We will focus on the 2011 data as the development set with M-fold cross-validation.

Do NOT include the following variables in any models (except for Model 1.1):

ragender raeduc\_c r1mstat r1rural r1tr20 r1height r1weight

Exclude persons aged <40 or >85 years in all models

Do NOT include walking speed in any models

Model 1: All variables highlighted in the codebook

Model 1.1: All variables highlighted in the codebook + sex (ragender)

Model 1.2: All variables for male

Model 1.3: All variables for female

Model 2: Only biomarkers

Model 3: biomarkers + chronic disease

Model 4: biomarkers + chronic disease + self-reported functional limitation

Model 5: biomarkers + chronic disease + self-reported functional limitation + cognition/depression

Calculate the performance indices (R-square, MAE, and accuracy) for each model (a total of 8); calculate accuracy using two ranges: 5 years and 10 year

Generate the output (predicted age) for each model

Apply the algorithm to the 2015 data and calculate the model performance indices

**Appendix 1: Codebook of variables in 2011**

Variable Obs Unique Mean Min Max Label

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ID 10137 10137 . . . Individual ID

householdID 10137 6740 . . . Household ID

r1agey 10137 62 58.93262 22 95 r1agey:w1 r age in years

ragender 10137 2 1.542468 1 2 ragender:R Gender 1=male 2=female

peakflow 9717 424 259.5237 30 580 peak flow (lung funciton)

grip 9925 405 32.25369 0 56 handgrip strength (kg)

walktime 4361 1241 4.658757 1.975 14.84 seconds walking 2.4 meters

r1bmi 9946 9271 23.53294 11.6463 62.89308 r1bmi:w1 r body mass index=kg/m2

sysbp 10012 319 130.6777 92 193 systolic blood pressure

diabp 10024 201 75.82179 50 112 diastolic blood pressure

pulse 10025 173 72.35327 50.33333 102.3333 heart beat per minute

qc1\_vb002 9905 577 6.239644 3.1 12.2 White Blood Cell in Thousands

qc1\_vb006 9910 600 90.67895 64.4 109.8 MCV

qc1\_vb009 9908 343 211.8677 71 417 Platelets

newbun 9972 744 15.6839 7.67474 29.46652 Blood Urea Nitrogen (BUN) (mg/dl)

newglu 9951 801 109.6332 63.9 276.12 Glucose (mg/dl)

newcrea 9948 84 .7775872 .4294 1.3673 Creatinine (mg/dl)

newcho 9965 473 193.158 115.98 300.7748 Total Cholesterol (mg/dl)

newtg 9966 488 130.9581 38.055 540.735 Triglycerides (mg/dl)

newhdl 9973 194 50.96317 22.4228 97.0366 Hdl Cholesterol (mg/dl)

newldl 9955 444 116.2025 37.8868 210.3104 Ldl Cholesterol (mg/dl)

newcrp 9974 1086 2.527635 .19 37.02 C-Reactive Protein (CRP) (mg/l)

newhba1c 10032 51 5.250459 4.1 9.1 Glycated Hemoglobin (%)

newua 9974 2510 4.443 2.142 8.15976 Uric Acid (mg/dl)

qc1\_vb005 10129 584 41.40992 26.77 57.6 Hematocrit

qc1\_vb004 9907 126 14.33202 9.3 21.8 Hemoglobin (g/dl)

cystatinc 7592 137 1.018757 .55 1.91 Cystatin C (mg/l)

