Table 7.1: Calculation of acute MI costs

Code	Description	Number	Unit cost (£)	Weighted mean (£)
EB10A	Actual or Suspected Myocardial Infarction with CC Score 13+	19452	3312.25	
EB10B	Actual or Suspected Myocardial Infarction with CC Score 10-12	21042	2333.65	
EB10C	Actual or Suspected Myocardial Infarction with CC Score 7-9	23518	1867.01	2047.31
EB10D	Actual or Suspected Myocardial Infarction with CC Score 4-6	25523	1588.42	
EB10E	Actual or Suspected Myocardial Infarction with CC Score 0-3	19637	1299.82	

How annual statin cost was arrived at (the source of the 18% follows this):

```
clear
forval i = 1(1000000)18000000 {
append using statins2021/st_`i´
}

. preserve

. collapse (sum) item, by(AA)

. list

     +------------------------+
     |           AA     items |
     |------------------------|
  1. | Atorvastatin   4.4e+06 |
  2. |  Fluvastatin      8469 |
  3. |  Pravastatin    203856 |
  4. | Rosuvastatin    263653 |
  5. |  Simvastatin   1.5e+06 |
     +------------------------+

. ta AA [aweight=item]
          AA |      Freq.     Percent        Cum.
-------------+-----------------------------------
Atorvastatin | 3.44793347       68.96       68.96
 Fluvastatin | .006574359        0.13       69.09
 Pravastatin |  .15825039        3.17       72.26
Rosuvastatin | .204669914        4.09       76.35
```

Simvastatin	1.18257187	23.65	100.00
Total	5	100.00	

```
. restore

. collapse (sum) items, by(bnf_description)

. ta bnf_description [weight=items]
(frequency weights assumed)
```

BNF_DESCRIPTION	Freq.	Percent	Cum.
Atorvastatin 10mg chewable tablets su..	520	0.01	0.01
Atorvastatin 10mg tablets	565,022	8.77	8.78
Atorvastatin 10mg/5ml oral liquid	17	0.00	8.78
Atorvastatin 20mg chewable tablets su..	1,309	0.02	8.80
Atorvastatin 20mg tablets	2,056,244	31.92	40.73
Atorvastatin 20mg/5ml oral solution	19	0.00	40.73
Atorvastatin 20mg/5ml oral suspension	231	0.00	40.73
Atorvastatin 30mg tablets	686	0.01	40.74
Atorvastatin 40mg tablets	1,224,000	19.00	59.74
Atorvastatin 60mg tablets	1,843	0.03	59.77
Atorvastatin 80mg tablets	591,690	9.19	68.96
Fluvastatin 20mg capsules	4,008	0.06	69.02
Fluvastatin 40mg capsules	3,279	0.05	69.07
Fluvastatin 80mg modified-release tab..	1,182	0.02	69.09
Pravastatin 10mg tablets	52,732	0.82	69.91
Pravastatin 20mg tablets	70,313	1.09	71.00
Pravastatin 40mg tablets	80,805	1.25	72.26
Pravastatin 40mg/5ml oral liquid	3	0.00	72.26
Pravastatin 5mg/5ml oral liquid	3	0.00	72.26
Rosuvastatin 10mg tablets	87,784	1.36	73.62
Rosuvastatin 20mg tablets	48,241	0.75	74.37
Rosuvastatin 40mg tablets	13,208	0.21	74.57
Rosuvastatin 5mg tablets	114,420	1.78	76.35
Simvastatin 10mg tablets	92,691	1.44	77.79
Simvastatin 20mg / Ezetimibe 10mg tab..	268	0.00	77.79
Simvastatin 20mg tablets	603,194	9.37	87.16
Simvastatin 20mg/5ml oral suspension ..	260	0.00	87.16
Simvastatin 40mg / Ezetimibe 10mg tab..	639	0.01	87.17
Simvastatin 40mg tablets	810,909	12.59	99.76
Simvastatin 40mg/5ml oral suspension ..	279	0.00	99.77
Simvastatin 80mg / Ezetimibe 10mg tab..	111	0.00	99.77
Simvastatin 80mg tablets	15,022	0.23	100.00
Total	6,440,932	100.00	

```
egen A = sum(items)
gen prop = items/A
matrix B = ( ///
30, 1380 \ ///
28, 101 \ ///
0, 0 \ ///
30, 2640 \ ///
28, 141 \ ///
0, 0 \ ///
0, 0 \ ///
28, 2451 \ ///
28, 150 \ ///
28, 2801 \ ///
28, 210 \ ///
28, 418 \ ///
28, 512 \ ///
28, 1920 \ ///
28, 124 \ ///
28, 146 \ ///
28, 184 \ ///
0, 0 \ ///
0, 0 \ ///
```

```
28, 169 \ ///
28, 202 \ ///
28, 253 \ ///
28, 145 \ ///
28, 115 \ ///
28, 3342 \ ///
28, 113 \ ///
0, 0 \ ///
28, 3898 \ ///
28, 130 \ ///
0, 0 \ ///
28, 4121 \ ///
28, 174)
svmat B
gen dcost = (B2/100)/B1
gen cost = prop*dcost

. list, separator(0)
```

	bnf_description	items	A	prop	B1	B2	dcost	cost
1.	Atorvastatin 10mg chewable tablets sugar free	520	6440932	.0000807	30	1380	.46	.0000371
2.	Atorvastatin 10mg tablets	565022	6440932	.0877236	28	101	.0360714	.0031643
3.	Atorvastatin 10mg/5ml oral liquid	17	6440932	2.64e-06	0	0	.	.
4.	Atorvastatin 20mg chewable tablets sugar free	1309	6440932	.0002032	30	2640	.88	.0001788
5.	Atorvastatin 20mg tablets	2.1e+06	6440932	.3192464	28	141	.0503571	.0160763
6.	Atorvastatin 20mg/5ml oral solution	19	6440932	2.95e-06	0	0	.	.
7.	Atorvastatin 20mg/5ml oral suspension	231	6440932	.0000359	0	0	.	.

	bnf_description	items	A	prop	B1	B2	dcost	cost
8.	Atorvastatin 30mg tablets	686	6440932	.0001065	28	2451	.8753572	.0000932
9.	Atorvastatin 40mg tablets	1.2e+06	6440932	.1900346	28	150	.0535714	.0101804
10.	Atorvastatin 60mg tablets	1843	6440932	.0002861	28	2801	1.000357	.0002862
11.	Atorvastatin 80mg tablets	591690	6440932	.091864	28	210	.075	.0068898
12.	Fluvastatin 20mg capsules	4008	6440932	.0006223	28	418	.1492857	.0000929
13.	Fluvastatin 40mg capsules	3279	6440932	.0005091	28	512	.1828571	.0000931
14.	Fluvastatin 80mg modified-release tablets	1182	6440932	.0001835	28	1920	.6857143	.0001258
15.	Pravastatin 10mg tablets	52732	6440932	.008187	28	124	.0442857	.0003626
16.	Pravastatin 20mg tablets	70313	6440932	.0109166	28	146	.0521429	.0005692

	bnf_description	items	A	prop	B1	B2	dcost	cost
17.	Pravastatin 40mg tablets	80805	6440932	.0125455	28	184	.0657143	.0008244
18.	Pravastatin 40mg/5ml oral liquid	3	6440932	4.66e-07	0	0	.	.
19.	Pravastatin 5mg/5ml oral liquid	3	6440932	4.66e-07	0	0	.	.
20.	Rosuvastatin 10mg tablets	87784	6440932	.0136291	28	169	.0603571	.0008226
21.	Rosuvastatin 20mg tablets	48241	6440932	.0074898	28	202	.0721429	.0005403
22.	Rosuvastatin 40mg tablets	13208	6440932	.0020506	28	253	.0903571	.0001853
23.	Rosuvastatin 5mg tablets	114420	6440932	.0177645	28	145	.0517857	.0009199
24.	Simvastatin 10mg tablets	92691	6440932	.0143909	28	115	.0410714	.0005911
25.	Simvastatin 20mg / Ezetimibe 10mg tablets	268	6440932	.0000416	28	3342	1.193571	.0000497
26.	Simvastatin 20mg tablets	603194	6440932	.0936501	28	113		

dcost	cost
.0403571	.0037795

27.

bnf_description	items	A	prop	B1	B2
Simvastatin 20mg/5ml oral suspension sugar free	260	6440932	.0000404	0	0

dcost	cost
.	.

28.

bnf_description	items	A	prop	B1	B2
Simvastatin 40mg / Ezetimibe 10mg tablets	639	6440932	.0000992	28	3898

dcost	cost
1.392143	.0001381

29.

bnf_description	items	A	prop	B1	B2
Simvastatin 40mg tablets	810909	6440932	.1258993	28	130

dcost	cost
.0464286	.0058453

30.

bnf_description	items	A	prop	B1	B2
Simvastatin 40mg/5ml oral suspension sugar free	279	6440932	.0000433	0	0

dcost	cost
.	.

31.

bnf_description	items	A	prop	B1	B2
Simvastatin 80mg / Ezetimibe 10mg tablets	111	6440932	.0000172	28	4121

dcost	cost
1.471786	.0000254

32.

bnf_description	items	A	prop	B1	B2
Simvastatin 80mg tablets	15022	6440932	.0023323	28	174

dcost	cost
.0621429	.0001449

```
. su(cost)
    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
        cost |         25    .0020807    .0038909   .0000254   .0160763
. di r(sum)
.05201646

. di r(sum)*365.25
18.999011
```

The source of the 18%:

```
use UKB_working, clear
drop if dob==.
drop if mid <= dofa
gen faildate = td(30,9,2021) if ubc == "England"
replace faildate = td(31,7,2021) if ubc == "Scotland"
replace faildate = td(28,2,2018) if ubc == "Wales"
replace faildate = min(dod,mid,faildate)
gen MIfail = 1 if dod==faildate & mid == dod
```

```
replace MIfail = 1 if mid==faildate & inrange(dod-mid,0,14)
replace MIfail = 1 if chd==1 & dod==faildate
count if MIfail == 1 & (mis == "11" | mis == "21")
local A = r(N)
count if MIfail == 1
local B = r(N)

. di 100*`A´/`B´
17.969295
```

With all this, the matrices/datasets for utilities and costs can be created:

```
clear
set obs 551
gen age = (_n+299)/10
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((age-`i´))) if age >= `i´
gen YLLn_`i´=0.1*DC_`i´
replace YLLn_`i´ = YLLn_`i´/2 if age == `i´
sort age
gen double YLL_`i´ = sum(YLLn_`i´)
}
keep age YLL_30 YLL_40 YLL_50 YLL_60
tostring age, replace force format(%9.1f)
destring age, replace
save YLL_Matrix, replace

. list if ///
> age == 30 | ///
> age == 40 | ///
> age == 50 | ///
> age == 60 | ///
> age == 70 | ///
> age == 80 | ///
> age == 85 ///
> , separator(0)
```

	age	YLL_30	YLL_40	YLL_50	YLL_60
1.	30	.05	0	0	0
101.	40	8.4967658	.05	0	0
201.	50	14.484837	8.4967658	.05	0
301.	60	18.729893	14.484837	8.4967658	.05
401.	70	21.739294	18.729893	14.484837	8.4967657
501.	80	23.872714	21.739293	18.729893	14.484837
551.	85	24.693802	22.897519	20.363685	16.789461

This is a matrix that has cumulative YLL a a given age, depending on the age the intervention is started, ready to merge into the microsimulation model results. It can already be seen how impactful discounting will be on our results – someone only accrues 24.7 YLL if they survive from 30 to 85.

Let's include utilities to make these QALYs:

```
clear
set obs 551
gen MIage = (_n+299)/10
expand 2
bysort MIage : gen sex = _n-1
gen UT = 0.9454933+0.0256466*sex-0.0002213*MIage - 0.0000294*(MIage^2)
twoway ///
(line UT MIage if sex == 0, color(red)) ///
(line UT MIage if sex == 1, color(blue)) ///
, legend(order(2 "Male" ///
1 "Female") ///
```

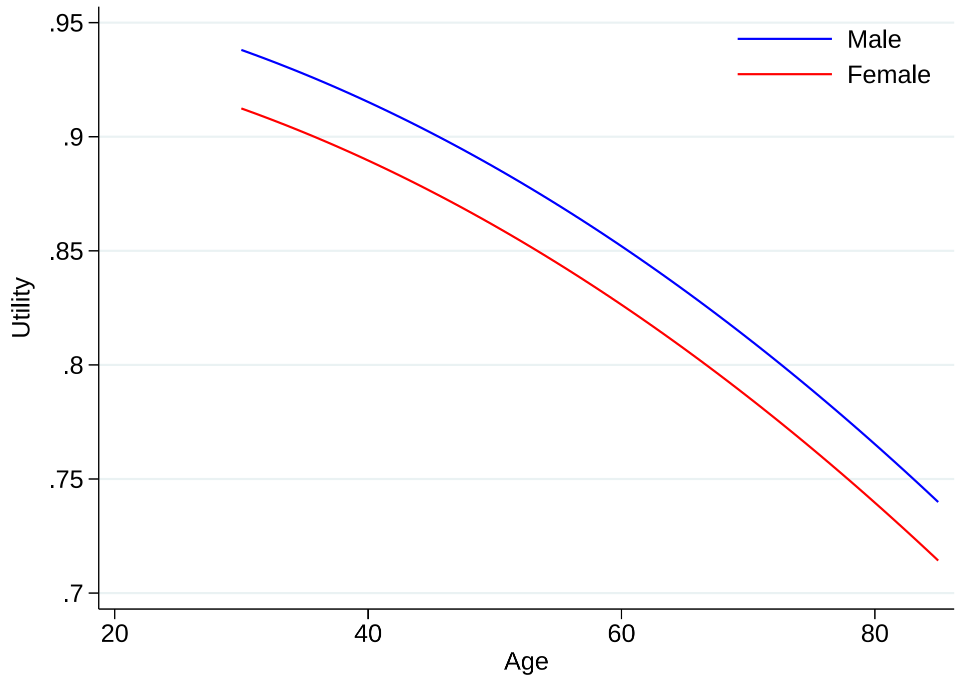

Figure 7.5: Age and sex-specific utility for people without MI

```
cols(1) ring(0) position(1) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Utility) xtitle(Age) ///
ylabel(,angle(0))
> le without MI)
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((MIage-`i´))) if MIage >= `i´
gen QAL_`i´=0.1*UT*DC_`i´
replace QAL_`i´ = QAL_`i´/2 if MIage == `i´
bysort sex (MIage) : gen double QALY_nMI_`i´ = sum(QAL_`i´)
}
keep MIage sex QALY_nMI_30 QALY_nMI_40 QALY_nMI_50 QALY_nMI_60
tostring MIage, replace force format(%9.1f)
destring MIage, replace
save QALY_nMI_Matrix, replace

. list if ///
> MIage == 30 | ///
> MIage == 40 | ///
> MIage == 50 | ///
> MIage == 60 | ///
> MIage == 70 | ///
> MIage == 80 | ///
> MIage == 85 ///
> , separator(0)
```

	MIage	sex	QALY_n~30	QALY_n~40	QALY_n~50	QALY_n~60
1.	30	0	.04561972	0	0	0
101.	40	0	7.6648198	.04448006	0	0
201.	50	0	12.912954	7.4474921	.04304641	0
301.	60	0	16.499846	12.507157	7.1802035	.04131877

```
 401. |     70      0    18.930247    15.935478    12.016189    6.8629538
 501. |     80      0    20.560968     18.23577    15.260978     11.44005
 551. |     85      0    21.158047     19.07801     16.44904    13.115928
 552. |     30      1    .04690205            0            0            0
 652. |     40      1     7.882733     .0457624            0            0
 752. |     50      1    13.284441    7.6654053    .04432875            0
 852. |     60      1    16.980204    12.878644    7.3981166    .04260109
 952. |     70      1    19.487786    16.415836    12.387676    7.0808669
1052. |     80      1    21.173222    18.793309    15.741336    11.811537
1102. |     85      1    21.791359    19.665253    16.971299    13.546521
      +---------------------------------------------------------------------+
```

This is a matrix that has cumulative QALYs for any given age before development of MI (i.e., cumulative QALYs for the alive without MI health state). The same is done for time spent with MI , assuming no effect of MI duration on utilities, just age:

```
clear
set obs 551
gen MIage = (_n+299)/10
expand 2
bysort MIage : gen sex = _n-1
expand 550
bysort MIage sex : gen durn = _n/10
gen age = round(MIage+durn,0.1)
drop if age > 85
gen UT = 0.9454933+0.0256466*sex-0.0002213*age - 0.0000294*(age^2)
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((age-`i´))) if age >= `i´
gen QAL_`i´=0.1*UT*DC_`i´*0.79
replace QAL_`i´ = QAL_`i´ - 0.01 if durn <0.301
replace QAL_`i´ = 0 if QAL_`i´ < 0
bysort sex MIage (age) : gen double QALY_MI_`i´ = sum(QAL_`i´)
}
keep age MIage sex QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
save QALY_MI_Matrix, replace

. list if ///
> (MIage== 30 & age == 30) | ///
> (MIage== 30 & age == 40) | ///
> (MIage== 30 & age == 50) | ///
> (MIage== 30 & age == 60) | ///
> (MIage== 30 & age == 70) | ///
> (MIage== 30 & age == 80) | ///
> (MIage== 30 & age == 85) ///
> , separator(0)
```

	MIage	sex	age	QALY_M~30	QALY_M~40	QALY_M~50	QALY_M~60
100.	30	0	40	5.9891681	.0702785	0	0
200.	30	0	50	10.135194	5.918658	.06801333	0
300.	30	0	60	12.968839	9.9157933	5.7063674	.06528365
400.	30	0	70	14.888856	12.624167	9.5267958	5.4543753
500.	30	0	80	16.177125	14.441398	12.09018	9.0702812
550.	30	0	85	16.648818	15.106767	13.028748	10.394225
151625.	30	1	40	6.1603065	.07230458	0	0
151725.	30	1	50	10.427656	6.0918225	.07003942	0
151825.	30	1	60	13.347309	10.210281	5.8795318	.06730973
151925.	30	1	70	15.328299	13.004663	9.8212835	5.6275397
152025.	30	1	80	16.659793	14.882867	12.470675	9.3647688
152075.	30	1	85	17.148121	15.571702	13.442346	10.735406

Next is a cost matrix for acute MI, with the only variation in cost coming from discounting reflecting the age at MI (and thus time since intervention).

```
clear
set obs 551
gen MIage = (_n+299)/10
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((MIage-`i´))) if MIage >= `i´
gen double ACMIcost_`i´ = 2047.31*DC_`i´
}
keep MIage ACMIcost_30 ACMIcost_40 ACMIcost_50 ACMIcost_60
tostring MIage, replace force format(%9.1f)
destring MIage, replace
save ACcost_Matrix, replace
```

And also chronic costs of MI:

```
clear
set obs 551
gen MIage = (_n+299)/10
expand 2
bysort MIage : gen sex = _n-1
expand 550
bysort MIage sex : gen durn = _n/10
gen age = round(MIage+durn,0.1)
drop if age > 85
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((age-`i´))) if age >= `i´
gen cost_`i´ = DC_`i´*4705.45/5 if durn <=0.5
replace cost_`i´ = DC_`i´*1015.21/10 if cost_`i´==.
bysort sex MIage (age) : gen double CHMIcost_`i´ = sum(cost_`i´)
}
keep age MIage sex CHMIcost_30 CHMIcost_40 CHMIcost_50 CHMIcost_60
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
save CHcost_Matrix, replace

. list if ///
> (MIage== 30 & age == 40) | ///
> (MIage== 30 & age == 50) | ///
> (MIage== 40 & age == 45) | ///
> (MIage== 50 & age == 65) | ///
> (MIage== 50 & age == 80) ///
> , separator(0)
```

	MIage	sex	age	CHMIco~30	CHMIco~40	CHMIco~50	CHMIco~60
100.	30	0	40	12730.035	101.521	0	0
200.	30	0	50	18809.184	8676.762	101.521	0
50100.	40	0	45	6245.7577	8810.2582	0	0
90250.	50	0	65	8056.3226	11364.239	16030.381	4756.9857
90400.	50	0	80	11618.724	16389.358	23118.808	14755.912
151625.	30	1	40	12730.035	101.521	0	0
151725.	30	1	50	18809.184	8676.762	101.521	0
201625.	40	1	45	6245.7577	8810.2582	0	0
241775.	50	1	65	8056.3226	11364.239	16030.381	4756.9857
241925.	50	1	80	11618.724	16389.358	23118.808	14755.912

And finally, annual drug costs. This is straightforward for the interventions, but is trickier for the control, as everyone starts therapy at a different time (for primary prevention), and then everyone initiates LLT following an MI. The way to do this is have two matrices; one for primary prevention statin costs (that can be recoded to 0 for people without LLT later on) and post-MI statin costs (applied to everyone with MI in the control arm).

```
clear
set obs 551
gen agellt = round((_n+299)/10,0.1)
```

```
expand 551
bysort age : gen MIage = round(age+((_n-1)/10),0.1)
drop if MIage > 85
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((MIage-`i´))) if MIage >= `i´
gen cost = DC_`i´*1.9
bysort agellt (MIage) : gen double STcost_`i´ = sum(cost) if MIage >= `i´
drop cost
}
keep agellt MIage STcost_30 STcost_40 STcost_50 STcost_60
tostring agellt MIage, replace force format(%9.1f)
destring agellt MIage, replace
save STcost_Matrix, replace
```

```
. list if ///
> (MIage== 50 & agellt == 40) | ///
> (MIage== 50 & agellt == 50) | ///
> (MIage== 60 & agellt == 45) | ///
> (MIage== 70 & agellt == 65) | ///
> (MIage== 80 & agellt == 80) ///
> , separator(0)
```

	agellt	MIage	STcost_30	STcost_40	STcost_50	STcost_60
50251.	40	50	115.1203	162.38855	1.9	.
71626.	45	60	133.79641	188.73305	162.38855	1.9
90301.	50	50	.95487511	1.3469458	1.9	.
131826.	65	70	26.706521	37.672185	53.140338	74.959695
150751.	80	80	.34020144	.47988769	.676929	.95487511

```
clear
set obs 551
gen MIage = (_n+299)/10
expand 2
bysort MIage : gen sex = _n-1
expand 550
bysort MIage sex : gen durn = _n/10
gen age = round(MIage+durn,0.1)
drop if age > 85
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((age-`i´))) if age >= `i´
gen cost_`i´ = DC_`i´*19/10
bysort sex MIage (age) : gen double CHSTcost_`i´ = sum(cost_`i´)
}
keep age MIage sex CHSTcost_30 CHSTcost_40 CHSTcost_50 CHSTcost_60
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
save CHSTcost_Matrix, replace
```

```
. list if ///
> (MIage== 30 & age == 40) | ///
> (MIage== 30 & age == 50) | ///
> (MIage== 40 & age == 45) | ///
> (MIage== 50 & age == 65) | ///
> (MIage== 50 & age == 80) ///
> , separator(0)
```

	MIage	sex	age	CHSTco~30	CHSTco~40	CHSTco~50	CHSTco~60
100.	30	0	40	160.48855	1.9	0	0
200.	30	0	50	274.2619	162.38855	1.9	0
50100.	40	0	45	61.767106	87.128603	0	0
90250.	50	0	65	111.69811	157.56122	222.25566	89.028603
90400.	50	0	80	178.36966	251.60803	354.91797	276.1619
151625.	30	1	40	160.48855	1.9	0	0
151725.	30	1	50	274.2619	162.38855	1.9	0

201625.	40	1	45	61.767106	87.128603	0	0
241775.	50	1	65	111.69811	157.56122	222.25566	89.028603
241925.	50	1	80	178.36966	251.60803	354.91797	276.1619

```
forval a = 1/4 {
if `a´ == 1 {
local aa = 18.39
}
if `a´ == 2 {
local aa = 27.39
}
if `a´ == 3 {
local aa = 49.31
}
if `a´ == 4 {
local aa = 3974.72
}
clear
set obs 551
gen age = (_n+299)/10
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((age-`i´))) if age >= `i´
gen cost = DC_`i´*`aa´/10
gen double MDcost_`i´ = sum(cost)
drop cost
}
keep age MDcost_30 MDcost_40 MDcost_50 MDcost_60
tostring age, replace force format(%9.1f)
destring age, replace
save INTcost_Matrix_`a´, replace
}
```

```
. forval a = 1/4 {
  2. use INTcost_Matrix_`a´, clear
  3. list age MDcost_30 MDcost_40 MDcost_50 MDcost_60 if ///
> (age == 30) | ///
> (age == 40) | ///
> (age == 50) | ///
> (age == 60) | ///
> (age == 70) | ///
> (age == 80) ///
> , separator(0)
  4. }
```

	age	MDcost_30	MDcost_40	MDcost_50	MDcost_60
1.	30	1.839	0	0	0
101.	40	157.17502	1.839	0	0
201.	50	267.29565	157.17502	1.839	0
301.	60	345.36224	267.29565	157.17502	1.839
401.	70	400.70511	345.36224	267.29565	157.17502
501.	80	439.93871	400.70511	345.36224	267.29565

	age	MDcost_30	MDcost_40	MDcost_50	MDcost_60
1.	30	2.7390001	0	0	0
101.	40	234.09591	2.7390001	0	0
201.	50	398.10918	234.09591	2.7390001	0
301.	60	514.38127	398.10918	234.09591	2.7390001
401.	70	596.80875	514.38127	398.10918	234.09591
501.	80	655.24313	596.80875	514.38127	398.10918

age	MDcost_30	MDcost_40	MDcost_50	MDcost_60

1.	30	4.9310002	0	0	0
101.	40	421.44102	4.9310002	0	0
201.	50	716.71281	421.44102	4.9310002	0
301.	60	926.03653	716.71281	421.44102	4.9310002
401.	70	1074.4301	926.03653	716.71281	421.44102
501.	80	1179.629	1074.4301	926.03653	716.71281

	age	MDcost_30	MDcost_40	MDcost_50	MDcost_60
1.	30	397.47198	0	0	0
101.	40	33971.001	397.47198	0	0
201.	50	57771.907	33971.001	397.47198	0
301.	60	74644.817	57771.907	33971.001	397.47198
401.	70	86606.341	74644.817	57771.907	33971.001
501.	80	95086.09	86606.34	74644.817	57771.907

7.7 Health economic analysis

With all the utility and cost matrices, all the relevant results from each simulation can be calculated. Note that values are only counted from intervention start, despite the simulations all starting from age 30.

```
quietly {
use trial_control, clear
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
merge 1:1 eid using agellt_control
drop if _merge == 2
drop _merge
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage sex using QALY_nMI_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using QALY_MI_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage using ACcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using CHcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 agellt MIage using STcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using CHSTcost_Matrix
drop if _merge == 2
drop _merge
forval i = 30(10)60 {
recode QALY_MI_`i´ .=0
recode ACMIcost_`i´ .=0
recode CHMIcost_`i´ .=0
recode STcost_`i´ .=0
recode CHSTcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double MDcost_`i´ = STcost_`i´ + CHSTcost_`i´
```

```
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
}
forval i = 30(10)60 {
preserve
keep if age >= `i´ & MIage >= `i´
count
matrix A_0_`i´ = r(N)
count if MI == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
count if Death == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
su(YLL_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(QALY_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(MDcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(HCcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
restore
}
forval i = 30(10)60 {
forval ii = 1/4 {
use trial_`ii´_`i´, clear
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage sex using QALY_nMI_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using QALY_MI_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage using ACcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using CHcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age using INTcost_Matrix_`ii´
drop if _merge == 2
drop _merge
recode QALY_MI_`i´ .=0
recode CHMIcost_`i´ .=0
recode ACMIcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
keep if age >= `i´ & MIage >= `i´
count
matrix A_`ii´_`i´ = r(N)
count if MI == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
count if Death == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
su(YLL_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(QALY_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
```

```
su(MDcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(HCcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
}
}
}
matrix AA = (1\2\3\4\5\6\7\8\9)
matrix A = (J(9,1,30),AA,A_0_30,A_1_30,A_2_30,A_3_30,A_4_30\ ///
30,10,J(1,5,.)\ ///
J(9,1,40),AA,A_0_40,A_1_40,A_2_40,A_3_40,A_4_40\ ///
40,10,J(1,5,.)\ ///
J(9,1,50),AA,A_0_50,A_1_50,A_2_50,A_3_50,A_4_50\ ///
50,10,J(1,5,.)\ ///
J(9,1,60),AA,A_0_60,A_1_60,A_2_60,A_3_60,A_4_60\ ///
60,10,J(1,5,.))
clear
svmat double A
gen double D1 = A4-A3
gen double D2 = A5-A3
gen double D3 = A6-A3
gen double D4 = A7-A3
bysort A1 (A2) : replace D1 = D1[9]/D1[5] if A2 == 10
bysort A1 (A2) : replace D2 = D2[9]/D2[5] if A2 == 10
bysort A1 (A2) : replace D3 = D3[9]/D3[5] if A2 == 10
bysort A1 (A2) : replace D4 = D4[9]/D4[5] if A2 == 10
save reshof0, replace
gen A0 = ""
replace A0 = "N" if A2 == 1
replace A0 = "Incident MIs" if A2 == 2
replace A0 = "Deaths" if A2 == 3
replace A0 = "YLL" if A2 == 4
replace A0 = "QALYs" if A2 == 5
replace A0 = "Medication costs (\textsterling)" if A2 == 6
replace A0 = "Acute MI costs (\textsterling)" if A2 == 7
replace A0 = "Chronic MI costs (\textsterling)" if A2 == 8
replace A0 = "Total healthcare costs (\textsterling)" if A2 == 9
replace A0 = "ICER ($\Delta$ \textsterling / $\Delta$ QALY)" if A2 == 10
gen A00 = "30" if _n == 1
replace A00 = "40" if _n == 11
replace A00 = "50" if _n == 21
replace A00 = "60" if _n == 31
order A00 A0
gen P1 = 100*D1/A3
gen P2 = 100*D2/A3
gen P3 = 100*D3/A3
gen P4 = 100*D4/A3
tostring A3-D4, force format(%15.0fc) replace
tostring P1-P4, gen(p1 p2 p3 p4) format(%9.2f) force
tostring P1-P4, force format(%9.1f) replace
replace D1 = D1 + " (" + P1 + "\%)" if A2 != 1 & A2!= 4 & A2 != 5 & A2 != 10
replace D2 = D2 + " (" + P2 + "\%)" if A2 != 1 & A2!= 4 & A2 != 5 & A2 != 10
replace D3 = D3 + " (" + P3 + "\%)" if A2 != 1 & A2!= 4 & A2 != 5 & A2 != 10
replace D4 = D4 + " (" + P4 + "\%)" if A2 != 1 & A2!= 4 & A2 != 5 & A2 != 10
replace D1 = D1 + " (" + p1 + "\%)" if A2 == 4 | A2 == 5
replace D2 = D2 + " (" + p2 + "\%)" if A2 == 4 | A2 == 5
replace D3 = D3 + " (" + p3 + "\%)" if A2 == 4 | A2 == 5
replace D4 = D4 + " (" + p4 + "\%)" if A2 == 4 | A2 == 5
save reshof, replace
preserve
keep A00 A0 A3 A4 D1
export delimited using CSV/Res_HOF_1.csv, delimiter(":") novarnames replace
restore
preserve
```

```
keep A00 A0 A3 A5 D2
export delimited using CSV/Res_HOF_2.csv, delimiter(":") novarnames replace
restore
preserve
keep A00 A0 A3 A6 D3
export delimited using CSV/Res_HOF_3.csv, delimiter(":") novarnames replace
restore
preserve
keep A00 A0 A3 A7 D4
export delimited using CSV/Res_HOF_4.csv, delimiter(":") novarnames replace
restore
use reshof, clear
replace A00 = A00[_n-1] if A2 == 2
keep if A2 == 2 | A2 == 5 | A2 == 9 | A2 == 10
drop A1-A7 P1-p4
export delimited using CSV/Res_HOF.csv, delimiter(":") novarnames replace
```

Table 7.2: Microsimulation results – Low/moderate intensity statins

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	458,692	458,692	0
	Incident MIs	67,892	42,009	-25,883 (-38.1%)
	Deaths	157,629	149,711	-7,918 (-5.0%)
	YLL	10,959,637	10,973,613	13,976 (0.13%)
	QALYs	9,514,826	9,536,608	21,782 (0.23%)
	Medication costs (£)	23,866,371	202,226,519	178,360,148 (747.3%)
	Acute MI costs (£)	31,706,236	19,846,492	-11,859,744 (-37.4%)
	Chronic MI costs (£)	230,852,733	146,745,217	-84,107,516 (-36.4%)
	Total healthcare costs (£)	286,425,339	368,818,227	82,392,888 (28.8%)
	ICER (Δ £/ Δ QALY)	.	.	3,783
40	N	456,009	456,009	0
	Incident MIs	66,741	47,405	-19,336 (-29.0%)
	Deaths	155,616	149,064	-6,552 (-4.2%)
	YLL	9,972,100	9,990,432	18,331 (0.18%)
	QALYs	8,414,303	8,438,373	24,071 (0.29%)
	Medication costs (£)	33,127,223	184,143,338	151,016,114 (455.9%)
	Acute MI costs (£)	42,286,986	30,487,909	-11,799,077 (-27.9%)
	Chronic MI costs (£)	294,926,817	216,132,936	-78,793,881 (-26.7%)
	Total healthcare costs (£)	370,341,026	430,764,183	60,423,157 (16.3%)
	ICER (Δ £/ Δ QALY)	.	.	2,510
50	N	449,232	449,232	0
	Incident MIs	63,479	52,092	-11,387 (-17.9%)
	Deaths	150,573	146,386	-4,187 (-2.8%)
	YLL	8,590,968	8,604,290	13,322 (0.16%)
	QALYs	7,021,670	7,037,982	16,312 (0.23%)
	Medication costs (£)	44,401,389	158,645,960	114,244,571 (257.3%)
	Acute MI costs (£)	52,533,756	43,721,006	-8,812,750 (-16.8%)
	Chronic MI costs (£)	335,033,788	283,115,408	-51,918,379 (-15.5%)
	Total healthcare costs (£)	431,968,933	485,482,375	53,513,442 (12.4%)
	ICER (Δ £/ Δ QALY)	.	.	3,281
60	N	433,159	433,159	0
	Incident MIs	55,431	50,206	-5,225 (-9.4%)
	Deaths	138,299	136,400	-1,899 (-1.4%)
	YLL	6,702,517	6,708,004	5,487 (0.08%)
	QALYs	5,294,096	5,300,615	6,519 (0.12%)
	Medication costs (£)	52,399,354	123,758,482	71,359,128 (136.2%)
	Acute MI costs (£)	56,626,027	51,741,362	-4,884,665 (-8.6%)
	Chronic MI costs (£)	304,228,339	281,111,805	-23,116,534 (-7.6%)
	Total healthcare costs (£)	413,253,720	456,611,649	43,357,929 (10.5%)
	ICER (Δ £/ Δ QALY)	.	.	6,651

Table 7.3: Microsimulation results – High intensity statins

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	458,692	458,692	0
	Incident MIs	67,892	36,017	-31,875 (-46.9%)
	Deaths	157,629	147,711	-9,918 (-6.3%)
	YLL	10,959,637	10,977,392	17,755 (0.16%)
	QALYs	9,514,826	9,541,765	26,939 (0.28%)
	Medication costs (£)	23,866,371	301,298,949	277,432,578 (1162.4%)
	Acute MI costs (£)	31,706,236	17,276,790	-14,429,445 (-45.5%)
	Chronic MI costs (£)	230,852,733	129,474,471	-101,378,262 (-43.9%)
	Total healthcare costs (£)	286,425,339	448,050,210	161,624,870 (56.4%)
	ICER (Δ £/ Δ QALY)	.	.	6,000
40	N	456,009	456,009	0
	Incident MIs	66,741	42,244	-24,497 (-36.7%)
	Deaths	155,616	147,357	-8,259 (-5.3%)
	YLL	9,972,100	9,994,281	22,180 (0.22%)
	QALYs	8,414,303	8,443,615	29,312 (0.35%)
	Medication costs (£)	33,127,223	274,367,848	241,240,625 (728.2%)
	Acute MI costs (£)	42,286,986	27,550,415	-14,736,570 (-34.8%)
	Chronic MI costs (£)	294,926,817	197,658,472	-97,268,345 (-33.0%)
	Total healthcare costs (£)	370,341,026	499,576,735	129,235,709 (34.9%)
	ICER (Δ £/ Δ QALY)	.	.	4,409
50	N	449,232	449,232	0
	Incident MIs	63,479	47,953	-15,526 (-24.5%)
	Deaths	150,573	144,854	-5,719 (-3.8%)
	YLL	8,590,968	8,608,164	17,196 (0.20%)
	QALYs	7,021,670	7,042,842	21,172 (0.30%)
	Medication costs (£)	44,401,389	236,392,832	191,991,443 (432.4%)
	Acute MI costs (£)	52,533,756	40,691,382	-11,842,375 (-22.5%)
	Chronic MI costs (£)	335,033,788	266,385,157	-68,648,630 (-20.5%)
	Total healthcare costs (£)	431,968,933	543,469,370	111,500,438 (25.8%)
	ICER (Δ £/ Δ QALY)	.	.	5,266
60	N	433,159	433,159	0
	Incident MIs	55,431	47,478	-7,953 (-14.3%)
	Deaths	138,299	135,348	-2,951 (-2.1%)
	YLL	6,702,517	6,710,867	8,351 (0.12%)
	QALYs	5,294,096	5,303,865	9,769 (0.18%)
	Medication costs (£)	52,399,354	184,403,868	132,004,514 (251.9%)
	Acute MI costs (£)	56,626,027	49,306,380	-7,319,647 (-12.9%)
	Chronic MI costs (£)	304,228,339	270,247,941	-33,980,398 (-11.2%)
	Total healthcare costs (£)	413,253,720	503,958,189	90,704,470 (21.9%)
	ICER (Δ £/ Δ QALY)	.	.	9,285

Table 7.4: Microsimulation results – Low/moderate intensity statins and ezetimibe

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	458,692	458,692	0
	Incident MIs	67,892	33,306	-34,586 (-50.9%)
	Deaths	157,629	146,803	-10,826 (-6.9%)
	YLL	10,959,637	10,979,033	19,396 (0.18%)
	QALYs	9,514,826	9,544,062	29,236 (0.31%)
	Medication costs (£)	23,866,371	542,507,025	518,640,654 (2173.1%)
	Acute MI costs (£)	31,706,236	16,098,050	-15,608,186 (-49.2%)
	Chronic MI costs (£)	230,852,733	121,535,479	-109,317,254 (-47.4%)
	Total healthcare costs (£)	286,425,339	680,140,554	393,715,215 (137.5%)
	ICER (Δ £/ Δ QALY)	.	.	13,467
40	N	456,009	456,009	0
	Incident MIs	66,741	39,856	-26,885 (-40.3%)
	Deaths	155,616	146,543	-9,073 (-5.8%)
	YLL	9,972,100	9,996,212	24,112 (0.24%)
	QALYs	8,414,303	8,446,162	31,860 (0.38%)
	Medication costs (£)	33,127,223	494,037,496	460,910,273 (1391.3%)
	Acute MI costs (£)	42,286,986	26,194,910	-16,092,075 (-38.1%)
	Chronic MI costs (£)	294,926,817	189,109,040	-105,817,777 (-35.9%)
	Total healthcare costs (£)	370,341,026	709,341,446	339,000,420 (91.5%)
	ICER (Δ £/ Δ QALY)	.	.	10,640
50	N	449,232	449,232	0
	Incident MIs	63,479	45,979	-17,500 (-27.6%)
	Deaths	150,573	144,109	-6,464 (-4.3%)
	YLL	8,590,968	8,610,176	19,208 (0.22%)
	QALYs	7,021,670	7,045,295	23,625 (0.34%)
	Medication costs (£)	44,401,389	425,675,346	381,273,957 (858.7%)
	Acute MI costs (£)	52,533,756	39,257,631	-13,276,126 (-25.3%)
	Chronic MI costs (£)	335,033,788	258,402,974	-76,630,813 (-22.9%)
	Total healthcare costs (£)	431,968,933	723,335,951	291,367,018 (67.5%)
	ICER (Δ £/ Δ QALY)	.	.	12,333
60	N	433,159	433,159	0
	Incident MIs	55,431	46,189	-9,242 (-16.7%)
	Deaths	138,299	134,877	-3,422 (-2.5%)
	YLL	6,702,517	6,712,275	9,759 (0.15%)
	QALYs	5,294,096	5,305,488	11,392 (0.22%)
	Medication costs (£)	52,399,354	332,050,245	279,650,891 (533.7%)
	Acute MI costs (£)	56,626,027	48,125,083	-8,500,944 (-15.0%)
	Chronic MI costs (£)	304,228,339	264,788,539	-39,439,799 (-13.0%)
	Total healthcare costs (£)	413,253,720	644,963,867	231,710,148 (56.1%)
	ICER (Δ £/ Δ QALY)	.	.	20,339

Table 7.5: Microsimulation results – Inclisiran

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	458,692	458,692	0
	Incident MIs	67,892	35,163	-32,729 (-48.2%)
	Deaths	157,629	147,423	-10,206 (-6.5%)
	YLL	10,959,637	10,977,838	18,201 (0.17%)
	QALYs	9,514,826	9,542,443	27,617 (0.29%)
	Medication costs (£)	23,866,371	43,724,991,146	43,701,124,775 (183107.5%)
	Acute MI costs (£)	31,706,236	16,901,393	-14,804,843 (-46.7%)
	Chronic MI costs (£)	230,852,733	126,889,071	-103,963,663 (-45.0%)
	Total healthcare costs (£)	286,425,339	43,868,781,609	43,582,356,269 (15216.0%)
	ICER (Δ £/ Δ QALY)	.	.	1,578,096
40	N	456,009	456,009	0
	Incident MIs	66,741	41,519	-25,222 (-37.8%)
	Deaths	155,616	147,106	-8,510 (-5.5%)
	YLL	9,972,100	9,994,816	22,716 (0.23%)
	QALYs	8,414,303	8,444,336	30,033 (0.36%)
	Medication costs (£)	33,127,223	39,817,221,125	39,784,093,902 (120094.9%)
	Acute MI costs (£)	42,286,986	27,147,475	-15,139,511 (-35.8%)
	Chronic MI costs (£)	294,926,817	195,151,007	-99,775,810 (-33.8%)
	Total healthcare costs (£)	370,341,026	40,039,519,608	39,669,178,581 (10711.5%)
	ICER (Δ £/ Δ QALY)	.	.	1,320,842
50	N	449,232	449,232	0
	Incident MIs	63,479	47,366	-16,113 (-25.4%)
	Deaths	150,573	144,632	-5,941 (-3.9%)
	YLL	8,590,968	8,608,764	17,797 (0.21%)
	QALYs	7,021,670	7,043,591	21,921 (0.31%)
	Medication costs (£)	44,401,389	34,306,706,247	34,262,304,858 (77164.9%)
	Acute MI costs (£)	52,533,756	40,258,462	-12,275,294 (-23.4%)
	Chronic MI costs (£)	335,033,788	263,905,696	-71,128,092 (-21.2%)
	Total healthcare costs (£)	431,968,933	34,610,870,405	34,178,901,472 (7912.4%)
	ICER (Δ £/ Δ QALY)	.	.	1,559,218
60	N	433,159	433,159	0
	Incident MIs	55,431	47,055	-8,376 (-15.1%)
	Deaths	138,299	135,198	-3,101 (-2.2%)
	YLL	6,702,517	6,711,437	8,920 (0.13%)
	QALYs	5,294,096	5,304,493	10,397 (0.20%)
	Medication costs (£)	52,399,354	26,762,167,066	26,709,767,712 (50973.5%)
	Acute MI costs (£)	56,626,027	48,904,900	-7,721,127 (-13.6%)
	Chronic MI costs (£)	304,228,339	268,352,954	-35,875,385 (-11.8%)
	Total healthcare costs (£)	413,253,720	27,079,424,921	26,666,171,201 (6452.7%)
	ICER (Δ £/ Δ QALY)	.	.	2,564,745

Or, a simpler table to summarise the results:

Table 7.6: Microsimulation results – Summary of all interventions. All results shown are the difference between the intervention and control.

Age of intervention	Outcome	Low/moderate intensity statins	High intensity statins	Low/moderate intensity statins and ezetimibe	Inclisiran
30	Incident MIs	-25,883 (-38.1%)	-31,875 (-46.9%)	-34,586 (-50.9%)	-32,729 (-48.2%)
	QALYs	21,782 (0.23%)	26,939 (0.28%)	29,236 (0.31%)	27,617 (0.29%)
	Total healthcare costs (£)	82,392,888 (28.8%)	161,624,870 (56.4%)	393,715,215 (137.5%)	43,582,356,269 (15216.0%)
	ICER (Δ £/ Δ QALY)	3,783	6,000	13,467	1,578,096
40	Incident MIs	-19,336 (-29.0%)	-24,497 (-36.7%)	-26,885 (-40.3%)	-25,222 (-37.8%)
	QALYs	24,071 (0.29%)	29,312 (0.35%)	31,860 (0.38%)	30,033 (0.36%)
	Total healthcare costs (£)	60,423,157 (16.3%)	129,235,709 (34.9%)	339,000,420 (91.5%)	39,669,178,581 (10711.5%)
	ICER (Δ £/ Δ QALY)	2,510	4,409	10,640	1,320,842
50	Incident MIs	-11,387 (-17.9%)	-15,526 (-24.5%)	-17,500 (-27.6%)	-16,113 (-25.4%)
	QALYs	16,312 (0.23%)	21,172 (0.30%)	23,625 (0.34%)	21,921 (0.31%)
	Total healthcare costs (£)	53,513,442 (12.4%)	111,500,438 (25.8%)	291,367,018 (67.5%)	34,178,901,472 (7912.4%)
	ICER (Δ £/ Δ QALY)	3,281	5,266	12,333	1,559,218
60	Incident MIs	-5,225 (-9.4%)	-7,953 (-14.3%)	-9,242 (-16.7%)	-8,376 (-15.1%)
	QALYs	6,519 (0.12%)	9,769 (0.18%)	11,392 (0.22%)	10,397 (0.20%)
	Total healthcare costs (£)	43,357,929 (10.5%)	90,704,470 (21.9%)	231,710,148 (56.1%)	26,666,171,201 (6452.7%)
	ICER (Δ £/ Δ QALY)	6,651	9,285	20,339	2,564,745

So, it appears that all statin/ezetimibe interventions are cost-effective, but Inclisiran is not even close at current prices. Nevertheless, all interventions come at a major cost – even if statins are very cheap, giving them to the entire population across most of their lifespan makes this a very expensive public health intervention. Moreover, it's likely that the cost-effectiveness will be significnatly different among different population groups (most notably by sex and LDL-C). Therefore, it's probably wise to target this intervention to people most likely to benefit – from here, I will stratify the results by sex and LDL-C (≥3.0, ≥4.0, and ≥5.0 mmol/L).

7.8 Stratified by sex and LDL-C

First, I'll present the mean and median (IQR) values of LDL-C in these groups by sex to match the more common way of presenting model populations (Table 7.7).

Table 7.7: Mean; median (IQR) LDL-C by stratification group.

Sex	LDL-C (mmol/L)	Mean; median (IQR)
Females	Overall	3.63; 3.57 (3.01, 4.18)
	≥3.0	3.97; 3.85 (3.43, 4.38)
	≥4.0	4.63; 4.49 (4.22, 4.90)
	≥5.0	5.48; 5.35 (5.15, 5.68)
Males	Overall	3.51; 3.49 (2.92, 4.07)
	≥3.0	3.91; 3.80 (3.41, 4.28)
	≥4.0	4.56; 4.43 (4.19, 4.79)
	≥5.0	5.41; 5.30 (5.12, 5.57)

```
use UKB_working, clear
keep eid ldl
save UKBldl, replace
use trial_control, clear
merge 1:1 eid using UKBldl
drop if _merge == 2
drop _merge
matrix A = (.,.,.,.,.,.)
forval s = 0/1 {
foreach l in 0 3 4 5 {
su ldl if ldl >= `l´ & sex == `s´, detail
mat A = (A\0`s´,`l´,r(mean), r(p50),r(p25),r(p75))
}
}
clear
svmat A
drop if _n == 1
tostring A3-A6, replace force format(%9.2f)
gen A = A3 + "; " + A4 + " (" + A5 + ", " + A6 + ")"
tostring A1 A2, replace force format(%9.1f)
bysort A1 (A2) : replace A1 ="" if _n!=1
replace A2 = "$\geq$" + A2
replace A2 = "Overall" if A2 == "$\geq$0.0"
replace A1 = "Females" if A1 == "0.0"
replace A1 = "Males" if A1 == "1.0"
keep A1 A2 A
export delimited using CSV/mldl.csv, delimiter(":") novarnames replace
quietly {
```

```
forval s = 0/1 {
foreach l in 0 3 4 5 {
use trial_control, clear
merge 1:1 eid using UKBldl
drop if _merge == 2
drop _merge
keep if ldl >= `l´
keep if sex == `s´
gen ageMI = round(age-durn,0.1) if MI == 1
count
local N = r(N)
matrix A_0 = (.,.)
forval i = 30(0.1)85 {
count if ageMI < `i´+0.05
matrix A_0 = (A_0\0`i´,100*r(N)/`N´)
}
forval a = 1/4 {
forval b = 30(10)60 {
use trial_`a´_`b´, clear
merge 1:1 eid using UKBldl
drop if _merge == 2
drop _merge
keep if ldl >= `l´
keep if sex == `s´
gen ageMI = round(age-durn,0.1) if MI == 1
count
local N = r(N)
matrix A_`a´_`b´ = (.)
forval i = 30(0.1)85 {
count if ageMI < `i´+0.05
matrix A_`a´_`b´ = (A_`a´_`b´\100*r(N)/`N´)
}
}
}
clear
svmat double A_0
svmat double A_1_30
svmat double A_1_40
svmat double A_1_50
svmat double A_1_60
svmat double A_2_30
svmat double A_2_40
svmat double A_2_50
svmat double A_2_60
svmat double A_3_30
svmat double A_3_40
svmat double A_3_50
svmat double A_3_60
svmat double A_4_30
svmat double A_4_40
svmat double A_4_50
svmat double A_4_60
rename A_01 age
save CumMIfig_sex_`s´_LDL`l´, replace
}
}
}
quietly {
forval s = 0/1 {
if `s´ == 0 {
local sex = "Females"
use inferno, clear
local col1 = var6[6]
local col2 = var6[5]
local col3 = var6[4]
local col4 = var6[3]
local col5 = var6[2]
}
```

```
else {
local sex = "Males"
use viridis, clear
local col1 = var6[6]
local col2 = var6[5]
local col3 = var6[4]
local col4 = var6[3]
local col5 = var6[2]
}
foreach l in 0 3 4 5 {
if `l´ > 1 {
local ldl = ", LDL-C  `l´.0 mmol/L"
}
else {
local ldl = ""
}
use CumMIfig_sex_`s´_LDL`l´, clear
forval a = 1/4 {
preserve
tostring _all, force format(%9.1f) replace
local p0 = A_02[552]
local p1 = A_`a´_301[552]
restore
twoway ///
(line A_02 age, col("`col1´")) ///
(line A_`a´_601 age, col("`col2´")) ///
(line A_`a´_501 age, col("`col3´")) ///
(line A_`a´_401 age, col("`col4´")) ///
(line A_`a´_301 age, col("`col5´")) ///
, legend(order(1 "Control" ///
2 "Intervention from age 60" ///
3 "Intervention from age 50" ///
4 "Intervention from age 40" ///
5 "Intervention from age 30") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Cumulative incidence of MI or coronary death (%)) xtitle(Age) ///
ylabel(0(10)50, angle(0)) yscale(range(0 50)) xscale(range(30 90)) ///
text(`p0´ 86 "`p0´", color(black) placement(east)) ///
text(`p1´ 86 "`p1´", color(black) placement(east)) ///
title("`sex´`ldl´", placement(west) color(black) size(medium))
graph save "Graph" GPH/cumMI_`a´_sex_`s´_LDL_`l´, replace
}
}
}
}


graph combine ///
GPH/cumMI_1_sex_0_LDL_0.gph ///
GPH/cumMI_1_sex_1_LDL_0.gph ///
GPH/cumMI_1_sex_0_LDL_3.gph ///
GPH/cumMI_1_sex_1_LDL_3.gph ///
GPH/cumMI_1_sex_0_LDL_4.gph ///
GPH/cumMI_1_sex_1_LDL_4.gph ///
GPH/cumMI_1_sex_0_LDL_5.gph ///
GPH/cumMI_1_sex_1_LDL_5.gph ///
, altshrink cols(2) graphregion(color(white)) xsize(3.5)
> ronary death ///
by age of intervention, sex, and LDL-C -- low/moderate intensity statins)
graph combine ///
GPH/cumMI_2_sex_0_LDL_0.gph ///
GPH/cumMI_2_sex_1_LDL_0.gph ///
GPH/cumMI_2_sex_0_LDL_3.gph ///
GPH/cumMI_2_sex_1_LDL_3.gph ///
GPH/cumMI_2_sex_0_LDL_4.gph ///
GPH/cumMI_2_sex_1_LDL_4.gph ///
GPH/cumMI_2_sex_0_LDL_5.gph ///
```

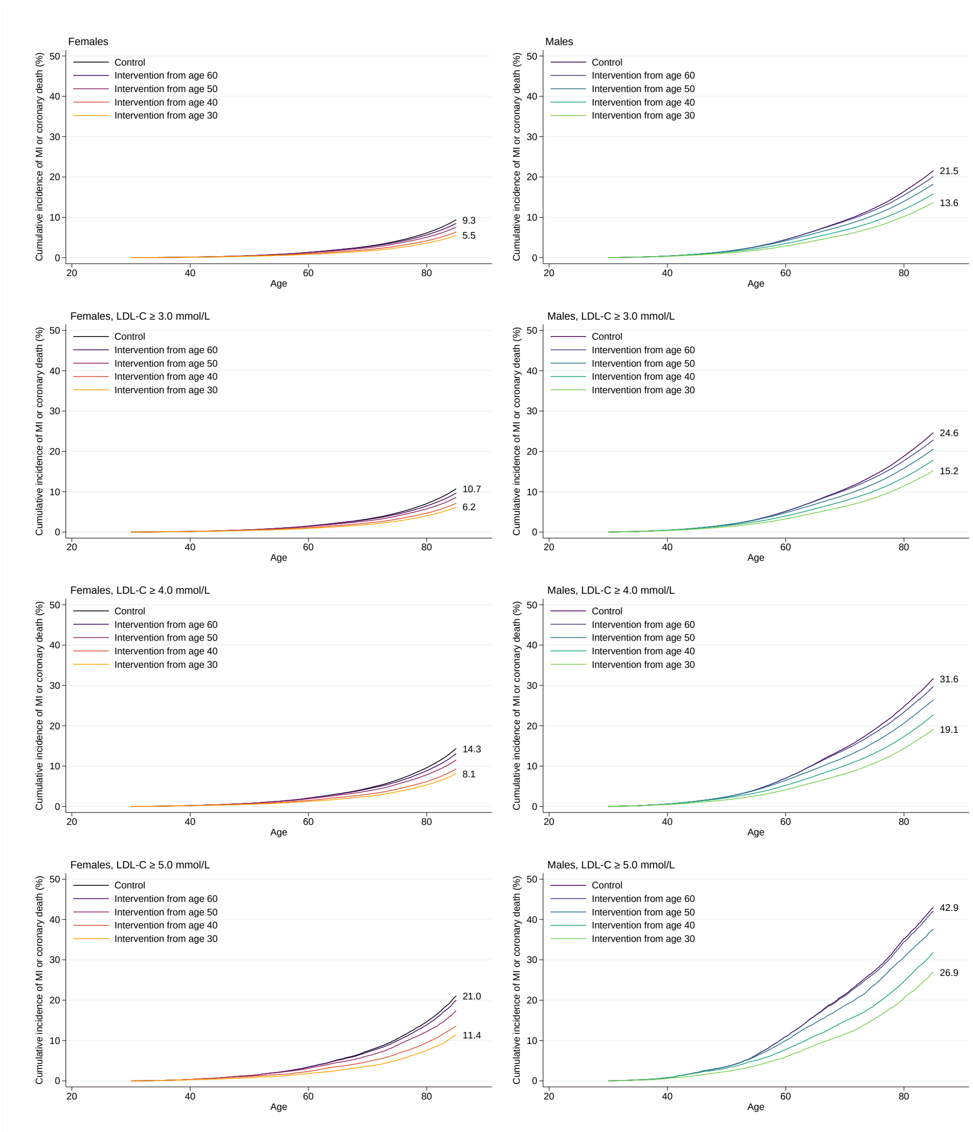

Figure 7.6: Cumulative incidence of MI or coronary death by age of intervention, sex, and LDL-C – low/moderate intensity statins

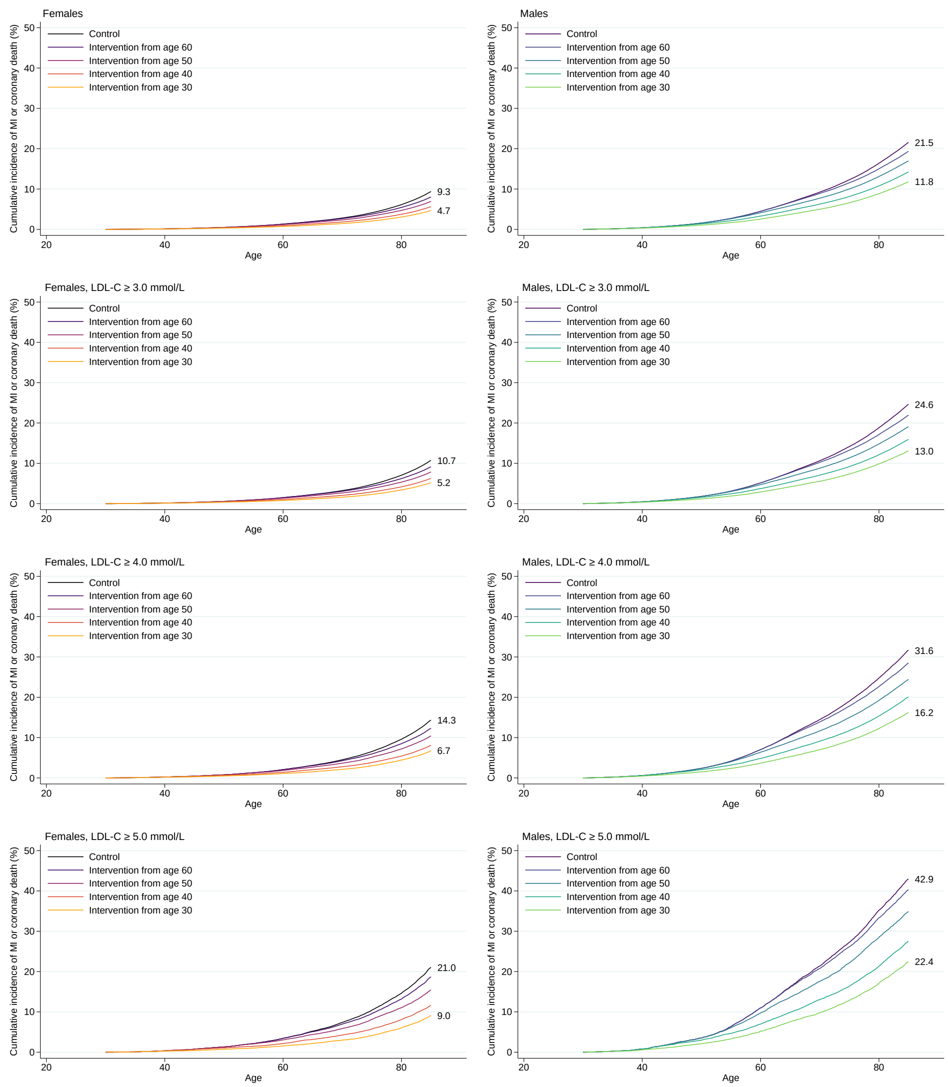

Figure 7.7: Cumulative incidence of MI or coronary death by age of intervention sex, and LDL-C – high intensity statins

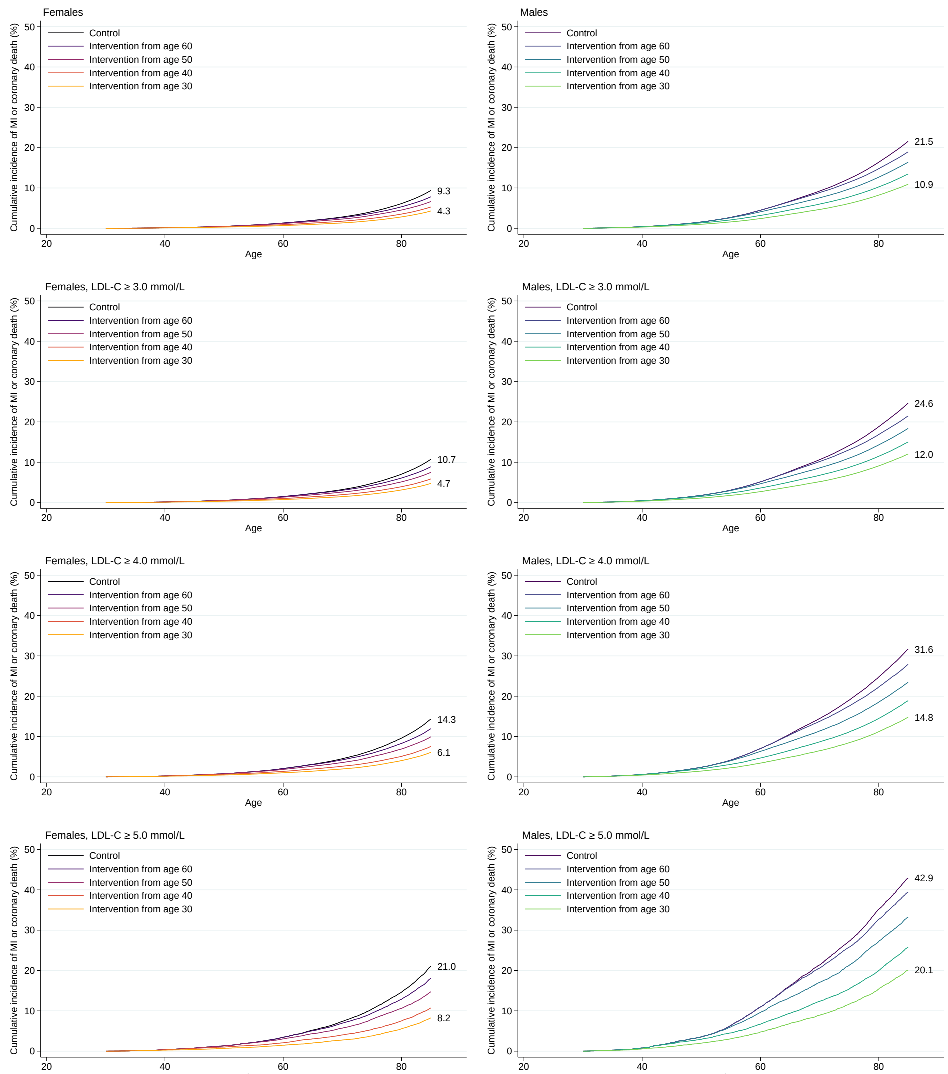

Figure 7.8: Cumulative incidence of MI or coronary death by age of intervention, sex, and LDL-C – low/moderate intensity statins and ezetimibe

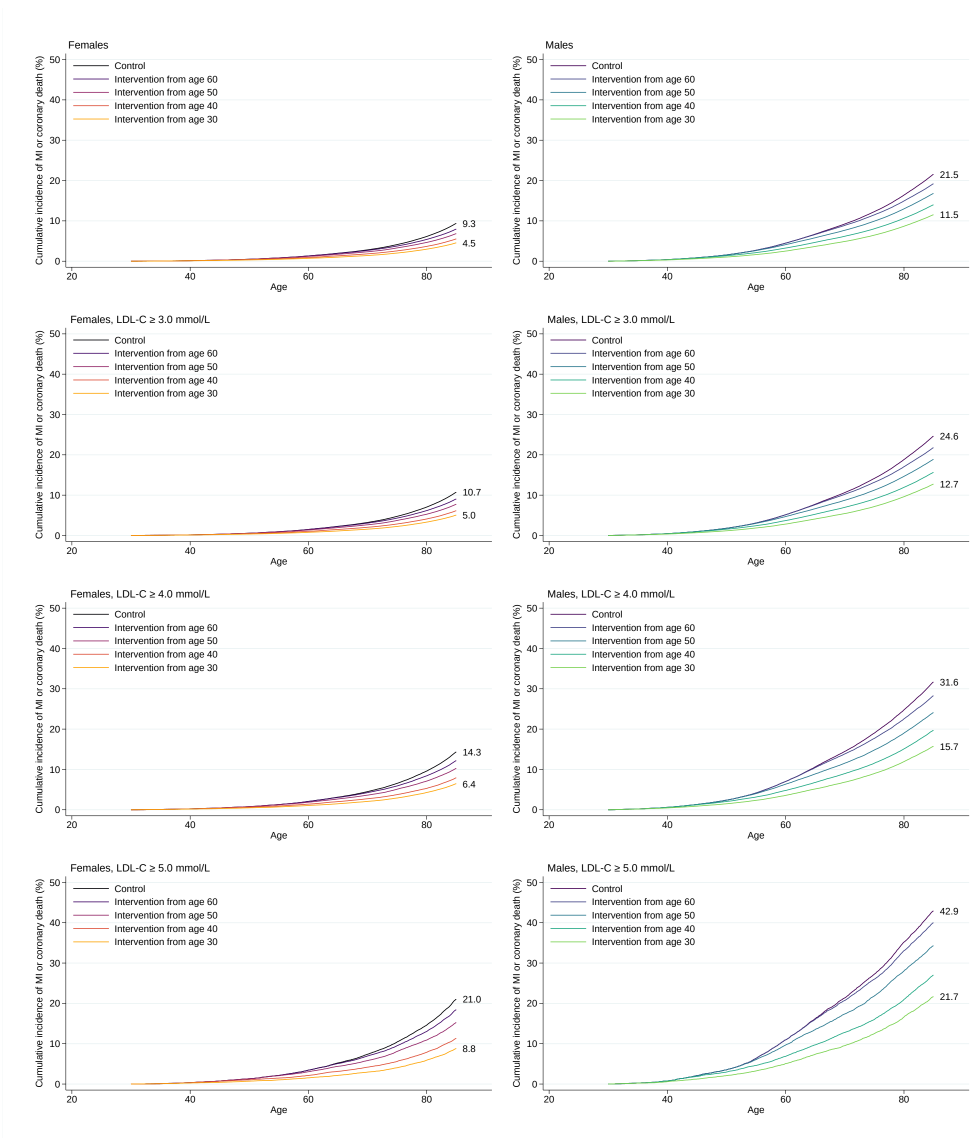

Figure 7.9: Cumulative incidence of MI or coronary death by age of intervention, sex, and LDL-C – inclisiran

```
GPH/cumMI_2_sex_1_LDL_5.gph ///
, altshrink cols(2) graphregion(color(white)) xsize(3.5)
> ronary death ///
by age of intervention sex, and LDL-C -- high intensity statins)
graph combine ///
GPH/cumMI_3_sex_0_LDL_0.gph ///
GPH/cumMI_3_sex_1_LDL_0.gph ///
GPH/cumMI_3_sex_0_LDL_3.gph ///
GPH/cumMI_3_sex_1_LDL_3.gph ///
GPH/cumMI_3_sex_0_LDL_4.gph ///
GPH/cumMI_3_sex_1_LDL_4.gph ///
GPH/cumMI_3_sex_0_LDL_5.gph ///
GPH/cumMI_3_sex_1_LDL_5.gph ///
, altshrink cols(2) graphregion(color(white)) xsize(3.5)
> ronary death ///
by age of intervention, sex, and LDL-C -- low/moderate intensity statins and ezetimibe)
graph combine ///
GPH/cumMI_4_sex_0_LDL_0.gph ///
GPH/cumMI_4_sex_1_LDL_0.gph ///
GPH/cumMI_4_sex_0_LDL_3.gph ///
GPH/cumMI_4_sex_1_LDL_3.gph ///
GPH/cumMI_4_sex_0_LDL_4.gph ///
GPH/cumMI_4_sex_1_LDL_4.gph ///
GPH/cumMI_4_sex_0_LDL_5.gph ///
GPH/cumMI_4_sex_1_LDL_5.gph ///
, altshrink cols(2) graphregion(color(white)) xsize(3.5)
> ronary death ///
by age of intervention, sex, and LDL-C -- inclisiran)
```

Indeed, stratification was a good idea - the relative risk reductions are pretty much identical for each group, but the absolute risk reductions are higher in males and increase with increasing LDL-C (*"and with greater absolute risk reduction comes greater cost-effectiveness" – Uncle Ben, probably*). Let's also generate the full results table by sex and LDL-C:

```
quietly {
forval s = 0/1 {
foreach l in 0 3 4 5 {
use trial_control, clear
merge 1:1 eid using UKBldl
drop if _merge == 2
drop _merge
keep if sex == `s´
keep if ldl >= `l´
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
merge 1:1 eid using agellt_control
drop if _merge == 2
drop _merge
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage sex using QALY_nMI_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using QALY_MI_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage using ACcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using CHcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 agellt MIage using STcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using CHSTcost_Matrix
drop if _merge == 2
drop _merge
forval i = 30(10)60 {
recode QALY_MI_`i´ .=0
recode ACMIcost_`i´ .=0
recode CHMIcost_`i´ .=0
recode STcost_`i´ .=0
recode CHSTcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double MDcost_`i´ = STcost_`i´ + CHSTcost_`i´
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
}
forval i = 30(10)60 {
preserve
keep if age >= `i´ & MIage >= `i´
count
matrix A_0_`i´ = r(N)
count if MI == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
count if Death == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
su(YLL_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(QALY_`i´)
```

```
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(MDcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(HCcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
restore
}
forval i = 30(10)60 {
forval ii = 1/4 {
use trial_`ii´_`i´, clear
merge 1:1 eid using UKBldl
drop if _merge == 2
drop _merge
keep if sex == `s´
keep if ldl >= `l´
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage sex using QALY_nMI_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using QALY_MI_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage using ACcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using CHcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age using INTcost_Matrix_`ii´
drop if _merge == 2
drop _merge
recode QALY_MI_`i´ .=0
recode CHMIcost_`i´ .=0
recode ACMIcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
keep if age >= `i´ & MIage >= `i´
count
matrix A_`ii´_`i´ = r(N)
count if MI == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
count if Death == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
su(YLL_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(QALY_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(MDcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(HCcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
}
```

```
}
matrix AA = (1\2\3\4\5\6\7\8\9)
matrix A = (J(9,1,30),AA,A_0_30,A_1_30,A_2_30,A_3_30,A_4_30\ ///
30,10,J(1,5,.)\ ///
J(9,1,40),AA,A_0_40,A_1_40,A_2_40,A_3_40,A_4_40\ ///
40,10,J(1,5,.)\ ///
J(9,1,50),AA,A_0_50,A_1_50,A_2_50,A_3_50,A_4_50\ ///
50,10,J(1,5,.)\ ///
J(9,1,60),AA,A_0_60,A_1_60,A_2_60,A_3_60,A_4_60\ ///
60,10,J(1,5,.))
clear
svmat double A
gen double D1 = A4-A3
gen double D2 = A5-A3
gen double D3 = A6-A3
gen double D4 = A7-A3
bysort A1 (A2) : replace D1 = D1[9]/D1[5] if A2 == 10
bysort A1 (A2) : replace D2 = D2[9]/D2[5] if A2 == 10
bysort A1 (A2) : replace D3 = D3[9]/D3[5] if A2 == 10
bysort A1 (A2) : replace D4 = D4[9]/D4[5] if A2 == 10
save reshof0_sex_`s´_ldl_`l´, replace
gen A0 = ""
replace A0 = "N" if A2 == 1
replace A0 = "Incident MIs" if A2 == 2
replace A0 = "Deaths" if A2 == 3
replace A0 = "YLL" if A2 == 4
replace A0 = "QALYs" if A2 == 5
replace A0 = "Medication costs (\textsterling)" if A2 == 6
replace A0 = "Acute MI costs (\textsterling)" if A2 == 7
replace A0 = "Chronic MI costs (\textsterling)" if A2 == 8
replace A0 = "Total healthcare costs (\textsterling)" if A2 == 9
replace A0 = "ICER ($\Delta$ \textsterling / $\Delta$ QALY)" if A2 == 10
gen A00 = "30" if _n == 1
replace A00 = "40" if _n == 11
replace A00 = "50" if _n == 21
replace A00 = "60" if _n == 31
order A00 A0
gen P1 = 100*D1/A3
gen P2 = 100*D2/A3
gen P3 = 100*D3/A3
gen P4 = 100*D4/A3
tostring A3-D4, force format(%15.0fc) replace
tostring P1-P4, gen(p1 p2 p3 p4) format(%9.2f) force
tostring P1-P4, force format(%9.1f) replace
replace D1 = D1 + " (" + P1 + "\%)" if A2 != 1 & A2!= 4 & A2 != 5 & A2 != 10
replace D2 = D2 + " (" + P2 + "\%)" if A2 != 1 & A2!= 4 & A2 != 5 & A2 != 10
replace D3 = D3 + " (" + P3 + "\%)" if A2 != 1 & A2!= 4 & A2 != 5 & A2 != 10
replace D4 = D4 + " (" + P4 + "\%)" if A2 != 1 & A2!= 4 & A2 != 5 & A2 != 10
replace D1 = D1 + " (" + p1 + "\%)" if A2 == 4 | A2 == 5
replace D2 = D2 + " (" + p2 + "\%)" if A2 == 4 | A2 == 5
replace D3 = D3 + " (" + p3 + "\%)" if A2 == 4 | A2 == 5
replace D4 = D4 + " (" + p4 + "\%)" if A2 == 4 | A2 == 5
save reshof_sex_`s´_ldl_`l´, replace
preserve
keep A00 A0 A3 A4 D1
export delimited using CSV/Res_HOF_1_sex_`s´_ldl_`l´.csv, delimiter(":") novarnames replace
restore
preserve
keep A00 A0 A3 A5 D2
export delimited using CSV/Res_HOF_2_sex_`s´_ldl_`l´.csv, delimiter(":") novarnames replace
restore
preserve
keep A00 A0 A3 A6 D3
export delimited using CSV/Res_HOF_3_sex_`s´_ldl_`l´.csv, delimiter(":") novarnames replace
restore
preserve
keep A00 A0 A3 A7 D4
export delimited using CSV/Res_HOF_4_sex_`s´_ldl_`l´.csv, delimiter(":") novarnames replace
```

```
restore
use reshof_sex_`s´_ldl_`l´, clear
replace A00 = A00[_n-1] if A2 == 2
keep if A2 == 2 | A2 == 5 | A2 == 9 | A2 == 10
drop A1-A7 P1-p4
rename (D1-D4) (D1_`l´ D2_`l´ D3_`l´ D4_`l´)
save Res_HOF_sex_`s´_ldl_`l´, replace
}
}
use Res_HOF_sex_1_ldl_0, clear
merge 1:1 _n using Res_HOF_sex_1_ldl_3
drop _merge
merge 1:1 _n using Res_HOF_sex_1_ldl_4
drop _merge
merge 1:1 _n using Res_HOF_sex_1_ldl_5
drop _merge
save Res_HOF_sex_1, replace
use Res_HOF_sex_0_ldl_0, clear
merge 1:1 _n using Res_HOF_sex_0_ldl_3
drop _merge
merge 1:1 _n using Res_HOF_sex_0_ldl_4
drop _merge
merge 1:1 _n using Res_HOF_sex_0_ldl_5
drop _merge
append using Res_HOF_sex_1
gen A000 = "Females" if _n == 1
replace A000 = "Males" if _n == 17
order A000
save Res_HOF_sexldl, replace
forval a = 1/4 {
use Res_HOF_sexldl, clear
keep A000 A00 A0 D`a´_0 D`a´_3 D`a´_4 D`a´_5
export delimited using CSV/Res_HOF_sexldl_`a´.csv, delimiter(":") novarnames replace
}
}
```

So, definitely too many results, but I will display them anyway for completeness. Go to the last 4 tables for a summary (table 7.40 - 7.43).

Table 7.8: Microsimulation results – Low/moderate intensity statins. Females.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	252,531	252,531	0
	Incident MIs	23,572	13,910	-9,662 (-41.0%)
	Deaths	67,449	63,822	-3,627 (-5.4%)
	YLL	6,072,920	6,076,849	3,929 (0.06%)
	QALYs	5,207,340	5,213,673	6,333 (0.12%)
	Medication costs (£)	11,766,157	111,985,457	100,219,300 (851.8%)
	Acute MI costs (£)	10,224,969	6,136,261	-4,088,707 (-40.0%)
	Chronic MI costs (£)	69,815,862	42,572,357	-27,243,505 (-39.0%)
	Total healthcare costs (£)	91,806,988	160,694,076	68,887,088 (75.0%)
	ICER (Δ £/ Δ QALY)	.	.	10,877
40	N	251,420	251,420	0
	Incident MIs	23,237	15,643	-7,594 (-32.7%)
	Deaths	66,473	63,197	-3,276 (-4.9%)
	YLL	5,550,722	5,556,691	5,970 (0.11%)
	QALYs	4,626,672	4,634,459	7,787 (0.17%)
	Medication costs (£)	16,447,490	102,418,735	85,971,244 (522.7%)
	Acute MI costs (£)	13,726,331	9,401,819	-4,324,512 (-31.5%)
	Chronic MI costs (£)	89,982,790	62,481,367	-27,501,424 (-30.6%)
	Total healthcare costs (£)	120,156,611	174,301,920	54,145,309 (45.1%)
	ICER (Δ £/ Δ QALY)	.	.	6,953
50	N	248,839	248,839	0
	Incident MIs	22,359	17,809	-4,550 (-20.3%)
	Deaths	64,259	62,235	-2,024 (-3.1%)
	YLL	4,824,432	4,828,011	3,578 (0.07%)
	QALYs	3,895,938	3,900,620	4,682 (0.12%)
	Medication costs (£)	22,490,292	89,015,926	66,525,634 (295.8%)
	Acute MI costs (£)	17,449,061	14,160,969	-3,288,092 (-18.8%)
	Chronic MI costs (£)	105,699,439	87,368,284	-18,331,155 (-17.3%)
	Total healthcare costs (£)	145,638,792	190,545,179	44,906,387 (30.8%)
	ICER (Δ £/ Δ QALY)	.	.	9,592
60	N	242,755	242,755	0
	Incident MIs	20,283	18,050	-2,233 (-11.0%)
	Deaths	59,150	58,236	-914 (-1.5%)
	YLL	3,829,330	3,831,406	2,077 (0.05%)
	QALYs	2,988,131	2,990,600	2,468 (0.08%)
	Medication costs (£)	27,672,619	70,682,773	43,010,155 (155.4%)
	Acute MI costs (£)	19,942,289	17,906,998	-2,035,291 (-10.2%)
	Chronic MI costs (£)	103,867,539	94,384,105	-9,483,435 (-9.1%)
	Total healthcare costs (£)	151,482,448	182,973,876	31,491,429 (20.8%)
	ICER (Δ £/ Δ QALY)	.	.	12,758

Table 7.9: Microsimulation results – Low/moderate intensity statins. Males.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	206,161	206,161	0
	Incident MIs	44,320	28,099	-16,221 (-36.6%)
	Deaths	90,180	85,889	-4,291 (-4.8%)
	YLL	4,886,717	4,896,764	10,048 (0.21%)
	QALYs	4,307,487	4,322,935	15,449 (0.36%)
	Medication costs (£)	12,100,213	90,241,061	78,140,848 (645.8%)
	Acute MI costs (£)	21,481,267	13,710,231	-7,771,036 (-36.2%)
	Chronic MI costs (£)	161,036,871	104,172,859	-56,864,012 (-35.3%)
	Total healthcare costs (£)	194,618,351	208,124,151	13,505,800 (6.9%)
	ICER (Δ £/ Δ QALY)	.	.	874
40	N	204,589	204,589	0
	Incident MIs	43,504	31,762	-11,742 (-27.0%)
	Deaths	89,143	85,867	-3,276 (-3.7%)
	YLL	4,421,379	4,433,740	12,362 (0.28%)
	QALYs	3,787,631	3,803,914	16,284 (0.43%)
	Medication costs (£)	16,679,733	81,724,603	65,044,870 (390.0%)
	Acute MI costs (£)	28,560,655	21,086,090	-7,474,565 (-26.2%)
	Chronic MI costs (£)	204,944,027	153,651,569	-51,292,458 (-25.0%)
	Total healthcare costs (£)	250,184,415	256,462,262	6,277,848 (2.5%)
	ICER (Δ £/ Δ QALY)	.	.	386
50	N	200,393	200,393	0
	Incident MIs	41,120	34,283	-6,837 (-16.6%)
	Deaths	86,314	84,151	-2,163 (-2.5%)
	YLL	3,766,535	3,776,279	9,744 (0.26%)
	QALYs	3,125,732	3,137,362	11,630 (0.37%)
	Medication costs (£)	21,911,097	69,630,034	47,718,937 (217.8%)
	Acute MI costs (£)	35,084,695	29,560,037	-5,524,658 (-15.7%)
	Chronic MI costs (£)	229,334,349	195,747,124	-33,587,225 (-14.6%)
	Total healthcare costs (£)	286,330,141	294,937,195	8,607,055 (3.0%)
	ICER (Δ £/ Δ QALY)	.	.	740
60	N	190,404	190,404	0
	Incident MIs	35,148	32,156	-2,992 (-8.5%)
	Deaths	79,149	78,164	-985 (-1.2%)
	YLL	2,873,187	2,876,598	3,411 (0.12%)
	QALYs	2,305,965	2,310,016	4,051 (0.18%)
	Medication costs (£)	24,726,735	53,075,708	28,348,973 (114.6%)
	Acute MI costs (£)	36,683,738	33,834,364	-2,849,374 (-7.8%)
	Chronic MI costs (£)	200,360,799	186,727,700	-13,633,100 (-6.8%)
	Total healthcare costs (£)	261,771,272	273,637,772	11,866,500 (4.5%)
	ICER (Δ £/ Δ QALY)	.	.	2,929

Table 7.10: Microsimulation results – Low/moderate intensity statins. Females with an LDL-C ≥3.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	190,859	190,859	0
	Incident MIs	20,372	11,755	-8,617 (-42.3%)
	Deaths	52,122	48,685	-3,437 (-6.6%)
	YLL	4,587,864	4,592,870	5,005 (0.11%)
	QALYs	3,933,152	3,940,012	6,860 (0.17%)
	Medication costs (£)	8,880,623	84,638,365	75,757,742 (853.1%)
	Acute MI costs (£)	8,857,586	5,196,112	-3,661,474 (-41.3%)
	Chronic MI costs (£)	60,493,304	36,146,145	-24,347,159 (-40.2%)
	Total healthcare costs (£)	78,231,514	125,980,622	47,749,109 (61.0%)
	ICER (Δ £/ Δ QALY)	.	.	6,961
40	N	190,005	190,005	0
	Incident MIs	20,079	13,236	-6,843 (-34.1%)
	Deaths	51,386	48,218	-3,168 (-6.2%)
	YLL	4,191,587	4,197,609	6,022 (0.14%)
	QALYs	3,492,790	3,500,320	7,530 (0.22%)
	Medication costs (£)	12,401,432	77,368,738	64,967,306 (523.9%)
	Acute MI costs (£)	11,880,081	7,967,063	-3,913,018 (-32.9%)
	Chronic MI costs (£)	77,784,244	52,936,891	-24,847,353 (-31.9%)
	Total healthcare costs (£)	102,065,757	138,272,692	36,206,935 (35.5%)
	ICER (Δ £/ Δ QALY)	.	.	4,809
50	N	187,924	187,924	0
	Incident MIs	19,316	15,286	-4,030 (-20.9%)
	Deaths	49,614	47,754	-1,860 (-3.7%)
	YLL	3,640,299	3,643,275	2,976 (0.08%)
	QALYs	2,938,510	2,942,548	4,038 (0.14%)
	Medication costs (£)	17,039,868	67,172,622	50,132,754 (294.2%)
	Acute MI costs (£)	15,105,081	12,127,430	-2,977,651 (-19.7%)
	Chronic MI costs (£)	91,447,320	74,748,338	-16,698,982 (-18.3%)
	Total healthcare costs (£)	123,592,270	154,048,391	30,456,121 (24.6%)
	ICER (Δ £/ Δ QALY)	.	.	7,543
60	N	183,058	183,058	0
	Incident MIs	17,523	15,522	-2,001 (-11.4%)
	Deaths	45,583	44,767	-816 (-1.8%)
	YLL	2,885,344	2,887,262	1,918 (0.07%)
	QALYs	2,250,366	2,252,622	2,256 (0.10%)
	Medication costs (£)	21,415,931	53,265,072	31,849,142 (148.7%)
	Acute MI costs (£)	17,295,524	15,471,233	-1,824,291 (-10.5%)
	Chronic MI costs (£)	90,230,480	81,723,153	-8,507,328 (-9.4%)
	Total healthcare costs (£)	128,941,935	150,459,458	21,517,524 (16.7%)
	ICER (Δ £/ Δ QALY)	.	.	9,538

Table 7.11: Microsimulation results – Low/moderate intensity statins. Males with an LDL-C ≥3.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	147,997	147,997	0
	Incident MIs	36,385	22,508	-13,877 (-38.1%)
	Deaths	66,112	62,175	-3,937 (-6.0%)
	YLL	3,503,994	3,514,181	10,186 (0.29%)
	QALYs	3,086,745	3,101,176	14,431 (0.47%)
	Medication costs (£)	8,136,992	64,761,868	56,624,876 (695.9%)
	Acute MI costs (£)	17,650,408	11,042,257	-6,608,151 (-37.4%)
	Chronic MI costs (£)	132,461,398	84,267,284	-48,194,114 (-36.4%)
	Total healthcare costs (£)	158,248,798	160,071,409	1,822,612 (1.2%)
	ICER (Δ £/ Δ QALY)	.	.	126
40	N	146,795	146,795	0
	Incident MIs	35,713	25,645	-10,068 (-28.2%)
	Deaths	65,354	62,624	-2,730 (-4.2%)
	YLL	3,166,648	3,177,690	11,042 (0.35%)
	QALYs	2,710,299	2,724,538	14,239 (0.53%)
	Medication costs (£)	11,170,918	58,572,695	47,401,777 (424.3%)
	Acute MI costs (£)	23,465,210	17,119,936	-6,345,274 (-27.0%)
	Chronic MI costs (£)	168,567,568	125,264,655	-43,302,912 (-25.7%)
	Total healthcare costs (£)	203,203,695	200,957,286	-2,246,409 (-1.1%)
	ICER (Δ £/ Δ QALY)	.	.	-158
50	N	143,530	143,530	0
	Incident MIs	33,747	27,682	-6,065 (-18.0%)
	Deaths	63,204	61,230	-1,974 (-3.1%)
	YLL	2,690,584	2,699,185	8,601 (0.32%)
	QALYs	2,230,105	2,240,351	10,246 (0.46%)
	Medication costs (£)	14,678,219	49,769,996	35,091,777 (239.1%)
	Acute MI costs (£)	28,814,894	23,976,822	-4,838,072 (-16.8%)
	Chronic MI costs (£)	188,613,109	159,147,086	-29,466,024 (-15.6%)
	Total healthcare costs (£)	232,106,222	232,893,903	787,681 (0.3%)
	ICER (Δ £/ Δ QALY)	.	.	77
60	N	135,697	135,697	0
	Incident MIs	28,826	26,164	-2,662 (-9.2%)
	Deaths	57,699	56,842	-857 (-1.5%)
	YLL	2,040,931	2,043,921	2,989 (0.15%)
	QALYs	1,635,641	1,639,224	3,583 (0.22%)
	Medication costs (£)	16,774,286	37,712,478	20,938,192 (124.8%)
	Acute MI costs (£)	30,138,863	27,586,918	-2,551,945 (-8.5%)
	Chronic MI costs (£)	165,209,051	152,969,734	-12,239,317 (-7.4%)
	Total healthcare costs (£)	212,122,200	218,269,129	6,146,930 (2.9%)
	ICER (Δ £/ Δ QALY)	.	.	1,716

Table 7.12: Microsimulation results – Low/moderate intensity statins. Females with an LDL-C ≥4.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	79,921	79,921	0
	Incident MIs	11,422	6,480	-4,942 (-43.3%)
	Deaths	23,001	21,242	-1,759 (-7.6%)
	YLL	1,918,613	1,921,243	2,630 (0.14%)
	QALYs	1,643,823	1,647,612	3,789 (0.23%)
	Medication costs (£)	4,855,281	35,405,142	30,549,861 (629.2%)
	Acute MI costs (£)	5,044,684	2,900,554	-2,144,130 (-42.5%)
	Chronic MI costs (£)	34,757,785	20,396,252	-14,361,533 (-41.3%)
	Total healthcare costs (£)	44,657,750	58,701,948	14,044,198 (31.4%)
	ICER (Δ £/ Δ QALY)	.	.	3,706
40	N	79,485	79,485	0
	Incident MIs	11,243	7,236	-4,007 (-35.6%)
	Deaths	22,642	20,847	-1,795 (-7.9%)
	YLL	1,750,688	1,754,290	3,602 (0.21%)
	QALYs	1,457,570	1,462,073	4,503 (0.31%)
	Medication costs (£)	6,774,563	32,334,477	25,559,914 (377.3%)
	Acute MI costs (£)	6,740,407	4,397,421	-2,342,986 (-34.8%)
	Chronic MI costs (£)	44,436,527	29,483,349	-14,953,178 (-33.7%)
	Total healthcare costs (£)	57,951,498	66,215,247	8,263,749 (14.3%)
	ICER (Δ £/ Δ QALY)	.	.	1,835
50	N	78,479	78,479	0
	Incident MIs	10,803	8,569	-2,234 (-20.7%)
	Deaths	21,815	20,803	-1,012 (-4.6%)
	YLL	1,517,306	1,519,229	1,922 (0.13%)
	QALYs	1,223,355	1,225,881	2,526 (0.21%)
	Medication costs (£)	9,344,949	28,010,780	18,665,831 (199.7%)
	Acute MI costs (£)	8,551,846	6,851,935	-1,699,911 (-19.9%)
	Chronic MI costs (£)	52,181,806	42,259,719	-9,922,086 (-19.0%)
	Total healthcare costs (£)	70,078,601	77,122,434	7,043,833 (10.1%)
	ICER (Δ £/ Δ QALY)	.	.	2,788
60	N	76,188	76,188	0
	Incident MIs	9,770	8,771	-999 (-10.2%)
	Deaths	19,994	19,614	-380 (-1.9%)
	YLL	1,197,167	1,198,242	1,075 (0.09%)
	QALYs	932,359	933,630	1,271 (0.14%)
	Medication costs (£)	11,921,246	22,105,728	10,184,482 (85.4%)
	Acute MI costs (£)	9,757,833	8,799,610	-958,223 (-9.8%)
	Chronic MI costs (£)	51,389,225	46,674,900	-4,714,325 (-9.2%)
	Total healthcare costs (£)	73,068,304	77,580,238	4,511,934 (6.2%)
	ICER (Δ £/ Δ QALY)	.	.	3,549

Table 7.13: Microsimulation results – Low/moderate intensity statins. Males with an LDL-C ≥4.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	56,981	56,981	0
	Incident MIs	18,028	10,861	-7,167 (-39.8%)
	Deaths	26,437	24,579	-1,858 (-7.0%)
	YLL	1,345,152	1,351,387	6,235 (0.46%)
	QALYs	1,182,936	1,191,522	8,586 (0.73%)
	Medication costs (£)	4,011,678	24,904,399	20,892,721 (520.8%)
	Acute MI costs (£)	8,941,611	5,353,679	-3,587,932 (-40.1%)
	Chronic MI costs (£)	68,159,738	41,060,393	-27,099,345 (-39.8%)
	Total healthcare costs (£)	81,113,027	71,318,471	-9,794,556 (-12.1%)
	ICER (Δ £/ Δ QALY)	.	.	-1,141
40	N	56,419	56,419	0
	Incident MIs	17,685	12,568	-5,117 (-28.9%)
	Deaths	26,091	24,823	-1,268 (-4.9%)
	YLL	1,212,244	1,218,222	5,978 (0.49%)
	QALYs	1,034,885	1,042,791	7,906 (0.76%)
	Medication costs (£)	5,509,555	22,454,978	16,945,423 (307.6%)
	Acute MI costs (£)	11,898,806	8,458,201	-3,440,605 (-28.9%)
	Chronic MI costs (£)	87,037,093	62,381,827	-24,655,266 (-28.3%)
	Total healthcare costs (£)	104,445,455	93,295,006	-11,150,449 (-10.7%)
	ICER (Δ £/ Δ QALY)	.	.	-1,410
50	N	54,905	54,905	0
	Incident MIs	16,683	13,660	-3,023 (-18.1%)
	Deaths	25,137	24,309	-828 (-3.3%)
	YLL	1,023,490	1,027,159	3,669 (0.36%)
	QALYs	845,310	850,184	4,874 (0.58%)
	Medication costs (£)	7,292,227	18,939,934	11,647,708 (159.7%)
	Acute MI costs (£)	14,595,863	12,071,735	-2,524,127 (-17.3%)
	Chronic MI costs (£)	97,672,393	81,350,072	-16,322,320 (-16.7%)
	Total healthcare costs (£)	119,560,482	112,361,742	-7,198,740 (-6.0%)
	ICER (Δ £/ Δ QALY)	.	.	-1,477
60	N	51,151	51,151	0
	Incident MIs	14,054	12,918	-1,136 (-8.1%)
	Deaths	22,645	22,260	-385 (-1.7%)
	YLL	763,818	765,261	1,443 (0.19%)
	QALYs	609,790	611,534	1,744 (0.29%)
	Medication costs (£)	8,347,365	14,120,176	5,772,810 (69.2%)
	Acute MI costs (£)	14,955,158	13,802,270	-1,152,888 (-7.7%)
	Chronic MI costs (£)	83,522,377	77,649,662	-5,872,715 (-7.0%)
	Total healthcare costs (£)	106,824,900	105,572,108	-1,252,792 (-1.2%)
	ICER (Δ £/ Δ QALY)	.	.	-718

Table 7.14: Microsimulation results – Low/moderate intensity statins. Females with an LDL-C $\geq$5.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	16,646	16,646	0
	Incident MIs	3,493	1,896	-1,597 (-45.7%)
	Deaths	5,208	4,604	-604 (-11.6%)
	YLL	398,696	399,955	1,259 (0.32%)
	QALYs	341,100	342,762	1,662 (0.49%)
	Medication costs (£)	1,395,932	7,370,478	5,974,546 (428.0%)
	Acute MI costs (£)	1,631,346	858,858	-772,488 (-47.4%)
	Chronic MI costs (£)	11,578,424	6,124,892	-5,453,531 (-47.1%)
	Total healthcare costs (£)	14,605,701	14,354,228	-251,473 (-1.7%)
	ICER (Δ £/ Δ QALY)	.	.	-151
40	N	16,525	16,525	0
	Incident MIs	3,435	2,203	-1,232 (-35.9%)
	Deaths	5,112	4,601	-511 (-10.0%)
	YLL	363,016	364,065	1,049 (0.29%)
	QALYs	301,602	303,047	1,445 (0.48%)
	Medication costs (£)	1,944,826	6,710,350	4,765,524 (245.0%)
	Acute MI costs (£)	2,177,776	1,390,616	-787,160 (-36.1%)
	Chronic MI costs (£)	14,831,187	9,536,997	-5,294,190 (-35.7%)
	Total healthcare costs (£)	18,953,788	17,637,963	-1,315,826 (-6.9%)
	ICER (Δ £/ Δ QALY)	.	.	-911
50	N	16,251	16,251	0
	Incident MIs	3,275	2,659	-616 (-18.8%)
	Deaths	4,905	4,705	-200 (-4.1%)
	YLL	313,086	313,216	130 (0.04%)
	QALYs	251,752	252,210	459 (0.18%)
	Medication costs (£)	2,668,615	5,774,990	3,106,376 (116.4%)
	Acute MI costs (£)	2,714,693	2,180,830	-533,863 (-19.7%)
	Chronic MI costs (£)	17,004,273	13,782,663	-3,221,610 (-18.9%)
	Total healthcare costs (£)	22,387,581	21,738,483	-649,098 (-2.9%)
	ICER (Δ £/ Δ QALY)	.	.	-1,415
60	N	15,626	15,626	0
	Incident MIs	2,922	2,743	-179 (-6.1%)
	Deaths	4,435	4,362	-73 (-1.6%)
	YLL	244,560	244,743	183 (0.07%)
	QALYs	189,878	190,133	255 (0.13%)
	Medication costs (£)	3,337,767	4,515,186	1,177,419 (35.3%)
	Acute MI costs (£)	3,036,225	2,841,045	-195,181 (-6.4%)
	Chronic MI costs (£)	16,280,512	15,165,807	-1,114,705 (-6.8%)
	Total healthcare costs (£)	22,654,504	22,522,037	-132,467 (-0.6%)
	ICER (Δ £/ Δ QALY)	.	.	-519

Table 7.15: Microsimulation results – Low/moderate intensity statins. Males with an LDL-C ≥5.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	9,188	9,188	0
	Incident MIs	3,941	2,470	-1,471 (-37.3%)
	Deaths	4,528	4,152	-376 (-8.3%)
	YLL	216,012	217,415	1,403 (0.65%)
	QALYs	189,357	191,373	2,016 (1.06%)
	Medication costs (£)	913,115	4,006,719	3,093,603 (338.8%)
	Acute MI costs (£)	2,040,098	1,220,915	-819,183 (-40.2%)
	Chronic MI costs (£)	15,983,914	9,368,960	-6,614,954 (-41.4%)
	Total healthcare costs (£)	18,937,127	14,596,594	-4,340,533 (-22.9%)
	ICER (Δ £/ Δ QALY)	.	.	-2,153
40	N	9,083	9,083	0
	Incident MIs	3,869	2,846	-1,023 (-26.4%)
	Deaths	4,464	4,191	-273 (-6.1%)
	YLL	193,840	195,407	1,567 (0.81%)
	QALYs	164,668	166,684	2,016 (1.22%)
	Medication costs (£)	1,256,320	3,601,892	2,345,571 (186.7%)
	Acute MI costs (£)	2,727,868	1,973,592	-754,276 (-27.7%)
	Chronic MI costs (£)	20,619,520	14,770,139	-5,849,381 (-28.4%)
	Total healthcare costs (£)	24,603,708	20,345,622	-4,258,086 (-17.3%)
	ICER (Δ £/ Δ QALY)	.	.	-2,112
50	N	8,748	8,748	0
	Incident MIs	3,619	3,131	-488 (-13.5%)
	Deaths	4,272	4,154	-118 (-2.8%)
	YLL	161,540	162,287	748 (0.46%)
	QALYs	132,558	133,524	966 (0.73%)
	Medication costs (£)	1,649,693	2,992,507	1,342,813 (81.4%)
	Acute MI costs (£)	3,291,189	2,871,505	-419,684 (-12.8%)
	Chronic MI costs (£)	22,726,290	19,772,702	-2,953,588 (-13.0%)
	Total healthcare costs (£)	27,667,172	25,636,713	-2,030,459 (-7.3%)
	ICER (Δ £/ Δ QALY)	.	.	-2,101
60	N	7,902	7,902	0
	Incident MIs	2,937	2,855	-82 (-2.8%)
	Deaths	3,752	3,733	-19 (-0.5%)
	YLL	116,529	116,606	77 (0.07%)
	QALYs	92,447	92,577	129 (0.14%)
	Medication costs (£)	1,760,955	2,151,642	390,687 (22.2%)
	Acute MI costs (£)	3,185,261	3,081,750	-103,511 (-3.2%)
	Chronic MI costs (£)	18,178,822	17,557,488	-621,334 (-3.4%)
	Total healthcare costs (£)	23,125,038	22,790,879	-334,158 (-1.4%)
	ICER (Δ £/ Δ QALY)	.	.	-2,585

Table 7.16: Microsimulation results – High intensity statins. Females.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	252,531	252,531	0
	Incident MIs	23,572	11,751	-11,821 (-50.1%)
	Deaths	67,449	62,937	-4,512 (-6.7%)
	YLL	6,072,920	6,078,062	5,141 (0.08%)
	QALYs	5,207,340	5,215,254	7,915 (0.15%)
	Medication costs (£)	11,766,157	166,823,948	155,057,791 (1317.8%)
	Acute MI costs (£)	10,224,969	5,262,262	-4,962,706 (-48.5%)
	Chronic MI costs (£)	69,815,862	37,116,848	-32,699,014 (-46.8%)
	Total healthcare costs (£)	91,806,988	209,203,058	117,396,070 (127.9%)
	ICER (Δ £/ Δ QALY)	.	.	14,833
40	N	251,420	251,420	0
	Incident MIs	23,237	13,813	-9,424 (-40.6%)
	Deaths	66,473	62,450	-4,023 (-6.1%)
	YLL	5,550,722	5,557,759	7,038 (0.13%)
	QALYs	4,626,672	4,635,920	9,249 (0.20%)
	Medication costs (£)	16,447,490	152,571,351	136,123,861 (827.6%)
	Acute MI costs (£)	13,726,331	8,430,366	-5,295,965 (-38.6%)
	Chronic MI costs (£)	89,982,790	56,773,622	-33,209,169 (-36.9%)
	Total healthcare costs (£)	120,156,611	217,775,339	97,618,727 (81.2%)
	ICER (Δ £/ Δ QALY)	.	.	10,555
50	N	248,839	248,839	0
	Incident MIs	22,359	16,224	-6,135 (-27.4%)
	Deaths	64,259	61,580	-2,679 (-4.2%)
	YLL	4,824,432	4,829,214	4,781 (0.10%)
	QALYs	3,895,938	3,902,120	6,182 (0.16%)
	Medication costs (£)	22,490,292	132,612,948	110,122,656 (489.6%)
	Acute MI costs (£)	17,449,061	13,070,389	-4,378,673 (-25.1%)
	Chronic MI costs (£)	105,699,439	81,713,135	-23,986,303 (-22.7%)
	Total healthcare costs (£)	145,638,792	227,396,472	81,757,680 (56.1%)
	ICER (Δ £/ Δ QALY)	.	.	13,225
60	N	242,755	242,755	0
	Incident MIs	20,283	16,888	-3,395 (-16.7%)
	Deaths	59,150	57,754	-1,396 (-2.4%)
	YLL	3,829,330	3,832,418	3,089 (0.08%)
	QALYs	2,988,131	2,991,758	3,627 (0.12%)
	Medication costs (£)	27,672,619	105,302,386	77,629,767 (280.5%)
	Acute MI costs (£)	19,942,289	16,897,132	-3,045,157 (-15.3%)
	Chronic MI costs (£)	103,867,539	90,042,486	-13,825,053 (-13.3%)
	Total healthcare costs (£)	151,482,448	212,242,005	60,759,557 (40.1%)
	ICER (Δ £/ Δ QALY)	.	.	16,754

Table 7.17: Microsimulation results – High intensity statins. Males.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	206,161	206,161	0
	Incident MIs	44,320	24,266	-20,054 (-45.2%)
	Deaths	90,180	84,774	-5,406 (-6.0%)
	YLL	4,886,717	4,899,331	12,614 (0.26%)
	QALYs	4,307,487	4,326,511	19,024 (0.44%)
	Medication costs (£)	12,100,213	134,475,001	122,374,787 (1011.3%)
	Acute MI costs (£)	21,481,267	12,014,528	-9,466,739 (-44.1%)
	Chronic MI costs (£)	161,036,871	92,357,623	-68,679,248 (-42.6%)
	Total healthcare costs (£)	194,618,351	238,847,152	44,228,800 (22.7%)
	ICER (Δ £/ Δ QALY)	.	.	2,325
40	N	204,589	204,589	0
	Incident MIs	43,504	28,431	-15,073 (-34.6%)
	Deaths	89,143	84,907	-4,236 (-4.8%)
	YLL	4,421,379	4,436,521	15,143 (0.34%)
	QALYs	3,787,631	3,807,694	20,064 (0.53%)
	Medication costs (£)	16,679,733	121,796,496	105,116,764 (630.2%)
	Acute MI costs (£)	28,560,655	19,120,049	-9,440,605 (-33.1%)
	Chronic MI costs (£)	204,944,027	140,884,850	-64,059,177 (-31.3%)
	Total healthcare costs (£)	250,184,415	281,801,396	31,616,981 (12.6%)
	ICER (Δ £/ Δ QALY)	.	.	1,576
50	N	200,393	200,393	0
	Incident MIs	41,120	31,729	-9,391 (-22.8%)
	Deaths	86,314	83,274	-3,040 (-3.5%)
	YLL	3,766,535	3,778,950	12,415 (0.33%)
	QALYs	3,125,732	3,140,722	14,990 (0.48%)
	Medication costs (£)	21,911,097	103,779,884	81,868,787 (373.6%)
	Acute MI costs (£)	35,084,695	27,620,993	-7,463,702 (-21.3%)
	Chronic MI costs (£)	229,334,349	184,672,022	-44,662,327 (-19.5%)
	Total healthcare costs (£)	286,330,141	316,072,898	29,742,757 (10.4%)
	ICER (Δ £/ Δ QALY)	.	.	1,984
60	N	190,404	190,404	0
	Incident MIs	35,148	30,590	-4,558 (-13.0%)
	Deaths	79,149	77,594	-1,555 (-2.0%)
	YLL	2,873,187	2,878,449	5,262 (0.18%)
	QALYs	2,305,965	2,312,107	6,143 (0.27%)
	Medication costs (£)	24,726,735	79,101,482	54,374,747 (219.9%)
	Acute MI costs (£)	36,683,738	32,409,248	-4,274,490 (-11.7%)
	Chronic MI costs (£)	200,360,799	180,205,455	-20,155,345 (-10.1%)
	Total healthcare costs (£)	261,771,272	291,716,184	29,944,912 (11.4%)
	ICER (Δ £/ Δ QALY)	.	.	4,875

Table 7.18: Microsimulation results – High intensity statins. Females with an LDL-C ≥3.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	190,859	190,859	0
	Incident MIs	20,372	9,867	-10,505 (-51.6%)
	Deaths	52,122	47,908	-4,214 (-8.1%)
	YLL	4,587,864	4,593,957	6,093 (0.13%)
	QALYs	3,933,152	3,941,427	8,275 (0.21%)
	Medication costs (£)	8,880,623	126,089,864	117,209,241 (1319.8%)
	Acute MI costs (£)	8,857,586	4,423,316	-4,434,270 (-50.1%)
	Chronic MI costs (£)	60,493,304	31,294,223	-29,199,081 (-48.3%)
	Total healthcare costs (£)	78,231,514	161,807,403	83,575,890 (106.8%)
	ICER (Δ £/ Δ QALY)	.	.	10,100
40	N	190,005	190,005	0
	Incident MIs	20,079	11,605	-8,474 (-42.2%)
	Deaths	51,386	47,544	-3,842 (-7.5%)
	YLL	4,191,587	4,198,565	6,978 (0.17%)
	QALYs	3,492,790	3,501,628	8,838 (0.25%)
	Medication costs (£)	12,401,432	115,258,907	102,857,475 (829.4%)
	Acute MI costs (£)	11,880,081	7,097,264	-4,782,818 (-40.3%)
	Chronic MI costs (£)	77,784,244	47,822,932	-29,961,312 (-38.5%)
	Total healthcare costs (£)	102,065,757	170,179,102	68,113,345 (66.7%)
	ICER (Δ £/ Δ QALY)	.	.	7,707
50	N	187,924	187,924	0
	Incident MIs	19,316	13,874	-5,442 (-28.2%)
	Deaths	49,614	47,161	-2,453 (-4.9%)
	YLL	3,640,299	3,644,333	4,035 (0.11%)
	QALYs	2,938,510	2,943,876	5,367 (0.18%)
	Medication costs (£)	17,039,868	100,075,654	83,035,786 (487.3%)
	Acute MI costs (£)	15,105,081	11,158,426	-3,946,655 (-26.1%)
	Chronic MI costs (£)	91,447,320	69,705,477	-21,741,843 (-23.8%)
	Total healthcare costs (£)	123,592,270	180,939,557	57,347,288 (46.4%)
	ICER (Δ £/ Δ QALY)	.	.	10,686
60	N	183,058	183,058	0
	Incident MIs	17,523	14,511	-3,012 (-17.2%)
	Deaths	45,583	44,357	-1,226 (-2.7%)
	YLL	2,885,344	2,888,111	2,766 (0.10%)
	QALYs	2,250,366	2,253,611	3,246 (0.14%)
	Medication costs (£)	21,415,931	79,356,056	57,940,125 (270.5%)
	Acute MI costs (£)	17,295,524	14,582,618	-2,712,906 (-15.7%)
	Chronic MI costs (£)	90,230,480	77,888,067	-12,342,414 (-13.7%)
	Total healthcare costs (£)	128,941,935	171,826,741	42,884,806 (33.3%)
	ICER (Δ £/ Δ QALY)	.	.	13,213

Table 7.19: Microsimulation results – High intensity statins. Males with an LDL-C ≥3.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	147,997	147,997	0
	Incident MIs	36,385	19,291	-17,094 (-47.0%)
	Deaths	66,112	61,242	-4,870 (-7.4%)
	YLL	3,503,994	3,516,366	12,371 (0.35%)
	QALYs	3,086,745	3,104,224	17,479 (0.57%)
	Medication costs (£)	8,136,992	96,515,944	88,378,952 (1086.1%)
	Acute MI costs (£)	17,650,408	9,609,333	-8,041,075 (-45.6%)
	Chronic MI costs (£)	132,461,398	74,227,696	-58,233,702 (-44.0%)
	Total healthcare costs (£)	158,248,798	180,352,973	22,104,175 (14.0%)
	ICER (Δ £/ Δ QALY)	.	.	1,265
40	N	146,795	146,795	0
	Incident MIs	35,713	22,837	-12,876 (-36.1%)
	Deaths	65,354	61,846	-3,508 (-5.4%)
	YLL	3,166,648	3,180,052	13,404 (0.42%)
	QALYs	2,710,299	2,727,782	17,484 (0.65%)
	Medication costs (£)	11,170,918	87,302,659	76,131,741 (681.5%)
	Acute MI costs (£)	23,465,210	15,434,326	-8,030,883 (-34.2%)
	Chronic MI costs (£)	168,567,568	114,197,411	-54,370,156 (-32.3%)
	Total healthcare costs (£)	203,203,695	216,934,397	13,730,702 (6.8%)
	ICER (Δ £/ Δ QALY)	.	.	785
50	N	143,530	143,530	0
	Incident MIs	33,747	25,546	-8,201 (-24.3%)
	Deaths	63,204	60,528	-2,676 (-4.2%)
	YLL	2,690,584	2,701,437	10,853 (0.40%)
	QALYs	2,230,105	2,243,196	13,090 (0.59%)
	Medication costs (£)	14,678,219	74,188,931	59,510,712 (405.4%)
	Acute MI costs (£)	28,814,894	22,339,448	-6,475,446 (-22.5%)
	Chronic MI costs (£)	188,613,109	149,733,265	-38,879,844 (-20.6%)
	Total healthcare costs (£)	232,106,222	246,261,644	14,155,422 (6.1%)
	ICER (Δ £/ Δ QALY)	.	.	1,081
60	N	135,697	135,697	0
	Incident MIs	28,826	24,830	-3,996 (-13.9%)
	Deaths	57,699	56,362	-1,337 (-2.3%)
	YLL	2,040,931	2,045,462	4,531 (0.22%)
	QALYs	1,635,641	1,640,974	5,332 (0.33%)
	Medication costs (£)	16,774,286	56,211,049	39,436,763 (235.1%)
	Acute MI costs (£)	30,138,863	26,376,262	-3,762,601 (-12.5%)
	Chronic MI costs (£)	165,209,051	147,449,803	-17,759,248 (-10.7%)
	Total healthcare costs (£)	212,122,200	230,037,114	17,914,914 (8.4%)
	ICER (Δ £/ Δ QALY)	.	.	3,360

Table 7.20: Microsimulation results – High intensity statins. Females with an LDL-C $\geq$4.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	79,921	79,921	0
	Incident MIs	11,422	5,324	-6,098 (-53.4%)
	Deaths	23,001	20,770	-2,231 (-9.7%)
	YLL	1,918,613	1,921,881	3,268 (0.17%)
	QALYs	1,643,823	1,648,469	4,645 (0.28%)
	Medication costs (£)	4,855,281	52,749,781	47,894,500 (986.4%)
	Acute MI costs (£)	5,044,684	2,425,086	-2,619,598 (-51.9%)
	Chronic MI costs (£)	34,757,785	17,352,503	-17,405,282 (-50.1%)
	Total healthcare costs (£)	44,657,750	72,527,369	27,869,620 (62.4%)
	ICER (Δ £/ Δ QALY)	.	.	5,999
40	N	79,485	79,485	0
	Incident MIs	11,243	6,260	-4,983 (-44.3%)
	Deaths	22,642	20,447	-2,195 (-9.7%)
	YLL	1,750,688	1,754,883	4,195 (0.24%)
	QALYs	1,457,570	1,462,878	5,308 (0.36%)
	Medication costs (£)	6,774,563	48,175,092	41,400,528 (611.1%)
	Acute MI costs (£)	6,740,407	3,872,591	-2,867,815 (-42.5%)
	Chronic MI costs (£)	44,436,527	26,384,957	-18,051,570 (-40.6%)
	Total healthcare costs (£)	57,951,498	78,432,641	20,481,143 (35.3%)
	ICER (Δ £/ Δ QALY)	.	.	3,859
50	N	78,479	78,479	0
	Incident MIs	10,803	7,678	-3,125 (-28.9%)
	Deaths	21,815	20,442	-1,373 (-6.3%)
	YLL	1,517,306	1,519,940	2,633 (0.17%)
	QALYs	1,223,355	1,226,755	3,400 (0.28%)
	Medication costs (£)	9,344,949	41,738,620	32,393,671 (346.6%)
	Acute MI costs (£)	8,551,846	6,238,033	-2,313,813 (-27.1%)
	Chronic MI costs (£)	52,181,806	39,057,169	-13,124,637 (-25.2%)
	Total healthcare costs (£)	70,078,601	87,033,822	16,955,221 (24.2%)
	ICER (Δ £/ Δ QALY)	.	.	4,987
60	N	76,188	76,188	0
	Incident MIs	9,770	8,156	-1,614 (-16.5%)
	Deaths	19,994	19,365	-629 (-3.1%)
	YLL	1,197,167	1,198,724	1,557 (0.13%)
	QALYs	932,359	934,210	1,851 (0.20%)
	Medication costs (£)	11,921,246	32,937,388	21,016,142 (176.3%)
	Acute MI costs (£)	9,757,833	8,260,726	-1,497,106 (-15.3%)
	Chronic MI costs (£)	51,389,225	44,310,007	-7,079,218 (-13.8%)
	Total healthcare costs (£)	73,068,304	85,508,122	12,439,818 (17.0%)
	ICER (Δ £/ Δ QALY)	.	.	6,720

Table 7.21: Microsimulation results – High intensity statins. Males with an LDL-C ≥4.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	56,981	56,981	0
	Incident MIs	18,028	9,214	-8,814 (-48.9%)
	Deaths	26,437	24,103	-2,334 (-8.8%)
	YLL	1,345,152	1,352,501	7,349 (0.55%)
	QALYs	1,182,936	1,193,076	10,139 (0.86%)
	Medication costs (£)	4,011,678	37,123,033	33,111,355 (825.4%)
	Acute MI costs (£)	8,941,611	4,619,037	-4,322,575 (-48.3%)
	Chronic MI costs (£)	68,159,738	35,936,687	-32,223,051 (-47.3%)
	Total healthcare costs (£)	81,113,027	77,678,756	-3,434,271 (-4.2%)
	ICER (Δ £/ Δ QALY)	.	.	-339
40	N	56,419	56,419	0
	Incident MIs	17,685	11,072	-6,613 (-37.4%)
	Deaths	26,091	24,392	-1,699 (-6.5%)
	YLL	1,212,244	1,219,559	7,315 (0.60%)
	QALYs	1,034,885	1,044,639	9,754 (0.94%)
	Medication costs (£)	5,509,555	33,481,000	27,971,444 (507.7%)
	Acute MI costs (£)	11,898,806	7,530,775	-4,368,031 (-36.7%)
	Chronic MI costs (£)	87,037,093	56,096,710	-30,940,383 (-35.5%)
	Total healthcare costs (£)	104,445,455	97,108,485	-7,336,970 (-7.0%)
	ICER (Δ £/ Δ QALY)	.	.	-752
50	N	54,905	54,905	0
	Incident MIs	16,683	12,547	-4,136 (-24.8%)
	Deaths	25,137	23,954	-1,183 (-4.7%)
	YLL	1,023,490	1,028,419	4,929 (0.48%)
	QALYs	845,310	851,768	6,458 (0.76%)
	Medication costs (£)	7,292,227	28,243,592	20,951,365 (287.3%)
	Acute MI costs (£)	14,595,863	11,192,207	-3,403,656 (-23.3%)
	Chronic MI costs (£)	97,672,393	76,186,879	-21,485,513 (-22.0%)
	Total healthcare costs (£)	119,560,482	115,622,678	-3,937,804 (-3.3%)
	ICER (Δ £/ Δ QALY)	.	.	-610
60	N	51,151	51,151	0
	Incident MIs	14,054	12,231	-1,823 (-13.0%)
	Deaths	22,645	22,009	-636 (-2.8%)
	YLL	763,818	766,131	2,313 (0.30%)
	QALYs	609,790	612,496	2,706 (0.44%)
	Medication costs (£)	8,347,365	21,054,372	12,707,007 (152.2%)
	Acute MI costs (£)	14,955,158	13,183,070	-1,772,088 (-11.8%)
	Chronic MI costs (£)	83,522,377	74,824,540	-8,697,836 (-10.4%)
	Total healthcare costs (£)	106,824,900	109,061,983	2,237,082 (2.1%)
	ICER (Δ £/ Δ QALY)	.	.	827

Table 7.22: Microsimulation results – High intensity statins. Females with an LDL-C ≥5.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	16,646	16,646	0
	Incident MIs	3,493	1,506	-1,987 (-56.9%)
	Deaths	5,208	4,448	-760 (-14.6%)
	YLL	398,696	400,164	1,468 (0.37%)
	QALYs	341,100	343,042	1,941 (0.57%)
	Medication costs (£)	1,395,932	10,983,290	9,587,358 (686.8%)
	Acute MI costs (£)	1,631,346	702,957	-928,389 (-56.9%)
	Chronic MI costs (£)	11,578,424	5,130,501	-6,447,923 (-55.7%)
	Total healthcare costs (£)	14,605,701	16,816,748	2,211,047 (15.1%)
	ICER (Δ £/ Δ QALY)	.	.	1,139
40	N	16,525	16,525	0
	Incident MIs	3,435	1,871	-1,564 (-45.5%)
	Deaths	5,112	4,484	-628 (-12.3%)
	YLL	363,016	364,292	1,276 (0.35%)
	QALYs	301,602	303,363	1,761 (0.58%)
	Medication costs (£)	1,944,826	10,000,598	8,055,773 (414.2%)
	Acute MI costs (£)	2,177,776	1,193,661	-984,115 (-45.2%)
	Chronic MI costs (£)	14,831,187	8,315,364	-6,515,823 (-43.9%)
	Total healthcare costs (£)	18,953,788	19,509,624	555,835 (2.9%)
	ICER (Δ £/ Δ QALY)	.	.	316
50	N	16,251	16,251	0
	Incident MIs	3,275	2,346	-929 (-28.4%)
	Deaths	4,905	4,579	-326 (-6.6%)
	YLL	313,086	313,476	390 (0.12%)
	QALYs	251,752	252,530	778 (0.31%)
	Medication costs (£)	2,668,615	8,608,373	5,939,758 (222.6%)
	Acute MI costs (£)	2,714,693	1,966,685	-748,008 (-27.6%)
	Chronic MI costs (£)	17,004,273	12,626,527	-4,377,746 (-25.7%)
	Total healthcare costs (£)	22,387,581	23,201,586	814,005 (3.6%)
	ICER (Δ £/ Δ QALY)	.	.	1,046
60	N	15,626	15,626	0
	Incident MIs	2,922	2,530	-392 (-13.4%)
	Deaths	4,435	4,279	-156 (-3.5%)
	YLL	244,560	244,925	365 (0.15%)
	QALYs	189,878	190,355	477 (0.25%)
	Medication costs (£)	3,337,767	6,729,885	3,392,119 (101.6%)
	Acute MI costs (£)	3,036,225	2,648,942	-387,283 (-12.8%)
	Chronic MI costs (£)	16,280,512	14,272,699	-2,007,813 (-12.3%)
	Total healthcare costs (£)	22,654,504	23,651,527	997,023 (4.4%)
	ICER (Δ £/ Δ QALY)	.	.	2,089

Table 7.23: Microsimulation results – High intensity statins. Males with an LDL-C $\geq$5.0 mmol/L.

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	9,188	9,188	0
	Incident MIs	3,941	2,057	-1,884 (-47.8%)
	Deaths	4,528	4,015	-513 (-11.3%)
	YLL	216,012	217,715	1,703 (0.79%)
	QALYs	189,357	191,784	2,426 (1.28%)
	Medication costs (£)	913,115	5,975,806	5,062,690 (554.4%)
	Acute MI costs (£)	2,040,098	1,034,735	-1,005,363 (-49.3%)
	Chronic MI costs (£)	15,983,914	8,048,064	-7,935,850 (-49.6%)
	Total healthcare costs (£)	18,937,127	15,058,605	-3,878,523 (-20.5%)
	ICER (Δ £/ Δ QALY)	.	.	-1,599
40	N	9,083	9,083	0
	Incident MIs	3,869	2,452	-1,417 (-36.6%)
	Deaths	4,464	4,067	-397 (-8.9%)
	YLL	193,840	195,805	1,965 (1.01%)
	QALYs	164,668	167,222	2,554 (1.55%)
	Medication costs (£)	1,256,320	5,375,537	4,119,217 (327.9%)
	Acute MI costs (£)	2,727,868	1,718,912	-1,008,957 (-37.0%)
	Chronic MI costs (£)	20,619,520	13,007,237	-7,612,282 (-36.9%)
	Total healthcare costs (£)	24,603,708	20,101,686	-4,502,022 (-18.3%)
	ICER (Δ £/ Δ QALY)	.	.	-1,763
50	N	8,748	8,748	0
	Incident MIs	3,619	2,879	-740 (-20.4%)
	Deaths	4,272	4,080	-192 (-4.5%)
	YLL	161,540	162,639	1,099 (0.68%)
	QALYs	132,558	133,970	1,413 (1.07%)
	Medication costs (£)	1,649,693	4,466,652	2,816,958 (170.8%)
	Acute MI costs (£)	3,291,189	2,649,983	-641,206 (-19.5%)
	Chronic MI costs (£)	22,726,290	18,357,609	-4,368,680 (-19.2%)
	Total healthcare costs (£)	27,667,172	25,474,243	-2,192,928 (-7.9%)
	ICER (Δ £/ Δ QALY)	.	.	-1,552
60	N	7,902	7,902	0
	Incident MIs	2,937	2,694	-243 (-8.3%)
	Deaths	3,752	3,668	-84 (-2.2%)
	YLL	116,529	116,826	297 (0.26%)
	QALYs	92,447	92,820	372 (0.40%)
	Medication costs (£)	1,760,955	3,210,692	1,449,737 (82.3%)
	Acute MI costs (£)	3,185,261	2,934,828	-250,432 (-7.9%)
	Chronic MI costs (£)	18,178,822	16,858,061	-1,320,761 (-7.3%)
	Total healthcare costs (£)	23,125,038	23,003,581	-121,456 (-0.5%)
	ICER (Δ £/ Δ QALY)	.	.	-326

Table 7.24: Microsimulation results – Low/moderate intensity statins and ezetimibe. Females.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	252,531	252,531	0
	Incident MIs	23,572	10,829	-12,743 (-54.1%)
	Deaths	67,449	62,533	-4,916 (-7.3%)
	YLL	6,072,920	6,078,583	5,663 (0.09%)
	QALYs	5,207,340	5,215,933	8,593 (0.17%)
	Medication costs (£)	11,766,157	300,357,561	288,591,404 (2452.7%)
	Acute MI costs (£)	10,224,969	4,892,783	-5,332,185 (-52.1%)
	Chronic MI costs (£)	69,815,862	34,797,248	-35,018,614 (-50.2%)
	Total healthcare costs (£)	91,806,988	340,047,593	248,240,605 (270.4%)
	ICER (Δ £/ Δ QALY)	.	.	28,888
40	N	251,420	251,420	0
	Incident MIs	23,237	12,968	-10,269 (-44.2%)
	Deaths	66,473	62,124	-4,349 (-6.5%)
	YLL	5,550,722	5,558,304	7,583 (0.14%)
	QALYs	4,626,672	4,636,644	9,972 (0.22%)
	Medication costs (£)	16,447,490	274,699,862	258,252,372 (1570.2%)
	Acute MI costs (£)	13,726,331	7,978,110	-5,748,221 (-41.9%)
	Chronic MI costs (£)	89,982,790	54,086,372	-35,896,418 (-39.9%)
	Total healthcare costs (£)	120,156,611	336,764,344	216,607,732 (180.3%)
	ICER (Δ £/ Δ QALY)	.	.	21,721
50	N	248,839	248,839	0
	Incident MIs	22,359	15,490	-6,869 (-30.7%)
	Deaths	64,259	61,236	-3,023 (-4.7%)
	YLL	4,824,432	4,829,782	5,349 (0.11%)
	QALYs	3,895,938	3,902,814	6,876 (0.18%)
	Medication costs (£)	22,490,292	238,770,055	216,279,763 (961.7%)
	Acute MI costs (£)	17,449,061	12,583,127	-4,865,934 (-27.9%)
	Chronic MI costs (£)	105,699,439	79,184,988	-26,514,451 (-25.1%)
	Total healthcare costs (£)	145,638,792	330,538,170	184,899,378 (127.0%)
	ICER (Δ £/ Δ QALY)	.	.	26,890
60	N	242,755	242,755	0
	Incident MIs	20,283	16,372	-3,911 (-19.3%)
	Deaths	59,150	57,546	-1,604 (-2.7%)
	YLL	3,829,330	3,832,879	3,549 (0.09%)
	QALYs	2,988,131	2,992,302	4,170 (0.14%)
	Medication costs (£)	27,672,619	189,597,773	161,925,155 (585.1%)
	Acute MI costs (£)	19,942,289	16,439,282	-3,503,007 (-17.6%)
	Chronic MI costs (£)	103,867,539	87,958,938	-15,908,601 (-15.3%)
	Total healthcare costs (£)	151,482,448	293,995,994	142,513,546 (94.1%)
	ICER (Δ £/ Δ QALY)	.	.	34,172

Table 7.25: Microsimulation results – Low/moderate intensity statins and ezetimibe. Males.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	206,161	206,161	0
	Incident MIs	44,320	22,477	-21,843 (-49.3%)
	Deaths	90,180	84,270	-5,910 (-6.6%)
	YLL	4,886,717	4,900,450	13,733 (0.28%)
	QALYs	4,307,487	4,328,130	20,643 (0.48%)
	Medication costs (£)	12,100,213	242,149,464	230,049,250 (1901.2%)
	Acute MI costs (£)	21,481,267	11,205,267	-10,276,000 (-47.8%)
	Chronic MI costs (£)	161,036,871	86,738,232	-74,298,639 (-46.1%)
	Total healthcare costs (£)	194,618,351	340,092,962	145,474,610 (74.7%)
	ICER (Δ £/ Δ QALY)	.	.	7,047
40	N	204,589	204,589	0
	Incident MIs	43,504	26,888	-16,616 (-38.2%)
	Deaths	89,143	84,419	-4,724 (-5.3%)
	YLL	4,421,379	4,437,908	16,529 (0.37%)
	QALYs	3,787,631	3,809,518	21,887 (0.58%)
	Medication costs (£)	16,679,733	219,337,634	202,657,901 (1215.0%)
	Acute MI costs (£)	28,560,655	18,216,801	-10,343,854 (-36.2%)
	Chronic MI costs (£)	204,944,027	135,022,668	-69,921,359 (-34.1%)
	Total healthcare costs (£)	250,184,415	372,577,102	122,392,688 (48.9%)
	ICER (Δ £/ Δ QALY)	.	.	5,592
50	N	200,393	200,393	0
	Incident MIs	41,120	30,489	-10,631 (-25.9%)
	Deaths	86,314	82,873	-3,441 (-4.0%)
	YLL	3,766,535	3,780,394	13,859 (0.37%)
	QALYs	3,125,732	3,142,481	16,748 (0.54%)
	Medication costs (£)	21,911,097	186,905,291	164,994,194 (753.0%)
	Acute MI costs (£)	35,084,695	26,674,503	-8,410,192 (-24.0%)
	Chronic MI costs (£)	229,334,349	179,217,986	-50,116,362 (-21.9%)
	Total healthcare costs (£)	286,330,141	392,797,780	106,467,640 (37.2%)
	ICER (Δ £/ Δ QALY)	.	.	6,357
60	N	190,404	190,404	0
	Incident MIs	35,148	29,817	-5,331 (-15.2%)
	Deaths	79,149	77,331	-1,818 (-2.3%)
	YLL	2,873,187	2,879,396	6,209 (0.22%)
	QALYs	2,305,965	2,313,186	7,222 (0.31%)
	Medication costs (£)	24,726,735	142,452,471	117,725,736 (476.1%)
	Acute MI costs (£)	36,683,738	31,685,801	-4,997,937 (-13.6%)
	Chronic MI costs (£)	200,360,799	176,829,601	-23,531,198 (-11.7%)
	Total healthcare costs (£)	261,771,272	350,967,873	89,196,601 (34.1%)
	ICER (Δ £/ Δ QALY)	.	.	12,351

Table 7.26: Microsimulation results – Low/moderate intensity statins and ezetimibe. Females with an LDL-C ≥3.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	190,859	190,859	0
	Incident MIs	20,372	9,065	-11,307 (-55.5%)
	Deaths	52,122	47,553	-4,569 (-8.8%)
	YLL	4,587,864	4,594,410	6,546 (0.14%)
	QALYs	3,933,152	3,942,015	8,862 (0.23%)
	Medication costs (£)	8,880,623	227,020,943	218,140,320 (2456.4%)
	Acute MI costs (£)	8,857,586	4,103,197	-4,754,389 (-53.7%)
	Chronic MI costs (£)	60,493,304	29,293,389	-31,199,915 (-51.6%)
	Total healthcare costs (£)	78,231,514	260,417,529	182,186,015 (232.9%)
	ICER (Δ £/ Δ QALY)	.	.	20,558
40	N	190,005	190,005	0
	Incident MIs	20,079	10,868	-9,211 (-45.9%)
	Deaths	51,386	47,262	-4,124 (-8.0%)
	YLL	4,191,587	4,199,025	7,438 (0.18%)
	QALYs	3,492,790	3,502,250	9,459 (0.27%)
	Medication costs (£)	12,401,432	207,522,385	195,120,953 (1573.4%)
	Acute MI costs (£)	11,880,081	6,703,587	-5,176,494 (-43.6%)
	Chronic MI costs (£)	77,784,244	45,469,357	-32,314,887 (-41.5%)
	Total healthcare costs (£)	102,065,757	259,695,329	157,629,572 (154.4%)
	ICER (Δ £/ Δ QALY)	.	.	16,664
50	N	187,924	187,924	0
	Incident MIs	19,316	13,216	-6,100 (-31.6%)
	Deaths	49,614	46,858	-2,756 (-5.6%)
	YLL	3,640,299	3,644,838	4,539 (0.12%)
	QALYs	2,938,510	2,944,496	5,986 (0.20%)
	Medication costs (£)	17,039,868	180,190,268	163,150,400 (957.5%)
	Acute MI costs (£)	15,105,081	10,720,030	-4,385,051 (-29.0%)
	Chronic MI costs (£)	91,447,320	67,434,027	-24,013,293 (-26.3%)
	Total healthcare costs (£)	123,592,270	258,344,325	134,752,055 (109.0%)
	ICER (Δ £/ Δ QALY)	.	.	22,512
60	N	183,058	183,058	0
	Incident MIs	17,523	14,049	-3,474 (-19.8%)
	Deaths	45,583	44,172	-1,411 (-3.1%)
	YLL	2,885,344	2,888,531	3,186 (0.11%)
	QALYs	2,250,366	2,254,109	3,744 (0.17%)
	Medication costs (£)	21,415,931	142,884,789	121,468,858 (567.2%)
	Acute MI costs (£)	17,295,524	14,168,717	-3,126,806 (-18.1%)
	Chronic MI costs (£)	90,230,480	75,977,046	-14,253,434 (-15.8%)
	Total healthcare costs (£)	128,941,935	233,030,553	104,088,618 (80.7%)
	ICER (Δ £/ Δ QALY)	.	.	27,803

Table 7.27: Microsimulation results – Low/moderate intensity statins and ezetimibe. Males with an LDL-C ≥3.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	147,997	147,997	0
	Incident MIs	36,385	17,795	-18,590 (-51.1%)
	Deaths	66,112	60,819	-5,293 (-8.0%)
	YLL	3,503,994	3,517,310	13,315 (0.38%)
	QALYs	3,086,745	3,105,597	18,852 (0.61%)
	Medication costs (£)	8,136,992	173,803,425	165,666,433 (2036.0%)
	Acute MI costs (£)	17,650,408	8,927,458	-8,722,949 (-49.4%)
	Chronic MI costs (£)	132,461,398	69,444,309	-63,017,089 (-47.6%)
	Total healthcare costs (£)	158,248,798	252,175,193	93,926,395 (59.4%)
	ICER (Δ £/ Δ QALY)	.	.	4,982
40	N	146,795	146,795	0
	Incident MIs	35,713	21,528	-14,185 (-39.7%)
	Deaths	65,354	61,432	-3,922 (-6.0%)
	YLL	3,166,648	3,181,270	14,621 (0.46%)
	QALYs	2,710,299	2,729,370	19,071 (0.70%)
	Medication costs (£)	11,170,918	157,230,322	146,059,404 (1307.5%)
	Acute MI costs (£)	23,465,210	14,658,914	-8,806,296 (-37.5%)
	Chronic MI costs (£)	168,567,568	109,163,088	-59,404,480 (-35.2%)
	Total healthcare costs (£)	203,203,695	281,052,324	77,848,629 (38.3%)
	ICER (Δ £/ Δ QALY)	.	.	4,082
50	N	143,530	143,530	0
	Incident MIs	33,747	24,509	-9,238 (-27.4%)
	Deaths	63,204	60,206	-2,998 (-4.7%)
	YLL	2,690,584	2,702,601	12,017 (0.45%)
	QALYs	2,230,105	2,244,647	14,541 (0.65%)
	Medication costs (£)	14,678,219	133,619,148	118,940,929 (810.3%)
	Acute MI costs (£)	28,814,894	21,549,296	-7,265,598 (-25.2%)
	Chronic MI costs (£)	188,613,109	145,087,354	-43,525,756 (-23.1%)
	Total healthcare costs (£)	232,106,222	300,255,798	68,149,575 (29.4%)
	ICER (Δ £/ Δ QALY)	.	.	4,687
60	N	135,697	135,697	0
	Incident MIs	28,826	24,187	-4,639 (-16.1%)
	Deaths	57,699	56,146	-1,553 (-2.7%)
	YLL	2,040,931	2,046,245	5,313 (0.26%)
	QALYs	1,635,641	1,641,881	6,240 (0.38%)
	Medication costs (£)	16,774,286	101,234,886	84,460,600 (503.5%)
	Acute MI costs (£)	30,138,863	25,766,357	-4,372,507 (-14.5%)
	Chronic MI costs (£)	165,209,051	144,533,239	-20,675,812 (-12.5%)
	Total healthcare costs (£)	212,122,200	271,534,482	59,412,282 (28.0%)
	ICER (Δ £/ Δ QALY)	.	.	9,522

Table 7.28: Microsimulation results – Low/moderate intensity statins and ezetimibe. Females with an LDL-C ≥4.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	79,921	79,921	0
	Incident MIs	11,422	4,842	-6,580 (-57.6%)
	Deaths	23,001	20,558	-2,443 (-10.6%)
	YLL	1,918,613	1,922,157	3,544 (0.18%)
	QALYs	1,643,823	1,648,827	5,004 (0.30%)
	Medication costs (£)	4,855,281	94,978,628	90,123,347 (1856.2%)
	Acute MI costs (£)	5,044,684	2,233,326	-2,811,358 (-55.7%)
	Chronic MI costs (£)	34,757,785	16,141,171	-18,616,614 (-53.6%)
	Total healthcare costs (£)	44,657,750	113,353,125	68,695,375 (153.8%)
	ICER (Δ £/ Δ QALY)	.	.	13,729
40	N	79,485	79,485	0
	Incident MIs	11,243	5,835	-5,408 (-48.1%)
	Deaths	22,642	20,297	-2,345 (-10.4%)
	YLL	1,750,688	1,755,108	4,420 (0.25%)
	QALYs	1,457,570	1,463,222	5,652 (0.39%)
	Medication costs (£)	6,774,563	86,740,330	79,965,767 (1180.4%)
	Acute MI costs (£)	6,740,407	3,635,563	-3,104,844 (-46.1%)
	Chronic MI costs (£)	44,436,527	24,903,094	-19,533,434 (-44.0%)
	Total healthcare costs (£)	57,951,498	115,278,987	57,327,490 (98.9%)
	ICER (Δ £/ Δ QALY)	.	.	10,142
50	N	78,479	78,479	0
	Incident MIs	10,803	7,293	-3,510 (-32.5%)
	Deaths	21,815	20,265	-1,550 (-7.1%)
	YLL	1,517,306	1,520,267	2,961 (0.20%)
	QALYs	1,223,355	1,227,147	3,792 (0.31%)
	Medication costs (£)	9,344,949	75,157,866	65,812,916 (704.3%)
	Acute MI costs (£)	8,551,846	5,978,307	-2,573,539 (-30.1%)
	Chronic MI costs (£)	52,181,806	37,697,802	-14,484,004 (-27.8%)
	Total healthcare costs (£)	70,078,601	118,833,975	48,755,374 (69.6%)
	ICER (Δ £/ Δ QALY)	.	.	12,858
60	N	76,188	76,188	0
	Incident MIs	9,770	7,865	-1,905 (-19.5%)
	Deaths	19,994	19,256	-738 (-3.7%)
	YLL	1,197,167	1,198,967	1,800 (0.15%)
	QALYs	932,359	934,513	2,154 (0.23%)
	Medication costs (£)	11,921,246	59,308,907	47,387,661 (397.5%)
	Acute MI costs (£)	9,757,833	7,990,379	-1,767,454 (-18.1%)
	Chronic MI costs (£)	51,389,225	43,053,405	-8,335,820 (-16.2%)
	Total healthcare costs (£)	73,068,304	110,352,691	37,284,387 (51.0%)
	ICER (Δ £/ Δ QALY)	.	.	17,309

Table 7.29: Microsimulation results – Low/moderate intensity statins and ezetimibe. Males with an LDL-C $\geq$4.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	56,981	56,981	0
	Incident MIs	18,028	8,406	-9,622 (-53.4%)
	Deaths	26,437	23,881	-2,556 (-9.7%)
	YLL	1,345,152	1,353,002	7,850 (0.58%)
	QALYs	1,182,936	1,193,817	10,880 (0.92%)
	Medication costs (£)	4,011,678	66,857,022	62,845,344 (1566.6%)
	Acute MI costs (£)	8,941,611	4,245,082	-4,696,529 (-52.5%)
	Chronic MI costs (£)	68,159,738	33,305,559	-34,854,179 (-51.1%)
	Total healthcare costs (£)	81,113,027	104,407,663	23,294,636 (28.7%)
	ICER (Δ £/ Δ QALY)	.	.	2,141
40	N	56,419	56,419	0
	Incident MIs	17,685	10,398	-7,287 (-41.2%)
	Deaths	26,091	24,187	-1,904 (-7.3%)
	YLL	1,212,244	1,220,180	7,936 (0.65%)
	QALYs	1,034,885	1,045,458	10,573 (1.02%)
	Medication costs (£)	5,509,555	60,306,190	54,796,635 (994.6%)
	Acute MI costs (£)	11,898,806	7,127,708	-4,771,098 (-40.1%)
	Chronic MI costs (£)	87,037,093	53,458,400	-33,578,694 (-38.6%)
	Total healthcare costs (£)	104,445,455	120,892,298	16,446,843 (15.7%)
	ICER (Δ £/ Δ QALY)	.	.	1,556
50	N	54,905	54,905	0
	Incident MIs	16,683	11,985	-4,698 (-28.2%)
	Deaths	25,137	23,772	-1,365 (-5.4%)
	YLL	1,023,490	1,029,069	5,579 (0.55%)
	QALYs	845,310	852,568	7,258 (0.86%)
	Medication costs (£)	7,292,227	50,878,748	43,586,521 (597.7%)
	Acute MI costs (£)	14,595,863	10,763,444	-3,832,419 (-26.3%)
	Chronic MI costs (£)	97,672,393	73,675,554	-23,996,839 (-24.6%)
	Total healthcare costs (£)	119,560,482	135,317,745	15,757,263 (13.2%)
	ICER (Δ £/ Δ QALY)	.	.	2,171
60	N	51,151	51,151	0
	Incident MIs	14,054	11,887	-2,167 (-15.4%)
	Deaths	22,645	21,894	-751 (-3.3%)
	YLL	763,818	766,587	2,769 (0.36%)
	QALYs	609,790	613,022	3,232 (0.53%)
	Medication costs (£)	8,347,365	37,926,517	29,579,152 (354.4%)
	Acute MI costs (£)	14,955,158	12,851,524	-2,103,634 (-14.1%)
	Chronic MI costs (£)	83,522,377	73,181,503	-10,340,873 (-12.4%)
	Total healthcare costs (£)	106,824,900	123,959,545	17,134,644 (16.0%)
	ICER (Δ £/ Δ QALY)	.	.	5,302

Table 7.30: Microsimulation results – Low/moderate intensity statins and ezetimibe. Females with an LDL-C $\geq$5.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	16,646	16,646	0
	Incident MIs	3,493	1,368	-2,125 (-60.8%)
	Deaths	5,208	4,391	-817 (-15.7%)
	YLL	398,696	400,236	1,540 (0.39%)
	QALYs	341,100	343,141	2,041 (0.60%)
	Medication costs (£)	1,395,932	19,776,673	18,380,742 (1316.7%)
	Acute MI costs (£)	1,631,346	646,437	-984,909 (-60.4%)
	Chronic MI costs (£)	11,578,424	4,770,719	-6,807,705 (-58.8%)
	Total healthcare costs (£)	14,605,701	25,193,829	10,588,128 (72.5%)
	ICER (Δ £/ Δ QALY)	.	.	5,188
40	N	16,525	16,525	0
	Incident MIs	3,435	1,721	-1,714 (-49.9%)
	Deaths	5,112	4,428	-684 (-13.4%)
	YLL	363,016	364,391	1,375 (0.38%)
	QALYs	301,602	303,497	1,895 (0.63%)
	Medication costs (£)	1,944,826	18,008,842	16,064,017 (826.0%)
	Acute MI costs (£)	2,177,776	1,109,983	-1,067,793 (-49.0%)
	Chronic MI costs (£)	14,831,187	7,806,091	-7,025,096 (-47.4%)
	Total healthcare costs (£)	18,953,788	26,924,916	7,971,128 (42.1%)
	ICER (Δ £/ Δ QALY)	.	.	4,206
50	N	16,251	16,251	0
	Incident MIs	3,275	2,227	-1,048 (-32.0%)
	Deaths	4,905	4,526	-379 (-7.7%)
	YLL	313,086	313,596	510 (0.16%)
	QALYs	251,752	252,661	909 (0.36%)
	Medication costs (£)	2,668,615	15,503,475	12,834,861 (481.0%)
	Acute MI costs (£)	2,714,693	1,887,454	-827,240 (-30.5%)
	Chronic MI costs (£)	17,004,273	12,234,903	-4,769,370 (-28.0%)
	Total healthcare costs (£)	22,387,581	29,625,832	7,238,251 (32.3%)
	ICER (Δ £/ Δ QALY)	.	.	7,961
60	N	15,626	15,626	0
	Incident MIs	2,922	2,429	-493 (-16.9%)
	Deaths	4,435	4,238	-197 (-4.4%)
	YLL	244,560	245,016	456 (0.19%)
	QALYs	189,878	190,464	586 (0.31%)
	Medication costs (£)	3,337,767	12,120,281	8,782,515 (263.1%)
	Acute MI costs (£)	3,036,225	2,551,606	-484,619 (-16.0%)
	Chronic MI costs (£)	16,280,512	13,840,171	-2,440,341 (-15.0%)
	Total healthcare costs (£)	22,654,504	28,512,058	5,857,555 (25.9%)
	ICER (Δ £/ Δ QALY)	.	.	9,997

Table 7.31: Microsimulation results – Low/moderate intensity statins and ezetimibe. Males with an LDL-C ≥5.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	9,188	9,188	0
	Incident MIs	3,941	1,846	-2,095 (-53.2%)
	Deaths	4,528	3,945	-583 (-12.9%)
	YLL	216,012	217,858	1,846 (0.85%)
	QALYs	189,357	191,989	2,632 (1.39%)
	Medication costs (£)	913,115	10,765,245	9,852,130 (1079.0%)
	Acute MI costs (£)	2,040,098	933,083	-1,107,015 (-54.3%)
	Chronic MI costs (£)	15,983,914	7,340,977	-8,642,937 (-54.1%)
	Total healthcare costs (£)	18,937,127	19,039,306	102,179 (0.5%)
	ICER (Δ £/ Δ QALY)	.	.	39
40	N	9,083	9,083	0
	Incident MIs	3,869	2,295	-1,574 (-40.7%)
	Deaths	4,464	4,025	-439 (-9.8%)
	YLL	193,840	195,979	2,139 (1.10%)
	QALYs	164,668	167,445	2,777 (1.69%)
	Medication costs (£)	1,256,320	9,686,143	8,429,823 (671.0%)
	Acute MI costs (£)	2,727,868	1,620,960	-1,106,908 (-40.6%)
	Chronic MI costs (£)	20,619,520	12,346,710	-8,272,810 (-40.1%)
	Total healthcare costs (£)	24,603,708	23,653,813	-949,896 (-3.9%)
	ICER (Δ £/ Δ QALY)	.	.	-342
50	N	8,748	8,748	0
	Incident MIs	3,619	2,730	-889 (-24.6%)
	Deaths	4,272	4,044	-228 (-5.3%)
	YLL	161,540	162,804	1,264 (0.78%)
	QALYs	132,558	134,192	1,635 (1.23%)
	Medication costs (£)	1,649,693	8,049,434	6,399,741 (387.9%)
	Acute MI costs (£)	3,291,189	2,526,300	-764,889 (-23.2%)
	Chronic MI costs (£)	22,726,290	17,588,075	-5,138,214 (-22.6%)
	Total healthcare costs (£)	27,667,172	28,163,810	496,638 (1.8%)
	ICER (Δ £/ Δ QALY)	.	.	304
60	N	7,902	7,902	0
	Incident MIs	2,937	2,619	-318 (-10.8%)
	Deaths	3,752	3,642	-110 (-2.9%)
	YLL	116,529	116,936	407 (0.35%)
	QALYs	92,447	92,944	497 (0.54%)
	Medication costs (£)	1,760,955	5,785,612	4,024,657 (228.5%)
	Acute MI costs (£)	3,185,261	2,861,231	-324,030 (-10.2%)
	Chronic MI costs (£)	18,178,822	16,487,760	-1,691,062 (-9.3%)
	Total healthcare costs (£)	23,125,038	25,134,603	2,009,565 (8.7%)
	ICER (Δ £/ Δ QALY)	.	.	4,044

Table 7.32: Microsimulation results – Inclisiran. Females.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	252,531	252,531	0
	Incident MIs	23,572	11,454	-12,118 (-51.4%)
	Deaths	67,449	62,818	-4,631 (-6.9%)
	YLL	6,072,920	6,078,218	5,298 (0.09%)
	QALYs	5,207,340	5,215,476	8,136 (0.16%)
	Medication costs (£)	11,766,157	24,209,403,053	24,197,636,895 (205654.5%)
	Acute MI costs (£)	10,224,969	5,134,653	-5,090,316 (-49.8%)
	Chronic MI costs (£)	69,815,862	36,278,810	-33,537,052 (-48.0%)
	Total healthcare costs (£)	91,806,988	24,250,816,516	24,159,009,528 (26315.0%)
	ICER (Δ £/ Δ QALY)	.	.	2,969,229
40	N	251,420	251,420	0
	Incident MIs	23,237	13,559	-9,678 (-41.6%)
	Deaths	66,473	62,343	-4,130 (-6.2%)
	YLL	5,550,722	5,557,885	7,163 (0.13%)
	QALYs	4,626,672	4,636,106	9,435 (0.20%)
	Medication costs (£)	16,447,490	22,141,002,485	22,124,554,994 (134516.3%)
	Acute MI costs (£)	13,726,331	8,298,176	-5,428,155 (-39.5%)
	Chronic MI costs (£)	89,982,790	55,977,480	-34,005,310 (-37.8%)
	Total healthcare costs (£)	120,156,611	22,205,278,141	22,085,121,529 (18380.3%)
	ICER (Δ £/ Δ QALY)	.	.	2,340,811
50	N	248,839	248,839	0
	Incident MIs	22,359	16,002	-6,357 (-28.4%)
	Deaths	64,259	61,479	-2,780 (-4.3%)
	YLL	4,824,432	4,829,359	4,927 (0.10%)
	QALYs	3,895,938	3,902,313	6,375 (0.16%)
	Medication costs (£)	22,490,292	19,244,804,449	19,222,314,157 (85469.4%)
	Acute MI costs (£)	17,449,061	12,923,433	-4,525,628 (-25.9%)
	Chronic MI costs (£)	105,699,439	80,935,937	-24,763,502 (-23.4%)
	Total healthcare costs (£)	145,638,792	19,338,663,819	19,193,025,027 (13178.5%)
	ICER (Δ £/ Δ QALY)	.	.	3,010,904
60	N	242,755	242,755	0
	Incident MIs	20,283	16,722	-3,561 (-17.6%)
	Deaths	59,150	57,692	-1,458 (-2.5%)
	YLL	3,829,330	3,832,605	3,276 (0.09%)
	QALYs	2,988,131	2,991,961	3,830 (0.13%)
	Medication costs (£)	27,672,619	15,281,777,159	15,254,104,541 (55123.5%)
	Acute MI costs (£)	19,942,289	16,748,234	-3,194,056 (-16.0%)
	Chronic MI costs (£)	103,867,539	89,379,232	-14,488,308 (-13.9%)
	Total healthcare costs (£)	151,482,448	15,387,904,625	15,236,422,177 (10058.2%)
	ICER (Δ £/ Δ QALY)	.	.	3,978,327

Table 7.33: Microsimulation results – Inclisiran. Males.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	206,161	206,161	0
	Incident MIs	44,320	23,709	-20,611 (-46.5%)
	Deaths	90,180	84,605	-5,575 (-6.2%)
	YLL	4,886,717	4,899,620	12,903 (0.26%)
	QALYs	4,307,487	4,326,967	19,481 (0.45%)
	Medication costs (£)	12,100,213	19,515,588,093	19,503,487,879 (161183.0%)
	Acute MI costs (£)	21,481,267	11,766,740	-9,714,527 (-45.2%)
	Chronic MI costs (£)	161,036,871	90,610,260	-70,426,611 (-43.7%)
	Total healthcare costs (£)	194,618,351	19,617,965,093	19,423,346,741 (9980.2%)
	ICER (Δ £/ Δ QALY)	.	.	997,062
40	N	204,589	204,589	0
	Incident MIs	43,504	27,960	-15,544 (-35.7%)
	Deaths	89,143	84,763	-4,380 (-4.9%)
	YLL	4,421,379	4,436,931	15,553 (0.35%)
	QALYs	3,787,631	3,808,229	20,598 (0.54%)
	Medication costs (£)	16,679,733	17,676,218,640	17,659,538,908 (105874.2%)
	Acute MI costs (£)	28,560,655	18,849,299	-9,711,356 (-34.0%)
	Chronic MI costs (£)	204,944,027	139,173,527	-65,770,500 (-32.1%)
	Total healthcare costs (£)	250,184,415	17,834,241,467	17,584,057,052 (7028.4%)
	ICER (Δ £/ Δ QALY)	.	.	853,660
50	N	200,393	200,393	0
	Incident MIs	41,120	31,364	-9,756 (-23.7%)
	Deaths	86,314	83,153	-3,161 (-3.7%)
	YLL	3,766,535	3,779,405	12,870 (0.34%)
	QALYs	3,125,732	3,141,278	15,546 (0.50%)
	Medication costs (£)	21,911,097	15,061,901,798	15,039,990,701 (68641.0%)
	Acute MI costs (£)	35,084,695	27,335,029	-7,749,666 (-22.1%)
	Chronic MI costs (£)	229,334,349	182,969,759	-46,364,590 (-20.2%)
	Total healthcare costs (£)	286,330,141	15,272,206,586	14,985,876,445 (5233.8%)
	ICER (Δ £/ Δ QALY)	.	.	963,968
60	N	190,404	190,404	0
	Incident MIs	35,148	30,333	-4,815 (-13.7%)
	Deaths	79,149	77,506	-1,643 (-2.1%)
	YLL	2,873,187	2,878,832	5,645 (0.20%)
	QALYs	2,305,965	2,312,532	6,567 (0.28%)
	Medication costs (£)	24,726,735	11,480,389,907	11,455,663,172 (46329.1%)
	Acute MI costs (£)	36,683,738	32,156,667	-4,527,071 (-12.3%)
	Chronic MI costs (£)	200,360,799	178,973,722	-21,387,077 (-10.7%)
	Total healthcare costs (£)	261,771,272	11,691,520,296	11,429,749,024 (4366.3%)
	ICER (Δ £/ Δ QALY)	.	.	1,740,391

Table 7.34: Microsimulation results – Inclisiran. Females with an LDL-C ≥3.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	190,859	190,859	0
	Incident MIs	20,372	9,620	-10,752 (-52.8%)
	Deaths	52,122	47,810	-4,312 (-8.3%)
	YLL	4,587,864	4,594,085	6,221 (0.14%)
	QALYs	3,933,152	3,941,607	8,455 (0.21%)
	Medication costs (£)	8,880,623	18,298,132,991	18,289,252,368 (205945.6%)
	Acute MI costs (£)	8,857,586	4,318,113	-4,539,473 (-51.2%)
	Chronic MI costs (£)	60,493,304	30,613,912	-29,879,393 (-49.4%)
	Total healthcare costs (£)	78,231,514	18,333,065,016	18,254,833,502 (23334.4%)
	ICER (Δ £/ Δ QALY)	.	.	2,159,092
40	N	190,005	190,005	0
	Incident MIs	20,079	11,380	-8,699 (-43.3%)
	Deaths	51,386	47,451	-3,935 (-7.7%)
	YLL	4,191,587	4,198,683	7,096 (0.17%)
	QALYs	3,492,790	3,501,798	9,008 (0.26%)
	Medication costs (£)	12,401,432	16,726,350,308	16,713,948,876 (134774.3%)
	Acute MI costs (£)	11,880,081	6,979,136	-4,900,945 (-41.3%)
	Chronic MI costs (£)	77,784,244	47,121,425	-30,662,819 (-39.4%)
	Total healthcare costs (£)	102,065,757	16,780,450,869	16,678,385,112 (16340.8%)
	ICER (Δ £/ Δ QALY)	.	.	1,851,588
50	N	187,924	187,924	0
	Incident MIs	19,316	13,679	-5,637 (-29.2%)
	Deaths	49,614	47,072	-2,542 (-5.1%)
	YLL	3,640,299	3,644,468	4,169 (0.11%)
	QALYs	2,938,510	2,944,049	5,539 (0.19%)
	Medication costs (£)	17,039,868	14,523,085,498	14,506,045,630 (85130.0%)
	Acute MI costs (£)	15,105,081	11,028,069	-4,077,013 (-27.0%)
	Chronic MI costs (£)	91,447,320	69,027,668	-22,419,652 (-24.5%)
	Total healthcare costs (£)	123,592,270	14,603,141,235	14,479,548,965 (11715.6%)
	ICER (Δ £/ Δ QALY)	.	.	2,613,920
60	N	183,058	183,058	0
	Incident MIs	17,523	14,360	-3,163 (-18.1%)
	Deaths	45,583	44,298	-1,285 (-2.8%)
	YLL	2,885,344	2,888,288	2,943 (0.10%)
	QALYs	2,250,366	2,253,802	3,436 (0.15%)
	Medication costs (£)	21,415,931	11,516,515,009	11,495,099,079 (53675.5%)
	Acute MI costs (£)	17,295,524	14,447,191	-2,848,333 (-16.5%)
	Chronic MI costs (£)	90,230,480	77,281,032	-12,949,448 (-14.4%)
	Total healthcare costs (£)	128,941,935	11,608,243,233	11,479,301,298 (8902.7%)
	ICER (Δ £/ Δ QALY)	.	.	3,340,710

Table 7.35: Microsimulation results – Inclisiran. Males with an LDL-C ≥3.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	147,997	147,997	0
	Incident MIs	36,385	18,819	-17,566 (-48.3%)
	Deaths	66,112	61,100	-5,012 (-7.6%)
	YLL	3,503,994	3,516,627	12,633 (0.36%)
	QALYs	3,086,745	3,104,633	17,888 (0.58%)
	Medication costs (£)	8,136,992	14,007,019,970	13,998,882,979 (172040.0%)
	Acute MI costs (£)	17,650,408	9,395,058	-8,255,350 (-46.8%)
	Chronic MI costs (£)	132,461,398	72,684,942	-59,776,457 (-45.1%)
	Total healthcare costs (£)	158,248,798	14,089,099,970	13,930,851,172 (8803.1%)
	ICER (Δ £/ Δ QALY)	.	.	778,784
40	N	146,795	146,795	0
	Incident MIs	35,713	22,430	-13,283 (-37.2%)
	Deaths	65,354	61,720	-3,634 (-5.6%)
	YLL	3,166,648	3,180,418	13,770 (0.43%)
	QALYs	2,710,299	2,728,265	17,967 (0.66%)
	Medication costs (£)	11,170,918	12,670,444,542	12,659,273,624 (113323.5%)
	Acute MI costs (£)	23,465,210	15,192,960	-8,272,250 (-35.3%)
	Chronic MI costs (£)	168,567,568	112,635,954	-55,931,613 (-33.2%)
	Total healthcare costs (£)	203,203,695	12,798,273,456	12,595,069,761 (6198.2%)
	ICER (Δ £/ Δ QALY)	.	.	701,027
50	N	143,530	143,530	0
	Incident MIs	33,747	25,233	-8,514 (-25.2%)
	Deaths	63,204	60,428	-2,776 (-4.4%)
	YLL	2,690,584	2,701,809	11,225 (0.42%)
	QALYs	2,230,105	2,243,663	13,558 (0.61%)
	Medication costs (£)	14,678,219	10,767,458,652	10,752,780,433 (73256.7%)
	Acute MI costs (£)	28,814,894	22,094,713	-6,720,181 (-23.3%)
	Chronic MI costs (£)	188,613,109	148,237,142	-40,375,967 (-21.4%)
	Total healthcare costs (£)	232,106,222	10,937,790,506	10,705,684,284 (4612.4%)
	ICER (Δ £/ Δ QALY)	.	.	789,624
60	N	135,697	135,697	0
	Incident MIs	28,826	24,610	-4,216 (-14.6%)
	Deaths	57,699	56,287	-1,412 (-2.4%)
	YLL	2,040,931	2,045,782	4,851 (0.24%)
	QALYs	1,635,641	1,641,337	5,696 (0.35%)
	Medication costs (£)	16,774,286	8,158,380,083	8,141,605,797 (48536.2%)
	Acute MI costs (£)	30,138,863	26,159,912	-3,978,951 (-13.2%)
	Chronic MI costs (£)	165,209,051	146,356,551	-18,852,500 (-11.4%)
	Total healthcare costs (£)	212,122,200	8,330,896,545	8,118,774,345 (3827.4%)
	ICER (Δ £/ Δ QALY)	.	.	1,425,286

Table 7.36: Microsimulation results – Inclisiran. Females with an LDL-C ≥4.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	79,921	79,921	0
	Incident MIs	11,422	5,154	-6,268 (-54.9%)
	Deaths	23,001	20,702	-2,299 (-10.0%)
	YLL	1,918,613	1,921,965	3,352 (0.17%)
	QALYs	1,643,823	1,648,591	4,768 (0.29%)
	Medication costs (£)	4,855,281	7,655,155,026	7,650,299,745 (157566.6%)
	Acute MI costs (£)	5,044,684	2,351,527	-2,693,157 (-53.4%)
	Chronic MI costs (£)	34,757,785	16,869,264	-17,888,520 (-51.5%)
	Total healthcare costs (£)	44,657,750	7,674,375,818	7,629,718,068 (17084.9%)
	ICER (Δ £/ Δ QALY)	.	.	1,600,220
40	N	79,485	79,485	0
	Incident MIs	11,243	6,134	-5,109 (-45.4%)
	Deaths	22,642	20,395	-2,247 (-9.9%)
	YLL	1,750,688	1,754,945	4,257 (0.24%)
	QALYs	1,457,570	1,462,976	5,405 (0.37%)
	Medication costs (£)	6,774,563	6,991,210,102	6,984,435,539 (103097.9%)
	Acute MI costs (£)	6,740,407	3,801,455	-2,938,952 (-43.6%)
	Chronic MI costs (£)	44,436,527	25,943,599	-18,492,929 (-41.6%)
	Total healthcare costs (£)	57,951,498	7,020,955,155	6,963,003,658 (12015.2%)
	ICER (Δ £/ Δ QALY)	.	.	1,288,136
50	N	78,479	78,479	0
	Incident MIs	10,803	7,569	-3,234 (-29.9%)
	Deaths	21,815	20,391	-1,424 (-6.5%)
	YLL	1,517,306	1,520,014	2,708 (0.18%)
	QALYs	1,223,355	1,226,855	3,500 (0.29%)
	Medication costs (£)	9,344,949	6,057,226,404	6,047,881,455 (64718.2%)
	Acute MI costs (£)	8,551,846	6,163,553	-2,388,293 (-27.9%)
	Chronic MI costs (£)	52,181,806	38,650,043	-13,531,763 (-25.9%)
	Total healthcare costs (£)	70,078,601	6,102,040,000	6,031,961,399 (8607.4%)
	ICER (Δ £/ Δ QALY)	.	.	1,723,289
60	N	76,188	76,188	0
	Incident MIs	9,770	8,059	-1,711 (-17.5%)
	Deaths	19,994	19,332	-662 (-3.3%)
	YLL	1,197,167	1,198,832	1,665 (0.14%)
	QALYs	932,359	934,333	1,974 (0.21%)
	Medication costs (£)	11,921,246	4,780,163,457	4,768,242,211 (39997.9%)
	Acute MI costs (£)	9,757,833	8,167,615	-1,590,218 (-16.3%)
	Chronic MI costs (£)	51,389,225	43,882,304	-7,506,921 (-14.6%)
	Total healthcare costs (£)	73,068,304	4,832,213,376	4,759,145,072 (6513.3%)
	ICER (Δ £/ Δ QALY)	.	.	2,411,127

Table 7.37: Microsimulation results – Inclisiran. Males with an LDL-C ≥4.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	56,981	56,981	0
	Incident MIs	18,028	8,954	-9,074 (-50.3%)
	Deaths	26,437	24,023	-2,414 (-9.1%)
	YLL	1,345,152	1,352,636	7,484 (0.56%)
	QALYs	1,182,936	1,193,295	10,359 (0.88%)
	Medication costs (£)	4,011,678	5,387,672,939	5,383,661,261 (134199.7%)
	Acute MI costs (£)	8,941,611	4,502,260	-4,439,352 (-49.6%)
	Chronic MI costs (£)	68,159,738	35,081,305	-33,078,432 (-48.5%)
	Total healthcare costs (£)	81,113,027	5,427,256,504	5,346,143,477 (6591.0%)
	ICER (Δ £/ Δ QALY)	.	.	516,105
40	N	56,419	56,419	0
	Incident MIs	17,685	10,865	-6,820 (-38.6%)
	Deaths	26,091	24,337	-1,754 (-6.7%)
	YLL	1,212,244	1,219,731	7,487 (0.62%)
	QALYs	1,034,885	1,044,878	9,993 (0.97%)
	Medication costs (£)	5,509,555	4,859,302,933	4,853,793,378 (88097.7%)
	Acute MI costs (£)	11,898,806	7,406,652	-4,492,155 (-37.8%)
	Chronic MI costs (£)	87,037,093	55,269,106	-31,767,987 (-36.5%)
	Total healthcare costs (£)	104,445,455	4,921,978,691	4,817,533,236 (4612.5%)
	ICER (Δ £/ Δ QALY)	.	.	482,100
50	N	54,905	54,905	0
	Incident MIs	16,683	12,368	-4,315 (-25.9%)
	Deaths	25,137	23,895	-1,242 (-4.9%)
	YLL	1,023,490	1,028,649	5,159 (0.50%)
	QALYs	845,310	852,051	6,742 (0.80%)
	Medication costs (£)	7,292,227	4,099,501,447	4,092,209,220 (56117.4%)
	Acute MI costs (£)	14,595,863	11,052,643	-3,543,220 (-24.3%)
	Chronic MI costs (£)	97,672,393	75,318,540	-22,353,853 (-22.9%)
	Total healthcare costs (£)	119,560,482	4,185,872,629	4,066,312,147 (3401.1%)
	ICER (Δ £/ Δ QALY)	.	.	603,164
60	N	51,151	51,151	0
	Incident MIs	14,054	12,116	-1,938 (-13.8%)
	Deaths	22,645	21,966	-679 (-3.0%)
	YLL	763,818	766,316	2,498 (0.33%)
	QALYs	609,790	612,701	2,911 (0.48%)
	Medication costs (£)	8,347,365	3,056,057,309	3,047,709,944 (36511.0%)
	Acute MI costs (£)	14,955,158	13,070,003	-1,885,156 (-12.6%)
	Chronic MI costs (£)	83,522,377	74,249,942	-9,272,435 (-11.1%)
	Total healthcare costs (£)	106,824,900	3,143,377,254	3,036,552,354 (2842.6%)
	ICER (Δ £/ Δ QALY)	.	.	1,043,238

Table 7.38: Microsimulation results – Inclisiran. Females with an LDL-C ≥5.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	16,646	16,646	0
	Incident MIs	3,493	1,462	-2,031 (-58.1%)
	Deaths	5,208	4,431	-777 (-14.9%)
	YLL	398,696	400,175	1,479 (0.37%)
	QALYs	341,100	343,062	1,962 (0.58%)
	Medication costs (£)	1,395,932	1,593,893,302	1,592,497,371 (114081.3%)
	Acute MI costs (£)	1,631,346	685,716	-945,630 (-58.0%)
	Chronic MI costs (£)	11,578,424	5,028,691	-6,549,733 (-56.6%)
	Total healthcare costs (£)	14,605,701	1,599,607,708	1,585,002,007 (10851.9%)
	ICER (Δ £/ Δ QALY)	.	.	807,865
40	N	16,525	16,525	0
	Incident MIs	3,435	1,824	-1,611 (-46.9%)
	Deaths	5,112	4,465	-647 (-12.7%)
	YLL	363,016	364,316	1,300 (0.36%)
	QALYs	301,602	303,400	1,798 (0.60%)
	Medication costs (£)	1,944,826	1,451,336,270	1,449,391,444 (74525.5%)
	Acute MI costs (£)	2,177,776	1,166,566	-1,011,210 (-46.4%)
	Chronic MI costs (£)	14,831,187	8,143,331	-6,687,856 (-45.1%)
	Total healthcare costs (£)	18,953,788	1,460,646,166	1,441,692,378 (7606.4%)
	ICER (Δ £/ Δ QALY)	.	.	801,719
50	N	16,251	16,251	0
	Incident MIs	3,275	2,316	-959 (-29.3%)
	Deaths	4,905	4,563	-342 (-7.0%)
	YLL	313,086	313,503	417 (0.13%)
	QALYs	251,752	252,561	809 (0.32%)
	Medication costs (£)	2,668,615	1,249,316,223	1,246,647,609 (46715.2%)
	Acute MI costs (£)	2,714,693	1,946,353	-768,340 (-28.3%)
	Chronic MI costs (£)	17,004,273	12,523,583	-4,480,690 (-26.4%)
	Total healthcare costs (£)	22,387,581	1,263,786,160	1,241,398,579 (5545.0%)
	ICER (Δ £/ Δ QALY)	.	.	1,534,427
60	N	15,626	15,626	0
	Incident MIs	2,922	2,491	-431 (-14.8%)
	Deaths	4,435	4,264	-171 (-3.9%)
	YLL	244,560	244,968	408 (0.17%)
	QALYs	189,878	190,405	528 (0.28%)
	Medication costs (£)	3,337,767	976,784,178	973,446,411 (29164.6%)
	Acute MI costs (£)	3,036,225	2,607,618	-428,607 (-14.1%)
	Chronic MI costs (£)	16,280,512	14,082,811	-2,197,701 (-13.5%)
	Total healthcare costs (£)	22,654,504	993,474,607	970,820,104 (4285.3%)
	ICER (Δ £/ Δ QALY)	.	.	1,839,860

Table 7.39: Microsimulation results – Inclisiran. Males with an LDL-C ≥5.0 mmol/L.

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	9,188	9,188	0
	Incident MIs	3,941	1,990	-1,951 (-49.5%)
	Deaths	4,528	3,993	-535 (-11.8%)
	YLL	216,012	217,753	1,741 (0.81%)
	QALYs	189,357	191,837	2,480 (1.31%)
	Medication costs (£)	913,115	867,333,946	866,420,830 (94886.2%)
	Acute MI costs (£)	2,040,098	1,007,370	-1,032,727 (-50.6%)
	Chronic MI costs (£)	15,983,914	7,863,812	-8,120,102 (-50.8%)
	Total healthcare costs (£)	18,937,127	876,205,128	857,268,001 (4526.9%)
	ICER (Δ £/ Δ QALY)	.	.	345,737
40	N	9,083	9,083	0
	Incident MIs	3,869	2,407	-1,462 (-37.8%)
	Deaths	4,464	4,061	-403 (-9.0%)
	YLL	193,840	195,849	2,009 (1.04%)
	QALYs	164,668	167,286	2,618 (1.59%)
	Medication costs (£)	1,256,320	780,250,644	778,994,323 (62006.0%)
	Acute MI costs (£)	2,727,868	1,688,829	-1,039,040 (-38.1%)
	Chronic MI costs (£)	20,619,520	12,781,316	-7,838,204 (-38.0%)
	Total healthcare costs (£)	24,603,708	794,720,788	770,117,080 (3130.1%)
	ICER (Δ £/ Δ QALY)	.	.	294,118
50	N	8,748	8,748	0
	Incident MIs	3,619	2,827	-792 (-21.9%)
	Deaths	4,272	4,065	-207 (-4.8%)
	YLL	161,540	162,693	1,153 (0.71%)
	QALYs	132,558	134,046	1,489 (1.12%)
	Medication costs (£)	1,649,693	648,397,304	646,747,611 (39204.1%)
	Acute MI costs (£)	3,291,189	2,607,381	-683,808 (-20.8%)
	Chronic MI costs (£)	22,726,290	18,077,762	-4,648,528 (-20.5%)
	Total healthcare costs (£)	27,667,172	669,082,447	641,415,275 (2318.3%)
	ICER (Δ £/ Δ QALY)	.	.	430,830
60	N	7,902	7,902	0
	Incident MIs	2,937	2,669	-268 (-9.1%)
	Deaths	3,752	3,661	-91 (-2.4%)
	YLL	116,529	116,861	332 (0.28%)
	QALYs	92,447	92,860	412 (0.45%)
	Medication costs (£)	1,760,955	466,059,018	464,298,063 (26366.3%)
	Acute MI costs (£)	3,185,261	2,911,226	-274,035 (-8.6%)
	Chronic MI costs (£)	18,178,822	16,731,958	-1,446,864 (-8.0%)
	Total healthcare costs (£)	23,125,038	485,702,202	462,577,165 (2000.3%)
	ICER (Δ £/ Δ QALY)	.	.	1,121,898

Table 7.40: Microsimulation results – Low/moderate intensity statins. Summary.

Sex	Age of intervention	Outcome	LDL-C			
			Overall	≥3.0 mmol/L	≥4.0 mmol/L	≥5.0 mmol/L
Females	30	Incident MIs	-9,662 (-41.0%)	-8,617 (-42.3%)	-4,942 (-43.3%)	-1,597 (-45.7%)
		QALYs	6,333 (0.12%)	6,860 (0.17%)	3,789 (0.23%)	1,662 (0.49%)
		Total healthcare costs (£)	68,887,088 (75.0%)	47,749,109 (61.0%)	14,044,198 (31.4%)	-251,473 (-1.7%)
		ICER (Δ £/ Δ QALY)	10,877	6,961	3,706	-151
	40	Incident MIs	-7,594 (-32.7%)	-6,843 (-34.1%)	-4,007 (-35.6%)	-1,232 (-35.9%)
		QALYs	7,787 (0.17%)	7,530 (0.22%)	4,503 (0.31%)	1,445 (0.48%)
		Total healthcare costs (£)	54,145,309 (45.1%)	36,206,935 (35.5%)	8,263,749 (14.3%)	-1,315,826 (-6.9%)
		ICER (Δ £/ Δ QALY)	6,953	4,809	1,835	-911
	50	Incident MIs	-4,550 (-20.3%)	-4,030 (-20.9%)	-2,234 (-20.7%)	-616 (-18.8%)
		QALYs	4,682 (0.12%)	4,038 (0.14%)	2,526 (0.21%)	459 (0.18%)
		Total healthcare costs (£)	44,906,387 (30.8%)	30,456,121 (24.6%)	7,043,833 (10.1%)	-649,098 (-2.9%)
		ICER (Δ £/ Δ QALY)	9,592	7,543	2,788	-1,415
	60	Incident MIs	-2,233 (-11.0%)	-2,001 (-11.4%)	-999 (-10.2%)	-179 (-6.1%)
		QALYs	2,468 (0.08%)	2,256 (0.10%)	1,271 (0.14%)	255 (0.13%)
		Total healthcare costs (£)	31,491,429 (20.8%)	21,517,524 (16.7%)	4,511,934 (6.2%)	-132,467 (-0.6%)
		ICER (Δ £/ Δ QALY)	12,758	9,538	3,549	-519
Males	30	Incident MIs	-16,221 (-36.6%)	-13,877 (-38.1%)	-7,167 (-39.8%)	-1,471 (-37.3%)
		QALYs	15,449 (0.36%)	14,431 (0.47%)	8,586 (0.73%)	2,016 (1.06%)
		Total healthcare costs (£)	13,505,800 (6.9%)	1,822,612 (1.2%)	-9,794,556 (-12.1%)	-4,340,533 (-22.9%)
		ICER (Δ £/ Δ QALY)	874	126	-1,141	-2,153
	40	Incident MIs	-11,742 (-27.0%)	-10,068 (-28.2%)	-5,117 (-28.9%)	-1,023 (-26.4%)
		QALYs	16,284 (0.43%)	14,239 (0.53%)	7,906 (0.76%)	2,016 (1.22%)
		Total healthcare costs (£)	6,277,848 (2.5%)	-2,246,409 (-1.1%)	-11,150,449 (-10.7%)	-4,258,086 (-17.3%)
		ICER (Δ £/ Δ QALY)	386	-158	-1,410	-2,112
	50	Incident MIs	-6,837 (-16.6%)	-6,065 (-18.0%)	-3,023 (-18.1%)	-488 (-13.5%)
		QALYs	11,630 (0.37%)	10,246 (0.46%)	4,874 (0.58%)	966 (0.73%)
		Total healthcare costs (£)	8,607,055 (3.0%)	787,681 (0.3%)	-7,198,740 (-6.0%)	-2,030,459 (-7.3%)
		ICER (Δ £/ Δ QALY)	740	77	-1,477	-2,101
	60	Incident MIs	-2,992 (-8.5%)	-2,662 (-9.2%)	-1,136 (-8.1%)	-82 (-2.8%)
		QALYs	4,051 (0.18%)	3,583 (0.22%)	1,744 (0.29%)	129 (0.14%)
		Total healthcare costs (£)	11,866,500 (4.5%)	6,146,930 (2.9%)	-1,252,792 (-1.2%)	-334,158 (-1.4%)
		ICER (Δ £/ Δ QALY)	2,929	1,716	-718	-2,585

Table 7.41: Microsimulation results – High intensity statins. Summary.

Sex	Age of intervention	Outcome	LDL-C Overall	≥3.0 mmol/L	≥4.0 mmol/L	≥5.0 mmol/L
Females	30	Incident MIs	-11,821 (-50.1%)	-10,505 (-51.6%)	-6,098 (-53.4%)	-1,987 (-56.9%)
		QALYs	7,915 (0.15%)	8,275 (0.21%)	4,645 (0.28%)	1,941 (0.57%)
		Total healthcare costs (£)	117,396,070 (127.9%)	83,575,890 (106.8%)	27,869,620 (62.4%)	2,211,047 (15.1%)
		ICER (Δ £/ Δ QALY)	14,833	10,100	5,999	1,139
	40	Incident MIs	-9,424 (-40.6%)	-8,474 (-42.2%)	-4,983 (-44.3%)	-1,564 (-45.5%)
		QALYs	9,249 (0.20%)	8,838 (0.25%)	5,308 (0.36%)	1,761 (0.58%)
		Total healthcare costs (£)	97,618,727 (81.2%)	68,113,345 (66.7%)	20,481,143 (35.3%)	555,835 (2.9%)
		ICER (Δ £/ Δ QALY)	10,555	7,707	3,859	316
	50	Incident MIs	-6,135 (-27.4%)	-5,442 (-28.2%)	-3,125 (-28.9%)	-929 (-28.4%)
		QALYs	6,182 (0.16%)	5,367 (0.18%)	3,400 (0.28%)	778 (0.31%)
		Total healthcare costs (£)	81,757,680 (56.1%)	57,347,288 (46.4%)	16,955,221 (24.2%)	814,005 (3.6%)
		ICER (Δ £/ Δ QALY)	13,225	10,686	4,987	1,046
	60	Incident MIs	-3,395 (-16.7%)	-3,012 (-17.2%)	-1,614 (-16.5%)	-392 (-13.4%)
		QALYs	3,627 (0.12%)	3,246 (0.14%)	1,851 (0.20%)	477 (0.25%)
		Total healthcare costs (£)	60,759,557 (40.1%)	42,884,806 (33.3%)	12,439,818 (17.0%)	997,023 (4.4%)
		ICER (Δ £/ Δ QALY)	16,754	13,213	6,720	2,089
Males	30	Incident MIs	-20,054 (-45.2%)	-17,094 (-47.0%)	-8,814 (-48.9%)	-1,884 (-47.8%)
		QALYs	19,024 (0.44%)	17,479 (0.57%)	10,139 (0.86%)	2,426 (1.28%)
		Total healthcare costs (£)	44,228,800 (22.7%)	22,104,175 (14.0%)	-3,434,271 (-4.2%)	-3,878,523 (-20.5%)
		ICER (Δ £/ Δ QALY)	2,325	1,265	-339	-1,599
	40	Incident MIs	-15,073 (-34.6%)	-12,876 (-36.1%)	-6,613 (-37.4%)	-1,417 (-36.6%)
		QALYs	20,064 (0.53%)	17,484 (0.65%)	9,754 (0.94%)	2,554 (1.55%)
		Total healthcare costs (£)	31,616,981 (12.6%)	13,730,702 (6.8%)	-7,336,970 (-7.0%)	-4,502,022 (-18.3%)
		ICER (Δ £/ Δ QALY)	1,576	785	-752	-1,763
	50	Incident MIs	-9,391 (-22.8%)	-8,201 (-24.3%)	-4,136 (-24.8%)	-740 (-20.4%)
		QALYs	14,990 (0.48%)	13,090 (0.59%)	6,458 (0.76%)	1,413 (1.07%)
		Total healthcare costs (£)	29,742,757 (10.4%)	14,155,422 (6.1%)	-3,937,804 (-3.3%)	-2,192,928 (-7.9%)
		ICER (Δ £/ Δ QALY)	1,984	1,081	-610	-1,552
	60	Incident MIs	-4,558 (-13.0%)	-3,996 (-13.9%)	-1,823 (-13.0%)	-243 (-8.3%)
		QALYs	6,143 (0.27%)	5,332 (0.33%)	2,706 (0.44%)	372 (0.40%)
		Total healthcare costs (£)	29,944,912 (11.4%)	17,914,914 (8.4%)	2,237,082 (2.1%)	-121,456 (-0.5%)
		ICER (Δ £/ Δ QALY)	4,875	3,360	827	-326

Table 7.42: Microsimulation results – Low/moderate intensity statins and ezetimibe. Summary.

