Heterogeneity in seasonal influenza vaccination opportunity and disease risk during pregnancy and in infants <6 months

Supplementary Information

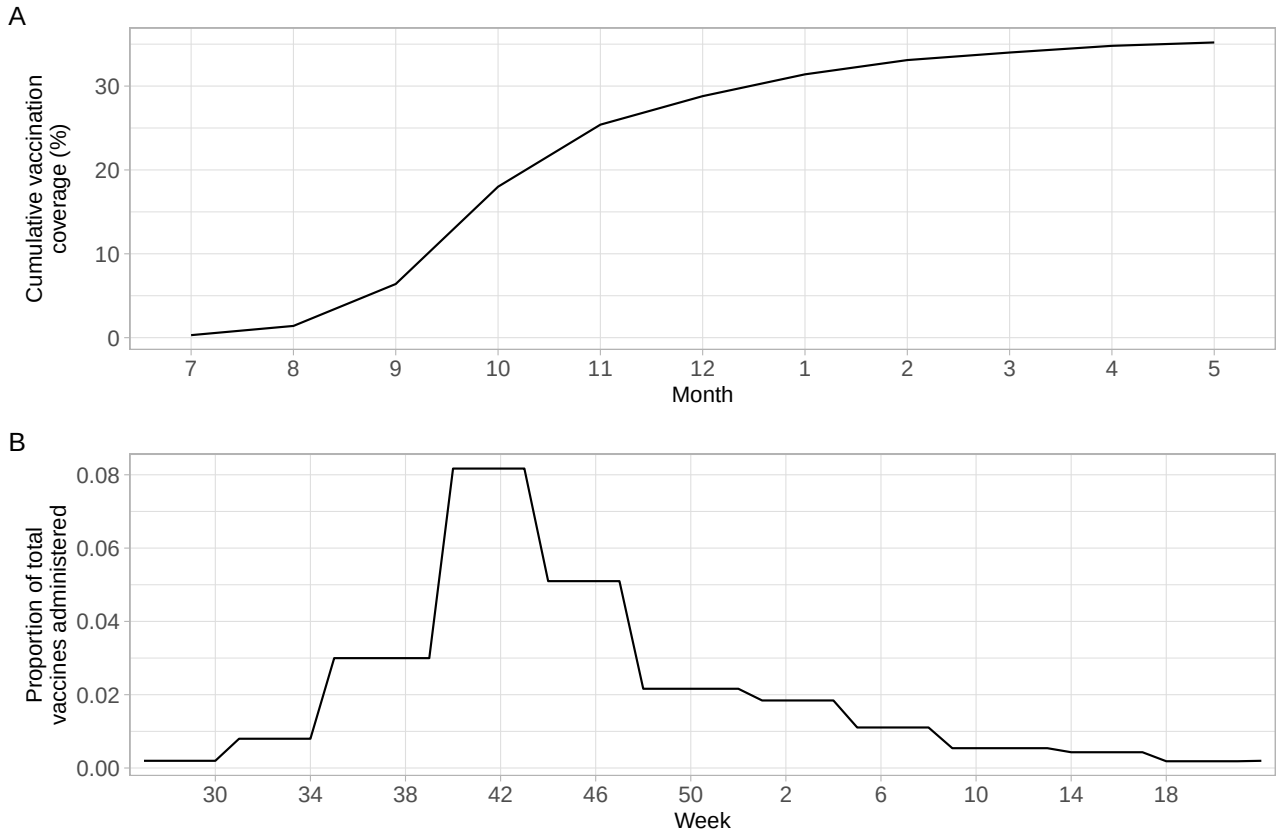


Figure S1 – Influenza vaccination coverage among adults aged 18-49 years at higher risk for influenza complications in 2022/23. (A) Cumulative vaccination coverage by month. (B) Estimated weekly proportion of total vaccines administered.