r1dressa 10038 2 .0480175 0 1 r1dressa:w1 r Some Diff-Dressing

r1batha 10030 2 .0596211 0 1 r1batha:w1 r Some Diff-Bathing, shower

r1eata 10038 2 .0260012 0 1 r1eata:w1 r Some Diff-Eating

r1beda 10037 2 .0512105 0 1 r1beda:w1 r Some Diff-Get in/out bed

r1toilta 10038 2 .1207412 0 1 r1toilta:w1 r Some Diff-Using the toilet

r1urina 10037 2 .0422437 0 1 Some Diff-controling urination and defecation

r1moneya 10099 2 .1288246 0 1 r1moneya:w1 r Some Diff-Managing money

r1medsa 10115 2 .0672269 0 1 r1medsa:w1 r Some Diff-Take medications

r1shopa 10108 2 .0835972 0 1 r1shopa:w1 r Some Diff-Shop for grocery

r1mealsa 10123 2 .0786328 0 1 r1mealsa:w1 r Some Diff-Prepare hot meal

r1housewka 10122 2 .0870381 0 1 r1housewka:w1 r Some Diff-cleaning house

r1joga 9974 2 .5337878 0 1 r1joga:w1 r Some Diff-Jog 1km

r1walk1kma 10120 2 .1527668 0 1 r1walk1kma:w1 r Some Diff-Walk 1km

r1walk100a 9487 2 .0171814 0 1 r1walk100a:w1 r Some Diff-Walk 100m

r1chaira 10127 2 .2889306 0 1 r1chaira:w1 r Some Diff-Get up fr chair

r1climsa 10045 2 .4195122 0 1 r1climsa:w1 r Some Diff-Clmb sev flt str

r1stoopa 10118 2 .3068788 0 1 r1stoopa:w1 r Some Diff-Stoop/Kneel/Crch

r1lifta 10122 2 .1153922 0 1 r1lifta:w1 r Some Diff-Lift/carry 10jin

r1dimea 10123 2 .0379334 0 1 r1dimea:w1 r Some Diff-Pick up a small coin

r1armsa 10128 2 .1022907 0 1 r1armsa:w1 r Some Diff-Rch/xtnd arms up

r1hibpe 10059 2 .2721941 0 1 r1hibpe:w1 r Ever had high blood pressure

r1diabe 10018 2 .0652825 0 1 r1diabe:w1 r ever had diabetes

r1cancre 10077 2 .0106182 0 1 r1cancre:w1 r ever had cancer

r1lunge 10081 2 .109017 0 1 r1lunge:w1 r ever had lung disease

r1hearte 10065 2 .1257824 0 1 r1hearte:w1 r ever had heart problem

r1stroke 10098 2 .0291147 0 1 r1stroke:w1 r ever had stroke

r1psyche 10085 2 .0136837 0 1 r1psyche:w1 r ever had psych problem

r1arthre 10104 2 .3664885 0 1 r1arthre:w1 r ever had arthritis

r1dyslipe 9887 2 .1004349 0 1 r1dyslipe:w1 r ever had dyslipidemia

r1livere 10040 2 .0368526 0 1 r1livere:w1 r ever had liver disease

r1kidneye 10053 2 .0635631 0 1 r1kidneye:w1 r ever had kidney disease

r1digeste 10095 2 .2383358 0 1 w1 r ever had stomach/digestive disease

r1asthmae 10090 2 .0498513 0 1 r1asthmae:w1 r ever had asthma

r1memrye 10096 2 .0185222 0 1 r1memrye:w1 r ever had memory problem

r1cesd10 10005 31 8.608796 0 30 r1cesd10:w1 r CESD Score (30=worst)

r1shlta 10124 5 3.066081 1 5 r1shlta:w1 r Self-report of health alt

r1slfmem 10000 5 4.1505 1 5 r1slfmem:w1 r Self-reported memory

r1imrc 9071 11 3.964613 0 10 r1imrc:w1 r immediate word recall

r1dlrc 9057 11 3.010379 0 10 r1dlrc:w1 r delayed word recall

r1ser7 9944 6 2.731195 0 5 r1ser7:w1 r serial 7s

r1orient 9774 5 2.880602 0 4 cognition orient (summary date naming)

r1draw 9904 2 .6190428 0 1 r cognition able to draw assign picture

r1tr20 9040 21 6.986173 0 20 r1tr20:w1 r recall summary score

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