Sex	Age of intervention	Outcome	LDL-C			
			Overall	≥3.0 mmol/L	≥4.0 mmol/L	≥5.0 mmol/L
Females	30	Incident MIs	-12,743 (-54.1%)	-11,307 (-55.5%)	-6,580 (-57.6%)	-2,125 (-60.8%)
		QALYs	8,593 (0.17%)	8,862 (0.23%)	5,004 (0.30%)	2,041 (0.60%)
		Total healthcare costs (£)	248,240,605 (270.4%)	182,186,015 (232.9%)	68,695,375 (153.8%)	10,588,128 (72.5%)
		ICER (Δ £/ Δ QALY)	28,888	20,558	13,729	5,188
	40	Incident MIs	-10,269 (-44.2%)	-9,211 (-45.9%)	-5,408 (-48.1%)	-1,714 (-49.9%)
		QALYs	9,972 (0.22%)	9,459 (0.27%)	5,652 (0.39%)	1,895 (0.63%)
		Total healthcare costs (£)	216,607,732 (180.3%)	157,629,572 (154.4%)	57,327,490 (98.9%)	7,971,128 (42.1%)
		ICER (Δ £/ Δ QALY)	21,721	16,664	10,142	4,206
	50	Incident MIs	-6,869 (-30.7%)	-6,100 (-31.6%)	-3,510 (-32.5%)	-1,048 (-32.0%)
		QALYs	6,876 (0.18%)	5,986 (0.20%)	3,792 (0.31%)	909 (0.36%)
		Total healthcare costs (£)	184,899,378 (127.0%)	134,752,055 (109.0%)	48,755,374 (69.6%)	7,238,251 (32.3%)
		ICER (Δ £/ Δ QALY)	26,890	22,512	12,858	7,961
	60	Incident MIs	-3,911 (-19.3%)	-3,474 (-19.8%)	-1,905 (-19.5%)	-493 (-16.9%)
		QALYs	4,170 (0.14%)	3,744 (0.17%)	2,154 (0.23%)	586 (0.31%)
		Total healthcare costs (£)	142,513,546 (94.1%)	104,088,618 (80.7%)	37,284,387 (51.0%)	5,857,555 (25.9%)
		ICER (Δ £/ Δ QALY)	34,172	27,803	17,309	9,997
Males	30	Incident MIs	-21,843 (-49.3%)	-18,590 (-51.1%)	-9,622 (-53.4%)	-2,095 (-53.2%)
		QALYs	20,643 (0.48%)	18,852 (0.61%)	10,880 (0.92%)	2,632 (1.39%)
		Total healthcare costs (£)	145,474,610 (74.7%)	93,926,395 (59.4%)	23,294,636 (28.7%)	102,179 (0.5%)
		ICER (Δ £/ Δ QALY)	7,047	4,982	2,141	39
	40	Incident MIs	-16,616 (-38.2%)	-14,185 (-39.7%)	-7,287 (-41.2%)	-1,574 (-40.7%)
		QALYs	21,887 (0.58%)	19,071 (0.70%)	10,573 (1.02%)	2,777 (1.69%)
		Total healthcare costs (£)	122,392,688 (48.9%)	77,848,629 (38.3%)	16,446,843 (15.7%)	-949,896 (-3.9%)
		ICER (Δ £/ Δ QALY)	5,592	4,082	1,556	-342
	50	Incident MIs	-10,631 (-25.9%)	-9,238 (-27.4%)	-4,698 (-28.2%)	-889 (-24.6%)
		QALYs	16,748 (0.54%)	14,541 (0.65%)	7,258 (0.86%)	1,635 (1.23%)
		Total healthcare costs (£)	106,467,640 (37.2%)	68,149,575 (29.4%)	15,757,263 (13.2%)	496,638 (1.8%)
		ICER (Δ £/ Δ QALY)	6,357	4,687	2,171	304
	60	Incident MIs	-5,331 (-15.2%)	-4,639 (-16.1%)	-2,167 (-15.4%)	-318 (-10.8%)
		QALYs	7,222 (0.31%)	6,240 (0.38%)	3,232 (0.53%)	497 (0.54%)
		Total healthcare costs (£)	89,196,601 (34.1%)	59,412,282 (28.0%)	17,134,644 (16.0%)	2,009,565 (8.7%)
		ICER (Δ £/ Δ QALY)	12,351	9,522	5,302	4,044

Table 7.43: Microsimulation results – Inclisiran. Summary.

Sex	Age of intervention	Outcome	LDL-C			
			Overall	≥3.0 mmol/L	≥4.0 mmol/L	≥5.0 mmol/L
Females	30	Incident MIs	-12,118 (-51.4%)	-10,752 (-52.8%)	-6,268 (-54.9%)	-2,031 (-58.1%)
		QALYs	8,136 (0.16%)	8,455 (0.21%)	4,768 (0.29%)	1,962 (0.58%)
		Total healthcare costs (£)	24,159,009,528 (26315.0%)	18,254,833,502 (23334.4%)	7,629,718,068 (17084.9%)	1,585,002,007 (10851.9%)
		ICER (Δ £/ Δ QALY)	2,969,229	2,159,092	1,600,220	807,865
	40	Incident MIs	-9,678 (-41.6%)	-8,699 (-43.3%)	-5,109 (-45.4%)	-1,611 (-46.9%)
		QALYs	9,435 (0.20%)	9,008 (0.26%)	5,405 (0.37%)	1,798 (0.60%)
		Total healthcare costs (£)	22,085,121,529 (18380.3%)	16,678,385,112 (16340.8%)	6,963,003,658 (12015.2%)	1,441,692,378 (7606.4%)
		ICER (Δ £/ Δ QALY)	2,340,811	1,851,588	1,288,136	801,719
	50	Incident MIs	-6,357 (-28.4%)	-5,637 (-29.2%)	-3,234 (-29.9%)	-959 (-29.3%)
		QALYs	6,375 (0.16%)	5,539 (0.19%)	3,500 (0.29%)	809 (0.32%)
		Total healthcare costs (£)	19,193,025,027 (13178.5%)	14,479,548,965 (11715.6%)	6,031,961,399 (8607.4%)	1,241,398,579 (5545.0%)
		ICER (Δ £/ Δ QALY)	3,010,904	2,613,920	1,723,289	1,534,427
	60	Incident MIs	-3,561 (-17.6%)	-3,163 (-18.1%)	-1,711 (-17.5%)	-431 (-14.8%)
		QALYs	3,830 (0.13%)	3,436 (0.15%)	1,974 (0.21%)	528 (0.28%)
		Total healthcare costs (£)	15,236,422,177 (10058.2%)	11,479,301,298 (8902.7%)	4,759,145,072 (6513.3%)	970,820,104 (4285.3%)
		ICER (Δ £/ Δ QALY)	3,978,327	3,340,710	2,411,127	1,839,860
Males	30	Incident MIs	-20,611 (-46.5%)	-17,566 (-48.3%)	-9,074 (-50.3%)	-1,951 (-49.5%)
		QALYs	19,481 (0.45%)	17,888 (0.58%)	10,359 (0.88%)	2,480 (1.31%)
		Total healthcare costs (£)	19,423,346,741 (9980.2%)	13,930,851,172 (8803.1%)	5,346,143,477 (6591.0%)	857,268,001 (4526.9%)
		ICER (Δ £/ Δ QALY)	997,062	778,784	516,105	345,737
	40	Incident MIs	-15,544 (-35.7%)	-13,283 (-37.2%)	-6,820 (-38.6%)	-1,462 (-37.8%)
		QALYs	20,598 (0.54%)	17,967 (0.66%)	9,993 (0.97%)	2,618 (1.59%)
		Total healthcare costs (£)	17,584,057,052 (7028.4%)	12,595,069,761 (6198.2%)	4,817,533,236 (4612.5%)	770,117,080 (3130.1%)
		ICER (Δ £/ Δ QALY)	853,660	701,027	482,100	294,118
	50	Incident MIs	-9,756 (-23.7%)	-8,514 (-25.2%)	-4,315 (-25.9%)	-792 (-21.9%)
		QALYs	15,546 (0.50%)	13,558 (0.61%)	6,742 (0.80%)	1,489 (1.12%)
		Total healthcare costs (£)	14,985,876,445 (5233.8%)	10,705,684,284 (4612.4%)	4,066,312,147 (3401.1%)	641,415,275 (2318.3%)
		ICER (Δ £/ Δ QALY)	963,968	789,624	603,164	430,830
	60	Incident MIs	-4,815 (-13.7%)	-4,216 (-14.6%)	-1,938 (-13.8%)	-268 (-9.1%)
		QALYs	6,567 (0.28%)	5,696 (0.35%)	2,911 (0.48%)	412 (0.45%)
		Total healthcare costs (£)	11,429,749,024 (4366.3%)	8,118,774,345 (3827.4%)	3,036,552,354 (2842.6%)	462,577,165 (2000.3%)
		ICER (Δ £/ Δ QALY)	1,740,391	1,425,286	1,043,238	1,121,898

Table 8.1: Model inputs

Input	Value	Distribution	Source
Incidence of non-fatal MI	Age and sex-specific	Log-normal See Figure 4.1	UK Biobank
Incidence of fatal MI	Age and sex-specific	Log-normal See Figure 4.2	UK Biobank
Non-CHD mortality rate for people without MI	Age and sex-specific	Log-normal See Figure 4.2	UK Biobank
All-cause mortality rate for people with MI	Age-, sex-, and time-since-MI-specific	Log-normal See Figure 4.3	UK Biobank
Effect of statins on LDL-C (control arm only)	45% (44, 46) reduction	Normal	[25]
Effect of interventions on LDL-C	Low/moderate intensity statins: 40% (39, 41) reduction High intensity statins: 50% (49, 51) reduction Low/moderate intensity statins and ezetimibe: 55% (54, 56) reduction Inclisiran: 51.5% (49.0, 53.9) reduction	Normal	[25] [25] [10] [28]
Effect of cumulative LDL-C on the incidence of MI	RR: 0.48 (0.45, 0.50)	Log-normal	[5]
Utility for people without MI	Age and sex-specific (± 5%)	Modified normal See Figure 9.7	[36]
Chronic utility for people with MI	0.79 (0.73, 0.85)	Beta	[37]
Acute disutility for MI	-0.03 (± 50%)	Normal	[38]
Cost of acute MI	£2047.31 (± 15%)	Gamma	National Health Service Cost Schedule; See Table 7.1
Excess healthcare costs for people with MI	£4705.45 (SE: 112.71) for the first 6 months £1015.21 (SE: 171.23) per year thereafter	Gamma	[41]
Annual cost of statins (control arm only)	£19.00	Fixed	[42, 43]
Annual cost of interventions	Low/moderate intensity statins: £18.39 High intensity statins: £27.39 low/moderate intensity statins and ezetimibe: £49.31 Inclisiran: £3974.72	Fixed	[42] [42] [42] [44]

8 One-way sensitivity analyses

To get any sort of confidence in the results just obtained, they need to subjected to sensitivity analyses. Table 8.1 contains all inputs to the model, and thus all inputs that need to be varied for sensitivity analyses.

There are two kinds of sensitivity analyses that will be used in this study: one-way and probabilistic sensitivity analyses. One-way sensitivity analyses are shown in this section, probabilistic in the next. For the one-way sensitivity analyses, the primary outcome will be the ICER. There are six inputs that must be varied for the microsimulation, and five that we vary after the fact. The first six:

1. Incidence of non-fatal MI
2. Incidence of fatal MI
3. Non-CHD mortality rate for people without MI
4. All-cause mortality rate for people with MI
5. Effect of therapies on LDL-C

6. Effect of LDL-C on MI risk

And the following five:

7. Utility for people without MI
8. Chronic utility for people with MI
9. Acute disutility for MI
10. Cost of acute MI
11. Cost of chronic MI

8.1 Code

```
quietly {
set seed 28371057
forval a = 1(1000)458001 {
use UKB_working, clear
drop if dob==.
drop if mid <= dofa
keep if ldl!=.
gen ldl1 = ldl
replace ldl1 = ldl*(1/0.7) if llt==1
su(ldl1)
gen ldldist = (ldl1-r(mean))/r(sd)
replace ldldist = -3 if ldldist < -3
gen njm = _n
local aa = `a´+999
keep if inrange(njm, `a´,`aa´)
gen agellt = ((dofa-(365.25*5))-dob)/365.25  if llt==1
expand 850
bysort eid : gen age = _n/10
gen ldlorig = ldl
replace ldl = ldl*(1/0.7) if age < agellt & agellt!=.
replace ldl = ldl*(1/0.7)*0.55 if age >= agellt & agellt!=.
gen lltpr = 0
replace lltpr = 0.0001 if inrange(age,39.99,49.99)
replace lltpr = 0.0015 if inrange(age,49.999,59.99)
replace lltpr = 0.0035 if age >= 59.999
gen agedofa = (dofa-dob)/365.25
replace lltpr = 0 if age < agedofa
replace lltpr = lltpr*(0.95) if sex == 0
replace lltpr = lltpr*(1.05) if sex == 1
replace lltpr = lltpr*(3^ldldist)
replace lltpr = 1-exp(-lltpr)
gen prllt = runiform()
gen lltinit = 1 if lltpr >= prllt & llt==0
bysort eid lltinit age : gen agellt0 = age if lltinit ==1 & _n == 1
bysort eid (age) : egen llt1 = min(lltinit)
bysort eid (age) : egen agellt1 = min(agellt0) if llt1 == 1
ta agellt1
replace ldl = ldl*0.55 if age >= agellt1 & llt1 == 1
sort eid age
replace ldl = 0.75+(0.1875*ldldist) if inrange(age,0.09,0.11)
replace ldl = 2+(0.5*ldldist)  if inrange(age,4.99,5.01)
bysort eid (age) : replace ldl = (ldl[50]-ldl[1])/49 if inrange(age,0.11,4.99)
bysort eid (age) : replace ldl = (ldl[400]-ldl[50])/350 if inrange(age,5.01,39.99)
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,0.09,4.99)
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,4.99,39.99)
gen ldl_0_30 = ldl if age < 40
replace ldl_0_30 = ldl1 if age >= 40
```

```
gen ldl_0_40 = ldl_0_30
gen ldl_0_50 = ldl if age < 50
replace ldl_0_50 = ldl1 if age >= 50
gen ldl_0_60 = ldl if age < 60
replace ldl_0_60 = ldl1 if age >= 60
sort eid age
keep eid sex ldl age njm ldl_0_30-ldl_0_60
forval i = 30(10)60 {
forval ii = 1/4 {
gen ldl_`ii´_`i´ = ldl_0_`i´
gen ldl_`ii´_`i´_51 = ldl_0_`i´
gen ldl_`ii´_`i´_52 = ldl_0_`i´
}
replace ldl_1_`i´ = ldl_0_`i´*0.6 if age >= `i´
replace ldl_1_`i´_51 = ldl_0_`i´*0.61 if age >= `i´
replace ldl_1_`i´_52 = ldl_0_`i´*0.59 if age >= `i´
replace ldl_2_`i´ = ldl_0_`i´*0.5 if age >= `i´
replace ldl_2_`i´_51 = ldl_0_`i´*0.51 if age >= `i´
replace ldl_2_`i´_52 = ldl_0_`i´*0.49 if age >= `i´
replace ldl_3_`i´ = ldl_0_`i´*0.45 if age >= `i´
replace ldl_3_`i´_51 = ldl_0_`i´*0.46 if age >= `i´
replace ldl_3_`i´_52 = ldl_0_`i´*0.44 if age >= `i´
replace ldl_4_`i´ = ldl_0_`i´*0.485 if age >= `i´
replace ldl_4_`i´_51 = ldl_0_`i´*0.510 if age >= `i´
replace ldl_4_`i´_52 = ldl_0_`i´*0.461 if age >= `i´
}
bysort eid (age) : gen cumldl = sum(ldl)/10 if ldl!=.
gen aveldl = cumldl/age
forval i = 1/4 {
forval ii = 30(10)60 {
bysort eid (age) : gen cumldl_`i´_`ii´ = sum(ldl_`i´_`ii´)/10
gen aveldl_`i´_`ii´ = cumldl_`i´_`ii´/age
bysort eid (age) : gen cumldl_`i´_`ii´_51 = sum(ldl_`i´_`ii´_51)/10
gen aveldl_`i´_`ii´_51 = cumldl_`i´_`ii´_51/age
bysort eid (age) : gen cumldl_`i´_`ii´_52 = sum(ldl_`i´_`ii´_52)/10
gen aveldl_`i´_`ii´_52 = cumldl_`i´_`ii´_52/age
}
}
keep eid sex age aveldl ///
aveldl_1_30 aveldl_1_40 aveldl_1_50 aveldl_1_60 ///
aveldl_2_30 aveldl_2_40 aveldl_2_50 aveldl_2_60 ///
aveldl_3_30 aveldl_3_40 aveldl_3_50 aveldl_3_60 ///
aveldl_4_30 aveldl_4_40 aveldl_4_50 aveldl_4_60 ///
aveldl_1_30_51 aveldl_1_40_51 aveldl_1_50_51 aveldl_1_60_51 ///
aveldl_2_30_51 aveldl_2_40_51 aveldl_2_50_51 aveldl_2_60_51 ///
aveldl_3_30_51 aveldl_3_40_51 aveldl_3_50_51 aveldl_3_60_51 ///
aveldl_4_30_51 aveldl_4_40_51 aveldl_4_50_51 aveldl_4_60_51 ///
aveldl_1_30_52 aveldl_1_40_52 aveldl_1_50_52 aveldl_1_60_52 ///
aveldl_2_30_52 aveldl_2_40_52 aveldl_2_50_52 aveldl_2_60_52 ///
aveldl_3_30_52 aveldl_3_40_52 aveldl_3_50_52 aveldl_3_60_52 ///
aveldl_4_30_52 aveldl_4_40_52 aveldl_4_50_52 aveldl_4_60_52
keep if age >= 30
tostring age, replace force format(%9.1f)
destring age, replace
merge m:1 sex age using ldlave_reg
drop if _merge == 2
drop _merge
merge m:1 sex age using MI_inc
drop if _merge == 2
drop _merge
rename rate nfMIrate
rename errr nfMIerrr
merge m:1 sex age using MIdrates
drop if _merge == 2
drop _merge MI
rename rate fMIrate
rename errr fMIerrr
sort eid age
```

```
save OSA/LDL_trajectories_`a´_OSA, replace
}
forval z = 300/849 {
forval a = 1(1000)458001 {
use OSA/LDL_trajectories_`a´_OSA, clear
replace age = age*10
keep if age == `z´
gen nfMIrate_lb = exp(ln(nfMIrate)-1.96*nfMIerrr)
gen nfMIrate_ub = exp(ln(nfMIrate)+1.96*nfMIerrr)
gen fMIrate_lb = exp(ln(fMIrate)-1.96*fMIerrr)
gen fMIrate_ub = exp(ln(fMIrate)+1.96*fMIerrr)
gen nfMIadj = nfMIrate*(0.48^(ldlave-aveldl))
gen fMIadj = fMIrate*(0.48^(ldlave-aveldl))
gen nfMIadj_11 = nfMIrate_lb*(0.48^(ldlave-aveldl))
gen nfMIadj_12 = nfMIrate_ub*(0.48^(ldlave-aveldl))
gen fMIadj_21 = fMIrate_lb*(0.48^(ldlave-aveldl))
gen fMIadj_22 = fMIrate_ub*(0.48^(ldlave-aveldl))
gen nfMIadj_61 = nfMIrate*(0.45^(ldlave-aveldl))
gen fMIadj_61 = fMIrate*(0.45^(ldlave-aveldl))
gen nfMIadj_62 = nfMIrate*(0.5^(ldlave-aveldl))
gen fMIadj_62 = fMIrate*(0.5^(ldlave-aveldl))
forval i = 1/4 {
forval ii = 30(10)60 {
gen nfMIadj_`i´_`ii´ = nfMIrate*(0.48^(ldlave-aveldl_`i´_`ii´))
gen fMIadj_`i´_`ii´ = fMIrate*(0.48^(ldlave-aveldl_`i´_`ii´))
gen nfMIadj_`i´_`ii´_11 = nfMIrate_lb*(0.48^(ldlave-aveldl_`i´_`ii´))
gen nfMIadj_`i´_`ii´_12 = nfMIrate_ub*(0.48^(ldlave-aveldl_`i´_`ii´))
gen fMIadj_`i´_`ii´_21 = fMIrate_lb*(0.48^(ldlave-aveldl_`i´_`ii´))
gen fMIadj_`i´_`ii´_22 = fMIrate_ub*(0.48^(ldlave-aveldl_`i´_`ii´))
gen nfMIadj_`i´_`ii´_51 = nfMIrate*(0.48^(ldlave-aveldl_`i´_`ii´_51))
gen fMIadj_`i´_`ii´_51 = fMIrate*(0.48^(ldlave-aveldl_`i´_`ii´_51))
gen nfMIadj_`i´_`ii´_52 = nfMIrate*(0.48^(ldlave-aveldl_`i´_`ii´_52))
gen fMIadj_`i´_`ii´_52 = fMIrate*(0.48^(ldlave-aveldl_`i´_`ii´_52))
gen nfMIadj_`i´_`ii´_61 = nfMIrate*(0.45^(ldlave-aveldl_`i´_`ii´))
gen fMIadj_`i´_`ii´_61 = fMIrate*(0.45^(ldlave-aveldl_`i´_`ii´))
gen nfMIadj_`i´_`ii´_62 = nfMIrate*(0.5^(ldlave-aveldl_`i´_`ii´))
gen fMIadj_`i´_`ii´_62 = fMIrate*(0.5^(ldlave-aveldl_`i´_`ii´))
}
}
keep eid sex age nfMIrate-fMIadj_4_60_62
save OSA/MIrisk_`a´_`z´_OSA, replace
}
clear
forval a = 1(1000)458001 {
append using OSA/MIrisk_`a´_`z´_OSA
}
save OSA/MIrisk_com_`z´_OSA, replace
forval a = 1(1000)458001 {
erase OSA/MIrisk_`a´_`z´_OSA.dta
}
}
forval a = 1(1000)458001 {
erase OSA/LDL_trajectories_`a´_OSA.dta
}
foreach q in 11 12 21 22 31 32 41 42 51 52 61 62 {
use Microsim_30, clear
save OSA/Microsim_30_`q´, replace
set seed 6746
forval i = 300/849 {
merge 1:1 eid age using OSA/MIrisk_com_`i´_OSA
drop if _merge == 2
if `q´ == 11 {
rename (nfMIadj_11 fMIadj) (nfMI fMI)
}
else if `q´ == 12 {
rename (nfMIadj_12 fMIadj) (nfMI fMI)
}
else if `q´ == 21 {
```

```
rename (nfMIadj fMIadj_21) (nfMI fMI)
}
else if `q´ == 22 {
rename (nfMIadj fMIadj_22) (nfMI fMI)
}
else if `q´ == 61 {
rename (nfMIadj_61 fMIadj_61) (nfMI fMI)
}
else if `q´ == 62 {
rename (nfMIadj_62 fMIadj_62) (nfMI fMI)
}
else {
rename (nfMIadj fMIadj) (nfMI fMI)
}
keep eid-rand nfMI fMI
merge m:1 age sex using NCdrates10
drop if _merge == 2
if `q´ == 31 {
replace rate = exp(ln(rate)-1.96*errr)
}
if `q´ == 32 {
replace rate = exp(ln(rate)+1.96*errr)
}
rename rate NCd
drop errr-_merge
merge m:1 age sex durn MI using PMId10
drop if _merge == 2
if `q´ == 41 {
replace rate = exp(ln(rate)-1.96*errr)
}
if `q´ == 42 {
replace rate = exp(ln(rate)+1.96*errr)
}
rename rate PMId
drop adx errr _merge
gen ratesum = nfMI+fMI+NCd
gen tpsum = 1-exp(-ratesum*0.1)
replace nfMI = tpsum*nfMI/ratesum
replace fMI = tpsum*fMI/ratesum
replace NCd = tpsum*NCd/ratesum
replace PMId = 1-exp(-PMId*0.1)
drop ratesum tpsum
sort eid
replace rand = runiform()
recode MI 0=1 if (nfMI > rand) & Death == 0
replace rand = runiform()
recode MI 0=1 if (fMI > rand) & Death == 0
recode Death 0=1 if (fMI > rand) & durn == 0
replace rand = runiform()
recode Death 0=1 if (NCd > rand) & MI == 0
replace rand = runiform()
recode Death 0=1 if (PMId > rand) & MI == 1 & durn!=0
replace age = age+1 if Death == 0
replace durn = durn+1 if MI == 1 & Death == 0
keep eid-rand
if `i´ == 399 {
save OSA/Microsim_40_`q´, replace
set seed 2791
}
if `i´ == 499 {
save OSA/Microsim_50_`q´, replace
set seed 9261
}
if `i´ == 599 {
save OSA/Microsim_60_`q´, replace
set seed 1467
}
}
```

```
replace age = age/10
replace durn = durn/10
save OSA/trial_control_`q´, replace
forval i = 1/4 {
forval ii = 30(10)60 {
if `ii´ == 30 {
local a = 300
set seed 6746
}
if `ii´ == 40 {
local a = 400
set seed 2791
}
if `ii´ == 50 {
local a = 500
set seed 9261
}
if `ii´ == 60 {
local a = 600
set seed 1467
}
use OSA/Microsim_`ii´_`q´, clear
forval iii = `a´/849 {
merge 1:1 eid age using OSA/MIrisk_com_`iii´_OSA
drop if _merge == 2
if `q´ == 11 {
rename (nfMIadj_`i´_`ii´_11 fMIadj_`i´_`ii´) (nfMI fMI)
}
else if `q´ == 12 {
rename (nfMIadj_`i´_`ii´_12 fMIadj_`i´_`ii´) (nfMI fMI)
}
else if `q´ == 21 {
rename (nfMIadj_`i´_`ii´ fMIadj_`i´_`ii´_21) (nfMI fMI)
}
else if `q´ == 22 {
rename (nfMIadj_`i´_`ii´ fMIadj_`i´_`ii´_22) (nfMI fMI)
}
else if `q´ == 51 {
rename (nfMIadj_`i´_`ii´_51 fMIadj_`i´_`ii´_51) (nfMI fMI)
}
else if `q´ == 52 {
rename (nfMIadj_`i´_`ii´_52 fMIadj_`i´_`ii´_52) (nfMI fMI)
}
else if `q´ == 61 {
rename (nfMIadj_`i´_`ii´_61 fMIadj_`i´_`ii´_61) (nfMI fMI)
}
else if `q´ == 62 {
rename (nfMIadj_`i´_`ii´_62 fMIadj_`i´_`ii´_62) (nfMI fMI)
}
else {
rename (nfMIadj_`i´_`ii´ fMIadj_`i´_`ii´) (nfMI fMI)
}
keep eid-rand nfMI fMI
merge m:1 age sex using NCdrates10
drop if _merge == 2
if `q´ == 31 {
replace rate = exp(ln(rate)-1.96*errr)
}
if `q´ == 32 {
replace rate = exp(ln(rate)+1.96*errr)
}
rename rate NCd
drop errr-_merge
merge m:1 age sex durn MI using PMId10
drop if _merge == 2
if `q´ == 41 {
replace rate = exp(ln(rate)-1.96*errr)
}
```

```
if `q´ == 42 {
replace rate = exp(ln(rate)+1.96*errr)
}
rename rate PMId
drop adx errr _merge
gen ratesum = nfMI+fMI+NCd
gen tpsum = 1-exp(-ratesum*0.1)
replace nfMI = tpsum*nfMI/ratesum
replace fMI = tpsum*fMI/ratesum
replace NCd = tpsum*NCd/ratesum
replace PMId = 1-exp(-PMId*0.1)
drop ratesum tpsum
sort eid
replace rand = runiform()
recode MI 0=1 if (nfMI > rand) & Death == 0
replace rand = runiform()
recode MI 0=1 if (fMI > rand) & Death == 0
recode Death 0=1 if (fMI > rand) & durn == 0
replace rand = runiform()
recode Death 0=1 if (NCd > rand) & MI == 0
replace rand = runiform()
recode Death 0=1 if (PMId > rand) & MI == 1 & durn!=0
replace age = age+1 if Death == 0
replace durn = durn+1 if MI == 1 & Death == 0
keep eid-rand
}
replace age = age/10
replace durn = durn/10
save OSA/trial_`i´_`ii´_`q´, replace
}
}
}
forval iii = 300/849 {
erase OSA/MIrisk_com_`iii´_OSA.dta
}
}
clear
set obs 551
gen MIage = (_n+299)/10
expand 2
bysort MIage : gen sex = _n-1
gen UT = 0.9454933+0.0256466*sex-0.0002213*MIage - 0.0000294*(MIage^2)
gen UTlb = UT*0.95
gen UTub = UT*1.05
replace UTlb = 0 if UTlb < 0
replace UTub = 1 if UTub > 1
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((MIage-`i´))) if MIage >= `i´
gen QAL_lb_`i´ = 0.1*UTlb*DC_`i´
gen QAL_ub_`i´ = 0.1*UTub*DC_`i´
replace QAL_lb_`i´ = QAL_lb_`i´/2 if MIage == `i´
replace QAL_ub_`i´ = QAL_ub_`i´/2 if MIage == `i´
bysort sex (MIage) : gen double QALY_nMI_lb_`i´ = sum(QAL_lb_`i´)
bysort sex (MIage) : gen double QALY_nMI_ub_`i´ = sum(QAL_ub_`i´)
}
keep MIage sex QALY_nMI_lb_30 QALY_nMI_lb_40 QALY_nMI_lb_50 QALY_nMI_lb_60 ///
QALY_nMI_ub_30 QALY_nMI_ub_40 QALY_nMI_ub_50 QALY_nMI_ub_60
tostring MIage, replace force format(%9.1f)
destring MIage, replace
save OSA/QALY_nMI_Matrix_OSA, replace
clear
set obs 551
gen MIage = (_n+299)/10
expand 2
bysort MIage : gen sex = _n-1
expand 550
bysort MIage sex : gen durn = _n/10
gen age = round(MIage+durn,0.1)
```

```
drop if age > 85
gen UT = 0.9454933+0.0256466*sex-0.0002213*age - 0.0000294*(age^2)
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((age-`i´))) if age >= `i´
gen QAL_alb_`i´=0.1*UT*DC_`i´*0.79
gen QAL_aub_`i´=0.1*UT*DC_`i´*0.79
gen QAL_clb_`i´=0.1*UT*DC_`i´*0.73
gen QAL_cub_`i´=0.1*UT*DC_`i´*0.85
replace QAL_clb_`i´ = QAL_clb_`i´ - 0.01 if durn <0.301
replace QAL_clb_`i´ = 0 if QAL_clb_`i´ < 0
replace QAL_cub_`i´ = QAL_cub_`i´ - 0.01 if durn <0.301
replace QAL_cub_`i´ = 0 if QAL_cub_`i´ < 0
replace QAL_alb_`i´ = QAL_alb_`i´ - 0.015 if durn <0.301
replace QAL_alb_`i´ = 0 if QAL_alb_`i´ < 0
replace QAL_aub_`i´ = QAL_aub_`i´ - 0.005 if durn <0.301
replace QAL_aub_`i´ = 0 if QAL_aub_`i´ < 0
bysort sex MIage (age) : gen double QALY_MI_clb_`i´ = sum(QAL_clb_`i´)
bysort sex MIage (age) : gen double QALY_MI_cub_`i´ = sum(QAL_cub_`i´)
bysort sex MIage (age) : gen double QALY_MI_alb_`i´ = sum(QAL_alb_`i´)
bysort sex MIage (age) : gen double QALY_MI_aub_`i´ = sum(QAL_aub_`i´)
}
keep age MIage sex ///
QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
save OSA/QALY_MI_Matrix_OSA, replace
clear
set obs 551
gen MIage = (_n+299)/10
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((MIage-`i´))) if MIage >= `i´
gen double ACMIcost_lb_`i´ = 2047.31*DC_`i´*0.85
gen double ACMIcost_ub_`i´ = 2047.31*DC_`i´*1.15
}
keep MIage ACMIcost_lb_30 ACMIcost_lb_40 ACMIcost_lb_50 ACMIcost_lb_60 ///
ACMIcost_ub_30 ACMIcost_ub_40 ACMIcost_ub_50 ACMIcost_ub_60
tostring MIage, replace force format(%9.1f)
destring MIage, replace
save OSA/ACcost_Matrix_OSA, replace
clear
set obs 551
gen MIage = (_n+299)/10
expand 2
bysort MIage : gen sex = _n-1
expand 550
bysort MIage sex : gen durn = _n/10
gen age = round(MIage+durn,0.1)
drop if age > 85
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((age-`i´))) if age >= `i´
gen cost_lb_`i´ = DC_`i´*(4705.45-(1.96*112.71))/5 if durn <=0.5
replace cost_lb_`i´ = DC_`i´*(1015.21-(1.96*171.23))/10 if cost_lb_`i´==.
bysort sex MIage (age) : gen double CHMIcost_lb_`i´ = sum(cost_lb_`i´)
gen cost_ub_`i´ = DC_`i´*(4705.45+(1.96*112.71))/5 if durn <=0.5
replace cost_ub_`i´ = DC_`i´*(1015.21+(1.96*171.23))/10 if cost_ub_`i´==.
bysort sex MIage (age) : gen double CHMIcost_ub_`i´ = sum(cost_ub_`i´)
}
keep age MIage sex CHMIcost_lb_30 CHMIcost_lb_40 CHMIcost_lb_50 CHMIcost_lb_60 ///
CHMIcost_ub_30 CHMIcost_ub_40 CHMIcost_ub_50 CHMIcost_ub_60
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
save OSA/CHcost_Matrix_OSA, replace
quietly {
foreach q in 11 12 21 22 31 32 41 42 51 52 61 62 71 72 81 82 91 92 101 102 111 112 {
if `q´ < 70 {
```

```
use OSA/trial_control_`q´, clear
}
else {
use trial_control, clear
}
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
merge 1:1 eid using agellt_control
drop if _merge == 2
drop _merge
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
if `q´ == 71 {
merge m:1 MIage sex using OSA/QALY_nMI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_nMI_ub_30 QALY_nMI_ub_40 QALY_nMI_ub_50 QALY_nMI_ub_60
rename (QALY_nMI_lb_30 QALY_nMI_lb_40 QALY_nMI_lb_50 QALY_nMI_lb_60) ///
(QALY_nMI_30 QALY_nMI_40 QALY_nMI_50 QALY_nMI_60)
}
else if `q´ == 72 {
merge m:1 MIage sex using OSA/QALY_nMI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_nMI_lb_30 QALY_nMI_lb_40 QALY_nMI_lb_50 QALY_nMI_lb_60
rename (QALY_nMI_ub_30 QALY_nMI_ub_40 QALY_nMI_ub_50 QALY_nMI_ub_60) ///
(QALY_nMI_30 QALY_nMI_40 QALY_nMI_50 QALY_nMI_60)
}
else {
merge m:1 MIage sex using QALY_nMI_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 81 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 82 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 91 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 92 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
```

```
drop if _merge == 2
drop _merge
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60
rename (QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else {
merge m:1 age MIage sex using QALY_MI_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 101 {
merge m:1 MIage using OSA/ACcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop ACMIcost_ub_30 ACMIcost_ub_40 ACMIcost_ub_50 ACMIcost_ub_60
rename (ACMIcost_lb_30 ACMIcost_lb_40 ACMIcost_lb_50 ACMIcost_lb_60) ///
(ACMIcost_30 ACMIcost_40 ACMIcost_50 ACMIcost_60)
}
else if `q´ == 102 {
merge m:1 MIage using OSA/ACcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop ACMIcost_lb_30 ACMIcost_lb_40 ACMIcost_lb_50 ACMIcost_lb_60
rename (ACMIcost_ub_30 ACMIcost_ub_40 ACMIcost_ub_50 ACMIcost_ub_60) ///
(ACMIcost_30 ACMIcost_40 ACMIcost_50 ACMIcost_60)
}
else {
merge m:1 MIage using ACcost_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 111 {
merge m:1 age MIage sex using OSA/CHcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop CHMIcost_ub_30 CHMIcost_ub_40 CHMIcost_ub_50 CHMIcost_ub_60
rename (CHMIcost_lb_30 CHMIcost_lb_40 CHMIcost_lb_50 CHMIcost_lb_60) ///
(CHMIcost_30 CHMIcost_40 CHMIcost_50 CHMIcost_60)
}
else if `q´ == 112 {
merge m:1 age MIage sex using OSA/CHcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop CHMIcost_lb_30 CHMIcost_lb_40 CHMIcost_lb_50 CHMIcost_lb_60
rename (CHMIcost_ub_30 CHMIcost_ub_40 CHMIcost_ub_50 CHMIcost_ub_60) ///
(CHMIcost_30 CHMIcost_40 CHMIcost_50 CHMIcost_60)
}
else {
merge m:1 age MIage sex using CHcost_Matrix
drop if _merge == 2
drop _merge
}
merge m:1 agellt MIage using STcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using CHSTcost_Matrix
drop if _merge == 2
drop _merge
forval i = 30(10)60 {
recode QALY_MI_`i´ .=0
recode ACMIcost_`i´ .=0
recode CHMIcost_`i´ .=0
recode STcost_`i´ .=0
recode CHSTcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
```

```
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double MDcost_`i´ = STcost_`i´ + CHSTcost_`i´
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
}
forval i = 30(10)60 {
preserve
keep if age >= `i´ & MIage >= `i´
count
matrix A_0_`i´ = r(N)
count if MI == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
count if Death == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
su(YLL_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(QALY_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(MDcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(HCcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
restore
}
forval i = 30(10)60 {
forval ii = 1/4 {
if `q´ < 70 {
use OSA/trial_`ii´_`i´_`q´, clear
}
else {
use trial_`ii´_`i´, clear
}
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
if `q´ == 71 {
merge m:1 MIage sex using OSA/QALY_nMI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_nMI_ub_30 QALY_nMI_ub_40 QALY_nMI_ub_50 QALY_nMI_ub_60
rename (QALY_nMI_lb_30 QALY_nMI_lb_40 QALY_nMI_lb_50 QALY_nMI_lb_60) ///
(QALY_nMI_30 QALY_nMI_40 QALY_nMI_50 QALY_nMI_60)
}
else if `q´ == 72 {
merge m:1 MIage sex using OSA/QALY_nMI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_nMI_lb_30 QALY_nMI_lb_40 QALY_nMI_lb_50 QALY_nMI_lb_60
rename (QALY_nMI_ub_30 QALY_nMI_ub_40 QALY_nMI_ub_50 QALY_nMI_ub_60) ///
(QALY_nMI_30 QALY_nMI_40 QALY_nMI_50 QALY_nMI_60)
}
else {
merge m:1 MIage sex using QALY_nMI_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 81 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
```

```
drop QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 82 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 91 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 92 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60
rename (QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else {
merge m:1 age MIage sex using QALY_MI_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 101 {
merge m:1 MIage using OSA/ACcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop ACMIcost_ub_30 ACMIcost_ub_40 ACMIcost_ub_50 ACMIcost_ub_60
rename (ACMIcost_lb_30 ACMIcost_lb_40 ACMIcost_lb_50 ACMIcost_lb_60) ///
(ACMIcost_30 ACMIcost_40 ACMIcost_50 ACMIcost_60)
}
else if `q´ == 102 {
merge m:1 MIage using OSA/ACcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop ACMIcost_lb_30 ACMIcost_lb_40 ACMIcost_lb_50 ACMIcost_lb_60
rename (ACMIcost_ub_30 ACMIcost_ub_40 ACMIcost_ub_50 ACMIcost_ub_60) ///
(ACMIcost_30 ACMIcost_40 ACMIcost_50 ACMIcost_60)
}
else {
merge m:1 MIage using ACcost_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 111 {
merge m:1 age MIage sex using OSA/CHcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop CHMIcost_ub_30 CHMIcost_ub_40 CHMIcost_ub_50 CHMIcost_ub_60
rename (CHMIcost_lb_30 CHMIcost_lb_40 CHMIcost_lb_50 CHMIcost_lb_60) ///
```

```
(CHMIcost_30 CHMIcost_40 CHMIcost_50 CHMIcost_60)
}
else if `q´ == 112 {
merge m:1 age MIage sex using OSA/CHcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop CHMIcost_lb_30 CHMIcost_lb_40 CHMIcost_lb_50 CHMIcost_lb_60
rename (CHMIcost_ub_30 CHMIcost_ub_40 CHMIcost_ub_50 CHMIcost_ub_60) ///
(CHMIcost_30 CHMIcost_40 CHMIcost_50 CHMIcost_60)
}
else {
merge m:1 age MIage sex using CHcost_Matrix
drop if _merge == 2
drop _merge
}
merge m:1 age using INTcost_Matrix_`ii´
drop if _merge == 2
drop _merge
recode QALY_MI_`i´ .=0
recode CHMIcost_`i´ .=0
recode ACMIcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
keep if age >= `i´ & MIage >= `i´
count
matrix A_`ii´_`i´ = r(N)
count if MI == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
count if Death == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
su(YLL_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(QALY_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(MDcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(HCcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
}
}
matrix AA = (1\2\3\4\5\6\7\8\9)
matrix A = (J(9,1,30),AA,A_0_30,A_1_30,A_2_30,A_3_30,A_4_30\ ///
30,10,J(1,5,.)\ ///
J(9,1,40),AA,A_0_40,A_1_40,A_2_40,A_3_40,A_4_40\ ///
40,10,J(1,5,.)\ ///
J(9,1,50),AA,A_0_50,A_1_50,A_2_50,A_3_50,A_4_50\ ///
50,10,J(1,5,.)\ ///
J(9,1,60),AA,A_0_60,A_1_60,A_2_60,A_3_60,A_4_60\ ///
60,10,J(1,5,.))
clear
svmat double A
gen double D1 = A4-A3
gen double D2 = A5-A3
gen double D3 = A6-A3
gen double D4 = A7-A3
bysort A1 (A2) : replace D1 = D1[9]/D1[5] if A2 == 10
bysort A1 (A2) : replace D2 = D2[9]/D2[5] if A2 == 10
bysort A1 (A2) : replace D3 = D3[9]/D3[5] if A2 == 10
bysort A1 (A2) : replace D4 = D4[9]/D4[5] if A2 == 10
save OSA/OSA_`q´_ICERs, replace
}
foreach q in 11 12 21 22 31 32 41 42 51 52 61 62 71 72 81 82 91 92 101 102 111 112 {
```

```
forval s = 0/1 {
foreach l in 0 3 4 5 {
if `q´ < 70 {
use OSA/trial_control_`q´, clear
}
else {
use trial_control, clear
}
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
merge 1:1 eid using UKBldl
drop if _merge == 2
drop _merge
keep if sex == `s´
keep if ldl >= `l´
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
merge 1:1 eid using agellt_control
drop if _merge == 2
drop _merge
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
if `q´ == 71 {
merge m:1 MIage sex using OSA/QALY_nMI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_nMI_ub_30 QALY_nMI_ub_40 QALY_nMI_ub_50 QALY_nMI_ub_60
rename (QALY_nMI_lb_30 QALY_nMI_lb_40 QALY_nMI_lb_50 QALY_nMI_lb_60) ///
(QALY_nMI_30 QALY_nMI_40 QALY_nMI_50 QALY_nMI_60)
}
else if `q´ == 72 {
merge m:1 MIage sex using OSA/QALY_nMI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_nMI_lb_30 QALY_nMI_lb_40 QALY_nMI_lb_50 QALY_nMI_lb_60
rename (QALY_nMI_ub_30 QALY_nMI_ub_40 QALY_nMI_ub_50 QALY_nMI_ub_60) ///
(QALY_nMI_30 QALY_nMI_40 QALY_nMI_50 QALY_nMI_60)
}
else {
merge m:1 MIage sex using QALY_nMI_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 81 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 82 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 91 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
```

```
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 92 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60
rename (QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else {
merge m:1 age MIage sex using QALY_MI_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 101 {
merge m:1 MIage using OSA/ACcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop ACMIcost_ub_30 ACMIcost_ub_40 ACMIcost_ub_50 ACMIcost_ub_60
rename (ACMIcost_lb_30 ACMIcost_lb_40 ACMIcost_lb_50 ACMIcost_lb_60) ///
(ACMIcost_30 ACMIcost_40 ACMIcost_50 ACMIcost_60)
}
else if `q´ == 102 {
merge m:1 MIage using OSA/ACcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop ACMIcost_lb_30 ACMIcost_lb_40 ACMIcost_lb_50 ACMIcost_lb_60
rename (ACMIcost_ub_30 ACMIcost_ub_40 ACMIcost_ub_50 ACMIcost_ub_60) ///
(ACMIcost_30 ACMIcost_40 ACMIcost_50 ACMIcost_60)
}
else {
merge m:1 MIage using ACcost_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 111 {
merge m:1 age MIage sex using OSA/CHcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop CHMIcost_ub_30 CHMIcost_ub_40 CHMIcost_ub_50 CHMIcost_ub_60
rename (CHMIcost_lb_30 CHMIcost_lb_40 CHMIcost_lb_50 CHMIcost_lb_60) ///
(CHMIcost_30 CHMIcost_40 CHMIcost_50 CHMIcost_60)
}
else if `q´ == 112 {
merge m:1 age MIage sex using OSA/CHcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop CHMIcost_lb_30 CHMIcost_lb_40 CHMIcost_lb_50 CHMIcost_lb_60
rename (CHMIcost_ub_30 CHMIcost_ub_40 CHMIcost_ub_50 CHMIcost_ub_60) ///
(CHMIcost_30 CHMIcost_40 CHMIcost_50 CHMIcost_60)
}
else {
merge m:1 age MIage sex using CHcost_Matrix
drop if _merge == 2
drop _merge
}
merge m:1 agellt MIage using STcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using CHSTcost_Matrix
drop if _merge == 2
```

```
drop _merge
forval i = 30(10)60 {
recode QALY_MI_`i´ .=0
recode ACMIcost_`i´ .=0
recode CHMIcost_`i´ .=0
recode STcost_`i´ .=0
recode CHSTcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double MDcost_`i´ = STcost_`i´ + CHSTcost_`i´
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
}
forval i = 30(10)60 {
preserve
keep if age >= `i´ & MIage >= `i´
count
matrix A_0_`i´ = r(N)
count if MI == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
count if Death == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
su(YLL_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(QALY_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(MDcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(HCcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
restore
}
forval i = 30(10)60 {
forval ii = 1/4 {
if `q´ < 70 {
use OSA/trial_`ii´_`i´_`q´, clear
}
else {
use trial_`ii´_`i´, clear
}
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
merge 1:1 eid using UKBldl
drop if _merge == 2
drop _merge
keep if sex == `s´
keep if ldl >= `l´
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
if `q´ == 71 {
merge m:1 MIage sex using OSA/QALY_nMI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_nMI_ub_30 QALY_nMI_ub_40 QALY_nMI_ub_50 QALY_nMI_ub_60
rename (QALY_nMI_lb_30 QALY_nMI_lb_40 QALY_nMI_lb_50 QALY_nMI_lb_60) ///
(QALY_nMI_30 QALY_nMI_40 QALY_nMI_50 QALY_nMI_60)
}
else if `q´ == 72 {
merge m:1 MIage sex using OSA/QALY_nMI_Matrix_OSA
drop if _merge == 2
drop _merge
```

```
drop QALY_nMI_lb_30 QALY_nMI_lb_40 QALY_nMI_lb_50 QALY_nMI_lb_60
rename (QALY_nMI_ub_30 QALY_nMI_ub_40 QALY_nMI_ub_50 QALY_nMI_ub_60) ///
(QALY_nMI_30 QALY_nMI_40 QALY_nMI_50 QALY_nMI_60)
}
else {
merge m:1 MIage sex using QALY_nMI_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 81 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 82 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 91 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60
rename (QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else if `q´ == 92 {
merge m:1 age MIage sex using OSA/QALY_MI_Matrix_OSA
drop if _merge == 2
drop _merge
drop QALY_MI_clb_30 QALY_MI_clb_40 QALY_MI_clb_50 QALY_MI_clb_60 ///
QALY_MI_cub_30 QALY_MI_cub_40 QALY_MI_cub_50 QALY_MI_cub_60 ///
QALY_MI_alb_30 QALY_MI_alb_40 QALY_MI_alb_50 QALY_MI_alb_60
rename (QALY_MI_aub_30 QALY_MI_aub_40 QALY_MI_aub_50 QALY_MI_aub_60) ///
(QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60)
}
else {
merge m:1 age MIage sex using QALY_MI_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 101 {
merge m:1 MIage using OSA/ACcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop ACMIcost_ub_30 ACMIcost_ub_40 ACMIcost_ub_50 ACMIcost_ub_60
rename (ACMIcost_lb_30 ACMIcost_lb_40 ACMIcost_lb_50 ACMIcost_lb_60) ///
(ACMIcost_30 ACMIcost_40 ACMIcost_50 ACMIcost_60)
}
else if `q´ == 102 {
merge m:1 MIage using OSA/ACcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop ACMIcost_lb_30 ACMIcost_lb_40 ACMIcost_lb_50 ACMIcost_lb_60
rename (ACMIcost_ub_30 ACMIcost_ub_40 ACMIcost_ub_50 ACMIcost_ub_60) ///
```

```
(ACMIcost_30 ACMIcost_40 ACMIcost_50 ACMIcost_60)
}
else {
merge m:1 MIage using ACcost_Matrix
drop if _merge == 2
drop _merge
}
if `q´ == 111 {
merge m:1 age MIage sex using OSA/CHcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop CHMIcost_ub_30 CHMIcost_ub_40 CHMIcost_ub_50 CHMIcost_ub_60
rename (CHMIcost_lb_30 CHMIcost_lb_40 CHMIcost_lb_50 CHMIcost_lb_60) ///
(CHMIcost_30 CHMIcost_40 CHMIcost_50 CHMIcost_60)
}
else if `q´ == 112 {
merge m:1 age MIage sex using OSA/CHcost_Matrix_OSA
drop if _merge == 2
drop _merge
drop CHMIcost_lb_30 CHMIcost_lb_40 CHMIcost_lb_50 CHMIcost_lb_60
rename (CHMIcost_ub_30 CHMIcost_ub_40 CHMIcost_ub_50 CHMIcost_ub_60) ///
(CHMIcost_30 CHMIcost_40 CHMIcost_50 CHMIcost_60)
}
else {
merge m:1 age MIage sex using CHcost_Matrix
drop if _merge == 2
drop _merge
}
merge m:1 age using INTcost_Matrix_`ii´
drop if _merge == 2
drop _merge
recode QALY_MI_`i´ .=0
recode CHMIcost_`i´ .=0
recode ACMIcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
keep if age >= `i´ & MIage >= `i´
count
matrix A_`ii´_`i´ = r(N)
count if MI == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
count if Death == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
su(YLL_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(QALY_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(MDcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(HCcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
}
}
matrix AA = (1\2\3\4\5\6\7\8\9)
matrix A = (J(9,1,30),AA,A_0_30,A_1_30,A_2_30,A_3_30,A_4_30\ ///
30,10,J(1,5,.)\ ///
J(9,1,40),AA,A_0_40,A_1_40,A_2_40,A_3_40,A_4_40\ ///
40,10,J(1,5,.)\ ///
J(9,1,50),AA,A_0_50,A_1_50,A_2_50,A_3_50,A_4_50\ ///
50,10,J(1,5,.)\ ///
J(9,1,60),AA,A_0_60,A_1_60,A_2_60,A_3_60,A_4_60\ ///
60,10,J(1,5,.))
```

```
clear
svmat double A
gen double D1 = A4-A3
gen double D2 = A5-A3
gen double D3 = A6-A3
gen double D4 = A7-A3
bysort A1 (A2) : replace D1 = D1[9]/D1[5] if A2 == 10
bysort A1 (A2) : replace D2 = D2[9]/D2[5] if A2 == 10
bysort A1 (A2) : replace D3 = D3[9]/D3[5] if A2 == 10
bysort A1 (A2) : replace D4 = D4[9]/D4[5] if A2 == 10
save OSA/OSA_`q´_ICERs_sex_`s´_ldl_`l´, replace
}
}
}
}
```

8.2 Checks

Before plotting these, it would be prudent to check there aren't any simulations with negative incremental QALYs.

```
. foreach q in 11 12 21 22 31 32 41 42 51 52 61 62 71 72 81 82 91 92 101 102 111 112 {
  2. use OSA/OSA_`q´_ICERs, clear
  3. forval j = 1/4 {
  4. quietly count if A2 == 5 & D`j´ < 0
  5. if r(N) != 0 {
  6. di "Oh, bother"
  7. }
  8. }
  9. forval s = 0/1 {
 10. foreach l in 0 3 4 5 {
 11. use OSA/OSA_`q´_ICERs_sex_`s´_ldl_`l´, clear
 12. forval j = 1/4 {
 13. quietly count if A2 == 5 & D`j´ < 0
 14. if r(N) != 0 {
 15. di "Oh, bother"
 16. }
 17. }
 18. }
 19. }
 20. }
```

And also to check that the simulations have done what they're meant to have done:

```
. quietly {
Base-case
```

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838
5.	QALYs	9514826.3	9536608	9541765.1	9544062.5	9542443.4
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393
8.	Chronic MI costs	2.309e+08	1.467e+08	1.295e+08	1.215e+08	1.269e+08
9.	Total healthcare costs	2.864e+08	3.688e+08	4.481e+08	6.801e+08	4.387e+10

```
11
```

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	62284	38391	32784	30375	32027

3.	Deaths	156905	149157	147236	146399	146967
4.	YLL	10960832	10974543	10978179	10979664	10978614
5.	QALYs	9518957.6	9539571	9544479.1	9546551.9	9545085.7
6.	Medication costs	23662918	2.022e+08	3.013e+08	5.425e+08	4.373e+10
7.	Acute MI costs	28522248	17721674	15346069	14310777	15026451
8.	Chronic MI costs	2.068e+08	1.301e+08	1.140e+08	1.069e+08	1.119e+08
9.	Total healthcare costs	2.590e+08	3.501e+08	4.307e+08	6.638e+08	4.386e+10

12

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	74527	46356	39815	36849	38891
3.	Deaths	158582	150328	148316	147366	148019
4.	YLL	10958132	10972448	10976318	10978006	10976797
5.	QALYs	9509835	9533042.3	9538552.3	9540923.4	9539231
6.	Medication costs	24112034	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	35494467	22382229	19517812	18236972	19126865
8.	Chronic MI costs	2.595e+08	1.664e+08	1.470e+08	1.387e+08	1.445e+08
9.	Total healthcare costs	3.191e+08	3.910e+08	4.678e+08	6.994e+08	4.388e+10

21

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	63541	39153	33627	31085	32820
3.	Deaths	153630	147150	145574	144842	145340
4.	YLL	10966296	10978172	10981350	10982872	10981826
5.	QALYs	9520143	9540277.7	9544972.9	9547184.9	9545682.5
6.	Medication costs	23920762	2.023e+08	3.014e+08	5.427e+08	4.374e+10
7.	Acute MI costs	31447857	19659292	17111218	15941075	16735223
8.	Chronic MI costs	2.312e+08	1.469e+08	1.296e+08	1.216e+08	1.270e+08
9.	Total healthcare costs	2.866e+08	3.689e+08	4.481e+08	6.803e+08	4.388e+10

22

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	76551	47521	40797	37710	39838
3.	Deaths	165757	154783	152087	150845	151702
4.	YLL	10949725	10966815	10971046	10973114	10971686
5.	QALYs	9506916	9531116.4	9536625.6	9539261.3	9537461.7
6.	Medication costs	23784251	2.021e+08	3.011e+08	5.422e+08	4.370e+10
7.	Acute MI costs	32215822	20202548	17596429	16397125	17214155
8.	Chronic MI costs	2.303e+08	1.465e+08	1.293e+08	1.214e+08	1.267e+08
9.	Total healthcare costs	2.863e+08	3.688e+08	4.480e+08	6.800e+08	4.384e+10

31

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	68659	42467	36408	33672	35542
3.	Deaths	147017	138356	136169	135192	135857
4.	YLL	10982641	10997740	11001640	11003310	11002096
5.	QALYs	9533289.3	9555996	9561257.2	9563577.6	9561943.6
6.	Medication costs	24019726	2.027e+08	3.020e+08	5.437e+08	4.382e+10
7.	Acute MI costs	31929212	19984740	17393281	16208874	17014543
8.	Chronic MI costs	2.318e+08	1.473e+08	1.300e+08	1.220e+08	1.274e+08
9.	Total healthcare costs	2.877e+08	3.700e+08	4.493e+08	6.819e+08	4.397e+10

32

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n

1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67103	41497	35577	32914	34739
3.	Deaths	169767	162436	160623	159839	160377
4.	YLL	10933939	10948008	10951661	10953237	10952090
5.	QALYs	9494180	9516007.1	9521055.2	9523297.2	9521719.5
6.	Medication costs	23694789	2.018e+08	3.006e+08	5.412e+08	4.362e+10
7.	Acute MI costs	31467387	19689528	17143226	15980295	16772809
8.	Chronic MI costs	2.298e+08	1.461e+08	1.289e+08	1.210e+08	1.264e+08
9.	Total healthcare costs	2.850e+08	3.675e+08	4.467e+08	6.783e+08	4.377e+10

41

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	150623	145353	143912	143287	143716
4.	YLL	10968839	10979424	10982545	10983863	10982895
5.	QALYs	9520449.7	9540156.8	9544915.2	9547018.3	9545536.2
6.	Medication costs	24041210	2.023e+08	3.014e+08	5.427e+08	4.375e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393
8.	Chronic MI costs	2.405e+08	1.528e+08	1.349e+08	1.266e+08	1.322e+08
9.	Total healthcare costs	2.963e+08	3.750e+08	4.536e+08	6.854e+08	4.389e+10

42

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	167411	155824	153054	151793	152644
4.	YLL	10943628	10962891	10967655	10969818	10968314
5.	QALYs	9505013.2	9530001	9535757.6	9538374.8	9536567.5
6.	Medication costs	23562201	2.020e+08	3.010e+08	5.421e+08	4.369e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393
8.	Chronic MI costs	2.141e+08	1.356e+08	1.193e+08	1.119e+08	1.170e+08
9.	Total healthcare costs	2.694e+08	3.574e+08	4.376e+08	6.701e+08	4.382e+10

51

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42652	36565	33821	36565
3.	Deaths	157629	149931	147906	146983	147906
4.	YLL	10959637	10973211	10976923	10978709	10976923
5.	QALYs	9514826.3	9536045.7	9541203.4	9543620.5	9541203.4
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31706236	20134541	17512787	16322529	17512787
8.	Chronic MI costs	2.309e+08	1.487e+08	1.310e+08	1.230e+08	1.310e+08
9.	Total healthcare costs	2.864e+08	3.710e+08	4.498e+08	6.818e+08	4.387e+10

52

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	41380	35431	32825	33870
3.	Deaths	157629	149505	147510	146628	147001
4.	YLL	10959637	10974045	10977710	10979271	10978663
5.	QALYs	9514826.3	9537191	9542235.2	9544416.4	9543567.2
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.373e+10
7.	Acute MI costs	31706236	19566033	17025033	15898540	16344235
8.	Chronic MI costs	2.309e+08	1.448e+08	1.277e+08	1.202e+08	1.232e+08
9.	Total healthcare costs	2.864e+08	3.666e+08	4.461e+08	6.786e+08	4.387e+10

61

	AO	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	68386	40493	34176	31465	33296
3.	Deaths	157765	149198	147078	146222	146797
4.	YLL	10958720	10974454	10978366	10979993	10978824
5.	QALYs	9513508.4	9537720.3	9543129.9	9545432.7	9543812.2
6.	Medication costs	23867263	2.022e+08	3.013e+08	5.426e+08	4.373e+10
7.	Acute MI costs	32125911	19242564	16516325	15329477	16134110
8.	Chronic MI costs	2.350e+08	1.430e+08	1.246e+08	1.166e+08	1.220e+08
9.	Total healthcare costs	2.910e+08	3.645e+08	4.424e+08	6.745e+08	4.387e+10

62

	AO	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67669	42996	37256	34577	36440
3.	Deaths	157604	150054	148143	147230	147862
4.	YLL	10959883	10973105	10976592	10978244	10977134
5.	QALYs	9515318.1	9535928.4	9540761.1	9543016.5	9541466.7
6.	Medication costs	23867104	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31502706	20237846	17775595	16631197	17432885
8.	Chronic MI costs	2.288e+08	1.491e+08	1.326e+08	1.250e+08	1.303e+08
9.	Total healthcare costs	2.841e+08	3.715e+08	4.516e+08	6.841e+08	4.387e+10

71

	AO	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838
5.	QALYs	9044389.8	9063182.8	9067700.8	9069707.7	9068287.7
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393
8.	Chronic MI costs	2.309e+08	1.467e+08	1.295e+08	1.215e+08	1.269e+08
9.	Total healthcare costs	2.864e+08	3.688e+08	4.481e+08	6.801e+08	4.387e+10

72

	AO	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838
5.	QALYs	9985262.9	10010033	10015829	10018417	10016599
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393
8.	Chronic MI costs	2.309e+08	1.467e+08	1.295e+08	1.215e+08	1.269e+08
9.	Total healthcare costs	2.864e+08	3.688e+08	4.481e+08	6.801e+08	4.387e+10

81

	AO	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838
5.	QALYs	9506673	9531376.9	9537121.1	9539689	9537888.1
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393

	AO	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
8.	Chronic MI costs	2.309e+08	1.467e+08	1.295e+08	1.215e+08	1.269e+08
9.	Total healthcare costs	2.864e+08	3.688e+08	4.481e+08	6.801e+08	4.387e+10

82

	AO	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838
5.	QALYs	9522989.3	9541845.1	9546414.2	9548440.6	9547003.8
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393
8.	Chronic MI costs	2.309e+08	1.467e+08	1.295e+08	1.215e+08	1.269e+08
9.	Total healthcare costs	2.864e+08	3.688e+08	4.481e+08	6.801e+08	4.387e+10

91

	AO	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838
5.	QALYs	9514331.4	9536306.1	9541503	9543818.8	9542187.1
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393
8.	Chronic MI costs	2.309e+08	1.467e+08	1.295e+08	1.215e+08	1.269e+08
9.	Total healthcare costs	2.864e+08	3.688e+08	4.481e+08	6.801e+08	4.387e+10

92

	AO	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838
5.	QALYs	9515592.3	9537080.5	9542171.5	9544438.6	9542840.1
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393
8.	Chronic MI costs	2.309e+08	1.467e+08	1.295e+08	1.215e+08	1.269e+08
9.	Total healthcare costs	2.864e+08	3.688e+08	4.481e+08	6.801e+08	4.387e+10

101

	AO	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838
5.	QALYs	9514826.3	9536608	9541765.1	9544062.5	9542443.4
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	26950300	16869518	14685272	13683342	14366184
8.	Chronic MI costs	2.309e+08	1.467e+08	1.295e+08	1.215e+08	1.269e+08
9.	Total healthcare costs	2.817e+08	3.658e+08	4.455e+08	6.777e+08	4.387e+10

102

	AO	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838

5.	QALYs	9514826.3	9536608	9541765.1	9544062.5	9542443.4
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	36462171	22823466	19868309	18512757	19436602
8.	Chronic MI costs	2.309e+08	1.467e+08	1.295e+08	1.215e+08	1.269e+08
9.	Total healthcare costs	2.912e+08	3.718e+08	4.506e+08	6.826e+08	4.387e+10

111

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838
5.	QALYs	9514826.3	9536608	9541765.1	9544062.5	9542443.4
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393
8.	Chronic MI costs	1.737e+08	1.102e+08	97133658	91110086	95175798
9.	Total healthcare costs	2.293e+08	3.323e+08	4.157e+08	6.497e+08	4.384e+10

112

	A0	Control	LMStatin	HIStatin	LMStEze	Inclisi~n
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838
5.	QALYs	9514826.3	9536608	9541765.1	9544062.5	9542443.4
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393
8.	Chronic MI costs	2.880e+08	1.833e+08	1.618e+08	1.520e+08	1.586e+08
9.	Total healthcare costs	3.436e+08	4.053e+08	4.804e+08	7.106e+08	4.390e+10

8.3 Tornado diagrams

With that all okay, the Tornado diagrams can be presented:

```
use reshof0, clear
keep if A2 == 10
keep A1 A2 D1-D4
gen A = 0
foreach q in 11 12 21 22 31 32 41 42 51 52 61 62 71 72 81 82 91 92 101 102 111 112 {
append using OSA/OSA_`q´_ICERs
keep if A2 == 10
keep A1 A2 D1-D4 A
recode A .=`q´
}
sort A A1
tostring A, gen(AA)
sort A A1
forval j = 1/4 {
gen D`j´ub = D`j´[_n+4] if substr(AA,-1,1)=="1"
rename D`j´ D`j´lb
}
drop if substr(AA,-1,1)=="2"
replace AA = "Incidence of non-fatal MI" if AA == "11"
replace AA = "Incidence of fatal MI" if AA == "21"
replace AA = "Non-CHD mortality rate" if AA == "31"
replace AA = "Post-MI mortality rate" if AA == "41"
replace AA = "Effect of intervention on LDL-C" if AA == "51"
replace AA = "Effect of LDL-C on MI" if AA == "61"
replace AA = "Utility without MI" if AA == "71"
replace AA = "Chronic utility with MI" if AA == "81"
```

```
replace AA = "Acute disutility for MI" if AA == "91"
replace AA = "Acute MI cost" if AA == "101"
replace AA = "Chronic MI cost" if AA == "111"
forval j = 1/4 {
label variable D`j´lb "Lower limit"
label variable D`j´ub "Upper limit"
}

. list D1lb if A1 == 30 & A == 0

     +-----------+
     |      D1lb |
     |-----------|
  1. | 3782.6791 |
     +-----------+

. list D1lb if A1 == 30 & A == 111

     +-----------+
     |      D1lb |
     |-----------|
 45. | 4730.8549 |
     +-----------+

. list D1ub if A1 == 30 & A == 111

     +----------+
     |     D1ub |
     |----------|
 45. | 2834.503 |
     +----------+


preserve
use inferno, clear
local col1 = var9[9]
local col2 = var9[6]
restore
forval i = 30(10)60 {
forval ii = 1/4 {
if `ii´ == 1 {
local a = "Low/moderate intensity statins"
}
if `ii´ == 2 {
local a = "High intensity statins"
}
if `ii´ == 3 {
local a = "Low/moderate intensity statins and ezetimibe"
}
if `ii´ == 4 {
local a = "Inclisiran"
}
preserve
keep if A1 == `i´
keep AA D`ii´lb D`ii´ub
gen shb = (D`ii´ub-D`ii´lb)^2
sort shb
gen njm = _n
local 1 = AA[1]
local 2 = AA[2]
local 3 = AA[3]
local 4 = AA[4]
local 5 = AA[5]
local 6 = AA[6]
local 7 = AA[7]
local 8 = AA[8]
local 9 = AA[9]
local 10 = AA[10]
local 11 = AA[11]
local ref = D`ii´lb[12]
twoway ///
(bar D`ii´lb njm, horizontal base(`ref´) color("`col1´")) ///
```

```
(bar D`ii´ub njm, horizontal base(`ref´) color("`col2´")) ///
, ylabel( ///
1 "`1´" ///
2 "`2´" ///
3 "`3´" ///
4 "`4´" ///
5 "`5´" ///
6 "`6´" ///
7 "`7´" ///
8 "`8´" ///
9 "`9´" ///
10 "`10´" ///
11 "`11´" ///
, angle(0) nogrid) ///
legend(position(12) ring(0) region(lcolor(white)) cols(2)) ///
ytitle("") graphregion(color(white)) xlabel(, format(%9.0fc)) ///
xtitle("ICER (£/QALY)", margin(medium)) ///
title("`a´ from age `i´", color(gs0) size(medium) placement(west))
graph save GPH/OSAtorn_`i´_`ii´, replace
restore
}
}
forval s = 0/1 {
foreach l in 0 3 4 5 {
use reshof0_sex_`s´_ldl_`l´, clear
keep if A2 == 10
keep A1 A2 D1-D4
gen A = 0
foreach q in 11 12 21 22 31 32 41 42 51 52 61 62 71 72 81 82 91 92 101 102 111 112 {
append using OSA/OSA_`q´_ICERs_sex_`s´_ldl_`l´
keep if A2 == 10
keep A1 A2 D1-D4 A
recode A .=`q´
}
sort A A1
tostring A, gen(AA)
sort A A1
forval j = 1/4 {
gen D`j´ub = D`j´[_n+4] if substr(AA,-1,1)=="1"
rename D`j´ D`j´lb
}
drop if substr(AA,-1,1)=="2"
replace AA = "Incidence of non-fatal MI" if AA == "11"
replace AA = "Incidence of fatal MI" if AA == "21"
replace AA = "Non-CHD mortality rate" if AA == "31"
replace AA = "Post-MI mortality rate" if AA == "41"
replace AA = "Effect of intervention on LDL-C" if AA == "51"
replace AA = "Effect of LDL-C on MI" if AA == "61"
replace AA = "Utility without MI" if AA == "71"
replace AA = "Chronic utility with MI" if AA == "81"
replace AA = "Acute disutility for MI" if AA == "91"
replace AA = "Acute MI cost" if AA == "101"
replace AA = "Chronic MI cost" if AA == "111"
forval j = 1/4 {
label variable D`j´lb "Lower limit"
label variable D`j´ub "Upper limit"
}
preserve
if `s´ == 0 {
use inferno, clear
local col1 = var9[9]
local col2 = var9[6]
}
else {
use viridis, clear
local col1 = var9[9]
local col2 = var9[5]
}
```

```
restore
forval i = 30(10)60 {
forval ii = 1/4 {
if `ii´ == 1 {
local a = "Low/moderate intensity statins"
}
if `ii´ == 2 {
local a = "High intensity statins"
}
if `ii´ == 3 {
local a = "Low/moderate intensity statins and ezetimibe"
}
if `ii´ == 4 {
local a = "Inclisiran"
}
preserve
keep if A1 == `i´
keep AA D`ii´lb D`ii´ub
gen shb = (D`ii´ub-D`ii´lb)^2
sort shb
gen njm = _n
local 1 = AA[1]
local 2 = AA[2]
local 3 = AA[3]
local 4 = AA[4]
local 5 = AA[5]
local 6 = AA[6]
local 7 = AA[7]
local 8 = AA[8]
local 9 = AA[9]
local 10 = AA[10]
local 11 = AA[11]
local ref = D`ii´lb[12]
twoway ///
(bar D`ii´lb njm, horizontal base(`ref´) color("`col1´")) ///
(bar D`ii´ub njm, horizontal base(`ref´) color("`col2´")) ///
, ylabel( ///
1 "`1´" ///
2 "`2´" ///
3 "`3´" ///
4 "`4´" ///
5 "`5´" ///
6 "`6´" ///
7 "`7´" ///
8 "`8´" ///
9 "`9´" ///
10 "`10´" ///
11 "`11´" ///
, angle(0) nogrid) ///
legend(position(12) ring(0) region(lcolor(white)) cols(2)) ///
ytitle("") graphregion(color(white)) xlabel(, format(%9.0fc)) ///
xtitle("ICER (£/QALY)", margin(medium)) ///
title("`a´ from age `i´", color(gs0) size(medium) placement(west))
graph save GPH/OSAtorn_`i´_`ii´_`s´_`l´, replace
restore
}
}
}
}


graph combine ///
GPH/OSAtorn_30_1.gph ///
GPH/OSAtorn_30_2.gph ///
GPH/OSAtorn_30_3.gph ///
GPH/OSAtorn_30_4.gph ///
GPH/OSAtorn_40_1.gph ///
GPH/OSAtorn_40_2.gph ///
GPH/OSAtorn_40_3.gph ///
```

Figure 8.1: Tornado diagrams for each intervention strategy - Overall

Figure 8.2: Tornado diagrams for each intervention strategy - Females

Figure 8.3: Tornado diagrams for each intervention strategy - Females with LDL-C ≥3.0 mmol/L

Figure 8.4: Tornado diagrams for each intervention strategy - Females with LDL-C ≥4.0 mmol/L

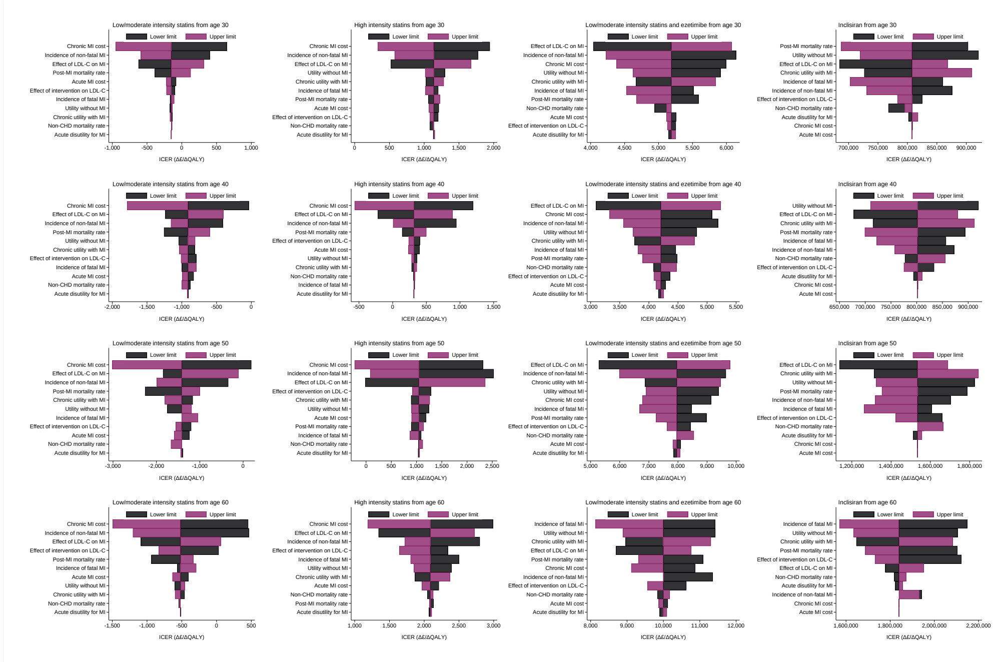

Figure 8.5: Tornado diagrams for each intervention strategy - Females with LDL-C ≥5.0 mmol/L

Figure 8.6: Tornado diagrams for each intervention strategy - Males

Figure 8.7: Tornado diagrams for each intervention strategy - Males with LDL-C $\geq$3.0 mmol/L

Figure 8.8: Tornado diagrams for each intervention strategy - Males with LDL-C $\geq$4.0 mmol/L

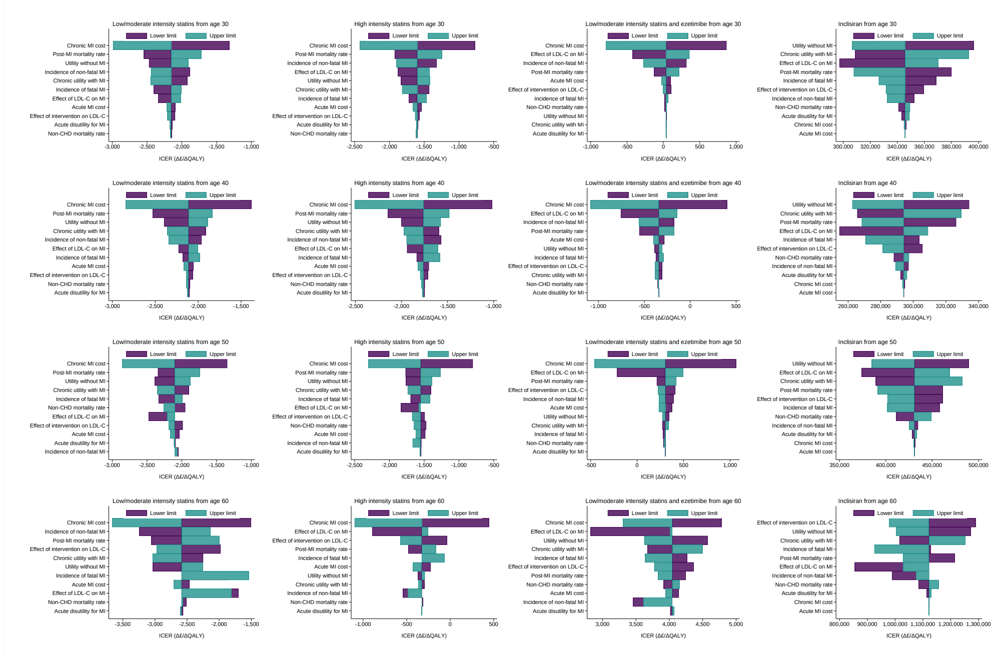

Figure 8.9: Tornado diagrams for each intervention strategy - Males with LDL-C $\geq$5.0 mmol/L

```
GPH/OSAtorn_40_4.gph ///
GPH/OSAtorn_50_1.gph ///
GPH/OSAtorn_50_2.gph ///
GPH/OSAtorn_50_3.gph ///
GPH/OSAtorn_50_4.gph ///
GPH/OSAtorn_60_1.gph ///
GPH/OSAtorn_60_2.gph ///
GPH/OSAtorn_60_3.gph ///
GPH/OSAtorn_60_4.gph ///
, altshrink cols(4) xsize(6) graphregion(color(white))
> tion strategy - Overall)
forval s = 0/1 {
foreach l in 0 3 4 5 {
if `s´ == 0 {
local a = "Females"
}
else {
local a = "Males"
}
if `l´ == 0 {
local b = ""
}
if `l´ == 3 {
local b = " with LDL-C $\geq$3.0 mmol/L"
}
if `l´ == 4 {
local b = " with LDL-C $\geq$4.0 mmol/L"
}
if `l´ == 5 {
local b = " with LDL-C $\geq$5.0 mmol/L"
}
graph combine ///
GPH/OSAtorn_30_1_`s´_`l´.gph ///
GPH/OSAtorn_30_2_`s´_`l´.gph ///
GPH/OSAtorn_30_3_`s´_`l´.gph ///
```

```
GPH/OSAtorn_30_4_`s´_`l´.gph ///
GPH/OSAtorn_40_1_`s´_`l´.gph ///
GPH/OSAtorn_40_2_`s´_`l´.gph ///
GPH/OSAtorn_40_3_`s´_`l´.gph ///
GPH/OSAtorn_40_4_`s´_`l´.gph ///
GPH/OSAtorn_50_1_`s´_`l´.gph ///
GPH/OSAtorn_50_2_`s´_`l´.gph ///
GPH/OSAtorn_50_3_`s´_`l´.gph ///
GPH/OSAtorn_50_4_`s´_`l´.gph ///
GPH/OSAtorn_60_1_`s´_`l´.gph ///
GPH/OSAtorn_60_2_`s´_`l´.gph ///
GPH/OSAtorn_60_3_`s´_`l´.gph ///
GPH/OSAtorn_60_4_`s´_`l´.gph ///
, altshrink cols(4) xsize(6) graphregion(color(white))
> ervention strategy - `a´ `b´)
}
}
```

9 Probabilistic sensitivity analysis

9.1 Distributions

The final sensitivity analysis is the probabilistic sensitivity analysis (PSA). First, the distributions for each of the model inputs must be derived. This is simple for: the incidence of MI and mortality rates, as they are just log-normally distributed around the central value; the effect of the the interventions on LDL-C, which are normally distributed; and the effect of LDL-C on MI risk, which is log-normally distributed.

