

## Time plots for different values of mobility levels

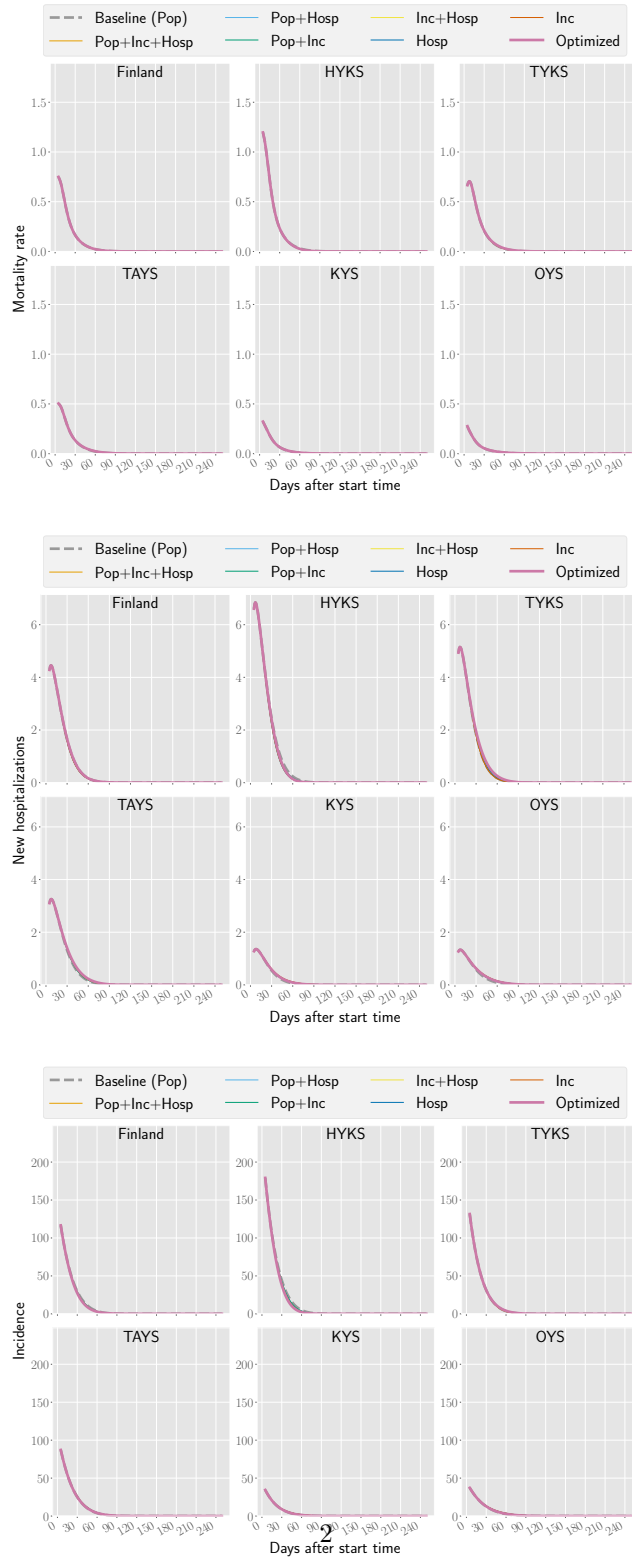


Fig. A: Different metrics per million inhabitants in Finland and the five hospital catchment areas. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 0.75$  and the mobility value  $\tau = 0.0$ .

