Análise de dados COVID-19 em Portugal

Analysis of Portuguese COVID-19 data

by

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Introdução

jn.pt, 23 Março 2021. Fonte: Lusa

COVID-19 inCTRL

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RESEARCH4COVID - FCT

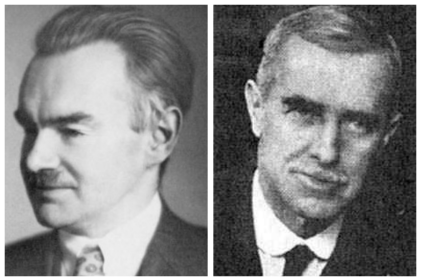
utad UNIVERSIDADE DE TRÁS-OS-MONTES E ALTO DOURO

Instituto_Nacional de Saúde Doutor Ricardo Jorge

Modelos Epidemiológicos

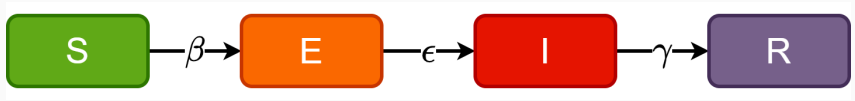
Modelo SIR

$$\begin{cases} \frac{dS}{dt} = -\beta \frac{SI}{N} \\ \frac{dI}{dt} = \frac{SI}{N} - \gamma I \\ \frac{dR}{dt} = \gamma I \end{cases}$$



W.O. Kermack e A.G. McKendrick

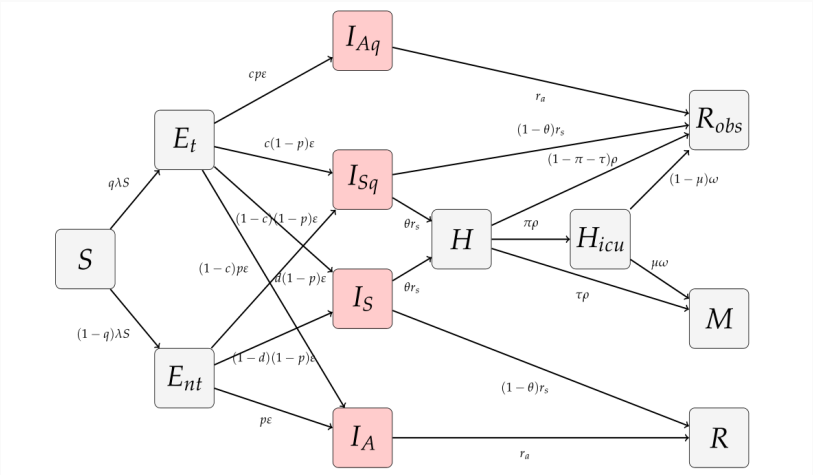
Modelo SEIR

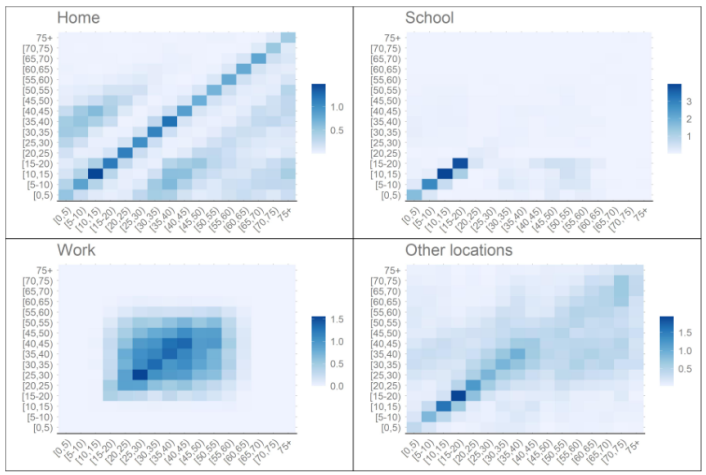


$$\begin{cases} \frac{dS}{dt} = -\beta \frac{SI}{N} \\ \frac{dE}{dt} = \beta \frac{SI}{N} - \epsilon E \\ \frac{dI}{dt} = \epsilon E - \gamma I \\ \frac{dR}{dt} = \gamma I \end{cases}$$

Modelos Epidemiológicos

Modelo COVID-19 inCTRL





$$
\begin{aligned}
S' &= -\lambda S, \\
E_t' &= q\lambda S - \epsilon E_t \\
I_A' &= p\epsilon E_{nt} + (1-c)p\epsilon E_t - r_a I_A \\
I_S' &= (1-d)(1-p)\epsilon E_{nt} + (1-c)(1-p)\epsilon E_t - \\
E_{nt}' &= (1-q)\lambda S - \epsilon E_{nt} \\
I_{Aq}' &= cp\epsilon E_t - r_a I_{Aq} \\
I_{Sq}' &= c(1-p)\epsilon E_t + d(1-p)\epsilon E_{nt} - r_s I_{Sq} \\
H' &= \theta r_s (I_S + I_{Sq}) - \rho H \\
H_{icu}' &= \pi\rho H - \omega H_{icu} \\
M' &= \mu\omega H_{icu} + \tau\rho H \\
R_{obs}' &= (1-\theta) r_s I_{Sq} + r_a I_{Aq} + (1-\pi-\tau)\rho H + (\\
R' &= (1-\theta) r_s I_S + r_a I_A
\end{aligned}
$$