The formula for the log-normal distributions is as follows (used above for the one-way sensitivity analyses):

$$a_{adj} = e^{\ln(a_{\mu})+N(0,1)\sigma}$$

The standard error for the rates are just derived from the regression models in section 4. The standard errors for the effect of the interventions on LDL-C:

All interventions excluding Inclisiran: $\sigma = \frac{0.02}{3.92} = 0.0051$

Inclisiran: $\sigma = \frac{0.51-0.461}{3.92} = 0.0125$

And the standard error for the effect of LDL-C on MI risk:

$$\sigma = \frac{0.5-0.45}{3.92} = 0.0128$$

As always, it's good to check these make sense (figures 9.1 - 9.6).

```
clear
set obs 100000
gen A=.
replace A = rnormal(0.55,0.0051)
hist A, bin(100) color(gs0) frequency ///
graphregion(color(white)) xtitle("Effect size") ///
xlabel(,format(%9.2f))
> ontrol arm) on LDL-C)
clear
set obs 100000
gen A=.
replace A = rnormal(0.6,0.0051)
hist A, bin(100) color(gs0) frequency ///
graphregion(color(white)) xtitle("Effect size") ///
xlabel(,format(%9.2f))
> te intensity statins on LDL-C)
clear
set obs 100000
gen A=.
replace A = rnormal(0.5,0.0051)
hist A, bin(100) color(gs0) frequency ///
graphregion(color(white)) xtitle("Effect size") ///
xlabel(,format(%9.2f))
> sity statins on LDL-C)
clear
set obs 100000
gen A=.
replace A = rnormal(0.45,0.0051)
hist A, bin(100) color(gs0) frequency ///
graphregion(color(white)) xtitle("Effect size") ///
xlabel(,format(%9.2f))
```

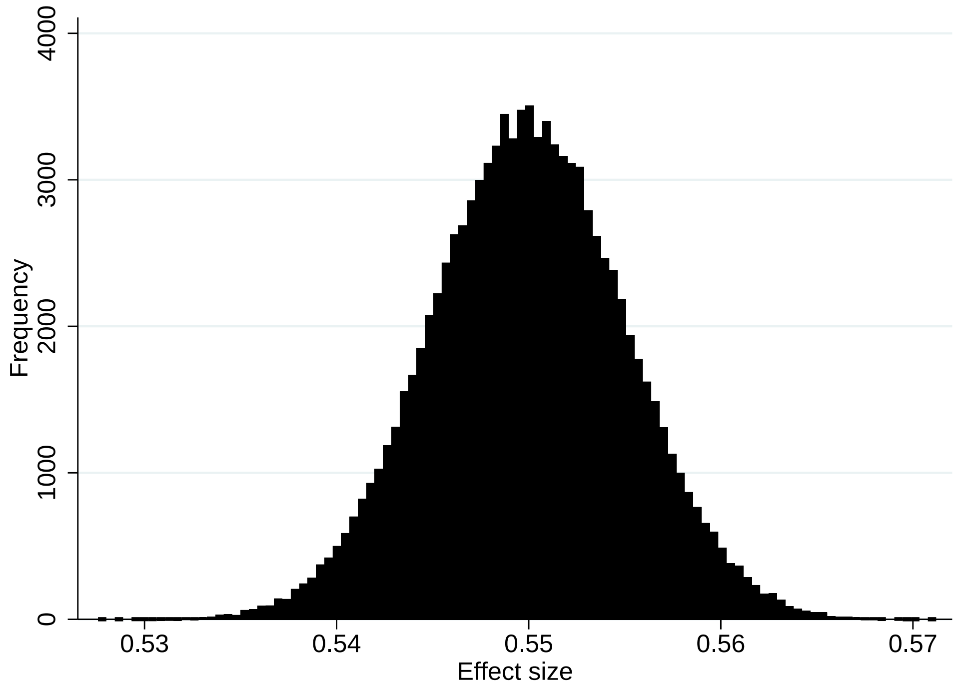

Figure 9.1: Histogram of effect of statins (control arm) on LDL-C

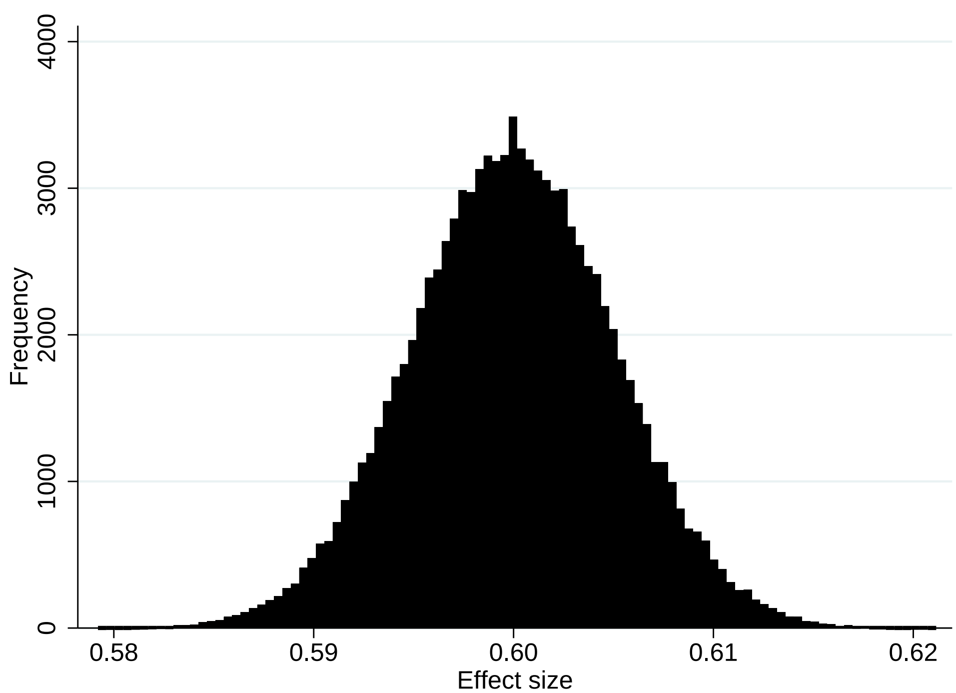

Figure 9.2: Histogram of effect of low/moderate intensity statins on LDL-C

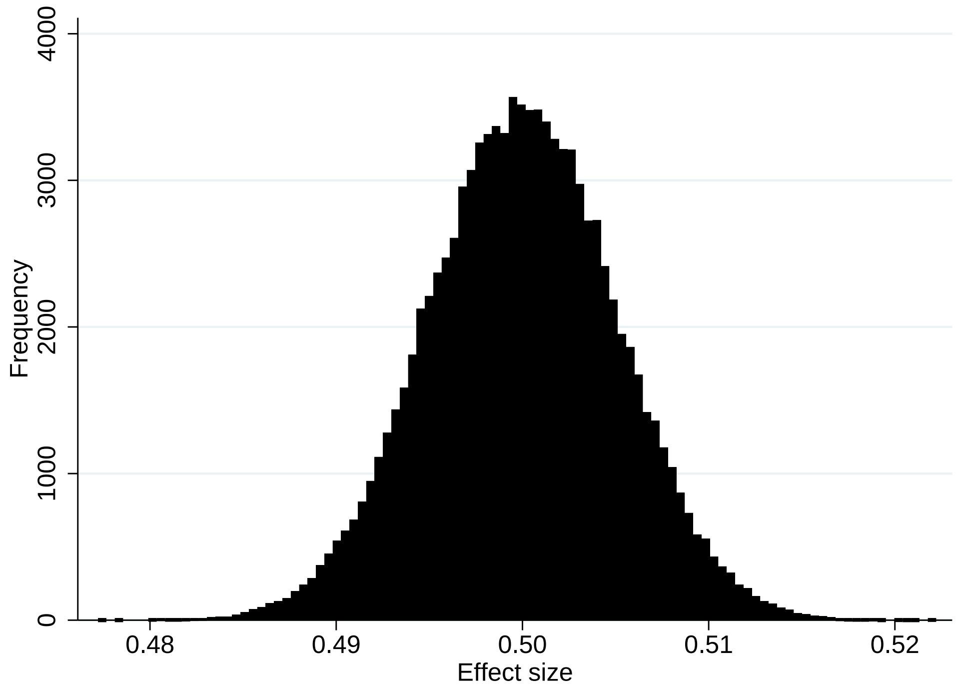

Figure 9.3: Histogram of effect of high intensity statins on LDL-C

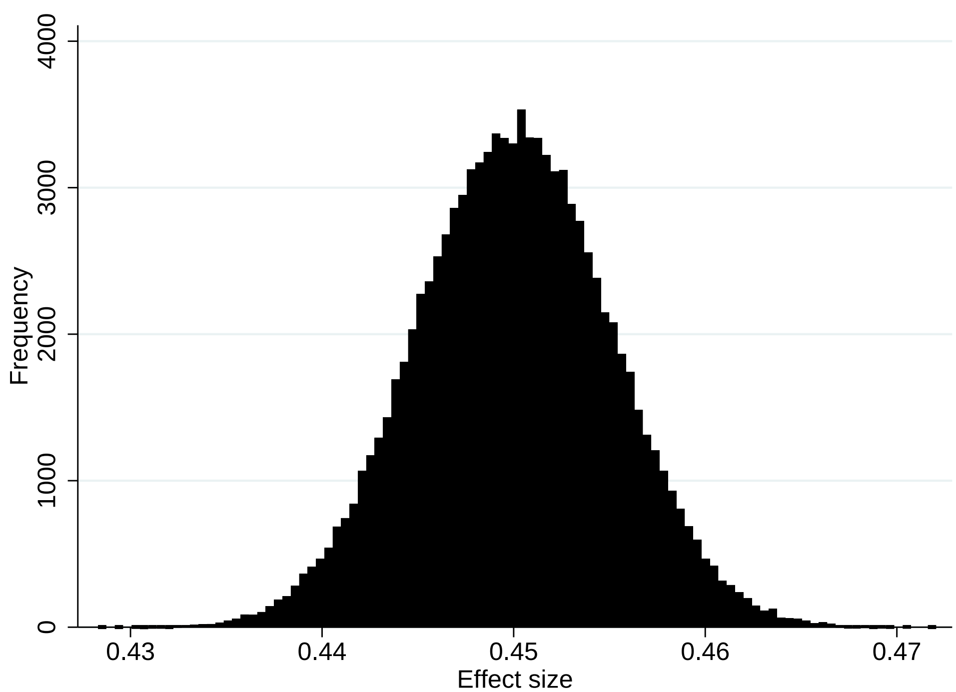

Figure 9.4: Histogram of effect of low/moderate intensity statins and ezetimibe on LDL-C

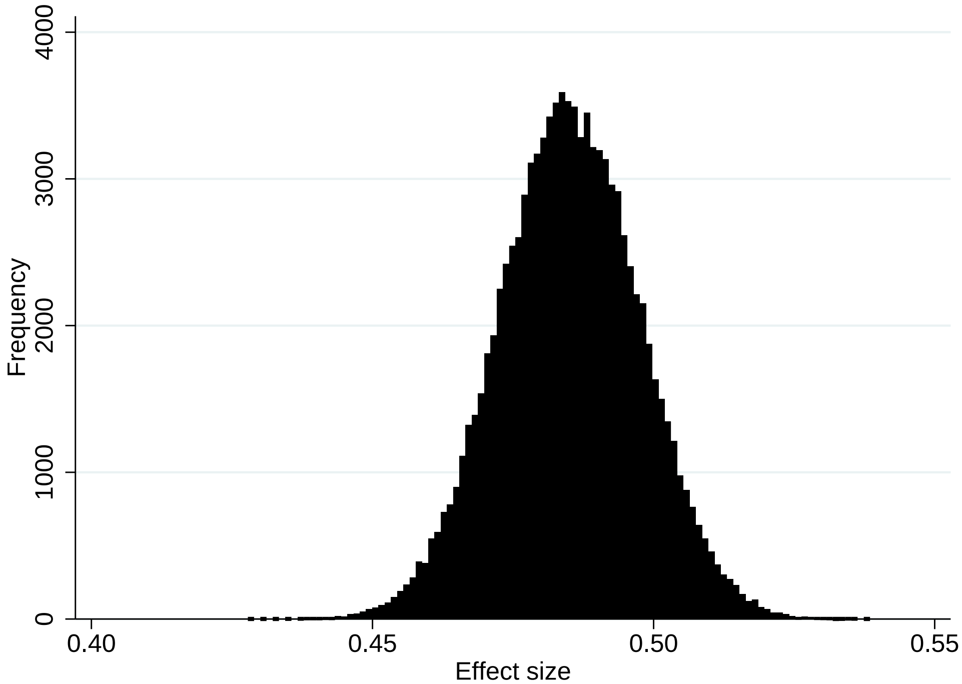

Figure 9.5: Histogram of effect of Inclisiran on LDL-C

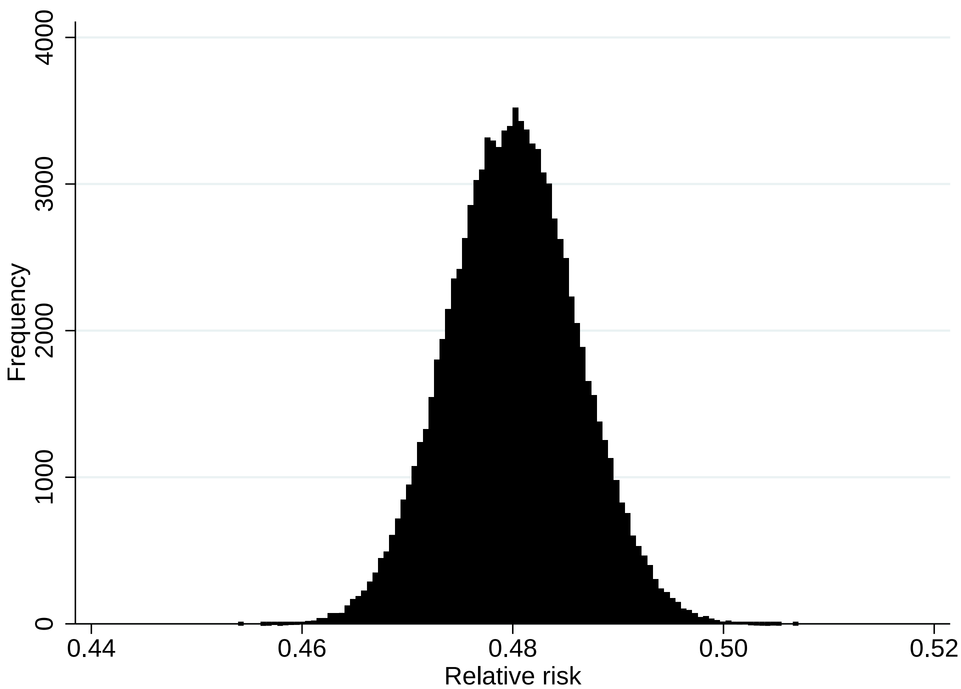

Figure 9.6: Histogram of relative risk of mean cumulative LDL-C on MI risk

```
> te intensity statins and ezetimibe on LDL-C)
clear
set obs 100000
gen A=.
replace A = rnormal(0.485,0.0125)
hist A, bin(100) color(gs0) frequency ///
graphregion(color(white)) xtitle("Effect size") ///
xlabel(,format(%9.2f))
>  on LDL-C)
clear
set obs 100000
gen A=.
replace A = exp(ln(0.48)+rnormal()*0.012755)
hist A, bin(100) color(gs0) frequency ///
graphregion(color(white)) xtitle("Relative risk") ///
xlabel(,format(%9.2f))
> n cumulative LDL-C on MI risk)
```

Now, for the utility value for people without MI (which is already characterised by a function), it would not be efficient to generate a unique beta distribution for each age and sex; instead, a modified normal distribution can be assumed for this (modified only in the sense that if the value falls outside the 0-1 range, it is constrained back to this range). Thus, it ends up looking like this (figure 9.7:

```
clear
set obs 55
gen MIage = (_n+29)
expand 2
bysort MIage : gen sex = _n-1
gen UT = 0.9454933+0.0256466*sex-0.0002213*MIage - 0.0000294*(MIage^2)
expand 100000
replace UT = UT*(1+(rnormal()*0.05))
replace UT = 1 if UT > 1
replace UT = 0 if UT < 0
matrix A = (.,.,.,.,.)
forval i = 0/1 {
forval ii = 30/84 {
preserve
keep if sex == `i´ & MIage == `ii´
centile UT, centile(50 2.5 97.5)
matrix A = (A\0`i´,0`ii´,r(c_1),r(c_2),r(c_3))
restore
}
}
clear
svmat A
save UTPSA, replace


use UTPSA, clear
twoway ///
(rarea A5 A4 A2 if A1 == 0, col(red%30) fintensity(inten80) lwidth(none)) ///
(line A3 A2 if A1 == 0, color(red)) ///
(rarea A5 A4 A2 if A1 == 1, col(blue%30) fintensity(inten80) lwidth(none)) ///
(line A3 A2 if A1 == 1, color(blue)) ///
, legend(order(4 "Male" ///
2 "Female") ///
cols(1) ring(0) position(1) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Utility) xtitle(Age) ///
ylabel(,angle(0) format(%9.2f))
> people without MI in PSA)
```

Now for the chronic utility value for people with MI (0.79 (0.73-0.85)), which has a beta distribution. The mean (μ) and variance (σ^2) of a beta distribution are given by:

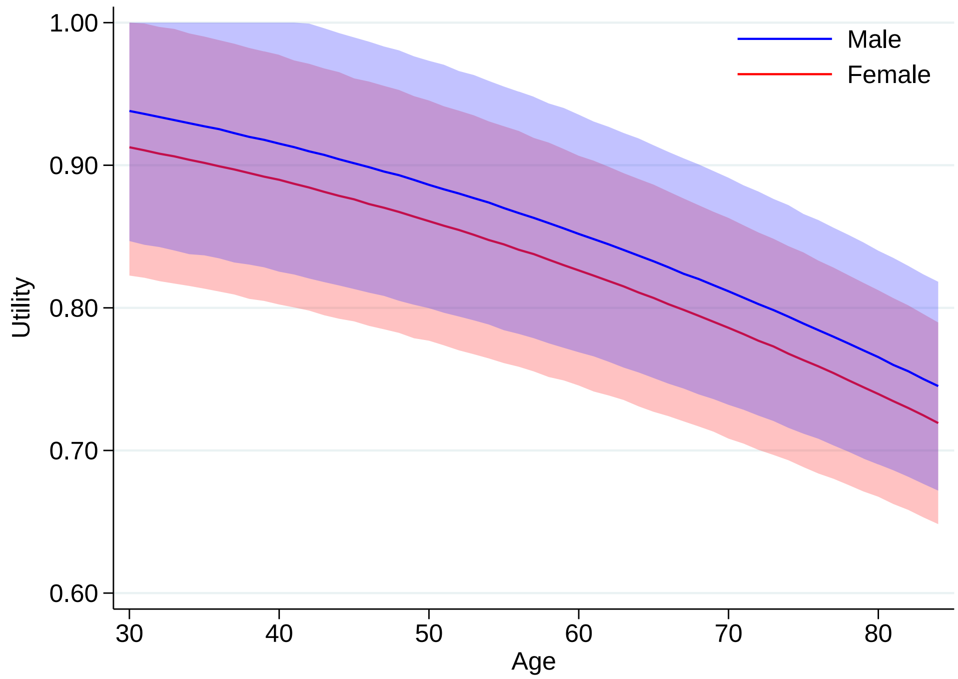

Figure 9.7: Distribution of utility values for people without MI in PSA

$\mu = \frac{\alpha}{\alpha+\beta}$

and

$\sigma^2 = \frac{\alpha\beta}{(\alpha+\beta)^2(\alpha+\beta+1)}$

So, if solving for α and β, it can be derived that:

$\alpha = \mu^2(\frac{1-\mu}{\sigma^2} - \frac{1}{\mu})$

and

$\beta = \alpha(\frac{1}{\mu} - 1)$

So for utility of people with MI, the variance is calculated as:

$\sigma^2 = (\frac{0.85-0.73}{3.92})^2 = 0.00094$

And this is used to derive alpha and beta values of 139.1, and 36.97, respectively (figure 9.8). For the acute disutility, the standard error is as for a normal distribution:

$\sigma = \frac{0.015-0.045}{3.92} = 0.007653$

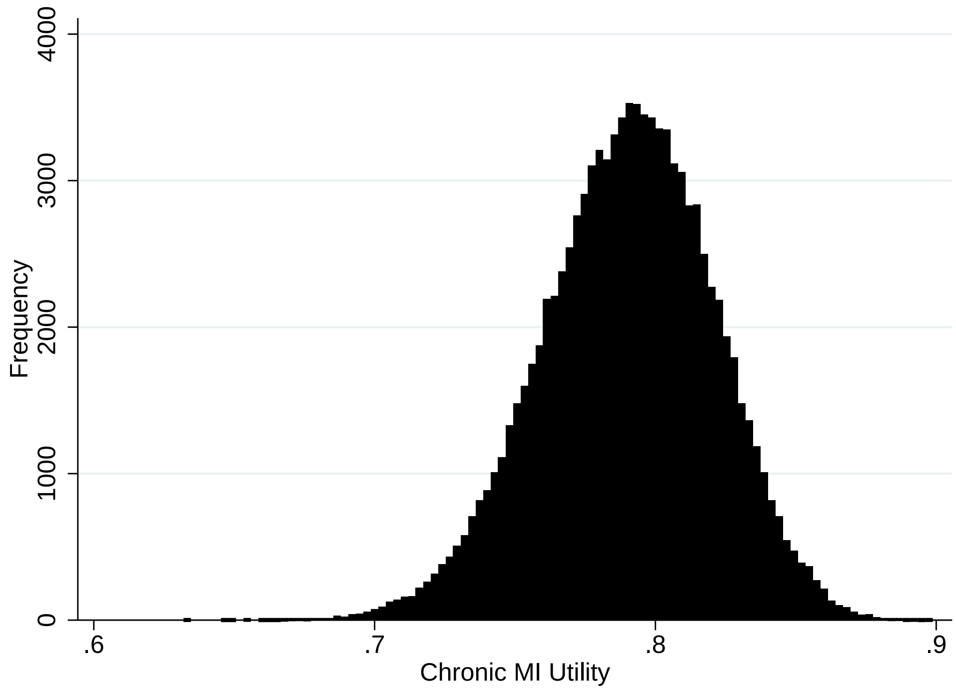

Figure 9.8: Histogram of chronic utility value for people with MI

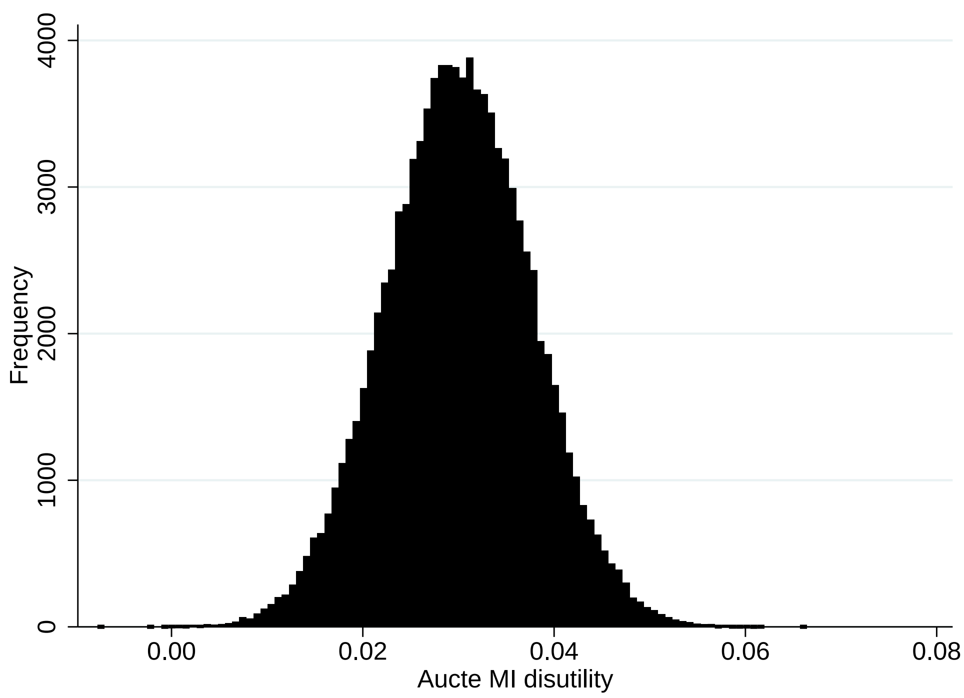

Figure 9.9: Histogram of acute disutility value for MI

```
clear
set obs 100000
gen A=.
replace A = rbeta(139.1,36.97)
hist A, bin(100) color(gs0) frequency graphregion(color(white)) xtitle("Chronic MI Utility")
>  for people with MI)
clear
set obs 100000
gen A=.
replace A = rnormal(0.03,0.007653)
hist A, bin(100) color(gs0) frequency ///
graphregion(color(white)) xtitle("Aucte MI disutility") ///
xlabel(,format(%9.2f))
> ue for MI)
```

Now for costs, which follow a gamma distribution. The mean (μ) and variance (σ^2) of a gamma distribution are given by:

$$\mu = k\theta$$

and

$$\sigma^2 = k\theta^2$$

It's easier to solve for k and θ this time:

$$k = \frac{\mu^2}{\sigma^2}$$

$$\theta = \frac{\sigma^2}{\mu}$$

So for the three costs, k and θ values derived are:

Acute cost of MI (£2047.31 (SE: 307.10)): $k = 44.44$ and $\theta = 46.06$
Chronic cost of MI, first 6 months (£4705.45 (SE: 112.71)): $k = 1742.89$ and $\theta = 2.70$
Chronic cost of MI, thereafter (£1015.21 (SE: 171.23)): $k = 35.15$ and $\theta = 28.88$

And again, check these make sense:

```
clear
set obs 10000
gen A=.
replace A = rgamma(44.44,46.06)
hist A, bin(100) color(gs0) frequency graphregion(color(white)) xtitle("Acute MI cost")
clear
set obs 10000
gen A=.
replace A = rgamma(1742.89,2.70)
hist A, bin(100) color(gs0) frequency graphregion(color(white)) xtitle("Chronic MI cost")
> t 6 months)
clear
set obs 10000
gen A=.
replace A = rgamma(35.15,28.88)
hist A, bin(100) color(gs0) frequency graphregion(color(white)) xtitle("Chronic MI cost")
> r 6 months)
```

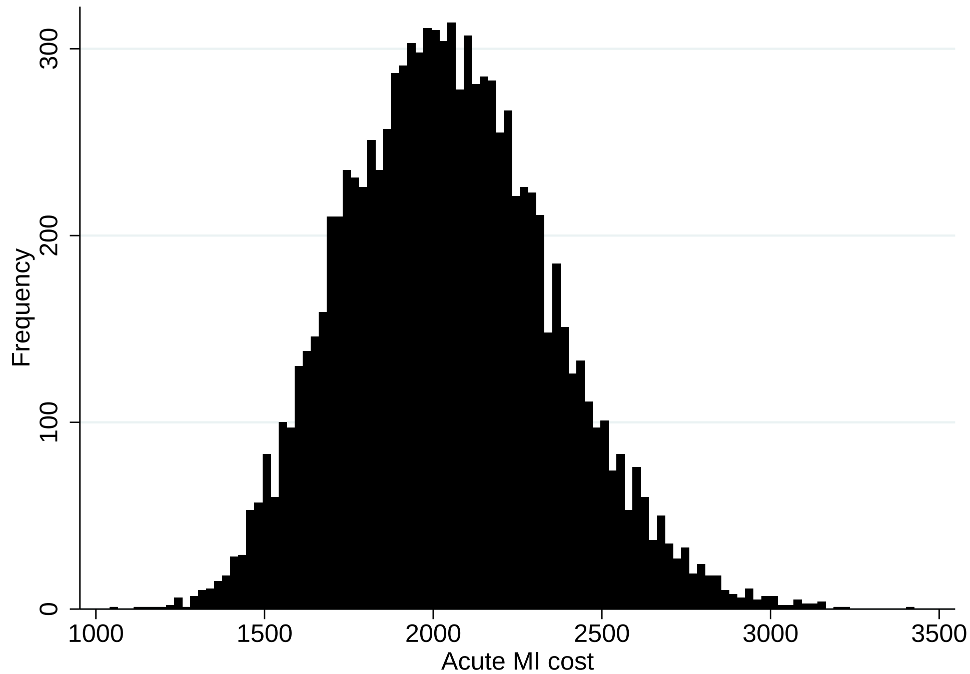

Figure 9.10: Histogram of Acute MI cost

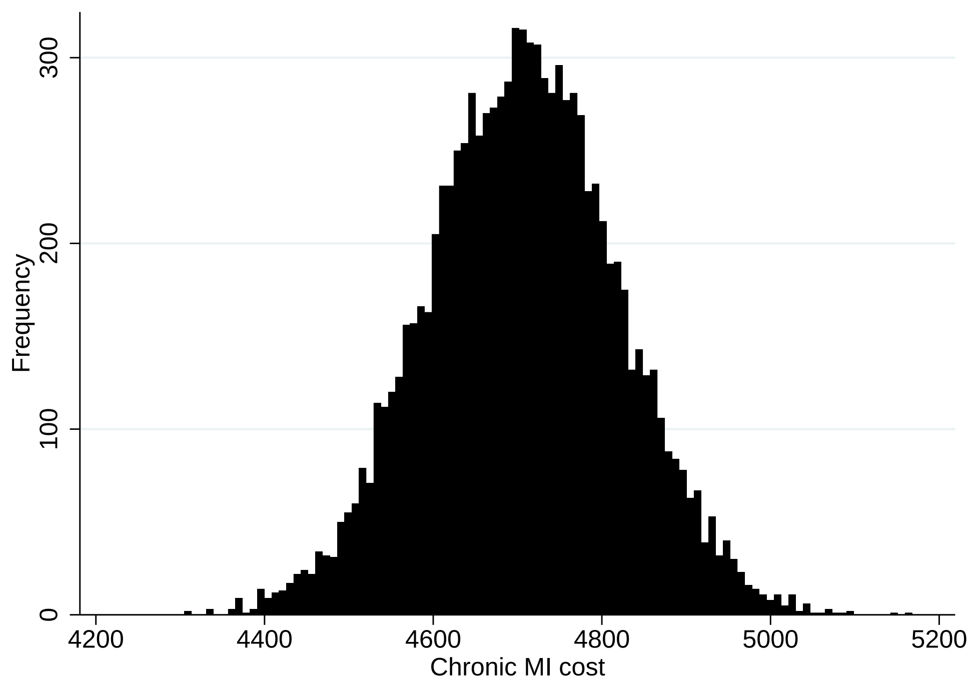

Figure 9.11: Histogram of Chronic MI cost, first 6 months

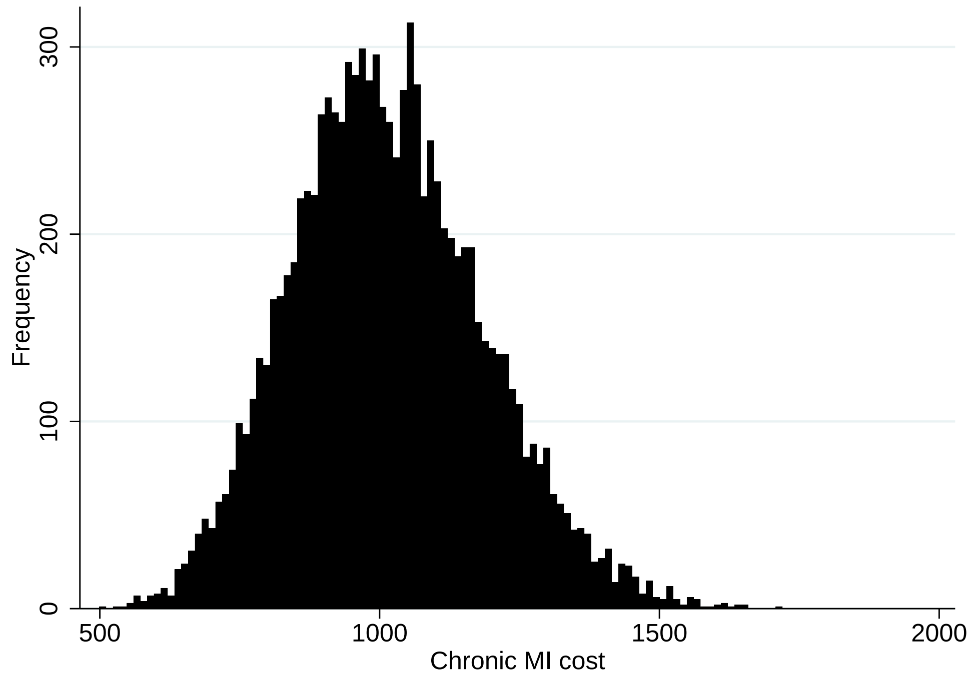

Figure 9.12: Histogram of Chronic MI cost, after 6 months

9.2 Code

So now the PSA can be set up. In the interest of time, the PSA will be run in single year intervals. (Note it's not good to re-set the seed so many times if you don't have to, but it's good to be able to stop and re-start it at points. Or even better, run simultaneously across multiple cores.)

```
quietly {
forval psa = 1/1000 {
noisily di `psa´
if `psa´ == 1 {
set seed 23673683
}
if `psa´ == 101 {
set seed 41567801
}
if `psa´ == 201 {
set seed 84653254
}
if `psa´ == 301 {
set seed 19867883
}
if `psa´ == 401 {
set seed 46583781
}
if `psa´ == 501 {
set seed 56748291
}
if `psa´ == 601 {
set seed 09728101
}
if `psa´ == 701 {
```

```
set seed 45662282
}
if `psa´ == 801 {
set seed 98753122
}
if `psa´ == 901 {
set seed 78495613
}
local sid30 = runiformint(0,1000000000)
local sid40 = runiformint(0,1000000000)
local sid50 = runiformint(0,1000000000)
local sid60 = runiformint(0,1000000000)
local psa1 = rnormal()
local psa2 = rnormal()
local psa3 = rnormal()
local psa4 = rnormal()
local psa50 = rnormal(0.55,0.0051)
local psa51 = rnormal(0.6,0.0051)
local psa52 = rnormal(0.5,0.0051)
local psa53 = rnormal(0.45,0.0051)
local psa54 = rnormal(0.485,0.0125)
local psa6 = exp(ln(0.48)+rnormal()*0.012755)
local psa7 = rnormal()
local psa8 = rbeta(139.1,36.97)
local psa9 = rnormal(0.03,0.007653)
local psa10 = rgamma(44.44,46.06)
local psa111 = rgamma(1742.89,2.70)
local psa112 = rgamma(35.15,28.88)
forval a = 1(1000)458001 {
use UKB_working, clear
drop if dob==.
drop if mid <= dofa
keep if ldl!=.
gen ldl1 = ldl
replace ldl1 = ldl*(1/0.7) if llt==1
su(ldl1)
gen ldldist = (ldl1-r(mean))/r(sd)
replace ldldist = -3 if ldldist < -3
gen njm = _n
local aa = `a´+999
keep if inrange(njm, `a´,`aa´)
gen agellt = ((dofa-(365.25*5))-dob)/365.25  if llt==1
expand 50
bysort eid : gen age = _n/10
expand 81 if age == 5
bysort eid age : replace age = age+_n-1 if age == 5
ta age
gen ldlorig = ldl
replace ldl = ldl*(1/0.7) if age < agellt & agellt!=.
replace ldl = ldl*(1/0.7)*`psa50´ if age >= agellt & agellt!=.
gen lltpr = 0
replace lltpr = 0.001 if inrange(age,39.99,49.99)
replace lltpr = 0.015 if inrange(age,49.999,59.99)
replace lltpr = 0.035 if age >= 59.999
gen agedofa = (dofa-dob)/365.25
replace lltpr = 0 if age < agedofa
replace lltpr = lltpr*(0.95) if sex == 0
replace lltpr = lltpr*(1.05) if sex == 1
replace lltpr = lltpr*(3^ldldist)
replace lltpr = 1-exp(-lltpr)
gen prllt = runiform()
gen lltinit = 1 if lltpr >= prllt & llt==0
bysort eid lltinit age : gen agellt0 = age if lltinit ==1 & _n == 1
bysort eid (age) : egen llt1 = min(lltinit)
bysort eid (age) : egen agellt1 = min(agellt0) if llt1 == 1
ta agellt1
replace ldl = ldl*`psa50´ if age >= agellt1 & llt1 == 1
sort eid age
```

```
replace ldl = 0.75+(0.1875*ldldist) if inrange(age,0.09,0.11)
replace ldl = 2+(0.5*ldldist)  if inrange(age,4.99,5.01)
bysort eid (age) : replace ldl = (ldl[50]-ldl[1])/49 if inrange(age,0.11,4.99)
bysort eid (age) : replace ldl = (ldl[85]-ldl[50])/35 if inrange(age,5.01,39.99)
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,0.09,4.99)
bysort eid (age) : replace ldl = sum(ldl) if inrange(age,4.99,39.99)
gen ldl_0_30 = ldl if age < 40
replace ldl_0_30 = ldl1 if age >= 40
gen ldl_0_40 = ldl_0_30
gen ldl_0_50 = ldl if age < 50
replace ldl_0_50 = ldl1 if age >= 50
gen ldl_0_60 = ldl if age < 60
replace ldl_0_60 = ldl1 if age >= 60
sort eid age
preserve
bysort eid (age) : keep if _n == 1
gen agellt2 = min(agellt,agellt1)
keep eid agellt2
rename agellt2 agellt
replace agellt = round(agellt,1)
tostring agellt, force format(%9.0f) replace
destring agellt, replace
save PSA/agellt_control_`a´_PSA, replace
restore
keep eid sex ldl age njm ldl_0_30-ldl_0_60
forval i = 30(10)60 {
forval ii = 1/4 {
gen ldl_`ii´_`i´ = ldl_0_`i´
}
replace ldl_1_`i´ = ldl_0_`i´*`psa51´ if age >= `i´
replace ldl_2_`i´ = ldl_0_`i´*`psa52´ if age >= `i´
replace ldl_3_`i´ = ldl_0_`i´*`psa53´ if age >= `i´
replace ldl_4_`i´ = ldl_0_`i´*`psa54´ if age >= `i´
}
replace ldl = ldl*0.1 if age <= 5
bysort eid (age) : gen cumldl = sum(ldl) if ldl!=.
gen aveldl = cumldl/age
forval i = 1/4 {
forval ii = 30(10)60 {
replace ldl_`i´_`ii´ = ldl_`i´_`ii´*0.1 if age <= 5
bysort eid (age) : gen cumldl_`i´_`ii´ = sum(ldl_`i´_`ii´)
gen aveldl_`i´_`ii´ = cumldl_`i´_`ii´/age
}
}
keep eid sex age aveldl ///
aveldl_1_30 aveldl_1_40 aveldl_1_50 aveldl_1_60 ///
aveldl_2_30 aveldl_2_40 aveldl_2_50 aveldl_2_60 ///
aveldl_3_30 aveldl_3_40 aveldl_3_50 aveldl_3_60 ///
aveldl_4_30 aveldl_4_40 aveldl_4_50 aveldl_4_60
keep if age >= 30
tostring age, replace force format(%9.1f)
destring age, replace
merge m:1 sex age using ldlave_reg
drop if _merge == 2
drop _merge
merge m:1 sex age using MI_inc
drop if _merge == 2
drop _merge
rename rate nfMIrate
rename errr nfMIerrr
merge m:1 sex age using MIdrates
drop if _merge == 2
drop _merge MI
rename rate fMIrate
rename errr fMIerrr
sort eid age
save PSA/LDL_trajectories_`a´_PSA, replace
}
```

```
clear
forval a = 1(1000)458001 {
append using PSA/agellt_control_`a´_PSA
}
save PSA/agellt_control_PSA, replace
forval a = 1(1000)458001 {
erase PSA/agellt_control_`a´_PSA.dta
}
forval a = 1(1000)458001 {
use PSA/LDL_trajectories_`a´_PSA, clear
replace nfMIrate = exp(ln(nfMIrate)+`psa1´*nfMIerrr)
replace fMIrate = exp(ln(fMIrate)+`psa2´*fMIerrr)
gen nfMIadj = nfMIrate*(`psa6´^(ldlave-aveldl))
gen fMIadj = fMIrate*(`psa6´^(ldlave-aveldl))
forval i = 1/4 {
forval ii = 30(10)60 {
gen nfMIadj_`i´_`ii´ = nfMIrate*(`psa6´^(ldlave-aveldl_`i´_`ii´))
gen fMIadj_`i´_`ii´ = fMIrate*(`psa6´^(ldlave-aveldl_`i´_`ii´))
}
}
keep eid sex age nfMIrate-fMIadj_4_60
forval i = 30/84 {
preserve
local ii = `i´-0.5
local iii = `i´+0.5
local iiii = `i´*10
keep if inrange(age,`ii´,`iii´)
save PSA/MIrisk_`a´_`iiii´_PSA, replace
restore
}
}
forval i = 30/84 {
clear
local iiii = `i´*10
forval a = 1(1000)458001 {
append using PSA/MIrisk_`a´_`iiii´_PSA
}
replace age = age*10
save PSA/MIrisk_com_`iiii´_PSA, replace
}
forval a = 1(1000)458001 {
erase PSA/LDL_trajectories_`a´_PSA.dta
}
forval a = 1(1000)458001 {
forval i = 30/84 {
local iiii = round(`i´*10,1)
erase PSA/MIrisk_`a´_`iiii´_PSA.dta
}
}
use Microsim_30, clear
save PSA/Microsim_30_PSA, replace
set seed `sid30´
forval i = 300(10)840 {
merge 1:1 eid age using PSA/MIrisk_com_`i´_PSA
drop if _merge == 2
rename (nfMIadj fMIadj) (nfMI fMI)
keep eid-rand nfMI fMI
merge m:1 age sex using NCdrates10
drop if _merge == 2
replace rate = exp(ln(rate)+`psa3´*errr)
rename rate NCd
drop errr-_merge
merge m:1 age sex durn MI using PMId10
drop if _merge == 2
replace rate = exp(ln(rate)+`psa4´*errr)
rename rate PMId
drop adx errr _merge
gen ratesum = nfMI+fMI+NCd
```

```
gen tpsum = 1-exp(-ratesum*1)
replace nfMI = tpsum*nfMI/ratesum
replace fMI = tpsum*fMI/ratesum
replace NCd = tpsum*NCd/ratesum
replace PMId = 1-exp(-PMId*1)
drop ratesum tpsum
sort eid
replace rand = runiform()
recode MI 0=1 if (nfMI > rand) & Death == 0
replace rand = runiform()
recode MI 0=1 if (fMI > rand) & Death == 0
recode Death 0=1 if (fMI > rand) & durn == 0
replace rand = runiform()
recode Death 0=1 if (NCd > rand) & MI == 0
replace rand = runiform()
recode Death 0=1 if (PMId > rand) & MI == 1 & durn!=0
replace age = age+10 if Death == 0
replace durn = durn+10 if MI == 1 & Death == 0
drop nfMI-PMId
if `i´ == 390 {
save PSA/Microsim_40_PSA, replace
set seed `sid40´
}
if `i´ == 490 {
save PSA/Microsim_50_PSA, replace
set seed `sid50´
}
if `i´ == 590 {
save PSA/Microsim_60_PSA, replace
set seed `sid60´
}
}
replace age = age/10
replace durn = durn/10
save PSA/trial_control_PSA, replace
forval i = 1/4 {
forval ii = 30(10)60 {
if `ii´ == 30 {
local a = 300
set seed `sid30´
}
if `ii´ == 40 {
local a = 400
set seed `sid40´
}
if `ii´ == 50 {
local a = 500
set seed `sid50´
}
if `ii´ == 60 {
local a = 600
set seed `sid60´
}
use PSA/Microsim_`ii´_PSA, clear
forval iii = `a´(10)840 {
merge 1:1 eid age using PSA/MIrisk_com_`iii´_PSA
drop if _merge == 2
rename (nfMIadj_`i´_`ii´ fMIadj_`i´_`ii´) (nfMI fMI)
keep eid-rand nfMI fMI
merge m:1 age sex using NCdrates10
drop if _merge == 2
replace rate = exp(ln(rate)+`psa3´*errr)
rename rate NCd
drop errr-_merge
merge m:1 age sex durn MI using PMId10
drop if _merge == 2
replace rate = exp(ln(rate)+`psa4´*errr)
rename rate PMId
```

```
drop adx errr _merge
gen ratesum = nfMI+fMI+NCd
gen tpsum = 1-exp(-ratesum*1)
replace nfMI = tpsum*nfMI/ratesum
replace fMI = tpsum*fMI/ratesum
replace NCd = tpsum*NCd/ratesum
replace PMId = 1-exp(-PMId*1)
drop ratesum tpsum
sort eid
replace rand = runiform()
recode MI 0=1 if (nfMI > rand) & Death == 0
replace rand = runiform()
recode MI 0=1 if (fMI > rand) & Death == 0
recode Death 0=1 if (fMI > rand) & durn == 0
replace rand = runiform()
recode Death 0=1 if (NCd > rand) & MI == 0
replace rand = runiform()
recode Death 0=1 if (PMId > rand) & MI == 1 & durn!=0
replace age = age+10 if Death == 0
replace durn = durn+10 if MI == 1 & Death == 0
drop nfMI-PMId
}
replace age = age/10
replace durn = durn/10
save PSA/trial_`i´_`ii´_PSA, replace
}
}
forval iii = 300(10)849 {
erase PSA/MIrisk_com_`iii´_PSA.dta
}
clear
set obs 551
gen MIage = (_n+299)/10
expand 2
bysort MIage : gen sex = _n-1
gen UT = 0.9454933+0.0256466*sex-0.0002213*MIage - 0.0000294*(MIage^2)
replace UT = UT*(1+(`psa7´*0.05))
replace UT = 1 if UT > 1
replace UT = 0 if UT < 0
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((MIage-`i´))) if MIage >= `i´
gen QAL_`i´=0.1*UT*DC_`i´
replace QAL_`i´ = QAL_`i´/2 if MIage == `i´
bysort sex (MIage) : gen double QALY_nMI_`i´ = sum(QAL_`i´)
}
keep MIage sex QALY_nMI_30 QALY_nMI_40 QALY_nMI_50 QALY_nMI_60
tostring MIage, replace force format(%9.1f)
destring MIage, replace
save PSA/QALY_nMI_Matrix_PSA, replace
clear
set obs 551
gen MIage = (_n+299)/10
expand 2
bysort MIage : gen sex = _n-1
expand 550
bysort MIage sex : gen durn = _n/10
gen age = round(MIage+durn,0.1)
drop if age > 85
gen UT = 0.9454933+0.0256466*sex-0.0002213*age - 0.0000294*(age^2)
replace UT = UT*(1+(`psa7´*0.05))
replace UT = 1 if UT > 1
replace UT = 0 if UT < 0
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((age-`i´))) if age >= `i´
gen QAL_`i´=0.1*UT*DC_`i´*`psa8´
replace QAL_`i´ = QAL_`i´ - (`psa9´/3) if durn <0.301
replace QAL_`i´ = 0 if QAL_`i´ < 0
bysort sex MIage (age) : gen double QALY_MI_`i´ = sum(QAL_`i´)
```

```
}
keep age MIage sex QALY_MI_30 QALY_MI_40 QALY_MI_50 QALY_MI_60
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
save PSA/QALY_MI_Matrix_PSA, replace
clear
set obs 551
gen MIage = (_n+299)/10
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((MIage-`i´))) if MIage >= `i´
gen double ACMIcost_`i´ = `psa10´*DC_`i´
}
keep MIage ACMIcost_30 ACMIcost_40 ACMIcost_50 ACMIcost_60
tostring MIage, replace force format(%9.1f)
destring MIage, replace
save PSA/ACcost_Matrix_PSA, replace
clear
set obs 551
gen MIage = (_n+299)/10
expand 2
bysort MIage : gen sex = _n-1
expand 550
bysort MIage sex : gen durn = _n/10
gen age = round(MIage+durn,0.1)
drop if age > 85
forval i = 30(10)60 {
gen DC_`i´ = 1/((1.035)^((age-`i´))) if age >= `i´
gen cost_`i´ = DC_`i´*`psa111´/5 if durn <=0.5
replace cost_`i´ = DC_`i´*`psa112´/10 if cost_`i´==.
bysort sex MIage (age) : gen double CHMIcost_`i´ = sum(cost_`i´)
}
keep age MIage sex CHMIcost_30 CHMIcost_40 CHMIcost_50 CHMIcost_60
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
save PSA/CHcost_Matrix_PSA, replace
use PSA/trial_control_PSA, clear
gen ageMI = round(age-durn,0.1) if MI == 1
count
local N = r(N)
matrix A_0 = (.,.)
forval i = 30/85 {
count if ageMI < `i´+0.05
matrix A_0 = (A_0\0`i´,100*r(N)/`N´)
}
forval a = 1/4 {
forval b = 30(10)60 {
use PSA/trial_`a´_`b´_PSA, clear
gen ageMI = round(age-durn,0.1) if MI == 1
count
local N = r(N)
matrix A_`a´_`b´ = (.)
forval i = 30/85 {
count if ageMI < `i´+0.05
matrix A_`a´_`b´ = (A_`a´_`b´\100*r(N)/`N´)
}
}
}
clear
svmat double A_0
svmat double A_1_30
svmat double A_1_40
svmat double A_1_50
svmat double A_1_60
svmat double A_2_30
svmat double A_2_40
svmat double A_2_50
svmat double A_2_60
svmat double A_3_30
```

```
svmat double A_3_40
svmat double A_3_50
svmat double A_3_60
svmat double A_4_30
svmat double A_4_40
svmat double A_4_50
svmat double A_4_60
rename A_01 age
save PSA/CumMIfig_overall_PSA_`psa´, replace
forval s = 0/1 {
foreach l in 0 3 4 5 {
use PSA/trial_control_PSA, clear
merge 1:1 eid using UKBldl
drop if _merge == 2
drop _merge
keep if ldl >= `l´
keep if sex == `s´
gen ageMI = round(age-durn,0.1) if MI == 1
count
local N = r(N)
matrix A_0 = (.,.)
forval i = 30/85 {
count if ageMI < `i´+0.05
matrix A_0 = (A_0\0`i´,100*r(N)/`N´)
}
forval a = 1/4 {
forval b = 30(10)60 {
use PSA/trial_`a´_`b´_PSA, clear
merge 1:1 eid using UKBldl
drop if _merge == 2
drop _merge
keep if ldl >= `l´
keep if sex == `s´
gen ageMI = round(age-durn,0.1) if MI == 1
count
local N = r(N)
matrix A_`a´_`b´ = (.)
forval i = 30/85 {
count if ageMI < `i´+0.05
matrix A_`a´_`b´ = (A_`a´_`b´\100*r(N)/`N´)
}
}
}
clear
svmat double A_0
svmat double A_1_30
svmat double A_1_40
svmat double A_1_50
svmat double A_1_60
svmat double A_2_30
svmat double A_2_40
svmat double A_2_50
svmat double A_2_60
svmat double A_3_30
svmat double A_3_40
svmat double A_3_50
svmat double A_3_60
svmat double A_4_30
svmat double A_4_40
svmat double A_4_50
svmat double A_4_60
rename A_01 age
save PSA/CumMIfig_sex_`s´_LDL`l´_PSA_`psa´, replace
}
}
use PSA/trial_control_PSA, clear
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
```

```
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
merge 1:1 eid using PSA/agellt_control_PSA
drop if _merge == 2
drop _merge
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage sex using PSA/QALY_nMI_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using PSA/QALY_MI_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 MIage using PSA/ACcost_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using PSA/CHcost_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 agellt MIage using STcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using CHSTcost_Matrix
drop if _merge == 2
drop _merge
forval i = 30(10)60 {
recode QALY_MI_`i´ .=0
recode ACMIcost_`i´ .=0
recode CHMIcost_`i´ .=0
recode STcost_`i´ .=0
recode CHSTcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double MDcost_`i´ = STcost_`i´ + CHSTcost_`i´
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
}
forval i = 30(10)60 {
preserve
keep if age >= `i´ & MIage >= `i´
count
matrix A_0_`i´ = r(N)
count if MI == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
count if Death == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
su(YLL_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(QALY_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(MDcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(HCcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
restore
}
forval i = 30(10)60 {
forval ii = 1/4 {
use PSA/trial_`ii´_`i´_PSA, clear
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
```

```
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage sex using PSA/QALY_nMI_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using PSA/QALY_MI_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 MIage using PSA/ACcost_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using PSA/CHcost_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 age using INTcost_Matrix_`ii´
drop if _merge == 2
drop _merge
recode QALY_MI_`i´ .=0
recode CHMIcost_`i´ .=0
recode ACMIcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
keep if age >= `i´ & MIage >= `i´
count
matrix A_`ii´_`i´ = r(N)
count if MI == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
count if Death == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
su(YLL_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(QALY_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(MDcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(HCcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
}
}
matrix AA = (1\2\3\4\5\6\7\8\9)
matrix A = (J(9,1,30),AA,A_0_30,A_1_30,A_2_30,A_3_30,A_4_30\ ///
30,10,J(1,5,.)\ ///
J(9,1,40),AA,A_0_40,A_1_40,A_2_40,A_3_40,A_4_40\ ///
40,10,J(1,5,.)\ ///
J(9,1,50),AA,A_0_50,A_1_50,A_2_50,A_3_50,A_4_50\ ///
50,10,J(1,5,.)\ ///
J(9,1,60),AA,A_0_60,A_1_60,A_2_60,A_3_60,A_4_60\ ///
60,10,J(1,5,.))
clear
svmat double A
gen double D1 = A4-A3
gen double D2 = A5-A3
gen double D3 = A6-A3
gen double D4 = A7-A3
bysort A1 (A2) : replace D1 = D1[9]/D1[5] if A2 == 10
bysort A1 (A2) : replace D2 = D2[9]/D2[5] if A2 == 10
bysort A1 (A2) : replace D3 = D3[9]/D3[5] if A2 == 10
bysort A1 (A2) : replace D4 = D4[9]/D4[5] if A2 == 10
save PSA/PSA_overall_PSA_`psa´, replace
forval s = 0/1 {
foreach l in 0 3 4 5 {
```

```
use PSA/trial_control_PSA, clear
merge 1:1 eid using UKBldl
drop if _merge == 2
drop _merge
keep if ldl >= `l´
keep if sex == `s´
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
merge 1:1 eid using PSA/agellt_control_PSA
drop if _merge == 2
drop _merge
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage sex using PSA/QALY_nMI_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using PSA/QALY_MI_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 MIage using PSA/ACcost_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using PSA/CHcost_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 agellt MIage using STcost_Matrix
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using CHSTcost_Matrix
drop if _merge == 2
drop _merge
forval i = 30(10)60 {
recode QALY_MI_`i´ .=0
recode ACMIcost_`i´ .=0
recode CHMIcost_`i´ .=0
recode STcost_`i´ .=0
recode CHSTcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double MDcost_`i´ = STcost_`i´ + CHSTcost_`i´
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
}
forval i = 30(10)60 {
preserve
keep if age >= `i´ & MIage >= `i´
count
matrix A_0_`i´ = r(N)
count if MI == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
count if Death == 1
matrix A_0_`i´ = (A_0_`i´\r(N))
su(YLL_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(QALY_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(MDcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
su(HCcost_`i´)
matrix A_0_`i´ = (A_0_`i´\r(sum))
restore
```

```
}
forval i = 30(10)60 {
forval ii = 1/4 {
use PSA/trial_`ii´_`i´_PSA, clear
merge 1:1 eid using UKBldl
drop if _merge == 2
drop _merge
keep if ldl >= `l´
keep if sex == `s´
gen MIage = round(age-durn,0.1)
replace age = round(age,0.1)
tostring age MIage, replace force format(%9.1f)
destring age MIage, replace
merge m:1 age using YLL_Matrix
drop if _merge == 2
drop _merge
merge m:1 MIage sex using PSA/QALY_nMI_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using PSA/QALY_MI_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 MIage using PSA/ACcost_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 age MIage sex using PSA/CHcost_Matrix_PSA
drop if _merge == 2
drop _merge
merge m:1 age using INTcost_Matrix_`ii´
drop if _merge == 2
drop _merge
recode QALY_MI_`i´ .=0
recode CHMIcost_`i´ .=0
recode ACMIcost_`i´ .=0
replace ACMIcost_`i´ = 0 if MI==0
replace ACMIcost_`i´ = ACMIcost_`i´*0.18 if MI == 1 & durn == 0
gen double QALY_`i´ = QALY_nMI_`i´ + QALY_MI_`i´
gen double HCcost_`i´ = ACMIcost_`i´+ CHMIcost_`i´ + MDcost_`i´
keep if age >= `i´ & MIage >= `i´
count
matrix A_`ii´_`i´ = r(N)
count if MI == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
count if Death == 1
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(N))
su(YLL_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(QALY_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(MDcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(ACMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(CHMIcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
su(HCcost_`i´)
matrix A_`ii´_`i´ = (A_`ii´_`i´\r(sum))
}
}
matrix AA = (1\2\3\4\5\6\7\8\9)
matrix A = (J(9,1,30),AA,A_0_30,A_1_30,A_2_30,A_3_30,A_4_30\ ///
30,10,J(1,5,.)\ ///
J(9,1,40),AA,A_0_40,A_1_40,A_2_40,A_3_40,A_4_40\ ///
40,10,J(1,5,.)\ ///
J(9,1,50),AA,A_0_50,A_1_50,A_2_50,A_3_50,A_4_50\ ///
50,10,J(1,5,.)\ ///
J(9,1,60),AA,A_0_60,A_1_60,A_2_60,A_3_60,A_4_60\ ///
60,10,J(1,5,.))
```

```
clear
svmat double A
gen double D1 = A4-A3
gen double D2 = A5-A3
gen double D3 = A6-A3
gen double D4 = A7-A3
bysort A1 (A2) : replace D1 = D1[9]/D1[5] if A2 == 10
bysort A1 (A2) : replace D2 = D2[9]/D2[5] if A2 == 10
bysort A1 (A2) : replace D3 = D3[9]/D3[5] if A2 == 10
bysort A1 (A2) : replace D4 = D4[9]/D4[5] if A2 == 10
save PSA/PSA_sex_`s´_ldl_`l´_PSA_`psa´, replace
}
}
}
}
```

9.3 Checks

Like the OSAs, before doing anything it's good to check there aren't any detectable issues with the PSA. First, check for negative incremental QALYs:

```
. forval psa = 1/1000 {
  2. use PSA/PSA_overall_PSA_`psa´, clear
  3. quietly count if A2 == 5 & (D1 < 0 | D2 < 0 | D3 < 0 | D4 < 0)
  4. if r(N) != 0 {
  5. di "Oh, bother"
  6. }
  7. forval s = 0/1 {
  8. foreach l in 0 3 4 5 {
  9. use PSA/PSA_sex_`s´_ldl_`l´_PSA_`psa´, clear
 10. quietly count if A2 == 5 & (D1 < 0 | D2 < 0 | D3 < 0 | D4 < 0)
 11. if r(N) != 0 {
 12. di "Oh, bother"
 13. }
 14. }
 15. }
 16. }
Oh, bother
```

Just one, which is okay and won't impact the 95% CIs. Also, check a few at random to make sure the results are reasonable:

```
. quietly {
. di "Base-case"
Base-case
. list A0 Control LMS HIS LSE INC in 1/9, separator(0)
```

	A0	Control	LMS	HIS	LSE	INC
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	67892	42009	36017	33306	35163
3.	Deaths	157629	149711	147711	146803	147423
4.	YLL	10959637	10973613	10977392	10979033	10977838
5.	QALYs	9514826.3	9536608	9541765.1	9544062.5	9542443.4
6.	Medication costs	23866371	2.022e+08	3.013e+08	5.425e+08	4.372e+10
7.	Acute MI costs	31706236	19846492	17276790	16098050	16901393
8.	Chronic MI costs	2.309e+08	1.467e+08	1.295e+08	1.215e+08	1.269e+08
9.	Total healthcare costs	2.864e+08	3.688e+08	4.481e+08	6.801e+08	4.387e+10

```
. forval i = 1/10 {
  2. local psa = runiformint(1,1000)
  3. quietly {
  4. use PSA/PSA_overall_PSA_`psa´, clear
```

```
gen A0 = ""
replace A0 = "N" if A2 == 1
replace A0 = "Incident MIs" if A2 == 2
replace A0 = "Deaths" if A2 == 3
replace A0 = "YLL" if A2 == 4
replace A0 = "QALYs" if A2 == 5
replace A0 = "Medication costs" if A2 == 6
replace A0 = "Acute MI costs" if A2 == 7
replace A0 = "Chronic MI costs" if A2 == 8
replace A0 = "Total healthcare costs" if A2 == 9
order A0
rename (A3 A4 A5 A6 A7) (Control LMS HIS LSE INC)
}
di "`psa´"
list A0 Control LMS HIS LSE INC in 1/9, separator(0)
}
```

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	A0	Control	LMS	HIS	LSE	INC
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	65698	39767	33569	31448	31803
3.	Deaths	140777	134838	133305	132769	132857
4.	YLL	10976503	10990284	10993452	10994534	10994305
5.	QALYs	9051580.5	9074408.1	9079329.9	9080977.8	9080664.8
6.	Medication costs	24258972	2.025e+08	3.017e+08	5.433e+08	4.379e+10
7.	Acute MI costs	27736017	16913216	14513202	13708597	13848400
8.	Chronic MI costs	2.145e+08	1.325e+08	1.154e+08	1.098e+08	1.107e+08
9.	Total healthcare costs	2.665e+08	3.520e+08	4.316e+08	6.667e+08	4.392e+10

596

	A0	Control	LMS	HIS	LSE	INC
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	65615	40589	35412	32811	35208
3.	Deaths	142244	135966	134656	134002	134598
4.	YLL	10973204	10990324	10993106	10994474	10993201
5.	QALYs	9528431.7	9556266	9560935.7	9563333	9561114.9
6.	Medication costs	24315219	2.025e+08	3.017e+08	5.433e+08	4.379e+10
7.	Acute MI costs	27963703	17453769	15469779	14442538	15389170
8.	Chronic MI costs	2.266e+08	1.437e+08	1.290e+08	1.212e+08	1.284e+08
9.	Total healthcare costs	2.789e+08	3.637e+08	4.462e+08	6.789e+08	4.393e+10

744

	A0	Control	LMS	HIS	LSE	INC
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	62055	37459	32644	30094	31084
3.	Deaths	152949	147824	146639	146081	146308
4.	YLL	10946484	10959923	10962755	10963967	10963569
5.	QALYs	9239275	9262466.6	9266817.1	9269005	9268219
6.	Medication costs	23992700	2.020e+08	3.009e+08	5.418e+08	4.367e+10
7.	Acute MI costs	36204256	22225112	19649233	18239459	18787126
8.	Chronic MI costs	2.311e+08	1.443e+08	1.292e+08	1.206e+08	1.239e+08
9.	Total healthcare costs	2.913e+08	3.685e+08	4.497e+08	6.806e+08	4.381e+10

112

	A0	Control	LMS	HIS	LSE	INC
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	65736	40453	34104	31877	33740
3.	Deaths	144137	138274	136774	136237	136684
4.	YLL	10970581	10982803	10985781	10986939	10985922
5.	QALYs	10299791	10323379	10328875	10330879	10329136

6.	Medication costs	24319476	2.024e+08	3.015e+08	5.429e+08	4.376e+10
7.	Acute MI costs	30057257	18734482	16028311	15098593	15884238
8.	Chronic MI costs	2.278e+08	1.441e+08	1.250e+08	1.184e+08	1.240e+08
9.	Total healthcare costs	2.822e+08	3.652e+08	4.425e+08	6.764e+08	4.390e+10

142

	AO	Control	LMS	HIS	LSE	INC
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	64693	38886	33300	29923	32191
3.	Deaths	144238	137803	136449	135657	136233
4.	YLL	10967150	10985802	10988739	10990471	10989221
5.	QALYs	8998964.3	9026437.7	9031036.5	9033864.1	9031919.7
6.	Medication costs	24246529	2.025e+08	3.016e+08	5.431e+08	4.377e+10
7.	Acute MI costs	38415228	23263522	20276542	18426619	19662475
8.	Chronic MI costs	2.986e+08	1.834e+08	1.624e+08	1.492e+08	1.579e+08
9.	Total healthcare costs	3.612e+08	4.091e+08	4.843e+08	7.107e+08	4.395e+10

940

	AO	Control	LMS	HIS	LSE	INC
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	65250	39227	34233	31561	33539
3.	Deaths	144274	139754	138659	138138	138537
4.	YLL	10967454	10977997	10980433	10981685	10980745
5.	QALYs	9602182	9622685.8	9626623.5	9628745.6	9627166.4
6.	Medication costs	24288401	2.023e+08	3.014e+08	5.426e+08	4.374e+10
7.	Acute MI costs	29766889	18134941	16053491	14914463	15761754
8.	Chronic MI costs	2.444e+08	1.510e+08	1.354e+08	1.266e+08	1.331e+08
9.	Total healthcare costs	2.985e+08	3.715e+08	4.528e+08	6.842e+08	4.389e+10

313

	AO	Control	LMS	HIS	LSE	INC
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	70083	42703	36874	34081	36876
3.	Deaths	148810	145055	144046	143560	144046
4.	YLL	10954450	10966607	10968919	10970233	10968919
5.	QALYs	9348998.7	9370171.3	9374234.4	9376366.7	9374232.3
6.	Medication costs	24374080	2.021e+08	3.011e+08	5.421e+08	4.369e+10
7.	Acute MI costs	33746858	20922609	18301262	17034625	18302791
8.	Chronic MI costs	2.359e+08	1.489e+08	1.317e+08	1.233e+08	1.317e+08
9.	Total healthcare costs	2.940e+08	3.719e+08	4.510e+08	6.824e+08	4.384e+10

95

	AO	Control	LMS	HIS	LSE	INC
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	72621	45482	39801	36347	38454
3.	Deaths	151922	141272	139400	138226	138932
4.	YLL	10955721	10978838	10982160	10984264	10983045
5.	QALYs	9482195.5	9511514.9	9516284.5	9519228.8	9517472
6.	Medication costs	24297085	2.023e+08	3.014e+08	5.428e+08	4.375e+10
7.	Acute MI costs	30608913	19555063	17334107	15989389	16814851
8.	Chronic MI costs	2.816e+08	1.835e+08	1.644e+08	1.529e+08	1.600e+08
9.	Total healthcare costs	3.365e+08	4.054e+08	4.831e+08	7.117e+08	4.392e+10

899

	AO	Control	LMS	HIS	LSE	INC
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	65835	40799	35052	31947	34663

3.	Deaths	141683	134365	132697	131786	132596
4.	YLL	10977607	10993575	10996773	10998580	10996950
5.	QALYs	9716633.8	9738869.9	9743390.7	9745855	9743658.6
6.	Medication costs	24316376	2.026e+08	3.018e+08	5.435e+08	4.380e+10
7.	Acute MI costs	36938064	23181933	20189905	18598253	19985883
8.	Chronic MI costs	2.505e+08	1.599e+08	1.409e+08	1.310e+08	1.396e+08
9.	Total healthcare costs	3.118e+08	3.857e+08	4.629e+08	6.930e+08	4.396e+10

79

	A0	Control	LMS	HIS	LSE	INC
1.	N	458692	458692	458692	458692	458692
2.	Incident MIs	68817	42120	36386	33275	35912
3.	Deaths	140878	133898	132340	131509	132221
4.	YLL	10978218	10993542	10996622	10998314	10996856
5.	QALYs	9783078.5	9806258.5	9810822.6	9813345.6	9811193
6.	Medication costs	24355651	2.026e+08	3.018e+08	5.435e+08	4.380e+10
7.	Acute MI costs	24101938	14933994	13062195	12042770	12905340
8.	Chronic MI costs	1.675e+08	1.052e+08	92980052	86245410	91931629
9.	Total healthcare costs	2.159e+08	3.227e+08	4.079e+08	6.417e+08	4.391e+10

With those checks, there's some confidence there isn't a huge mistake with the PSA. From here, results can be presented. There are a couple of results that would be enhanced by the inclusion of PSA results – the cumulative MI figures and the base-case results tables – as well as plotting the results of the PSAs across a common cost-effectiveness plane.

9.4 Results: Cumulative incidence of MI

Let's start with the figures.

```
clear
forval i = 1/1000 {
append using PSA/CumMIfig_overall_PSA_`i´
}
matrix A = (.,.,.,.)
forval iii = 30/84 {
centile A_02 if age == `iii´, centile(50 2.5 97.5)
matrix A = (A\0`iii´,r(c_1),r(c_2),r(c_3))
}
matrix A_control = A
forval i = 1/4 {
forval ii = 30(10)60 {
matrix A = (.,.,.)
forval iii = 30/84 {
centile A_`i´_`ii´ if age == `iii´, centile(50 2.5 97.5)
matrix A = (A\r(c_1),r(c_2),r(c_3))
}
matrix A_`i´_`ii´ = A
}
}
clear
svmat double A_control
forval i = 1/4 {
forval ii = 30(10)60 {
svmat double A_`i´_`ii´
}
}
rename A_control1 age
replace age = round(age,1)
save FigCI_overall, replace
use inferno, clear
local viri60 = var6[6]
```

```
local viri61 = var6[5]
local viri62 = var6[4]
local viri63 = var6[3]
local viri64 = var6[2]
forval i = 1/4 {
if `i´ == 1 {
local ii = "Low/moderate intensity statins"
}
if `i´ == 2 {
local ii = "High intensity statins"
}
if `i´ == 3 {
local ii = "Low/moderate intensity statins and ezetimibe"
}
if `i´ == 4 {
local ii = "Inclisiran"
}
use FigCI_overall, clear
replace age = round(age,0.1)
drop if age > 84
twoway ///
(rarea A_control3 A_control4 age, color("`viri60´%30") fintensity(inten80) lwidth(none)) ///
(line A_control2 age, col("`viri60´")) ///
(rarea A_`i´_602 A_`i´_603 age, color("`viri61´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_601 age, col("`viri61´")) ///
(rarea A_`i´_502 A_`i´_503 age, color("`viri62´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_501 age, col("`viri62´")) ///
(rarea A_`i´_402 A_`i´_403 age, color("`viri63´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_401 age, col("`viri63´")) ///
(rarea A_`i´_302 A_`i´_303 age, color("`viri64´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_301 age, col("`viri64´")) ///
, legend(order(2 "Control" ///
4 "Intervention from age 60" ///
6 "Intervention from age 50" ///
8 "Intervention from age 40" ///
10 "Intervention from age 30") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Cumulative incidence of MI or coronary death (%)) xtitle(Age) ///
ylabel(0(5)20,angle(0)) ///
title("`ii´", placement(west) color(black) size(medium))
graph save "Graph" GPH/PSAfig1_`i´, replace
}
forval s = 0/1 {
foreach l in 0 3 4 5 {
clear
forval i = 1/1000 {
append using PSA/CumMIfig_sex_`s´_LDL`l´_PSA_`i´
}
matrix A = (.,.,.,.)
forval iii = 30/84 {
centile A_02 if age == `iii´, centile(50 2.5 97.5)
matrix A = (A\0`iii´,r(c_1),r(c_2),r(c_3))
}
matrix A_control = A
forval i = 1/4 {
forval ii = 30(10)60 {
matrix A = (.,.,.)
forval iii = 30/84 {
centile A_`i´_`ii´ if age == `iii´, centile(50 2.5 97.5)
matrix A = (A\r(c_1),r(c_2),r(c_3))
}
matrix A_`i´_`ii´ = A
}
}
clear
svmat double A_control
forval i = 1/4 {
```

```
forval ii = 30(10)60 {
svmat double A_`i´_`ii´
}
}
rename A_control1 age
replace age = round(age,1)
save FigCI_overall_sex_`s´_ldl_`l´, replace
if `s´ == 0 {
use inferno, clear
local ss = "females"
local sss = "Females"
}
else {
use viridis, clear
local ss = "males"
local sss = "Males"
}
local viri60 = var6[6]
local viri61 = var6[5]
local viri62 = var6[4]
local viri63 = var6[3]
local viri64 = var6[2]
forval i = 1/4 {
if `i´ == 1 {
local ii = "Low/moderate intensity statins"
}
if `i´ == 2 {
local ii = "High intensity statins"
}
if `i´ == 3 {
local ii = "Low/moderate intensity statins and ezetimibe"
}
if `i´ == 4 {
local ii = "Inclisiran"
}
use FigCI_overall_sex_`s´_ldl_`l´, clear
replace age = round(age,0.1)
drop if age > 84
if `l´ == 0 {
twoway ///
(rarea A_control3 A_control4 age, color("`viri60´%30") fintensity(inten80) lwidth(none)) ///
(line A_control2 age, col("`viri60´")) ///
(rarea A_`i´_602 A_`i´_603 age, color("`viri61´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_601 age, col("`viri61´")) ///
(rarea A_`i´_502 A_`i´_503 age, color("`viri62´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_501 age, col("`viri62´")) ///
(rarea A_`i´_402 A_`i´_403 age, color("`viri63´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_401 age, col("`viri63´")) ///
(rarea A_`i´_302 A_`i´_303 age, color("`viri64´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_301 age, col("`viri64´")) ///
, legend(order(2 "Control" ///
4 "Intervention from age 60" ///
6 "Intervention from age 50" ///
8 "Intervention from age 40" ///
10 "Intervention from age 30") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Cumulative incidence of MI or coronary death (%)) xtitle(Age) ///
ylabel(0(5)25,angle(0)) ///
title("`ii´, `ss´", placement(west) color(black) size(medium))
graph save "Graph" GPH/PSAfig1_`i´_sex_`s´_ldl_`l´, replace
twoway ///
(rarea A_control3 A_control4 age, color("`viri60´%30") fintensity(inten80) lwidth(none)) ///
(line A_control2 age, col("`viri60´")) ///
(rarea A_`i´_602 A_`i´_603 age, color("`viri61´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_601 age, col("`viri61´")) ///
(rarea A_`i´_502 A_`i´_503 age, color("`viri62´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_501 age, col("`viri62´")) ///
```

```
(rarea A_`i´_402 A_`i´_403 age, color("`viri63´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_401 age, col("`viri63´")) ///
(rarea A_`i´_302 A_`i´_303 age, color("`viri64´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_301 age, col("`viri64´")) ///
, legend(order(2 "Control" ///
4 "Intervention from age 60" ///
6 "Intervention from age 50" ///
8 "Intervention from age 40" ///
10 "Intervention from age 30") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Cumulative incidence of MI or coronary death (%)) xtitle(Age) ///
ylabel(0(10)50,angle(0)) ///
title("All `ss´", placement(west) color(black) size(medium))
graph save "Graph" GPH/PSAfig1_`i´_sex_`s´_ldl_`l´_1, replace
}
else {
twoway ///
(rarea A_control3 A_control4 age, color("`viri60´%30") fintensity(inten80) lwidth(none)) ///
(line A_control2 age, col("`viri60´")) ///
(rarea A_`i´_602 A_`i´_603 age, color("`viri61´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_601 age, col("`viri61´")) ///
(rarea A_`i´_502 A_`i´_503 age, color("`viri62´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_501 age, col("`viri62´")) ///
(rarea A_`i´_402 A_`i´_403 age, color("`viri63´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_401 age, col("`viri63´")) ///
(rarea A_`i´_302 A_`i´_303 age, color("`viri64´%30") fintensity(inten80) lwidth(none)) ///
(line A_`i´_301 age, col("`viri64´")) ///
, legend(order(2 "Control" ///
4 "Intervention from age 60" ///
6 "Intervention from age 50" ///
8 "Intervention from age 40" ///
10 "Intervention from age 30") ///
cols(1) ring(0) position(11) region(lcolor(white) color(none))) ///
graphregion(color(white)) ///
ytitle(Cumulative incidence of MI or coronary death (%)) xtitle(Age) ///
ylabel(0(10)50,angle(0)) ///
title("`sss´ with LDL-C `l´.0 mmol/L", placement(west) color(black) size(medium))
graph save "Graph" GPH/PSAfig1_`i´_sex_`s´_ldl_`l´, replace
}
}
}
}


graph combine ///
GPH/PSAfig1_1.gph ///
GPH/PSAfig1_2.gph ///
GPH/PSAfig1_3.gph ///
GPH/PSAfig1_4.gph ///
, altshrink cols(2) xsize(5) graphregion(color(white))
> nary death, by intervention)
graph combine ///
GPH/PSAfig1_1_sex_0_ldl_0.gph ///
GPH/PSAfig1_1_sex_1_ldl_0.gph ///
GPH/PSAfig1_2_sex_0_ldl_0.gph ///
GPH/PSAfig1_2_sex_1_ldl_0.gph ///
GPH/PSAfig1_3_sex_0_ldl_0.gph ///
GPH/PSAfig1_3_sex_1_ldl_0.gph ///
GPH/PSAfig1_4_sex_0_ldl_0.gph ///
GPH/PSAfig1_4_sex_1_ldl_0.gph ///
, altshrink cols(2) xsize(3) graphregion(color(white))
> nary death, by intervention and sex)
graph combine ///
GPH/PSAfig1_1_sex_0_ldl_0_1.gph ///
GPH/PSAfig1_1_sex_1_ldl_0_1.gph ///
GPH/PSAfig1_1_sex_0_ldl_3.gph ///
GPH/PSAfig1_1_sex_1_ldl_3.gph ///
GPH/PSAfig1_1_sex_0_ldl_4.gph ///
```

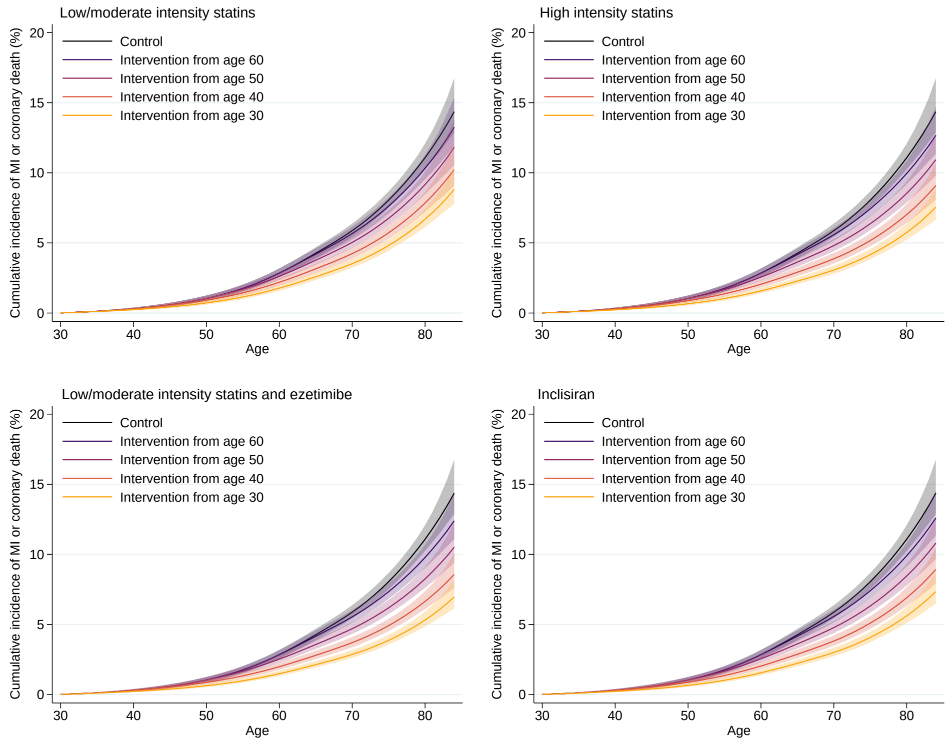

Figure 9.13: Cumulative incidence of MI or coronary death, by intervention

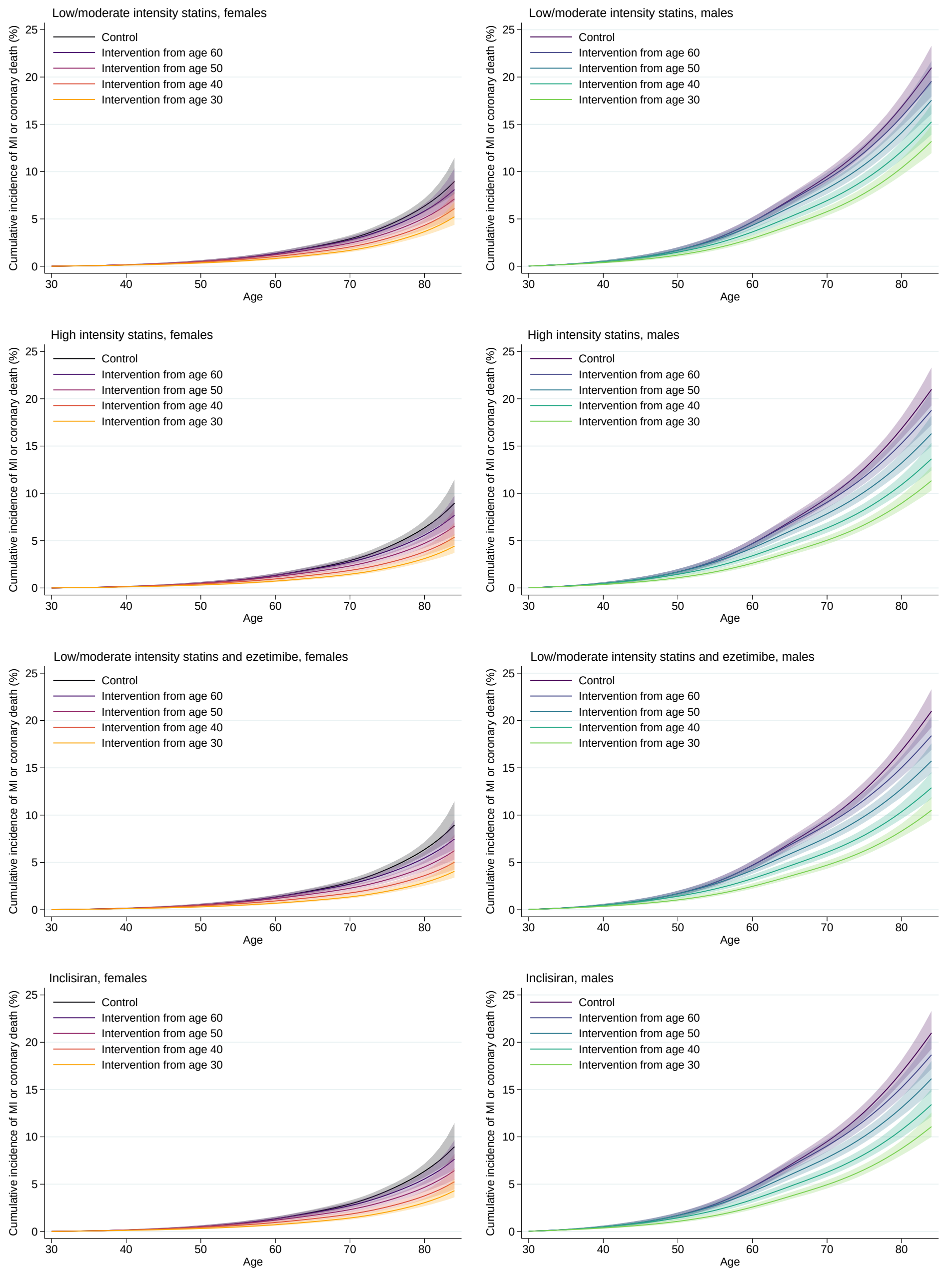

Figure 9.14: Cumulative incidence of MI or coronary death, by intervention and sex

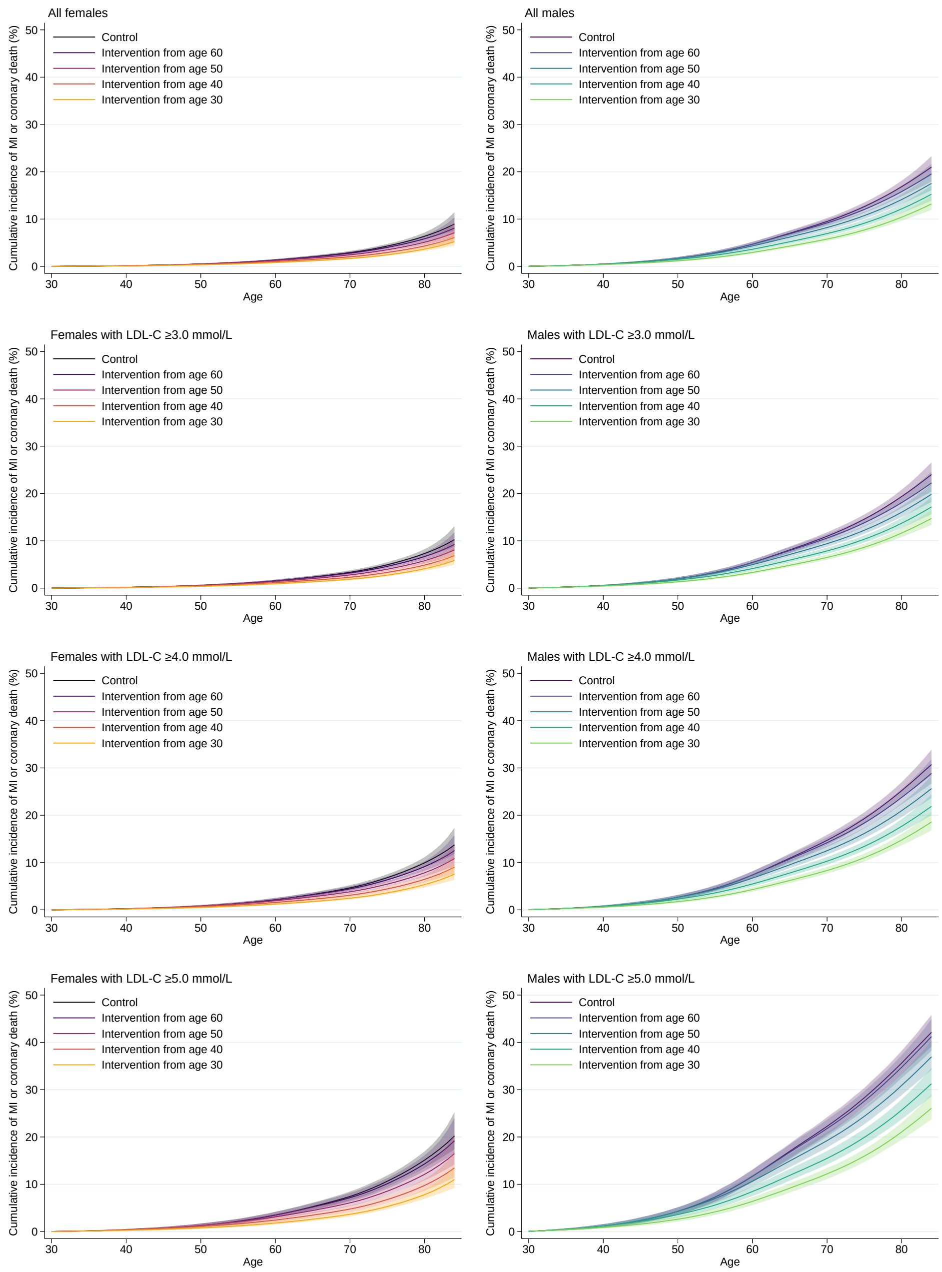

Figure 9.15: Cumulative incidence of MI or coronary death, by sex, LDL-C, and age of intervention – Low/moderate intensity statins

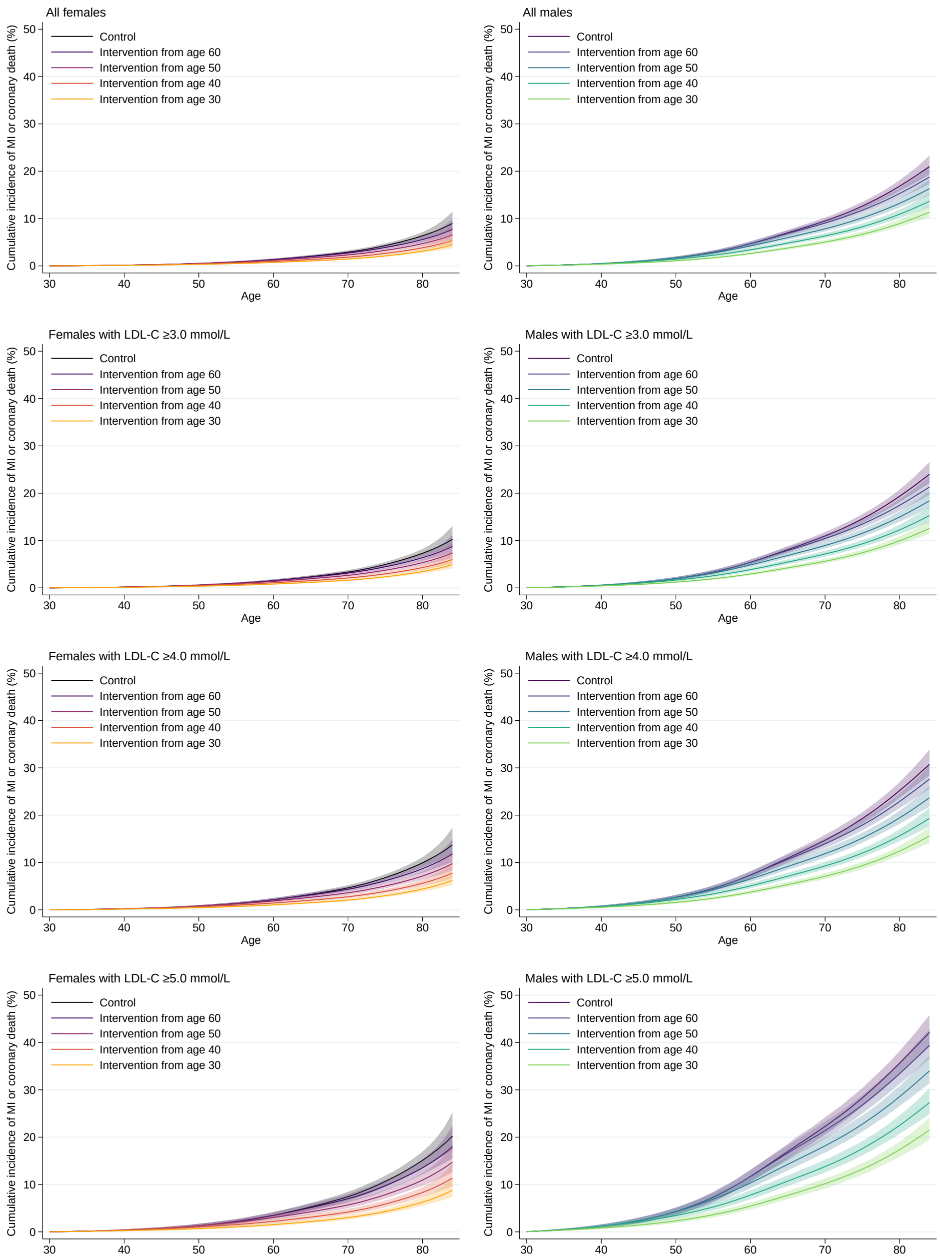

Figure 9.16: Cumulative incidence of MI or coronary death, by sex, LDL-C, and age of intervention – High intensity statins

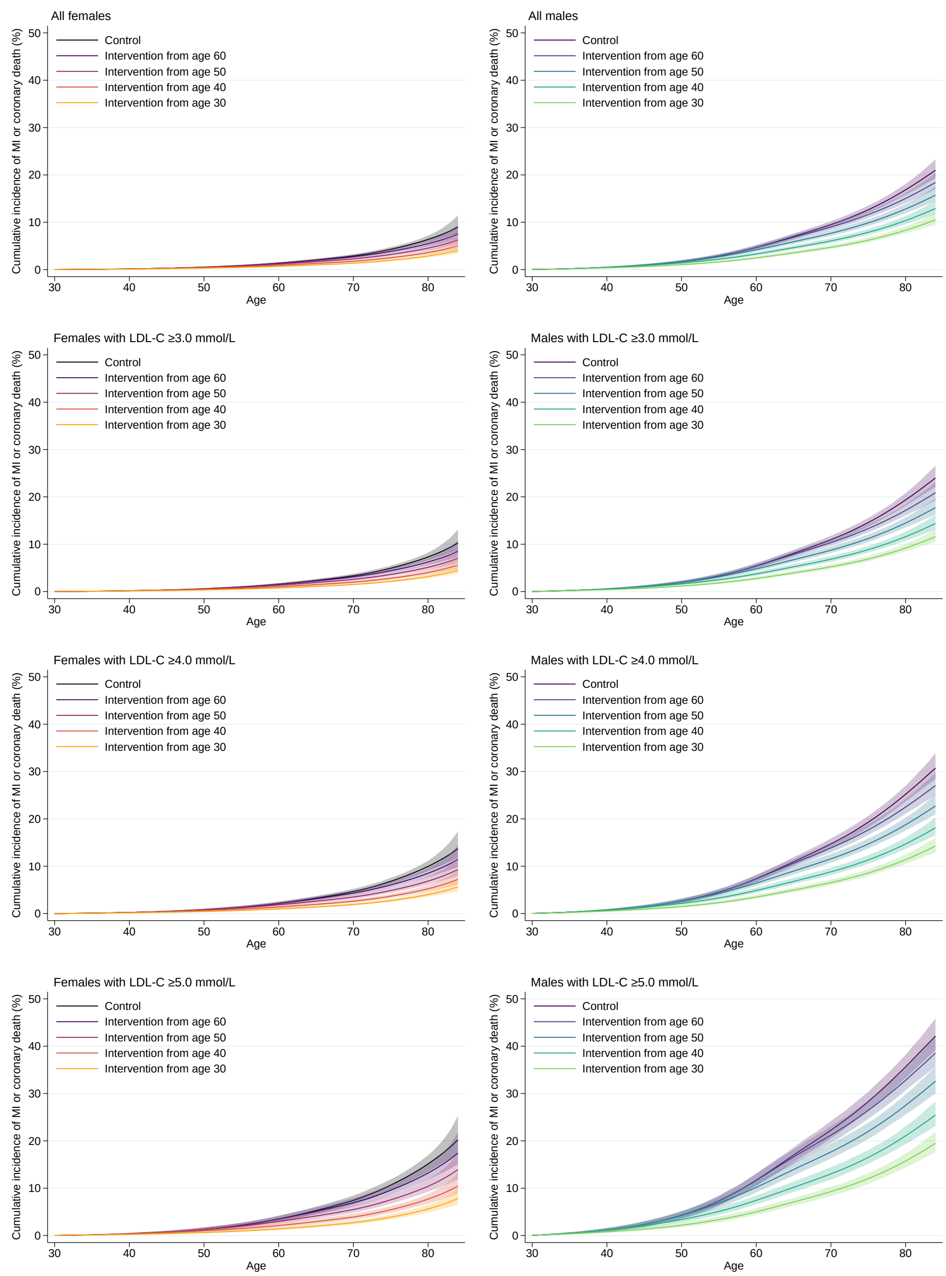

Figure 9.17: Cumulative incidence of MI or coronary death, by sex, LDL-C, and age of intervention – Low/moderate intensity statins and ezetimibe

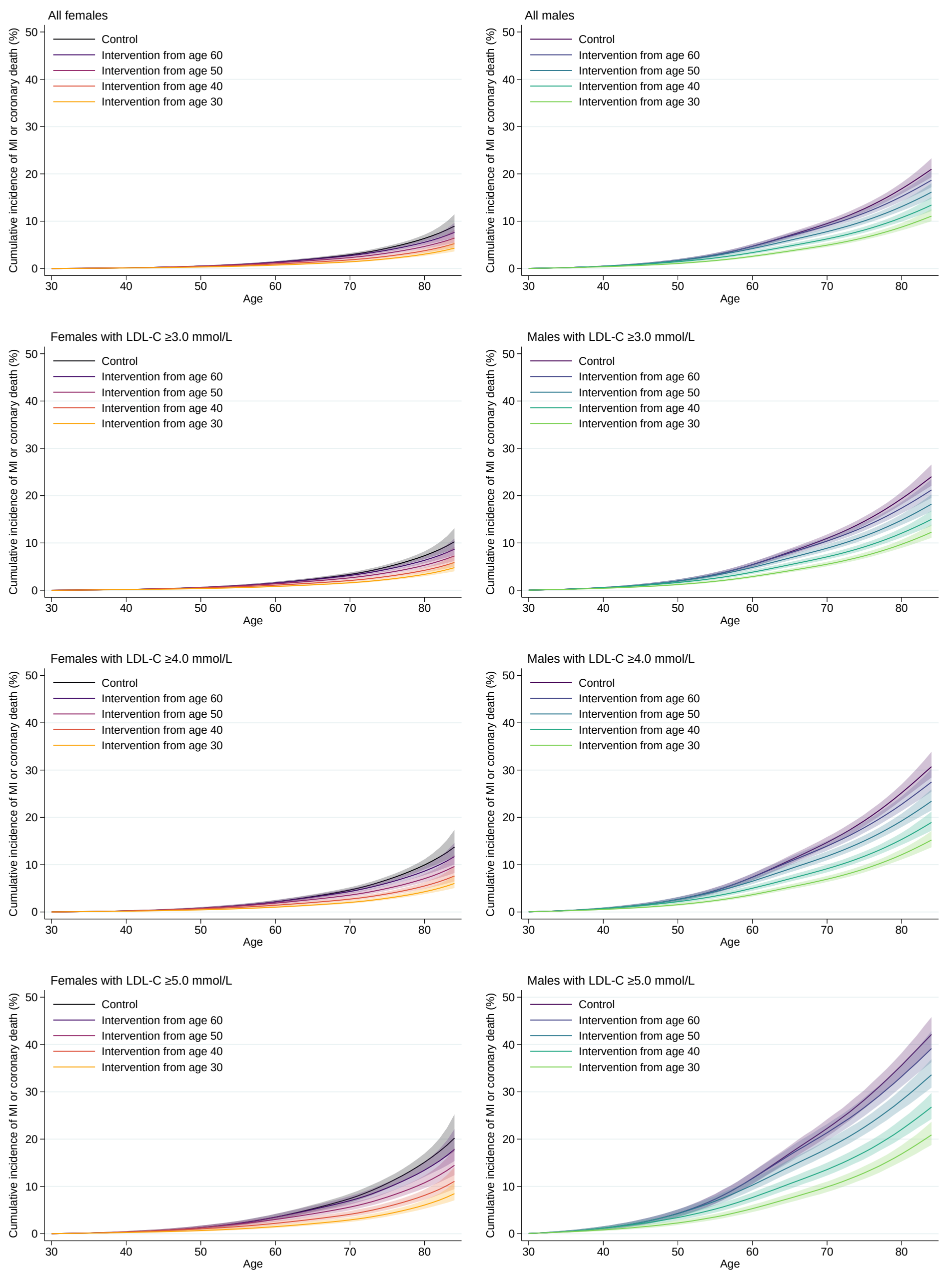

Figure 9.18: Cumulative incidence of MI or coronary death, by sex, LDL-C, and age of intervention – Inclisiran

```
GPH/PSAfig1_1_sex_1_ldl_4.gph ///
GPH/PSAfig1_1_sex_0_ldl_5.gph ///
GPH/PSAfig1_1_sex_1_ldl_5.gph ///
, altshrink cols(2) xsize(3) graphregion(color(white))
> nary death, by sex, LDL-C, and age of intervention -- Low/moderate intensity statins)
graph combine ///
GPH/PSAfig1_2_sex_0_ldl_0_1.gph ///
GPH/PSAfig1_2_sex_1_ldl_0_1.gph ///
GPH/PSAfig1_2_sex_0_ldl_3.gph ///
GPH/PSAfig1_2_sex_1_ldl_3.gph ///
GPH/PSAfig1_2_sex_0_ldl_4.gph ///
GPH/PSAfig1_2_sex_1_ldl_4.gph ///
GPH/PSAfig1_2_sex_0_ldl_5.gph ///
GPH/PSAfig1_2_sex_1_ldl_5.gph ///
, altshrink cols(2) xsize(3) graphregion(color(white))
> nary death, by sex, LDL-C, and age of intervention -- High intensity statins)
graph combine ///
GPH/PSAfig1_3_sex_0_ldl_0_1.gph ///
GPH/PSAfig1_3_sex_1_ldl_0_1.gph ///
GPH/PSAfig1_3_sex_0_ldl_3.gph ///
GPH/PSAfig1_3_sex_1_ldl_3.gph ///
GPH/PSAfig1_3_sex_0_ldl_4.gph ///
GPH/PSAfig1_3_sex_1_ldl_4.gph ///
GPH/PSAfig1_3_sex_0_ldl_5.gph ///
GPH/PSAfig1_3_sex_1_ldl_5.gph ///
, altshrink cols(2) xsize(3) graphregion(color(white))
> nary death, by sex, LDL-C, and age of intervention -- Low/moderate intensity statins and ezetimibe
> )
graph combine ///
GPH/PSAfig1_4_sex_0_ldl_0_1.gph ///
GPH/PSAfig1_4_sex_1_ldl_0_1.gph ///
GPH/PSAfig1_4_sex_0_ldl_3.gph ///
GPH/PSAfig1_4_sex_1_ldl_3.gph ///
GPH/PSAfig1_4_sex_0_ldl_4.gph ///
GPH/PSAfig1_4_sex_1_ldl_4.gph ///
GPH/PSAfig1_4_sex_0_ldl_5.gph ///
GPH/PSAfig1_4_sex_1_ldl_5.gph ///
, altshrink cols(2) xsize(3) graphregion(color(white))
> nary death, by sex, LDL-C, and age of intervention -- Inclisiran)
```

9.5 Results: Tables

It's also worth presenting the full results of the simulations even if they will be very messy:

```
clear
forval psa = 1/1000 {
append using PSA/PSA_overall_PSA_`psa´
}
foreach a of varlist A3-D4 {
forval i = 30(10)60 {
forval ii = 1/10 {
centile `a´ if A1 == `i´ & A2 == `ii´, centile(50 2.5 97.5)
if `i´ == 30 & `ii´ == 1 {
matrix A`a´ = (r(c_1),r(c_2),r(c_3))
}
else {
matrix A`a´ = (A`a´\r(c_1),r(c_2),r(c_3))
}
}
}
}
keep A1 A2
keep if _n <= 40
svmat double AA3
svmat double AA4
svmat double AA5
```

```
svmat double AA6
svmat double AA7
svmat double AD1
svmat double AD2
svmat double AD3
svmat double AD4
save reshofpsa, replace
gen A0 = ""
replace A0 = "N" if A2 == 1
replace A0 = "Incident MIs" if A2 == 2
replace A0 = "Deaths" if A2 == 3
replace A0 = "YLL" if A2 == 4
replace A0 = "QALYs" if A2 == 5
replace A0 = "Medication costs (\textsterling, millions)" if A2 == 6
replace A0 = "Acute MI costs (\textsterling, millions)" if A2 == 7
replace A0 = "Chronic MI costs (\textsterling, millions)" if A2 == 8
replace A0 = "Total healthcare costs (\textsterling, millions)" if A2 == 9
replace A0 = "ICER ($\Delta$ \textsterling / $\Delta$ QALY)" if A2 == 10
gen A00 = "30" if _n == 1
replace A00 = "40" if _n == 11
replace A00 = "50" if _n == 21
replace A00 = "60" if _n == 31
order A00 A0
gen P1 = 100*AD11/AA31
gen P2 = 100*AD21/AA31
gen P3 = 100*AD31/AA31
gen P4 = 100*AD41/AA31
tostring AA31-AD43, force format(%15.0fc) replace
tostring P1-P4, gen(p1 p2 p3 p4) format(%9.2f) force
tostring P1-P4, force format(%9.1f) replace
forval i = 3/7 {
local j = `i´-2
gen A`i´ = AA`i´1 + " (" + AA`i´2 + ", " + AA`i´3 + ")" if A2 !=10
}
forval i = 1/4 {
gen D`i´ = AD`i´1 + "; " + P`i´ + "\%" + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 != 1 & A2!= 4 & A
> 2 != 5 & A2 != 10
replace D`i´ = AD`i´1 + "; " + p`i´ + "\%" + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 == 4 | A2 ==
> 5
replace D`i´ = AD`i´1 + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 == 1 | A2 == 10
}
preserve
keep A00 A0 A3 A4 D1
export delimited using CSV/Res_HOF_PSA_1.csv, delimiter(":") novarnames replace
restore
preserve
keep A00 A0 A3 A5 D2
export delimited using CSV/Res_HOF_PSA_2.csv, delimiter(":") novarnames replace
restore
preserve
keep A00 A0 A3 A6 D3
export delimited using CSV/Res_HOF_PSA_3.csv, delimiter(":") novarnames replace
restore
preserve
keep A00 A0 A3 A7 D4
export delimited using CSV/Res_HOF_PSA_4.csv, delimiter(":") novarnames replace
restore
use reshofpsa, clear
gen A0 = ""
replace A0 = "N" if A2 == 1
replace A0 = "Incident MIs" if A2 == 2
replace A0 = "Deaths" if A2 == 3
replace A0 = "YLL" if A2 == 4
replace A0 = "QALYs" if A2 == 5
replace A0 = "Medication costs (\textsterling, millions)" if A2 == 6
replace A0 = "Acute MI costs (\textsterling, millions)" if A2 == 7
replace A0 = "Chronic MI costs (\textsterling, millions)" if A2 == 8
replace A0 = "Total healthcare costs (\textsterling, millions)" if A2 == 9
```

```
replace A0 = "ICER ($\Delta$ \textsterling / $\Delta$ QALY)" if A2 == 10
gen A00 = "30" if _n == 1
replace A00 = "40" if _n == 11
replace A00 = "50" if _n == 21
replace A00 = "60" if _n == 31
order A00 A0
gen P1 = 100*AD11/AA31
gen P2 = 100*AD21/AA31
gen P3 = 100*AD31/AA31
gen P4 = 100*AD41/AA31
foreach var of varlist AA31-AD43 {
replace `var´ = `var´/1000000 if inrange(A2,6,9)
}
tostring AA31-AD43, force format(%15.0fc) replace
tostring P1-P4, gen(p1 p2 p3 p4) format(%9.2f) force
tostring P1-P4, force format(%9.1f) replace
forval i = 3/7 {
local j = `i´-2
gen A`i´ = AA`i´1 + " (" + AA`i´2 + ", " + AA`i´3 + ")" if A2 !=10
}
forval i = 1/4 {
gen D`i´ = AD`i´1 + "; " + P`i´ + "\%" + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 != 1 & A2!= 4 & A
> 2 != 5 & A2 != 10
replace D`i´ = AD`i´1 + "; " + p`i´ + "\%" + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 == 4 | A2 ==
> 5
replace D`i´ = AD`i´1 + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 == 1 | A2 == 10
}
keep A00 A0 A3 D1 D2 D3 D4
export delimited using CSV/Res_HOF_PSA.csv, delimiter(":") novarnames replace
forval s = 0/1 {
foreach l in 0 3 4 5 {
clear
forval psa = 1/1000 {
append using PSA/PSA_sex_`s´_ldl_`l´_PSA_`psa´
}
foreach a of varlist A3-D4 {
forval i = 30(10)60 {
forval ii = 1/10 {
centile `a´ if A1 == `i´ & A2 == `ii´, centile(50 2.5 97.5)
if `i´ == 30 & `ii´ == 1 {
matrix A`a´ = (r(c_1),r(c_2),r(c_3))
}
else {
matrix A`a´ = (A`a´\r(c_1),r(c_2),r(c_3))
}
}
}
}
keep A1 A2
keep if _n <= 40
svmat double AA3
svmat double AA4
svmat double AA5
svmat double AA6
svmat double AA7
svmat double AD1
svmat double AD2
svmat double AD3
svmat double AD4
save reshofpsa`s´`l´, replace
gen A0 = ""
replace A0 = "N" if A2 == 1
replace A0 = "Incident MIs" if A2 == 2
replace A0 = "Deaths" if A2 == 3
replace A0 = "YLL" if A2 == 4
replace A0 = "QALYs" if A2 == 5
replace A0 = "Medication costs (\textsterling)" if A2 == 6
replace A0 = "Acute MI costs (\textsterling)" if A2 == 7
```

```
replace A0 = "Chronic MI costs (\textsterling)" if A2 == 8
replace A0 = "Total healthcare costs (\textsterling)" if A2 == 9
replace A0 = "ICER ($\Delta$ \textsterling / $\Delta$ QALY)" if A2 == 10
gen A00 = "30" if _n == 1
replace A00 = "40" if _n == 11
replace A00 = "50" if _n == 21
replace A00 = "60" if _n == 31
order A00 A0
gen P1 = 100*AD11/AA31
gen P2 = 100*AD21/AA31
gen P3 = 100*AD31/AA31
gen P4 = 100*AD41/AA31
tostring AA31-AD43, force format(%15.0fc) replace
tostring P1-P4, gen(p1 p2 p3 p4) format(%9.2f) force
tostring P1-P4, force format(%9.1f) replace
forval i = 3/7 {
local j = `i´-2
gen A`i´ = AA`i´1 + " (" + AA`i´2 + ", " + AA`i´3 + ")" if A2 !=10
}
forval i = 1/4 {
gen D`i´ = AD`i´1 + "; " + P`i´ + "\%" + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 != 1 & A2!= 4 & A
> 2 != 5 & A2 != 10
replace D`i´ = AD`i´1 + "; " + p`i´ + "\%" + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 == 4 | A2 ==
> 5
replace D`i´ = AD`i´1 + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 == 1 | A2 == 10
}
preserve
keep A00 A0 A3 A4 D1
export delimited using CSV/Res_HOF_PSA_1_sex_`s´_ldl_`l´.csv, delimiter(":") novarnames replace
restore
preserve
keep A00 A0 A3 A5 D2
export delimited using CSV/Res_HOF_PSA_2_sex_`s´_ldl_`l´.csv, delimiter(":") novarnames replace
restore
preserve
keep A00 A0 A3 A6 D3
export delimited using CSV/Res_HOF_PSA_3_sex_`s´_ldl_`l´.csv, delimiter(":") novarnames replace
restore
preserve
keep A00 A0 A3 A7 D4
export delimited using CSV/Res_HOF_PSA_4_sex_`s´_ldl_`l´.csv, delimiter(":") novarnames replace
restore
use reshofpsa`s´`l´, clear
gen A0 = ""
replace A0 = "N" if A2 == 1
replace A0 = "Incident MIs" if A2 == 2
replace A0 = "Deaths" if A2 == 3
replace A0 = "YLL" if A2 == 4
replace A0 = "QALYs" if A2 == 5
replace A0 = "Medication costs (\textsterling, millions)" if A2 == 6
replace A0 = "Acute MI costs (\textsterling, millions)" if A2 == 7
replace A0 = "Chronic MI costs (\textsterling, millions)" if A2 == 8
replace A0 = "Total healthcare costs (\textsterling, millions)" if A2 == 9
replace A0 = "ICER ($\Delta$ \textsterling / $\Delta$ QALY)" if A2 == 10
gen A00 = "30" if _n == 1
replace A00 = "40" if _n == 11
replace A00 = "50" if _n == 21
replace A00 = "60" if _n == 31
order A00 A0
gen P1 = 100*AD11/AA31
gen P2 = 100*AD21/AA31
gen P3 = 100*AD31/AA31
gen P4 = 100*AD41/AA31
foreach var of varlist AA31-AD43 {
replace `var´ = `var´/1000000 if inrange(A2,6,9)
}
tostring AA31-AD43, force format(%15.0fc) replace
tostring P1-P4, gen(p1 p2 p3 p4) format(%9.2f) force
```

```
tostring P1-P4, force format(%9.1f) replace
forval i = 3/7 {
local j = `i´-2
gen A`i´ = AA`i´1 + " (" + AA`i´2 + ", " + AA`i´3 + ")" if A2 !=10
}
forval i = 1/4 {
gen D`i´ = AD`i´1 + "; " + P`i´ + "\%" + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 != 1 & A2!= 4 & A
> 2 != 5 & A2 != 10
replace D`i´ = AD`i´1 + "; " + p`i´ + "\%" + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 == 4 | A2 ==
> 5
replace D`i´ = AD`i´1 + " (" + AD`i´2 + ", " + AD`i´3 + ")" if A2 == 1 | A2 == 10
}
keep A00 A0 A3 D1 D2 D3 D4
if `l´ == 0 {
save reshoftable1_`s´, replace
}
export delimited using CSV/Res_HOF_PSA_sex_`s´_ldl_`l´.csv, delimiter(":") novarnames replace
}
}
```

This is extremely long/messy, so go to tables 9.37 – 9.45 for the summaries.