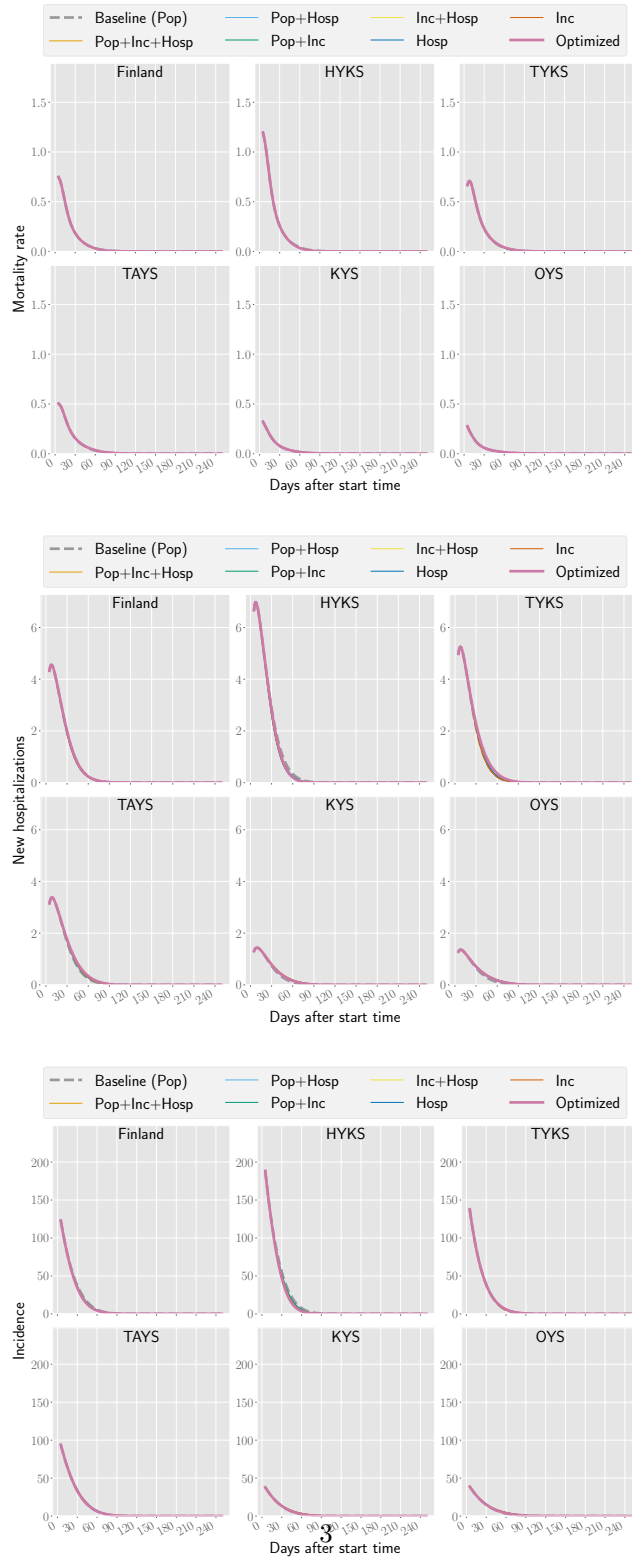


Fig. B: Different metrics per million inhabitants in Finland and the five hospital catchment areas included here for all the vaccination strategies. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 0.75$  and the mobility value  $\tau = 0.5$ .

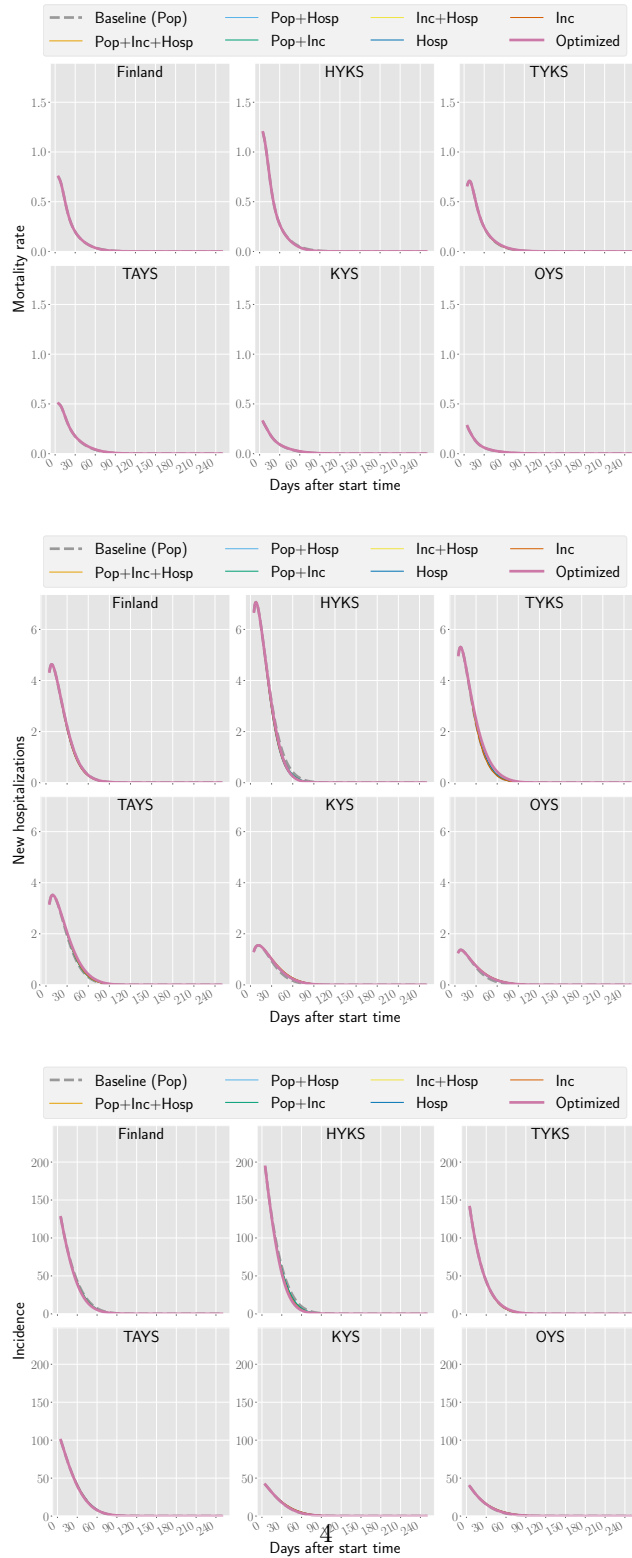


Fig. C: Different metrics per million inhabitants in Finland and the five hospital catchment areas included here for all the vaccination strategies. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 0.75$  and the mobility value  $\tau = 1.0$ .

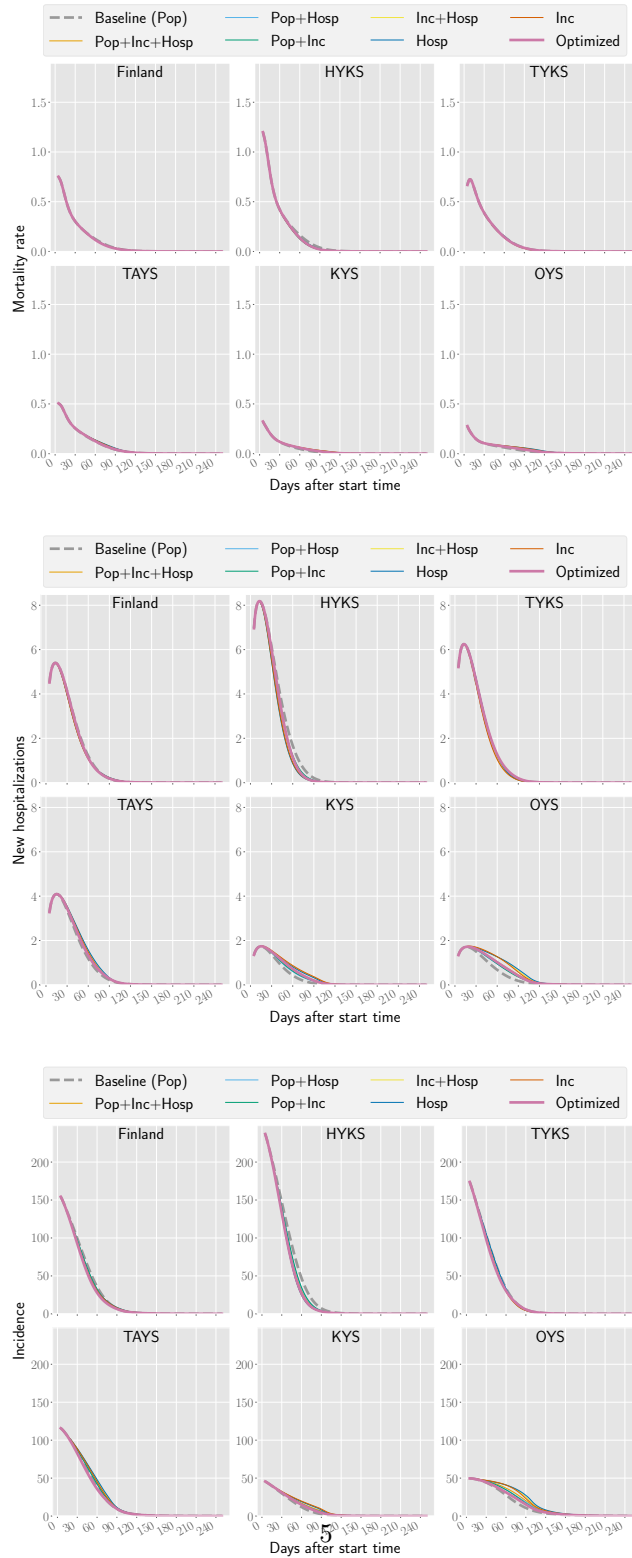


Fig. D: Different metrics per million inhabitants in Finland and the five hospital catchment areas included here for all the vaccination strategies. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 1.0$  and the mobility value  $\tau = 0.0$ .

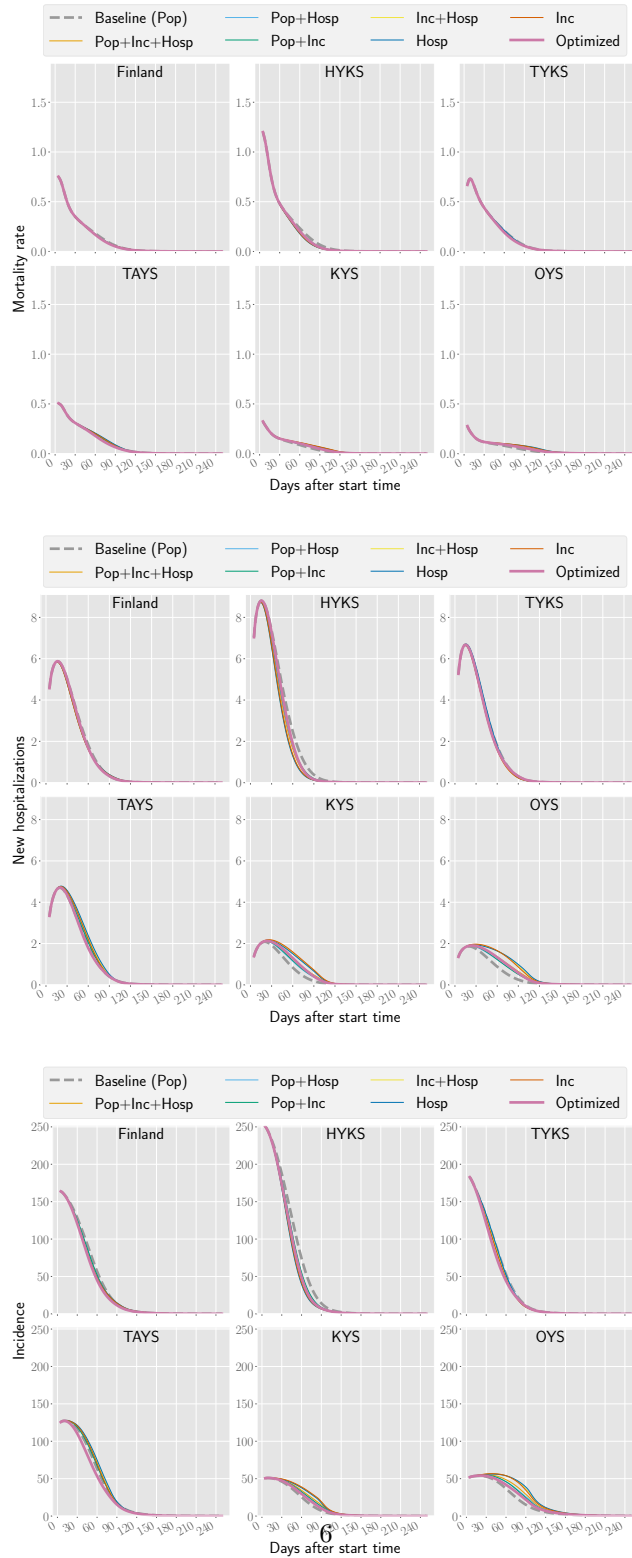


Fig. E: Different metrics per million inhabitants in Finland and the five hospital catchment areas included here for all the vaccination strategies. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 1.0$  and the mobility value  $\tau = 0.5$ .

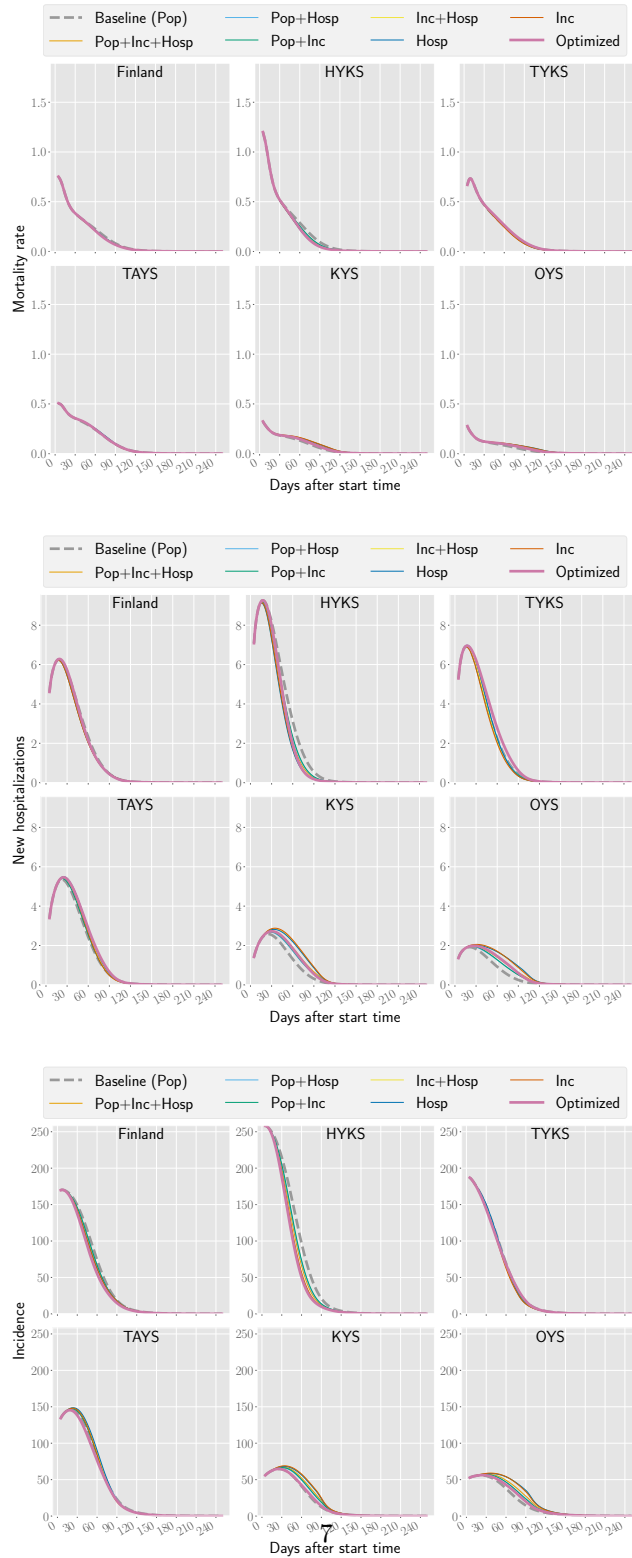


Fig. F: Different metrics per million inhabitants in Finland and the five hospital catchment areas included here for all the vaccination strategies. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 1.0$  and the mobility value  $\tau = 1.0$ .

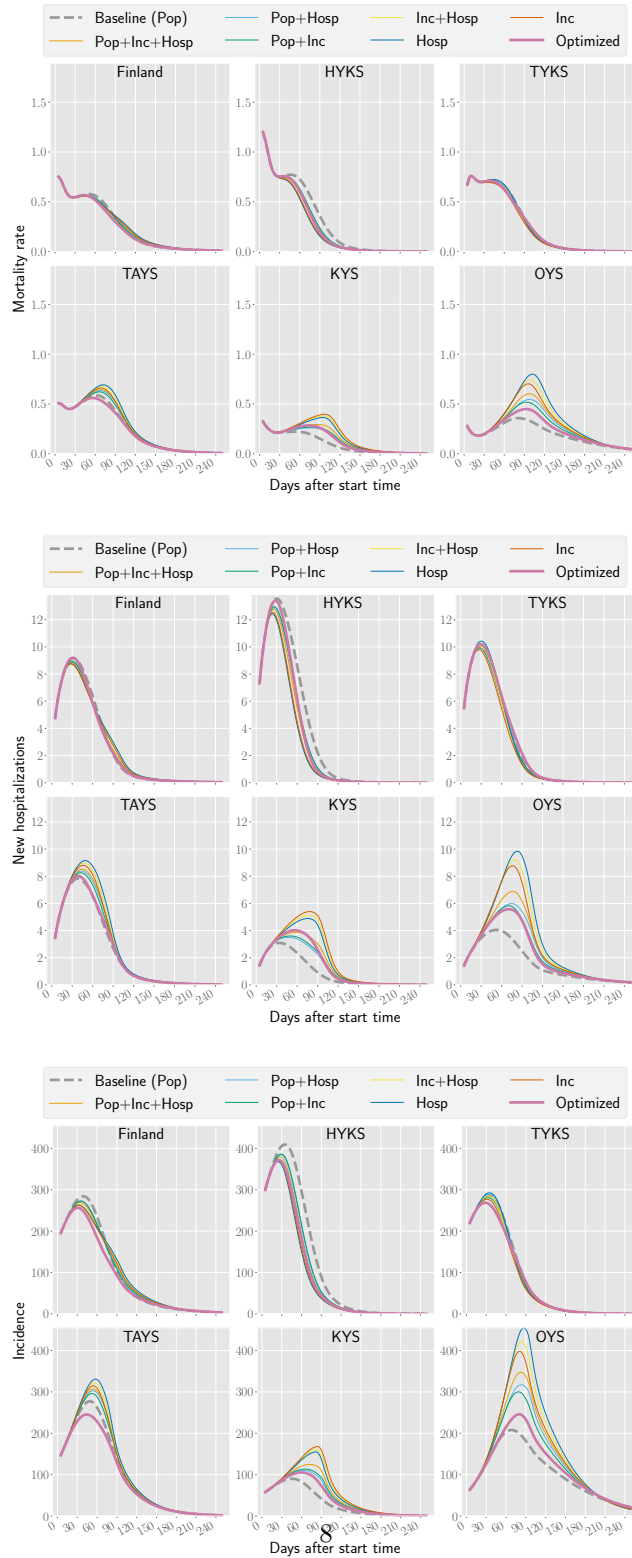


Fig. G: Different metrics per million inhabitants in Finland and the five hospital catchment areas included here for all the vaccination strategies. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 1.25$  and the mobility value  $\tau = 0.0$ .



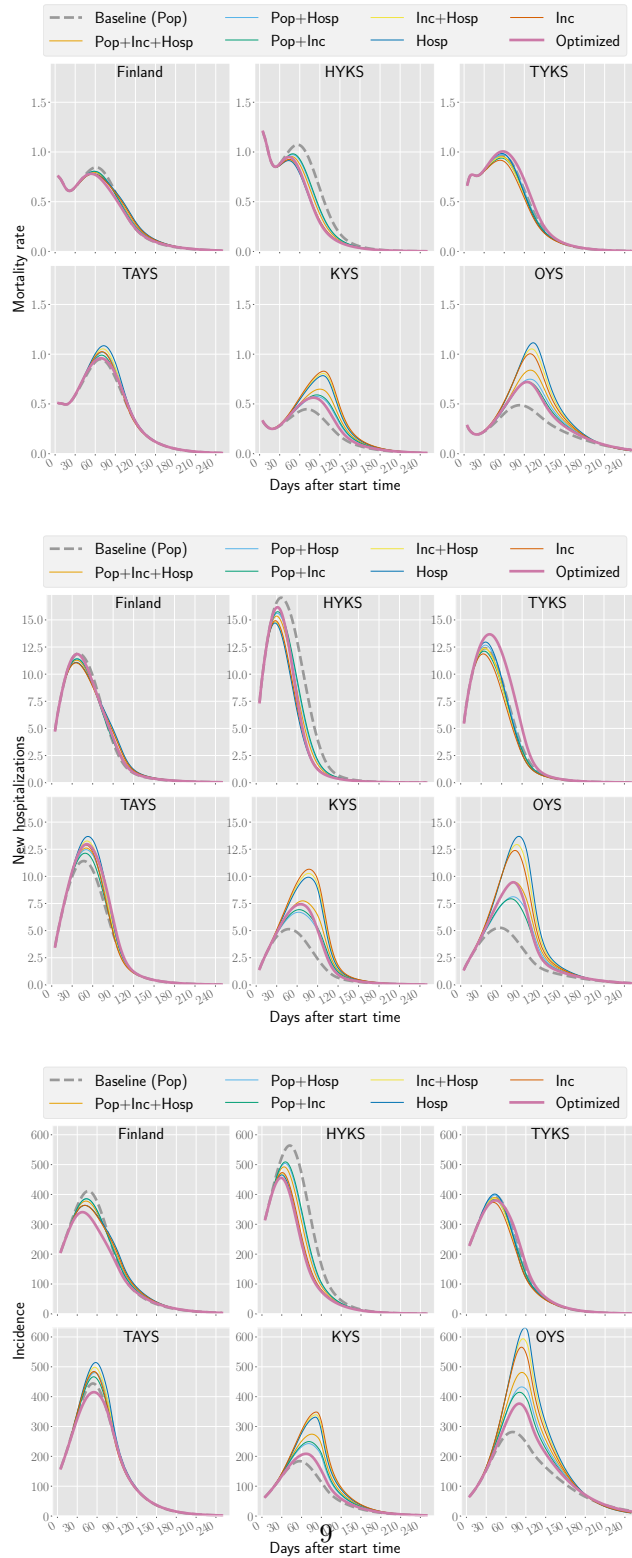


Fig. H: Different metrics per million inhabitants in Finland and the five hospital catchment areas included here for all the vaccination strategies. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 1.25$  and the mobility value  $\tau = 0.5$ .

