Numerical values to check:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Expected value | Value from model (ver 1) | Value from model (ver 2, after revising HCC incidence rate)  **Control** | Value from model (ver 2, after revising HCC incidence rate)  **Intervention** | Reference |
| Checking age/timeline: |  |  |  |  |  |
| Average age of developing HCC | ~68-73 years | 63.594 | 64.1 years | 64.0 years | [Huang 2020](https://www.nature.com/articles/s41575-020-00381-6)  [Mohamad 2016](https://link.springer.com/article/10.1007/s12072-015-9679-0) |
| Average age of developing cirrhosis | ~65 years | 63.484 | 63.9 years | 63.2 years | [Orman 2019](https://pmc.ncbi.nlm.nih.gov/articles/PMC6604080/#H1-3-ZOI190254) |
| Average age of death from HCC | ~75 years (around 2 years after HCC diagnosis) | Around 1.949 years after diagnosis | Around 3 years after HCC diagnosis | Around 3.4 years after HCC diagnosis | [Yang 2023](https://pmc.ncbi.nlm.nih.gov/articles/PMC10315789/) |
| Average age of death from MASLD (no HCC or cirrhosis) | ~79 years (Should be similar to general population) | 78.3005 | 78.2 years | 78.1 years | [Konyn 2022](https://pmc.ncbi.nlm.nih.gov/articles/PMC10029952/) |
| Checking final outcomes: |  |  |  |  |  |
| 10-year incidence of cirrhosis (censored) | ~10% | 8.23% | 8.2% | 8.7% | [Le 2024](https://pmc.ncbi.nlm.nih.gov/articles/PMC11016479/) |
| 10-year incidence of HCC | ~0.21-6% | 6.78% | 5.6% | 6% | [Huang 2020](https://www.nature.com/articles/s41575-020-00381-6) |
| % Developed cirrhosis (censored) over lifetime | ~1.4-29.8% | 19.83% |  |  | [Loomba 2020](https://pubmed.ncbi.nlm.nih.gov/32372515/) (Medicare data)  [Kanwal 2018](https://pmc.ncbi.nlm.nih.gov/articles/PMC6279617/" \l "S20) (VA database) |
| % Developed HCC over lifetime | 38.0% (our number will be lower since this data was pulled from a study with NASH patients) | 16.59% |  |  | [Stine 2018](https://onlinelibrary.wiley.com/doi/full/10.1111/apt.14937) (meta analysis for non-cirrhotic NASH) |
| 5-year survival rate for patients that developed HCC | ~22% | 23.6% | 24.9% | 34.2%, 36.9%, 35.8%, 34.0%, 35.3% | [American Cancer Society](https://www.cancer.org/cancer/types/liver-cancer/detection-diagnosis-staging/survival-rates.html) |
| Median survival time for patients that developed HCC | 28-36 months | 24 months | 2.0 years | 3.0 years | [Vitellius 2024](https://www.sciencedirect.com/science/article/pii/S2589555924001642)  (French multicenter) |
| Average cost of care across lifetime for people who had HCC | Greater than $155K |  |  |  | [Kaplan 2019](https://pmc.ncbi.nlm.nih.gov/articles/PMC5735018/#S9) |

Ok to not take into account recurrence???

* # of years of post HCC survival is overall, not just disease free survival.
* In terms of cost, the paper we use (by Tapper) doesn’t specify if recurrence was counted but lists first, second, and even third treatment. In this study, the sum of HCC therapies were recorded and patients were followed up from 2003 to 2013 so long term recurrence data is not available.
* However, both [Parikh](https://pmc.ncbi.nlm.nih.gov/articles/PMC7541544/#R52) and [Singal](https://karger.com/lic/article/13/6/643/909485/Cost-Effectiveness-of-a-Biomarker-Based-Screening) CEA papers don’t take into account recurrence
* See the DM MASLD paper, which includes recurrence node

Trends to check:

* Transition state over time
  + Show a line for each health state: No cirrhosis, cirrhosis, HCC, death
  + X axis: Time step (years)
  + Y axis: Percent of patients in that health state