Table 9.1: PSA results – Low/moderate intensity statins

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	458,692 (458,692, 458,692)	458,692 (458,692, 458,692)	0 (0, 0)
	Incident MIs	65,884 (59,047, 76,917)	40,446 (35,702, 47,759)	-25,478; -38.7% (-29,239, -22,985)
	Deaths	148,250 (135,515, 163,065)	141,189 (129,601, 154,270)	-6,942; -4.7% (-11,345, -3,948)
	YLL	10,961,655 (10,931,241, 10,988,973)	10,978,037 (10,948,815, 11,004,193)	16,060; 0.15% (10,939, 23,183)
	QALYs	9,463,645 (8,605,772, 10,402,795)	9,487,549 (8,627,452, 10,430,464)	23,856; 0.25% (18,875, 30,617)
	Medication costs (£, millions)	24,166,453 (23,773,203, 24,551,866)	202,307,875 (201,770,475, 202,788,872)	178,133,450; 737.1% (177,695,384, 178,539,932)
	Acute MI costs (£, millions)	30,912,201 (22,151,292, 42,011,453)	19,090,338 (13,590,477, 26,022,253)	-11,799,265; -38.2% (-16,072,621, -8,455,634)
	Chronic MI costs (£, millions)	236,411,076 (177,680,675, 310,583,139)	148,041,302 (111,014,232, 194,517,480)	-87,813,746; -37.1% (-116,166,402, -67,294,308)
	Total healthcare costs (£, millions)	291,595,992 (232,186,590, 368,806,912)	369,780,315 (331,905,304, 419,036,693)	78,319,864; 26.9% (48,471,005, 100,045,639)
	ICER (Δ £/ Δ QALY)			3,253 (1,951, 4,784)
40	N	456,016 (455,474, 456,463)	456,016 (455,474, 456,463)	0 (0, 0)
	Incident MIs	64,668 (58,176, 75,517)	45,685 (40,741, 53,488)	-19,084; -29.5% (-21,940, -17,147)
	Deaths	146,184 (133,833, 160,457)	140,787 (129,557, 153,670)	-5,364; -3.7% (-8,621, -3,128)
	YLL	9,974,590 (9,934,146, 10,011,467)	9,990,008 (9,950,316, 10,024,573)	15,400; 0.15% (10,103, 21,853)
	QALYs	8,367,720 (7,600,682, 9,226,820)	8,389,929 (7,619,553, 9,251,512)	22,215; 0.27% (17,008, 28,087)
	Medication costs (£, millions)	33,524,575 (33,084,085, 33,927,219)	184,135,447 (183,405,136, 184,771,432)	150,614,120; 449.3% (150,032,049, 151,138,528)
	Acute MI costs (£, millions)	41,081,469 (29,407,783, 55,720,978)	29,374,604 (21,067,225, 39,903,236)	-11,691,858; -28.5% (-16,020,128, -8,499,896)
	Chronic MI costs (£, millions)	300,337,994 (229,727,005, 390,169,572)	218,220,636 (166,174,293, 282,887,839)	-82,007,145; -27.3% (-107,018,600, -62,992,561)
	Total healthcare costs (£, millions)	375,240,733 (303,129,187, 470,321,391)	432,259,725 (379,048,534, 500,309,838)	56,430,806; 15.0% (29,699,978, 76,296,717)
	ICER (Δ £/ Δ QALY)			2,553 (1,270, 3,969)
50	N	449,476 (448,240, 450,535)	449,476 (448,240, 450,535)	0 (0, 0)
	Incident MIs	61,604 (55,417, 71,816)	49,920 (44,936, 58,174)	-11,777; -19.1% (-13,688, -10,352)
	Deaths	141,159 (129,584, 154,626)	137,856 (126,720, 149,854)	-3,405; -2.4% (-5,349, -1,880)
	YLL	8,599,242 (8,548,403, 8,643,411)	8,610,418 (8,558,926, 8,655,147)	11,297; 0.13% (6,762, 16,503)
	QALYs	6,985,205 (6,347,824, 7,705,302)	7,001,080 (6,362,782, 7,723,897)	15,465; 0.22% (11,362, 20,170)
	Medication costs (£, millions)	45,019,095 (44,545,200, 45,446,337)	158,758,710 (157,811,015, 159,581,643)	113,740,460; 252.6% (113,111,274, 114,300,188)
	Acute MI costs (£, millions)	51,257,486 (36,846,314, 69,315,522)	42,021,680 (30,108,029, 57,043,160)	-9,224,553; -18.0% (-12,631,421, -6,607,093)
	Chronic MI costs (£, millions)	346,705,291 (270,211,369, 445,572,288)	288,515,988 (223,597,015, 370,337,341)	-58,065,245; -16.7% (-75,107,806, -45,008,031)
	Total healthcare costs (£, millions)	443,047,023 (365,715,585, 546,622,032)	489,871,441 (423,278,953, 574,971,367)	46,476,579; 10.5% (28,596,754, 60,192,163)
	ICER (Δ £/ Δ QALY)			2,985 (1,669, 4,536)
60	N	434,024 (432,139, 435,752)	434,024 (432,139, 435,752)	0 (0, 0)
	Incident MIs	53,960 (48,221, 63,678)	48,819 (43,599, 57,608)	-5,161; -9.6% (-6,201, -4,507)
	Deaths	129,376 (118,856, 141,347)	127,884 (117,384, 139,240)	-1,547; -1.2% (-2,404, -1,006)
	YLL	6,718,611 (6,660,927, 6,769,209)	6,723,507 (6,666,687, 6,774,154)	5,097; 0.08% (3,958, 6,690)
	QALYs	5,271,297 (4,793,374, 5,815,845)	5,278,313 (4,799,087, 5,823,334)	6,558; 0.12% (5,268, 8,109)
	Medication costs (£, millions)	53,190,587 (52,633,497, 53,703,497)	124,044,710 (122,998,542, 124,976,847)	70,864,270; 133.2% (70,299,724, 71,365,919)
	Acute MI costs (£, millions)	55,833,348 (39,943,626, 75,360,416)	50,890,288 (36,550,704, 68,671,343)	-4,935,388; -8.8% (-6,730,638, -3,494,764)
	Chronic MI costs (£, millions)	324,908,701 (257,520,251, 413,036,814)	299,234,515 (235,821,837, 378,995,564)	-25,839,476; -8.0% (-33,082,922, -20,460,744)
	Total healthcare costs (£, millions)	434,303,614 (364,990,639, 527,226,971)	474,407,902 (410,413,036, 559,619,837)	40,042,832; 9.2% (32,288,964, 45,917,080)
	ICER (Δ £/ Δ QALY)			6,076 (4,447, 7,990)

Table 9.2: PSA results – High intensity statins

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	458,692 (458,692, 458,692)	458,692 (458,692, 458,692)	0 (0, 0)
	Incident MIs	65,884 (59,047, 76,917)	34,634 (30,550, 40,626)	-31,332; -47.6% (-36,013, -28,208)
	Deaths	148,250 (135,515, 163,065)	139,546 (127,828, 152,814)	-8,538; -5.8% (-13,959, -4,924)
	YLL	10,961,655 (10,931,241, 10,988,973)	10,981,411 (10,952,236, 11,007,313)	19,409; 0.18% (13,428, 27,501)
	QALYs	9,463,645 (8,605,772, 10,402,795)	9,492,583 (8,632,538, 10,435,855)	28,716; 0.30% (22,757, 36,251)
	Medication costs (£, millions)	24,166,453 (23,773,203, 24,551,866)	301,409,025 (300,609,931, 302,118,485)	277,225,262; 1147.1% (276,557,266, 277,800,740)
	Acute MI costs (£, millions)	30,912,201 (22,151,292, 42,011,453)	16,622,895 (11,734,329, 22,745,565)	-14,318,354; -46.3% (-19,413,154, -10,309,837)
	Chronic MI costs (£, millions)	236,411,076 (177,680,675, 310,583,139)	130,007,604 (96,882,927, 171,924,937)	-105,842,028; -44.8% (-137,939,119, -81,034,370)
	Total healthcare costs (£, millions)	291,595,992 (232,186,590, 368,806,912)	448,170,790 (415,408,073, 491,562,777)	156,996,676; 53.8% (122,561,426, 182,938,490)
	ICER (Δ £/ Δ QALY)			5,429 (3,907, 7,355)
40	N	456,016 (455,474, 456,463)	456,016 (455,474, 456,463)	0 (0, 0)
	Incident MIs	64,668 (58,176, 75,517)	40,540 (36,077, 47,423)	-24,276; -37.5% (-27,995, -21,739)
	Deaths	146,184 (133,833, 160,457)	139,388 (128,070, 152,044)	-6,794; -4.6% (-11,032, -4,073)
	YLL	9,974,590 (9,934,146, 10,011,467)	9,993,746 (9,953,454, 10,028,669)	19,140; 0.19% (13,128, 26,737)
	QALYs	8,367,720 (7,600,682, 9,226,820)	8,395,307 (7,625,262, 9,257,509)	27,383; 0.33% (21,417, 34,394)
	Medication costs (£, millions)	33,524,575 (33,084,085, 33,927,219)	274,353,296 (273,248,904, 275,310,092)	240,826,964; 718.4% (239,917,777, 241,632,602)
	Acute MI costs (£, millions)	41,081,469 (29,407,783, 55,720,978)	26,417,344 (18,896,047, 35,861,624)	-14,692,567; -35.8% (-20,077,700, -10,599,583)
	Chronic MI costs (£, millions)	300,337,994 (229,727,005, 390,169,572)	198,609,428 (150,069,000, 258,600,732)	-101,502,610; -33.8% (-132,575,023, -78,439,926)
	Total healthcare costs (£, millions)	375,240,733 (303,129,187, 470,321,391)	500,146,091 (450,543,840, 560,786,804)	124,373,408; 33.1% (92,407,530, 148,655,967)
	ICER (Δ £/ Δ QALY)			4,511 (3,138, 6,401)
50	N	449,476 (448,240, 450,535)	449,476 (448,240, 450,535)	0 (0, 0)
	Incident MIs	61,604 (55,417, 71,816)	45,856 (41,257, 53,514)	-15,856; -25.7% (-18,487, -13,967)
	Deaths	141,159 (129,584, 154,626)	136,614 (125,654, 148,899)	-4,572; -3.2% (-7,181, -2,729)
	YLL	8,599,242 (8,548,403, 8,643,411)	8,613,751 (8,562,021, 8,658,148)	14,869; 0.17% (9,771, 20,835)
	QALYs	6,985,205 (6,347,824, 7,705,302)	7,005,405 (6,366,830, 7,729,081)	20,135; 0.29% (15,470, 25,796)
	Medication costs (£, millions)	45,019,095 (44,545,200, 45,446,337)	236,546,049 (235,127,946, 237,763,849)	191,526,254; 425.4% (190,461,194, 192,457,870)
	Acute MI costs (£, millions)	51,257,486 (36,846,314, 69,315,522)	39,046,802 (27,923,744, 52,920,365)	-12,228,953; -23.9% (-16,506,193, -8,818,126)
	Chronic MI costs (£, millions)	346,705,291 (270,211,369, 445,572,288)	270,685,299 (209,669,477, 347,091,806)	-75,777,237; -21.9% (-97,300,252, -59,228,415)
	Total healthcare costs (£, millions)	443,047,023 (365,715,585, 546,622,032)	546,418,348 (485,251,503, 625,104,465)	103,306,739; 23.3% (81,228,996, 121,070,609)
	ICER (Δ £/ Δ QALY)			5,106 (3,611, 6,982)
60	N	434,024 (432,139, 435,752)	434,024 (432,139, 435,752)	0 (0, 0)
	Incident MIs	53,960 (48,221, 63,678)	46,186 (41,225, 54,385)	-7,808; -14.5% (-9,381, -6,861)
	Deaths	129,376 (118,856, 141,347)	127,100 (116,646, 138,390)	-2,333; -1.8% (-3,665, -1,549)
	YLL	6,718,611 (6,660,927, 6,769,209)	6,725,919 (6,669,304, 6,776,589)	7,511; 0.11% (5,905, 9,719)
	QALYs	5,271,297 (4,793,374, 5,815,845)	5,281,079 (4,801,866, 5,827,255)	9,639; 0.18% (7,855, 11,836)
	Medication costs (£, millions)	53,190,587 (52,633,497, 53,703,497)	184,817,300 (183,265,275, 186,207,239)	131,630,785; 247.5% (130,579,399, 132,613,608)
	Acute MI costs (£, millions)	55,833,348 (39,943,626, 75,360,416)	48,432,006 (34,673,084, 65,624,877)	-7,371,641; -13.2% (-10,104,153, -5,273,226)
	Chronic MI costs (£, millions)	324,908,701 (257,520,251, 413,036,814)	286,938,159 (225,956,368, 362,811,212)	-38,134,574; -11.7% (-48,367,558, -30,243,114)
	Total healthcare costs (£, millions)	434,303,614 (364,990,639, 527,226,971)	520,614,001 (458,979,957, 601,877,565)	86,026,051; 19.8% (75,066,611, 94,884,552)
	ICER (Δ £/ Δ QALY)			8,911 (6,808, 11,277)

Table 9.3: PSA results – Low/moderate intensity statins and ezetimibe

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	458,692 (458,692, 458,692)	458,692 (458,692, 458,692)	0 (0, 0)
	Incident MIs	65,884 (59,047, 76,917)	31,932 (28,164, 37,697)	-33,988; -51.6% (-39,394, -30,589)
	Deaths	148,250 (135,515, 163,065)	138,746 (127,022, 151,884)	-9,246; -6.2% (-15,073, -5,374)
	YLL	10,961,655 (10,931,241, 10,988,973)	10,982,874 (10,953,716, 11,008,670)	20,847; 0.19% (14,614, 29,639)
	QALYs	9,463,645 (8,605,772, 10,402,795)	9,495,173 (8,634,753, 10,439,257)	30,898; 0.33% (24,625, 39,276)
	Medication costs (£, millions)	24,166,453 (23,773,203, 24,551,866)	542,696,422 (541,258,656, 543,968,418)	518,545,040; 2145.7% (517,275,089, 519,630,422)
	Acute MI costs (£, millions)	30,912,201 (22,151,292, 42,011,453)	15,502,783 (11,016,377, 21,195,622)	-15,404,474; -49.8% (-20,958,904, -11,133,694)
	Chronic MI costs (£, millions)	236,411,076 (177,680,675, 310,583,139)	121,911,170 (90,763,304, 162,099,335)	-113,934,073; -48.2% (-149,406,881, -87,079,870)
	Total healthcare costs (£, millions)	291,595,992 (232,186,590, 368,806,912)	680,104,555 (648,842,988, 721,702,544)	388,808,057; 133.3% (351,115,941, 417,327,962)
	ICER (Δ £/ Δ QALY)			12,567 (9,810, 16,055)
40	N	456,016 (455,474, 456,463)	456,016 (455,474, 456,463)	0 (0, 0)
	Incident MIs	64,668 (58,176, 75,517)	38,128 (33,913, 44,725)	-26,652; -41.2% (-30,829, -23,936)
	Deaths	146,184 (133,833, 160,457)	138,668 (127,426, 151,476)	-7,474; -5.1% (-11,966, -4,493)
	YLL	9,974,590 (9,934,146, 10,011,467)	9,995,562 (9,955,095, 10,030,444)	20,873; 0.21% (14,563, 29,012)
	QALYs	8,367,720 (7,600,682, 9,226,820)	8,398,019 (7,627,593, 9,261,267)	29,885; 0.36% (23,584, 37,460)
	Medication costs (£, millions)	33,524,575 (33,084,085, 33,927,219)	494,005,360 (492,008,687, 495,726,109)	460,489,243; 1373.6% (458,679,873, 462,027,621)
	Acute MI costs (£, millions)	41,081,469 (29,407,783, 55,720,978)	25,055,596 (17,889,434, 34,097,748)	-16,005,912; -39.0% (-21,796,707, -11,619,716)
	Chronic MI costs (£, millions)	300,337,994 (229,727,005, 390,169,572)	189,376,443 (143,940,527, 246,901,840)	-110,790,258; -36.9% (-144,107,945, -85,446,399)
	Total healthcare costs (£, millions)	375,240,733 (303,129,187, 470,321,391)	708,820,168 (663,172,809, 768,299,730)	332,937,762; 88.7% (299,125,474, 359,711,103)
	ICER (Δ £/ Δ QALY)			11,107 (8,655, 14,508)
50	N	449,476 (448,240, 450,535)	449,476 (448,240, 450,535)	0 (0, 0)
	Incident MIs	61,604 (55,417, 71,816)	43,946 (39,481, 51,150)	-17,759; -28.8% (-20,792, -15,715)
	Deaths	141,159 (129,584, 154,626)	136,016 (125,344, 148,430)	-5,111; -3.6% (-8,063, -3,074)
	YLL	8,599,242 (8,548,403, 8,643,411)	8,615,506 (8,563,475, 8,660,008)	16,536; 0.19% (11,231, 22,847)
	QALYs	6,985,205 (6,347,824, 7,705,302)	7,007,446 (6,368,810, 7,732,430)	22,414; 0.32% (17,430, 28,271)
	Medication costs (£, millions)	45,019,095 (44,545,200, 45,446,337)	425,938,266 (423,370,649, 428,136,053)	380,922,901; 846.1% (378,739,819, 382,806,507)
	Acute MI costs (£, millions)	51,257,486 (36,846,314, 69,315,522)	37,648,900 (26,949,070, 51,163,664)	-13,609,940; -26.6% (-18,402,896, -9,855,626)
	Chronic MI costs (£, millions)	346,705,291 (270,211,369, 445,572,288)	262,041,396 (204,200,959, 336,044,769)	-84,395,679; -24.3% (-108,123,858, -65,926,575)
	Total healthcare costs (£, millions)	443,047,023 (365,715,585, 546,622,032)	726,097,355 (666,617,818, 802,660,414)	282,805,369; 63.8% (256,909,957, 302,714,878)
	ICER (Δ £/ Δ QALY)			12,584 (9,820, 16,491)
60	N	434,024 (432,139, 435,752)	434,024 (432,139, 435,752)	0 (0, 0)
	Incident MIs	53,960 (48,221, 63,678)	44,888 (40,012, 52,711)	-9,086; -16.8% (-10,906, -8,035)
	Deaths	129,376 (118,856, 141,347)	126,740 (116,281, 138,095)	-2,712; -2.1% (-4,205, -1,805)
	YLL	6,718,611 (6,660,927, 6,769,209)	6,727,166 (6,670,881, 6,777,758)	8,672; 0.13% (6,850, 11,336)
	QALYs	5,271,297 (4,793,374, 5,815,845)	5,282,788 (4,802,966, 5,828,846)	11,128; 0.21% (9,099, 13,848)
	Medication costs (£, millions)	53,190,587 (52,633,497, 53,703,497)	332,787,256 (330,008,756, 335,285,707)	279,596,113; 525.6% (277,293,341, 281,675,164)
	Acute MI costs (£, millions)	55,833,348 (39,943,626, 75,360,416)	47,295,206 (33,816,226, 63,898,003)	-8,535,376; -15.3% (-11,704,058, -6,095,452)
	Chronic MI costs (£, millions)	324,908,701 (257,520,251, 413,036,814)	280,819,049 (221,872,888, 356,177,029)	-44,087,966; -13.6% (-55,799,474, -34,791,851)
	Total healthcare costs (£, millions)	434,303,614 (364,990,639, 527,226,971)	661,246,813 (601,090,398, 741,056,253)	226,875,556; 52.2% (213,864,070, 236,914,075)
	ICER (Δ £/ Δ QALY)			20,335 (16,273, 25,299)

Table 9.4: PSA results – Inclisiran

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	458,692 (458,692, 458,692)	458,692 (458,692, 458,692)	0 (0, 0)
	Incident MIs	65,884 (59,047, 76,917)	33,690 (29,766, 39,714)	-32,242; -48.9% (-37,354, -28,650)
	Deaths	148,250 (135,515, 163,065)	139,254 (127,649, 152,486)	-8,738; -5.9% (-14,489, -5,002)
	YLL	10,961,655 (10,931,241, 10,988,973)	10,982,009 (10,952,616, 11,007,814)	19,794; 0.18% (13,743, 28,370)
	QALYs	9,463,645 (8,605,772, 10,402,795)	9,493,566 (8,633,617, 10,437,793)	29,406; 0.31% (23,242, 37,749)
	Medication costs (£, millions)	24,166,453 (23,773,203, 24,551,866)	43,741,569,402 (43,624,740,406, 43,844,135,502)	43,717,378,445; 180901.1% (43,600,639,086, 43,819,865,783)
	Acute MI costs (£, millions)	30,912,201 (22,151,292, 42,011,453)	16,280,522 (11,541,031, 22,364,139)	-14,716,535; -47.6% (-19,981,216, -10,531,838)
	Chronic MI costs (£, millions)	236,411,076 (177,680,675, 310,583,139)	127,601,851 (94,895,239, 168,608,598)	-108,019,556; -45.7% (-143,154,656, -82,252,199)
	Total healthcare costs (£, millions)	291,595,992 (232,186,590, 368,806,912)	43,884,948,991 (43,763,429,340, 43,996,857,052)	43,594,316,062; 14950.2% (43,470,087,337, 43,696,689,150)
	ICER (Δ £/ Δ QALY)			1,482,023 (1,153,300, 1,873,878)
40	N	456,016 (455,474, 456,463)	456,016 (455,474, 456,463)	0 (0, 0)
	Incident MIs	64,668 (58,176, 75,517)	39,737 (35,432, 46,456)	-25,054; -38.7% (-29,302, -22,180)
	Deaths	146,184 (133,833, 160,457)	139,180 (127,989, 151,873)	-7,000; -4.8% (-11,300, -4,209)
	YLL	9,974,590 (9,934,146, 10,011,467)	9,994,373 (9,954,183, 10,029,037)	19,602; 0.20% (13,530, 27,518)
	QALYs	8,367,720 (7,600,682, 9,226,820)	8,395,712 (7,626,257, 9,259,677)	28,217; 0.34% (22,068, 35,373)
	Medication costs (£, millions)	33,524,575 (33,084,085, 33,927,219)	39,815,478,119 (39,655,605,708, 39,953,316,711)	39,781,975,831; 118665.1% (39,622,223,742, 39,919,602,897)
	Acute MI costs (£, millions)	41,081,469 (29,407,783, 55,720,978)	26,094,072 (18,620,306, 35,564,824)	-15,106,474; -36.8% (-20,599,930, -10,896,565)
	Chronic MI costs (£, millions)	300,337,994 (229,727,005, 390,169,572)	196,065,931 (148,277,720, 253,804,861)	-104,324,276; -34.7% (-137,783,526, -80,016,831)
	Total healthcare costs (£, millions)	375,240,733 (303,129,187, 470,321,391)	40,036,055,620 (39,876,591,305, 40,179,553,607)	39,662,620,818; 10569.9% (39,495,908,930, 39,804,842,380)
	ICER (Δ £/ Δ QALY)			1,406,296 (1,121,775, 1,796,281)
50	N	449,476 (448,240, 450,535)	449,476 (448,240, 450,535)	0 (0, 0)
	Incident MIs	61,604 (55,417, 71,816)	45,288 (40,712, 52,544)	-16,432; -26.7% (-19,491, -14,307)
	Deaths	141,159 (129,584, 154,626)	136,397 (125,542, 148,722)	-4,746; -3.4% (-7,518, -2,862)
	YLL	8,599,242 (8,548,403, 8,643,411)	8,614,235 (8,562,788, 8,658,431)	15,320; 0.18% (10,258, 21,581)
	QALYs	6,985,205 (6,347,824, 7,705,302)	7,006,173 (6,367,532, 7,730,383)	20,826; 0.30% (15,985, 26,603)
	Medication costs (£, millions)	45,019,095 (44,545,200, 45,446,337)	34,328,491,835 (34,123,813,696, 34,504,403,552)	34,283,456,602; 76153.1% (34,079,162,221, 34,459,201,386)
	Acute MI costs (£, millions)	51,257,486 (36,846,314, 69,315,522)	38,697,416 (27,851,400, 52,450,754)	-12,633,136; -24.6% (-17,146,232, -8,984,222)
	Chronic MI costs (£, millions)	346,705,291 (270,211,369, 445,572,288)	267,792,217 (206,616,798, 342,034,938)	-78,601,215; -22.7% (-102,809,693, -60,472,759)
	Total healthcare costs (£, millions)	443,047,023 (365,715,585, 546,622,032)	34,632,504,627 (34,436,892,171, 34,813,862,256)	34,193,924,724; 7717.9% (33,985,504,445, 34,371,271,220)
	ICER (Δ £/ Δ QALY)			1,638,818 (1,283,226, 2,140,728)
60	N	434,024 (432,139, 435,752)	434,024 (432,139, 435,752)	0 (0, 0)
	Incident MIs	53,960 (48,221, 63,678)	45,806 (40,992, 53,710)	-8,217; -15.2% (-10,033, -7,047)
	Deaths	129,376 (118,856, 141,347)	126,948 (116,574, 138,244)	-2,440; -1.9% (-3,946, -1,622)
	YLL	6,718,611 (6,660,927, 6,769,209)	6,726,486 (6,669,616, 6,776,827)	7,826; 0.12% (6,093, 10,490)
	QALYs	5,271,297 (4,793,374, 5,815,845)	5,281,688 (4,801,550, 5,827,429)	10,081; 0.19% (8,130, 12,678)
	Medication costs (£, millions)	53,190,587 (52,633,497, 53,703,497)	26,822,213,091 (26,595,913,227, 27,022,475,949)	26,769,017,372; 50326.6% (26,543,361,451, 26,968,748,023)
	Acute MI costs (£, millions)	55,833,348 (39,943,626, 75,360,416)	48,097,122 (34,688,895, 65,193,370)	-7,737,962; -13.9% (-10,595,013, -5,403,219)
	Chronic MI costs (£, millions)	324,908,701 (257,520,251, 413,036,814)	284,819,867 (225,157,753, 359,471,856)	-39,881,785; -12.3% (-51,327,853, -31,299,814)
	Total healthcare costs (£, millions)	434,303,614 (364,990,639, 527,226,971)	27,151,868,915 (26,940,026,090, 27,357,835,146)	26,721,314,566; 6152.7% (26,492,336,503, 26,924,391,304)
	ICER (Δ £/ Δ QALY)			2,650,674 (2,106,068, 3,298,793)

Table 9.5: PSA results – Low/moderate intensity statins – All females

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	252,531 (252,531, 252,531)	252,531 (252,531, 252,531)	0 (0, 0)
	Incident MIs	22,634 (19,273, 28,938)	13,212 (11,062, 17,084)	-9,399; -41.5% (-11,785, -8,040)
	Deaths	63,670 (57,736, 71,031)	60,422 (55,030, 66,673)	-3,219; -5.1% (-5,511, -1,728)
	YLL	6,073,022 (6,057,744, 6,086,650)	6,078,226 (6,063,390, 6,090,941)	5,158; 0.08% (1,853, 8,621)
	QALYs	5,180,100 (4,710,153, 5,709,383)	5,186,879 (4,716,411, 5,717,879)	7,310; 0.14% (4,833, 10,279)
	Medication costs (£)	11,906,156 (11,751,276, 12,061,636)	112,010,769 (111,737,943, 112,244,603)	100,103,169; 840.8% (99,891,301, 100,287,024)
	Acute MI costs (£)	9,884,473 (7,029,574, 13,653,065)	5,859,480 (4,154,375, 8,107,378)	-4,039,085; -40.9% (-5,518,872, -2,873,263)
	Chronic MI costs (£)	70,384,291 (52,424,604, 93,876,075)	42,293,109 (31,215,988, 57,145,901)	-27,996,186; -39.8% (-37,483,355, -21,055,554)
	Total healthcare costs (£)	92,137,121 (73,853,307, 117,481,708)	160,223,661 (148,766,405, 175,832,037)	68,094,521; 73.9% (57,925,615, 75,376,675)
	ICER (Δ £/ Δ QALY)			9,283 (6,437, 14,329)
40	N	251,456 (251,210, 251,654)	251,456 (251,210, 251,654)	0 (0, 0)
	Incident MIs	22,317 (19,037, 28,481)	15,092 (12,764, 19,391)	-7,251; -32.5% (-9,071, -6,163)
	Deaths	62,715 (57,026, 69,899)	60,215 (54,882, 66,336)	-2,468; -3.9% (-4,295, -1,260)
	YLL	5,551,019 (5,531,278, 5,569,124)	5,556,007 (5,536,428, 5,573,007)	4,826; 0.09% (1,820, 8,172)
	QALYs	4,601,636 (4,181,089, 5,073,736)	4,608,191 (4,186,483, 5,081,135)	6,879; 0.15% (4,439, 9,668)
	Medication costs (£)	16,644,229 (16,457,644, 16,821,207)	102,406,194 (102,045,917, 102,719,016)	85,764,365; 515.3% (85,487,407, 85,999,341)
	Acute MI costs (£)	13,247,582 (9,437,160, 18,197,246)	9,118,149 (6,423,724, 12,511,639)	-4,158,561; -31.4% (-5,738,190, -2,977,854)
	Chronic MI costs (£)	91,032,199 (68,519,979, 119,864,298)	63,596,161 (47,723,998, 83,868,698)	-27,213,339; -29.9% (-35,905,452, -20,538,468)
	Total healthcare costs (£)	120,872,843 (98,492,461, 151,988,350)	175,103,291 (158,717,829, 196,981,993)	54,262,199; 44.9% (45,001,092, 61,319,320)
	ICER (Δ £/ Δ QALY)			7,858 (5,237, 12,661)
50	N	248,932 (248,399, 249,393)	248,932 (248,399, 249,393)	0 (0, 0)
	Incident MIs	21,489 (18,320, 27,408)	16,854 (14,406, 21,663)	-4,642; -21.6% (-5,866, -3,849)
	Deaths	60,522 (55,181, 67,438)	58,950 (53,775, 64,967)	-1,596; -2.6% (-2,858, -753)
	YLL	4,826,271 (4,802,422, 4,846,945)	4,830,285 (4,804,573, 4,851,059)	3,718; 0.08% (816, 6,588)
	QALYs	3,874,808 (3,521,035, 4,274,674)	3,879,080 (3,526,494, 4,280,128)	5,038; 0.13% (2,808, 7,454)
	Medication costs (£)	22,784,634 (22,578,168, 22,980,534)	89,057,891 (88,584,506, 89,440,367)	66,268,336; 290.8% (65,964,935, 66,536,203)
	Acute MI costs (£)	16,921,542 (12,039,330, 23,085,413)	13,454,335 (9,543,994, 18,451,110)	-3,476,650; -20.5% (-4,787,248, -2,450,232)
	Chronic MI costs (£)	108,228,994 (83,543,259, 140,756,623)	87,523,850 (67,434,266, 113,180,994)	-20,715,057; -19.1% (-27,639,530, -15,729,340)
	Total healthcare costs (£)	148,328,078 (122,704,113, 181,860,847)	190,254,565 (169,476,116, 217,291,504)	42,140,586; 28.4% (34,672,616, 47,606,555)
	ICER (Δ £/ Δ QALY)			8,289 (5,382, 15,390)
60	N	243,128 (242,279, 243,873)	243,128 (242,279, 243,873)	0 (0, 0)
	Incident MIs	19,525 (16,548, 25,222)	17,391 (14,701, 22,406)	-2,164; -11.1% (-2,867, -1,806)
	Deaths	55,576 (50,536, 62,245)	54,862 (49,839, 60,974)	-748; -1.3% (-1,357, -454)
	YLL	3,834,043 (3,806,741, 3,858,245)	3,835,957 (3,808,766, 3,860,269)	1,855; 0.05% (1,341, 2,756)
	QALYs	2,973,414 (2,703,787, 3,280,042)	2,975,741 (2,706,082, 3,282,823)	2,414; 0.08% (1,880, 3,125)
	Medication costs (£)	28,051,580 (27,804,859, 28,285,000)	70,766,762 (70,266,171, 71,214,498)	42,717,715; 152.3% (42,433,238, 42,980,958)
	Acute MI costs (£)	19,492,857 (13,899,999, 26,664,876)	17,514,688 (12,469,978, 23,965,155)	-2,009,727; -10.3% (-2,781,108, -1,419,149)
	Chronic MI costs (£)	109,632,584 (86,019,357, 141,630,505)	99,409,199 (77,685,914, 128,381,671)	-10,250,131; -9.3% (-13,211,633, -7,988,948)
	Total healthcare costs (£)	157,539,630 (132,825,132, 190,922,899)	187,941,138 (165,253,004, 217,726,294)	30,414,039; 19.3% (27,065,877, 33,008,270)
	ICER (Δ £/ Δ QALY)			12,564 (9,196, 16,779)

Table 9.6: PSA results – High intensity statins – All females

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	252,531 (252,531, 252,531)	252,531 (252,531, 252,531)	0 (0, 0)
	Incident MIs	22,634 (19,273, 28,938)	11,174 (9,365, 14,449)	-11,472; -50.7% (-14,452, -9,831)
	Deaths	63,670 (57,736, 71,031)	59,668 (54,414, 65,933)	-3,914; -6.1% (-6,730, -2,158)
	YLL	6,073,022 (6,057,744, 6,086,650)	6,079,144 (6,064,924, 6,091,926)	6,097; 0.10% (2,685, 10,113)
	QALYs	5,180,100 (4,710,153, 5,709,383)	5,188,249 (4,717,686, 5,719,537)	8,750; 0.17% (6,027, 12,040)
	Medication costs (£)	11,906,156 (11,751,276, 12,061,636)	166,853,602 (166,464,107, 167,203,684)	154,948,023; 1301.4% (154,613,763, 155,234,113)
	Acute MI costs (£)	9,884,473 (7,029,574, 13,653,065)	5,020,005 (3,562,379, 6,989,439)	-4,856,334; -49.1% (-6,659,648, -3,479,797)
	Chronic MI costs (£)	70,384,291 (52,424,604, 93,876,075)	36,850,230 (27,169,669, 49,971,909)	-33,405,329; -47.5% (-44,507,439, -25,234,989)
	Total healthcare costs (£)	92,137,121 (73,853,307, 117,481,708)	208,807,684 (198,740,309, 222,713,315)	116,577,845; 126.5% (104,632,087, 125,246,046)
	ICER (Δ £/ Δ QALY)			13,315 (9,503, 19,615)
40	N	251,456 (251,210, 251,654)	251,456 (251,210, 251,654)	0 (0, 0)
	Incident MIs	22,317 (19,037, 28,481)	13,220 (11,235, 16,988)	-9,120; -40.9% (-11,439, -7,762)
	Deaths	62,715 (57,026, 69,899)	59,500 (54,307, 65,441)	-3,114; -5.0% (-5,440, -1,679)
	YLL	5,551,019 (5,531,278, 5,569,124)	5,557,280 (5,537,607, 5,573,912)	5,970; 0.11% (2,819, 9,367)
	QALYs	4,601,636 (4,181,089, 5,073,736)	4,610,137 (4,188,197, 5,082,938)	8,451; 0.18% (5,754, 11,391)
	Medication costs (£)	16,644,229 (16,457,644, 16,821,207)	152,558,311 (152,019,208, 153,014,121)	135,909,371; 816.6% (135,470,032, 136,297,743)
	Acute MI costs (£)	13,247,582 (9,437,160, 18,197,246)	8,144,100 (5,672,735, 11,187,486)	-5,152,990; -38.9% (-7,084,904, -3,686,738)
	Chronic MI costs (£)	91,032,199 (68,519,979, 119,864,298)	57,271,492 (42,725,276, 75,710,960)	-33,527,160; -36.8% (-44,053,488, -25,587,962)
	Total healthcare costs (£)	120,872,843 (98,492,461, 151,988,350)	218,143,685 (203,350,216, 237,989,294)	97,157,112; 80.4% (86,027,639, 105,519,637)
	ICER (Δ £/ Δ QALY)			11,505 (8,171, 17,059)
50	N	248,932 (248,399, 249,393)	248,932 (248,399, 249,393)	0 (0, 0)
	Incident MIs	21,489 (18,320, 27,408)	15,305 (13,063, 19,565)	-6,187; -28.8% (-7,863, -5,147)
	Deaths	60,522 (55,181, 67,438)	58,374 (53,340, 64,259)	-2,126; -3.5% (-3,729, -1,106)
	YLL	4,826,271 (4,802,422, 4,846,945)	4,831,338 (4,806,125, 4,851,900)	4,794; 0.10% (1,837, 7,964)
	QALYs	3,874,808 (3,521,035, 4,274,674)	3,880,578 (3,527,749, 4,281,708)	6,520; 0.17% (4,093, 9,084)
	Medication costs (£)	22,784,634 (22,578,168, 22,980,534)	132,671,464 (131,979,969, 133,234,976)	109,878,951; 482.3% (109,374,166, 110,350,414)
	Acute MI costs (£)	16,921,542 (12,039,330, 23,085,413)	12,377,438 (8,799,061, 16,941,643)	-4,559,045; -26.9% (-6,217,609, -3,220,905)
	Chronic MI costs (£)	108,228,994 (83,543,259, 140,756,623)	81,386,243 (62,859,957, 105,378,839)	-26,828,746; -24.8% (-35,468,124, -20,602,472)
	Total healthcare costs (£)	148,328,078 (122,704,113, 181,860,847)	226,612,797 (207,501,817, 251,777,934)	78,488,374; 52.9% (69,286,904, 85,616,462)
	ICER (Δ £/ Δ QALY)			11,995 (8,443, 19,451)
60	N	243,128 (242,279, 243,873)	243,128 (242,279, 243,873)	0 (0, 0)
	Incident MIs	19,525 (16,548, 25,222)	16,296 (13,821, 20,973)	-3,224; -16.5% (-4,282, -2,706)
	Deaths	55,576 (50,536, 62,245)	54,508 (49,485, 60,311)	-1,110; -2.0% (-2,041, -673)
	YLL	3,834,043 (3,806,741, 3,858,245)	3,836,913 (3,809,895, 3,860,801)	2,706; 0.07% (1,934, 3,931)
	QALYs	2,973,414 (2,703,787, 3,280,042)	2,976,876 (2,707,018, 3,283,932)	3,491; 0.12% (2,740, 4,541)
	Medication costs (£)	28,051,580 (27,804,859, 28,285,000)	105,426,143 (104,685,108, 106,081,587)	77,377,390; 275.8% (76,861,179, 77,857,859)
	Acute MI costs (£)	19,492,857 (13,899,999, 26,664,876)	16,563,786 (11,847,764, 22,668,326)	-2,959,842; -15.2% (-4,114,280, -2,076,807)
	Chronic MI costs (£)	109,632,584 (86,019,357, 141,630,505)	94,945,867 (74,182,002, 122,353,843)	-14,890,625; -13.6% (-19,138,269, -11,588,940)
	Total healthcare costs (£)	157,539,630 (132,825,132, 190,922,899)	216,971,684 (195,566,664, 245,406,583)	59,445,934; 37.7% (54,899,712, 63,281,867)
	ICER (Δ £/ Δ QALY)			17,049 (12,767, 22,241)

Table 9.7: PSA results – Low/moderate intensity statins and ezetimibe – All females

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	252,531 (252,531, 252,531)	252,531 (252,531, 252,531)	0 (0, 0)
	Incident MIs	22,634 (19,273, 28,938)	10,252 (8,568, 13,258)	-12,409; -54.8% (-15,572, -10,612)
	Deaths	63,670 (57,736, 71,031)	59,369 (54,003, 65,654)	-4,219; -6.6% (-7,232, -2,365)
	YLL	6,073,022 (6,057,744, 6,086,650)	6,079,654 (6,065,347, 6,092,372)	6,565; 0.11% (3,020, 10,536)
	QALYs	5,180,100 (4,710,153, 5,709,383)	5,188,791 (4,718,337, 5,720,585)	9,348; 0.18% (6,504, 12,744)
	Medication costs (£)	11,906,156 (11,751,276, 12,061,636)	300,410,332 (299,704,875, 301,037,487)	288,507,049; 2423.2% (287,881,618, 289,061,265)
	Acute MI costs (£)	9,884,473 (7,029,574, 13,653,065)	4,651,031 (3,285,536, 6,478,877)	-5,222,667; -52.8% (-7,199,847, -3,747,109)
	Chronic MI costs (£)	70,384,291 (52,424,604, 93,876,075)	34,448,292 (25,318,974, 46,836,258)	-35,890,800; -51.0% (-47,737,443, -26,846,230)
	Total healthcare costs (£)	92,137,121 (73,853,307, 117,481,708)	339,489,017 (330,088,248, 352,719,454)	247,370,991; 268.5% (234,464,413, 256,746,853)
	ICER (Δ £/ Δ QALY)			26,376 (19,310, 37,842)
40	N	251,456 (251,210, 251,654)	251,456 (251,210, 251,654)	0 (0, 0)
	Incident MIs	22,317 (19,037, 28,481)	12,344 (10,452, 15,784)	-9,968; -44.7% (-12,565, -8,436)
	Deaths	62,715 (57,026, 69,899)	59,226 (54,011, 65,186)	-3,401; -5.4% (-5,981, -1,902)
	YLL	5,551,019 (5,531,278, 5,569,124)	5,557,743 (5,538,104, 5,574,476)	6,469; 0.12% (3,238, 10,212)
	QALYs	4,601,636 (4,181,089, 5,073,736)	4,610,929 (4,188,837, 5,083,963)	9,150; 0.20% (6,414, 12,273)
	Medication costs (£)	16,644,229 (16,457,644, 16,821,207)	274,672,272 (273,703,468, 275,497,914)	258,022,583; 1550.2% (257,188,099, 258,793,785)
	Acute MI costs (£)	13,247,582 (9,437,160, 18,197,246)	7,670,796 (5,388,165, 10,546,804)	-5,601,319; -42.3% (-7,697,229, -4,037,832)
	Chronic MI costs (£)	91,032,199 (68,519,979, 119,864,298)	54,364,236 (40,686,245, 72,037,702)	-36,413,349; -40.0% (-48,067,236, -27,757,945)
	Total healthcare costs (£)	120,872,843 (98,492,461, 151,988,350)	336,873,737 (322,867,783, 355,419,923)	215,859,981; 178.6% (203,467,525, 225,143,356)
	ICER (Δ £/ Δ QALY)			23,551 (17,473, 34,269)
50	N	248,932 (248,399, 249,393)	248,932 (248,399, 249,393)	0 (0, 0)
	Incident MIs	21,489 (18,320, 27,408)	14,603 (12,480, 18,619)	-6,910; -32.2% (-8,731, -5,791)
	Deaths	60,522 (55,181, 67,438)	58,114 (53,127, 64,035)	-2,393; -4.0% (-4,150, -1,263)
	YLL	4,826,271 (4,802,422, 4,846,945)	4,831,888 (4,806,682, 4,852,539)	5,331; 0.11% (2,187, 8,715)
	QALYs	3,874,808 (3,521,035, 4,274,674)	3,881,115 (3,528,373, 4,282,725)	7,226; 0.19% (4,688, 9,940)
	Medication costs (£)	22,784,634 (22,578,168, 22,980,534)	238,874,293 (237,629,942, 239,893,552)	216,075,257; 948.3% (215,018,792, 217,001,866)
	Acute MI costs (£)	16,921,542 (12,039,330, 23,085,413)	11,858,772 (8,452,894, 16,218,485)	-5,057,086; -29.9% (-6,918,988, -3,579,708)
	Chronic MI costs (£)	108,228,994 (83,543,259, 140,756,623)	78,609,021 (60,772,264, 101,553,088)	-29,660,233; -27.4% (-39,072,403, -22,841,308)
	Total healthcare costs (£)	148,328,078 (122,704,113, 181,860,847)	329,346,614 (311,146,915, 353,664,360)	181,292,575; 122.2% (171,235,145, 189,019,239)
	ICER (Δ £/ Δ QALY)			25,135 (18,214, 38,610)
60	N	243,128 (242,279, 243,873)	243,128 (242,279, 243,873)	0 (0, 0)
	Incident MIs	19,525 (16,548, 25,222)	15,774 (13,424, 20,270)	-3,736; -19.1% (-4,918, -3,128)
	Deaths	55,576 (50,536, 62,245)	54,314 (49,326, 60,079)	-1,294; -2.3% (-2,344, -782)
	YLL	3,834,043 (3,806,741, 3,858,245)	3,837,262 (3,810,193, 3,861,181)	3,102; 0.08% (2,230, 4,576)
	QALYs	2,973,414 (2,703,787, 3,280,042)	2,977,421 (2,707,587, 3,284,811)	4,009; 0.13% (3,151, 5,182)
	Medication costs (£)	28,051,580 (27,804,859, 28,285,000)	189,815,150 (188,478,470, 190,995,756)	161,775,071; 576.7% (160,681,616, 162,781,099)
	Acute MI costs (£)	19,492,857 (13,899,999, 26,664,876)	16,106,274 (11,532,986, 22,092,995)	-3,405,618; -17.5% (-4,696,999, -2,409,453)
	Chronic MI costs (£)	109,632,584 (86,019,357, 141,630,505)	92,540,364 (72,543,926, 119,506,814)	-17,089,077; -15.6% (-21,877,628, -13,429,436)
	Total healthcare costs (£)	157,539,630 (132,825,132, 190,922,899)	298,851,150 (277,868,771, 326,829,624)	141,214,292; 89.6% (135,792,043, 145,566,512)
	ICER (Δ £/ Δ QALY)			35,275 (26,881, 45,193)

Table 9.8: PSA results – Inclisiran – All females

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	252,531 (252,531, 252,531)	252,531 (252,531, 252,531)	0 (0, 0)
	Incident MIs	22,634 (19,273, 28,938)	10,883 (9,114, 14,035)	-11,766; -52.0% (-14,820, -9,968)
	Deaths	63,670 (57,736, 71,031)	59,579 (54,213, 65,751)	-4,028; -6.3% (-7,045, -2,224)
	YLL	6,073,022 (6,057,744, 6,086,650)	6,079,339 (6,064,919, 6,091,990)	6,237; 0.10% (2,792, 10,253)
	QALYs	5,180,100 (4,710,153, 5,709,383)	5,188,630 (4,718,006, 5,720,136)	8,927; 0.17% (6,156, 12,263)
	Medication costs (£)	11,906,156 (11,751,276, 12,061,636)	24,213,859,032 (24,156,543,192, 24,264,139,920)	24,202,005,904; 203273.0% (24,144,713,667, 24,252,166,409)
	Acute MI costs (£)	9,884,473 (7,029,574, 13,653,065)	4,912,321 (3,451,300, 6,847,617)	-4,972,031; -50.3% (-6,850,260, -3,532,393)
	Chronic MI costs (£)	70,384,291 (52,424,604, 93,876,075)	36,122,482 (26,551,609, 48,978,990)	-34,191,511; -48.6% (-45,724,634, -25,624,200)
	Total healthcare costs (£)	92,137,121 (73,853,307, 117,481,708)	24,255,137,627 (24,196,337,138, 24,308,215,470)	24,162,843,972; 26224.9% (24,102,318,090, 24,213,022,283)
	ICER (Δ £/ Δ QALY)			2,706,488 (1,969,551, 3,926,770)
40	N	251,456 (251,210, 251,654)	251,456 (251,210, 251,654)	0 (0, 0)
	Incident MIs	22,317 (19,037, 28,481)	12,932 (11,013, 16,543)	-9,390; -42.1% (-11,949, -7,855)
	Deaths	62,715 (57,026, 69,899)	59,449 (54,194, 65,380)	-3,211; -5.1% (-5,566, -1,763)
	YLL	5,551,019 (5,531,278, 5,569,124)	5,557,420 (5,537,734, 5,573,944)	6,130; 0.11% (2,943, 9,667)
	QALYs	4,601,636 (4,181,089, 5,073,736)	4,610,169 (4,188,481, 5,083,563)	8,675; 0.19% (5,944, 11,680)
	Medication costs (£)	16,644,229 (16,457,644, 16,821,207)	22,139,148,961 (22,060,884,287, 22,204,889,970)	22,122,471,111; 132913.8% (22,044,436,843, 22,188,268,793)
	Acute MI costs (£)	13,247,582 (9,437,160, 18,197,246)	8,007,296 (5,605,922, 11,001,937)	-5,291,856; -39.9% (-7,265,252, -3,779,982)
	Chronic MI costs (£)	91,032,199 (68,519,979, 119,864,298)	56,489,559 (41,984,312, 74,749,479)	-34,374,495; -37.8% (-45,762,483, -26,073,956)
	Total healthcare costs (£)	120,872,843 (98,492,461, 151,988,350)	22,203,177,130 (22,124,503,760, 22,272,748,915)	22,081,722,080; 18268.6% (22,002,528,436, 22,150,290,978)
	ICER (Δ £/ Δ QALY)			2,545,380 (1,887,241, 3,726,175)
50	N	248,932 (248,399, 249,393)	248,932 (248,399, 249,393)	0 (0, 0)
	Incident MIs	21,489 (18,320, 27,408)	15,075 (12,929, 19,220)	-6,416; -29.9% (-8,220, -5,275)
	Deaths	60,522 (55,181, 67,438)	58,338 (53,306, 64,205)	-2,212; -3.7% (-3,887, -1,181)
	YLL	4,826,271 (4,802,422, 4,846,945)	4,831,542 (4,806,349, 4,852,219)	4,974; 0.10% (1,957, 8,166)
	QALYs	3,874,808 (3,521,035, 4,274,674)	3,880,649 (3,527,960, 4,282,075)	6,685; 0.17% (4,220, 9,351)
	Medication costs (£)	22,784,634 (22,578,168, 22,980,534)	19,253,526,364 (19,153,260,076, 19,335,789,206)	19,230,775,987; 84402.4% (19,130,638,731, 19,312,998,357)
	Acute MI costs (£)	16,921,542 (12,039,330, 23,085,413)	12,241,883 (8,691,904, 16,862,745)	-4,702,968; -27.8% (-6,447,530, -3,323,570)
	Chronic MI costs (£)	108,228,994 (83,543,259, 140,756,623)	80,575,636 (61,982,640, 104,395,138)	-27,619,892; -25.5% (-36,823,782, -21,112,872)
	Total healthcare costs (£)	148,328,078 (122,704,113, 181,860,847)	19,345,776,417 (19,249,883,685, 19,431,220,320)	19,197,273,857; 12942.4% (19,097,057,524, 19,282,231,976)
	ICER (Δ £/ Δ QALY)			2,874,104 (2,047,217, 4,553,995)
60	N	243,128 (242,279, 243,873)	243,128 (242,279, 243,873)	0 (0, 0)
	Incident MIs	19,525 (16,548, 25,222)	16,152 (13,822, 20,758)	-3,387; -17.3% (-4,525, -2,766)
	Deaths	55,576 (50,536, 62,245)	54,448 (49,493, 60,195)	-1,158; -2.1% (-2,158, -725)
	YLL	3,834,043 (3,806,741, 3,858,245)	3,837,012 (3,809,940, 3,861,039)	2,816; 0.07% (2,013, 4,309)
	QALYs	2,973,414 (2,703,787, 3,280,042)	2,976,980 (2,707,136, 3,284,441)	3,631; 0.12% (2,832, 4,767)
	Medication costs (£)	28,051,580 (27,804,859, 28,285,000)	15,299,400,809 (15,191,634,747, 15,394,996,830)	15,271,353,109; 54440.3% (15,163,914,366, 15,366,857,384)
	Acute MI costs (£)	19,492,857 (13,899,999, 26,664,876)	16,422,127 (11,753,545, 22,445,034)	-3,098,513; -15.9% (-4,296,058, -2,132,636)
	Chronic MI costs (£)	109,632,584 (86,019,357, 141,630,505)	94,087,117 (73,352,395, 121,548,394)	-15,548,297; -14.2% (-20,306,573, -12,015,840)
	Total healthcare costs (£)	157,539,630 (132,825,132, 190,922,899)	15,409,970,925 (15,304,172,994, 15,506,657,318)	15,252,590,414; 9681.7% (15,145,098,036, 15,346,831,275)
	ICER (Δ £/ Δ QALY)			4,195,768 (3,183,393, 5,397,560)

Table 9.9: PSA results – Low/moderate intensity statins – Females with LDL-C ≥3.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	190,859 (190,859, 190,859)	190,859 (190,859, 190,859)	0 (0, 0)
	Incident MIs	19,580 (16,690, 25,006)	11,170 (9,404, 14,364)	-8,422; -43.0% (-10,483, -7,200)
	Deaths	49,000 (44,282, 55,066)	46,068 (41,855, 50,847)	-2,914; -5.9% (-4,932, -1,498)
	YLL	4,588,513 (4,576,834, 4,598,845)	4,593,178 (4,581,902, 4,602,946)	4,597; 0.10% (1,841, 7,634)
	QALYs	3,912,651 (3,557,939, 4,312,983)	3,919,272 (3,563,699, 4,320,631)	6,547; 0.17% (4,299, 9,287)
	Medication costs (£)	9,011,526 (8,877,878, 9,144,291)	84,644,040 (84,436,670, 84,823,671)	75,628,752; 839.2% (75,465,782, 75,777,612)
	Acute MI costs (£)	8,564,622 (6,092,748, 11,827,333)	4,957,439 (3,516,293, 6,854,357)	-3,615,877; -42.2% (-4,965,428, -2,588,195)
	Chronic MI costs (£)	60,946,974 (45,329,298, 81,561,772)	35,853,519 (26,475,017, 48,661,849)	-25,111,034; -41.2% (-33,737,439, -18,671,889)
	Total healthcare costs (£)	78,570,776 (62,538,025, 100,492,996)	125,508,527 (115,828,801, 138,810,285)	46,813,853; 59.6% (37,485,876, 53,362,633)
	ICER (Δ £/ Δ QALY)			7,108 (4,835, 11,147)
40	N	190,012 (189,816, 190,170)	190,012 (189,816, 190,170)	0 (0, 0)
	Incident MIs	19,300 (16,483, 24,602)	12,826 (10,850, 16,346)	-6,503; -33.7% (-8,091, -5,494)
	Deaths	48,213 (43,699, 54,133)	45,994 (41,955, 50,689)	-2,220; -4.6% (-3,850, -1,169)
	YLL	4,192,850 (4,177,601, 4,206,457)	4,197,219 (4,181,358, 4,210,631)	4,344; 0.10% (1,678, 7,244)
	QALYs	3,474,711 (3,157,150, 3,831,429)	3,480,212 (3,162,256, 3,838,324)	6,151; 0.18% (4,024, 8,577)
	Medication costs (£)	12,588,987 (12,439,803, 12,733,438)	77,361,627 (77,069,715, 77,608,352)	64,772,599; 514.5% (64,555,880, 64,960,202)
	Acute MI costs (£)	11,497,785 (8,177,455, 15,786,113)	7,766,616 (5,475,473, 10,656,358)	-3,746,214; -32.6% (-5,129,161, -2,673,885)
	Chronic MI costs (£)	79,057,168 (59,405,891, 103,908,731)	54,353,836 (40,717,323, 71,805,766)	-24,533,171; -31.0% (-32,204,170, -18,491,744)
	Total healthcare costs (£)	103,175,082 (83,256,962, 130,072,534)	139,583,446 (125,463,373, 158,113,725)	36,448,287; 35.3% (27,904,569, 42,869,885)
	ICER (Δ £/ Δ QALY)			5,891 (3,822, 9,348)
50	N	188,018 (187,571, 188,386)	188,018 (187,571, 188,386)	0 (0, 0)
	Incident MIs	18,581 (15,844, 23,666)	14,420 (12,336, 18,512)	-4,181; -22.5% (-5,261, -3,460)
	Deaths	46,527 (42,230, 52,154)	45,088 (41,229, 49,854)	-1,448; -3.1% (-2,579, -639)
	YLL	3,643,106 (3,624,472, 3,659,861)	3,646,558 (3,626,647, 3,662,673)	3,300; 0.09% (752, 5,929)
	QALYs	2,923,315 (2,655,529, 3,224,875)	2,927,833 (2,660,156, 3,230,010)	4,567; 0.16% (2,522, 6,729)
	Medication costs (£)	17,320,936 (17,149,529, 17,481,976)	67,233,062 (66,866,628, 67,529,843)	49,911,051; 288.2% (49,672,084, 50,131,331)
	Acute MI costs (£)	14,650,227 (10,471,907, 20,036,663)	11,530,767 (8,228,018, 15,794,907)	-3,139,152; -21.4% (-4,307,367, -2,208,925)
	Chronic MI costs (£)	93,990,483 (72,373,333, 121,614,512)	75,270,818 (58,157,257, 96,909,712)	-18,792,634; -20.0% (-24,787,484, -14,150,786)
	Total healthcare costs (£)	126,296,411 (104,138,088, 155,446,567)	154,196,853 (136,280,525, 177,298,704)	27,993,449; 22.2% (21,199,276, 32,874,672)
	ICER (Δ £/ Δ QALY)			6,059 (3,823, 11,639)
60	N	183,402 (182,723, 184,029)	183,402 (182,723, 184,029)	0 (0, 0)
	Incident MIs	16,888 (14,311, 21,760)	14,964 (12,672, 19,239)	-1,938; -11.5% (-2,556, -1,618)
	Deaths	42,724 (38,745, 48,101)	42,038 (38,135, 46,803)	-670; -1.6% (-1,206, -411)
	YLL	2,890,072 (2,868,596, 2,909,268)	2,891,956 (2,870,196, 2,911,213)	1,678; 0.06% (1,213, 2,474)
	QALYs	2,240,077 (2,035,996, 2,470,317)	2,242,242 (2,038,049, 2,472,855)	2,190; 0.10% (1,699, 2,829)
	Medication costs (£)	21,761,514 (21,557,272, 21,962,841)	53,351,608 (52,950,893, 53,706,480)	31,587,957; 145.2% (31,366,707, 31,793,755)
	Acute MI costs (£)	16,896,480 (12,034,843, 23,085,497)	15,088,923 (10,778,586, 20,613,042)	-1,810,322; -10.7% (-2,494,491, -1,273,367)
	Chronic MI costs (£)	95,131,432 (74,334,744, 123,068,679)	85,894,688 (67,257,608, 110,846,913)	-9,256,539; -9.7% (-11,952,561, -7,242,096)
	Total healthcare costs (£)	134,200,816 (112,547,896, 162,924,609)	154,601,292 (134,744,040, 180,555,054)	20,467,705; 15.3% (17,472,967, 22,807,446)
	ICER (Δ £/ Δ QALY)			9,318 (6,688, 12,637)

Table 9.10: PSA results – High intensity statins – Females with LDL-C ≥3.0 mmol/L

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	190,859 (190,859, 190,859)	190,859 (190,859, 190,859)	0 (0, 0)
	Incident MIs	19,580 (16,690, 25,006)	9,362 (7,841, 12,085)	-10,242; -52.3% (-12,907, -8,749)
	Deaths	49,000 (44,282, 55,066)	45,408 (41,271, 50,099)	-3,520; -7.2% (-5,906, -1,899)
	YLL	4,588,513 (4,576,834, 4,598,845)	4,593,997 (4,582,714, 4,603,759)	5,426; 0.12% (2,590, 8,909)
	QALYs	3,912,651 (3,557,939, 4,312,983)	3,920,499 (3,564,825, 4,322,088)	7,802; 0.20% (5,478, 10,862)
	Medication costs (£)	9,011,526 (8,877,878, 9,144,291)	126,090,969 (125,781,915, 126,358,335)	117,075,468; 1299.2% (116,831,289, 117,297,889)
	Acute MI costs (£)	8,564,622 (6,092,748, 11,827,333)	4,208,957 (2,977,260, 5,891,920)	-4,341,869; -50.7% (-5,954,845, -3,113,556)
	Chronic MI costs (£)	60,946,974 (45,329,298, 81,561,772)	30,945,895 (22,764,782, 42,210,414)	-29,914,283; -49.1% (-39,833,611, -22,452,354)
	Total healthcare costs (£)	78,570,776 (62,538,025, 100,492,996)	161,398,275 (152,974,488, 173,183,438)	82,697,763; 105.3% (71,987,384, 90,458,843)
	ICER (Δ £/ Δ QALY)			10,512 (7,462, 15,690)
40	N	190,012 (189,816, 190,170)	190,012 (189,816, 190,170)	0 (0, 0)
	Incident MIs	19,300 (16,483, 24,602)	11,180 (9,505, 14,345)	-8,155; -42.3% (-10,207, -6,946)
	Deaths	48,213 (43,699, 54,133)	45,414 (41,414, 50,061)	-2,797; -5.8% (-4,844, -1,543)
	YLL	4,192,850 (4,177,601, 4,206,457)	4,198,305 (4,183,057, 4,211,477)	5,309; 0.13% (2,510, 8,453)
	QALYs	3,474,711 (3,157,150, 3,831,429)	3,481,669 (3,163,789, 3,839,926)	7,533; 0.22% (5,199, 10,158)
	Medication costs (£)	12,588,987 (12,439,803, 12,733,438)	115,251,816 (114,833,896, 115,612,846)	102,656,157; 815.4% (102,335,436, 102,955,330)
	Acute MI costs (£)	11,497,785 (8,177,455, 15,786,113)	6,885,213 (4,806,943, 9,468,622)	-4,625,124; -40.2% (-6,352,219, -3,315,183)
	Chronic MI costs (£)	79,057,168 (59,405,891, 103,908,731)	48,690,210 (36,330,476, 64,130,853)	-30,114,356; -38.1% (-39,750,900, -22,985,798)
	Total healthcare costs (£)	103,175,082 (83,256,962, 130,072,534)	170,951,185 (158,210,794, 188,111,409)	67,789,423; 65.7% (57,709,144, 75,503,135)
	ICER (Δ £/ Δ QALY)			8,932 (6,466, 13,257)
50	N	188,018 (187,571, 188,386)	188,018 (187,571, 188,386)	0 (0, 0)
	Incident MIs	18,581 (15,844, 23,666)	13,058 (11,215, 16,654)	-5,546; -29.9% (-7,038, -4,639)
	Deaths	46,527 (42,230, 52,154)	44,600 (40,812, 49,172)	-1,924; -4.1% (-3,379, -986)
	YLL	3,643,106 (3,624,472, 3,659,861)	3,647,597 (3,627,652, 3,663,679)	4,288; 0.12% (1,643, 7,168)
	QALYs	2,923,315 (2,655,529, 3,224,875)	2,929,179 (2,661,264, 3,231,232)	5,902; 0.20% (3,730, 8,273)
	Medication costs (£)	17,320,936 (17,149,529, 17,481,976)	100,165,154 (99,618,383, 100,606,254)	82,842,801; 478.3% (82,439,041, 83,198,077)
	Acute MI costs (£)	14,650,227 (10,471,907, 20,036,663)	10,578,430 (7,536,874, 14,510,618)	-4,103,682; -28.0% (-5,610,138, -2,888,238)
	Chronic MI costs (£)	93,990,483 (72,373,333, 121,614,512)	69,827,965 (53,820,128, 90,416,754)	-24,218,155; -25.8% (-32,067,125, -18,563,764)
	Total healthcare costs (£)	126,296,411 (104,138,088, 155,446,567)	180,723,745 (164,226,883, 202,563,222)	54,535,006; 43.2% (46,078,425, 60,753,998)
	ICER (Δ £/ Δ QALY)			9,169 (6,464, 15,067)
60	N	183,402 (182,723, 184,029)	183,402 (182,723, 184,029)	0 (0, 0)
	Incident MIs	16,888 (14,311, 21,760)	13,991 (11,875, 17,977)	-2,884; -17.1% (-3,821, -2,422)
	Deaths	42,724 (38,745, 48,101)	41,679 (37,838, 46,403)	-997; -2.3% (-1,804, -609)
	YLL	2,890,072 (2,868,596, 2,909,268)	2,892,638 (2,871,087, 2,912,015)	2,448; 0.08% (1,743, 3,571)
	QALYs	2,240,077 (2,035,996, 2,470,317)	2,243,146 (2,038,869, 2,473,874)	3,150; 0.14% (2,477, 4,078)
	Medication costs (£)	21,761,514 (21,557,272, 21,962,841)	79,480,300 (78,889,275, 80,012,356)	57,716,632; 265.2% (57,315,815, 58,095,671)
	Acute MI costs (£)	16,896,480 (12,034,843, 23,085,497)	14,259,534 (10,188,044, 19,546,265)	-2,659,903; -15.7% (-3,676,753, -1,858,731)
	Chronic MI costs (£)	95,131,432 (74,334,744, 123,068,679)	81,727,523 (63,729,627, 105,513,206)	-13,432,258; -14.1% (-17,464,635, -10,411,959)
	Total healthcare costs (£)	134,200,816 (112,547,896, 162,924,609)	175,642,582 (156,731,030, 200,542,382)	41,592,165; 31.0% (37,319,904, 45,010,588)
	ICER (Δ £/ Δ QALY)			13,178 (9,818, 17,354)

Table 9.11: PSA results – Low/moderate intensity statins and ezetimibe – Females with LDL-C ≥3.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	190,859 (190,859, 190,859)	190,859 (190,859, 190,859)	0 (0, 0)
	Incident MIs	19,580 (16,690, 25,006)	8,560 (7,165, 11,035)	-11,050; -56.4% (-13,905, -9,470)
	Deaths	49,000 (44,282, 55,066)	45,156 (41,015, 49,856)	-3,798; -7.8% (-6,493, -2,074)
	YLL	4,588,513 (4,576,834, 4,598,845)	4,594,411 (4,583,070, 4,604,181)	5,792; 0.13% (2,906, 9,426)
	QALYs	3,912,651 (3,557,939, 4,312,983)	3,920,963 (3,565,391, 4,323,015)	8,365; 0.21% (5,908, 11,506)
	Medication costs (£)	9,011,526 (8,877,878, 9,144,291)	227,020,963 (226,461,733, 227,502,726)	218,006,488; 2419.2% (217,521,581, 218,437,670)
	Acute MI costs (£)	8,564,622 (6,092,748, 11,827,333)	3,881,937 (2,750,253, 5,415,430)	-4,666,142; -54.5% (-6,400,350, -3,341,728)
	Chronic MI costs (£)	60,946,974 (45,329,298, 81,561,772)	28,870,803 (21,152,734, 39,552,931)	-32,096,385; -52.7% (-42,374,212, -24,089,222)
	Total healthcare costs (£)	78,570,776 (62,538,025, 100,492,996)	259,831,973 (251,978,995, 271,013,904)	181,134,280; 230.5% (169,769,162, 189,606,865)
	ICER (Δ £/ Δ QALY)			21,602 (15,635, 30,967)
40	N	190,012 (189,816, 190,170)	190,012 (189,816, 190,170)	0 (0, 0)
	Incident MIs	19,300 (16,483, 24,602)	10,396 (8,845, 13,230)	-8,898; -46.1% (-11,176, -7,578)
	Deaths	48,213 (43,699, 54,133)	45,151 (41,194, 49,720)	-3,038; -6.3% (-5,338, -1,712)
	YLL	4,192,850 (4,177,601, 4,206,457)	4,198,789 (4,183,564, 4,211,977)	5,757; 0.14% (2,866, 9,026)
	QALYs	3,474,711 (3,157,150, 3,831,429)	3,482,388 (3,164,354, 3,840,828)	8,203; 0.24% (5,837, 10,917)
	Medication costs (£)	12,588,987 (12,439,803, 12,733,438)	207,510,843 (206,759,441, 208,161,559)	194,914,453; 1548.3% (194,280,409, 195,480,516)
	Acute MI costs (£)	11,497,785 (8,177,455, 15,786,113)	6,474,994 (4,546,027, 8,941,428)	-5,023,477; -43.7% (-6,874,802, -3,615,606)
	Chronic MI costs (£)	79,057,168 (59,405,891, 103,908,731)	46,146,248 (34,545,184, 60,947,451)	-32,690,380; -41.4% (-43,130,528, -24,691,675)
	Total healthcare costs (£)	103,175,082 (83,256,962, 130,072,534)	260,208,259 (248,178,677, 275,872,077)	157,078,362; 152.2% (145,708,830, 165,356,126)
	ICER (Δ £/ Δ QALY)			19,173 (14,317, 27,283)
50	N	188,018 (187,571, 188,386)	188,018 (187,571, 188,386)	0 (0, 0)
	Incident MIs	18,581 (15,844, 23,666)	12,424 (10,615, 15,811)	-6,177; -33.2% (-7,807, -5,178)
	Deaths	46,527 (42,230, 52,154)	44,382 (40,590, 48,937)	-2,134; -4.6% (-3,720, -1,113)
	YLL	3,643,106 (3,624,472, 3,659,861)	3,648,096 (3,628,121, 3,664,156)	4,760; 0.13% (1,969, 7,798)
	QALYs	2,923,315 (2,655,529, 3,224,875)	2,929,659 (2,661,800, 3,231,929)	6,507; 0.22% (4,211, 8,992)
	Medication costs (£)	17,320,936 (17,149,529, 17,481,976)	180,351,302 (179,365,292, 181,144,172)	163,033,961; 941.3% (162,205,032, 163,742,886)
	Acute MI costs (£)	14,650,227 (10,471,907, 20,036,663)	10,131,516 (7,232,676, 13,808,235)	-4,532,147; -30.9% (-6,230,171, -3,214,792)
	Chronic MI costs (£)	93,990,483 (72,373,333, 121,614,512)	67,299,044 (51,813,247, 86,883,208)	-26,801,953; -28.5% (-35,007,145, -20,411,336)
	Total healthcare costs (£)	126,296,411 (104,138,088, 155,446,567)	257,828,878 (242,079,239, 278,533,820)	131,672,828; 104.3% (122,421,630, 138,455,822)
	ICER (Δ £/ Δ QALY)			20,096 (14,528, 31,155)
60	N	183,402 (182,723, 184,029)	183,402 (182,723, 184,029)	0 (0, 0)
	Incident MIs	16,888 (14,311, 21,760)	13,528 (11,523, 17,362)	-3,344; -19.8% (-4,390, -2,802)
	Deaths	42,724 (38,745, 48,101)	41,536 (37,692, 46,180)	-1,156; -2.7% (-2,074, -709)
	YLL	2,890,072 (2,868,596, 2,909,268)	2,892,940 (2,871,392, 2,912,335)	2,804; 0.10% (1,989, 4,148)
	QALYs	2,240,077 (2,035,996, 2,470,317)	2,243,677 (2,039,382, 2,474,668)	3,627; 0.16% (2,828, 4,658)
	Medication costs (£)	21,761,514 (21,557,272, 21,962,841)	143,103,006 (142,038,809, 144,061,422)	121,337,113; 557.6% (120,467,860, 122,148,172)
	Acute MI costs (£)	16,896,480 (12,034,843, 23,085,497)	13,854,928 (9,913,581, 18,958,291)	-3,052,291; -18.1% (-4,188,625, -2,162,284)
	Chronic MI costs (£)	95,131,432 (74,334,744, 123,068,679)	79,811,774 (62,197,768, 103,127,078)	-15,430,547; -16.2% (-19,823,858, -12,069,951)
	Total healthcare costs (£)	134,200,816 (112,547,896, 162,924,609)	237,026,619 (218,646,553, 261,251,762)	102,823,017; 76.6% (97,923,052, 106,740,788)
	ICER (Δ £/ Δ QALY)			28,440 (21,619, 36,735)

Table 9.12: PSA results – Inclisiran – Females with LDL-C ≥3.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	190,859 (190,859, 190,859)	190,859 (190,859, 190,859)	0 (0, 0)
	Incident MIs	19,580 (16,690, 25,006)	9,123 (7,637, 11,660)	-10,522; -53.7% (-13,214, -8,923)
	Deaths	49,000 (44,282, 55,066)	45,344 (41,248, 50,006)	-3,620; -7.4% (-6,128, -1,971)
	YLL	4,588,513 (4,576,834, 4,598,845)	4,594,200 (4,582,930, 4,603,925)	5,564; 0.12% (2,674, 9,141)
	QALYs	3,912,651 (3,557,939, 4,312,983)	3,920,831 (3,565,110, 4,322,600)	7,975; 0.20% (5,599, 11,027)
	Medication costs (£)	9,011,526 (8,877,878, 9,144,291)	18,298,589,079 (18,253,792,742, 18,337,244,998)	18,289,584,149; 202957.7% (18,244,767,847, 18,328,158,419)
	Acute MI costs (£)	8,564,622 (6,092,748, 11,827,333)	4,116,088 (2,900,720, 5,755,040)	-4,449,173; -51.9% (-6,107,165, -3,164,942)
	Chronic MI costs (£)	60,946,974 (45,329,298, 81,561,772)	30,324,470 (22,293,354, 41,316,280)	-30,648,821; -50.3% (-41,097,433, -22,963,133)
	Total healthcare costs (£)	78,570,776 (62,538,025, 100,492,996)	18,332,836,752 (18,287,423,199, 18,374,010,474)	18,254,062,663; 23232.6% (18,207,396,720, 18,292,911,348)
	ICER (Δ £/ Δ QALY)			2,290,220 (1,652,351, 3,262,681)
40	N	190,012 (189,816, 190,170)	190,012 (189,816, 190,170)	0 (0, 0)
	Incident MIs	19,300 (16,483, 24,602)	10,925 (9,307, 13,811)	-8,383; -43.4% (-10,690, -7,075)
	Deaths	48,213 (43,699, 54,133)	45,364 (41,338, 49,937)	-2,863; -5.9% (-4,970, -1,596)
	YLL	4,192,850 (4,177,601, 4,206,457)	4,198,464 (4,183,023, 4,211,720)	5,479; 0.13% (2,627, 8,675)
	QALYs	3,474,711 (3,157,150, 3,831,429)	3,481,782 (3,164,024, 3,840,468)	7,768; 0.22% (5,442, 10,421)
	Medication costs (£)	12,588,987 (12,439,803, 12,733,438)	16,725,482,795 (16,664,071,000, 16,778,211,911)	16,712,926,528; 132758.3% (16,651,555,121, 16,765,651,085)
	Acute MI costs (£)	11,497,785 (8,177,455, 15,786,113)	6,788,664 (4,754,325, 9,332,166)	-4,738,662; -41.2% (-6,545,290, -3,378,315)
	Chronic MI costs (£)	79,057,168 (59,405,891, 103,908,731)	48,006,987 (35,551,508, 63,627,262)	-30,918,493; -39.1% (-41,284,198, -23,478,307)
	Total healthcare costs (£)	103,175,082 (83,256,962, 130,072,534)	16,780,089,137 (16,719,205,329, 16,832,198,012)	16,676,783,045; 16163.6% (16,613,542,462, 16,727,929,050)
	ICER (Δ £/ Δ QALY)			2,147,789 (1,600,091, 3,066,778)
50	N	188,018 (187,571, 188,386)	188,018 (187,571, 188,386)	0 (0, 0)
	Incident MIs	18,581 (15,844, 23,666)	12,862 (11,014, 16,338)	-5,742; -30.9% (-7,371, -4,746)
	Deaths	46,527 (42,230, 52,154)	44,562 (40,732, 49,105)	-1,988; -4.3% (-3,530, -1,041)
	YLL	3,643,106 (3,624,472, 3,659,861)	3,647,676 (3,627,641, 3,663,718)	4,422; 0.12% (1,778, 7,447)
	QALYs	2,923,315 (2,655,529, 3,224,875)	2,929,239 (2,661,446, 3,231,282)	6,074; 0.21% (3,904, 8,608)
	Medication costs (£)	17,320,936 (17,149,529, 17,481,976)	14,535,836,497 (14,456,126,922, 14,599,707,409)	14,518,474,723; 83820.4% (14,438,934,823, 14,582,334,693)
	Acute MI costs (£)	14,650,227 (10,471,907, 20,036,663)	10,459,253 (7,447,975, 14,421,001)	-4,205,214; -28.7% (-5,800,233, -2,976,852)
	Chronic MI costs (£)	93,990,483 (72,373,333, 121,614,512)	69,091,162 (53,107,331, 89,326,928)	-24,941,753; -26.5% (-33,203,300, -19,096,671)
	Total healthcare costs (£)	126,296,411 (104,138,088, 155,446,567)	14,614,470,996 (14,541,967,073, 14,680,713,242)	14,489,148,354; 11472.3% (14,411,088,680, 14,556,770,542)
	ICER (Δ £/ Δ QALY)			2,383,131 (1,681,769, 3,708,045)
60	N	183,402 (182,723, 184,029)	183,402 (182,723, 184,029)	0 (0, 0)
	Incident MIs	16,888 (14,311, 21,760)	13,864 (11,817, 17,736)	-3,026; -17.9% (-4,028, -2,478)
	Deaths	42,724 (38,745, 48,101)	41,647 (37,833, 46,301)	-1,038; -2.4% (-1,917, -640)
	YLL	2,890,072 (2,868,596, 2,909,268)	2,892,740 (2,871,190, 2,912,198)	2,538; 0.09% (1,804, 3,866)
	QALYs	2,240,077 (2,035,996, 2,470,317)	2,243,326 (2,038,968, 2,474,339)	3,293; 0.15% (2,551, 4,306)
	Medication costs (£)	21,761,514 (21,557,272, 21,962,841)	11,534,296,316 (11,448,484,997, 11,611,755,260)	11,512,496,431; 52903.0% (11,426,917,284, 11,589,833,742)
	Acute MI costs (£)	16,896,480 (12,034,843, 23,085,497)	14,101,599 (10,080,513, 19,347,993)	-2,779,844; -16.5% (-3,841,604, -1,936,257)
	Chronic MI costs (£)	95,131,432 (74,334,744, 123,068,679)	81,207,507 (63,237,918, 104,363,917)	-13,993,430; -14.7% (-18,322,024, -10,818,524)
	Total healthcare costs (£)	134,200,816 (112,547,896, 162,924,609)	11,629,749,813 (11,549,063,953, 11,703,709,908)	11,495,577,873; 8566.0% (11,409,552,945, 11,573,166,075)
	ICER (Δ £/ Δ QALY)			3,488,957 (2,663,533, 4,507,392)

Table 9.13: PSA results – Low/moderate intensity statins – Females with LDL-C ≥4.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	79,921 (79,921, 79,921)	79,921 (79,921, 79,921)	0 (0, 0)
	Incident MIs	10,980 (9,421, 13,870)	6,044 (5,078, 7,714)	-4,934; -44.9% (-6,060, -4,251)
	Deaths	21,500 (19,249, 24,673)	19,773 (17,923, 21,917)	-1,709; -7.9% (-2,844, -872)
	YLL	1,919,657 (1,914,162, 1,924,401)	1,922,449 (1,917,584, 1,926,695)	2,744; 0.14% (1,065, 4,734)
	QALYs	1,635,740 (1,486,934, 1,803,485)	1,639,646 (1,490,149, 1,808,001)	4,028; 0.25% (2,629, 5,707)
	Medication costs (£)	4,910,716 (4,834,518, 4,982,793)	35,427,325 (35,337,855, 35,505,414)	30,517,152; 621.4% (30,442,519, 30,588,704)
	Acute MI costs (£)	4,859,485 (3,467,640, 6,727,912)	2,693,727 (1,913,069, 3,728,947)	-2,180,427; -44.9% (-3,014,878, -1,550,846)
	Chronic MI costs (£)	34,932,962 (26,093,340, 46,782,623)	19,540,779 (14,447,704, 26,616,217)	-15,435,217; -44.2% (-20,864,630, -11,430,613)
	Total healthcare costs (£)	44,813,072 (35,521,971, 57,382,138)	57,739,201 (52,431,578, 65,166,615)	12,873,080; 28.7% (7,202,820, 17,090,317)
	ICER (Δ £/ Δ QALY)			3,212 (1,701, 5,394)
40	N	79,525 (79,428, 79,603)	79,525 (79,428, 79,603)	0 (0, 0)
	Incident MIs	10,818 (9,306, 13,646)	7,053 (6,001, 8,998)	-3,768; -34.8% (-4,593, -3,191)
	Deaths	21,153 (18,992, 24,243)	19,852 (18,050, 22,132)	-1,290; -6.1% (-2,213, -647)
	YLL	1,752,536 (1,745,524, 1,759,083)	1,755,187 (1,748,441, 1,761,218)	2,615; 0.15% (944, 4,514)
	QALYs	1,450,655 (1,317,234, 1,600,457)	1,454,419 (1,320,205, 1,604,671)	3,795; 0.26% (2,385, 5,318)
	Medication costs (£)	6,858,616 (6,771,397, 6,937,835)	32,351,019 (32,226,862, 32,461,975)	25,491,675; 371.7% (25,398,098, 25,579,662)
	Acute MI costs (£)	6,526,532 (4,647,828, 8,997,812)	4,303,724 (3,053,942, 5,887,781)	-2,220,989; -34.0% (-3,082,291, -1,581,586)
	Chronic MI costs (£)	45,339,353 (34,037,034, 59,628,943)	30,295,075 (22,752,102, 39,877,346)	-14,912,780; -32.9% (-19,792,598, -11,160,497)
	Total healthcare costs (£)	58,664,203 (47,245,784, 74,050,985)	66,960,798 (59,154,134, 77,664,580)	8,234,815; 14.0% (3,071,469, 12,231,335)
	ICER (Δ £/ Δ QALY)			2,174 (772, 4,216)
50	N	78,576 (78,344, 78,762)	78,576 (78,344, 78,762)	0 (0, 0)
	Incident MIs	10,409 (8,942, 13,133)	8,081 (6,933, 10,197)	-2,338; -22.5% (-2,909, -1,912)
	Deaths	20,377 (18,337, 23,278)	19,560 (17,770, 21,918)	-816; -4.0% (-1,441, -336)
	YLL	1,519,940 (1,511,259, 1,527,874)	1,521,984 (1,513,296, 1,529,348)	2,002; 0.13% (272, 3,688)
	QALYs	1,218,105 (1,107,316, 1,344,159)	1,220,800 (1,109,383, 1,347,267)	2,771; 0.23% (1,379, 4,217)
	Medication costs (£)	9,470,796 (9,369,422, 9,562,726)	28,061,501 (27,901,580, 28,197,056)	18,589,892; 196.3% (18,490,004, 18,684,270)
	Acute MI costs (£)	8,316,370 (5,947,896, 11,344,684)	6,496,693 (4,647,663, 8,892,466)	-1,810,244; -21.8% (-2,497,286, -1,267,861)
	Chronic MI costs (£)	53,819,783 (41,426,768, 70,084,392)	42,699,479 (32,755,261, 54,974,188)	-11,174,889; -20.8% (-15,089,547, -8,387,984)
	Total healthcare costs (£)	71,867,448 (58,890,560, 89,000,985)	77,327,967 (67,127,082, 90,575,115)	5,596,872; 7.8% (1,641,349, 8,593,494)
	ICER (Δ £/ Δ QALY)			2,034 (581, 4,737)
60	N	76,367 (76,001, 76,671)	76,367 (76,001, 76,671)	0 (0, 0)
	Incident MIs	9,420 (8,020, 11,994)	8,452 (7,185, 10,783)	-959; -10.2% (-1,214, -796)
	Deaths	18,610 (16,776, 21,256)	18,287 (16,495, 20,675)	-328; -1.8% (-572, -197)
	YLL	1,200,802 (1,190,973, 1,209,635)	1,201,705 (1,191,851, 1,210,516)	886; 0.07% (623, 1,272)
	QALYs	929,421 (845,177, 1,025,355)	930,609 (846,257, 1,026,511)	1,172; 0.13% (891, 1,501)
	Medication costs (£)	12,073,422 (11,945,027, 12,194,972)	22,169,572 (21,988,067, 22,331,895)	10,096,210; 83.6% (10,012,990, 10,180,234)
	Acute MI costs (£)	9,519,185 (6,804,823, 12,943,232)	8,575,829 (6,147,425, 11,699,713)	-927,160; -9.7% (-1,290,076, -656,636)
	Chronic MI costs (£)	53,983,653 (42,465,342, 69,781,712)	49,044,624 (38,615,827, 63,370,821)	-4,921,464; -9.1% (-6,406,669, -3,790,264)
	Total healthcare costs (£)	75,803,419 (63,536,609, 92,186,658)	80,010,181 (68,889,817, 95,228,894)	4,208,944; 5.6% (2,580,638, 5,438,779)
	ICER (Δ £/ Δ QALY)			3,600 (2,014, 5,594)

Table 9.14: PSA results – High intensity statins – Females with LDL-C ≥4.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	79,921 (79,921, 79,921)	79,921 (79,921, 79,921)	0 (0, 0)
	Incident MIs	10,980 (9,421, 13,870)	4,964 (4,172, 6,376)	-6,032; -54.9% (-7,458, -5,184)
	Deaths	21,500 (19,249, 24,673)	19,393 (17,645, 21,408)	-2,074; -9.6% (-3,453, -1,122)
	YLL	1,919,657 (1,914,162, 1,924,401)	1,923,018 (1,918,246, 1,927,178)	3,261; 0.17% (1,471, 5,449)
	QALYs	1,635,740 (1,486,934, 1,803,485)	1,640,430 (1,490,990, 1,808,872)	4,788; 0.29% (3,258, 6,642)
	Medication costs (£)	4,910,716 (4,834,518, 4,982,793)	52,780,915 (52,650,216, 52,894,846)	47,870,150; 974.8% (47,768,290, 47,961,789)
	Acute MI costs (£)	4,859,485 (3,467,640, 6,727,912)	2,246,180 (1,592,354, 3,145,481)	-2,619,016; -53.9% (-3,576,378, -1,873,673)
	Chronic MI costs (£)	34,932,962 (26,093,340, 46,782,623)	16,631,681 (12,230,258, 22,809,730)	-18,330,200; -52.5% (-24,570,113, -13,664,166)
	Total healthcare costs (£)	44,813,072 (35,521,971, 57,382,138)	71,717,020 (67,088,843, 78,331,174)	26,912,209; 60.1% (20,354,373, 31,728,147)
	ICER (Δ £/ Δ QALY)			5,612 (3,721, 8,720)
40	N	79,525 (79,428, 79,603)	79,525 (79,428, 79,603)	0 (0, 0)
	Incident MIs	10,818 (9,306, 13,646)	6,064 (5,169, 7,746)	-4,765; -44.0% (-5,892, -4,068)
	Deaths	21,153 (18,992, 24,243)	19,498 (17,760, 21,595)	-1,628; -7.7% (-2,790, -851)
	YLL	1,752,536 (1,745,524, 1,759,083)	1,755,855 (1,749,034, 1,761,794)	3,248; 0.19% (1,433, 5,321)
	QALYs	1,450,655 (1,317,234, 1,600,457)	1,455,198 (1,321,147, 1,605,633)	4,636; 0.32% (3,126, 6,297)
	Medication costs (£)	6,858,616 (6,771,397, 6,937,835)	48,201,749 (48,014,875, 48,364,565)	41,342,319; 602.8% (41,198,089, 41,474,040)
	Acute MI costs (£)	6,526,532 (4,647,828, 8,997,812)	3,760,785 (2,646,802, 5,159,439)	-2,769,221; -42.4% (-3,829,307, -1,979,110)
	Chronic MI costs (£)	45,339,353 (34,037,034, 59,628,943)	26,875,080 (19,926,907, 35,672,762)	-18,423,886; -40.6% (-24,204,239, -13,930,688)
	Total healthcare costs (£)	58,664,203 (47,245,784, 74,050,985)	78,855,124 (72,017,472, 88,333,638)	20,078,756; 34.2% (13,839,480, 24,876,093)
	ICER (Δ £/ Δ QALY)			4,309 (2,677, 6,898)
50	N	78,576 (78,344, 78,762)	78,576 (78,344, 78,762)	0 (0, 0)
	Incident MIs	10,409 (8,942, 13,133)	7,240 (6,253, 9,147)	-3,179; -30.5% (-3,991, -2,669)
	Deaths	20,377 (18,337, 23,278)	19,264 (17,538, 21,465)	-1,103; -5.4% (-1,907, -534)
	YLL	1,519,940 (1,511,259, 1,527,874)	1,522,575 (1,513,869, 1,529,796)	2,602; 0.17% (818, 4,402)
	QALYs	1,218,105 (1,107,316, 1,344,159)	1,221,592 (1,110,083, 1,348,054)	3,580; 0.29% (2,117, 5,121)
	Medication costs (£)	9,470,796 (9,369,422, 9,562,726)	41,810,995 (41,572,178, 42,008,974)	32,338,506; 341.5% (32,169,724, 32,488,370)
	Acute MI costs (£)	8,316,370 (5,947,896, 11,344,684)	5,912,183 (4,233,488, 8,108,384)	-2,403,156; -28.9% (-3,302,708, -1,687,600)
	Chronic MI costs (£)	53,819,783 (41,426,768, 70,084,392)	39,268,524 (30,120,362, 50,925,886)	-14,522,065; -27.0% (-19,228,368, -11,029,779)
	Total healthcare costs (£)	71,867,448 (58,890,560, 89,000,985)	87,095,456 (77,726,088, 99,296,262)	15,340,501; 21.3% (10,357,026, 19,200,296)
	ICER (Δ £/ Δ QALY)			4,262 (2,627, 7,986)
60	N	76,367 (76,001, 76,671)	76,367 (76,001, 76,671)	0 (0, 0)
	Incident MIs	9,420 (8,020, 11,994)	7,878 (6,714, 10,009)	-1,541; -16.4% (-1,982, -1,296)
	Deaths	18,610 (16,776, 21,256)	18,072 (16,321, 20,304)	-527; -2.8% (-949, -330)
	YLL	1,200,802 (1,190,973, 1,209,635)	1,202,167 (1,192,400, 1,211,000)	1,363; 0.11% (974, 1,989)
	QALYs	929,421 (845,177, 1,025,355)	931,189 (846,768, 1,027,158)	1,777; 0.19% (1,375, 2,279)
	Medication costs (£)	12,073,422 (11,945,027, 12,194,972)	33,032,055 (32,764,035, 33,274,215)	20,959,113; 173.6% (20,792,251, 21,111,616)
	Acute MI costs (£)	9,519,185 (6,804,823, 12,943,232)	8,057,232 (5,784,924, 10,991,467)	-1,452,454; -15.3% (-2,012,234, -1,024,686)
	Chronic MI costs (£)	53,983,653 (42,465,342, 69,781,712)	46,541,575 (36,532,335, 60,060,409)	-7,521,222; -13.9% (-9,719,584, -5,797,722)
	Total healthcare costs (£)	75,803,419 (63,536,609, 92,186,658)	87,667,196 (77,261,420, 102,178,078)	11,937,025; 15.7% (9,563,055, 13,864,502)
	ICER (Δ £/ Δ QALY)			6,708 (4,723, 9,419)

Table 9.15: PSA results – Low/moderate intensity statins and ezetimibe – Females with LDL-C ≥4.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	79,921 (79,921, 79,921)	79,921 (79,921, 79,921)	0 (0, 0)
	Incident MIs	10,980 (9,421, 13,870)	4,492 (3,765, 5,772)	-6,500; -59.2% (-8,082, -5,580)
	Deaths	21,500 (19,249, 24,673)	19,224 (17,493, 21,264)	-2,228; -10.4% (-3,756, -1,229)
	YLL	1,919,657 (1,914,162, 1,924,401)	1,923,264 (1,918,505, 1,927,385)	3,500; 0.18% (1,651, 5,784)
	QALYs	1,635,740 (1,486,934, 1,803,485)	1,640,810 (1,491,321, 1,809,404)	5,090; 0.31% (3,533, 7,078)
	Medication costs (£)	4,910,716 (4,834,518, 4,982,793)	95,033,182 (94,798,503, 95,236,382)	90,118,597; 1835.1% (89,922,824, 90,297,912)
	Acute MI costs (£)	4,859,485 (3,467,640, 6,727,912)	2,053,882 (1,450,660, 2,869,099)	-2,808,199; -57.8% (-3,853,935, -2,007,810)
	Chronic MI costs (£)	34,932,962 (26,093,340, 46,782,623)	15,337,387 (11,214,767, 21,133,112)	-19,630,632; -56.2% (-26,169,552, -14,629,972)
	Total healthcare costs (£)	44,813,072 (35,521,971, 57,382,138)	112,452,337 (108,235,749, 118,645,987)	67,713,732; 151.1% (60,672,961, 72,816,983)
	ICER (Δ £/ Δ QALY)			13,181 (9,516, 19,386)
40	N	79,525 (79,428, 79,603)	79,525 (79,428, 79,603)	0 (0, 0)
	Incident MIs	10,818 (9,306, 13,646)	5,608 (4,773, 7,136)	-5,220; -48.2% (-6,457, -4,429)
	Deaths	21,153 (18,992, 24,243)	19,348 (17,633, 21,397)	-1,777; -8.4% (-3,069, -947)
	YLL	1,752,536 (1,745,524, 1,759,083)	1,756,125 (1,749,396, 1,762,045)	3,518; 0.20% (1,682, 5,632)
	QALYs	1,450,655 (1,317,234, 1,600,457)	1,455,555 (1,321,488, 1,606,148)	5,026; 0.35% (3,467, 6,745)
	Medication costs (£)	6,858,616 (6,771,397, 6,937,835)	86,790,466 (86,458,645, 87,082,663)	79,930,065; 1165.4% (79,651,446, 80,185,311)
	Acute MI costs (£)	6,526,532 (4,647,828, 8,997,812)	3,519,872 (2,490,512, 4,849,034)	-3,006,851; -46.1% (-4,146,435, -2,165,322)
	Chronic MI costs (£)	45,339,353 (34,037,034, 59,628,943)	25,309,125 (18,921,042, 33,904,917)	-20,052,374; -44.2% (-26,273,392, -15,117,375)
	Total healthcare costs (£)	58,664,203 (47,245,784, 74,050,985)	115,603,218 (109,099,756, 124,717,811)	56,839,943; 96.9% (50,097,949, 62,082,606)
	ICER (Δ £/ Δ QALY)			11,275 (8,122, 16,897)
50	N	78,576 (78,344, 78,762)	78,576 (78,344, 78,762)	0 (0, 0)
	Incident MIs	10,409 (8,942, 13,133)	6,849 (5,881, 8,654)	-3,572; -34.3% (-4,486, -3,007)
	Deaths	20,377 (18,337, 23,278)	19,138 (17,388, 21,307)	-1,238; -6.1% (-2,186, -634)
	YLL	1,519,940 (1,511,259, 1,527,874)	1,522,846 (1,514,151, 1,530,112)	2,892; 0.19% (1,057, 4,737)
	QALYs	1,218,105 (1,107,316, 1,344,159)	1,221,967 (1,110,401, 1,348,489)	3,947; 0.32% (2,450, 5,617)
	Medication costs (£)	9,470,796 (9,369,422, 9,562,726)	75,285,201 (74,856,035, 75,643,842)	65,814,210; 694.9% (65,451,302, 66,116,373)
	Acute MI costs (£)	8,316,370 (5,947,896, 11,344,684)	5,647,888 (4,054,254, 7,775,577)	-2,672,702; -32.1% (-3,696,117, -1,881,416)
	Chronic MI costs (£)	53,819,783 (41,426,768, 70,084,392)	37,680,155 (28,990,032, 48,774,973)	-16,181,067; -30.1% (-21,439,373, -12,161,410)
	Total healthcare costs (£)	71,867,448 (58,890,560, 89,000,985)	118,696,757 (109,776,410, 130,243,827)	46,889,839; 65.2% (41,361,853, 51,176,907)
	ICER (Δ £/ Δ QALY)			11,792 (8,325, 19,776)
60	N	76,367 (76,001, 76,671)	76,367 (76,001, 76,671)	0 (0, 0)
	Incident MIs	9,420 (8,020, 11,994)	7,586 (6,464, 9,645)	-1,827; -19.4% (-2,346, -1,527)
	Deaths	18,610 (16,776, 21,256)	17,966 (16,263, 20,167)	-627; -3.4% (-1,114, -391)
	YLL	1,200,802 (1,190,973, 1,209,635)	1,202,375 (1,192,783, 1,211,221)	1,589; 0.13% (1,146, 2,331)
	QALYs	929,421 (845,177, 1,025,355)	931,509 (846,959, 1,027,334)	2,074; 0.22% (1,626, 2,647)
	Medication costs (£)	12,073,422 (11,945,027, 12,194,972)	59,477,343 (59,003,274, 59,914,230)	47,402,859; 392.6% (47,024,293, 47,748,101)
	Acute MI costs (£)	9,519,185 (6,804,823, 12,943,232)	7,805,987 (5,590,910, 10,672,015)	-1,692,729; -17.8% (-2,357,497, -1,220,485)
	Chronic MI costs (£)	53,983,653 (42,465,342, 69,781,712)	45,244,192 (35,583,769, 58,413,035)	-8,769,369; -16.2% (-11,328,278, -6,823,811)
	Total healthcare costs (£)	75,803,419 (63,536,609, 92,186,658)	112,618,264 (102,389,153, 126,872,922)	36,891,861; 48.7% (34,154,168, 39,091,813)
	ICER (Δ £/ Δ QALY)			17,706 (13,702, 23,275)

Table 9.16: PSA results – Inclisiran – Females with LDL-C ≥4.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	79,921 (79,921, 79,921)	79,921 (79,921, 79,921)	0 (0, 0)
	Incident MIs	10,980 (9,421, 13,870)	4,826 (4,034, 6,182)	-6,178; -56.3% (-7,680, -5,270)
	Deaths	21,500 (19,249, 24,673)	19,338 (17,611, 21,372)	-2,118; -9.9% (-3,607, -1,156)
	YLL	1,919,657 (1,914,162, 1,924,401)	1,923,083 (1,918,344, 1,927,274)	3,341; 0.17% (1,565, 5,568)
	QALYs	1,635,740 (1,486,934, 1,803,485)	1,640,577 (1,491,137, 1,809,172)	4,882; 0.30% (3,343, 6,798)
	Medication costs (£)	4,910,716 (4,834,518, 4,982,793)	7,659,601,362 (7,640,763,641, 7,676,257,243)	7,654,716,727; 155877.8% (7,635,901,416, 7,671,312,445)
	Acute MI costs (£)	4,859,485 (3,467,640, 6,727,912)	2,193,680 (1,540,865, 3,065,158)	-2,670,964; -55.0% (-3,647,556, -1,905,219)
	Chronic MI costs (£)	34,932,962 (26,093,340, 46,782,623)	16,251,018 (11,918,597, 22,275,263)	-18,725,525; -53.6% (-25,118,432, -14,066,910)
	Total healthcare costs (£)	44,813,072 (35,521,971, 57,382,138)	7,678,478,421 (7,659,155,269, 7,695,573,843)	7,632,982,130; 17032.9% (7,613,280,746, 7,650,356,167)
	ICER (Δ £/ Δ QALY)			1,563,320 (1,122,363, 2,283,469)
40	N	79,525 (79,428, 79,603)	79,525 (79,428, 79,603)	0 (0, 0)
	Incident MIs	10,818 (9,306, 13,646)	5,924 (5,058, 7,488)	-4,904; -45.3% (-6,114, -4,142)
	Deaths	21,153 (18,992, 24,243)	19,439 (17,740, 21,544)	-1,672; -7.9% (-2,889, -868)
	YLL	1,752,536 (1,745,524, 1,759,083)	1,755,957 (1,749,054, 1,761,874)	3,326; 0.19% (1,520, 5,394)
	QALYs	1,450,655 (1,317,234, 1,600,457)	1,455,284 (1,321,290, 1,605,952)	4,756; 0.33% (3,234, 6,470)
	Medication costs (£)	6,858,616 (6,771,397, 6,937,835)	6,995,238,328 (6,967,793,417, 7,018,776,586)	6,988,359,466; 101891.7% (6,961,006,602, 7,011,857,974)
	Acute MI costs (£)	6,526,532 (4,647,828, 8,997,812)	3,689,357 (2,594,991, 5,072,735)	-2,849,364; -43.7% (-3,930,331, -2,010,380)
	Chronic MI costs (£)	45,339,353 (34,037,034, 59,628,943)	26,412,715 (19,561,456, 35,201,683)	-18,905,592; -41.7% (-25,231,365, -14,286,972)
	Total healthcare costs (£)	58,664,203 (47,245,784, 74,050,985)	7,025,174,773 (6,998,753,409, 7,049,470,636)	6,966,303,420; 11874.9% (6,938,061,226, 6,990,985,768)
	ICER (Δ £/ Δ QALY)			1,464,046 (1,075,493, 2,157,394)
50	N	78,576 (78,344, 78,762)	78,576 (78,344, 78,762)	0 (0, 0)
	Incident MIs	10,409 (8,942, 13,133)	7,128 (6,116, 8,986)	-3,301; -31.7% (-4,157, -2,725)
	Deaths	20,377 (18,337, 23,278)	19,232 (17,528, 21,394)	-1,135; -5.6% (-1,980, -575)
	YLL	1,519,940 (1,511,259, 1,527,874)	1,522,629 (1,513,870, 1,529,989)	2,707; 0.18% (862, 4,603)
	QALYs	1,218,105 (1,107,316, 1,344,159)	1,221,671 (1,110,184, 1,348,087)	3,689; 0.30% (2,228, 5,293)
	Medication costs (£)	9,470,796 (9,369,422, 9,562,726)	6,067,645,736 (6,032,778,828, 6,096,926,409)	6,058,174,389; 63966.9% (6,023,387,857, 6,087,432,687)
	Acute MI costs (£)	8,316,370 (5,947,896, 11,344,684)	5,832,400 (4,182,644, 8,017,299)	-2,485,126; -29.9% (-3,412,535, -1,761,358)
	Chronic MI costs (£)	53,819,783 (41,426,768, 70,084,392)	38,784,589 (29,777,277, 49,989,474)	-15,010,562; -27.9% (-20,069,087, -11,407,077)
	Total healthcare costs (£)	71,867,448 (58,890,560, 89,000,985)	6,111,768,674 (6,079,386,820, 6,142,835,213)	6,040,780,778; 8405.4% (6,004,695,666, 6,070,886,049)
	ICER (Δ £/ Δ QALY)			1,634,746 (1,139,990, 2,713,538)
60	N	76,367 (76,001, 76,671)	76,367 (76,001, 76,671)	0 (0, 0)
	Incident MIs	9,420 (8,020, 11,994)	7,790 (6,661, 9,844)	-1,628; -17.3% (-2,136, -1,329)
	Deaths	18,610 (16,776, 21,256)	18,036 (16,306, 20,281)	-552; -3.0% (-1,002, -348)
	YLL	1,200,802 (1,190,973, 1,209,635)	1,202,246 (1,192,614, 1,211,157)	1,425; 0.12% (1,004, 2,139)
	QALYs	929,421 (845,177, 1,025,355)	931,276 (846,715, 1,027,280)	1,860; 0.20% (1,424, 2,422)
	Medication costs (£)	12,073,422 (11,945,027, 12,194,972)	4,793,755,824 (4,755,428,412, 4,829,240,531)	4,781,676,726; 39605.0% (4,743,480,893, 4,817,092,801)
	Acute MI costs (£)	9,519,185 (6,804,823, 12,943,232)	7,979,430 (5,716,611, 10,890,485)	-1,526,240; -16.0% (-2,118,981, -1,063,457)
	Chronic MI costs (£)	53,983,653 (42,465,342, 69,781,712)	46,190,199 (35,977,416, 59,441,694)	-7,860,140; -14.6% (-10,321,740, -6,107,722)
	Total healthcare costs (£)	75,803,419 (63,536,609, 92,186,658)	4,847,710,631 (4,812,536,457, 4,882,541,898)	4,772,498,031; 6295.9% (4,732,119,421, 4,807,239,771)
	ICER (Δ £/ Δ QALY)			2,565,053 (1,977,680, 3,346,184)

Table 9.17: PSA results – Low/moderate intensity statins – Females with LDL-C ≥5.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	16,646 (16,646, 16,646)	16,646 (16,646, 16,646)	0 (0, 0)
	Incident MIs	3,365 (2,898, 4,202)	1,832 (1,541, 2,342)	-1,540; -45.8% (-1,856, -1,309)
	Deaths	4,846 (4,235, 5,708)	4,320 (3,895, 4,895)	-525; -10.8% (-913, -223)
	YLL	399,125 (397,601, 400,359)	400,055 (398,843, 401,157)	965; 0.24% (194, 1,789)
	QALYs	339,721 (308,382, 374,420)	340,971 (309,937, 375,837)	1,412; 0.42% (798, 2,113)
	Medication costs (£)	1,404,730 (1,379,958, 1,427,771)	7,372,322 (7,350,020, 7,392,590)	5,967,537; 424.8% (5,945,103, 5,986,883)
	Acute MI costs (£)	1,542,658 (1,096,473, 2,136,559)	825,519 (587,940, 1,144,729)	-726,128; -47.1% (-1,003,332, -503,732)
	Chronic MI costs (£)	11,388,464 (8,482,395, 15,279,615)	6,007,657 (4,427,239, 8,219,930)	-5,339,650; -46.9% (-7,387,153, -3,959,039)
	Total healthcare costs (£)	14,345,094 (11,253,250, 18,515,704)	14,227,489 (12,540,813, 16,503,960)	-101,391; -0.7% (-2,296,414, 1,352,055)
	ICER (Δ £/ Δ QALY)			-81 (-1,654, 1,150)
40	N	16,544 (16,513, 16,572)	16,544 (16,513, 16,572)	0 (0, 0)
	Incident MIs	3,314 (2,856, 4,123)	2,188 (1,872, 2,781)	-1,132; -34.1% (-1,372, -933)
	Deaths	4,766 (4,180, 5,593)	4,380 (3,941, 5,016)	-382; -8.0% (-671, -153)
	YLL	363,713 (361,695, 365,414)	364,581 (362,820, 366,041)	880; 0.24% (95, 1,681)
	QALYs	300,606 (272,960, 331,465)	301,831 (274,067, 332,546)	1,279; 0.43% (632, 1,942)
	Medication costs (£)	1,959,493 (1,930,389, 1,985,767)	6,719,861 (6,687,447, 6,746,724)	4,759,792; 242.9% (4,735,044, 4,782,360)
	Acute MI costs (£)	2,067,127 (1,474,820, 2,838,318)	1,352,264 (952,424, 1,868,676)	-717,754; -34.7% (-974,735, -501,357)
	Chronic MI costs (£)	14,701,812 (11,024,547, 19,562,890)	9,639,968 (7,192,450, 12,818,433)	-5,077,409; -34.5% (-6,985,881, -3,672,541)
	Total healthcare costs (£)	18,826,943 (14,891,589, 23,849,151)	17,699,647 (15,149,512, 21,169,733)	-1,023,289; -5.4% (-2,985,411, 436,261)
	ICER (Δ £/ Δ QALY)			-808 (-2,760, 350)
50	N	16,294 (16,220, 16,353)	16,294 (16,220, 16,353)	0 (0, 0)
	Incident MIs	3,176 (2,739, 3,945)	2,554 (2,201, 3,174)	-635; -20.0% (-813, -475)
	Deaths	4,569 (4,035, 5,368)	4,348 (3,908, 5,009)	-216; -4.7% (-415, -32)
	YLL	314,105 (311,715, 316,252)	314,762 (312,332, 316,708)	619; 0.20% (-123, 1,331)
	QALYs	251,174 (228,039, 277,209)	251,869 (228,763, 278,049)	857; 0.34% (276, 1,442)
	Medication costs (£)	2,695,960 (2,659,006, 2,727,190)	5,803,464 (5,758,704, 5,839,281)	3,107,198; 115.3% (3,082,862, 3,131,710)
	Acute MI costs (£)	2,607,210 (1,875,297, 3,566,711)	2,082,291 (1,485,512, 2,893,236)	-526,821; -20.2% (-740,996, -355,401)
	Chronic MI costs (£)	17,395,164 (13,309,922, 22,787,083)	13,852,138 (10,630,674, 18,336,289)	-3,456,646; -19.9% (-4,829,171, -2,403,800)
	Total healthcare costs (£)	22,788,243 (18,403,991, 28,291,126)	21,766,798 (18,464,192, 26,196,800)	-887,577; -3.9% (-2,333,166, 290,600)
	ICER (Δ £/ Δ QALY)			-1,016 (-3,896, 342)
60	N	15,702 (15,584, 15,803)	15,702 (15,584, 15,803)	0 (0, 0)
	Incident MIs	2,836 (2,423, 3,547)	2,664 (2,278, 3,366)	-168; -5.9% (-218, -125)
	Deaths	4,125 (3,676, 4,812)	4,072 (3,639, 4,747)	-56; -1.4% (-95, -27)
	YLL	245,862 (243,116, 248,292)	246,061 (243,338, 248,483)	188; 0.08% (92, 299)
	QALYs	189,652 (172,352, 209,453)	189,873 (172,515, 209,647)	257; 0.14% (168, 362)
	Medication costs (£)	3,370,596 (3,325,129, 3,411,788)	4,539,520 (4,489,325, 4,584,159)	1,168,629; 34.7% (1,153,186, 1,184,152)
	Acute MI costs (£)	2,923,384 (2,090,436, 3,953,858)	2,738,520 (1,965,763, 3,732,453)	-180,089; -6.2% (-254,177, -119,224)
	Chronic MI costs (£)	17,023,840 (13,309,156, 21,810,263)	15,956,719 (12,478,466, 20,243,382)	-1,060,111; -6.2% (-1,481,008, -757,292)
	Total healthcare costs (£)	23,373,617 (19,403,424, 28,545,771)	23,270,822 (19,542,443, 27,997,979)	-71,272; -0.3% (-524,861, 262,044)
	ICER (Δ £/ Δ QALY)			-278 (-1,888, 1,262)

Table 9.18: PSA results – High intensity statins – Females with LDL-C ≥5.0 mmol/L

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	16,646 (16,646, 16,646)	16,646 (16,646, 16,646)	0 (0, 0)
	Incident MIs	3,365 (2,898, 4,202)	1,460 (1,224, 1,874)	-1,910; -56.7% (-2,314, -1,635)
	Deaths	4,846 (4,235, 5,708)	4,186 (3,785, 4,694)	-647; -13.4% (-1,114, -311)
	YLL	399,125 (397,601, 400,359)	400,235 (399,084, 401,318)	1,145; 0.29% (342, 2,046)
	QALYs	339,721 (308,382, 374,420)	341,254 (310,207, 376,140)	1,666; 0.49% (1,040, 2,439)
	Medication costs (£)	1,404,730 (1,379,958, 1,427,771)	10,985,228 (10,953,705, 11,014,908)	9,579,940; 682.0% (9,552,573, 9,605,914)
	Acute MI costs (£)	1,542,658 (1,096,473, 2,136,559)	670,244 (474,857, 931,180)	-879,231; -57.0% (-1,203,603, -619,851)
	Chronic MI costs (£)	11,388,464 (8,482,395, 15,279,615)	4,974,443 (3,586,427, 6,920,454)	-6,367,880; -55.9% (-8,722,365, -4,745,225)
	Total healthcare costs (£)	14,345,094 (11,253,250, 18,515,704)	16,658,864 (15,230,438, 18,675,848)	2,297,060; 16.0% (-155,114, 4,007,900)
	ICER (Δ £/ Δ QALY)			1,388 (-87, 3,045)
40	N	16,544 (16,513, 16,572)	16,544 (16,513, 16,572)	0 (0, 0)
	Incident MIs	3,314 (2,856, 4,123)	1,840 (1,564, 2,326)	-1,480; -44.7% (-1,802, -1,240)
	Deaths	4,766 (4,180, 5,593)	4,259 (3,844, 4,809)	-504; -10.6% (-847, -227)
	YLL	363,713 (361,695, 365,414)	364,807 (363,092, 366,256)	1,110; 0.31% (276, 1,954)
	QALYs	300,606 (272,960, 331,465)	302,153 (274,279, 332,904)	1,588; 0.53% (946, 2,311)
	Medication costs (£)	1,959,493 (1,930,389, 1,985,767)	10,014,713 (9,967,714, 10,054,430)	8,054,251; 411.0% (8,018,185, 8,087,573)
	Acute MI costs (£)	2,067,127 (1,474,820, 2,838,318)	1,162,324 (823,242, 1,602,339)	-909,355; -44.0% (-1,223,010, -641,684)
	Chronic MI costs (£)	14,701,812 (11,024,547, 19,562,890)	8,375,817 (6,235,043, 11,263,557)	-6,326,304; -43.0% (-8,580,558, -4,643,570)
	Total healthcare costs (£)	18,826,943 (14,891,589, 23,849,151)	19,558,045 (17,319,108, 22,704,974)	823,663; 4.4% (-1,403,608, 2,588,449)
	ICER (Δ £/ Δ QALY)			511 (-890, 1,973)
50	N	16,294 (16,220, 16,353)	16,294 (16,220, 16,353)	0 (0, 0)
	Incident MIs	3,176 (2,739, 3,945)	2,258 (1,944, 2,828)	-924; -29.1% (-1,159, -743)
	Deaths	4,569 (4,035, 5,368)	4,245 (3,831, 4,838)	-316; -6.9% (-565, -112)
	YLL	314,105 (311,715, 316,252)	314,974 (312,646, 316,885)	842; 0.27% (49, 1,576)
	QALYs	251,174 (228,039, 277,209)	252,145 (229,040, 278,430)	1,153; 0.46% (529, 1,775)
	Medication costs (£)	2,695,960 (2,659,006, 2,727,190)	8,649,461 (8,585,632, 8,701,837)	5,952,851; 220.8% (5,911,045, 5,990,610)
	Acute MI costs (£)	2,607,210 (1,875,297, 3,566,711)	1,873,977 (1,329,844, 2,607,522)	-742,065; -28.5% (-1,018,848, -510,097)
	Chronic MI costs (£)	17,395,164 (13,309,922, 22,787,083)	12,641,950 (9,662,504, 16,572,418)	-4,712,995; -27.1% (-6,421,326, -3,403,643)
	Total healthcare costs (£)	22,788,243 (18,403,991, 28,291,126)	23,167,006 (20,101,883, 27,324,352)	501,514; 2.2% (-1,275,490, 1,900,888)
	ICER (Δ £/ Δ QALY)			414 (-1,178, 2,014)
60	N	15,702 (15,584, 15,803)	15,702 (15,584, 15,803)	0 (0, 0)
	Incident MIs	2,836 (2,423, 3,547)	2,464 (2,113, 3,093)	-373; -13.2% (-465, -305)
	Deaths	4,125 (3,676, 4,812)	4,005 (3,585, 4,635)	-128; -3.1% (-218, -71)
	YLL	245,862 (243,116, 248,292)	246,241 (243,573, 248,685)	361; 0.15% (227, 545)
	QALYs	189,652 (172,352, 209,453)	190,098 (172,665, 209,922)	477; 0.25% (348, 633)
	Medication costs (£)	3,370,596 (3,325,129, 3,411,788)	6,766,063 (6,692,842, 6,833,036)	3,394,636; 100.7% (3,362,876, 3,426,357)
	Acute MI costs (£)	2,923,384 (2,090,436, 3,953,858)	2,550,216 (1,833,697, 3,487,461)	-368,271; -12.6% (-509,389, -256,349)
	Chronic MI costs (£)	17,023,840 (13,309,156, 21,810,263)	15,007,807 (11,705,279, 19,102,755)	-1,994,600; -11.7% (-2,609,837, -1,506,683)
	Total healthcare costs (£)	23,373,617 (19,403,424, 28,545,771)	24,359,610 (20,836,504, 28,809,295)	1,023,072; 4.4% (382,102, 1,568,232)
	ICER (Δ £/ Δ QALY)			2,144 (650, 4,024)

Table 9.19: PSA results – Low/moderate intensity statins and ezetimibe – Females with LDL-C ≥5.0 mmol/L

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	16,646 (16,646, 16,646)	16,646 (16,646, 16,646)	0 (0, 0)
	Incident MIs	3,365 (2,898, 4,202)	1,302 (1,087, 1,657)	-2,064; -61.3% (-2,518, -1,771)
	Deaths	4,846 (4,235, 5,708)	4,138 (3,749, 4,624)	-704; -14.5% (-1,201, -350)
	YLL	399,125 (397,601, 400,359)	400,316 (399,158, 401,393)	1,227; 0.31% (396, 2,153)
	QALYs	339,721 (308,382, 374,420)	341,377 (310,320, 376,342)	1,780; 0.52% (1,138, 2,594)
	Medication costs (£)	1,404,730 (1,379,958, 1,427,771)	19,780,635 (19,723,534, 19,833,740)	18,375,154; 1308.1% (18,330,987, 18,418,478)
	Acute MI costs (£)	1,542,658 (1,096,473, 2,136,559)	607,489 (428,170, 846,764)	-940,937; -61.0% (-1,289,670, -663,759)
	Chronic MI costs (£)	11,388,464 (8,482,395, 15,279,615)	4,526,079 (3,296,172, 6,270,410)	-6,825,092; -59.9% (-9,299,913, -5,079,224)
	Total healthcare costs (£)	14,345,094 (11,253,250, 18,515,704)	24,945,270 (23,662,434, 26,753,847)	10,586,013; 73.8% (8,034,811, 12,434,327)
	ICER (Δ £/ Δ QALY)			5,890 (3,687, 9,882)
40	N	16,544 (16,513, 16,572)	16,544 (16,513, 16,572)	0 (0, 0)
	Incident MIs	3,314 (2,856, 4,123)	1,686 (1,424, 2,131)	-1,634; -49.3% (-1,972, -1,373)
	Deaths	4,766 (4,180, 5,593)	4,201 (3,798, 4,724)	-558; -11.7% (-934, -264)
	YLL	363,713 (361,695, 365,414)	364,883 (363,181, 366,350)	1,207; 0.33% (376, 2,050)
	QALYs	300,606 (272,960, 331,465)	302,300 (274,427, 333,093)	1,721; 0.57% (1,072, 2,487)
	Medication costs (£)	1,959,493 (1,930,389, 1,985,767)	18,033,190 (17,949,222, 18,105,531)	16,073,209; 820.3% (16,003,838, 16,135,314)
	Acute MI costs (£)	2,067,127 (1,474,820, 2,838,318)	1,078,667 (755,431, 1,493,931)	-993,111; -48.0% (-1,344,351, -708,076)
	Chronic MI costs (£)	14,701,812 (11,024,547, 19,562,890)	7,818,966 (5,838,925, 10,495,432)	-6,874,350; -46.8% (-9,215,337, -5,095,618)
	Total healthcare costs (£)	18,826,943 (14,891,589, 23,849,151)	26,931,990 (24,846,496, 29,939,563)	8,159,039; 43.3% (5,718,392, 10,101,032)
	ICER (Δ £/ Δ QALY)			4,748 (2,820, 8,195)
50	N	16,294 (16,220, 16,353)	16,294 (16,220, 16,353)	0 (0, 0)
	Incident MIs	3,176 (2,739, 3,945)	2,126 (1,828, 2,648)	-1,062; -33.4% (-1,315, -863)
	Deaths	4,569 (4,035, 5,368)	4,200 (3,792, 4,775)	-362; -7.9% (-633, -148)
	YLL	314,105 (311,715, 316,252)	315,072 (312,788, 316,954)	945; 0.30% (146, 1,716)
	QALYs	251,174 (228,039, 277,209)	252,330 (229,172, 278,560)	1,290; 0.51% (647, 1,950)
	Medication costs (£)	2,695,960 (2,659,006, 2,727,190)	15,576,316 (15,463,626, 15,669,239)	12,880,052; 477.8% (12,792,161, 12,958,125)
	Acute MI costs (£)	2,607,210 (1,875,297, 3,566,711)	1,778,241 (1,261,268, 2,472,934)	-839,028; -32.2% (-1,153,397, -586,956)
	Chronic MI costs (£)	17,395,164 (13,309,922, 22,787,083)	12,068,868 (9,264,919, 15,837,070)	-5,274,590; -30.3% (-7,114,270, -3,876,329)
	Total healthcare costs (£)	22,788,243 (18,403,991, 28,291,126)	29,425,571 (26,574,822, 33,350,234)	6,763,253; 29.7% (4,778,112, 8,291,721)
	ICER (Δ £/ Δ QALY)			5,168 (3,136, 10,694)
60	N	15,702 (15,584, 15,803)	15,702 (15,584, 15,803)	0 (0, 0)
	Incident MIs	2,836 (2,423, 3,547)	2,364 (2,034, 2,974)	-471; -16.6% (-587, -385)
	Deaths	4,125 (3,676, 4,812)	3,970 (3,558, 4,576)	-161; -3.9% (-276, -95)
	YLL	245,862 (243,116, 248,292)	246,322 (243,682, 248,759)	448; 0.18% (292, 658)
	QALYs	189,652 (172,352, 209,453)	190,193 (172,787, 209,982)	583; 0.31% (432, 761)
	Medication costs (£)	3,370,596 (3,325,129, 3,411,788)	12,184,886 (12,054,458, 12,305,127)	8,813,213; 261.5% (8,723,344, 8,894,372)
	Acute MI costs (£)	2,923,384 (2,090,436, 3,953,858)	2,466,516 (1,765,130, 3,364,205)	-455,441; -15.6% (-633,475, -320,189)
	Chronic MI costs (£)	17,023,840 (13,309,156, 21,810,263)	14,547,466 (11,458,555, 18,649,934)	-2,447,458; -14.4% (-3,181,016, -1,869,404)
	Total healthcare costs (£)	23,373,617 (19,403,424, 28,545,771)	29,221,471 (25,885,648, 33,608,305)	5,902,845; 25.3% (5,090,793, 6,569,227)
	ICER (Δ £/ Δ QALY)			10,049 (7,142, 14,075)

Table 9.20: PSA results – Inclisiran – Females with LDL-C $\geq$5.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	16,646 (16,646, 16,646)	16,646 (16,646, 16,646)	0 (0, 0)
	Incident MIs	3,365 (2,898, 4,202)	1,410 (1,176, 1,820)	-1,960; -58.3% (-2,401, -1,667)
	Deaths	4,846 (4,235, 5,708)	4,170 (3,773, 4,673)	-666; -13.7% (-1,163, -334)
	YLL	399,125 (397,601, 400,359)	400,262 (399,110, 401,340)	1,175; 0.29% (358, 2,076)
	QALYs	339,721 (308,382, 374,420)	341,316 (310,273, 376,242)	1,698; 0.50% (1,069, 2,515)
	Medication costs (£)	1,404,730 (1,379,958, 1,427,771)	1,594,236,369 (1,589,659,387, 1,598,523,286)	1,592,819,780; 113389.8% (1,588,272,442, 1,597,113,533)
	Acute MI costs (£)	1,542,658 (1,096,473, 2,136,559)	651,664 (454,299, 904,692)	-896,589; -58.1% (-1,236,599, -627,848)
	Chronic MI costs (£)	11,388,464 (8,482,395, 15,279,615)	4,855,440 (3,531,871, 6,660,321)	-6,510,000; -57.2% (-8,995,669, -4,873,820)
	Total healthcare costs (£)	14,345,094 (11,253,250, 18,515,704)	1,599,793,000 (1,595,208,217, 1,604,514,873)	1,585,309,111; 11051.2% (1,580,156,613, 1,589,845,937)
	ICER (Δ £/ Δ QALY)			933,248 (630,417, 1,479,150)
40	N	16,544 (16,513, 16,572)	16,544 (16,513, 16,572)	0 (0, 0)
	Incident MIs	3,314 (2,856, 4,123)	1,794 (1,526, 2,267)	-1,532; -46.2% (-1,872, -1,268)
	Deaths	4,766 (4,180, 5,593)	4,240 (3,819, 4,786)	-520; -10.9% (-889, -237)
	YLL	363,713 (361,695, 365,414)	364,826 (363,106, 366,286)	1,132; 0.31% (311, 1,988)
	QALYs	300,606 (272,960, 331,465)	302,189 (274,354, 332,910)	1,628; 0.54% (980, 2,374)
	Medication costs (£)	1,959,493 (1,930,389, 1,985,767)	1,453,368,473 (1,446,527,782, 1,459,177,695)	1,451,407,546; 74070.6% (1,444,592,537, 1,457,216,011)
	Acute MI costs (£)	2,067,127 (1,474,820, 2,838,318)	1,135,130 (790,823, 1,591,650)	-934,311; -45.2% (-1,278,118, -653,959)
	Chronic MI costs (£)	14,701,812 (11,024,547, 19,562,890)	8,242,256 (6,073,784, 11,101,623)	-6,487,646; -44.1% (-8,780,978, -4,751,057)
	Total healthcare costs (£)	18,826,943 (14,891,589, 23,849,151)	1,462,558,330 (1,455,876,756, 1,469,073,436)	1,443,852,744; 7669.1% (1,436,569,814, 1,450,471,880)
	ICER (Δ £/ Δ QALY)			887,716 (608,579, 1,476,516)
50	N	16,294 (16,220, 16,353)	16,294 (16,220, 16,353)	0 (0, 0)
	Incident MIs	3,176 (2,739, 3,945)	2,216 (1,907, 2,785)	-971; -30.6% (-1,213, -770)
	Deaths	4,569 (4,035, 5,368)	4,232 (3,817, 4,815)	-328; -7.2% (-581, -123)
	YLL	314,105 (311,715, 316,252)	315,003 (312,720, 316,900)	878; 0.28% (82, 1,624)
	QALYs	251,174 (228,039, 277,209)	252,219 (229,102, 278,448)	1,201; 0.48% (570, 1,836)
	Medication costs (£)	2,695,960 (2,659,006, 2,727,190)	1,255,288,138 (1,246,198,149, 1,262,830,798)	1,252,592,707; 46461.9% (1,243,528,776, 1,260,098,288)
	Acute MI costs (£)	2,607,210 (1,875,297, 3,566,711)	1,849,883 (1,324,930, 2,560,373)	-770,829; -29.6% (-1,072,484, -528,860)
	Chronic MI costs (£)	17,395,164 (13,309,922, 22,787,083)	12,454,584 (9,534,926, 16,298,333)	-4,877,240; -28.0% (-6,631,072, -3,581,336)
	Total healthcare costs (£)	22,788,243 (18,403,991, 28,291,126)	1,269,626,723 (1,260,399,260, 1,277,471,739)	1,246,866,196; 5471.5% (1,237,036,686, 1,255,095,792)
	ICER (Δ £/ Δ QALY)			1,037,877 (679,485, 2,188,117)
60	N	15,702 (15,584, 15,803)	15,702 (15,584, 15,803)	0 (0, 0)
	Incident MIs	2,836 (2,423, 3,547)	2,432 (2,091, 3,035)	-402; -14.2% (-520, -317)
	Deaths	4,125 (3,676, 4,812)	3,993 (3,576, 4,606)	-138; -3.3% (-239, -80)
	YLL	245,862 (243,116, 248,292)	246,273 (243,615, 248,707)	387; 0.16% (244, 592)
	QALYs	189,652 (172,352, 209,453)	190,115 (172,726, 209,961)	508; 0.27% (372, 686)
	Medication costs (£)	3,370,596 (3,325,129, 3,411,788)	981,985,577 (971,402,119, 991,674,506)	978,612,236; 29033.8% (968,076,592, 988,256,172)
	Acute MI costs (£)	2,923,384 (2,090,436, 3,953,858)	2,524,664 (1,798,969, 3,470,450)	-393,269; -13.5% (-551,897, -271,010)
	Chronic MI costs (£)	17,023,840 (13,309,156, 21,810,263)	14,862,243 (11,585,667, 18,961,127)	-2,126,858; -12.5% (-2,879,382, -1,607,448)
	Total healthcare costs (£)	23,373,617 (19,403,424, 28,545,771)	999,394,869 (989,166,904, 1,008,832,923)	976,024,309; 4175.8% (965,192,546, 985,763,846)
	ICER (Δ £/ Δ QALY)			1,927,322 (1,422,921, 2,632,635)

Table 9.21: PSA results – Low/moderate intensity statins – All males

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	206,161 (206,161, 206,161)	206,161 (206,161, 206,161)	0 (0, 0)
	Incident MIs	43,271 (39,778, 48,051)	27,216 (24,641, 30,708)	-16,080; -37.2% (-17,664, -14,801)
	Deaths	84,461 (77,680, 92,333)	80,762 (74,480, 87,897)	-3,706; -4.4% (-5,926, -2,061)
	YLL	4,888,657 (4,872,621, 4,902,511)	4,899,660 (4,884,970, 4,913,160)	11,015; 0.23% (7,737, 15,437)
	QALYs	4,284,290 (3,894,835, 4,692,361)	4,300,833 (3,910,658, 4,710,640)	16,568; 0.39% (13,110, 21,012)
	Medication costs (£)	12,262,803 (12,028,954, 12,489,220)	90,294,308 (90,024,158, 90,542,579)	78,033,535; 636.3% (77,791,963, 78,257,224)
	Acute MI costs (£)	21,020,719 (15,059,393, 28,464,001)	13,278,573 (9,473,412, 18,007,209)	-7,756,273; -36.9% (-10,501,330, -5,649,887)
	Chronic MI costs (£)	165,424,904 (126,031,338, 217,313,006)	105,595,923 (79,199,072, 138,695,106)	-59,834,489; -36.2% (-78,859,731, -45,591,867)
	Total healthcare costs (£)	198,856,532 (157,923,092, 252,414,500)	209,257,955 (182,743,096, 243,502,463)	10,349,025; 5.2% (-9,064,025, 25,063,498)
	ICER (Δ £/ Δ QALY)			622 (-562, 1,590)
40	N	204,562 (204,256, 204,824)	204,562 (204,256, 204,824)	0 (0, 0)
	Incident MIs	42,422 (39,098, 46,946)	30,620 (27,964, 34,204)	-11,856; -27.9% (-13,044, -10,855)
	Deaths	83,414 (76,842, 90,990)	80,572 (74,384, 87,602)	-2,834; -3.4% (-4,393, -1,566)
	YLL	4,423,442 (4,401,853, 4,442,531)	4,434,104 (4,413,009, 4,451,927)	10,595; 0.24% (7,183, 14,690)
	QALYs	3,768,069 (3,419,774, 4,153,084)	3,782,690 (3,436,060, 4,170,407)	15,301; 0.41% (11,754, 19,267)
	Medication costs (£)	16,880,394 (16,628,876, 17,127,355)	81,731,382 (81,343,030, 82,059,166)	64,851,581; 384.2% (64,527,475, 65,141,582)
	Acute MI costs (£)	27,806,591 (19,936,338, 37,726,519)	20,241,916 (14,591,988, 27,401,360)	-7,550,538; -27.2% (-10,351,356, -5,512,221)
	Chronic MI costs (£)	209,123,598 (161,418,402, 271,552,165)	154,394,266 (117,796,715, 199,912,527)	-54,712,756; -26.2% (-71,198,474, -42,048,751)
	Total healthcare costs (£)	254,068,297 (204,572,597, 318,447,210)	256,723,627 (219,361,078, 305,330,181)	2,492,222; 1.0% (-14,825,087, 15,180,326)
	ICER (Δ £/ Δ QALY)			169 (-981, 1,051)
50	N	200,554 (199,824, 201,172)	200,554 (199,824, 201,172)	0 (0, 0)
	Incident MIs	40,144 (37,059, 44,324)	33,040 (30,463, 36,627)	-7,095; -17.7% (-7,946, -6,359)
	Deaths	80,636 (74,579, 87,628)	78,916 (72,960, 85,536)	-1,816; -2.3% (-2,762, -902)
	YLL	3,772,703 (3,745,500, 3,796,471)	3,780,228 (3,753,132, 3,803,786)	7,701; 0.20% (4,075, 11,228)
	QALYs	3,110,452 (2,825,946, 3,430,587)	3,121,249 (2,835,283, 3,443,772)	10,471; 0.34% (7,389, 13,783)
	Medication costs (£)	22,230,511 (21,955,025, 22,471,566)	69,702,740 (69,204,042, 70,136,397)	47,471,696; 213.5% (47,136,784, 47,776,606)
	Acute MI costs (£)	34,345,482 (24,719,642, 46,370,796)	28,578,433 (20,529,162, 38,531,769)	-5,734,880; -16.7% (-7,894,401, -4,120,934)
	Chronic MI costs (£)	237,503,494 (185,812,061, 303,672,852)	200,714,340 (155,879,208, 256,479,412)	-37,290,306; -15.7% (-48,537,980, -28,794,451)
	Total healthcare costs (£)	295,414,814 (242,291,285, 362,997,465)	299,409,790 (253,752,074, 357,035,700)	4,419,786; 1.5% (-7,195,740, 13,218,519)
	ICER (Δ £/ Δ QALY)			422 (-698, 1,353)
60	N	190,902 (189,759, 191,953)	190,902 (189,759, 191,953)	0 (0, 0)
	Incident MIs	34,446 (31,652, 38,338)	31,464 (28,855, 35,050)	-2,996; -8.7% (-3,379, -2,671)
	Deaths	73,781 (68,258, 79,882)	73,055 (67,488, 79,025)	-790; -1.1% (-1,098, -528)
	YLL	2,884,350 (2,853,471, 2,911,267)	2,887,479 (2,856,812, 2,914,792)	3,228; 0.11% (2,565, 4,001)
	QALYs	2,298,592 (2,090,807, 2,535,982)	2,302,665 (2,095,123, 2,541,059)	4,150; 0.18% (3,373, 5,097)
	Medication costs (£)	25,136,192 (24,827,684, 25,419,335)	53,276,539 (52,711,809, 53,779,511)	28,143,116; 112.0% (27,846,722, 28,410,814)
	Acute MI costs (£)	36,264,384 (26,185,976, 49,170,174)	33,332,402 (24,060,168, 45,216,579)	-2,916,699; -8.0% (-3,999,937, -2,081,374)
	Chronic MI costs (£)	215,007,951 (170,558,127, 271,233,878)	199,345,835 (157,839,770, 250,180,054)	-15,632,229; -7.3% (-19,785,497, -12,305,730)
	Total healthcare costs (£)	276,793,070 (231,829,020, 334,311,179)	286,489,185 (244,388,075, 339,664,701)	9,615,862; 3.5% (5,067,431, 13,027,952)
	ICER (Δ £/ Δ QALY)			2,330 (1,153, 3,468)

Table 9.22: PSA results – High intensity statins – All males

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	206,161 (206,161, 206,161)	206,161 (206,161, 206,161)	0 (0, 0)
	Incident MIs	43,271 (39,778, 48,051)	23,388 (21,247, 26,454)	-19,908; -46.0% (-21,745, -18,306)
	Deaths	84,461 (77,680, 92,333)	79,849 (73,510, 86,949)	-4,584; -5.4% (-7,236, -2,614)
	YLL	4,888,657 (4,872,621, 4,902,511)	4,902,181 (4,887,149, 4,915,373)	13,300; 0.27% (9,698, 18,332)
	QALYs	4,284,290 (3,894,835, 4,692,361)	4,304,276 (3,914,431, 4,714,323)	20,041; 0.47% (15,980, 25,165)
	Medication costs (£)	12,262,803 (12,028,954, 12,489,220)	134,553,084 (134,141,337, 134,914,406)	122,287,869; 997.2% (121,941,999, 122,596,470)
	Acute MI costs (£)	21,020,719 (15,059,393, 28,464,001)	11,577,792 (8,270,276, 15,727,442)	-9,467,031; -45.0% (-12,789,793, -6,862,545)
	Chronic MI costs (£)	165,424,904 (126,031,338, 217,313,006)	93,081,850 (69,442,538, 122,680,665)	-72,259,901; -43.7% (-94,888,686, -55,510,633)
	Total healthcare costs (£)	198,856,532 (157,923,092, 252,414,500)	239,232,156 (216,154,358, 269,971,467)	40,407,575; 20.3% (17,559,950, 58,223,843)
	ICER (Δ £/ Δ QALY)			1,986 (820, 3,194)
40	N	204,562 (204,256, 204,824)	204,562 (204,256, 204,824)	0 (0, 0)
	Incident MIs	42,422 (39,098, 46,946)	27,300 (24,871, 30,566)	-15,156; -35.7% (-16,683, -13,877)
	Deaths	83,414 (76,842, 90,990)	79,772 (73,555, 86,797)	-3,652; -4.4% (-5,540, -2,131)
	YLL	4,423,442 (4,401,853, 4,442,531)	4,436,609 (4,415,694, 4,454,381)	13,139; 0.30% (9,496, 17,759)
	QALYs	3,768,069 (3,419,774, 4,153,084)	3,786,084 (3,439,169, 4,174,606)	18,952; 0.50% (14,860, 23,752)
	Medication costs (£)	16,880,394 (16,628,876, 17,127,355)	121,798,851 (121,225,621, 122,286,039)	104,921,627; 621.6% (104,439,207, 105,346,487)
	Acute MI costs (£)	27,806,591 (19,936,338, 37,726,519)	18,281,487 (13,067,832, 24,812,663)	-9,514,251; -34.2% (-13,037,300, -6,913,040)
	Chronic MI costs (£)	209,123,598 (161,418,402, 271,552,165)	140,877,607 (107,356,422, 182,873,286)	-68,100,028; -32.6% (-87,969,127, -52,285,333)
	Total healthcare costs (£)	254,068,297 (204,572,597, 318,447,210)	281,352,307 (247,325,971, 325,407,594)	27,051,464; 10.6% (5,954,341, 43,318,477)
	ICER (Δ £/ Δ QALY)			1,433 (288, 2,511)
50	N	200,554 (199,824, 201,172)	200,554 (199,824, 201,172)	0 (0, 0)
	Incident MIs	40,144 (37,059, 44,324)	30,518 (28,109, 33,854)	-9,660; -24.1% (-10,731, -8,712)
	Deaths	80,636 (74,579, 87,628)	78,218 (72,370, 84,905)	-2,466; -3.1% (-3,629, -1,400)
	YLL	3,772,703 (3,745,500, 3,796,471)	3,782,484 (3,755,141, 3,805,992)	10,144; 0.27% (6,377, 13,843)
	QALYs	3,110,452 (2,825,946, 3,430,587)	3,124,331 (2,838,278, 3,447,374)	13,718; 0.44% (10,346, 17,354)
	Medication costs (£)	22,230,511 (21,955,025, 22,471,566)	103,876,956 (103,127,043, 104,521,320)	81,646,796; 367.3% (81,082,160, 82,159,772)
	Acute MI costs (£)	34,345,482 (24,719,642, 46,370,796)	26,603,100 (19,229,166, 35,889,952)	-7,676,598; -22.4% (-10,379,259, -5,540,519)
	Chronic MI costs (£)	237,503,494 (185,812,061, 303,672,852)	188,844,201 (147,137,283, 241,854,732)	-48,971,738; -20.6% (-62,897,955, -38,383,511)
	Total healthcare costs (£)	295,414,814 (242,291,285, 362,997,465)	319,706,154 (277,543,455, 373,988,133)	24,851,983; 8.4% (10,647,588, 35,936,745)
	ICER (Δ £/ Δ QALY)			1,809 (729, 2,959)
60	N	190,902 (189,759, 191,953)	190,902 (189,759, 191,953)	0 (0, 0)
	Incident MIs	34,446 (31,652, 38,338)	29,886 (27,450, 33,272)	-4,584; -13.3% (-5,147, -4,124)
	Deaths	73,781 (68,258, 79,882)	72,632 (67,087, 78,651)	-1,220; -1.7% (-1,677, -833)
	YLL	2,884,350 (2,853,471, 2,911,267)	2,889,124 (2,858,576, 2,916,367)	4,801; 0.17% (3,888, 5,908)
	QALYs	2,298,592 (2,090,807, 2,535,982)	2,304,528 (2,096,961, 2,543,407)	6,145; 0.27% (5,077, 7,411)
	Medication costs (£)	25,136,192 (24,827,684, 25,419,335)	79,394,518 (78,556,598, 80,142,410)	54,263,937; 215.9% (53,695,987, 54,765,348)
	Acute MI costs (£)	36,264,384 (26,185,976, 49,170,174)	31,859,015 (23,053,394, 42,995,268)	-4,419,550; -12.2% (-6,006,097, -3,167,452)
	Chronic MI costs (£)	215,007,951 (170,558,127, 271,233,878)	191,617,236 (151,729,846, 240,686,388)	-23,296,366; -10.8% (-29,411,583, -18,578,688)
	Total healthcare costs (£)	276,793,070 (231,829,020, 334,311,179)	303,315,712 (262,570,452, 354,176,576)	26,539,595; 9.6% (19,819,242, 31,586,427)
	ICER (Δ £/ Δ QALY)			4,320 (3,050, 5,694)

Table 9.23: PSA results – Low/moderate intensity statins and ezetimibe – All males

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	206,161 (206,161, 206,161)	206,161 (206,161, 206,161)	0 (0, 0)
	Incident MIs	43,271 (39,778, 48,051)	21,684 (19,614, 24,585)	-21,596; -49.9% (-23,688, -19,888)
	Deaths	84,461 (77,680, 92,333)	79,380 (73,087, 86,518)	-5,010; -5.9% (-7,863, -2,874)
	YLL	4,888,657 (4,872,621, 4,902,511)	4,903,141 (4,888,487, 4,916,415)	14,351; 0.29% (10,523, 19,473)
	QALYs	4,284,290 (3,894,835, 4,692,361)	4,305,709 (3,915,991, 4,716,183)	21,567; 0.50% (17,243, 26,812)
	Medication costs (£)	12,262,803 (12,028,954, 12,489,220)	242,282,171 (241,559,581, 242,936,717)	230,028,409; 1875.8% (229,360,508, 230,571,485)
	Acute MI costs (£)	21,020,719 (15,059,393, 28,464,001)	10,821,497 (7,772,880, 14,688,871)	-10,224,833; -48.6% (-13,758,879, -7,383,631)
	Chronic MI costs (£)	165,424,904 (126,031,338, 217,313,006)	87,485,791 (65,700,024, 115,570,849)	-77,959,877; -47.1% (-102,296,932, -59,668,330)
	Total healthcare costs (£)	198,856,532 (157,923,092, 252,414,500)	340,664,889 (318,430,909, 369,355,826)	141,701,649; 71.3% (116,199,064, 160,858,956)
	ICER (Δ £/ Δ QALY)			6,566 (4,864, 8,698)
40	N	204,562 (204,256, 204,824)	204,562 (204,256, 204,824)	0 (0, 0)
	Incident MIs	42,422 (39,098, 46,946)	25,756 (23,502, 28,884)	-16,696; -39.4% (-18,315, -15,364)
	Deaths	83,414 (76,842, 90,990)	79,420 (73,180, 86,484)	-4,022; -4.8% (-6,084, -2,360)
	YLL	4,423,442 (4,401,853, 4,442,531)	4,437,900 (4,417,224, 4,455,709)	14,412; 0.33% (10,526, 19,243)
	QALYs	3,768,069 (3,419,774, 4,153,084)	3,787,797 (3,440,702, 4,176,513)	20,652; 0.55% (16,417, 25,809)
	Medication costs (£)	16,880,394 (16,628,876, 17,127,355)	219,337,264 (218,317,187, 220,215,909)	202,458,384; 1199.4% (201,541,476, 203,260,614)
	Acute MI costs (£)	27,806,591 (19,936,338, 37,726,519)	17,421,475 (12,490,765, 23,621,212)	-10,426,753; -37.5% (-14,209,444, -7,587,070)
	Chronic MI costs (£)	209,123,598 (161,418,402, 271,552,165)	134,725,409 (103,111,942, 175,501,240)	-74,567,510; -35.7% (-96,003,650, -57,140,825)
	Total healthcare costs (£)	254,068,297 (204,572,597, 318,447,210)	371,753,025 (339,407,032, 413,748,181)	117,446,822; 46.2% (95,038,331, 135,180,269)
	ICER (Δ £/ Δ QALY)			5,658 (4,132, 7,590)
50	N	200,554 (199,824, 201,172)	200,554 (199,824, 201,172)	0 (0, 0)
	Incident MIs	40,144 (37,059, 44,324)	29,310 (26,969, 32,556)	-10,843; -27.0% (-12,001, -9,879)
	Deaths	80,636 (74,579, 87,628)	77,938 (72,070, 84,557)	-2,766; -3.4% (-4,084, -1,622)
	YLL	3,772,703 (3,745,500, 3,796,471)	3,783,726 (3,756,210, 3,807,052)	11,261; 0.30% (7,409, 15,080)
	QALYs	3,110,452 (2,825,946, 3,430,587)	3,126,008 (2,839,933, 3,449,705)	15,245; 0.49% (11,649, 19,109)
	Medication costs (£)	22,230,511 (21,955,025, 22,471,566)	187,069,704 (185,710,861, 188,221,150)	164,840,965; 741.5% (163,703,481, 165,820,161)
	Acute MI costs (£)	34,345,482 (24,719,642, 46,370,796)	25,780,616 (18,559,739, 34,682,647)	-8,576,936; -25.0% (-11,644,459, -6,193,616)
	Chronic MI costs (£)	237,503,494 (185,812,061, 303,672,852)	183,297,545 (142,506,981, 234,188,642)	-54,689,670; -23.0% (-69,360,276, -42,617,246)
	Total healthcare costs (£)	295,414,814 (242,291,285, 362,997,465)	396,404,351 (354,965,923, 449,447,987)	101,500,650; 34.4% (85,824,023, 114,070,536)
	ICER (Δ £/ Δ QALY)			6,631 (4,920, 8,961)
60	N	190,902 (189,759, 191,953)	190,902 (189,759, 191,953)	0 (0, 0)
	Incident MIs	34,446 (31,652, 38,338)	29,090 (26,686, 32,456)	-5,348; -15.5% (-5,983, -4,855)
	Deaths	73,781 (68,258, 79,882)	72,448 (66,908, 78,428)	-1,430; -1.9% (-1,975, -981)
	YLL	2,884,350 (2,853,471, 2,911,267)	2,889,909 (2,859,318, 2,917,060)	5,572; 0.19% (4,527, 6,840)
	QALYs	2,298,592 (2,090,807, 2,535,982)	2,305,494 (2,097,985, 2,544,819)	7,115; 0.31% (5,859, 8,625)
	Medication costs (£)	25,136,192 (24,827,684, 25,419,335)	142,972,457 (141,460,043, 144,313,916)	117,845,927; 468.8% (116,605,186, 118,915,189)
	Acute MI costs (£)	36,264,384 (26,185,976, 49,170,174)	31,180,729 (22,411,558, 42,116,573)	-5,130,612; -14.1% (-6,956,277, -3,699,586)
	Chronic MI costs (£)	215,007,951 (170,558,127, 271,233,878)	188,040,944 (148,794,049, 236,672,231)	-27,004,463; -12.6% (-33,746,036, -21,412,120)
	Total healthcare costs (£)	276,793,070 (231,829,020, 334,311,179)	362,537,570 (321,962,580, 411,967,937)	85,767,495; 31.0% (78,003,354, 91,621,244)
	ICER (Δ £/ Δ QALY)			12,015 (9,651, 14,910)

Table 9.24: PSA results – Inclisiran – All males

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	206,161 (206,161, 206,161)	206,161 (206,161, 206,161)	0 (0, 0)
	Incident MIs	43,271 (39,778, 48,051)	22,850 (20,616, 25,928)	-20,458; -47.3% (-22,562, -18,634)
	Deaths	84,461 (77,680, 92,333)	79,704 (73,324, 86,911)	-4,728; -5.6% (-7,522, -2,666)
	YLL	4,888,657 (4,872,621, 4,902,511)	4,902,474 (4,887,690, 4,915,838)	13,660; 0.28% (9,887, 18,887)
	QALYs	4,284,290 (3,894,835, 4,692,361)	4,305,046 (3,915,164, 4,714,408)	20,447; 0.48% (16,366, 25,853)
	Medication costs (£)	12,262,803 (12,028,954, 12,489,220)	19,526,933,731 (19,468,169,531, 19,580,050,206)	19,514,608,469; 159136.6% (19,456,101,577, 19,567,800,374)
	Acute MI costs (£)	21,020,719 (15,059,393, 28,464,001)	11,348,115 (8,111,244, 15,575,930)	-9,709,232; -46.2% (-13,138,688, -6,975,321)
	Chronic MI costs (£)	165,424,904 (126,031,338, 217,313,006)	91,113,999 (68,669,519, 119,443,070)	-73,785,405; -44.6% (-98,123,734, -56,498,332)
	Total healthcare costs (£)	198,856,532 (157,923,092, 252,414,500)	19,629,148,214 (19,566,566,347, 19,690,104,911)	19,432,157,597; 9771.9% (19,366,722,267, 19,484,819,793)
	ICER (Δ £/ Δ QALY)			950,312 (751,702, 1,186,725)
40	N	204,562 (204,256, 204,824)	204,562 (204,256, 204,824)	0 (0, 0)
	Incident MIs	42,422 (39,098, 46,946)	26,806 (24,347, 30,022)	-15,652; -36.9% (-17,371, -14,240)
	Deaths	83,414 (76,842, 90,990)	79,688 (73,425, 86,677)	-3,780; -4.5% (-5,797, -2,201)
	YLL	4,423,442 (4,401,853, 4,442,531)	4,436,991 (4,416,316, 4,455,087)	13,541; 0.31% (9,797, 18,369)
	QALYs	3,768,069 (3,419,774, 4,153,084)	3,786,620 (3,439,689, 4,174,763)	19,501; 0.52% (15,214, 24,500)
	Medication costs (£)	16,880,394 (16,628,876, 17,127,355)	17,676,449,963 (17,594,216,124, 17,748,421,498)	17,659,638,113; 104616.3% (17,577,452,083, 17,731,473,209)
	Acute MI costs (£)	27,806,591 (19,936,338, 37,726,519)	18,050,918 (12,986,545, 24,554,975)	-9,838,834; -35.4% (-13,450,998, -7,040,626)
	Chronic MI costs (£)	209,123,598 (161,418,402, 271,552,165)	139,330,975 (105,539,820, 181,248,739)	-69,842,345; -33.4% (-91,765,946, -54,250,850)
	Total healthcare costs (£)	254,068,297 (204,572,597, 318,447,210)	17,833,875,643 (17,750,824,745, 17,912,605,758)	17,579,888,476; 6919.4% (17,490,360,479, 17,654,500,229)
	ICER (Δ £/ Δ QALY)			901,580 (716,602, 1,154,873)
50	N	200,554 (199,824, 201,172)	200,554 (199,824, 201,172)	0 (0, 0)
	Incident MIs	40,144 (37,059, 44,324)	30,152 (27,753, 33,441)	-10,008; -24.9% (-11,247, -8,943)
	Deaths	80,636 (74,579, 87,628)	78,168 (72,238, 84,883)	-2,552; -3.2% (-3,819, -1,475)
	YLL	3,772,703 (3,745,500, 3,796,471)	3,782,917 (3,755,663, 3,806,139)	10,434; 0.28% (6,638, 14,156)
	QALYs	3,110,452 (2,825,946, 3,430,587)	3,124,782 (2,838,584, 3,448,308)	14,116; 0.45% (10,713, 17,939)
	Medication costs (£)	22,230,511 (21,955,025, 22,471,566)	15,075,909,464 (14,967,432,328, 15,168,254,566)	15,053,738,669; 67716.6% (14,945,327,523, 15,145,733,844)
	Acute MI costs (£)	34,345,482 (24,719,642, 46,370,796)	26,435,570 (18,953,718, 35,449,392)	-7,962,533; -23.2% (-10,836,337, -5,691,848)
	Chronic MI costs (£)	237,503,494 (185,812,061, 303,672,852)	186,912,197 (144,745,518, 238,944,048)	-50,785,445; -21.4% (-65,503,623, -39,206,204)
	Total healthcare costs (£)	295,414,814 (242,291,285, 362,997,465)	15,287,454,521 (15,182,626,250, 15,389,722,834)	14,994,957,522; 5075.9% (14,884,714,149, 15,091,506,018)
	ICER (Δ £/ Δ QALY)			1,060,317 (833,271, 1,398,079)
60	N	190,902 (189,759, 191,953)	190,902 (189,759, 191,953)	0 (0, 0)
	Incident MIs	34,446 (31,652, 38,338)	29,652 (27,212, 32,974)	-4,823; -14.0% (-5,552, -4,232)
	Deaths	73,781 (68,258, 79,882)	72,585 (67,028, 78,648)	-1,277; -1.7% (-1,825, -879)
	YLL	2,884,350 (2,853,471, 2,911,267)	2,889,326 (2,858,773, 2,916,688)	5,015; 0.17% (4,033, 6,341)
	QALYs	2,298,592 (2,090,807, 2,535,982)	2,304,781 (2,097,032, 2,543,808)	6,440; 0.28% (5,253, 7,982)
	Medication costs (£)	25,136,192 (24,827,684, 25,419,335)	11,522,136,906 (11,400,653,770, 11,631,200,112)	11,496,962,765; 45738.7% (11,375,910,072, 11,605,847,272)
	Acute MI costs (£)	36,264,384 (26,185,976, 49,170,174)	31,666,304 (22,873,668, 42,797,000)	-4,638,470; -12.8% (-6,299,511, -3,282,937)
	Chronic MI costs (£)	215,007,951 (170,558,127, 271,233,878)	190,392,588 (150,162,539, 239,284,491)	-24,235,756; -11.3% (-31,451,620, -19,352,729)
	Total healthcare costs (£)	276,793,070 (231,829,020, 334,311,179)	11,742,070,398 (11,629,361,917, 11,856,613,771)	11,468,772,527; 4143.4% (11,344,281,277, 11,579,047,943)
	ICER (Δ £/ Δ QALY)			1,781,228 (1,438,102, 2,184,265)

Table 9.25: PSA results – Low/moderate intensity statins – Males with LDL-C ≥3.0 mmol/L

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	147,997 (147,997, 147,997)	147,997 (147,997, 147,997)	0 (0, 0)
	Incident MIs	35,536 (32,698, 39,355)	21,811 (19,767, 24,502)	-13,762; -38.7% (-15,046, -12,604)
	Deaths	61,628 (56,710, 67,648)	58,474 (53,867, 63,756)	-3,162; -5.1% (-5,097, -1,753)
	YLL	3,506,145 (3,494,269, 3,516,370)	3,515,704 (3,505,062, 3,525,392)	9,524; 0.27% (6,401, 13,125)
	QALYs	3,070,341 (2,790,990, 3,363,907)	3,085,084 (2,805,112, 3,377,995)	14,358; 0.47% (11,282, 18,179)
	Medication costs (£)	8,279,041 (8,088,049, 8,463,808)	64,789,878 (64,594,165, 64,968,051)	56,513,281; 682.6% (56,324,799, 56,688,990)
	Acute MI costs (£)	17,322,493 (12,445,333, 23,482,559)	10,671,695 (7,622,757, 14,485,271)	-6,666,471; -38.5% (-8,989,635, -4,846,163)
	Chronic MI costs (£)	136,697,786 (104,070,580, 179,901,683)	85,102,881 (63,739,995, 111,434,360)	-51,408,843; -37.6% (-68,095,422, -39,301,282)
	Total healthcare costs (£)	162,509,545 (128,484,011, 206,162,426)	160,652,791 (139,170,978, 187,783,241)	-1,661,367; -1.0% (-18,717,205, 11,135,416)
	ICER (Δ £/ Δ QALY)			-113 (-1,282, 780)
40	N	146,762 (146,509, 146,968)	146,762 (146,509, 146,968)	0 (0, 0)
	Incident MIs	34,842 (32,136, 38,464)	24,710 (22,569, 27,614)	-10,202; -29.3% (-11,234, -9,306)
	Deaths	60,856 (56,077, 66,488)	58,391 (53,953, 63,483)	-2,422; -4.0% (-3,809, -1,312)
	YLL	3,169,356 (3,153,203, 3,183,300)	3,178,410 (3,162,968, 3,192,009)	9,143; 0.29% (6,085, 12,573)
	QALYs	2,697,144 (2,447,556, 2,972,589)	2,709,918 (2,460,814, 2,986,551)	13,237; 0.49% (10,160, 16,669)
	Medication costs (£)	11,350,945 (11,142,986, 11,536,161)	58,585,924 (58,301,699, 58,836,244)	47,241,457; 416.2% (46,987,934, 47,467,472)
	Acute MI costs (£)	22,915,633 (16,473,330, 31,056,384)	16,417,302 (11,877,504, 22,204,640)	-6,510,068; -28.4% (-8,939,142, -4,767,816)
	Chronic MI costs (£)	173,033,063 (133,217,710, 223,922,541)	125,580,169 (95,700,876, 162,557,025)	-47,263,214; -27.3% (-61,615,382, -35,988,700)
	Total healthcare costs (£)	207,260,366 (166,369,451, 259,731,054)	200,726,724 (170,454,979, 239,322,380)	-6,664,987; -3.2% (-21,548,090, 4,545,877)
	ICER (Δ £/ Δ QALY)			-503 (-1,693, 342)
50	N	143,639 (143,058, 144,130)	143,639 (143,058, 144,130)	0 (0, 0)
	Incident MIs	32,958 (30,496, 36,353)	26,814 (24,735, 29,606)	-6,168; -18.7% (-6,885, -5,512)
	Deaths	58,784 (54,328, 63,876)	57,218 (52,901, 62,113)	-1,553; -2.6% (-2,376, -817)
	YLL	2,696,753 (2,676,891, 2,714,261)	2,703,447 (2,683,117, 2,721,030)	6,776; 0.25% (3,569, 9,619)
	QALYs	2,220,877 (2,017,036, 2,448,685)	2,230,185 (2,026,153, 2,459,998)	9,186; 0.41% (6,558, 11,829)
	Medication costs (£)	14,955,453 (14,742,855, 15,142,012)	49,848,498 (49,474,179, 50,172,307)	34,893,781; 233.3% (34,624,961, 35,143,139)
	Acute MI costs (£)	28,279,457 (20,418,450, 38,320,770)	23,240,888 (16,781,843, 31,453,199)	-5,009,250; -17.7% (-6,819,458, -3,627,144)
	Chronic MI costs (£)	196,601,154 (153,036,686, 251,240,484)	164,062,251 (126,852,934, 209,494,155)	-32,568,090; -16.6% (-42,017,234, -25,011,960)
	Total healthcare costs (£)	240,690,626 (196,873,822, 296,422,442)	237,653,733 (200,103,168, 285,504,886)	-2,732,081; -1.1% (-12,681,920, 5,269,640)
	ICER (Δ £/ Δ QALY)			-287 (-1,414, 572)
60	N	136,088 (135,202, 136,908)	136,088 (135,202, 136,908)	0 (0, 0)
	Incident MIs	28,236 (26,031, 31,380)	25,598 (23,585, 28,430)	-2,652; -9.4% (-2,998, -2,363)
	Deaths	53,534 (49,563, 57,954)	52,856 (48,844, 57,250)	-702; -1.3% (-989, -471)
	YLL	2,051,049 (2,028,353, 2,071,148)	2,053,847 (2,031,270, 2,074,183)	2,897; 0.14% (2,280, 3,619)
	QALYs	1,631,927 (1,484,688, 1,800,069)	1,635,619 (1,488,048, 1,804,105)	3,722; 0.23% (3,022, 4,548)
	Medication costs (£)	17,105,382 (16,872,001, 17,314,832)	37,895,229 (37,479,569, 38,269,983)	20,791,151; 121.5% (20,552,907, 20,997,994)
	Acute MI costs (£)	29,772,463 (21,569,049, 40,452,100)	27,204,279 (19,717,850, 36,837,940)	-2,593,723; -8.7% (-3,558,191, -1,853,479)
	Chronic MI costs (£)	177,535,779 (140,830,784, 223,513,657)	163,503,868 (129,288,572, 205,594,121)	-13,965,978; -7.9% (-17,722,529, -11,006,629)
	Total healthcare costs (£)	224,467,602 (187,151,815, 272,158,834)	228,831,206 (193,724,937, 272,702,236)	4,255,249; 1.9% (110,026, 7,364,428)
	ICER (Δ £/ Δ QALY)			1,149 (28, 2,134)

Table 9.26: PSA results – High intensity statins – Males with LDL-C $\geq$3.0 mmol/L

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	147,997 (147,997, 147,997)	147,997 (147,997, 147,997)	0 (0, 0)
	Incident MIs	35,536 (32,698, 39,355)	18,610 (16,875, 21,053)	-16,958; -47.7% (-18,472, -15,552)
	Deaths	61,628 (56,710, 67,648)	57,731 (53,140, 62,899)	-3,908; -6.3% (-6,210, -2,219)
	YLL	3,506,145 (3,494,269, 3,516,370)	3,517,684 (3,507,182, 3,527,269)	11,482; 0.33% (8,255, 15,675)
	QALYs	3,070,341 (2,790,990, 3,363,907)	3,088,020 (2,808,257, 3,381,043)	17,226; 0.56% (13,817, 21,554)
	Medication costs (£)	8,279,041 (8,088,049, 8,463,808)	96,552,042 (96,264,403, 96,814,588)	88,275,777; 1066.3% (88,020,184, 88,512,689)
	Acute MI costs (£)	17,322,493 (12,445,333, 23,482,559)	9,237,634 (6,596,766, 12,578,437)	-8,079,611; -46.6% (-10,896,358, -5,864,728)
	Chronic MI costs (£)	136,697,786 (104,070,580, 179,901,683)	74,610,291 (55,812,886, 98,472,201)	-61,924,785; -45.3% (-81,394,298, -47,639,115)
	Total healthcare costs (£)	162,509,545 (128,484,011, 206,162,426)	180,521,285 (161,681,825, 204,728,045)	18,107,811; 11.1% (-1,642,541, 33,564,947)
	ICER (Δ £/ Δ QALY)			1,048 (-119, 2,103)
40	N	146,762 (146,509, 146,968)	146,762 (146,509, 146,968)	0 (0, 0)
	Incident MIs	34,842 (32,136, 38,464)	21,936 (20,020, 24,486)	-12,979; -37.3% (-14,259, -11,851)
	Deaths	60,856 (56,077, 66,488)	57,716 (53,288, 62,843)	-3,106; -5.1% (-4,747, -1,821)
	YLL	3,169,356 (3,153,203, 3,183,300)	3,180,674 (3,165,321, 3,194,086)	11,370; 0.36% (8,025, 15,260)
	QALYs	2,697,144 (2,447,556, 2,972,589)	2,712,803 (2,463,480, 2,989,655)	16,334; 0.61% (12,785, 20,526)
	Medication costs (£)	11,350,945 (11,142,986, 11,536,161)	87,319,624 (86,898,795, 87,687,081)	75,976,322; 669.3% (75,609,757, 76,290,114)
	Acute MI costs (£)	22,915,633 (16,473,330, 31,056,384)	14,765,809 (10,573,095, 19,964,064)	-8,173,239; -35.7% (-11,186,008, -5,959,342)
	Chronic MI costs (£)	173,033,063 (133,217,710, 223,922,541)	114,077,777 (87,036,563, 148,419,902)	-58,720,532; -33.9% (-75,893,147, -45,119,965)
	Total healthcare costs (£)	207,260,366 (166,369,451, 259,731,054)	216,415,785 (189,020,990, 251,947,479)	8,803,725; 4.2% (-8,575,526, 22,787,077)
	ICER (Δ £/ Δ QALY)			556 (-525, 1,501)
50	N	143,639 (143,058, 144,130)	143,639 (143,058, 144,130)	0 (0, 0)
	Incident MIs	32,958 (30,496, 36,353)	24,680 (22,754, 27,276)	-8,311; -25.2% (-9,211, -7,525)
	Deaths	58,784 (54,328, 63,876)	56,675 (52,403, 61,487)	-2,098; -3.6% (-3,119, -1,204)
	YLL	2,696,753 (2,676,891, 2,714,261)	2,705,436 (2,685,379, 2,723,034)	8,848; 0.33% (5,505, 11,869)
	QALYs	2,220,877 (2,017,036, 2,448,685)	2,232,925 (2,028,514, 2,462,866)	11,913; 0.54% (9,061, 14,955)
	Medication costs (£)	14,955,453 (14,742,855, 15,142,012)	74,298,790 (73,748,384, 74,781,334)	59,347,975; 396.8% (58,910,583, 59,737,503)
	Acute MI costs (£)	28,279,457 (20,418,450, 38,320,770)	21,616,875 (15,673,813, 29,155,456)	-6,657,781; -23.5% (-8,946,148, -4,793,019)
	Chronic MI costs (£)	196,601,154 (153,036,686, 251,240,484)	153,978,020 (119,453,349, 198,163,906)	-42,488,644; -21.6% (-54,387,235, -32,946,718)
	Total healthcare costs (£)	240,690,626 (196,873,822, 296,422,442)	250,263,121 (214,992,856, 295,390,262)	10,070,747; 4.2% (-2,183,842, 19,889,676)
	ICER (Δ £/ Δ QALY)			850 (-214, 1,816)
60	N	136,088 (135,202, 136,908)	136,088 (135,202, 136,908)	0 (0, 0)
	Incident MIs	28,236 (26,031, 31,380)	24,282 (22,353, 26,913)	-3,995; -14.1% (-4,483, -3,597)
	Deaths	53,534 (49,563, 57,954)	52,486 (48,498, 56,937)	-1,061; -2.0% (-1,476, -725)
	YLL	2,051,049 (2,028,353, 2,071,148)	2,055,220 (2,032,511, 2,075,414)	4,227; 0.21% (3,426, 5,234)
	QALYs	1,631,927 (1,484,688, 1,800,069)	1,637,316 (1,489,625, 1,806,218)	5,419; 0.33% (4,464, 6,599)
	Medication costs (£)	17,105,382 (16,872,001, 17,314,832)	56,478,546 (55,855,909, 57,032,884)	39,377,636; 230.2% (38,939,867, 39,759,067)
	Acute MI costs (£)	29,772,463 (21,569,049, 40,452,100)	25,942,936 (18,766,637, 35,061,564)	-3,868,769; -13.0% (-5,269,273, -2,787,317)
	Chronic MI costs (£)	177,535,779 (140,830,784, 223,513,657)	156,858,911 (124,201,115, 197,074,690)	-20,496,265; -11.5% (-25,927,002, -16,263,265)
	Total healthcare costs (£)	224,467,602 (187,151,815, 272,158,834)	239,452,597 (206,228,038, 281,568,056)	15,014,673; 6.7% (9,258,935, 19,435,844)
	ICER (Δ £/ Δ QALY)			2,765 (1,631, 3,971)

Table 9.27: PSA results – Low/moderate intensity statins and ezetimibe – Males with LDL-C ≥3.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	147,997 (147,997, 147,997)	147,997 (147,997, 147,997)	0 (0, 0)
	Incident MIs	35,536 (32,698, 39,355)	17,177 (15,570, 19,423)	-18,370; -51.7% (-20,075, -16,907)
	Deaths	61,628 (56,710, 67,648)	57,361 (52,753, 62,550)	-4,258; -6.9% (-6,736, -2,450)
	YLL	3,506,145 (3,494,269, 3,516,370)	3,518,552 (3,508,123, 3,528,222)	12,330; 0.35% (8,981, 16,812)
	QALYs	3,070,341 (2,790,990, 3,363,907)	3,089,193 (2,809,582, 3,382,625)	18,526; 0.60% (14,927, 23,135)
	Medication costs (£)	8,279,041 (8,088,049, 8,463,808)	173,864,669 (173,350,410, 174,341,520)	165,593,082; 2000.1% (165,124,474, 165,990,903)
	Acute MI costs (£)	17,322,493 (12,445,333, 23,482,559)	8,618,417 (6,183,604, 11,744,765)	-8,725,571; -50.4% (-11,788,807, -6,314,390)
	Chronic MI costs (£)	136,697,786 (104,070,580, 179,901,683)	69,913,955 (52,436,987, 92,175,195)	-66,725,841; -48.8% (-87,453,954, -51,391,002)
	Total healthcare costs (£)	162,509,545 (128,484,011, 206,162,426)	252,347,791 (234,673,050, 275,224,383)	89,938,262; 55.3% (68,468,725, 106,277,208)
	ICER (Δ £/ Δ QALY)			4,842 (3,412, 6,596)
40	N	146,762 (146,509, 146,968)	146,762 (146,509, 146,968)	0 (0, 0)
	Incident MIs	34,842 (32,136, 38,464)	20,613 (18,823, 23,072)	-14,260; -40.9% (-15,571, -13,133)
	Deaths	60,856 (56,077, 66,488)	57,436 (52,983, 62,518)	-3,423; -5.6% (-5,197, -2,035)
	YLL	3,169,356 (3,153,203, 3,183,300)	3,181,754 (3,166,471, 3,194,893)	12,425; 0.39% (8,907, 16,445)
	QALYs	2,697,144 (2,447,556, 2,972,589)	2,714,256 (2,464,731, 2,991,220)	17,793; 0.66% (14,114, 22,133)
	Medication costs (£)	11,350,945 (11,142,986, 11,536,161)	157,253,991 (156,500,302, 157,902,676)	145,903,854; 1285.4% (145,234,568, 146,497,119)
	Acute MI costs (£)	22,915,633 (16,473,330, 31,056,384)	14,018,639 (10,093,802, 18,974,211)	-8,936,195; -39.0% (-12,189,610, -6,466,339)
	Chronic MI costs (£)	173,033,063 (133,217,710, 223,922,541)	108,957,776 (83,039,643, 142,045,987)	-64,160,579; -37.1% (-82,668,099, -49,204,113)
	Total healthcare costs (£)	207,260,366 (166,369,451, 259,731,054)	280,518,106 (254,191,043, 313,917,616)	72,795,062; 35.1% (53,968,786, 88,045,994)
	ICER (Δ £/ Δ QALY)			4,060 (2,758, 5,618)
50	N	143,639 (143,058, 144,130)	143,639 (143,058, 144,130)	0 (0, 0)
	Incident MIs	32,958 (30,496, 36,353)	23,653 (21,800, 26,232)	-9,334; -28.3% (-10,261, -8,457)
	Deaths	58,784 (54,328, 63,876)	56,440 (52,215, 61,318)	-2,356; -4.0% (-3,467, -1,407)
	YLL	2,696,753 (2,676,891, 2,714,261)	2,706,437 (2,686,270, 2,724,123)	9,821; 0.36% (6,414, 12,925)
	QALYs	2,220,877 (2,017,036, 2,448,685)	2,234,039 (2,029,678, 2,464,347)	13,232; 0.60% (10,226, 16,454)
	Medication costs (£)	14,955,453 (14,742,855, 15,142,012)	133,808,036 (132,812,361, 134,681,928)	118,848,284; 794.7% (117,998,254, 119,594,288)
	Acute MI costs (£)	28,279,457 (20,418,450, 38,320,770)	20,875,757 (15,130,253, 28,159,925)	-7,423,082; -26.2% (-10,061,582, -5,338,069)
	Chronic MI costs (£)	196,601,154 (153,036,686, 251,240,484)	149,338,804 (116,028,001, 191,550,461)	-47,392,845; -24.1% (-60,096,019, -37,064,627)
	Total healthcare costs (£)	240,690,626 (196,873,822, 296,422,442)	304,186,088 (270,046,103, 347,801,269)	64,040,396; 26.6% (50,727,399, 75,027,373)
	ICER (Δ £/ Δ QALY)			4,831 (3,484, 6,680)
60	N	136,088 (135,202, 136,908)	136,088 (135,202, 136,908)	0 (0, 0)
	Incident MIs	28,236 (26,031, 31,380)	23,615 (21,709, 26,190)	-4,642; -16.4% (-5,177, -4,211)
	Deaths	53,534 (49,563, 57,954)	52,334 (48,347, 56,750)	-1,236; -2.3% (-1,724, -847)
	YLL	2,051,049 (2,028,353, 2,071,148)	2,055,731 (2,033,227, 2,076,109)	4,889; 0.24% (3,944, 5,983)
	QALYs	1,631,927 (1,484,688, 1,800,069)	1,638,160 (1,490,411, 1,807,603)	6,243; 0.38% (5,144, 7,594)
	Medication costs (£)	17,105,382 (16,872,001, 17,314,832)	101,703,574 (100,592,288, 102,710,749)	84,606,392; 494.6% (83,684,834, 85,429,485)
	Acute MI costs (£)	29,772,463 (21,569,049, 40,452,100)	25,383,253 (18,314,096, 34,363,831)	-4,470,482; -15.0% (-6,090,400, -3,215,353)
	Chronic MI costs (£)	177,535,779 (140,830,784, 223,513,657)	153,630,801 (121,769,091, 193,413,957)	-23,630,505; -13.3% (-29,739,226, -18,767,588)
	Total healthcare costs (£)	224,467,602 (187,151,815, 272,158,834)	280,884,460 (247,920,984, 322,345,904)	56,546,122; 25.2% (49,682,423, 61,702,647)
	ICER (Δ £/ Δ QALY)			9,021 (7,133, 11,310)

