**1. Coexist Variable**: agePopulationTotal

**Plain Name**: Total population by age

**Data-type**: array

**Description**: Population binned into 10 year blocks: 0-9,10-19,20-29,30-39,40-49,50-59,60-69,70-79,80+

**Example**:

array([6795024, 6455796, 7229763,…])

**Accessibility**: 9

**2. Coexist Variable**: ageSocialMixingBaseline

**Plain Name**: Social Mixing

**Data-type**: matrix

**Description**: PRE-COVID age-group mixing by age-group, This is assumed to be contacts per day

**Example**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Age\_group | 0-9 | 10-19 | …. | 80+ |
| 0-9 | 5.1 | 23.4 |  | xxx |
| 10-19 | xxx | xxx |  | xx |
| … |  |  |  |  |
| 80+ | xx | xx | xx | xxx |

**Accessibility**: 1…but can use proxy country (can perturb to see sensitivity)

**3. Coexist Variable**: ageSocialMixingDistancing

**Plain Name**: Social Mixing

**Data-type**:

**Description**: COVID Social distance measure, this is assumed to be contacts per day

**Example**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Age\_group | 0-9 | 10-19 | …. | 80+ |
| 0-9 | 1.2 | 3.4 |  | xxx |
| 10-19 | xxx | xxx |  | xx |
| … |  |  |  |  |
| 80+ | xx | xx | xx | xxx |

**Accessibility**: 1…but can use proxy country

**4. Coexist Variable**: travelAgeRateByTime

**Plain Name**: COVID spread by travel

**Data-type**: “Gamma distribution”

**Description**: infection rates due to travel are modelled as a gamma pdf over time, with given peak value, loc, and scale parameter

**Example**:

travelMaxTime = 200,

travelBaseRate = 5e-4, # How many people normally travel back to the country per day # TODO - get data

travelDecline\_mean = 15.,

travelDecline\_slope = 1.,

travelInfection\_peak = 1e-1,

travelInfection\_maxloc = 10.,

travelInfection\_shape = 2.,

**Accessibility**: 5…allow SMEs to experiment with gamma parameters

**5. Coexist Variable**: ageHospitalisationRateBaseline

**Plain Name**: Hospitalization rate by age

**Data-type**: “csv”

**Description**: Pre-COVID hospitalization rate by age. Pre-cleaned data from: <https://webarchive.nationalarchives.gov.uk/20180328130140/http://digital.nhs.uk/catalogue/PUB22378>.

Divide (by age) total episodes(admissions) by number of people in that age group:

hospitalization / (period in days \* population) -> frac of pop hospitalized per day

**Example**:

"","finishedAdmissionEpisodes","currentPopulation","ageRelativeHospitalisationDailyRates"

"0-9",612518,6714926,0.000249910647838757

"10-19",643932,6213584,0.000283925872777124

"20-29",1551717,7350225,0.000578387661881751

"30-39",1647005,7198946,0.00062680598878689

"40-49",1535305,7525823,0.000558917618510713

"50-59",1997061,7089322,0.000771780432599902

"60-69",2402483,5921856,0.00111150038188694

"70-79",2509541,4072848,0.00168811966332172

"80+",2170584,2621589,0.00226839732675566

**Accessibility**: 2…may be able to use similar rates for ETH? But access to healthcare probably very different. Good example of “SME enters data here”…dummy data to adjust

**6. Coexist Variable**: ageHospitalisationRecoveryRateBaseline

**Plain Name**: Days in hospital by age

**Data-type**: “csv”

**Description**: inverse of mean length of stay in days

**Example**:

"","ageHospitalMeanLengthOfStay"

"X0.9",2.10579187936635

"X10.19",2.65063498238851

"X20.29",2.89942111934977

"X30.39",3.18883613417824

"X40.49",4.59120400299236

"X50.59",4.89649393827581

"X60.69",5.58822799090735

"X70.79",6.609347027628

"X80+",8.91421251152901

**Accessibility**: ?? Need to see what type of hospital data is available for ETH. “SME enters data here”…dummy data to adjust

**7. Coexist Variable**: ageNhsClinicalStaffPopulationRatio

**Plain Name**: Number of hospital workers

**Data-type**: “csv”

**Description**: Take into account the NHS work-force in hospitals that for our purposes count as "hospitalised S" population, also unaffected by quarantine measures.

Looks to be a uniform distribution over “working-age” age groups

**Example**:

"","ageNhsClinicalStaffPopulationRatio"

"1",0

"2",0

"3",0.0190378420307579

"4",0.0190378420307579

"5",0.0190378420307579

"6",0.0190378420307579

"7",0.0190378420307579

"8",0

"9",0

**Accessibility**: 8…Get overall demo of number of ETH healthcare workers and distribute evenly across reasonable age-groups.

**8. Coexist Variable**: relativeAdmissionRisk\_given\_COVID\_by\_age

**Plain Name**: Risk of admission by age

**Data-type**: array

**Description**: age affects risk of hospitalization

**Example**:

np.array([-0.94886625, -0.96332087, -0.86528671, -0.79828999, -0.61535305, -0.35214767, 0.12567034, 0.85809052, 3.55950368])

**Accessibility**: 8…maybe…goes to healthcare access: NEED TO LOOK AT THIS MORE TO UNDERSTAND BETTER…SEE riskOfAEAttandance\_by\_age…user set rates

**9. Coexist Variable**: riskOfAEAttandance\_by\_age

**Plain Name**:

**Data-type**:

**Description**:

**Example**:

**Accessibility**:

**X.**

**Coexist Variable**:

**Plain Name**:

**Data-type**:

**Description**:

**Example**:

**Accessibility**:

**X.**

**Coexist Variable**:

**Plain Name**:

**Data-type**:

**Description**:

**Example**:

**Accessibility**: