In Ireland, influenza places a considerable burden on the health system, with the highest disease occurrence among young children and the elderly. Trivalent influenza vaccines are recommended for use in risk groups in Ireland each season. In this study, we aim to support decisions regarding alternative vaccination strategies, such as the use of quadrivalent vaccines and/or universal vaccination of children.

We describe the burden of influenza among cases aged 0 to 14 years in Ireland from 2009/2010 to 2017/2018 influenza seasons, using data on clinical influenza-like illness (ILI) GP consultations reported through the sentinel GP network and reported laboratory confirmed severe influenza cases from Ireland’s Computerised Infectious Disease Reporting System.

The highest GP ILI consultation rates in children were observed during seasons when influenza A(H1N1)pdm09 predominated (460/100,000 during the 2009 pandemic and 206/100,000 in 2010/2011) and during influenza B lineage vaccine mismatched seasons (118/100,000 in 2017/2018). The 2015/2016 season was also an influenza B lineage mismatched season, with both influenza A(H1N1)pdm09 and B predominating, with a peak ILI rate of 112/100,000. Since 2009, 3320 hospitalisations, 166 critical care admissions and 39 influenza-associated deaths were reported in children with laboratory-confirmed influenza. The total number of children hospitalised with confirmed influenza has ranged from 66 (7/100,000) in 2011/2012 when influenza A (H3N2) predominated, to 1104 (110/100,000) in the 2017/2018 season, an influenza B lineage vaccine mismatched season. The age-specific rates for hospitalised paediatric influenza cases were highest in those aged 0–4 years, ranging from 16/100,000 in 2011/2012 to 197/100,000 in 2017/2018. The 2017/2018 influenza season was a severe prolonged season, with paediatric influenza hospitalisations two times greater than the 2009 influenza pandemic. Of children in risk groups, hospitalised with influenza, during the 2016/2017 and 2017/2018 seasons, 86–88% of cases were unvaccinated.

Elevated sentinel GP ILI consultation rates, influenza hospitalisation rates, and critical care admissions were observed during seasons when influenza A(H1N1)pdm09 predominated and also during influenza B lineage vaccine mismatched seasons. Additional strategies are needed to reduce the morbidity and mortality associated with influenza in risk groups, improve vaccine uptake in at-risk children and to protect healthy children currently not eligible for influenza vaccination. The impact of influenza on the Irish population suggests that quadrivalent vaccines and/or universal childhood influenza vaccination could be considered, as in other European Member States.