Table 9.28: PSA results – Inclisiran – Males with LDL-C ≥3.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	147,997 (147,997, 147,997)	147,997 (147,997, 147,997)	0 (0, 0)
	Incident MIs	35,536 (32,698, 39,355)	18,170 (16,395, 20,585)	-17,417; -49.0% (-19,214, -15,901)
	Deaths	61,628 (56,710, 67,648)	57,604 (52,945, 62,781)	-4,015; -6.5% (-6,345, -2,289)
	YLL	3,506,145 (3,494,269, 3,516,370)	3,517,977 (3,507,344, 3,527,495)	11,714; 0.33% (8,453, 16,039)
	QALYs	3,070,341 (2,790,990, 3,363,907)	3,088,577 (2,808,889, 3,381,116)	17,571; 0.57% (14,169, 22,232)
	Medication costs (£)	8,279,041 (8,088,049, 8,463,808)	14,012,384,382 (13,970,122,274, 14,050,217,493)	14,004,173,343; 169152.1% (13,961,985,290, 14,041,802,292)
	Acute MI costs (£)	17,322,493 (12,445,333, 23,482,559)	9,056,628 (6,476,005, 12,426,982)	-8,300,362; -47.9% (-11,338,286, -5,949,739)
	Chronic MI costs (£)	136,697,786 (104,070,580, 179,901,683)	73,053,645 (54,674,676, 95,841,163)	-63,211,590; -46.2% (-84,017,967, -48,237,115)
	Total healthcare costs (£)	162,509,545 (128,484,011, 206,162,426)	14,094,068,377 (14,048,261,490, 14,139,860,790)	13,932,955,139; 8573.6% (13,883,043,762, 13,972,124,682)
	ICER (Δ £/ Δ QALY)			792,437 (628,240, 981,103)
40	N	146,762 (146,509, 146,968)	146,762 (146,509, 146,968)	0 (0, 0)
	Incident MIs	34,842 (32,136, 38,464)	21,506 (19,589, 24,021)	-13,380; -38.4% (-14,792, -12,135)
	Deaths	60,856 (56,077, 66,488)	57,639 (53,186, 62,763)	-3,209; -5.3% (-4,934, -1,872)
	YLL	3,169,356 (3,153,203, 3,183,300)	3,180,998 (3,165,803, 3,194,504)	11,672; 0.37% (8,268, 15,697)
	QALYs	2,697,144 (2,447,556, 2,972,589)	2,713,291 (2,463,897, 2,989,767)	16,834; 0.62% (13,214, 21,155)
	Medication costs (£)	11,350,945 (11,142,986, 11,536,161)	12,672,731,920 (12,612,312,432, 12,726,438,062)	12,661,345,423; 111544.4% (12,601,055,494, 12,714,896,513)
	Acute MI costs (£)	22,915,633 (16,473,330, 31,056,384)	14,572,012 (10,442,320, 19,773,412)	-8,432,733; -36.8% (-11,525,537, -6,035,617)
	Chronic MI costs (£)	173,033,063 (133,217,710, 223,922,541)	112,463,726 (84,989,368, 146,760,956)	-60,260,253; -34.8% (-78,692,895, -46,495,799)
	Total healthcare costs (£)	207,260,366 (166,369,451, 259,731,054)	12,799,205,635 (12,737,627,673, 12,859,428,632)	12,592,789,334; 6075.8% (12,526,791,046, 12,648,592,443)
	ICER (Δ £/ Δ QALY)			748,870 (595,278, 952,624)
50	N	143,639 (143,058, 144,130)	143,639 (143,058, 144,130)	0 (0, 0)
	Incident MIs	32,958 (30,496, 36,353)	24,359 (22,430, 26,904)	-8,626; -26.2% (-9,616, -7,708)
	Deaths	58,784 (54,328, 63,876)	56,622 (52,380, 61,471)	-2,162; -3.7% (-3,268, -1,259)
	YLL	2,696,753 (2,676,891, 2,714,261)	2,705,780 (2,685,702, 2,723,517)	9,160; 0.34% (5,805, 12,246)
	QALYs	2,220,877 (2,017,036, 2,448,685)	2,233,045 (2,028,939, 2,462,972)	12,330; 0.56% (9,459, 15,564)
	Medication costs (£)	14,955,453 (14,742,855, 15,142,012)	10,783,280,804 (10,703,308,310, 10,853,815,631)	10,768,373,431; 72003.0% (10,688,462,573, 10,838,684,783)
	Acute MI costs (£)	28,279,457 (20,418,450, 38,320,770)	21,469,406 (15,472,222, 28,917,176)	-6,905,826; -24.4% (-9,381,626, -4,909,593)
	Chronic MI costs (£)	196,601,154 (153,036,686, 251,240,484)	152,412,415 (117,797,451, 194,959,122)	-44,080,320; -22.4% (-56,931,302, -33,931,657)
	Total healthcare costs (£)	240,690,626 (196,873,822, 296,422,442)	10,955,340,191 (10,872,828,901, 11,031,730,627)	10,717,361,954; 4452.8% (10,635,293,759, 10,790,542,974)
	ICER (Δ £/ Δ QALY)			869,141 (687,402, 1,133,759)
60	N	136,088 (135,202, 136,908)	136,088 (135,202, 136,908)	0 (0, 0)
	Incident MIs	28,236 (26,031, 31,380)	24,058 (22,195, 26,703)	-4,198; -14.9% (-4,805, -3,692)
	Deaths	53,534 (49,563, 57,954)	52,452 (48,490, 56,829)	-1,111; -2.1% (-1,576, -760)
	YLL	2,051,049 (2,028,353, 2,071,148)	2,055,455 (2,032,859, 2,075,568)	4,421; 0.22% (3,576, 5,583)
	QALYs	1,631,927 (1,484,688, 1,800,069)	1,637,596 (1,489,900, 1,806,971)	5,668; 0.35% (4,604, 7,020)
	Medication costs (£)	17,105,382 (16,872,001, 17,314,832)	8,196,910,847 (8,106,956,809, 8,277,042,547)	8,179,833,972; 47820.2% (8,090,038,501, 8,259,743,192)
	Acute MI costs (£)	29,772,463 (21,569,049, 40,452,100)	25,781,586 (18,604,670, 34,917,047)	-4,050,902; -13.6% (-5,549,272, -2,847,821)
	Chronic MI costs (£)	177,535,779 (140,830,784, 223,513,657)	155,976,165 (123,330,923, 195,981,256)	-21,356,231; -12.0% (-27,645,772, -16,939,582)
	Total healthcare costs (£)	224,467,602 (187,151,815, 272,158,834)	8,376,370,507 (8,290,425,890, 8,459,139,653)	8,154,324,284; 3632.7% (8,063,500,881, 8,236,278,481)
	ICER (Δ £/ Δ QALY)			1,439,308 (1,160,604, 1,771,271)

Table 9.29: PSA results – Low/moderate intensity statins – Males with LDL-C ≥4.0 mmol/L

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	56,981 (56,981, 56,981)	56,981 (56,981, 56,981)	0 (0, 0)
	Incident MIs	17,510 (16,204, 19,305)	10,594 (9,590, 11,822)	-6,957; -39.7% (-7,622, -6,352)
	Deaths	24,574 (22,520, 27,205)	22,981 (21,185, 25,118)	-1,550; -6.3% (-2,550, -791)
	YLL	1,346,798 (1,341,136, 1,351,103)	1,351,959 (1,347,581, 1,355,903)	5,168; 0.38% (3,327, 7,240)
	QALYs	1,177,651 (1,069,735, 1,289,466)	1,185,285 (1,077,419, 1,298,246)	7,824; 0.66% (6,039, 9,997)
	Medication costs (£)	4,096,618 (4,003,603, 4,187,155)	24,914,924 (24,834,417, 24,987,458)	20,819,338; 508.2% (20,731,419, 20,900,087)
	Acute MI costs (£)	8,729,763 (6,316,329, 11,839,997)	5,231,076 (3,752,504, 7,096,271)	-3,507,211; -40.2% (-4,751,978, -2,528,645)
	Chronic MI costs (£)	69,810,061 (53,041,128, 92,318,582)	41,956,282 (31,396,923, 54,588,554)	-27,678,438; -39.6% (-37,240,861, -21,170,962)
	Total healthcare costs (£)	82,781,434 (65,493,569, 105,518,426)	72,166,217 (61,455,670, 85,957,904)	-10,431,267; -12.6% (-20,122,444, -3,593,887)
	ICER (Δ £/ Δ QALY)			-1,325 (-2,613, -467)
40	N	56,412 (56,294, 56,526)	56,412 (56,294, 56,526)	0 (0, 0)
	Incident MIs	17,146 (15,914, 18,824)	12,116 (11,130, 13,455)	-5,060; -29.5% (-5,550, -4,581)
	Deaths	24,240 (22,241, 26,727)	23,040 (21,240, 25,152)	-1,180; -4.9% (-1,862, -610)
	YLL	1,214,216 (1,206,721, 1,220,203)	1,219,023 (1,212,577, 1,225,008)	4,907; 0.40% (3,132, 6,846)
	QALYs	1,030,526 (935,661, 1,136,234)	1,037,736 (941,949, 1,143,688)	7,116; 0.69% (5,385, 8,977)
	Medication costs (£)	5,613,666 (5,512,242, 5,707,687)	22,469,707 (22,351,097, 22,579,868)	16,855,026; 300.2% (16,748,215, 16,963,920)
	Acute MI costs (£)	11,527,414 (8,365,376, 15,564,863)	8,132,724 (5,916,608, 11,045,323)	-3,373,144; -29.3% (-4,609,874, -2,446,256)
	Chronic MI costs (£)	88,389,283 (67,568,227, 115,354,123)	63,006,895 (47,757,227, 82,009,652)	-25,320,734; -28.6% (-33,028,432, -19,200,817)
	Total healthcare costs (£)	105,598,509 (84,584,183, 133,264,892)	93,721,319 (78,137,144, 112,919,371)	-11,918,943; -11.3% (-19,985,128, -5,745,471)
	ICER (Δ £/ Δ QALY)			-1,674 (-2,940, -783)
50	N	54,944 (54,662, 55,199)	54,944 (54,662, 55,199)	0 (0, 0)
	Incident MIs	16,160 (15,040, 17,697)	13,266 (12,301, 14,602)	-2,907; -18.0% (-3,289, -2,546)
	Deaths	23,342 (21,498, 25,509)	22,624 (20,866, 24,642)	-712; -3.1% (-1,171, -295)
	YLL	1,026,872 (1,018,000, 1,034,794)	1,030,240 (1,021,302, 1,037,658)	3,499; 0.34% (1,716, 5,269)
	QALYs	842,417 (765,705, 929,393)	847,559 (770,077, 934,131)	4,718; 0.56% (3,223, 6,355)
	Medication costs (£)	7,443,256 (7,332,686, 7,540,051)	18,996,643 (18,832,102, 19,133,220)	11,551,964; 155.2% (11,443,649, 11,656,617)
	Acute MI costs (£)	14,166,145 (10,237,778, 19,110,084)	11,673,130 (8,483,940, 15,718,347)	-2,468,978; -17.4% (-3,406,511, -1,759,997)
	Chronic MI costs (£)	99,897,741 (77,137,137, 128,727,965)	83,176,522 (64,177,083, 107,017,113)	-16,628,960; -16.6% (-21,877,124, -12,795,751)
	Total healthcare costs (£)	121,598,230 (99,094,779, 150,909,052)	114,019,720 (94,771,360, 137,418,631)	-7,617,458; -6.3% (-13,298,739, -3,420,045)
	ICER (Δ £/ Δ QALY)			-1,601 (-2,976, -699)
60	N	51,396 (50,944, 51,798)	51,396 (50,944, 51,798)	0 (0, 0)
	Incident MIs	13,668 (12,658, 15,053)	12,629 (11,701, 13,916)	-1,069; -7.8% (-1,218, -936)
	Deaths	20,993 (19,427, 22,731)	20,716 (19,148, 22,430)	-277; -1.3% (-393, -176)
	YLL	770,069 (760,425, 778,810)	771,359 (761,994, 780,225)	1,297; 0.17% (973, 1,647)
	QALYs	610,362 (554,408, 673,532)	612,061 (556,079, 675,676)	1,677; 0.27% (1,317, 2,101)
	Medication costs (£)	8,545,520 (8,411,872, 8,660,996)	14,232,592 (14,059,946, 14,395,926)	5,688,827; 66.6% (5,607,436, 5,762,778)
	Acute MI costs (£)	14,657,435 (10,641,663, 19,859,927)	13,558,077 (9,878,506, 18,373,300)	-1,092,990; -7.5% (-1,512,821, -787,180)
	Chronic MI costs (£)	88,208,422 (69,865,981, 111,291,978)	82,143,495 (64,649,681, 103,528,496)	-6,179,493; -7.0% (-7,949,420, -4,827,905)
	Total healthcare costs (£)	111,594,660 (93,119,772, 135,971,936)	109,953,817 (92,661,076, 132,425,114)	-1,574,834; -1.4% (-3,474,250, -118,804)
	ICER (Δ £/ Δ QALY)			-937 (-2,119, -74)

Table 9.30: PSA results – High intensity statins – Males with LDL-C ≥4.0 mmol/L

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	56,981 (56,981, 56,981)	56,981 (56,981, 56,981)	0 (0, 0)
	Incident MIs	17,510 (16,204, 19,305)	8,896 (8,047, 9,986)	-8,640; -49.3% (-9,408, -7,935)
	Deaths	24,574 (22,520, 27,205)	22,585 (20,837, 24,654)	-1,948; -7.9% (-3,199, -1,035)
	YLL	1,346,798 (1,341,136, 1,351,103)	1,353,030 (1,348,780, 1,356,809)	6,216; 0.46% (4,123, 8,659)
	QALYs	1,177,651 (1,069,735, 1,289,466)	1,186,899 (1,079,133, 1,299,845)	9,401; 0.80% (7,344, 11,738)
	Medication costs (£)	4,096,618 (4,003,603, 4,187,155)	37,137,522 (37,021,129, 37,241,032)	33,039,539; 806.5% (32,934,770, 33,141,958)
	Acute MI costs (£)	8,729,763 (6,316,329, 11,839,997)	4,463,258 (3,206,654, 6,057,837)	-4,282,554; -49.1% (-5,779,184, -3,116,328)
	Chronic MI costs (£)	69,810,061 (53,041,128, 92,318,582)	36,304,723 (27,074,166, 47,608,791)	-33,461,745; -47.9% (-44,342,574, -25,661,312)
	Total healthcare costs (£)	82,781,434 (65,493,569, 105,518,426)	77,894,217 (68,746,094, 89,902,015)	-4,760,727; -5.8% (-15,786,055, 3,452,770)
	ICER (Δ £/ Δ QALY)			-501 (-1,714, 373)
40	N	56,412 (56,294, 56,526)	56,412 (56,294, 56,526)	0 (0, 0)
	Incident MIs	17,146 (15,914, 18,824)	10,648 (9,752, 11,868)	-6,530; -38.1% (-7,117, -5,982)
	Deaths	24,240 (22,241, 26,727)	22,676 (20,890, 24,708)	-1,544; -6.4% (-2,387, -858)
	YLL	1,214,216 (1,206,721, 1,220,203)	1,220,226 (1,213,815, 1,226,175)	6,098; 0.50% (4,242, 8,300)
	QALYs	1,030,526 (935,661, 1,136,234)	1,039,607 (943,411, 1,145,350)	8,844; 0.86% (6,898, 11,069)
	Medication costs (£)	5,613,666 (5,512,242, 5,707,687)	33,499,265 (33,323,458, 33,662,348)	27,884,997; 496.7% (27,739,451, 28,028,938)
	Acute MI costs (£)	11,527,414 (8,365,376, 15,564,863)	7,260,931 (5,261,816, 9,812,863)	-4,287,069; -37.2% (-5,727,550, -3,126,551)
	Chronic MI costs (£)	88,389,283 (67,568,227, 115,354,123)	56,668,157 (43,116,989, 73,721,346)	-31,583,985; -35.7% (-41,308,455, -24,137,081)
	Total healthcare costs (£)	105,598,509 (84,584,183, 133,264,892)	97,570,873 (83,828,659, 115,244,527)	-8,031,473; -7.6% (-18,480,922, -313,043)
	ICER (Δ £/ Δ QALY)			-905 (-2,107, -33)
50	N	54,944 (54,662, 55,199)	54,944 (54,662, 55,199)	0 (0, 0)
	Incident MIs	16,160 (15,040, 17,697)	12,162 (11,228, 13,350)	-4,042; -25.0% (-4,498, -3,627)
	Deaths	23,342 (21,498, 25,509)	22,320 (20,611, 24,254)	-997; -4.3% (-1,518, -519)
	YLL	1,026,872 (1,018,000, 1,034,794)	1,031,403 (1,022,350, 1,038,692)	4,613; 0.45% (2,744, 6,529)
	QALYs	842,417 (765,705, 929,393)	848,999 (771,525, 935,996)	6,247; 0.74% (4,539, 8,090)
	Medication costs (£)	7,443,256 (7,332,686, 7,540,051)	28,325,499 (28,077,064, 28,525,178)	20,877,395; 280.5% (20,702,314, 21,048,161)
	Acute MI costs (£)	14,166,145 (10,237,778, 19,110,084)	10,807,426 (7,800,601, 14,519,896)	-3,354,838; -23.7% (-4,567,329, -2,420,207)
	Chronic MI costs (£)	99,897,741 (77,137,137, 128,727,965)	77,548,112 (60,071,087, 100,117,388)	-22,117,097; -22.1% (-28,871,437, -17,172,269)
	Total healthcare costs (£)	121,598,230 (99,094,779, 150,909,052)	116,944,944 (99,130,507, 139,325,681)	-4,551,915; -3.7% (-11,607,426, 625,435)
	ICER (Δ £/ Δ QALY)			-727 (-1,925, 108)
60	N	51,396 (50,944, 51,798)	51,396 (50,944, 51,798)	0 (0, 0)
	Incident MIs	13,668 (12,658, 15,053)	11,912 (11,038, 13,142)	-1,776; -13.0% (-1,984, -1,590)
	Deaths	20,993 (19,427, 22,731)	20,518 (18,966, 22,224)	-466; -2.2% (-650, -314)
	YLL	770,069 (760,425, 778,810)	772,079 (762,743, 780,826)	2,021; 0.26% (1,622, 2,510)
	QALYs	610,362 (554,408, 673,532)	613,000 (556,979, 676,679)	2,599; 0.43% (2,111, 3,186)
	Medication costs (£)	8,545,520 (8,411,872, 8,660,996)	21,217,684 (20,961,424, 21,457,745)	12,673,431; 148.3% (12,524,012, 12,818,226)
	Acute MI costs (£)	14,657,435 (10,641,663, 19,859,927)	12,884,733 (9,348,799, 17,394,545)	-1,769,414; -12.1% (-2,410,994, -1,278,001)
	Chronic MI costs (£)	88,208,422 (69,865,981, 111,291,978)	78,603,235 (61,849,345, 99,048,706)	-9,693,752; -11.0% (-12,431,731, -7,596,049)
	Total healthcare costs (£)	111,594,660 (93,119,772, 135,971,936)	112,870,860 (96,175,031, 134,416,283)	1,228,069; 1.1% (-1,646,210, 3,324,849)
	ICER (Δ £/ Δ QALY)			469 (-630, 1,401)

Table 9.31: PSA results – Low/moderate intensity statins and ezetimibe – Males with LDL-C ≥4.0 mmol/L

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	56,981 (56,981, 56,981)	56,981 (56,981, 56,981)	0 (0, 0)
	Incident MIs	17,510 (16,204, 19,305)	8,132 (7,371, 9,143)	-9,372; -53.5% (-10,205, -8,633)
	Deaths	24,574 (22,520, 27,205)	22,412 (20,673, 24,488)	-2,112; -8.6% (-3,431, -1,159)
	YLL	1,346,798 (1,341,136, 1,351,103)	1,353,502 (1,349,328, 1,357,318)	6,657; 0.49% (4,590, 9,136)
	QALYs	1,177,651 (1,069,735, 1,289,466)	1,187,473 (1,079,825, 1,300,654)	10,101; 0.86% (7,923, 12,594)
	Medication costs (£)	4,096,618 (4,003,603, 4,187,155)	66,881,669 (66,675,837, 67,069,817)	62,784,036; 1532.6% (62,606,518, 62,944,604)
	Acute MI costs (£)	8,729,763 (6,316,329, 11,839,997)	4,129,159 (2,958,692, 5,618,800)	-4,609,631; -52.8% (-6,220,222, -3,340,839)
	Chronic MI costs (£)	69,810,061 (53,041,128, 92,318,582)	33,677,190 (25,002,985, 44,457,650)	-36,056,115; -51.6% (-47,618,219, -27,669,836)
	Total healthcare costs (£)	82,781,434 (65,493,569, 105,518,426)	104,685,775 (96,106,230, 116,118,536)	22,015,411; 26.6% (10,186,898, 30,785,317)
	ICER (Δ £/ Δ QALY)			2,182 (974, 3,447)
40	N	56,412 (56,294, 56,526)	56,412 (56,294, 56,526)	0 (0, 0)
	Incident MIs	17,146 (15,914, 18,824)	9,976 (9,133, 11,112)	-7,218; -42.1% (-7,819, -6,641)
	Deaths	24,240 (22,241, 26,727)	22,523 (20,757, 24,502)	-1,702; -7.0% (-2,608, -970)
	YLL	1,214,216 (1,206,721, 1,220,203)	1,220,778 (1,214,395, 1,226,694)	6,662; 0.55% (4,678, 8,972)
	QALYs	1,030,526 (935,661, 1,136,234)	1,040,330 (944,095, 1,146,164)	9,658; 0.94% (7,557, 11,963)
	Medication costs (£)	5,613,666 (5,512,242, 5,707,687)	60,335,677 (60,020,788, 60,627,558)	54,723,414; 974.8% (54,460,940, 54,976,292)
	Acute MI costs (£)	11,527,414 (8,365,376, 15,564,863)	6,854,387 (4,995,037, 9,306,871)	-4,685,214; -40.6% (-6,244,427, -3,405,546)
	Chronic MI costs (£)	88,389,283 (67,568,227, 115,354,123)	53,844,676 (41,086,826, 70,149,534)	-34,499,762; -39.0% (-45,268,518, -26,208,048)
	Total healthcare costs (£)	105,598,509 (84,584,183, 133,264,892)	121,141,136 (107,908,848, 137,869,744)	15,583,847; 14.8% (5,045,401, 23,889,144)
	ICER (Δ £/ Δ QALY)			1,604 (498, 2,693)
50	N	54,944 (54,662, 55,199)	54,944 (54,662, 55,199)	0 (0, 0)
	Incident MIs	16,160 (15,040, 17,697)	11,612 (10,745, 12,759)	-4,574; -28.3% (-5,026, -4,127)
	Deaths	23,342 (21,498, 25,509)	22,191 (20,490, 24,102)	-1,134; -4.9% (-1,698, -624)
	YLL	1,026,872 (1,018,000, 1,034,794)	1,031,932 (1,022,998, 1,039,324)	5,118; 0.50% (3,234, 7,083)
	QALYs	842,417 (765,705, 929,393)	849,752 (772,187, 937,041)	6,965; 0.83% (5,248, 8,889)
	Medication costs (£)	7,443,256 (7,332,686, 7,540,051)	51,020,210 (50,579,225, 51,385,059)	43,569,939; 585.4% (43,215,134, 43,894,385)
	Acute MI costs (£)	14,166,145 (10,237,778, 19,110,084)	10,380,761 (7,468,532, 14,004,268)	-3,766,849; -26.6% (-5,124,989, -2,706,762)
	Chronic MI costs (£)	99,897,741 (77,137,137, 128,727,965)	74,926,455 (58,173,392, 96,751,516)	-24,780,600; -24.8% (-32,052,081, -19,182,682)
	Total healthcare costs (£)	121,598,230 (99,094,779, 150,909,052)	136,528,019 (119,470,290, 158,328,875)	15,062,319; 12.4% (7,569,413, 20,857,922)
	ICER (Δ £/ Δ QALY)			2,158 (1,011, 3,450)
60	N	51,396 (50,944, 51,798)	51,396 (50,944, 51,798)	0 (0, 0)
	Incident MIs	13,668 (12,658, 15,053)	11,572 (10,704, 12,725)	-2,116; -15.5% (-2,345, -1,917)
	Deaths	20,993 (19,427, 22,731)	20,428 (18,896, 22,148)	-554; -2.6% (-773, -380)
	YLL	770,069 (760,425, 778,810)	772,460 (763,076, 781,030)	2,361; 0.31% (1,881, 2,927)
	QALYs	610,362 (554,408, 673,532)	613,439 (557,452, 677,197)	3,034; 0.50% (2,497, 3,712)
	Medication costs (£)	8,545,520 (8,411,872, 8,660,996)	38,216,901 (37,753,075, 38,639,832)	29,670,597; 347.2% (29,320,588, 30,001,175)
	Acute MI costs (£)	14,657,435 (10,641,663, 19,859,927)	12,568,606 (9,127,883, 17,004,986)	-2,094,184; -14.3% (-2,854,610, -1,509,546)
	Chronic MI costs (£)	88,208,422 (69,865,981, 111,291,978)	76,826,727 (60,455,136, 97,071,479)	-11,406,561; -12.9% (-14,459,015, -8,970,627)
	Total healthcare costs (£)	111,594,660 (93,119,772, 135,971,936)	127,756,933 (111,386,540, 148,498,987)	16,182,492; 14.5% (12,919,539, 18,668,841)
	ICER (Δ £/ Δ QALY)			5,269 (3,826, 6,955)

Table 9.32: PSA results – Inclisiran – Males with LDL-C ≥4.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	56,981 (56,981, 56,981)	56,981 (56,981, 56,981)	0 (0, 0)
	Incident MIs	17,510 (16,204, 19,305)	8,676 (7,791, 9,760)	-8,872; -50.7% (-9,816, -8,099)
	Deaths	24,574 (22,520, 27,205)	22,536 (20,796, 24,589)	-2,006; -8.2% (-3,176, -1,084)
	YLL	1,346,798 (1,341,136, 1,351,103)	1,353,177 (1,348,942, 1,357,058)	6,354; 0.47% (4,310, 8,733)
	QALYs	1,177,651 (1,069,735, 1,289,466)	1,187,175 (1,079,472, 1,299,993)	9,609; 0.82% (7,492, 12,053)
	Medication costs (£)	4,096,618 (4,003,603, 4,187,155)	5,389,825,761 (5,372,992,581, 5,405,249,963)	5,385,747,776; 131468.2% (5,368,975,120, 5,401,211,188)
	Acute MI costs (£)	8,729,763 (6,316,329, 11,839,997)	4,364,066 (3,117,178, 5,973,505)	-4,378,177; -50.2% (-5,957,440, -3,140,591)
	Chronic MI costs (£)	69,810,061 (53,041,128, 92,318,582)	35,473,686 (26,442,491, 46,650,620)	-34,170,501; -48.9% (-45,292,615, -26,112,709)
	Total healthcare costs (£)	82,781,434 (65,493,569, 105,518,426)	5,429,530,570 (5,410,039,283, 5,449,251,315)	5,347,435,808; 6459.7% (5,325,668,127, 5,363,633,485)
	ICER (Δ £/ Δ QALY)			556,804 (443,243, 713,859)
40	N	56,412 (56,294, 56,526)	56,412 (56,294, 56,526)	0 (0, 0)
	Incident MIs	17,146 (15,914, 18,824)	10,441 (9,530, 11,614)	-6,746; -39.3% (-7,456, -6,130)
	Deaths	24,240 (22,241, 26,727)	22,626 (20,874, 24,611)	-1,600; -6.6% (-2,459, -866)
	YLL	1,214,216 (1,206,721, 1,220,203)	1,220,395 (1,214,087, 1,226,283)	6,257; 0.52% (4,348, 8,584)
	QALYs	1,030,526 (935,661, 1,136,234)	1,039,739 (943,639, 1,145,406)	9,078; 0.88% (7,030, 11,402)
	Medication costs (£)	5,613,666 (5,512,242, 5,707,687)	4,861,929,258 (4,836,854,421, 4,885,363,809)	4,856,302,349; 86508.6% (4,831,289,785, 4,879,764,009)
	Acute MI costs (£)	11,527,414 (8,365,376, 15,564,863)	7,143,603 (5,148,089, 9,687,432)	-4,421,908; -38.4% (-5,967,979, -3,160,241)
	Chronic MI costs (£)	88,389,283 (67,568,227, 115,354,123)	55,674,144 (42,391,234, 72,306,938)	-32,400,556; -36.7% (-42,581,083, -24,735,969)
	Total healthcare costs (£)	105,598,509 (84,584,183, 133,264,892)	4,924,420,644 (4,898,177,510, 4,951,921,982)	4,819,299,771; 4563.8% (4,791,073,554, 4,843,282,728)
	ICER (Δ £/ Δ QALY)			530,430 (421,881, 686,067)
50	N	54,944 (54,662, 55,199)	54,944 (54,662, 55,199)	0 (0, 0)
	Incident MIs	16,160 (15,040, 17,697)	11,990 (11,072, 13,179)	-4,196; -26.0% (-4,740, -3,719)
	Deaths	23,342 (21,498, 25,509)	22,286 (20,600, 24,219)	-1,046; -4.5% (-1,593, -548)
	YLL	1,026,872 (1,018,000, 1,034,794)	1,031,601 (1,022,585, 1,038,853)	4,767; 0.46% (2,867, 6,689)
	QALYs	842,417 (765,705, 929,393)	849,125 (771,774, 936,265)	6,466; 0.77% (4,836, 8,352)
	Medication costs (£)	7,443,256 (7,332,686, 7,540,051)	4,111,247,526 (4,075,360,888, 4,140,108,696)	4,103,774,928; 55134.1% (4,067,997,441, 4,132,631,922)
	Acute MI costs (£)	14,166,145 (10,237,778, 19,110,084)	10,694,438 (7,741,667, 14,382,282)	-3,489,355; -24.6% (-4,745,584, -2,483,312)
	Chronic MI costs (£)	99,897,741 (77,137,137, 128,727,965)	76,881,006 (59,317,410, 98,658,060)	-22,858,375; -22.9% (-29,880,540, -17,739,819)
	Total healthcare costs (£)	121,598,230 (99,094,779, 150,909,052)	4,197,727,448 (4,160,305,443, 4,231,652,614)	4,076,897,446; 3352.8% (4,041,302,122, 4,107,328,958)
	ICER (Δ £/ Δ QALY)			631,317 (487,580, 847,443)
60	N	51,396 (50,944, 51,798)	51,396 (50,944, 51,798)	0 (0, 0)
	Incident MIs	13,668 (12,658, 15,053)	11,824 (10,935, 13,025)	-1,880; -13.8% (-2,167, -1,644)
	Deaths	20,993 (19,427, 22,731)	20,490 (18,934, 22,191)	-492; -2.3% (-700, -333)
	YLL	770,069 (760,425, 778,810)	772,156 (762,881, 780,846)	2,118; 0.28% (1,684, 2,740)
	QALYs	610,362 (554,408, 673,532)	613,150 (557,053, 676,714)	2,734; 0.45% (2,194, 3,419)
	Medication costs (£)	8,545,520 (8,411,872, 8,660,996)	3,079,330,208 (3,042,378,061, 3,113,902,744)	3,070,787,178; 35934.5% (3,033,966,417, 3,105,226,542)
	Acute MI costs (£)	14,657,435 (10,641,663, 19,859,927)	12,807,043 (9,309,495, 17,298,909)	-1,868,469; -12.7% (-2,565,834, -1,326,166)
	Chronic MI costs (£)	88,208,422 (69,865,981, 111,291,978)	78,111,309 (61,453,229, 98,676,951)	-10,174,174; -11.5% (-13,262,258, -8,030,197)
	Total healthcare costs (£)	111,594,660 (93,119,772, 135,971,936)	3,169,875,803 (3,129,251,364, 3,207,341,707)	3,059,271,760; 2741.4% (3,021,458,490, 3,094,047,164)
	ICER (Δ £/ Δ QALY)			1,117,871 (892,194, 1,394,101)

Table 9.33: PSA results – Low/moderate intensity statins – Males with LDL-C ≥5.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	9,188 (9,188, 9,188)	9,188 (9,188, 9,188)	0 (0, 0)
	Incident MIs	3,872 (3,594, 4,209)	2,398 (2,183, 2,675)	-1,476; -38.1% (-1,635, -1,319)
	Deaths	4,168 (3,762, 4,724)	3,868 (3,528, 4,265)	-312; -7.5% (-565, -103)
	YLL	216,191 (215,004, 217,101)	217,447 (216,525, 218,281)	1,288; 0.60% (625, 1,971)
	QALYs	188,277 (171,004, 206,193)	190,190 (172,860, 208,263)	1,995; 1.06% (1,352, 2,628)
	Medication costs (£)	933,527 (909,536, 954,173)	4,007,293 (3,990,352, 4,022,633)	3,074,538; 329.3% (3,055,640, 3,094,511)
	Acute MI costs (£)	2,036,275 (1,469,613, 2,788,790)	1,212,473 (863,897, 1,649,202)	-822,968; -40.4% (-1,128,482, -595,278)
	Chronic MI costs (£)	16,878,079 (12,724,634, 22,372,712)	9,884,180 (7,318,924, 13,030,287)	-6,980,224; -41.4% (-9,412,263, -5,241,795)
	Total healthcare costs (£)	19,863,170 (15,672,445, 25,637,747)	15,110,973 (12,516,754, 18,360,399)	-4,712,051; -23.7% (-7,280,461, -2,891,571)
	ICER (Δ £/ Δ QALY)			-2,390 (-3,998, -1,407)
40	N	9,062 (9,026, 9,094)	9,062 (9,026, 9,094)	0 (0, 0)
	Incident MIs	3,783 (3,518, 4,087)	2,782 (2,543, 3,075)	-1,004; -26.5% (-1,140, -866)
	Deaths	4,101 (3,718, 4,616)	3,888 (3,553, 4,300)	-218; -5.3% (-412, -58)
	YLL	193,771 (192,057, 195,054)	194,908 (193,376, 196,140)	1,165; 0.60% (447, 1,875)
	QALYs	163,522 (148,324, 180,102)	165,217 (150,049, 182,114)	1,731; 1.06% (1,129, 2,324)
	Medication costs (£)	1,273,723 (1,247,761, 1,296,503)	3,592,693 (3,564,495, 3,615,368)	2,318,765; 182.0% (2,294,878, 2,342,431)
	Acute MI costs (£)	2,668,507 (1,936,521, 3,626,751)	1,918,817 (1,394,885, 2,636,945)	-747,405; -28.0% (-1,026,687, -536,631)
	Chronic MI costs (£)	21,140,782 (16,159,648, 27,852,665)	15,078,667 (11,410,710, 19,944,544)	-6,034,949; -28.5% (-8,154,658, -4,473,823)
	Total healthcare costs (£)	25,198,238 (20,051,402, 31,845,801)	20,667,604 (16,848,010, 25,564,936)	-4,457,221; -17.7% (-6,645,880, -2,855,603)
	ICER (Δ £/ Δ QALY)			-2,568 (-4,604, -1,582)
50	N	8,726 (8,649, 8,792)	8,726 (8,649, 8,792)	0 (0, 0)
	Incident MIs	3,520 (3,284, 3,787)	3,044 (2,840, 3,304)	-477; -13.5% (-597, -357)
	Deaths	3,915 (3,571, 4,358)	3,811 (3,472, 4,202)	-114; -2.9% (-256, 26)
	YLL	161,545 (159,411, 163,431)	162,290 (160,154, 164,058)	709; 0.44% (52, 1,386)
	QALYs	131,669 (119,367, 145,225)	132,683 (120,298, 146,334)	986; 0.75% (431, 1,537)
	Medication costs (£)	1,671,867 (1,641,013, 1,699,120)	2,992,534 (2,953,194, 3,025,075)	1,320,320; 79.0% (1,298,847, 1,341,450)
	Acute MI costs (£)	3,213,547 (2,323,867, 4,345,898)	2,750,788 (2,005,919, 3,742,530)	-455,827; -14.2% (-653,395, -307,320)
	Chronic MI costs (£)	23,380,140 (18,043,332, 30,016,537)	20,033,544 (15,451,703, 25,643,248)	-3,377,442; -14.4% (-4,735,060, -2,279,096)
	Total healthcare costs (£)	28,298,583 (22,901,215, 34,967,630)	25,816,101 (21,165,602, 31,451,570)	-2,519,908; -8.9% (-3,897,698, -1,348,375)
	ICER (Δ £/ Δ QALY)			-2,539 (-6,127, -1,204)
60	N	7,923 (7,800, 8,038)	7,923 (7,800, 8,038)	0 (0, 0)
	Incident MIs	2,888 (2,689, 3,126)	2,803 (2,608, 3,043)	-85; -2.9% (-119, -53)
	Deaths	3,432 (3,160, 3,751)	3,416 (3,145, 3,723)	-21; -0.6% (-41, 0)
	YLL	117,405 (115,154, 119,547)	117,568 (115,319, 119,717)	152; 0.13% (47, 266)
	QALYs	92,479 (83,467, 102,183)	92,641 (83,688, 102,349)	199; 0.22% (113, 292)
	Medication costs (£)	1,791,442 (1,753,988, 1,827,241)	2,169,348 (2,127,881, 2,208,999)	377,451; 21.1% (367,430, 388,383)
	Acute MI costs (£)	3,183,012 (2,294,106, 4,318,138)	3,078,138 (2,235,335, 4,164,323)	-104,372; -3.3% (-157,423, -60,442)
	Chronic MI costs (£)	19,623,186 (15,240,638, 24,664,820)	18,916,321 (14,712,008, 23,836,809)	-687,756; -3.5% (-1,016,129, -436,606)
	Total healthcare costs (£)	24,580,837 (20,210,979, 29,759,805)	24,175,241 (19,922,258, 29,122,846)	-418,086; -1.7% (-777,034, -118,422)
	ICER (Δ £/ Δ QALY)			-2,073 (-4,344, -659)

Table 9.34: PSA results – High intensity statins – Males with LDL-C $\geq$5.0 mmol/L

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	9,188 (9,188, 9,188)	9,188 (9,188, 9,188)	0 (0, 0)
	Incident MIs	3,872 (3,594, 4,209)	1,978 (1,784, 2,227)	-1,896; -49.0% (-2,072, -1,721)
	Deaths	4,168 (3,762, 4,724)	3,768 (3,443, 4,145)	-411; -9.9% (-708, -172)
	YLL	216,191 (215,004, 217,101)	217,723 (216,856, 218,553)	1,570; 0.73% (864, 2,281)
	QALYs	188,277 (171,004, 206,193)	190,596 (173,270, 208,720)	2,414; 1.28% (1,726, 3,101)
	Medication costs (£)	933,527 (909,536, 954,173)	5,976,011 (5,952,274, 5,998,747)	5,043,150; 540.2% (5,021,455, 5,066,550)
	Acute MI costs (£)	2,036,275 (1,469,613, 2,788,790)	1,010,751 (721,321, 1,387,136)	-1,021,649; -50.2% (-1,390,718, -745,079)
	Chronic MI costs (£)	16,878,079 (12,724,634, 22,372,712)	8,384,044 (6,129,516, 11,122,733)	-8,463,696; -50.1% (-11,345,764, -6,377,184)
	Total healthcare costs (£)	19,863,170 (15,672,445, 25,637,747)	15,357,774 (13,121,554, 18,148,083)	-4,447,061; -22.4% (-7,419,131, -2,342,786)
	ICER (Δ £/ Δ QALY)			-1,854 (-3,269, -938)
40	N	9,062 (9,026, 9,094)	9,062 (9,026, 9,094)	0 (0, 0)
	Incident MIs	3,783 (3,518, 4,087)	2,419 (2,208, 2,671)	-1,366; -36.1% (-1,517, -1,214)
	Deaths	4,101 (3,718, 4,616)	3,799 (3,470, 4,192)	-308; -7.5% (-529, -123)
	YLL	193,771 (192,057, 195,054)	195,225 (193,752, 196,444)	1,479; 0.76% (757, 2,223)
	QALYs	163,522 (148,324, 180,102)	165,688 (150,495, 182,643)	2,184; 1.34% (1,558, 2,867)
	Medication costs (£)	1,273,723 (1,247,761, 1,296,503)	5,359,614 (5,319,222, 5,393,036)	4,085,774; 320.8% (4,052,624, 4,117,947)
	Acute MI costs (£)	2,668,507 (1,936,521, 3,626,751)	1,698,144 (1,229,857, 2,302,593)	-972,623; -36.4% (-1,346,872, -702,991)
	Chronic MI costs (£)	21,140,782 (16,159,648, 27,852,665)	13,456,899 (10,103,241, 17,884,263)	-7,693,329; -36.4% (-10,141,107, -5,708,433)
	Total healthcare costs (£)	25,198,238 (20,051,402, 31,845,801)	20,521,287 (17,079,882, 24,942,217)	-4,580,830; -18.2% (-7,188,729, -2,577,373)
	ICER (Δ £/ Δ QALY)			-2,078 (-3,670, -1,159)
50	N	8,726 (8,649, 8,792)	8,726 (8,649, 8,792)	0 (0, 0)
	Incident MIs	3,520 (3,284, 3,787)	2,772 (2,583, 3,021)	-752; -21.3% (-878, -627)
	Deaths	3,915 (3,571, 4,358)	3,739 (3,419, 4,112)	-182; -4.6% (-336, -39)
	YLL	161,545 (159,411, 163,431)	162,578 (160,388, 164,344)	1,000; 0.62% (316, 1,684)
	QALYs	131,669 (119,367, 145,225)	133,056 (120,622, 146,753)	1,388; 1.05% (814, 1,948)
	Medication costs (£)	1,671,867 (1,641,013, 1,699,120)	4,464,976 (4,404,898, 4,513,406)	2,792,865; 167.1% (2,757,322, 2,826,456)
	Acute MI costs (£)	3,213,547 (2,323,867, 4,345,898)	2,528,918 (1,833,969, 3,457,435)	-674,525; -21.0% (-936,313, -471,846)
	Chronic MI costs (£)	23,380,140 (18,043,332, 30,016,537)	18,623,479 (14,355,408, 23,897,753)	-4,786,004; -20.5% (-6,424,748, -3,447,078)
	Total healthcare costs (£)	28,298,583 (22,901,215, 34,967,630)	25,624,815 (21,290,976, 31,021,991)	-2,668,934; -9.4% (-4,396,658, -1,262,453)
	ICER (Δ £/ Δ QALY)			-1,948 (-3,886, -865)
60	N	7,923 (7,800, 8,038)	7,923 (7,800, 8,038)	0 (0, 0)
	Incident MIs	2,888 (2,689, 3,126)	2,637 (2,454, 2,869)	-251; -8.7% (-291, -211)
	Deaths	3,432 (3,160, 3,751)	3,369 (3,100, 3,669)	-64; -1.9% (-98, -35)
	YLL	117,405 (115,154, 119,547)	117,751 (115,508, 119,875)	333; 0.28% (202, 469)
	QALYs	92,479 (83,467, 102,183)	92,872 (83,905, 102,605)	430; 0.46% (316, 565)
	Medication costs (£)	1,791,442 (1,753,988, 1,827,241)	3,236,086 (3,174,420, 3,294,366)	1,444,661; 80.6% (1,416,537, 1,470,548)
	Acute MI costs (£)	3,183,012 (2,294,106, 4,318,138)	2,910,767 (2,118,214, 3,943,608)	-266,388; -8.4% (-368,555, -184,957)
	Chronic MI costs (£)	19,623,186 (15,240,638, 24,664,820)	18,038,279 (13,999,631, 22,874,000)	-1,551,766; -7.9% (-2,086,663, -1,152,990)
	Total healthcare costs (£)	24,580,837 (20,210,979, 29,759,805)	24,210,370 (20,161,847, 28,903,238)	-377,636; -1.5% (-938,396, 43,896)
	ICER (Δ £/ Δ QALY)			-872 (-2,224, 103)

Table 9.35: PSA results – Low/moderate intensity statins and ezetimibe – Males with LDL-C ≥5.0 mmol/L

Age of intervention	Outcome	Control	Intervention: Absolute value	Intervention: Difference to control
30	N	9,188 (9,188, 9,188)	9,188 (9,188, 9,188)	0 (0, 0)
	Incident MIs	3,872 (3,594, 4,209)	1,793 (1,613, 2,013)	-2,082; -53.8% (-2,270, -1,905)
	Deaths	4,168 (3,762, 4,724)	3,721 (3,411, 4,082)	-454; -10.9% (-765, -197)
	YLL	216,191 (215,004, 217,101)	217,855 (216,992, 218,655)	1,694; 0.78% (979, 2,457)
	QALYs	188,277 (171,004, 206,193)	190,801 (173,439, 208,971)	2,595; 1.38% (1,896, 3,322)
	Medication costs (£)	933,527 (909,536, 954,173)	10,765,092 (10,722,520, 10,804,548)	9,832,061; 1053.2% (9,796,781, 9,870,092)
	Acute MI costs (£)	2,036,275 (1,469,613, 2,788,790)	927,014 (655,322, 1,277,585)	-1,109,276; -54.5% (-1,512,822, -809,895)
	Chronic MI costs (£)	16,878,079 (12,724,634, 22,372,712)	7,706,530 (5,698,970, 10,211,377)	-9,123,299; -54.1% (-12,141,951, -6,948,593)
	Total healthcare costs (£)	19,863,170 (15,672,445, 25,637,747)	19,390,191 (17,295,821, 22,060,822)	-434,607; -2.2% (-3,532,393, 1,799,308)
	ICER (Δ £/ Δ QALY)			-164 (-1,407, 755)
40	N	9,062 (9,026, 9,094)	9,062 (9,026, 9,094)	0 (0, 0)
	Incident MIs	3,783 (3,518, 4,087)	2,249 (2,053, 2,484)	-1,536; -40.6% (-1,688, -1,379)
	Deaths	4,101 (3,718, 4,616)	3,759 (3,444, 4,139)	-348; -8.5% (-588, -158)
	YLL	193,771 (192,057, 195,054)	195,375 (193,920, 196,575)	1,624; 0.84% (900, 2,384)
	QALYs	163,522 (148,324, 180,102)	165,899 (150,681, 182,860)	2,394; 1.46% (1,753, 3,121)
	Medication costs (£)	1,273,723 (1,247,761, 1,296,503)	9,656,277 (9,584,515, 9,715,548)	8,382,741; 658.1% (8,322,015, 8,437,816)
	Acute MI costs (£)	2,668,507 (1,936,521, 3,626,751)	1,595,895 (1,157,735, 2,181,491)	-1,081,387; -40.5% (-1,474,506, -777,687)
	Chronic MI costs (£)	21,140,782 (16,159,648, 27,852,665)	12,651,028 (9,565,571, 16,996,364)	-8,460,062; -40.0% (-11,130,749, -6,284,727)
	Total healthcare costs (£)	25,198,238 (20,051,402, 31,845,801)	23,951,869 (20,794,087, 28,258,030)	-1,135,317; -4.5% (-3,910,093, 1,034,831)
	ICER (Δ £/ Δ QALY)			-486 (-1,759, 483)
50	N	8,726 (8,649, 8,792)	8,726 (8,649, 8,792)	0 (0, 0)
	Incident MIs	3,520 (3,284, 3,787)	2,642 (2,457, 2,887)	-879; -25.0% (-1,008, -749)
	Deaths	3,915 (3,571, 4,358)	3,704 (3,387, 4,075)	-216; -5.5% (-376, -63)
	YLL	161,545 (159,411, 163,431)	162,717 (160,562, 164,466)	1,143; 0.71% (465, 1,843)
	QALYs	131,669 (119,367, 145,225)	133,228 (120,862, 146,921)	1,571; 1.19% (1,006, 2,170)
	Medication costs (£)	1,671,867 (1,641,013, 1,699,120)	8,045,120 (7,938,680, 8,131,489)	6,374,224; 381.3% (6,294,989, 6,440,648)
	Acute MI costs (£)	3,213,547 (2,323,867, 4,345,898)	2,428,115 (1,756,340, 3,329,712)	-781,207; -24.3% (-1,064,388, -551,409)
	Chronic MI costs (£)	23,380,140 (18,043,332, 30,016,537)	17,914,758 (13,860,875, 22,919,448)	-5,465,865; -23.4% (-7,219,629, -3,968,954)
	Total healthcare costs (£)	28,298,583 (22,901,215, 34,967,630)	28,430,907 (24,259,865, 33,501,704)	135,012; 0.5% (-1,724,578, 1,606,589)
	ICER (Δ £/ Δ QALY)			86 (-1,155, 1,191)
60	N	7,923 (7,800, 8,038)	7,923 (7,800, 8,038)	0 (0, 0)
	Incident MIs	2,888 (2,689, 3,126)	2,558 (2,376, 2,785)	-331; -11.5% (-377, -288)
	Deaths	3,432 (3,160, 3,751)	3,349 (3,085, 3,644)	-85; -2.5% (-128, -48)
	YLL	117,405 (115,154, 119,547)	117,836 (115,609, 119,989)	420; 0.36% (274, 577)
	QALYs	92,479 (83,467, 102,183)	92,975 (83,976, 102,715)	542; 0.59% (407, 692)
	Medication costs (£)	1,791,442 (1,753,988, 1,827,241)	5,830,046 (5,719,892, 5,936,329)	4,039,502; 225.5% (3,960,296, 4,109,877)
	Acute MI costs (£)	3,183,012 (2,294,106, 4,318,138)	2,831,380 (2,059,277, 3,822,725)	-344,153; -10.8% (-468,119, -242,342)
	Chronic MI costs (£)	19,623,186 (15,240,638, 24,664,820)	17,637,613 (13,769,411, 22,214,670)	-1,971,281; -10.0% (-2,584,874, -1,497,586)
	Total healthcare costs (£)	24,580,837 (20,210,979, 29,759,805)	26,324,880 (22,367,921, 30,876,884)	1,716,883; 7.0% (1,042,547, 2,236,227)
	ICER (Δ £/ Δ QALY)			3,138 (1,727, 4,952)

Table 9.36: PSA results – Inclisiran – Males with LDL-C ≥5.0 mmol/L

Age of intervention	Outcome	Control	Intervention	
			Absolute value	Difference to control
30	N	9,188 (9,188, 9,188)	9,188 (9,188, 9,188)	0 (0, 0)
	Incident MIs	3,872 (3,594, 4,209)	1,920 (1,724, 2,176)	-1,954; -50.5% (-2,149, -1,750)
	Deaths	4,168 (3,762, 4,724)	3,752 (3,436, 4,132)	-425; -10.2% (-732, -175)
	YLL	216,191 (215,004, 217,101)	217,759 (216,896, 218,588)	1,608; 0.74% (890, 2,322)
	QALYs	188,277 (171,004, 206,193)	190,644 (173,352, 208,758)	2,468; 1.31% (1,781, 3,189)
	Medication costs (£)	933,527 (909,536, 954,173)	867,357,449 (863,926,052, 870,653,482)	866,429,378; 92812.4% (863,008,102, 869,717,074)
	Acute MI costs (£)	2,036,275 (1,469,613, 2,788,790)	988,118 (699,177, 1,350,614)	-1,046,566; -51.4% (-1,420,698, -757,441)
	Chronic MI costs (£)	16,878,079 (12,724,634, 22,372,712)	8,162,145 (6,041,974, 10,782,249)	-8,683,472; -51.4% (-11,647,292, -6,578,831)
	Total healthcare costs (£)	19,863,170 (15,672,445, 25,637,747)	876,593,739 (872,459,404, 880,953,873)	856,731,440; 4313.2% (852,160,159, 860,526,719)
	ICER (Δ £/ Δ QALY)			347,777 (268,089, 481,998)
40	N	9,062 (9,026, 9,094)	9,062 (9,026, 9,094)	0 (0, 0)
	Incident MIs	3,783 (3,518, 4,087)	2,368 (2,152, 2,615)	-1,420; -37.5% (-1,592, -1,246)
	Deaths	4,101 (3,718, 4,616)	3,788 (3,459, 4,163)	-321; -7.8% (-547, -130)
	YLL	193,771 (192,057, 195,054)	195,272 (193,789, 196,488)	1,525; 0.79% (781, 2,274)
	QALYs	163,522 (148,324, 180,102)	165,741 (150,559, 182,659)	2,248; 1.37% (1,596, 2,965)
	Medication costs (£)	1,273,723 (1,247,761, 1,296,503)	777,955,212 (772,050,007, 782,791,984)	776,682,625; 60977.4% (770,798,699, 781,513,817)
	Acute MI costs (£)	2,668,507 (1,936,521, 3,626,751)	1,667,143 (1,204,321, 2,264,295)	-1,008,942; -37.8% (-1,385,625, -722,871)
	Chronic MI costs (£)	21,140,782 (16,159,648, 27,852,665)	13,191,458 (9,898,488, 17,385,821)	-7,920,511; -37.5% (-10,568,642, -5,939,524)
	Total healthcare costs (£)	25,198,238 (20,051,402, 31,845,801)	792,868,706 (786,464,273, 798,684,982)	767,658,583; 3046.5% (761,217,201, 772,912,145)
	ICER (Δ £/ Δ QALY)			341,588 (258,456, 479,655)
50	N	8,726 (8,649, 8,792)	8,726 (8,649, 8,792)	0 (0, 0)
	Incident MIs	3,520 (3,284, 3,787)	2,732 (2,527, 2,985)	-789; -22.4% (-929, -650)
	Deaths	3,915 (3,571, 4,358)	3,731 (3,407, 4,094)	-192; -4.9% (-347, -45)
	YLL	161,545 (159,411, 163,431)	162,625 (160,462, 164,371)	1,042; 0.64% (355, 1,737)
	QALYs	131,669 (119,367, 145,225)	133,131 (120,734, 146,815)	1,443; 1.10% (862, 2,056)
	Medication costs (£)	1,671,867 (1,641,013, 1,699,120)	648,122,576 (639,515,451, 655,073,508)	646,458,208; 38666.8% (637,865,742, 653,378,128)
	Acute MI costs (£)	3,213,547 (2,323,867, 4,345,898)	2,493,660 (1,806,845, 3,407,224)	-707,061; -22.0% (-990,762, -492,783)
	Chronic MI costs (£)	23,380,140 (18,043,332, 30,016,537)	18,376,978 (14,139,978, 23,597,630)	-5,002,713; -21.4% (-6,709,248, -3,623,307)
	Total healthcare costs (£)	28,298,583 (22,901,215, 34,967,630)	668,990,436 (660,408,111, 676,492,627)	640,714,437; 2264.1% (631,748,288, 648,162,662)
	ICER (Δ £/ Δ QALY)			444,613 (310,148, 744,599)
60	N	7,923 (7,800, 8,038)	7,923 (7,800, 8,038)	0 (0, 0)
	Incident MIs	2,888 (2,689, 3,126)	2,612 (2,431, 2,845)	-275; -9.5% (-337, -220)
	Deaths	3,432 (3,160, 3,751)	3,361 (3,095, 3,661)	-70; -2.0% (-110, -39)
	YLL	117,405 (115,154, 119,547)	117,784 (115,589, 119,940)	356; 0.30% (228, 518)
	QALYs	92,479 (83,467, 102,183)	92,931 (83,908, 102,662)	465; 0.50% (338, 619)
	Medication costs (£)	1,791,442 (1,753,988, 1,827,241)	469,734,009 (460,985,628, 478,313,201)	467,945,718; 26121.2% (459,226,199, 476,487,217)
	Acute MI costs (£)	3,183,012 (2,294,106, 4,318,138)	2,883,796 (2,089,764, 3,901,484)	-289,569; -9.1% (-407,005, -198,339)
	Chronic MI costs (£)	19,623,186 (15,240,638, 24,664,820)	17,906,510 (13,947,125, 22,653,513)	-1,679,409; -8.6% (-2,288,745, -1,228,599)
	Total healthcare costs (£)	24,580,837 (20,210,979, 29,759,805)	490,648,611 (480,905,294, 499,048,726)	465,925,275; 1895.5% (456,852,545, 474,313,155)
	ICER (Δ £/ Δ QALY)			1,004,317 (748,935, 1,381,204)

Table 9.37: PSA results – Summary of all interventions.

Age of intervention	Outcome	Absolute value Control	Difference to control Low/moderate intensity statins	High intensity statins	Low/moderate intensity statins and ezetimibe	Inclisiran
30	N	458,692 (458,692, 458,692)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	65,884 (59,047, 76,917)	-25,478; -38.7% (-29,239, -22,985)	-31,332; -47.6% (-36,013, -28,208)	-33,988; -51.6% (-39,394, -30,589)	-32,242; -48.9% (-37,354, -28,650)
	Deaths	148,250 (135,515, 163,065)	-6,942; -4.7% (-11,345, -3,948)	-8,538; -5.8% (-13,959, -4,924)	-9,246; -6.2% (-15,073, -5,374)	-8,738; -5.9% (-14,489, -5,002)
	YLL	10,961,655 (10,931,241, 10,988,973)	16,060; 0.15% (10,939, 23,183)	19,409; 0.18% (13,428, 27,501)	20,847; 0.19% (14,614, 29,639)	19,794; 0.18% (13,743, 28,370)
	QALYs	9,463,645 (8,605,772, 10,402,795)	23,856; 0.25% (18,875, 30,617)	28,716; 0.30% (22,757, 36,251)	30,898; 0.33% (24,625, 39,276)	29,406; 0.31% (23,242, 37,749)
	Medication costs (£, millions)	24 (24, 25)	178; 737.1% (178, 179)	277; 1147.1% (277, 278)	519; 2145.7% (517, 520)	43,717; 180901.1% (43,601, 43,820)
	Acute MI costs (£, millions)	31 (22, 42)	-12; -38.2% (-16, -8)	-14; -46.3% (-19, -10)	-15; -49.8% (-21, -11)	-15; -47.6% (-20, -11)
	Chronic MI costs (£, millions)	236 (178, 311)	-88; -37.1% (-116, -67)	-106; -44.8% (-138, -81)	-114; -48.2% (-149, -87)	-108; -45.7% (-143, -82)
	Total healthcare costs (£, millions)	292 (232, 369)	78; 26.9% (48, 100)	157; 53.8% (123, 183)	389; 133.3% (351, 417)	43,594; 14950.2% (43,470, 43,697)
	ICER (Δ £/ Δ QALY)		3,253 (1,951, 4,784)	5,429 (3,907, 7,355)	12,567 (9,810, 16,055)	1,482,023 (1,153,300, 1,873,878)
40	N	456,016 (455,474, 456,463)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	64,668 (58,176, 75,517)	-19,084; -29.5% (-21,940, -17,147)	-24,276; -37.5% (-27,995, -21,739)	-26,652; -41.2% (-30,829, -23,936)	-25,054; -38.7% (-29,302, -22,180)
	Deaths	146,184 (133,833, 160,457)	-5,364; -3.7% (-8,621, -3,128)	-6,794; -4.6% (-11,032, -4,073)	-7,474; -5.1% (-11,966, -4,493)	-7,000; -4.8% (-11,300, -4,209)
	YLL	9,974,590 (9,934,146, 10,011,467)	15,400; 0.15% (10,103, 21,853)	19,140; 0.19% (13,128, 26,737)	20,873; 0.21% (14,563, 29,012)	19,602; 0.20% (13,530, 27,518)
	QALYs	8,367,720 (7,600,682, 9,226,820)	22,215; 0.27% (17,008, 28,087)	27,383; 0.33% (21,417, 34,394)	29,885; 0.36% (23,584, 37,460)	28,217; 0.34% (22,068, 35,373)
	Medication costs (£, millions)	34 (33, 34)	151; 449.3% (150, 151)	241; 718.4% (240, 242)	460; 1373.6% (459, 462)	39,782; 118665.1% (39,622, 39,920)
	Acute MI costs (£, millions)	41 (29, 56)	-12; -28.5% (-16, -8)	-15; -35.8% (-20, -11)	-16; -39.0% (-22, -12)	-15; -36.8% (-21, -11)
	Chronic MI costs (£, millions)	300 (230, 390)	-82; -27.3% (-107, -63)	-102; -33.8% (-133, -78)	-111; -36.9% (-144, -85)	-104; -34.7% (-138, -80)
	Total healthcare costs (£, millions)	375 (303, 470)	56; 15.0% (30, 76)	124; 33.1% (92, 149)	333; 88.7% (299, 360)	39,663; 10569.9% (39,496, 39,805)
	ICER (Δ £/ Δ QALY)		2,553 (1,270, 3,969)	4,511 (3,138, 6,401)	11,107 (8,655, 14,508)	1,406,296 (1,121,775, 1,796,281)
50	N	449,476 (448,240, 450,535)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	61,604 (55,417, 71,816)	-11,777; -19.1% (-13,688, -10,352)	-15,856; -25.7% (-18,487, -13,967)	-17,759; -28.8% (-20,792, -15,715)	-16,432; -26.7% (-19,491, -14,307)
	Deaths	141,159 (129,584, 154,626)	-3,405; -2.4% (-5,349, -1,880)	-4,572; -3.2% (-7,181, -2,729)	-5,111; -3.6% (-8,063, -3,074)	-4,746; -3.4% (-7,518, -2,862)
	YLL	8,599,242 (8,548,403, 8,643,411)	11,297; 0.13% (6,762, 16,503)	14,869; 0.17% (9,771, 20,835)	16,536; 0.19% (11,231, 22,847)	15,320; 0.18% (10,258, 21,581)
	QALYs	6,985,205 (6,347,824, 7,705,302)	15,465; 0.22% (11,362, 20,170)	20,135; 0.29% (15,470, 25,796)	22,414; 0.32% (17,430, 28,271)	20,826; 0.30% (15,985, 26,603)
	Medication costs (£, millions)	45 (45, 45)	114; 252.6% (113, 114)	192; 425.4% (190, 192)	381; 846.1% (379, 383)	34,283; 76153.1% (34,079, 34,459)
	Acute MI costs (£, millions)	51 (37, 69)	-9; -18.0% (-13, -7)	-12; -23.9% (-17, -9)	-14; -26.6% (-18, -10)	-13; -24.6% (-17, -9)
	Chronic MI costs (£, millions)	347 (270, 446)	-58; -16.7% (-75, -45)	-76; -21.9% (-97, -59)	-84; -24.3% (-108, -66)	-79; -22.7% (-103, -60)
	Total healthcare costs (£, millions)	443 (366, 547)	46; 10.5% (29, 60)	103; 23.3% (81, 121)	283; 63.8% (257, 303)	34,194; 7717.9% (33,986, 34,371)
	ICER (Δ £/ Δ QALY)		2,985 (1,669, 4,536)	5,106 (3,611, 6,982)	12,584 (9,820, 16,491)	1,638,818 (1,283,226, 2,140,728)
60	N	434,024 (432,139, 435,752)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	53,960 (48,221, 63,678)	-5,161; -9.6% (-6,201, -4,507)	-7,808; -14.5% (-9,381, -6,861)	-9,086; -16.8% (-10,906, -8,035)	-8,217; -15.2% (-10,033, -7,047)
	Deaths	129,376 (118,856, 141,347)	-1,547; -1.2% (-2,404, -1,006)	-2,333; -1.8% (-3,665, -1,549)	-2,712; -2.1% (-4,205, -1,805)	-2,440; -1.9% (-3,946, -1,622)
	YLL	6,718,611 (6,660,927, 6,769,209)	5,097; 0.08% (3,958, 6,690)	7,511; 0.11% (5,905, 9,719)	8,672; 0.13% (6,850, 11,336)	7,826; 0.12% (6,093, 10,490)
	QALYs	5,271,297 (4,793,374, 5,815,845)	6,558; 0.12% (5,268, 8,109)	9,639; 0.18% (7,855, 11,836)	11,128; 0.21% (9,099, 13,848)	10,081; 0.19% (8,130, 12,678)
	Medication costs (£, millions)	53 (53, 54)	71; 133.2% (70, 71)	132; 247.5% (131, 133)	280; 525.6% (277, 282)	26,769; 50326.6% (26,543, 26,969)
	Acute MI costs (£, millions)	56 (40, 75)	-5; -8.8% (-7, -3)	-7; -13.2% (-10, -5)	-9; -15.3% (-12, -6)	-8; -13.9% (-11, -5)
	Chronic MI costs (£, millions)	325 (258, 413)	-26; -8.0% (-33, -20)	-38; -11.7% (-48, -30)	-44; -13.6% (-56, -35)	-40; -12.3% (-51, -31)
	Total healthcare costs (£, millions)	434 (365, 527)	40; 9.2% (32, 46)	86; 19.8% (75, 95)	227; 52.2% (214, 237)	26,721; 6152.7% (26,492, 26,924)
	ICER (Δ £/ Δ QALY)		6,076 (4,447, 7,990)	8,911 (6,808, 11,277)	20,335 (16,273, 25,299)	2,650,674 (2,106,068, 3,298,793)

Table 9.38: PSA results – Summary of all interventions – All females.

Age of intervention	Outcome	Absolute value Control	Difference to control Low/moderate intensity statins	High intensity statins	Low/moderate intensity statins and ezetimibe	Inclisiran
30	N	252,531 (252,531, 252,531)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	22,634 (19,273, 28,938)	-9,399; -41.5% (-11,785, -8,040)	-11,472; -50.7% (-14,452, -9,831)	-12,409; -54.8% (-15,572, -10,612)	-11,766; -52.0% (-14,820, -9,968)
	Deaths	63,670 (57,736, 71,031)	-3,219; -5.1% (-5,511, -1,728)	-3,914; -6.1% (-6,730, -2,158)	-4,219; -6.6% (-7,232, -2,365)	-4,028; -6.3% (-7,045, -2,224)
	YLL	6,073,022 (6,057,744, 6,086,650)	5,158; 0.08% (1,853, 8,621)	6,097; 0.10% (2,685, 10,113)	6,565; 0.11% (3,020, 10,536)	6,237; 0.10% (2,792, 10,253)
	QALYs	5,180,100 (4,710,153, 5,709,383)	7,310; 0.14% (4,833, 10,279)	8,750; 0.17% (6,027, 12,040)	9,348; 0.18% (6,504, 12,744)	8,927; 0.17% (6,156, 12,263)
	Medication costs (£, millions)	12 (12, 12)	100; 840.8% (100, 100)	155; 1301.4% (155, 155)	289; 2423.2% (288, 289)	24,202; 203273.0% (24,145, 24,252)
	Acute MI costs (£, millions)	10 (7, 14)	-4; -40.9% (-6, -3)	-5; -49.1% (-7, -3)	-5; -52.8% (-7, -4)	-5; -50.3% (-7, -4)
	Chronic MI costs (£, millions)	70 (52, 94)	-28; -39.8% (-37, -21)	-33; -47.5% (-45, -25)	-36; -51.0% (-48, -27)	-34; -48.6% (-46, -26)
	Total healthcare costs (£, millions)	92 (74, 117)	68; 73.9% (58, 75)	117; 126.5% (105, 125)	247; 268.5% (234, 257)	24,163; 26224.9% (24,102, 24,213)
	ICER (Δ £/ Δ QALY)		9,283 (6,437, 14,329)	13,315 (9,503, 19,615)	26,376 (19,310, 37,842)	2,706,488 (1,969,551, 3,926,770)
40	N	251,456 (251,210, 251,654)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	22,317 (19,037, 28,481)	-7,251; -32.5% (-9,071, -6,163)	-9,120; -40.9% (-11,439, -7,762)	-9,968; -44.7% (-12,565, -8,436)	-9,390; -42.1% (-11,949, -7,855)
	Deaths	62,715 (57,026, 69,899)	-2,468; -3.9% (-4,295, -1,260)	-3,114; -5.0% (-5,440, -1,679)	-3,401; -5.4% (-5,981, -1,902)	-3,211; -5.1% (-5,566, -1,763)
	YLL	5,551,019 (5,531,278, 5,569,124)	4,826; 0.09% (1,820, 8,172)	5,970; 0.11% (2,819, 9,367)	6,469; 0.12% (3,238, 10,212)	6,130; 0.11% (2,943, 9,667)
	QALYs	4,601,636 (4,181,089, 5,073,736)	6,879; 0.15% (4,439, 9,668)	8,451; 0.18% (5,754, 11,391)	9,150; 0.20% (6,414, 12,273)	8,675; 0.19% (5,944, 11,680)
	Medication costs (£, millions)	17 (16, 17)	86; 515.3% (85, 86)	136; 816.6% (135, 136)	258; 1550.2% (257, 259)	22,122; 132913.8% (22,044, 22,188)
	Acute MI costs (£, millions)	13 (9, 18)	-4; -31.4% (-6, -3)	-5; -38.9% (-7, -4)	-6; -42.3% (-8, -4)	-5; -39.9% (-7, -4)
	Chronic MI costs (£, millions)	91 (69, 120)	-27; -29.9% (-36, -21)	-34; -36.8% (-44, -26)	-36; -40.0% (-48, -28)	-34; -37.8% (-46, -26)
	Total healthcare costs (£, millions)	121 (98, 152)	54; 44.9% (45, 61)	97; 80.4% (86, 106)	216; 178.6% (203, 225)	22,082; 18268.6% (22,003, 22,150)
	ICER (Δ £/ Δ QALY)		7,858 (5,237, 12,661)	11,505 (8,171, 17,059)	23,551 (17,473, 34,269)	2,545,380 (1,887,241, 3,726,175)
50	N	248,932 (248,399, 249,393)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	21,489 (18,320, 27,408)	-4,642; -21.6% (-5,866, -3,849)	-6,187; -28.8% (-7,863, -5,147)	-6,910; -32.2% (-8,731, -5,791)	-6,416; -29.9% (-8,220, -5,275)
	Deaths	60,522 (55,181, 67,438)	-1,596; -2.6% (-2,858, -753)	-2,126; -3.5% (-3,729, -1,106)	-2,393; -4.0% (-4,150, -1,263)	-2,212; -3.7% (-3,887, -1,181)
	YLL	4,826,271 (4,802,422, 4,846,945)	3,718; 0.08% (816, 6,588)	4,794; 0.10% (1,837, 7,964)	5,331; 0.11% (2,187, 8,715)	4,974; 0.10% (1,957, 8,166)
	QALYs	3,874,808 (3,521,035, 4,274,674)	5,038; 0.13% (2,808, 7,454)	6,520; 0.17% (4,093, 9,084)	7,226; 0.19% (4,688, 9,940)	6,685; 0.17% (4,220, 9,351)
	Medication costs (£, millions)	23 (23, 23)	66; 290.8% (66, 67)	110; 482.3% (109, 110)	216; 948.3% (215, 217)	19,231; 84402.4% (19,131, 19,313)
	Acute MI costs (£, millions)	17 (12, 23)	-3; -20.5% (-5, -2)	-5; -26.9% (-6, -3)	-5; -29.9% (-7, -4)	-5; -27.8% (-6, -3)
	Chronic MI costs (£, millions)	108 (84, 141)	-21; -19.1% (-28, -16)	-27; -24.8% (-35, -21)	-30; -27.4% (-39, -23)	-28; -25.5% (-37, -21)
	Total healthcare costs (£, millions)	148 (123, 182)	42; 28.4% (35, 48)	78; 52.9% (69, 86)	181; 122.2% (171, 189)	19,197; 12942.4% (19,097, 19,282)
	ICER (Δ £/ Δ QALY)		8,289 (5,382, 15,390)	11,995 (8,443, 19,451)	25,135 (18,214, 38,610)	2,874,104 (2,047,217, 4,553,995)
60	N	243,128 (242,279, 243,873)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	19,525 (16,548, 25,222)	-2,164; -11.1% (-2,867, -1,806)	-3,224; -16.5% (-4,282, -2,706)	-3,736; -19.1% (-4,918, -3,128)	-3,387; -17.3% (-4,525, -2,766)
	Deaths	55,576 (50,536, 62,245)	-748; -1.3% (-1,357, -454)	-1,110; -2.0% (-2,041, -673)	-1,294; -2.3% (-2,344, -782)	-1,158; -2.1% (-2,158, -725)
	YLL	3,834,043 (3,806,741, 3,858,245)	1,855; 0.05% (1,341, 2,756)	2,706; 0.07% (1,934, 3,931)	3,102; 0.08% (2,230, 4,576)	2,816; 0.07% (2,013, 4,309)
	QALYs	2,973,414 (2,703,787, 3,280,042)	2,414; 0.08% (1,880, 3,125)	3,491; 0.12% (2,740, 4,541)	4,009; 0.13% (3,151, 5,182)	3,631; 0.12% (2,832, 4,767)
	Medication costs (£, millions)	28 (28, 28)	43; 152.3% (42, 43)	77; 275.8% (77, 78)	162; 576.7% (161, 163)	15,271; 54440.3% (15,164, 15,367)
	Acute MI costs (£, millions)	19 (14, 27)	-2; -10.3% (-3, -1)	-3; -15.2% (-4, -2)	-3; -17.5% (-5, -2)	-3; -15.9% (-4, -2)
	Chronic MI costs (£, millions)	110 (86, 142)	-10; -9.3% (-13, -8)	-15; -13.6% (-19, -12)	-17; -15.6% (-22, -13)	-16; -14.2% (-20, -12)
	Total healthcare costs (£, millions)	158 (133, 191)	30; 19.3% (27, 33)	59; 37.7% (55, 63)	141; 89.6% (136, 146)	15,253; 9681.7% (15,145, 15,347)
	ICER (Δ £/ Δ QALY)		12,564 (9,196, 16,779)	17,049 (12,767, 22,241)	35,275 (26,881, 45,193)	4,195,768 (3,183,393, 5,397,560)

Table 9.39: PSA results – Summary of all interventions – Females with LDL-C ≥3.0 mmol/L.

Age of intervention	Outcome	Absolute value Control	Difference to control Low/moderate intensity statins	High intensity statins	Low/moderate intensity statins and ezetimibe	Inclisiran
30	N	190,859 (190,859, 190,859)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	19,580 (16,690, 25,006)	-8,422; -43.0% (-10,483, -7,200)	-10,242; -52.3% (-12,907, -8,749)	-11,050; -56.4% (-13,905, -9,470)	-10,522; -53.7% (-13,214, -8,923)
	Deaths	49,000 (44,282, 55,066)	-2,914; -5.9% (-4,932, -1,498)	-3,520; -7.2% (-5,906, -1,899)	-3,798; -7.8% (-6,493, -2,074)	-3,620; -7.4% (-6,128, -1,971)
	YLL	4,588,513 (4,576,834, 4,598,845)	4,597; 0.10% (1,841, 7,634)	5,426; 0.12% (2,590, 8,909)	5,792; 0.13% (2,906, 9,426)	5,564; 0.12% (2,674, 9,141)
	QALYs	3,912,651 (3,557,939, 4,312,983)	6,547; 0.17% (4,299, 9,287)	7,802; 0.20% (5,478, 10,862)	8,365; 0.21% (5,908, 11,506)	7,975; 0.20% (5,599, 11,027)
	Medication costs (£, millions)	9 (9, 9)	76; 839.2% (75, 76)	117; 1299.2% (117, 117)	218; 2419.2% (218, 218)	18,290; 202957.7% (18,245, 18,328)
	Acute MI costs (£, millions)	9 (6, 12)	-4; -42.2% (-5, -3)	-4; -50.7% (-6, -3)	-5; -54.5% (-6, -3)	-4; -51.9% (-6, -3)
	Chronic MI costs (£, millions)	61 (45, 82)	-25; -41.2% (-34, -19)	-30; -49.1% (-40, -22)	-32; -52.7% (-42, -24)	-31; -50.3% (-41, -23)
	Total healthcare costs (£, millions)	79 (63, 100)	47; 59.6% (37, 53)	83; 105.3% (72, 90)	181; 230.5% (170, 190)	18,254; 23232.6% (18,207, 18,293)
	ICER (Δ £/ Δ QALY)		7,108 (4,835, 11,147)	10,512 (7,462, 15,690)	21,602 (15,635, 30,967)	2,290,220 (1,652,351, 3,262,681)
40	N	190,012 (189,816, 190,170)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	19,300 (16,483, 24,602)	-6,503; -33.7% (-8,091, -5,494)	-8,155; -42.3% (-10,207, -6,946)	-8,898; -46.1% (-11,176, -7,578)	-8,383; -43.4% (-10,690, -7,075)
	Deaths	48,213 (43,699, 54,133)	-2,220; -4.6% (-3,850, -1,169)	-2,797; -5.8% (-4,844, -1,543)	-3,038; -6.3% (-5,338, -1,712)	-2,863; -5.9% (-4,970, -1,596)
	YLL	4,192,850 (4,177,601, 4,206,457)	4,344; 0.10% (1,678, 7,244)	5,309; 0.13% (2,510, 8,453)	5,757; 0.14% (2,866, 9,026)	5,479; 0.13% (2,627, 8,675)
	QALYs	3,474,711 (3,157,150, 3,831,429)	6,151; 0.18% (4,024, 8,577)	7,533; 0.22% (5,199, 10,158)	8,203; 0.24% (5,837, 10,917)	7,768; 0.22% (5,442, 10,421)
	Medication costs (£, millions)	13 (12, 13)	65; 514.5% (65, 65)	103; 815.4% (102, 103)	195; 1548.3% (194, 195)	16,713; 132758.3% (16,652, 16,766)
	Acute MI costs (£, millions)	11 (8, 16)	-4; -32.6% (-5, -3)	-5; -40.2% (-6, -3)	-5; -43.7% (-7, -4)	-5; -41.2% (-7, -3)
	Chronic MI costs (£, millions)	79 (59, 104)	-25; -31.0% (-32, -18)	-30; -38.1% (-40, -23)	-33; -41.4% (-43, -25)	-31; -39.1% (-41, -23)
	Total healthcare costs (£, millions)	103 (83, 130)	36; 35.3% (28, 43)	68; 65.7% (58, 76)	157; 152.2% (146, 165)	16,677; 16163.6% (16,614, 16,728)
	ICER (Δ £/ Δ QALY)		5,891 (3,822, 9,348)	8,932 (6,466, 13,257)	19,173 (14,317, 27,283)	2,147,789 (1,600,091, 3,066,778)
50	N	188,018 (187,571, 188,386)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	18,581 (15,844, 23,666)	-4,181; -22.5% (-5,261, -3,460)	-5,546; -29.9% (-7,038, -4,639)	-6,177; -33.2% (-7,807, -5,178)	-5,742; -30.9% (-7,371, -4,746)
	Deaths	46,527 (42,230, 52,154)	-1,448; -3.1% (-2,579, -639)	-1,924; -4.1% (-3,379, -986)	-2,134; -4.6% (-3,720, -1,113)	-1,988; -4.3% (-3,530, -1,041)
	YLL	3,643,106 (3,624,472, 3,659,861)	3,300; 0.09% (752, 5,929)	4,288; 0.12% (1,643, 7,168)	4,760; 0.13% (1,969, 7,798)	4,422; 0.12% (1,778, 7,447)
	QALYs	2,923,315 (2,655,529, 3,224,875)	4,567; 0.16% (2,522, 6,729)	5,902; 0.20% (3,730, 8,273)	6,507; 0.22% (4,211, 8,992)	6,074; 0.21% (3,904, 8,608)
	Medication costs (£, millions)	17 (17, 17)	50; 288.2% (50, 50)	83; 478.3% (82, 83)	163; 941.3% (162, 164)	14,518; 83820.4% (14,439, 14,582)
	Acute MI costs (£, millions)	15 (10, 20)	-3; -21.4% (-4, -2)	-4; -28.0% (-6, -3)	-5; -30.9% (-6, -3)	-4; -28.7% (-6, -3)
	Chronic MI costs (£, millions)	94 (72, 122)	-19; -20.0% (-25, -14)	-24; -25.8% (-32, -19)	-27; -28.5% (-35, -20)	-25; -26.5% (-33, -19)
	Total healthcare costs (£, millions)	126 (104, 155)	28; 22.2% (21, 33)	55; 43.2% (46, 61)	132; 104.3% (122, 138)	14,489; 11472.3% (14,411, 14,557)
	ICER (Δ £/ Δ QALY)		6,059 (3,823, 11,639)	9,169 (6,464, 15,067)	20,096 (14,528, 31,155)	2,383,131 (1,681,769, 3,708,045)
60	N	183,402 (182,723, 184,029)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	16,888 (14,311, 21,760)	-1,938; -11.5% (-2,556, -1,618)	-2,884; -17.1% (-3,821, -2,422)	-3,344; -19.8% (-4,390, -2,802)	-3,026; -17.9% (-4,028, -2,478)
	Deaths	42,724 (38,745, 48,101)	-670; -1.6% (-1,206, -411)	-997; -2.3% (-1,804, -609)	-1,156; -2.7% (-2,074, -709)	-1,038; -2.4% (-1,917, -640)
	YLL	2,890,072 (2,868,596, 2,909,268)	1,678; 0.06% (1,213, 2,474)	2,448; 0.08% (1,743, 3,571)	2,804; 0.10% (1,989, 4,148)	2,538; 0.09% (1,804, 3,866)
	QALYs	2,240,077 (2,035,996, 2,470,317)	2,190; 0.10% (1,699, 2,829)	3,150; 0.14% (2,477, 4,078)	3,627; 0.16% (2,828, 4,658)	3,293; 0.15% (2,551, 4,306)
	Medication costs (£, millions)	22 (22, 22)	32; 145.2% (31, 32)	58; 265.2% (57, 58)	121; 557.6% (120, 122)	11,512; 52903.0% (11,427, 11,590)
	Acute MI costs (£, millions)	17 (12, 23)	-2; -10.7% (-2, -1)	-3; -15.7% (-4, -2)	-3; -18.1% (-4, -2)	-3; -16.5% (-4, -2)
	Chronic MI costs (£, millions)	95 (74, 123)	-9; -9.7% (-12, -7)	-13; -14.1% (-17, -10)	-15; -16.2% (-20, -12)	-14; -14.7% (-18, -11)
	Total healthcare costs (£, millions)	134 (113, 163)	20; 15.3% (17, 23)	42; 31.0% (37, 45)	103; 76.6% (98, 107)	11,496; 8566.0% (11,410, 11,573)
	ICER (Δ £/ Δ QALY)		9,318 (6,688, 12,637)	13,178 (9,818, 17,354)	28,440 (21,619, 36,735)	3,488,957 (2,663,533, 4,507,392)

Table 9.40: PSA results – Summary of all interventions – Females with LDL-C ≥4.0 mmol/L.

Age of intervention	Outcome	Absolute value	Difference to control			
		Control	Low/moderate intensity statins	High intensity statins	Low/moderate intensity statins and ezetimibe	Inclisiran
30	N	79,921 (79,921, 79,921)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	10,980 (9,421, 13,870)	-4,934; -44.9% (-6,060, -4,251)	-6,032; -54.9% (-7,458, -5,184)	-6,500; -59.2% (-8,082, -5,580)	-6,178; -56.3% (-7,680, -5,270)
	Deaths	21,500 (19,249, 24,673)	-1,709; -7.9% (-2,844, -872)	-2,074; -9.6% (-3,453, -1,122)	-2,228; -10.4% (-3,756, -1,229)	-2,118; -9.9% (-3,607, -1,156)
	YLL	1,919,657 (1,914,162, 1,924,401)	2,744; 0.14% (1,065, 4,734)	3,261; 0.17% (1,471, 5,449)	3,500; 0.18% (1,651, 5,784)	3,341; 0.17% (1,565, 5,568)
	QALYs	1,635,740 (1,486,934, 1,803,485)	4,028; 0.25% (2,629, 5,707)	4,788; 0.29% (3,258, 6,642)	5,090; 0.31% (3,533, 7,078)	4,882; 0.30% (3,343, 6,798)
	Medication costs (£, millions)	5 (5, 5)	31; 621.4% (30, 31)	48; 974.8% (48, 48)	90; 1835.1% (90, 90)	7,655; 155877.8% (7,636, 7,671)
	Acute MI costs (£, millions)	5 (3, 7)	-2; -44.9% (-3, -2)	-3; -53.9% (-4, -2)	-3; -57.8% (-4, -2)	-3; -55.0% (-4, -2)
	Chronic MI costs (£, millions)	35 (26, 47)	-15; -44.2% (-21, -11)	-18; -52.5% (-25, -14)	-20; -56.2% (-26, -15)	-19; -53.6% (-25, -14)
	Total healthcare costs (£, millions)	45 (36, 57)	13; 28.7% (7, 17)	27; 60.1% (20, 32)	68; 151.1% (61, 73)	7,633; 17032.9% (7,613, 7,650)
	ICER (Δ £/ Δ QALY)		3,212 (1,701, 5,394)	5,612 (3,721, 8,720)	13,181 (9,516, 19,386)	1,563,320 (1,122,363, 2,283,469)
40	N	79,525 (79,428, 79,603)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	10,818 (9,306, 13,646)	-3,768; -34.8% (-4,593, -3,191)	-4,765; -44.0% (-5,892, -4,068)	-5,220; -48.2% (-6,457, -4,429)	-4,904; -45.3% (-6,114, -4,142)
	Deaths	21,153 (18,992, 24,243)	-1,290; -6.1% (-2,213, -647)	-1,628; -7.7% (-2,790, -851)	-1,777; -8.4% (-3,069, -947)	-1,672; -7.9% (-2,889, -868)
	YLL	1,752,536 (1,745,524, 1,759,083)	2,615; 0.15% (944, 4,514)	3,248; 0.19% (1,433, 5,321)	3,518; 0.20% (1,682, 5,632)	3,326; 0.19% (1,520, 5,394)
	QALYs	1,450,655 (1,317,234, 1,600,457)	3,795; 0.26% (2,385, 5,318)	4,636; 0.32% (3,126, 6,297)	5,026; 0.35% (3,467, 6,745)	4,756; 0.33% (3,234, 6,470)
	Medication costs (£, millions)	7 (7, 7)	25; 371.7% (25, 26)	41; 602.8% (41, 41)	80; 1165.4% (80, 80)	6,988; 101891.7% (6,961, 7,012)
	Acute MI costs (£, millions)	7 (5, 9)	-2; -34.0% (-3, -2)	-3; -42.4% (-4, -2)	-3; -46.1% (-4, -2)	-3; -43.7% (-4, -2)
	Chronic MI costs (£, millions)	45 (34, 60)	-15; -32.9% (-20, -11)	-18; -40.6% (-24, -14)	-20; -44.2% (-26, -15)	-19; -41.7% (-25, -14)
	Total healthcare costs (£, millions)	59 (47, 74)	8; 14.0% (3, 12)	20; 34.2% (14, 25)	57; 96.9% (50, 62)	6,966; 11874.9% (6,938, 6,991)
	ICER (Δ £/ Δ QALY)		2,174 (772, 4,216)	4,309 (2,677, 6,898)	11,275 (8,122, 16,897)	1,464,046 (1,075,493, 2,157,394)
50	N	78,576 (78,344, 78,762)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	10,409 (8,942, 13,133)	-2,338; -22.5% (-2,909, -1,912)	-3,179; -30.5% (-3,991, -2,669)	-3,572; -34.3% (-4,486, -3,007)	-3,301; -31.7% (-4,157, -2,725)
	Deaths	20,377 (18,337, 23,278)	-816; -4.0% (-1,441, -336)	-1,103; -5.4% (-1,907, -534)	-1,238; -6.1% (-2,186, -634)	-1,135; -5.6% (-1,980, -575)
	YLL	1,519,940 (1,511,259, 1,527,874)	2,002; 0.13% (272, 3,688)	2,602; 0.17% (818, 4,402)	2,892; 0.19% (1,057, 4,737)	2,707; 0.18% (862, 4,603)
	QALYs	1,218,105 (1,107,316, 1,344,159)	2,771; 0.23% (1,379, 4,217)	3,580; 0.29% (2,117, 5,121)	3,947; 0.32% (2,450, 5,617)	3,689; 0.30% (2,228, 5,293)
	Medication costs (£, millions)	9 (9, 10)	19; 196.3% (18, 19)	32; 341.5% (32, 32)	66; 694.9% (65, 66)	6,058; 63966.9% (6,023, 6,087)
	Acute MI costs (£, millions)	8 (6, 11)	-2; -21.8% (-2, -1)	-2; -28.9% (-3, -2)	-3; -32.1% (-4, -2)	-2; -29.9% (-3, -2)
	Chronic MI costs (£, millions)	54 (41, 70)	-11; -20.8% (-15, -8)	-15; -27.0% (-19, -11)	-16; -30.1% (-21, -12)	-15; -27.9% (-20, -11)
	Total healthcare costs (£, millions)	72 (59, 89)	6; 7.8% (2, 9)	15; 21.3% (10, 19)	47; 65.2% (41, 51)	6,041; 8405.4% (6,005, 6,071)
	ICER (Δ £/ Δ QALY)		2,034 (581, 4,737)	4,262 (2,627, 7,986)	11,792 (8,325, 19,776)	1,634,746 (1,139,990, 2,713,538)
60	N	76,367 (76,001, 76,671)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	9,420 (8,020, 11,994)	-959; -10.2% (-1,214, -796)	-1,541; -16.4% (-1,982, -1,296)	-1,827; -19.4% (-2,346, -1,527)	-1,628; -17.3% (-2,136, -1,329)
	Deaths	18,610 (16,776, 21,256)	-328; -1.8% (-572, -197)	-527; -2.8% (-949, -330)	-627; -3.4% (-1,114, -391)	-552; -3.0% (-1,002, -348)
	YLL	1,200,802 (1,190,973, 1,209,635)	886; 0.07% (623, 1,272)	1,363; 0.11% (974, 1,989)	1,589; 0.13% (1,146, 2,331)	1,425; 0.12% (1,004, 2,139)
	QALYs	929,421 (845,177, 1,025,355)	1,172; 0.13% (891, 1,501)	1,777; 0.19% (1,375, 2,279)	2,074; 0.22% (1,626, 2,647)	1,860; 0.20% (1,424, 2,422)
	Medication costs (£, millions)	12 (12, 12)	10; 83.6% (10, 10)	21; 173.6% (21, 21)	47; 392.6% (47, 48)	4,782; 39605.0% (4,743, 4,817)
	Acute MI costs (£, millions)	10 (7, 13)	-1; -9.7% (-1, -1)	-1; -15.3% (-2, -1)	-2; -17.8% (-2, -1)	-2; -16.0% (-2, -1)
	Chronic MI costs (£, millions)	54 (42, 70)	-5; -9.1% (-6, -4)	-8; -13.9% (-10, -6)	-9; -16.2% (-11, -7)	-8; -14.6% (-10, -6)
	Total healthcare costs (£, millions)	76 (64, 92)	4; 5.6% (3, 5)	12; 15.7% (10, 14)	37; 48.7% (34, 39)	4,772; 6295.9% (4,732, 4,807)
	ICER (Δ £/ Δ QALY)		3,600 (2,014, 5,594)	6,708 (4,723, 9,419)	17,706 (13,702, 23,275)	2,565,053 (1,977,680, 3,346,184)

Table 9.41: PSA results – Summary of all interventions – Females with LDL-C ≥5.0 mmol/L.

