1 Priors for parameters

The best priors for the age independent rates we could find for SEAI8R are (in units of [1/day])

$\gamma_E = 1/2.72$ from exposed to activated 95% CI: 1/2.55 1/2.89

$\gamma_A = 1/3.12$ from activated to infected 95% CI: 1/(2.08) 1/(4.16)

$\gamma_{Ia} = 1./7$ recovery rate of asymptomatic infectives

$\gamma_{Is} = 1./4.82$ from symptomatic to hospitalised 95% CI: 1/3.487 1/6.157

$\gamma_{Is} + \gamma_{Isp} = 17.76$ from symptomatic to recovered 95% CI: 12.64 22.87

$\gamma_{Ih} + \gamma_{Ihp} = \ln(2)/10$ from hospital to recovered/leaving hospital (IQR $\ln(2)/7.0$ $\ln(2)/14.0$)

$\gamma_{Ih} = 1/5.66$ from hospitalised to ICU 95% CI: 1/4.18 1/7.14

$\gamma_{Ic} = 1/4$ from ICU to recovered/leaving ICU IQR (1/3, 1/5)

$\gamma_{Ic} + \gamma_{Icp} = 1/5.45$ from ICU to death 95% CI: 1/(2.20) 1/(7.65)

1.1 Sources

The source of these priors are these 3 papers where you have more than just the means and confidence intervals but also the sources of the data.

Transmission interval estimates suggest pre-symptomatic spread of COVID-19 -source of why we asymptomatic spreading exists and γ_E

Epidemiological Characteristics of COVID-19; a Systemic Review and Meta-Analysis source of γ_A, γ_{Ia}, γ_{Is},γ_{Ih}, γ_{Ic} and $\gamma_{Is}(1 - hh) + \gamma_{Isp}$

Epidemiological characteristics of COVID-19 cases in Italy and estimates of the reproductive numbers one month into the epidemic This one is also our source for the data in the accompanying ipython notebooks for hh,cc,mm and alpha.

ICNARC report on COVID-19 in critical care for gIcp(1-mm)+gIcp

Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel CoronavirusInfected Pneumonia in Wuhan, China for $\gamma_{Ih}(1 - cc) + \gamma_{Ihp}$