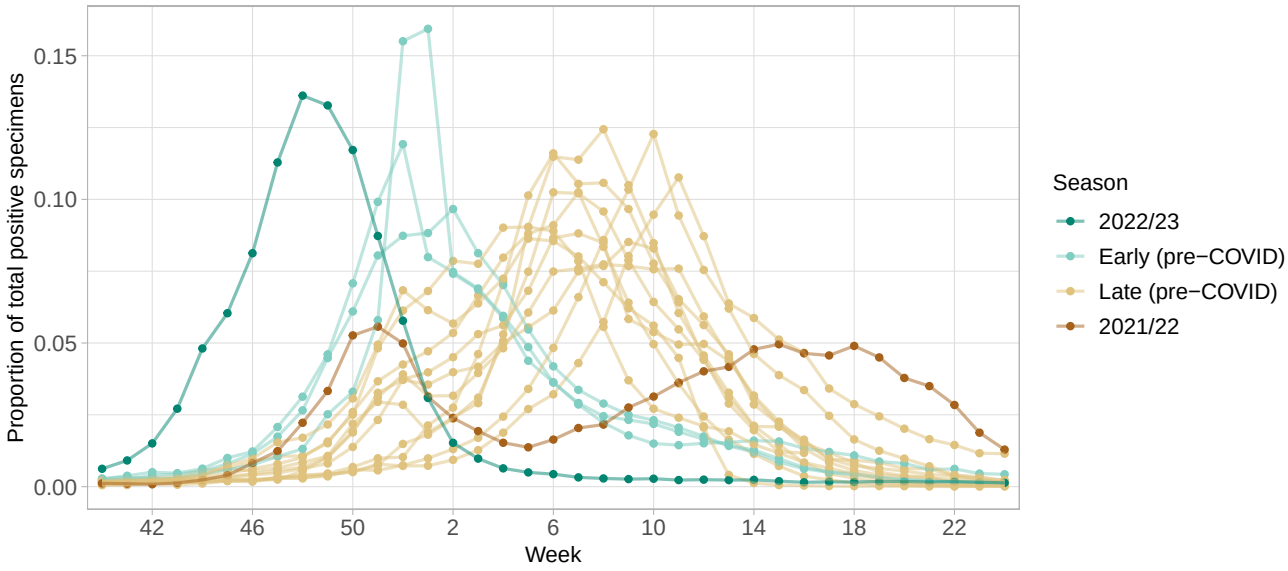


Figure S2 – Influenza season timing categories. Each line represents the weekly proportions of influenza positive tests identified in the U.S. World Health Organization (WHO) Collaborating Laboratories System or the National Respiratory and Enteric Virus Surveillance System (NREVSS) for a particular season (from 2005/06 to 2022/23, excluding the 2009 H1N1 pandemic and the 2020/21 season). Early seasons refer to those peaking on or before the first week in January (2012/13, 2013/14, and 2014/15) and late seasons refer to those peaking after the first week in January (2005/06–2011/12 and 2015/16–2019/20). The 2021/22 and 2022/23 seasons were analyzed separately due to atypical timing. The legend is ordered by peak season timing, from earliest to latest.

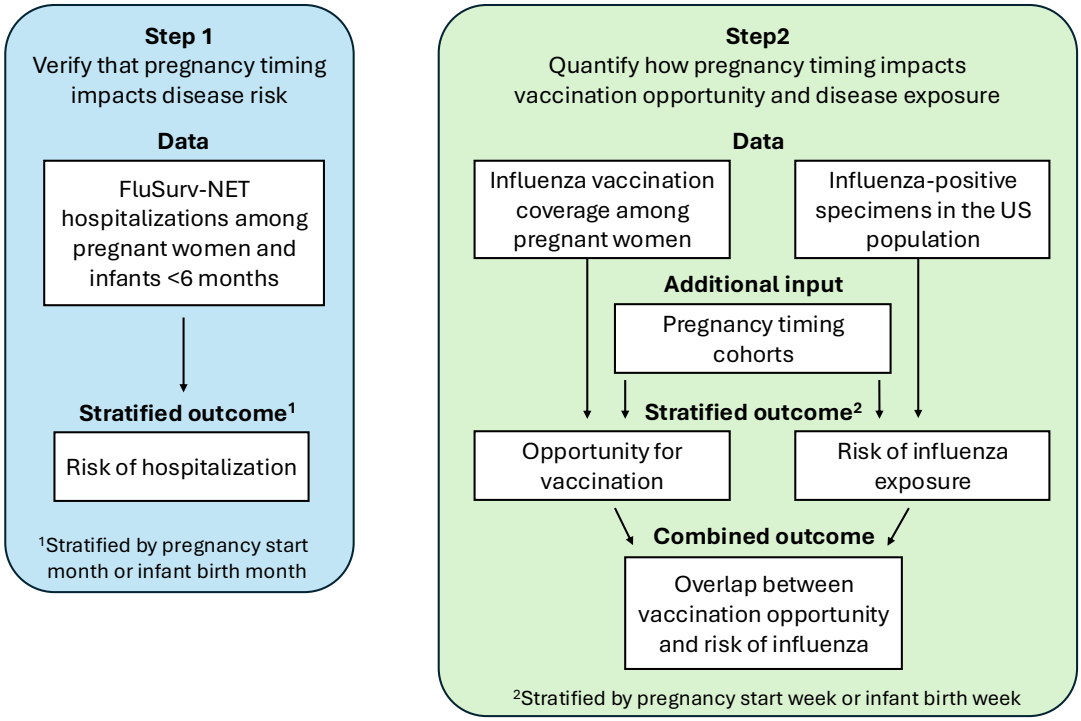


Figure S3 – Analysis workflow. Schematic showing the different datasets used in the main analysis and their associated outcomes.

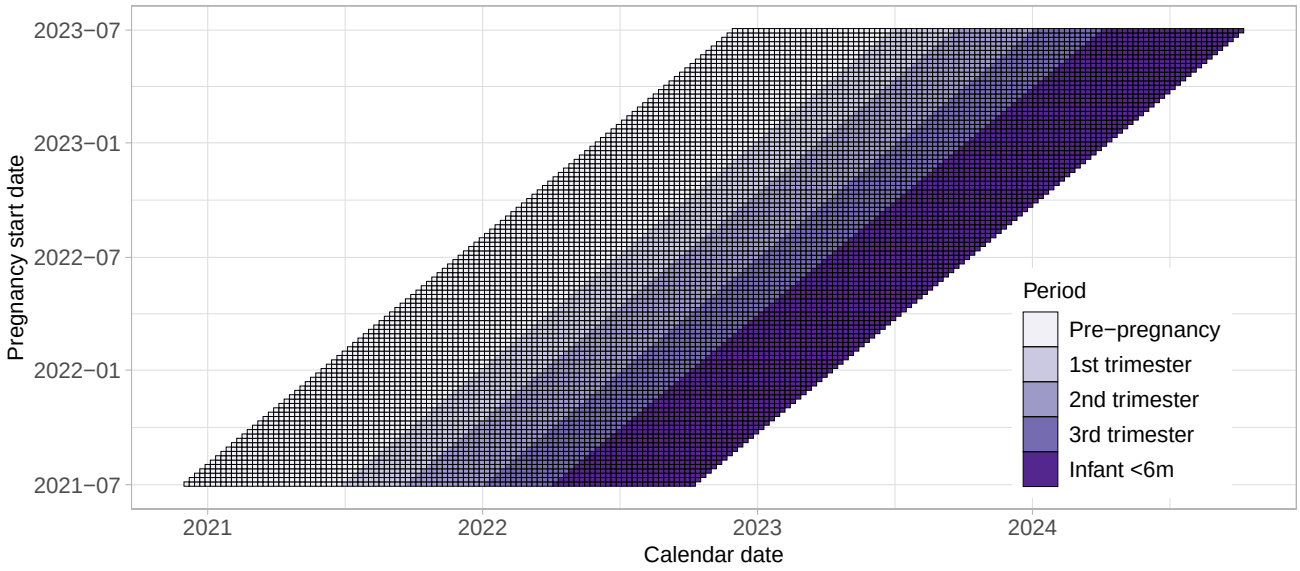


Figure S4 – Cohorts included in the estimation of influenza vaccination opportunity and risk of influenza exposure. Each row represents a different cohort (stratified by the week their pregnancy started) and the colors indicate their progression through the pre-pregnancy, pregnancy, and infancy periods.

Table S1 – Percentage of infants <6 months in the FluSurv-NET data that were born premature.

Season	Percentage
2005/06	14.2
2006/07	14.9
2007/08	11.5
2008/09	15.5
2009/10	13.4
2010/11	15.3
2011/12	23.5
2012/13	13.9
2013/14	20.5
2014/15	18.1
2015/16	16.8
2016/17	21.4
2017/18	16.9
2018/19	13.2
2019/20	14.8
2021/22	7.8
2022/23	15.7

Table S2 – Combined overlap between influenza vaccination and season risk for different season timings and vaccination scenarios. The original timing scenario represents the timing of the 2022/23 vaccination campaign among high-risk adults aged 18–49 years. All vaccination scenarios are illustrated in Figure 3A. Rows are ordered by peak season timing, from earliest to latest.

Season category	Vaccination timing	Pregnant cohorts at risk of influenza with an opportunity for vaccination	Infant cohorts at risk of influenza with an opportunity for vaccination
2022/23	Original	93%	17%
	4 weeks earlier	96%	27%
	8 weeks earlier	98%	38%
Early (pre-COVID)	Original	97%	34%
	4 weeks earlier	98%	46%
	8 weeks earlier	98%	58%
Late (pre-COVID)	Original	98%	47%
	4 weeks earlier	98%	59%
	8 weeks earlier	98%	71%
2021/22	Original	97%	54%
	4 weeks earlier	96%	65%
	8 weeks earlier	94%	73%