		Absolute value	Difference to control			
Age of intervention	Outcome	Control	Low/moderate intensity statins	High intensity statins	Low/moderate intensity statins and ezetimibe	Inclisiran
30	N	16,646 (16,646, 16,646)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	3,365 (2,898, 4,202)	-1,540; -45.8% (-1,856, -1,309)	-1,910; -56.7% (-2,314, -1,635)	-2,064; -61.3% (-2,518, -1,771)	-1,960; -58.3% (-2,401, -1,667)
	Deaths	4,846 (4,235, 5,708)	-525; -10.8% (-913, -223)	-647; -13.4% (-1,114, -311)	-704; -14.5% (-1,201, -350)	-666; -13.7% (-1,163, -334)
	YLL	399,125 (397,601, 400,359)	965; 0.24% (194, 1,789)	1,145; 0.29% (342, 2,046)	1,227; 0.31% (396, 2,153)	1,175; 0.29% (358, 2,076)
	QALYs	339,721 (308,382, 374,420)	1,412; 0.42% (798, 2,113)	1,666; 0.49% (1,040, 2,439)	1,780; 0.52% (1,138, 2,594)	1,698; 0.50% (1,069, 2,515)
	Medication costs (£, millions)	1 (1, 1)	6; 424.8% (6, 6)	10; 682.0% (10, 10)	18; 1308.1% (18, 18)	1,593; 113389.8% (1,588, 1,597)
	Acute MI costs (£, millions)	2 (1, 2)	-1; -47.1% (-1, -1)	-1; -57.0% (-1, -1)	-1; -61.0% (-1, -1)	-1; -58.1% (-1, -1)
	Chronic MI costs (£, millions)	11 (8, 15)	-5; -46.9% (-7, -4)	-6; -55.9% (-9, -5)	-7; -59.9% (-9, -5)	-7; -57.2% (-9, -5)
	Total healthcare costs (£, millions)	14 (11, 19)	-0; -0.7% (-2, 1)	2; 16.0% (-0, 4)	11; 73.8% (8, 12)	1,585; 11051.2% (1,580, 1,590)
	ICER (Δ £/ Δ QALY)		-81 (-1,654, 1,150)	1,388 (-87, 3,045)	5,890 (3,687, 9,882)	933,248 (630,417, 1,479,150)
40	N	16,544 (16,513, 16,572)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	3,314 (2,856, 4,123)	-1,132; -34.1% (-1,372, -933)	-1,480; -44.7% (-1,802, -1,240)	-1,634; -49.3% (-1,972, -1,373)	-1,532; -46.2% (-1,872, -1,268)
	Deaths	4,766 (4,180, 5,593)	-382; -8.0% (-671, -153)	-504; -10.6% (-847, -227)	-558; -11.7% (-934, -264)	-520; -10.9% (-889, -237)
	YLL	363,713 (361,695, 365,414)	880; 0.24% (95, 1,681)	1,110; 0.31% (276, 1,954)	1,207; 0.33% (376, 2,050)	1,132; 0.31% (311, 1,988)
	QALYs	300,606 (272,960, 331,465)	1,279; 0.43% (632, 1,942)	1,588; 0.53% (946, 2,311)	1,721; 0.57% (1,072, 2,487)	1,628; 0.54% (980, 2,374)
	Medication costs (£, millions)	2 (2, 2)	5; 242.9% (5, 5)	8; 411.0% (8, 8)	16; 820.3% (16, 16)	1,451; 74070.6% (1,445, 1,457)
	Acute MI costs (£, millions)	2 (1, 3)	-1; -34.7% (-1, -1)	-1; -44.0% (-1, -1)	-1; -48.0% (-1, -1)	-1; -45.2% (-1, -1)
	Chronic MI costs (£, millions)	15 (11, 20)	-5; -34.5% (-7, -4)	-6; -43.0% (-9, -5)	-7; -46.8% (-9, -5)	-6; -44.1% (-9, -5)
	Total healthcare costs (£, millions)	19 (15, 24)	-1; -5.4% (-3, 0)	1; 4.4% (-1, 3)	8; 43.3% (6, 10)	1,444; 7669.1% (1,437, 1,450)
	ICER (Δ £/ Δ QALY)		-808 (-2,760, 350)	511 (-890, 1,973)	4,748 (2,820, 8,195)	887,716 (608,579, 1,476,516)
50	N	16,294 (16,220, 16,353)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	3,176 (2,739, 3,945)	-635; -20.0% (-813, -475)	-924; -29.1% (-1,159, -743)	-1,062; -33.4% (-1,315, -863)	-971; -30.6% (-1,213, -770)
	Deaths	4,569 (4,035, 5,368)	-216; -4.7% (-415, -32)	-316; -6.9% (-565, -112)	-362; -7.9% (-633, -148)	-328; -7.2% (-581, -123)
	YLL	314,105 (311,715, 316,252)	619; 0.20% (-123, 1,331)	842; 0.27% (49, 1,576)	945; 0.30% (146, 1,716)	878; 0.28% (82, 1,624)
	QALYs	251,174 (228,039, 277,209)	857; 0.34% (276, 1,442)	1,153; 0.46% (529, 1,775)	1,290; 0.51% (647, 1,950)	1,201; 0.48% (570, 1,836)
	Medication costs (£, millions)	3 (3, 3)	3; 115.3% (3, 3)	6; 220.8% (6, 6)	13; 477.8% (13, 13)	1,253; 46461.9% (1,244, 1,260)
	Acute MI costs (£, millions)	3 (2, 4)	-1; -20.2% (-1, -0)	-1; -28.5% (-1, -1)	-1; -32.2% (-1, -1)	-1; -29.6% (-1, -1)
	Chronic MI costs (£, millions)	17 (13, 23)	-3; -19.9% (-5, -2)	-5; -27.1% (-6, -3)	-5; -30.3% (-7, -4)	-5; -28.0% (-7, -4)
	Total healthcare costs (£, millions)	23 (18, 28)	-1; -3.9% (-2, 0)	1; 2.2% (-1, 2)	7; 29.7% (5, 8)	1,247; 5471.5% (1,237, 1,255)
	ICER (Δ £/ Δ QALY)		-1,016 (-3,896, 342)	414 (-1,178, 2,014)	5,168 (3,136, 10,694)	1,037,877 (679,485, 2,188,117)
60	N	15,702 (15,584, 15,803)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	2,836 (2,423, 3,547)	-168; -5.9% (-218, -125)	-373; -13.2% (-465, -305)	-471; -16.6% (-587, -385)	-402; -14.2% (-520, -317)
	Deaths	4,125 (3,676, 4,812)	-56; -1.4% (-95, -27)	-128; -3.1% (-218, -71)	-161; -3.9% (-276, -95)	-138; -3.3% (-239, -80)
	YLL	245,862 (243,116, 248,292)	188; 0.08% (92, 299)	361; 0.15% (227, 545)	448; 0.18% (292, 658)	387; 0.16% (244, 592)
	QALYs	189,652 (172,352, 209,453)	257; 0.14% (168, 362)	477; 0.25% (348, 633)	583; 0.31% (432, 761)	508; 0.27% (372, 686)
	Medication costs (£, millions)	3 (3, 3)	1; 34.7% (1, 1)	3; 100.7% (3, 3)	9; 261.5% (9, 9)	979; 29033.8% (968, 988)
	Acute MI costs (£, millions)	3 (2, 4)	-0; -6.2% (-0, -0)	-0; -12.6% (-1, -0)	-0; -15.6% (-1, -0)	-0; -13.5% (-1, -0)
	Chronic MI costs (£, millions)	17 (13, 22)	-1; -6.2% (-1, -1)	-2; -11.7% (-3, -2)	-2; -14.4% (-3, -2)	-2; -12.5% (-3, -2)
	Total healthcare costs (£, millions)	23 (19, 29)	-0; -0.3% (-1, 0)	1; 4.4% (0, 2)	6; 25.3% (5, 7)	976; 4175.8% (965, 986)
	ICER (Δ £/ Δ QALY)		-278 (-1,888, 1,262)	2,144 (650, 4,024)	10,049 (7,142, 14,075)	1,927,322 (1,422,921, 2,632,635)

Table 9.42: PSA results – Summary of all interventions – All males.

Age of intervention	Outcome	Absolute value: Control	Difference to control: Low/moderate intensity statins	High intensity statins	Low/moderate intensity statins and ezetimibe	Inclisiran
30	N	206,161 (206,161, 206,161)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	43,271 (39,778, 48,051)	-16,080; -37.2% (-17,664, -14,801)	-19,908; -46.0% (-21,745, -18,306)	-21,596; -49.9% (-23,688, -19,888)	-20,458; -47.3% (-22,562, -18,634)
	Deaths	84,461 (77,680, 92,333)	-3,706; -4.4% (-5,926, -2,061)	-4,584; -5.4% (-7,236, -2,614)	-5,010; -5.9% (-7,863, -2,874)	-4,728; -5.6% (-7,522, -2,666)
	YLL	4,888,657 (4,872,621, 4,902,511)	11,015; 0.23% (7,737, 15,437)	13,300; 0.27% (9,698, 18,332)	14,351; 0.29% (10,523, 19,473)	13,660; 0.28% (9,887, 18,887)
	QALYs	4,284,290 (3,894,835, 4,692,361)	16,568; 0.39% (13,110, 21,012)	20,041; 0.47% (15,980, 25,165)	21,567; 0.50% (17,243, 26,812)	20,447; 0.48% (16,366, 25,853)
	Medication costs (£, millions)	12 (12, 12)	78; 636.3% (78, 78)	122; 997.2% (122, 123)	230; 1875.8% (229, 231)	19,515; 159136.6% (19,456, 19,568)
	Acute MI costs (£, millions)	21 (15, 28)	-8; -36.9% (-11, -6)	-9; -45.0% (-13, -7)	-10; -48.6% (-14, -7)	-10; -46.2% (-13, -7)
	Chronic MI costs (£, millions)	165 (126, 217)	-60; -36.2% (-79, -46)	-72; -43.7% (-95, -56)	-78; -47.1% (-102, -60)	-74; -44.6% (-98, -56)
	Total healthcare costs (£, millions)	199 (158, 252)	10; 5.2% (-9, 25)	40; 20.3% (18, 58)	142; 71.3% (116, 161)	19,432; 9771.9% (19,367, 19,485)
	ICER (Δ £/ Δ QALY)		622 (-562, 1,590)	1,986 (820, 3,194)	6,566 (4,864, 8,698)	950,312 (751,702, 1,186,725)
40	N	204,562 (204,256, 204,824)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	42,422 (39,098, 46,946)	-11,856; -27.9% (-13,044, -10,855)	-15,156; -35.7% (-16,683, -13,877)	-16,696; -39.4% (-18,315, -15,364)	-15,652; -36.9% (-17,371, -14,240)
	Deaths	83,414 (76,842, 90,990)	-2,834; -3.4% (-4,393, -1,566)	-3,652; -4.4% (-5,540, -2,131)	-4,022; -4.8% (-6,084, -2,360)	-3,780; -4.5% (-5,797, -2,201)
	YLL	4,423,442 (4,401,853, 4,442,531)	10,595; 0.24% (7,183, 14,690)	13,139; 0.30% (9,496, 17,759)	14,412; 0.33% (10,526, 19,243)	13,541; 0.31% (9,797, 18,369)
	QALYs	3,768,069 (3,419,774, 4,153,084)	15,301; 0.41% (11,754, 19,267)	18,952; 0.50% (14,860, 23,752)	20,652; 0.55% (16,417, 25,809)	19,501; 0.52% (15,214, 24,500)
	Medication costs (£, millions)	17 (17, 17)	65; 384.2% (65, 65)	105; 621.6% (104, 105)	202; 1199.4% (202, 203)	17,660; 104616.3% (17,577, 17,731)
	Acute MI costs (£, millions)	28 (20, 38)	-8; -27.2% (-10, -6)	-10; -34.2% (-13, -7)	-10; -37.5% (-14, -8)	-10; -35.4% (-13, -7)
	Chronic MI costs (£, millions)	209 (161, 272)	-55; -26.2% (-71, -42)	-68; -32.6% (-88, -52)	-75; -35.7% (-96, -57)	-70; -33.4% (-92, -54)
	Total healthcare costs (£, millions)	254 (205, 318)	2; 1.0% (-15, 15)	27; 10.6% (6, 43)	117; 46.2% (95, 135)	17,580; 6919.4% (17,490, 17,655)
	ICER (Δ £/ Δ QALY)		169 (-981, 1,051)	1,433 (288, 2,511)	5,658 (4,132, 7,590)	901,580 (716,602, 1,154,873)
50	N	200,554 (199,824, 201,172)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	40,144 (37,059, 44,324)	-7,095; -17.7% (-7,946, -6,359)	-9,660; -24.1% (-10,731, -8,712)	-10,843; -27.0% (-12,001, -9,879)	-10,008; -24.9% (-11,247, -8,943)
	Deaths	80,636 (74,579, 87,628)	-1,816; -2.3% (-2,762, -902)	-2,466; -3.1% (-3,629, -1,400)	-2,766; -3.4% (-4,084, -1,622)	-2,552; -3.2% (-3,819, -1,475)
	YLL	3,772,703 (3,745,500, 3,796,471)	7,701; 0.20% (4,075, 11,228)	10,144; 0.27% (6,377, 13,843)	11,261; 0.30% (7,409, 15,080)	10,434; 0.28% (6,638, 14,156)
	QALYs	3,110,452 (2,825,946, 3,430,587)	10,471; 0.34% (7,389, 13,783)	13,718; 0.44% (10,346, 17,354)	15,245; 0.49% (11,649, 19,109)	14,116; 0.45% (10,713, 17,939)
	Medication costs (£, millions)	22 (22, 22)	47; 213.5% (47, 48)	82; 367.3% (81, 82)	165; 741.5% (164, 166)	15,054; 67716.6% (14,945, 15,146)
	Acute MI costs (£, millions)	34 (25, 46)	-6; -16.7% (-8, -4)	-8; -22.4% (-10, -6)	-9; -25.0% (-12, -6)	-8; -23.2% (-11, -6)
	Chronic MI costs (£, millions)	238 (186, 304)	-37; -15.7% (-49, -29)	-49; -20.6% (-63, -38)	-55; -23.0% (-69, -43)	-51; -21.4% (-66, -39)
	Total healthcare costs (£, millions)	295 (242, 363)	4; 1.5% (-7, 13)	25; 8.4% (11, 36)	102; 34.4% (86, 114)	14,995; 5075.9% (14,885, 15,092)
	ICER (Δ £/ Δ QALY)		422 (-698, 1,353)	1,809 (729, 2,959)	6,631 (4,920, 8,961)	1,060,317 (833,271, 1,398,079)
60	N	190,902 (189,759, 191,953)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	34,446 (31,652, 38,338)	-2,996; -8.7% (-3,379, -2,671)	-4,584; -13.3% (-5,147, -4,124)	-5,348; -15.5% (-5,983, -4,855)	-4,823; -14.0% (-5,552, -4,232)
	Deaths	73,781 (68,258, 79,882)	-790; -1.1% (-1,098, -528)	-1,220; -1.7% (-1,677, -833)	-1,430; -1.9% (-1,975, -981)	-1,277; -1.7% (-1,825, -879)
	YLL	2,884,350 (2,853,471, 2,911,267)	3,228; 0.11% (2,565, 4,001)	4,801; 0.17% (3,888, 5,908)	5,572; 0.19% (4,527, 6,840)	5,015; 0.17% (4,033, 6,341)
	QALYs	2,298,592 (2,090,807, 2,535,982)	4,150; 0.18% (3,373, 5,097)	6,145; 0.27% (5,077, 7,411)	7,115; 0.31% (5,859, 8,625)	6,440; 0.28% (5,253, 7,982)
	Medication costs (£, millions)	25 (25, 25)	28; 112.0% (28, 28)	54; 215.9% (54, 55)	118; 468.8% (117, 119)	11,497; 45738.7% (11,376, 11,606)
	Acute MI costs (£, millions)	36 (26, 49)	-3; -8.0% (-4, -2)	-4; -12.2% (-6, -3)	-5; -14.1% (-7, -4)	-5; -12.8% (-6, -3)
	Chronic MI costs (£, millions)	215 (171, 271)	-16; -7.3% (-20, -12)	-23; -10.8% (-29, -19)	-27; -12.6% (-34, -21)	-24; -11.3% (-31, -19)
	Total healthcare costs (£, millions)	277 (232, 334)	10; 3.5% (5, 13)	27; 9.6% (20, 32)	86; 31.0% (78, 92)	11,469; 4143.4% (11,344, 11,579)
	ICER (Δ £/ Δ QALY)		2,330 (1,153, 3,468)	4,320 (3,050, 5,694)	12,015 (9,651, 14,910)	1,781,228 (1,438,102, 2,184,265)

Table 9.43: PSA results – Summary of all interventions – Males with LDL-C ≥3.0 mmol/L.

Age of intervention	Outcome	Absolute value Control	Difference to control Low/moderate intensity statins	High intensity statins	Low/moderate intensity statins and ezetimibe	Inclisiran
30	N	147,997 (147,997, 147,997)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	35,536 (32,698, 39,355)	-13,762; -38.7% (-15,046, -12,604)	-16,958; -47.7% (-18,472, -15,552)	-18,370; -51.7% (-20,075, -16,907)	-17,417; -49.0% (-19,214, -15,901)
	Deaths	61,628 (56,710, 67,648)	-3,162; -5.1% (-5,097, -1,753)	-3,908; -6.3% (-6,210, -2,219)	-4,258; -6.9% (-6,736, -2,450)	-4,015; -6.5% (-6,345, -2,289)
	YLL	3,506,145 (3,494,269, 3,516,370)	9,524; 0.27% (6,401, 13,125)	11,482; 0.33% (8,255, 15,675)	12,330; 0.35% (8,981, 16,812)	11,714; 0.33% (8,453, 16,039)
	QALYs	3,070,341 (2,790,990, 3,363,907)	14,358; 0.47% (11,282, 18,179)	17,226; 0.56% (13,817, 21,554)	18,526; 0.60% (14,927, 23,135)	17,571; 0.57% (14,169, 22,232)
	Medication costs (£, millions)	8 (8, 8)	57; 682.6% (56, 57)	88; 1066.3% (88, 89)	166; 2000.1% (165, 166)	14,004; 169152.1% (13,962, 14,042)
	Acute MI costs (£, millions)	17 (12, 23)	-7; -38.5% (-9, -5)	-8; -46.6% (-11, -6)	-9; -50.4% (-12, -6)	-8; -47.9% (-11, -6)
	Chronic MI costs (£, millions)	137 (104, 180)	-51; -37.6% (-68, -39)	-62; -45.3% (-81, -48)	-67; -48.8% (-87, -51)	-63; -46.2% (-84, -48)
	Total healthcare costs (£, millions)	163 (128, 206)	-2; -1.0% (-19, 11)	18; 11.1% (-2, 34)	90; 55.3% (68, 106)	13,933; 8573.6% (13,883, 13,972)
	ICER (Δ £/ Δ QALY)		-113 (-1,282, 780)	1,048 (-119, 2,103)	4,842 (3,412, 6,596)	792,437 (628,240, 981,103)
40	N	146,762 (146,509, 146,968)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	34,842 (32,136, 38,464)	-10,202; -29.3% (-11,234, -9,306)	-12,979; -37.3% (-14,259, -11,851)	-14,260; -40.9% (-15,571, -13,133)	-13,380; -38.4% (-14,792, -12,135)
	Deaths	60,856 (56,077, 66,488)	-2,422; -4.0% (-3,809, -1,312)	-3,106; -5.1% (-4,747, -1,821)	-3,423; -5.6% (-5,197, -2,035)	-3,209; -5.3% (-4,934, -1,872)
	YLL	3,169,356 (3,153,203, 3,183,300)	9,143; 0.29% (6,085, 12,573)	11,370; 0.36% (8,025, 15,260)	12,425; 0.39% (8,907, 16,445)	11,672; 0.37% (8,268, 15,697)
	QALYs	2,697,144 (2,447,556, 2,972,589)	13,237; 0.49% (10,160, 16,669)	16,334; 0.61% (12,785, 20,526)	17,793; 0.66% (14,114, 22,133)	16,834; 0.62% (13,214, 21,155)
	Medication costs (£, millions)	11 (11, 12)	47; 416.2% (47, 47)	76; 669.3% (76, 76)	146; 1285.4% (145, 146)	12,661; 111544.4% (12,601, 12,715)
	Acute MI costs (£, millions)	23 (16, 31)	-7; -28.4% (-9, -5)	-8; -35.7% (-11, -6)	-9; -39.0% (-12, -6)	-8; -36.8% (-12, -6)
	Chronic MI costs (£, millions)	173 (133, 224)	-47; -27.3% (-62, -36)	-59; -33.9% (-76, -45)	-64; -37.1% (-83, -49)	-60; -34.8% (-79, -46)
	Total healthcare costs (£, millions)	207 (166, 260)	-7; -3.2% (-22, 5)	9; 4.2% (-9, 23)	73; 35.1% (54, 88)	12,593; 6075.8% (12,527, 12,649)
	ICER (Δ £/ Δ QALY)		-503 (-1,693, 342)	556 (-525, 1,501)	4,060 (2,758, 5,618)	748,870 (595,278, 952,624)
50	N	143,639 (143,058, 144,130)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	32,958 (30,496, 36,353)	-6,168; -18.7% (-6,885, -5,512)	-8,311; -25.2% (-9,211, -7,525)	-9,334; -28.3% (-10,261, -8,457)	-8,626; -26.2% (-9,616, -7,708)
	Deaths	58,784 (54,328, 63,876)	-1,553; -2.6% (-2,376, -817)	-2,098; -3.6% (-3,119, -1,204)	-2,356; -4.0% (-3,467, -1,407)	-2,162; -3.7% (-3,268, -1,259)
	YLL	2,696,753 (2,676,891, 2,714,261)	6,776; 0.25% (3,569, 9,619)	8,848; 0.33% (5,505, 11,869)	9,821; 0.36% (6,414, 12,925)	9,160; 0.34% (5,805, 12,246)
	QALYs	2,220,877 (2,017,036, 2,448,685)	9,186; 0.41% (6,558, 11,829)	11,913; 0.54% (9,061, 14,955)	13,232; 0.60% (10,226, 16,454)	12,330; 0.56% (9,459, 15,564)
	Medication costs (£, millions)	15 (15, 15)	35; 233.3% (35, 35)	59; 396.8% (59, 60)	119; 794.7% (118, 120)	10,768; 72003.0% (10,688, 10,839)
	Acute MI costs (£, millions)	28 (20, 38)	-5; -17.7% (-7, -4)	-7; -23.5% (-9, -5)	-7; -26.2% (-10, -5)	-7; -24.4% (-9, -5)
	Chronic MI costs (£, millions)	197 (153, 251)	-33; -16.6% (-42, -25)	-42; -21.6% (-54, -33)	-47; -24.1% (-60, -37)	-44; -22.4% (-57, -34)
	Total healthcare costs (£, millions)	241 (197, 296)	-3; -1.1% (-13, 5)	10; 4.2% (-2, 20)	64; 26.6% (51, 75)	10,717; 4452.8% (10,635, 10,791)
	ICER (Δ £/ Δ QALY)		-287 (-1,414, 572)	850 (-214, 1,816)	4,831 (3,484, 6,680)	869,141 (687,402, 1,133,759)
60	N	136,088 (135,202, 136,908)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	28,236 (26,031, 31,380)	-2,652; -9.4% (-2,998, -2,363)	-3,995; -14.1% (-4,483, -3,597)	-4,642; -16.4% (-5,177, -4,211)	-4,198; -14.9% (-4,805, -3,692)
	Deaths	53,534 (49,563, 57,954)	-702; -1.3% (-989, -471)	-1,061; -2.0% (-1,476, -725)	-1,236; -2.3% (-1,724, -847)	-1,111; -2.1% (-1,576, -760)
	YLL	2,051,049 (2,028,353, 2,071,148)	2,897; 0.14% (2,280, 3,619)	4,227; 0.21% (3,426, 5,234)	4,889; 0.24% (3,944, 5,983)	4,421; 0.22% (3,576, 5,583)
	QALYs	1,631,927 (1,484,688, 1,800,069)	3,722; 0.23% (3,022, 4,548)	5,419; 0.33% (4,464, 6,599)	6,243; 0.38% (5,144, 7,594)	5,668; 0.35% (4,604, 7,020)
	Medication costs (£, millions)	17 (17, 17)	21; 121.5% (21, 21)	39; 230.2% (39, 40)	85; 494.6% (84, 85)	8,180; 47820.2% (8,090, 8,260)
	Acute MI costs (£, millions)	30 (22, 40)	-3; -8.7% (-4, -2)	-4; -13.0% (-5, -3)	-4; -15.0% (-6, -3)	-4; -13.6% (-6, -3)
	Chronic MI costs (£, millions)	178 (141, 224)	-14; -7.9% (-18, -11)	-20; -11.5% (-26, -16)	-24; -13.3% (-30, -19)	-21; -12.0% (-28, -17)
	Total healthcare costs (£, millions)	224 (187, 272)	4; 1.9% (0, 7)	15; 6.7% (9, 19)	57; 25.2% (50, 62)	8,154; 3632.7% (8,064, 8,236)
	ICER (Δ £/ Δ QALY)		1,149 (28, 2,134)	2,765 (1,631, 3,971)	9,021 (7,133, 11,310)	1,439,308 (1,160,604, 1,771,271)

Table 9.44: PSA results – Summary of all interventions – Males with LDL-C ≥4.0 mmol/L.

Age of intervention	Outcome	Absolute value Control	Difference to control Low/moderate intensity statins	High intensity statins	Low/moderate intensity statins and ezetimibe	Inclisiran
30	N	56,981 (56,981, 56,981)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	17,510 (16,204, 19,305)	-6,957; -39.7% (-7,622, -6,352)	-8,640; -49.3% (-9,408, -7,935)	-9,372; -53.5% (-10,205, -8,633)	-8,872; -50.7% (-9,816, -8,099)
	Deaths	24,574 (22,520, 27,205)	-1,550; -6.3% (-2,550, -791)	-1,948; -7.9% (-3,199, -1,035)	-2,112; -8.6% (-3,431, -1,159)	-2,006; -8.2% (-3,176, -1,084)
	YLL	1,346,798 (1,341,136, 1,351,103)	5,168; 0.38% (3,327, 7,240)	6,216; 0.46% (4,123, 8,659)	6,657; 0.49% (4,590, 9,136)	6,354; 0.47% (4,310, 8,733)
	QALYs	1,177,651 (1,069,735, 1,289,466)	7,824; 0.66% (6,039, 9,997)	9,401; 0.80% (7,344, 11,738)	10,101; 0.86% (7,923, 12,594)	9,609; 0.82% (7,492, 12,053)
	Medication costs (£, millions)	4 (4, 4)	21; 508.2% (21, 21)	33; 806.5% (33, 33)	63; 1532.6% (63, 63)	5,386; 131468.2% (5,369, 5,401)
	Acute MI costs (£, millions)	9 (6, 12)	-4; -40.2% (-5, -3)	-4; -49.1% (-6, -3)	-5; -52.8% (-6, -3)	-4; -50.2% (-6, -3)
	Chronic MI costs (£, millions)	70 (53, 92)	-28; -39.6% (-37, -21)	-33; -47.9% (-44, -26)	-36; -51.6% (-48, -28)	-34; -48.9% (-45, -26)
	Total healthcare costs (£, millions)	83 (65, 106)	-10; -12.6% (-20, -4)	-5; -5.8% (-16, 3)	22; 26.6% (10, 31)	5,347; 6459.7% (5,326, 5,364)
	ICER (Δ £/ Δ QALY)		-1,325 (-2,613, -467)	-501 (-1,714, 373)	2,182 (974, 3,447)	556,804 (443,243, 713,859)
40	N	56,412 (56,294, 56,526)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	17,146 (15,914, 18,824)	-5,060; -29.5% (-5,550, -4,581)	-6,530; -38.1% (-7,117, -5,982)	-7,218; -42.1% (-7,819, -6,641)	-6,746; -39.3% (-7,456, -6,130)
	Deaths	24,240 (22,241, 26,727)	-1,180; -4.9% (-1,862, -610)	-1,544; -6.4% (-2,387, -858)	-1,702; -7.0% (-2,608, -970)	-1,600; -6.6% (-2,459, -866)
	YLL	1,214,216 (1,206,721, 1,220,203)	4,907; 0.40% (3,132, 6,846)	6,098; 0.50% (4,242, 8,300)	6,662; 0.55% (4,678, 8,972)	6,257; 0.52% (4,348, 8,584)
	QALYs	1,030,526 (935,661, 1,136,234)	7,116; 0.69% (5,385, 8,977)	8,844; 0.86% (6,898, 11,069)	9,658; 0.94% (7,557, 11,963)	9,078; 0.88% (7,030, 11,402)
	Medication costs (£, millions)	6 (6, 6)	17; 300.2% (17, 17)	28; 496.7% (28, 28)	55; 974.8% (54, 55)	4,856; 86508.6% (4,831, 4,880)
	Acute MI costs (£, millions)	12 (8, 16)	-3; -29.3% (-5, -2)	-4; -37.2% (-6, -3)	-5; -40.6% (-6, -3)	-4; -38.4% (-6, -3)
	Chronic MI costs (£, millions)	88 (68, 115)	-25; -28.6% (-33, -19)	-32; -35.7% (-41, -24)	-34; -39.0% (-45, -26)	-32; -36.7% (-43, -25)
	Total healthcare costs (£, millions)	106 (85, 133)	-12; -11.3% (-20, -6)	-8; -7.6% (-18, -0)	16; 14.8% (5, 24)	4,819; 4563.8% (4,791, 4,843)
	ICER (Δ £/ Δ QALY)		-1,674 (-2,940, -783)	-905 (-2,107, -33)	1,604 (498, 2,693)	530,430 (421,881, 686,067)
50	N	54,944 (54,662, 55,199)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	16,160 (15,040, 17,697)	-2,907; -18.0% (-3,289, -2,546)	-4,042; -25.0% (-4,498, -3,627)	-4,574; -28.3% (-5,026, -4,127)	-4,196; -26.0% (-4,740, -3,719)
	Deaths	23,342 (21,498, 25,509)	-712; -3.1% (-1,171, -295)	-997; -4.3% (-1,518, -519)	-1,134; -4.9% (-1,698, -624)	-1,046; -4.5% (-1,593, -548)
	YLL	1,026,872 (1,018,000, 1,034,794)	3,499; 0.34% (1,716, 5,269)	4,613; 0.45% (2,744, 6,529)	5,118; 0.50% (3,234, 7,083)	4,767; 0.46% (2,867, 6,689)
	QALYs	842,417 (765,705, 929,393)	4,718; 0.56% (3,223, 6,355)	6,247; 0.74% (4,539, 8,090)	6,965; 0.83% (5,248, 8,889)	6,466; 0.77% (4,836, 8,352)
	Medication costs (£, millions)	7 (7, 8)	12; 155.2% (11, 12)	21; 280.5% (21, 21)	44; 585.4% (43, 44)	4,104; 55134.1% (4,068, 4,133)
	Acute MI costs (£, millions)	14 (10, 19)	-2; -17.4% (-3, -2)	-3; -23.7% (-5, -2)	-4; -26.6% (-5, -3)	-3; -24.6% (-5, -2)
	Chronic MI costs (£, millions)	100 (77, 129)	-17; -16.6% (-22, -13)	-22; -22.1% (-29, -17)	-25; -24.8% (-32, -19)	-23; -22.9% (-30, -18)
	Total healthcare costs (£, millions)	122 (99, 151)	-8; -6.3% (-13, -3)	-5; -3.7% (-12, 1)	15; 12.4% (8, 21)	4,077; 3352.8% (4,041, 4,107)
	ICER (Δ £/ Δ QALY)		-1,601 (-2,976, -699)	-727 (-1,925, 108)	2,158 (1,011, 3,450)	631,317 (487,580, 847,443)
60	N	51,396 (50,944, 51,798)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	13,668 (12,658, 15,053)	-1,069; -7.8% (-1,218, -936)	-1,776; -13.0% (-1,984, -1,590)	-2,116; -15.5% (-2,345, -1,917)	-1,880; -13.8% (-2,167, -1,644)
	Deaths	20,993 (19,427, 22,731)	-277; -1.3% (-393, -176)	-466; -2.2% (-650, -314)	-554; -2.6% (-773, -380)	-492; -2.3% (-700, -333)
	YLL	770,069 (760,425, 778,810)	1,297; 0.17% (973, 1,647)	2,021; 0.26% (1,622, 2,510)	2,361; 0.31% (1,881, 2,927)	2,118; 0.28% (1,684, 2,740)
	QALYs	610,362 (554,408, 673,532)	1,677; 0.27% (1,317, 2,101)	2,599; 0.43% (2,111, 3,186)	3,034; 0.50% (2,497, 3,712)	2,734; 0.45% (2,194, 3,419)
	Medication costs (£, millions)	9 (8, 9)	6; 66.6% (6, 6)	13; 148.3% (13, 13)	30; 347.2% (29, 30)	3,071; 35934.5% (3,034, 3,105)
	Acute MI costs (£, millions)	15 (11, 20)	-1; -7.5% (-2, -1)	-2; -12.1% (-2, -1)	-2; -14.3% (-3, -2)	-2; -12.7% (-3, -1)
	Chronic MI costs (£, millions)	88 (70, 111)	-6; -7.0% (-8, -5)	-10; -11.0% (-12, -8)	-11; -12.9% (-14, -9)	-10; -11.5% (-13, -8)
	Total healthcare costs (£, millions)	112 (93, 136)	-2; -1.4% (-3, -0)	1; 1.1% (-2, 3)	16; 14.5% (13, 19)	3,059; 2741.4% (3,021, 3,094)
	ICER (Δ £/ Δ QALY)		-937 (-2,119, -74)	469 (-630, 1,401)	5,269 (3,826, 6,955)	1,117,871 (892,194, 1,394,101)

Table 9.45: PSA results – Summary of all interventions – Males with LDL-C ≥5.0 mmol/L.

Age of intervention	Outcome	Absolute value Control	Difference to control Low/moderate intensity statins	High intensity statins	Low/moderate intensity statins and ezetimibe	Inclisiran
30	N	9,188 (9,188, 9,188)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	3,872 (3,594, 4,209)	-1,476; -38.1% (-1,635, -1,319)	-1,896; -49.0% (-2,072, -1,721)	-2,082; -53.8% (-2,270, -1,905)	-1,954; -50.5% (-2,149, -1,750)
	Deaths	4,168 (3,762, 4,724)	-312; -7.5% (-565, -103)	-411; -9.9% (-708, -172)	-454; -10.9% (-765, -197)	-425; -10.2% (-732, -175)
	YLL	216,191 (215,004, 217,101)	1,288; 0.60% (625, 1,971)	1,570; 0.73% (864, 2,281)	1,694; 0.78% (979, 2,457)	1,608; 0.74% (890, 2,322)
	QALYs	188,277 (171,004, 206,193)	1,995; 1.06% (1,352, 2,628)	2,414; 1.28% (1,726, 3,101)	2,595; 1.38% (1,896, 3,322)	2,468; 1.31% (1,781, 3,189)
	Medication costs (£, millions)	1 (1, 1)	3; 329.3% (3, 3)	5; 540.2% (5, 5)	10; 1053.2% (10, 10)	866; 92812.4% (863, 870)
	Acute MI costs (£, millions)	2 (1, 3)	-1; -40.4% (-1, -1)	-1; -50.2% (-1, -1)	-1; -54.5% (-2, -1)	-1; -51.4% (-1, -1)
	Chronic MI costs (£, millions)	17 (13, 22)	-7; -41.4% (-9, -5)	-8; -50.1% (-11, -6)	-9; -54.1% (-12, -7)	-9; -51.4% (-12, -7)
	Total healthcare costs (£, millions)	20 (16, 26)	-5; -23.7% (-7, -3)	-4; -22.4% (-7, -2)	-0; -2.2% (-4, 2)	857; 4313.2% (852, 861)
	ICER (Δ £/ Δ QALY)		-2,390 (-3,998, -1,407)	-1,854 (-3,269, -938)	-164 (-1,407, 755)	347,777 (268,089, 481,998)
40	N	9,062 (9,026, 9,094)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	3,783 (3,518, 4,087)	-1,004; -26.5% (-1,140, -866)	-1,366; -36.1% (-1,517, -1,214)	-1,536; -40.6% (-1,688, -1,379)	-1,420; -37.5% (-1,592, -1,246)
	Deaths	4,101 (3,718, 4,616)	-218; -5.3% (-412, -58)	-308; -7.5% (-529, -123)	-348; -8.5% (-588, -158)	-321; -7.8% (-547, -130)
	YLL	193,771 (192,057, 195,054)	1,165; 0.60% (447, 1,875)	1,479; 0.76% (757, 2,223)	1,624; 0.84% (900, 2,384)	1,525; 0.79% (781, 2,274)
	QALYs	163,522 (148,324, 180,102)	1,731; 1.06% (1,129, 2,324)	2,184; 1.34% (1,558, 2,867)	2,394; 1.46% (1,753, 3,121)	2,248; 1.37% (1,596, 2,965)
	Medication costs (£, millions)	1 (1, 1)	2; 182.0% (2, 2)	4; 320.8% (4, 4)	8; 658.1% (8, 8)	777; 60977.4% (771, 782)
	Acute MI costs (£, millions)	3 (2, 4)	-1; -28.0% (-1, -1)	-1; -36.4% (-1, -1)	-1; -40.5% (-1, -1)	-1; -37.8% (-1, -1)
	Chronic MI costs (£, millions)	21 (16, 28)	-6; -28.5% (-8, -4)	-8; -36.4% (-10, -6)	-8; -40.0% (-11, -6)	-8; -37.5% (-11, -6)
	Total healthcare costs (£, millions)	25 (20, 32)	-4; -17.7% (-7, -3)	-5; -18.2% (-7, -3)	-1; -4.5% (-4, 1)	768; 3046.5% (761, 773)
	ICER (Δ £/ Δ QALY)		-2,568 (-4,604, -1,582)	-2,078 (-3,670, -1,159)	-486 (-1,759, 483)	341,588 (258,456, 479,655)
50	N	8,726 (8,649, 8,792)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	3,520 (3,284, 3,787)	-477; -13.5% (-597, -357)	-752; -21.3% (-878, -627)	-879; -25.0% (-1,008, -749)	-789; -22.4% (-929, -650)
	Deaths	3,915 (3,571, 4,358)	-114; -2.9% (-256, 26)	-182; -4.6% (-336, -39)	-216; -5.5% (-376, -63)	-192; -4.9% (-347, -45)
	YLL	161,545 (159,411, 163,431)	709; 0.44% (52, 1,386)	1,000; 0.62% (316, 1,684)	1,143; 0.71% (465, 1,843)	1,042; 0.64% (355, 1,737)
	QALYs	131,669 (119,367, 145,225)	986; 0.75% (431, 1,537)	1,388; 1.05% (814, 1,948)	1,571; 1.19% (1,006, 2,170)	1,443; 1.10% (862, 2,056)
	Medication costs (£, millions)	2 (2, 2)	1; 79.0% (1, 1)	3; 167.1% (3, 3)	6; 381.3% (6, 6)	646; 38666.8% (638, 653)
	Acute MI costs (£, millions)	3 (2, 4)	-0; -14.2% (-1, -0)	-1; -21.0% (-1, -0)	-1; -24.3% (-1, -1)	-1; -22.0% (-1, -0)
	Chronic MI costs (£, millions)	23 (18, 30)	-3; -14.4% (-5, -2)	-5; -20.5% (-6, -3)	-5; -23.4% (-7, -4)	-5; -21.4% (-7, -4)
	Total healthcare costs (£, millions)	28 (23, 35)	-3; -8.9% (-4, -1)	-3; -9.4% (-4, -1)	0; 0.5% (-2, 2)	641; 2264.1% (632, 648)
	ICER (Δ £/ Δ QALY)		-2,539 (-6,127, -1,204)	-1,948 (-3,886, -865)	86 (-1,155, 1,191)	444,613 (310,148, 744,599)
60	N	7,923 (7,800, 8,038)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
	Incident MIs	2,888 (2,689, 3,126)	-85; -2.9% (-119, -53)	-251; -8.7% (-291, -211)	-331; -11.5% (-377, -288)	-275; -9.5% (-337, -220)
	Deaths	3,432 (3,160, 3,751)	-21; -0.6% (-41, 0)	-64; -1.9% (-98, -35)	-85; -2.5% (-128, -48)	-70; -2.0% (-110, -39)
	YLL	117,405 (115,154, 119,547)	152; 0.13% (47, 266)	333; 0.28% (202, 469)	420; 0.36% (274, 577)	356; 0.30% (228, 518)
	QALYs	92,479 (83,467, 102,183)	199; 0.22% (113, 292)	430; 0.46% (316, 565)	542; 0.59% (407, 692)	465; 0.50% (338, 619)
	Medication costs (£, millions)	2 (2, 2)	0; 21.1% (0, 0)	1; 80.6% (1, 1)	4; 225.5% (4, 4)	468; 26121.2% (459, 476)
	Acute MI costs (£, millions)	3 (2, 4)	-0; -3.3% (-0, -0)	-0; -8.4% (-0, -0)	-0; -10.8% (-0, -0)	-0; -9.1% (-0, -0)
	Chronic MI costs (£, millions)	20 (15, 25)	-1; -3.5% (-1, -0)	-2; -7.9% (-2, -1)	-2; -10.0% (-3, -1)	-2; -8.6% (-2, -1)
	Total healthcare costs (£, millions)	25 (20, 30)	-0; -1.7% (-1, -0)	-0; -1.5% (-1, 0)	2; 7.0% (1, 2)	466; 1895.5% (457, 474)
	ICER (Δ £/ Δ QALY)		-2,073 (-4,344, -659)	-872 (-2,224, 103)	3,138 (1,727, 4,952)	1,004,317 (748,935, 1,381,204)

I think it would also be nice to have another concise summary tables to present in the main body of the paper to demonstrate the changes in outcomes by sex and LDL-C. Thus, I will make a table containing only the incremental QALYs and costs (per person), by intervention, sex, and LDL-C.

```
forval s = 0/1 {
foreach l in 0 3 4 5 {
clear
gen sim =.
forval psa = 1/1000 {
append using PSA/PSA_sex_`s´_ldl_`l´_PSA_`psa´
recode sim .=`psa´
}
keep if A2 == 1 | A2 == 5 | A2 == 9 | A2 == 10
bysort sim A1 (A2) : replace D1 = D1/A4[1] if A2 != 10
bysort sim A1 (A2) : replace D2 = D2/A4[1] if A2 != 10
bysort sim A1 (A2) : replace D3 = D3/A4[1] if A2 != 10
bysort sim A1 (A2) : replace D4 = D4/A4[1] if A2 != 10
foreach a of varlist D1-D4 {
forval i = 30(10)60 {
foreach ii in 5 9 10 {
centile `a´ if A1 == `i´ & A2 == `ii´, centile(50 2.5 97.5)
if `i´ == 30 & `ii´ == 5 {
matrix A`a´ = (r(c_1),r(c_2),r(c_3))
}
else {
matrix A`a´ = (A`a´\r(c_1),r(c_2),r(c_3))
}
}
}
}
drop if sim !=1
drop if A2 == 1
keep A1 A2
svmat double AD1
svmat double AD2
svmat double AD3
svmat double AD4
gen sex = `s´
gen ldl = `l´
save sumtable_`s´_`l´, replace
}
}
clear
forval s = 0/1 {
foreach l in 0 3 4 5 {
append using sumtable_`s´_`l´
}
}
foreach i in 11 12 13 21 22 23 31 32 33 41 42 43 {
tostring AD`i´, gen(AD`i´1) force format(%9.3f)
tostring AD`i´, gen(AD`i´2) force format(%9.1fc)
tostring AD`i´, gen(AD`i´3) force format(%9.0fc)
gen BD`i´ = AD`i´1 if A2 == 5
replace BD`i´ = AD`i´2 if A2 == 9
replace BD`i´ = AD`i´3 if A2 == 10
drop AD`i´-AD`i´1
}
forval i = 1/4 {
gen C`i´ = BD`i´1 + " (" + BD`i´2 + ", " + BD`i´3 + ")"
}
keep A1-ldl C1-C4
reshape long C, i(A1 A2 sex ldl) j(intn)
reshape wide C, i(sex intn A1 A2) j(ldl)
gen A0 = ""
replace A0 = "QALYs (per person)" if A2 == 5
```

```
replace A0 = "Total healthcare costs (\textsterling, per person)" if A2 == 9
replace A0 = "ICER ($\Delta$ \textsterling / $\Delta$ QALY)" if A2 == 10
gen A00 =""
bysort sex intn A1 (A2) : replace A00 = "30" if _n == 1 & A1 == 30
bysort sex intn A1 (A2) : replace A00 = "40" if _n == 1 & A1 == 40
bysort sex intn A1 (A2) : replace A00 = "50" if _n == 1 & A1 == 50
bysort sex intn A1 (A2) : replace A00 = "60" if _n == 1 & A1 == 60
gen A000 = ""
bysort sex intn (A1 A2) : replace A000 = "\specialcell{\noindent Low/moderate \\ intensity statins}"
>  if intn == 1 & _n == 1
bysort sex intn (A1 A2) : replace A000 = "High intensity statins" if intn == 2 & _n == 1
bysort sex intn (A1 A2) : replace A000 = "\specialcell{\noindent Low/moderate intensity \\ statins a
> nd ezetimibe}" if intn == 3 & _n == 1
bysort sex intn (A1 A2) : replace A000 = "Inclisiran" if intn == 4 & _n == 1
order A000 A00 A0 C0 C3 C4 C5
preserve
keep if sex == 0
keep A000-C5
export delimited using CSV/Res_HOF_PSA_sum0.csv, delimiter(":") novarnames replace
restore
keep if sex == 1
keep A000-C5
export delimited using CSV/Res_HOF_PSA_sum1.csv, delimiter(":") novarnames replace
```

Table 9.46: Summary of all interventions by LDL-C – Females.

Intervention	Age of intervention	Outcome	LDL-C			
			All	≥3.0 mmol/L	≥4.0 mmol/L	≥5.0 mmol/L
Low/moderate intensity statins	30	QALYs (per person)	0.029 (0.019, 0.041)	0.034 (0.023, 0.049)	0.050 (0.033, 0.071)	0.085 (0.048, 0.127)
		Total healthcare costs (£, per person)	269.6 (229.4, 298.5)	245.3 (196.4, 279.6)	161.1 (90.1, 213.8)	-6.1 (-138.0, 81.2)
		ICER (Δ £/ Δ QALY)	9,283 (6,437, 14,329)	7,108 (4,835, 11,147)	3,212 (1,701, 5,394)	-81 (-1,654, 1,150)
	40	QALYs (per person)	0.027 (0.018, 0.038)	0.032 (0.021, 0.045)	0.048 (0.030, 0.067)	0.077 (0.038, 0.117)
		Total healthcare costs (£, per person)	215.8 (178.9, 243.6)	191.8 (146.9, 225.6)	103.6 (38.6, 153.8)	-61.9 (-180.8, 26.4)
		ICER (Δ £/ Δ QALY)	7,858 (5,237, 12,661)	5,891 (3,822, 9,348)	2,174 (772, 4,216)	-808 (-2,760, 350)
	50	QALYs (per person)	0.020 (0.011, 0.030)	0.024 (0.013, 0.036)	0.035 (0.018, 0.054)	0.053 (0.017, 0.089)
		Total healthcare costs (£, per person)	169.3 (139.5, 191.3)	148.8 (112.7, 174.7)	71.3 (20.9, 109.3)	-54.6 (-143.0, 17.8)
		ICER (Δ £/ Δ QALY)	8,289 (5,382, 15,390)	6,059 (3,823, 11,639)	2,034 (581, 4,737)	-1,016 (-3,896, 342)
	60	QALYs (per person)	0.010 (0.008, 0.013)	0.012 (0.009, 0.015)	0.015 (0.012, 0.020)	0.016 (0.011, 0.023)
		Total healthcare costs (£, per person)	125.1 (111.7, 135.6)	111.7 (95.3, 124.2)	55.1 (33.9, 71.2)	-4.5 (-33.4, 16.6)
		ICER (Δ £/ Δ QALY)	12,564 (9,196, 16,779)	9,318 (6,688, 12,637)	3,600 (2,014, 5,594)	-278 (-1,888, 1,262)
High intensity statins	30	QALYs (per person)	0.035 (0.024, 0.048)	0.041 (0.029, 0.057)	0.060 (0.041, 0.083)	0.100 (0.062, 0.147)
		Total healthcare costs (£, per person)	461.6 (414.3, 496.0)	433.3 (377.2, 474.0)	336.7 (254.7, 397.0)	138.0 (-9.3, 240.8)
		ICER (Δ £/ Δ QALY)	13,315 (9,503, 19,615)	10,512 (7,462, 15,690)	5,612 (3,721, 8,720)	1,388 (-87, 3,045)
	40	QALYs (per person)	0.034 (0.023, 0.045)	0.040 (0.027, 0.053)	0.058 (0.039, 0.079)	0.096 (0.057, 0.140)
		Total healthcare costs (£, per person)	386.3 (342.3, 419.5)	356.6 (303.8, 397.5)	252.5 (173.9, 313.0)	49.8 (-84.9, 156.1)
		ICER (Δ £/ Δ QALY)	11,505 (8,171, 17,059)	8,932 (6,466, 13,257)	4,309 (2,677, 6,898)	511 (-890, 1,973)
	50	QALYs (per person)	0.026 (0.016, 0.036)	0.031 (0.020, 0.044)	0.046 (0.027, 0.065)	0.071 (0.032, 0.109)
		Total healthcare costs (£, per person)	315.4 (278.4, 343.5)	289.9 (245.2, 322.6)	195.3 (132.1, 243.9)	30.8 (-78.7, 116.9)
		ICER (Δ £/ Δ QALY)	11,995 (8,443, 19,451)	9,169 (6,464, 15,067)	4,262 (2,627, 7,986)	414 (-1,178, 2,014)
	60	QALYs (per person)	0.014 (0.011, 0.019)	0.017 (0.014, 0.022)	0.023 (0.018, 0.030)	0.030 (0.022, 0.041)
		Total healthcare costs (£, per person)	244.5 (226.0, 260.0)	226.7 (203.9, 245.1)	156.2 (125.6, 181.6)	65.2 (24.4, 99.6)
		ICER (Δ £/ Δ QALY)	17,049 (12,767, 22,241)	13,178 (9,818, 17,354)	6,708 (4,723, 9,419)	2,144 (650, 4,024)
Low/moderate intensity statins and ezetimibe	30	QALYs (per person)	0.037 (0.026, 0.050)	0.044 (0.031, 0.060)	0.064 (0.044, 0.089)	0.107 (0.068, 0.156)
		Total healthcare costs (£, per person)	979.6 (928.5, 1,016.7)	949.0 (889.5, 993.4)	847.3 (759.2, 911.1)	635.9 (482.7, 747.0)
		ICER (Δ £/ Δ QALY)	26,376 (19,310, 37,842)	21,602 (15,635, 30,967)	13,181 (9,516, 19,386)	5,890 (3,687, 9,882)
	40	QALYs (per person)	0.036 (0.025, 0.049)	0.043 (0.031, 0.057)	0.063 (0.044, 0.085)	0.104 (0.065, 0.150)
		Total healthcare costs (£, per person)	858.6 (809.2, 895.0)	826.6 (767.0, 870.3)	714.9 (630.0, 780.4)	493.3 (346.3, 609.6)
		ICER (Δ £/ Δ QALY)	23,551 (17,473, 34,269)	19,173 (14,317, 27,283)	11,275 (8,122, 16,897)	4,748 (2,820, 8,195)
	50	QALYs (per person)	0.029 (0.019, 0.040)	0.035 (0.022, 0.048)	0.050 (0.031, 0.072)	0.079 (0.040, 0.120)
		Total healthcare costs (£, per person)	728.4 (687.9, 758.6)	700.4 (651.6, 735.3)	597.0 (528.0, 650.3)	415.1 (294.5, 508.9)
		ICER (Δ £/ Δ QALY)	25,135 (18,214, 38,610)	20,096 (14,528, 31,155)	11,792 (8,325, 19,776)	5,168 (3,136, 10,694)
	60	QALYs (per person)	0.016 (0.013, 0.021)	0.020 (0.015, 0.025)	0.027 (0.021, 0.035)	0.037 (0.028, 0.048)
		Total healthcare costs (£, per person)	580.7 (559.1, 598.0)	560.6 (534.4, 581.1)	483.2 (447.9, 511.5)	376.0 (325.1, 417.4)
		ICER (Δ £/ Δ QALY)	35,275 (26,881, 45,193)	28,440 (21,619, 36,735)	17,706 (13,702, 23,275)	10,049 (7,142, 14,075)
Inclisiran	30	QALYs (per person)	0.035 (0.024, 0.049)	0.042 (0.029, 0.058)	0.061 (0.042, 0.085)	0.102 (0.064, 0.151)
		Total healthcare costs (£, per person)	95,682.7 (95,443.0, 95,881.4)	95,641.6 (95,397.1, 95,845.2)	95,506.6 (95,260.1, 95,724.0)	95,236.6 (94,927.1, 95,509.2)
		ICER (Δ £/ Δ QALY)	2,706,488 (1,969,551, 3,926,770)	2,290,220 (1,652,351, 3,262,681)	1,563,320 (1,122,363, 2,283,469)	933,248 (630,417, 1,479,150)
	40	QALYs (per person)	0.034 (0.024, 0.046)	0.041 (0.029, 0.055)	0.060 (0.041, 0.081)	0.098 (0.059, 0.143)
		Total healthcare costs (£, per person)	87,817.9 (87,573.3, 88,027.0)	87,768.3 (87,516.0, 87,988.6)	87,600.3 (87,321.9, 87,844.5)	87,276.7 (86,929.3, 87,589.7)
		ICER (Δ £/ Δ QALY)	2,545,380 (1,887,241, 3,726,175)	2,147,789 (1,600,091, 3,066,778)	1,464,046 (1,075,493, 2,157,394)	887,716 (608,579, 1,476,516)
	50	QALYs (per person)	0.027 (0.017, 0.038)	0.032 (0.021, 0.046)	0.047 (0.028, 0.067)	0.074 (0.035, 0.113)
		Total healthcare costs (£, per person)	77,117.4 (76,865.6, 77,336.8)	77,062.2 (76,800.1, 77,279.8)	76,877.8 (76,603.6, 77,118.9)	76,526.0 (76,164.5, 76,835.5)
		ICER (Δ £/ Δ QALY)	2,874,104 (2,047,217, 4,553,995)	2,383,131 (1,681,769, 3,708,045)	1,634,746 (1,139,990, 2,713,538)	1,037,877 (679,485, 2,188,117)
	60	QALYs (per person)	0.015 (0.012, 0.020)	0.018 (0.014, 0.024)	0.024 (0.019, 0.032)	0.032 (0.024, 0.044)
		Total healthcare costs (£, per person)	62,736.7 (62,480.0, 62,967.3)	62,682.1 (62,422.3, 62,914.5)	62,494.9 (62,208.9, 62,741.8)	62,157.2 (61,803.3, 62,464.5)
		ICER (Δ £/ Δ QALY)	4,195,768 (3,183,393, 5,397,560)	3,488,957 (2,663,533, 4,507,392)	2,565,053 (1,977,680, 3,346,184)	1,927,322 (1,422,921, 2,632,635)

Table 9.47: Summary of all interventions by LDL-C – Males.

Intervention	Age of intervention	Outcome	LDL-C			
			All	≥3.0 mmol/L	≥4.0 mmol/L	≥5.0 mmol/L
Low/moderate intensity statins	30	QALYs (per person)	0.080 (0.064, 0.102)	0.097 (0.076, 0.123)	0.137 (0.106, 0.175)	0.217 (0.147, 0.286)
		Total healthcare costs (£, per person)	50.2 (-44.0, 121.6)	-11.2 (-126.5, 75.2)	-183.1 (-353.1, -63.1)	-512.8 (-792.4, -314.7)
		ICER (Δ £/ Δ QALY)	622 (-562, 1,590)	-113 (-1,282, 780)	-1,325 (-2,613, -467)	-2,390 (-3,998, -1,407)
	40	QALYs (per person)	0.075 (0.058, 0.094)	0.090 (0.069, 0.114)	0.126 (0.095, 0.159)	0.191 (0.125, 0.256)
		Total healthcare costs (£, per person)	12.2 (-72.5, 74.2)	-45.4 (-146.9, 31.0)	-211.3 (-354.7, -101.9)	-491.4 (-733.3, -315.7)
		ICER (Δ £/ Δ QALY)	169 (-981, 1,051)	-503 (-1,693, 342)	-1,674 (-2,940, -783)	-2,568 (-4,604, -1,582)
	50	QALYs (per person)	0.052 (0.037, 0.069)	0.064 (0.046, 0.082)	0.086 (0.059, 0.116)	0.113 (0.050, 0.176)
		Total healthcare costs (£, per person)	22.0 (-35.9, 66.0)	-19.0 (-88.3, 36.7)	-138.6 (-242.5, -62.4)	-288.6 (-446.0, -153.9)
		ICER (Δ £/ Δ QALY)	422 (-698, 1,353)	-287 (-1,414, 572)	-1,601 (-2,976, -699)	-2,539 (-6,127, -1,204)
	60	QALYs (per person)	0.022 (0.018, 0.027)	0.027 (0.022, 0.033)	0.033 (0.026, 0.041)	0.025 (0.014, 0.037)
		Total healthcare costs (£, per person)	50.3 (26.6, 68.2)	31.3 (0.8, 53.9)	-30.6 (-67.8, -2.3)	-52.6 (-97.7, -15.0)
		ICER (Δ £/ Δ QALY)	2,330 (1,153, 3,468)	1,149 (28, 2,134)	-937 (-2,119, -74)	-2,073 (-4,344, -659)
High intensity statins	30	QALYs (per person)	0.097 (0.078, 0.122)	0.116 (0.093, 0.146)	0.165 (0.129, 0.206)	0.263 (0.188, 0.338)
		Total healthcare costs (£, per person)	196.0 (85.2, 282.4)	122.4 (-11.1, 226.8)	-83.5 (-277.0, 60.6)	-484.0 (-807.5, -255.0)
		ICER (Δ £/ Δ QALY)	1,986 (820, 3,194)	1,048 (-119, 2,103)	-501 (-1,714, 373)	-1,854 (-3,269, -938)
	40	QALYs (per person)	0.093 (0.073, 0.116)	0.111 (0.087, 0.140)	0.157 (0.122, 0.196)	0.241 (0.172, 0.316)
		Total healthcare costs (£, per person)	132.2 (29.1, 211.6)	60.0 (-58.5, 155.2)	-142.4 (-327.8, -5.5)	-505.5 (-794.0, -284.4)
		ICER (Δ £/ Δ QALY)	1,433 (288, 2,511)	556 (-525, 1,501)	-905 (-2,107, -33)	-2,078 (-3,670, -1,159)
	50	QALYs (per person)	0.068 (0.052, 0.087)	0.083 (0.063, 0.104)	0.114 (0.083, 0.147)	0.159 (0.093, 0.223)
		Total healthcare costs (£, per person)	124.0 (53.2, 178.9)	70.1 (-15.2, 138.5)	-82.8 (-211.5, 11.4)	-305.7 (-505.6, -144.3)
		ICER (Δ £/ Δ QALY)	1,809 (729, 2,959)	850 (-214, 1,816)	-727 (-1,925, 108)	-1,948 (-3,886, -865)
	60	QALYs (per person)	0.032 (0.027, 0.039)	0.040 (0.033, 0.048)	0.051 (0.041, 0.062)	0.054 (0.040, 0.072)
		Total healthcare costs (£, per person)	139.0 (104.1, 165.2)	110.4 (68.2, 142.6)	23.8 (-32.2, 64.7)	-47.5 (-120.2, 5.6)
		ICER (Δ £/ Δ QALY)	4,320 (3,050, 5,694)	2,765 (1,631, 3,971)	469 (-630, 1,401)	-872 (-2,224, 103)
Low/moderate intensity statins and ezetimibe	30	QALYs (per person)	0.105 (0.084, 0.130)	0.125 (0.101, 0.156)	0.177 (0.139, 0.221)	0.282 (0.206, 0.362)
		Total healthcare costs (£, per person)	687.3 (563.6, 780.3)	607.7 (462.6, 718.1)	386.4 (178.8, 540.3)	-47.3 (-384.5, 195.8)
		ICER (Δ £/ Δ QALY)	6,566 (4,864, 8,698)	4,842 (3,412, 6,596)	2,182 (974, 3,447)	-164 (-1,407, 755)
	40	QALYs (per person)	0.101 (0.080, 0.126)	0.121 (0.096, 0.151)	0.171 (0.134, 0.212)	0.264 (0.194, 0.344)
		Total healthcare costs (£, per person)	574.0 (465.3, 660.5)	495.9 (368.0, 599.6)	276.3 (89.6, 423.2)	-125.5 (-431.9, 114.2)
		ICER (Δ £/ Δ QALY)	5,658 (4,132, 7,590)	4,060 (2,758, 5,618)	1,604 (498, 2,693)	-486 (-1,759, 483)
	50	QALYs (per person)	0.076 (0.058, 0.096)	0.092 (0.071, 0.115)	0.127 (0.096, 0.162)	0.179 (0.116, 0.248)
		Total healthcare costs (£, per person)	506.1 (428.1, 568.6)	445.8 (353.7, 521.6)	274.1 (137.7, 378.9)	15.4 (-198.8, 183.7)
		ICER (Δ £/ Δ QALY)	6,631 (4,920, 8,961)	4,831 (3,484, 6,680)	2,158 (1,011, 3,450)	86 (-1,155, 1,191)
	60	QALYs (per person)	0.037 (0.031, 0.045)	0.046 (0.038, 0.056)	0.059 (0.048, 0.072)	0.068 (0.052, 0.088)
		Total healthcare costs (£, per person)	449.3 (409.5, 479.3)	415.7 (366.7, 452.7)	314.9 (251.6, 362.6)	216.5 (132.9, 282.0)
		ICER (Δ £/ Δ QALY)	12,015 (9,651, 14,910)	9,021 (7,133, 11,310)	5,269 (3,826, 6,955)	3,138 (1,727, 4,952)
Inclisiran	30	QALYs (per person)	0.099 (0.079, 0.125)	0.119 (0.096, 0.150)	0.169 (0.131, 0.212)	0.269 (0.194, 0.347)
		Total healthcare costs (£, per person)	94,257.2 (93,939.8, 94,512.6)	94,143.5 (93,806.3, 94,408.2)	93,845.9 (93,463.9, 94,130.2)	93,244.6 (92,747.1, 93,657.7)
		ICER (Δ £/ Δ QALY)	950,312 (751,702, 1,186,725)	792,437 (628,240, 981,103)	556,804 (443,243, 713,859)	347,777 (268,089, 481,998)
	40	QALYs (per person)	0.095 (0.074, 0.120)	0.115 (0.090, 0.144)	0.161 (0.125, 0.202)	0.248 (0.176, 0.328)
		Total healthcare costs (£, per person)	85,946.7 (85,612.2, 86,219.5)	85,809.4 (85,448.1, 86,094.5)	85,437.9 (85,044.4, 85,775.5)	84,723.5 (84,183.4, 85,178.5)
		ICER (Δ £/ Δ QALY)	901,580 (716,602, 1,154,873)	748,870 (595,278, 952,624)	530,430 (421,881, 686,067)	341,588 (258,456, 479,655)
	50	QALYs (per person)	0.070 (0.053, 0.090)	0.086 (0.066, 0.109)	0.118 (0.088, 0.152)	0.165 (0.099, 0.236)
		Total healthcare costs (£, per person)	74,768.5 (74,430.5, 75,089.6)	74,610.6 (74,257.4, 74,929.3)	74,191.8 (73,779.5, 74,537.4)	73,419.2 (72,879.4, 73,924.8)
		ICER (Δ £/ Δ QALY)	1,060,317 (833,271, 1,398,079)	869,141 (687,402, 1,133,759)	631,317 (487,580, 847,443)	444,613 (310,148, 744,599)
	60	QALYs (per person)	0.034 (0.028, 0.042)	0.042 (0.034, 0.051)	0.053 (0.043, 0.067)	0.059 (0.043, 0.079)
		Total healthcare costs (£, per person)	60,072.5 (59,709.4, 60,403.2)	59,921.2 (59,540.4, 60,250.9)	59,522.6 (59,096.4, 59,880.7)	58,811.7 (58,258.0, 59,295.0)
		ICER (Δ £/ Δ QALY)	1,781,228 (1,438,102, 2,184,265)	1,439,308 (1,160,604, 1,771,271)	1,117,871 (892,194, 1,394,101)	1,004,317 (748,935, 1,381,204)

9.6 Results: Simulations in a CE plane

Finally, as the last result from the PSA, the results of the simulations can be presented in a common CE plane.

```
clear
gen sim =.
forval psa = 1/1000 {
append using PSA/PSA_overall_PSA_`psa´
recode sim .=`psa´
}
keep if A2 == 1 | A2 == 5 | A2 == 9
bysort sim A1 (A2) : replace D1 = D1/A4[1]
bysort sim A1 (A2) : replace D2 = D2/A4[1]
bysort sim A1 (A2) : replace D3 = D3/A4[1]
bysort sim A1 (A2) : replace D4 = D4/A4[1]
drop if A2 == 1
keep sim A1 A2 D1-D4
reshape wide D1-D4, i(A1 sim) j(A2)
save PSAscatter0, replace
use inferno, clear
local col1 = var5[5]
local col2 = var5[4]
local col3 = var5[3]
local col4 = var5[2]
use PSAscatter0, clear
forval i = 30(10)60 {
twoway ///
(scatter D19 D15 if A1 == `i´, msize(vsmall) col("`col1´")) ///
(scatter D29 D25 if A1 == `i´, msize(vsmall) col("`col2´")) ///
(scatter D39 D35 if A1 == `i´, msize(vsmall) col("`col3´")) ///
(scatter D49 D45 if A1 == `i´, msize(vsmall) col("`col4´")) ///
(function y = x*20000, ra(0 0.1) col(magenta)) ///
(function y = x*30000, ra(0 0.1) col(magenta) lpattern(dash)) ///
, graphregion(color(white)) ///
legend(order(1 "Low/moderate intensity statins" ///
2 "High intensity statins" ///
3 "Low/moderate intensity statins and ezetimibe" ///
4 "Inclisiran") ///
cols(1) ring(0) position(9) region(lcolor(white) color(none))) ///
ytitle("Incremental costs (£ per person)") xtitle("Incremental QALYs (per person)") ///
ylabel(,angle(0) format(%9.0fc)) xlabel(, format(%9.2f)) ///
title("Intervention from age `i´", col(black) size(medium) placement(west))
graph save "Graph" GPH/PSAscatter0_`i´, replace
}


graph combine ///
GPH/PSAscatter0_30.gph ///
GPH/PSAscatter0_40.gph ///
GPH/PSAscatter0_50.gph ///
GPH/PSAscatter0_60.gph ///
, graphregion(color(white)) altshrink cols(1) xsize(1.5)
```

Right, so I think it's worth repeating that figure (figure 9.19) without Inclisiran, so the other interventions can be seen.

```
use inferno, clear
local col1 = var5[5]
local col2 = var5[4]
local col3 = var5[3]
use PSAscatter0, clear
forval i = 30(10)60 {
twoway ///
(scatter D19 D15 if A1 == `i´, msize(vsmall) col("`col1´")) ///
(scatter D29 D25 if A1 == `i´, msize(vsmall) col("`col2´")) ///
(scatter D39 D35 if A1 == `i´, msize(vsmall) col("`col3´")) ///
```

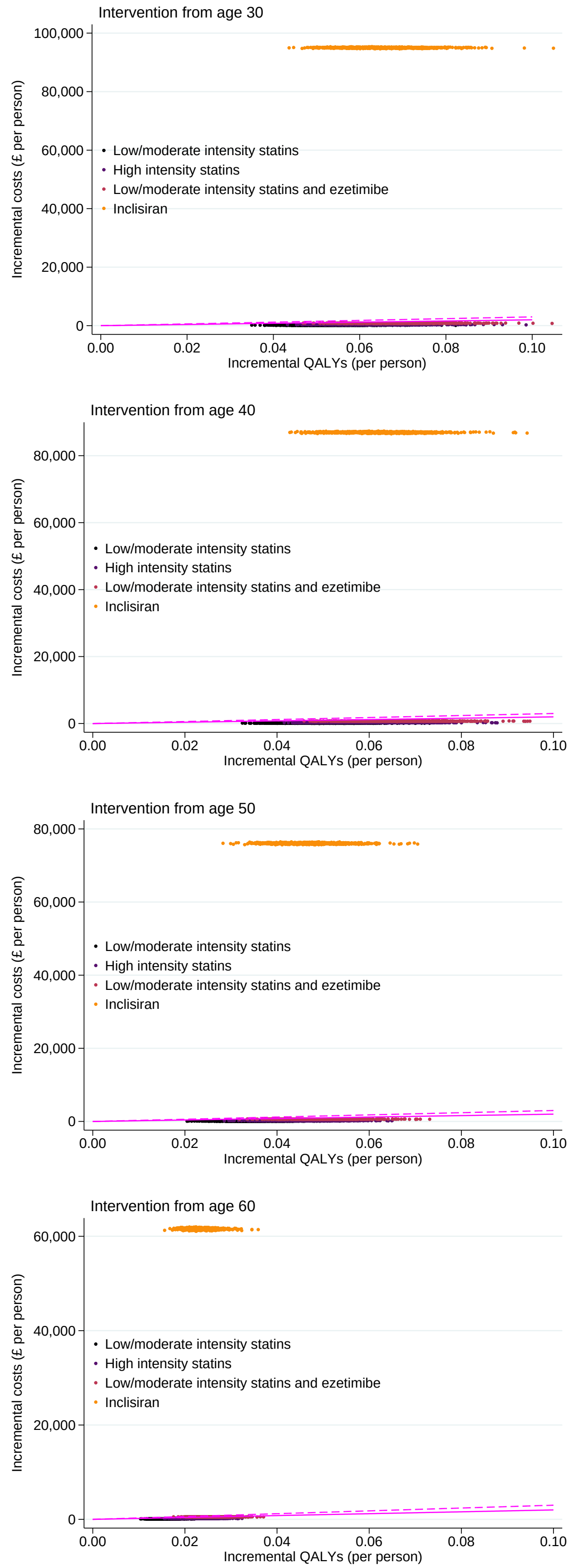

Figure 9.19: PSA simulations presented in a common cost-effectiveness plane, by age of intervention.

```
(function y = x*20000, ra(0 0.05) col(magenta)) ///
(function y = x*30000, ra(0 0.0333) col(magenta) lpattern(dash)) ///
, graphregion(color(white)) ///
legend(order(1 "Low/moderate intensity statins" ///
2 "High intensity statins" ///
3 "Low/moderate intensity statins and ezetimibe") ///
cols(1) ring(0) position(10) region(lcolor(white) color(none))) ///
ytitle("Incremental costs (£ per person)") xtitle("Incremental QALYs (per person)") ///
ylabel(0(200)1000, angle(0) format(%9.0fc)) xlabel(0(0.02)0.1, format(%9.2f)) ///
yscale(range(0 1300)) xscale(range(0 0.11)) ///
title("Intervention from age `i´", col(black) size(medium) placement(west))
graph save "Graph" GPH/PSAscatter1_`i´, replace
}


graph combine ///
GPH/PSAscatter1_30.gph ///
GPH/PSAscatter1_40.gph ///
GPH/PSAscatter1_50.gph ///
GPH/PSAscatter1_60.gph ///
, graphregion(color(white)) altshrink cols(1) xsize(1.5)
use PSAscatter0, clear
gen ICER1 = D19/D15
gen ICER2 = D29/D25
gen ICER3 = D39/D35
forval i = 30(10)60 {
forval ii = 1/3 {
count if ICER`ii´ < 30000 & A1 == `i´
count if ICER`ii´ < 20000 & A1 == `i´
count if ICER`ii´ < 0 & A1 == `i´
}
}
```

Much better (figure 9.20). These three interventions are cost-effective at both thresholds at all ages, with the exception of low/moderate intensity statins and ezetimibe at age 60, where 100% of simulations are cost-effective at the £30,000 per QALY willingness-to-pay threshold, but only 50% meet the £20,000 threshold. Additionally, in the total population, none of the interventions are cost-saving. Inclisiran is not cost-effective in any simulation.

As usual, let's now stratify by sex.

```
clear
gen sim =.
gen sex =.
forval s = 0/1 {
forval psa = 1/1000 {
append using PSA/PSA_sex_`s´_ldl_0_PSA_`psa´
recode sim .=`psa´
}
recode sex .=`s´
}
keep if A2 == 1 | A2 == 5 | A2 == 9
bysort sex sim A1 (A2) : replace D1 = D1/A4[1]
bysort sex sim A1 (A2) : replace D2 = D2/A4[1]
bysort sex sim A1 (A2) : replace D3 = D3/A4[1]
bysort sex sim A1 (A2) : replace D4 = D4/A4[1]
drop if A2 == 1
keep sex sim A1 A2 D1-D4
reshape wide D1-D4, i(sex A1 sim) j(A2)
save PSAscattersex, replace
forval s = 0/1 {
if `s´ == 0 {
use inferno, clear
local ss = "Females"
}
else {
use viridis, clear
```

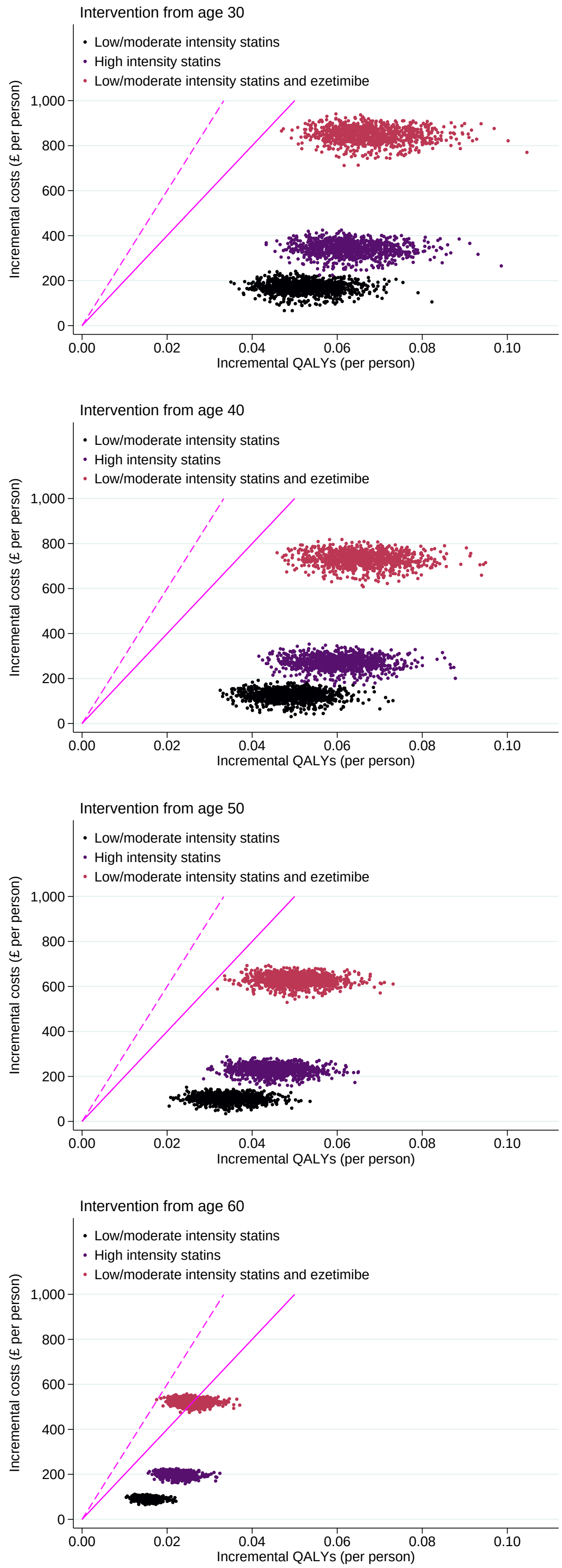

Figure 9.20: PSA simulations presented in a common cost-effectiveness plane, by age of intervention, excluding Inclisiran. Solid line: £20,000 per QALY willingness-to-pay threshold; dashed line: £30,000 per QALY willingness-to-pay threshold

```
local ss = "Males"
}
local col1 = var5[5]
local col2 = var5[4]
local col3 = var5[3]
local col4 = var5[2]
use PSAscattersex, clear
keep if sex == `s´
forval i = 30(10)60 {
twoway ///
(scatter D19 D15 if A1 == `i´, msize(vsmall) col("`col1´")) ///
(scatter D29 D25 if A1 == `i´, msize(vsmall) col("`col2´")) ///
(scatter D39 D35 if A1 == `i´, msize(vsmall) col("`col3´")) ///
(scatter D49 D45 if A1 == `i´, msize(vsmall) col("`col4´")) ///
(function y = x*20000, ra(0 0.15) col(magenta)) ///
(function y = x*30000, ra(0 0.15) col(magenta) lpattern(dash)) ///
, graphregion(color(white)) ///
legend(order(1 "Low/moderate intensity statins" ///
2 "High intensity statins" ///
3 "Low/moderate intensity statins and ezetimibe" ///
4 "Inclisiran") ///
cols(1) ring(0) position(3) region(lcolor(white) color(none))) ///
ytitle("Incremental costs (£ per person)") xtitle("Incremental QALYs (per person)") ///
ylabel(,angle(0) format(%9.0fc)) xlabel(0(0.02)0.14, format(%9.2f)) ///
yscale(range(0 50000)) ylabel(0(10000)50000, format(%9.0fc)) xscale(range(0 0.15)) ///
title("Intervention from age `i´ - `ss´", col(black) size(medium) placement(west))
graph save "Graph" GPH/PSAscatter0sex_`s´_`i´, replace
twoway ///
(scatter D19 D15 if A1 == `i´, msize(vsmall) col("`col1´")) ///
(scatter D29 D25 if A1 == `i´, msize(vsmall) col("`col2´")) ///
(scatter D39 D35 if A1 == `i´, msize(vsmall) col("`col3´")) ///
(function y = x*20000, ra(0 0.05) col(magenta)) ///
(function y = x*30000, ra(0 0.0333) col(magenta) lpattern(dash)) ///
, graphregion(color(white)) ///
legend(order(1 "Low/moderate intensity statins" ///
2 "High intensity statins" ///
3 "Low/moderate intensity statins and ezetimibe") ///
cols(1) ring(0) position(10) region(lcolor(white) color(none))) ///
ytitle("Incremental costs (£ per person)") xtitle("Incremental QALYs (per person)") ///
ylabel(0(200)1000, angle(0) format(%9.0fc)) xlabel(0(0.02)0.14, format(%9.2f)) ///
yscale(range(-100 1300)) yline(0, lcol(black)) xscale(range(0 0.15)) ///
title("Intervention from age `i´ - `ss´", col(black) size(medium) placement(west))
graph save "Graph" GPH/PSAscatter1sex_`s´_`i´, replace
}
}


graph combine ///
GPH/PSAscatter0sex_0_30.gph ///
GPH/PSAscatter0sex_1_30.gph ///
GPH/PSAscatter0sex_0_40.gph ///
GPH/PSAscatter0sex_1_40.gph ///
GPH/PSAscatter0sex_0_50.gph ///
GPH/PSAscatter0sex_1_50.gph ///
GPH/PSAscatter0sex_0_60.gph ///
GPH/PSAscatter0sex_1_60.gph ///
, graphregion(color(white)) altshrink cols(2) xsize(3.3)
> common cost-effectiveness plane, by age of intervention and sex.)
graph combine ///
GPH/PSAscatter1sex_0_30.gph ///
GPH/PSAscatter1sex_1_30.gph ///
GPH/PSAscatter1sex_0_40.gph ///
GPH/PSAscatter1sex_1_40.gph ///
GPH/PSAscatter1sex_0_50.gph ///
GPH/PSAscatter1sex_1_50.gph ///
GPH/PSAscatter1sex_0_60.gph ///
GPH/PSAscatter1sex_1_60.gph ///
, graphregion(color(white)) altshrink cols(2) xsize(3.3)
> common cost-effectiveness plane, by age of intervention and sex, excluding Inclisiran. Solid line:
```

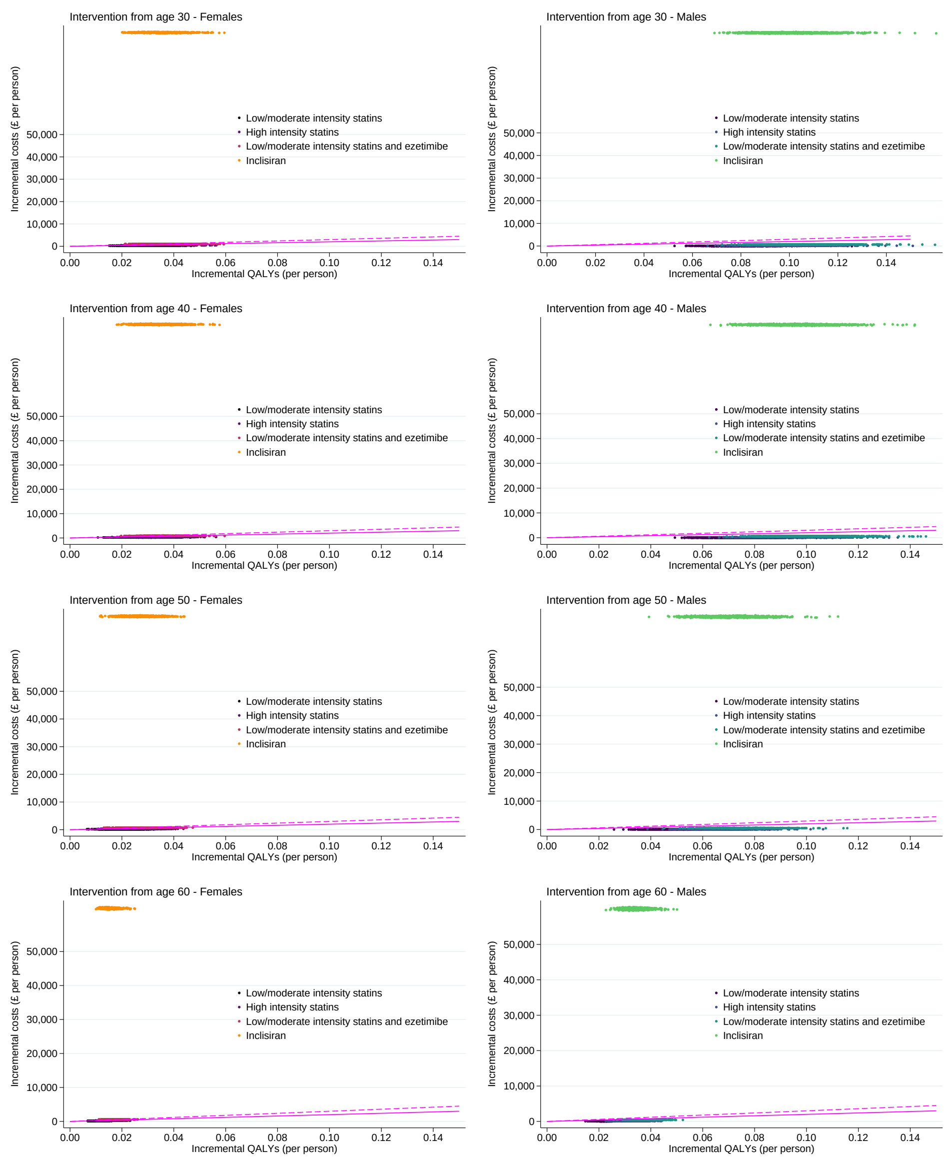

Figure 9.21: PSA simulations presented in a common cost-effectiveness plane, by age of intervention and sex.

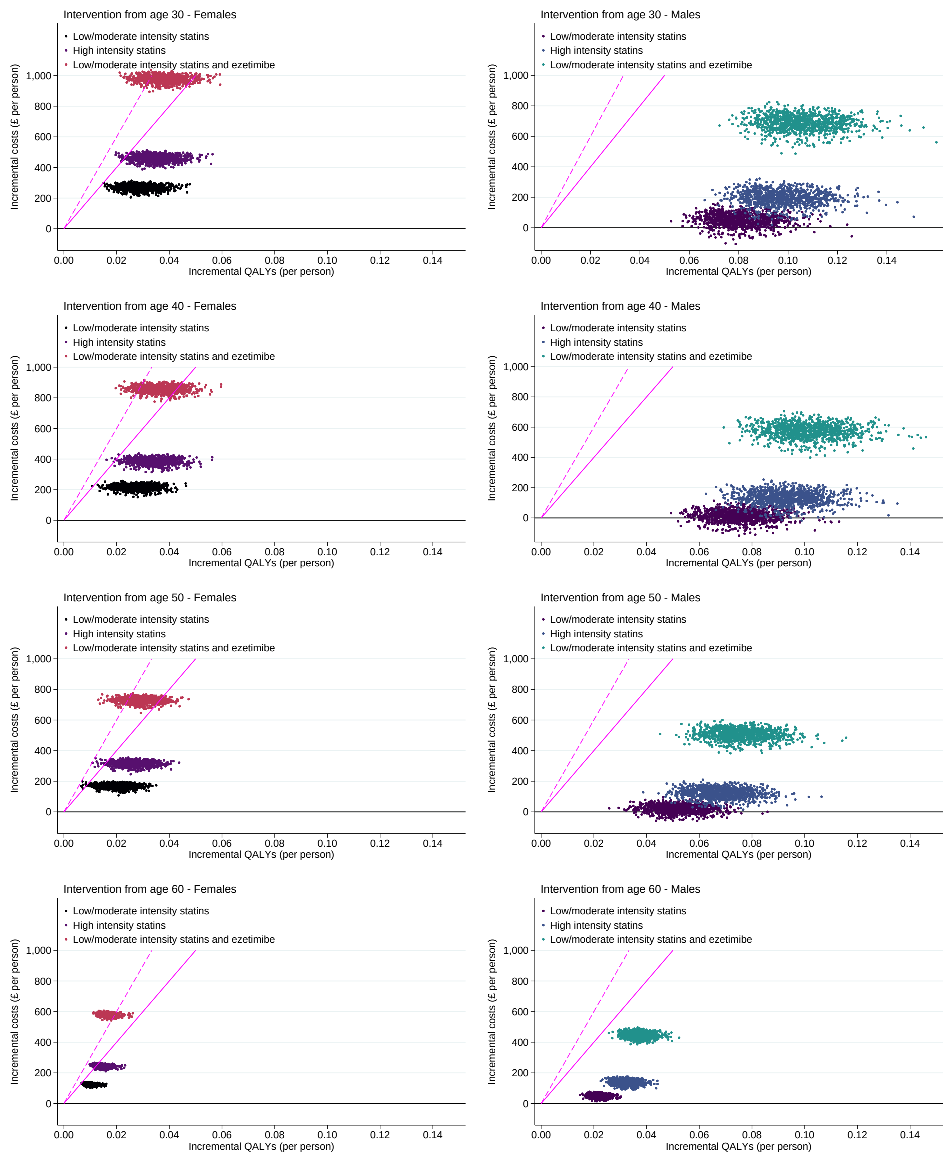

Figure 9.22: PSA simulations presented in a common cost-effectiveness plane, by age of intervention and sex, excluding Inclisiran. Solid line: £20,000 per QALY willingness-to-pay threshold; dashed line: £30,000 per QALY willingness-to-pay threshold

```
> \textsterling 20,000 per QALY willingness-to-pay threshold; dashed line: \textsterling 30,000 per
> QALY willingness-to-pay threshold)
```

This is much more interesting (figure 9.22) – all simulations are cost-effective for the first three interventions in males at all ages, whereas only the first have most simulations under both willingness-to-pay thresholds. By LDL-C:

```
foreach l in 3 4 5 {
clear
gen sim =.
gen sex =.
forval s = 0/1 {
forval psa = 1/1000 {
append using PSA/PSA_sex_`s´_ldl_`l´_PSA_`psa´
recode sim .=`psa´
}
recode sex .=`s´
}
keep if A2 == 1 | A2 == 5 | A2 == 9
bysort sex sim A1 (A2) : replace D1 = D1/A4[1]
bysort sex sim A1 (A2) : replace D2 = D2/A4[1]
bysort sex sim A1 (A2) : replace D3 = D3/A4[1]
bysort sex sim A1 (A2) : replace D4 = D4/A4[1]
drop if A2 == 1
keep sex sim A1 A2 D1-D4
reshape wide D1-D4, i(sex A1 sim) j(A2)
save PSAscattersex_ldl_`l´, replace
forval s = 0/1 {
if `s´ == 0 {
use inferno, clear
local ss = "Females"
}
else {
use viridis, clear
local ss = "Males"
}
local col1 = var5[5]
local col2 = var5[4]
local col3 = var5[3]
local col4 = var5[2]
use PSAscattersex_ldl_`l´, clear
keep if sex == `s´
forval i = 30(10)60 {
twoway ///
(scatter D19 D15 if A1 == `i´, msize(vsmall) col("`col1´")) ///
(scatter D29 D25 if A1 == `i´, msize(vsmall) col("`col2´")) ///
(scatter D39 D35 if A1 == `i´, msize(vsmall) col("`col3´")) ///
(scatter D49 D45 if A1 == `i´, msize(vsmall) col("`col4´")) ///
(function y = x*20000, ra(0 0.4) col(magenta)) ///
(function y = x*30000, ra(0 0.4) col(magenta) lpattern(dash)) ///
, graphregion(color(white)) ///
legend(order(1 "Low/moderate intensity statins" ///
2 "High intensity statins" ///
3 "Low/moderate intensity statins and ezetimibe" ///
4 "Inclisiran") ///
cols(1) ring(0) position(3) region(lcolor(white) color(none))) ///
ytitle("Incremental costs (£ per person)") xtitle("Incremental QALYs (per person)") ///
ylabel(0(10000)50000,angle(0) format(%9.0fc)) xlabel(, format(%9.2f)) ///
yscale(range(0 50000)) ///
title("Intervention from age `i´ - `ss´ with LDL-C `l´.0 mmol/L", col(black) size(medium) placement
> (west))
graph save "Graph" GPH/PSAscatter0sexldl_`s´_`l´_`i´, replace
twoway ///
(scatter D19 D15 if A1 == `i´, msize(vsmall) col("`col1´")) ///
(scatter D29 D25 if A1 == `i´, msize(vsmall) col("`col2´")) ///
(scatter D39 D35 if A1 == `i´, msize(vsmall) col("`col3´")) ///
(function y = x*20000, ra(0 0.05) col(magenta)) ///
```

Figure 9.23: PSA simulations presented in a common cost-effectiveness plane, by age of intervention and LDL-C. Females.

```
(function y = x*30000, ra(0 0.0333) col(magenta) lpattern(dash)) ///
, graphregion(color(white)) ///
legend(order(1 "Low/moderate intensity statins" ///
2 "High intensity statins" ///
3 "Low/moderate intensity statins and ezetimibe") ///
cols(1) ring(0) position(10) region(lcolor(white) color(none))) ///
ytitle("Incremental costs (£ per person)") xtitle("Incremental QALYs (per person)") ///
ylabel(-1000(200)1000, angle(0) format(%9.0fc)) xlabel(0(0.1)0.4, format(%9.2f)) ///
yscale(range(-1200 1600)) yline(0, lcol(black)) xscale(range(0 0.45)) ///
title("Intervention from age `i´ - `ss´ with LDL-C `l´.0 mmol/L", col(black) size(medium) placement
> (west))
graph save "Graph" GPH/PSAscatter1sexldl_`s´_`l´_`i´, replace
}
}
}


graph combine ///
GPH/PSAscatter0sexldl_0_3_30.gph ///
GPH/PSAscatter0sexldl_0_4_30.gph ///
GPH/PSAscatter0sexldl_0_5_30.gph ///
```

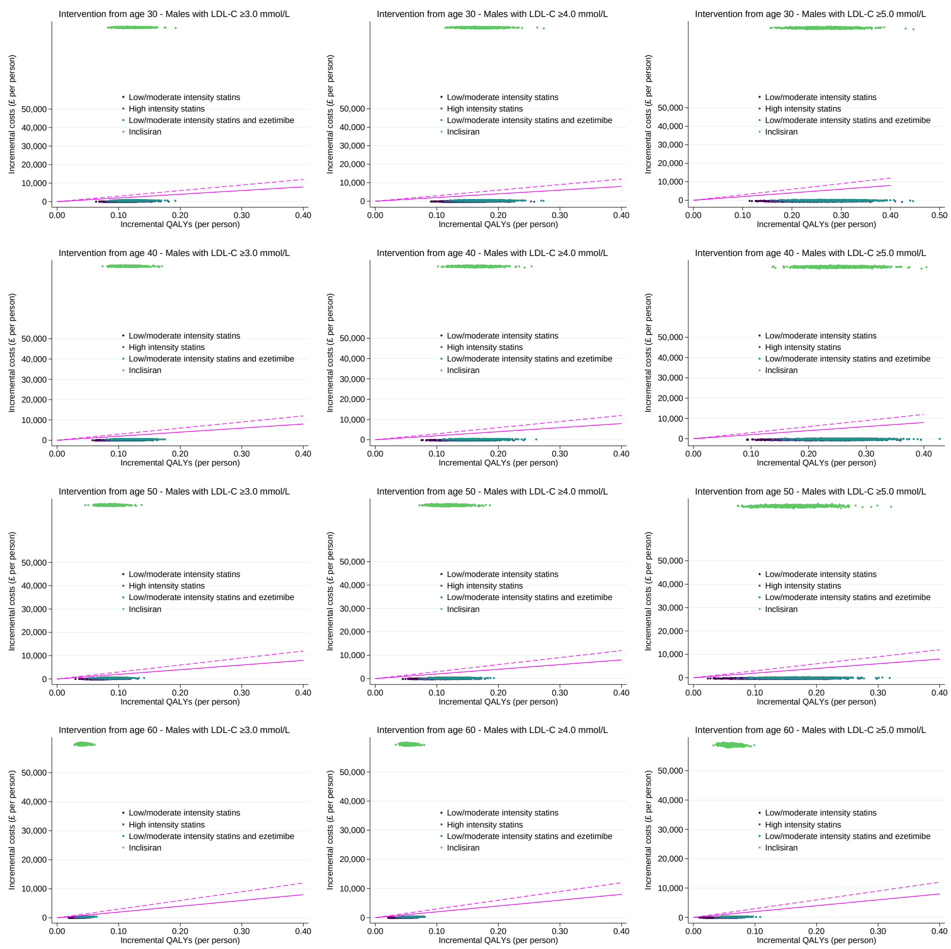

Figure 9.24: PSA simulations presented in a common cost-effectiveness plane, by age of intervention and LDL-C. Males.