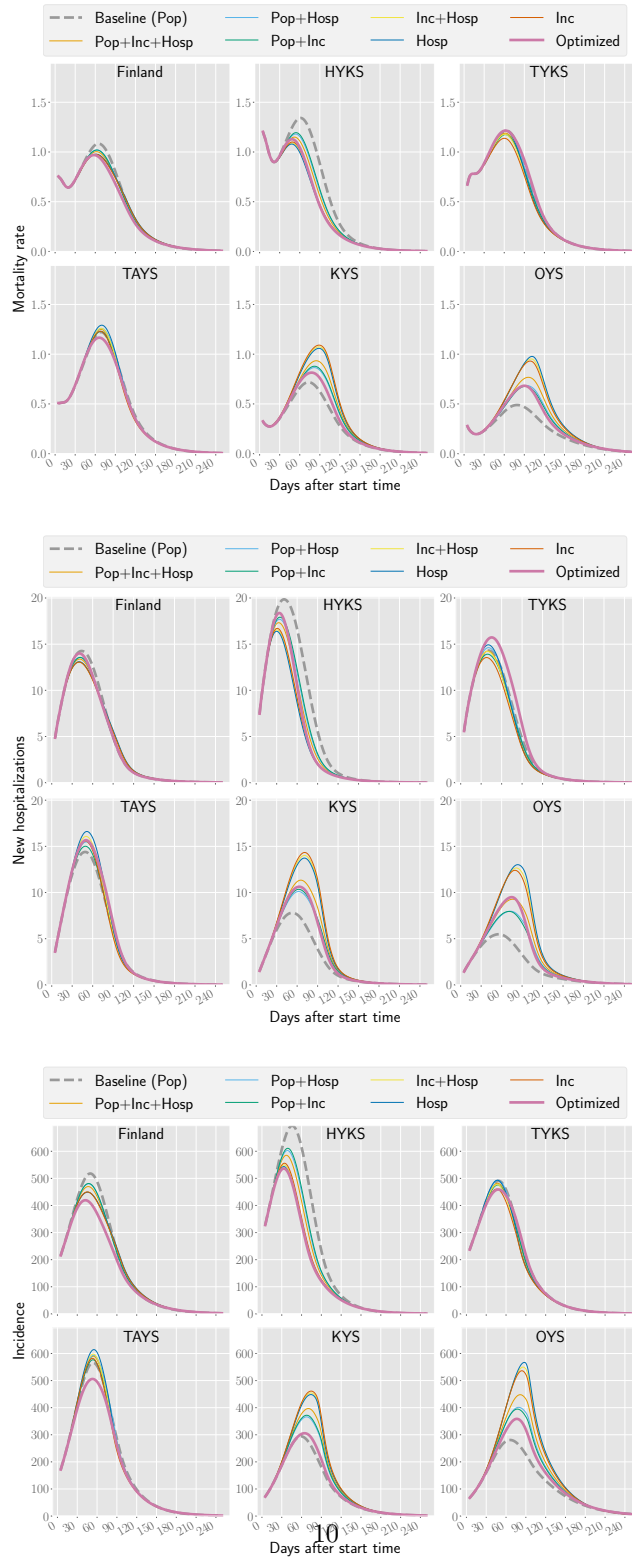


Fig. I: Different metrics per million inhabitants in Finland and the five hospital catchment areas included here for all the vaccination strategies. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 1.25$  and the mobility value  $\tau = 1.0$ .

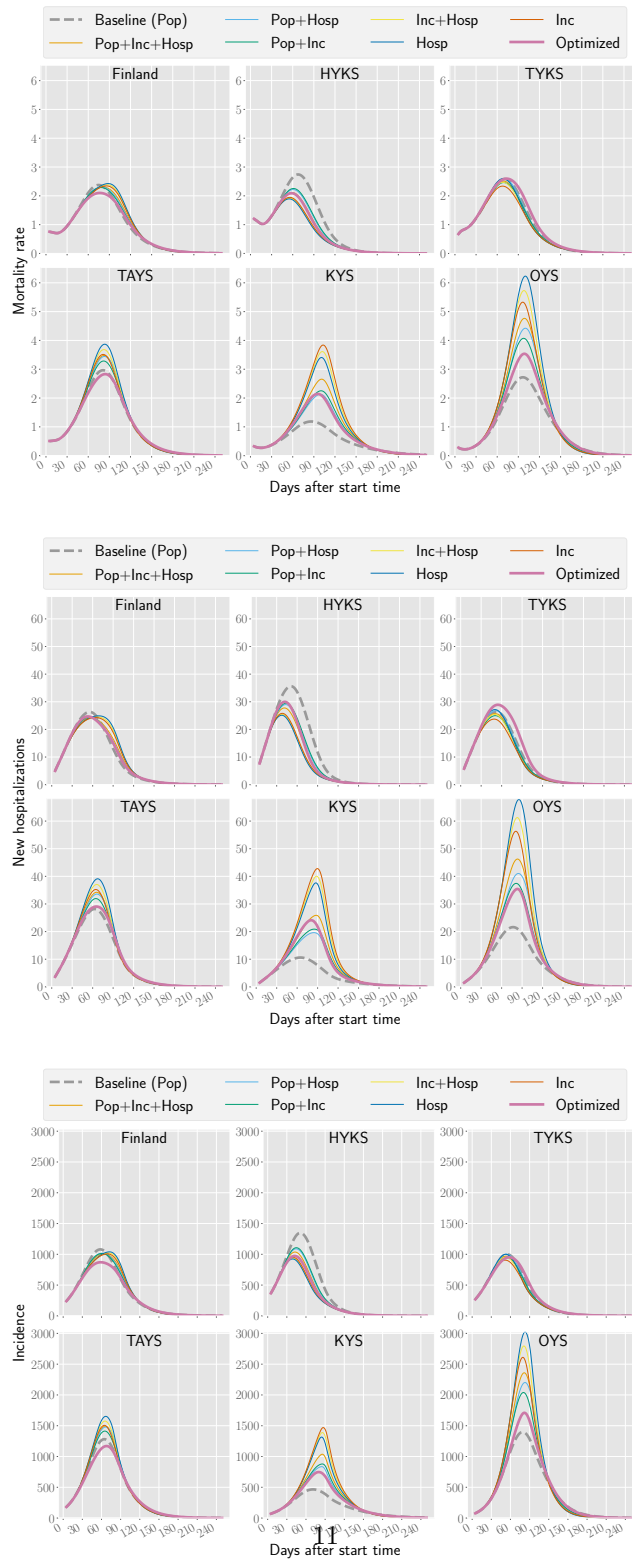


Fig. J: Different metrics per million inhabitants in Finland and the five hospital catchment areas included here for all the vaccination strategies. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 1.5$  and the mobility value  $\tau = 0.0$ .

