

Bayesian Evidence Synthesis for Influenza Burden Estimation from Hospitalization Surveillance data

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Notation

1. N : Total FluSurv-NET (FSN) population (given stratum, e.g. age group etc.)
2. n_H : Number of total (observed and unobserved) influenza hospitalizations with non-lethal outcome
3. n_H^* : **Number of observed influenza hospitalizations with non-lethal outcome**
4. λ_H : Rate of non-lethal flu hospitalizations per population
5. n_D : Total (observed and unobserved) influenza deaths
6. n_D^* : **Observed influenza deaths**
7. λ_D : Rate of lethal flu hospitalizations per population
8. p_k : Probability influenza-associated outcomes ($k = 0$: non-lethal, $k = 1$: lethal) that are correctly attributed to influenza
9. $T_{k,j}$: **Numbers tested by outcome and test type (1: PCR, 2: Rapid, 3: Other, 4: No test)**
10. ρ_k : **Prior dist. for test sensitivities (PCR, rapid; mean, SD) by outcome**
11. ϕ : Proportion of deaths inside hospital
12. D : Total NCHS deaths (per syndromic cause and stratum)
13. D_H : NCHS deaths inside hospital (per syndromic cause and stratum)

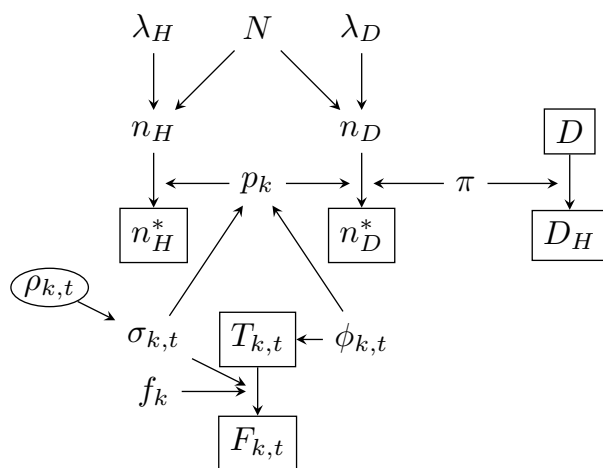


Figure 1: Model structure. Rectangles represent data, the ellipse represents an informative prior. Vague priors were omitted.