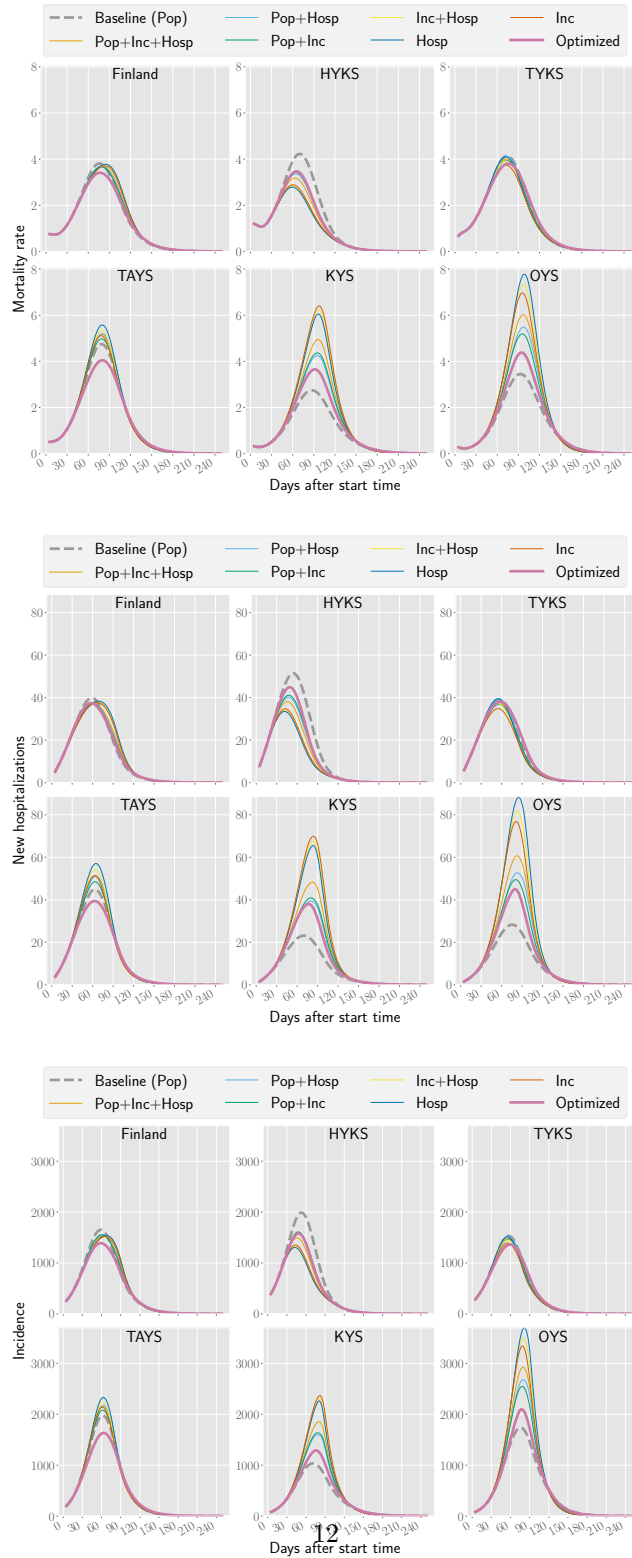


Fig. K: Different metrics per million inhabitants in Finland and the five hospital catchment areas included here for all the vaccination strategies. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 1.5$  and the mobility value  $\tau = 0.5$ .

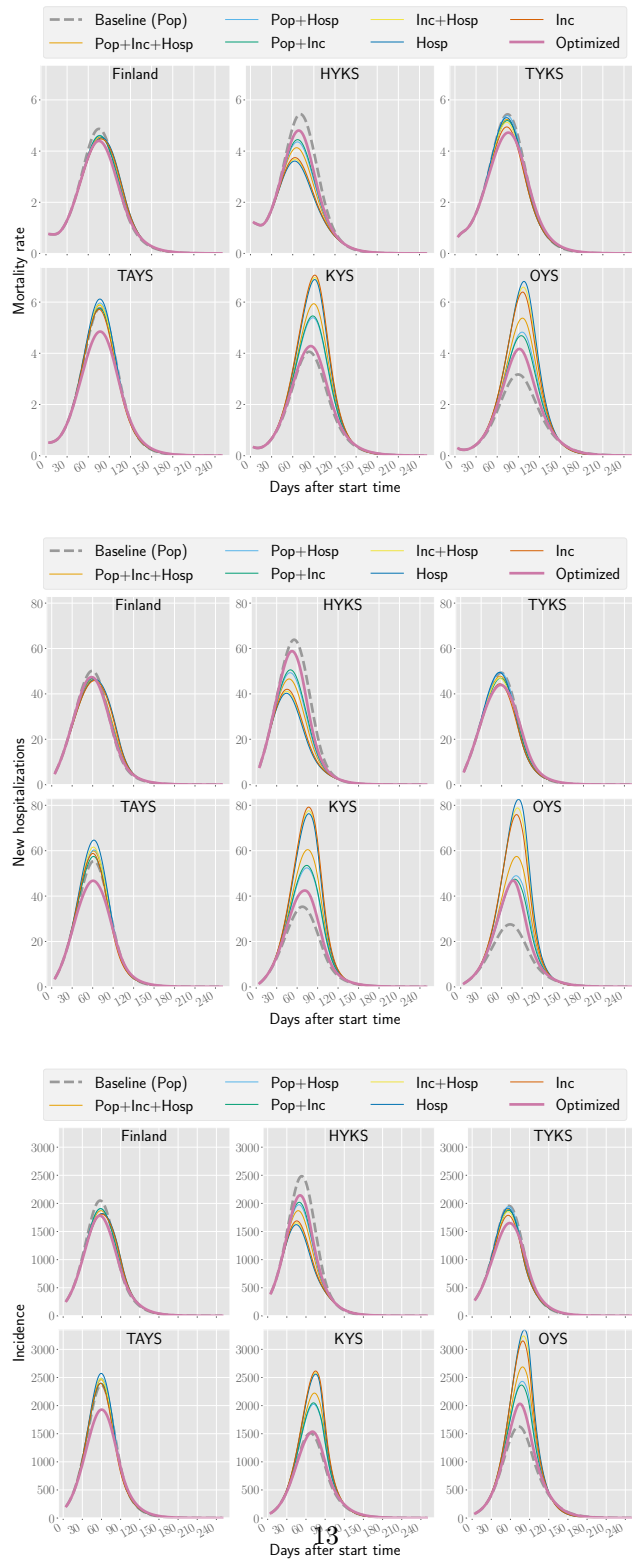


Fig. L: Different metrics per million inhabitants in Finland and the five hospital catchment areas included here for all the vaccination strategies. For these scenarios, the basic reproduction number  $R_{\text{eff}} = 1.5$  and the mobility value  $\tau = 1.0$ .

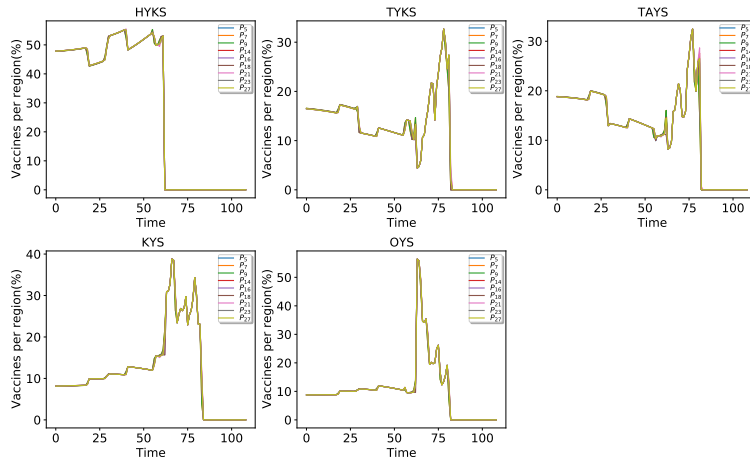


Fig. M: Percentage of vaccine doses allocated by the optimized strategy to regions for different values of  $e, \omega$  and  $\pi$ .

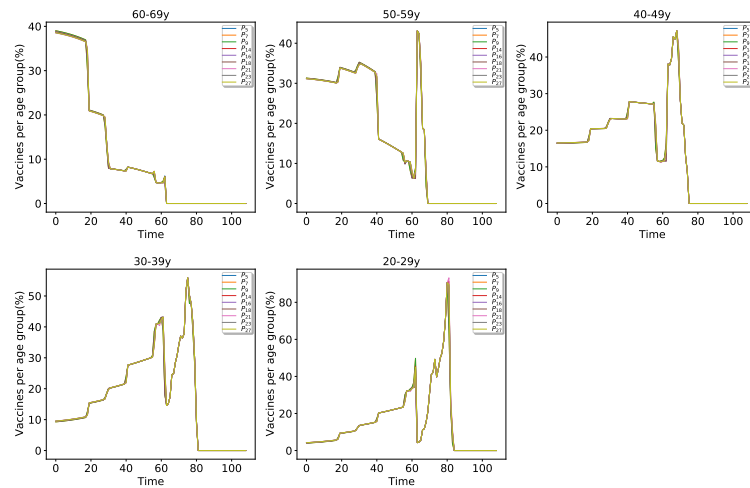


Fig. N: Percentage of vaccine doses allocated by the optimized strategy to age groups for different values of  $e, \omega$  and  $\pi$ . Each  $P_i, i \in \{5, 7, 9, 14, 16, 18, 21, 23, 27\}$  represents a different combination of  $e, \omega$  and  $\pi$  taken from (3.1) in S1 Appendix.

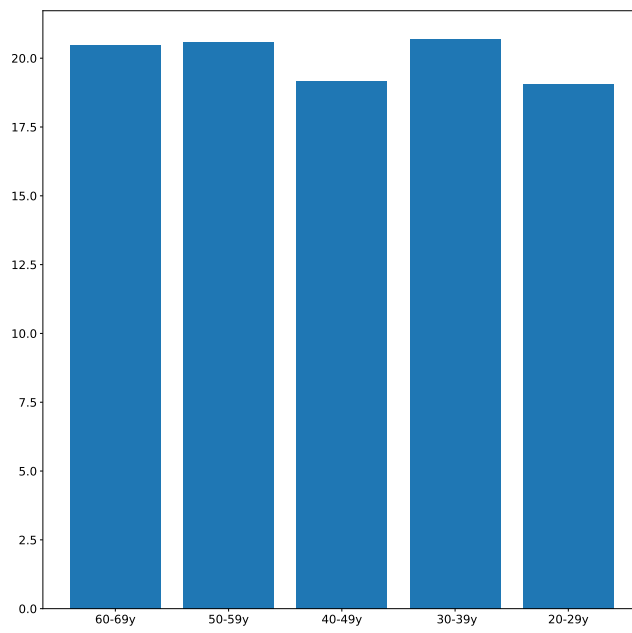


Fig. O: Percentage of vaccines which each age group would receive proportionally to the age group size.