

# Multi-decade national cohort identifies adverse pregnancy and birth outcomes associated with acute respiratory illness hospitalisations during the influenza season

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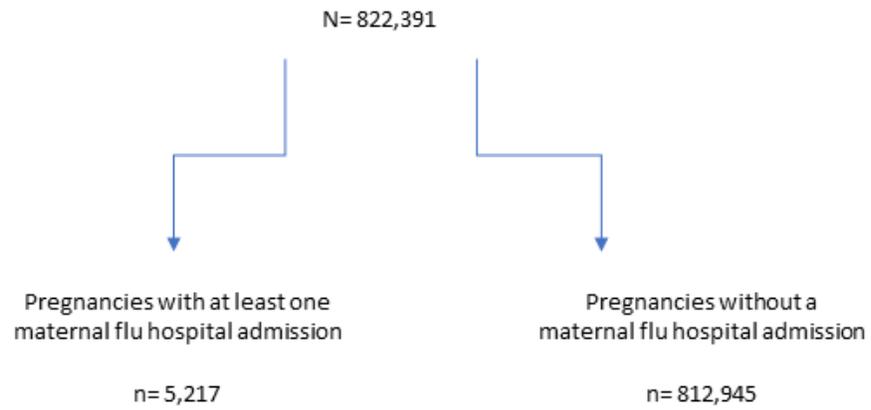
## Abstract

Background: Despite the WHO recommendation that pregnant women be prioritised for seasonal influenza vaccination, coverage in the Western Pacific Region remains low. Our goal was to provide additional data for the Western Pacific region about the value of maternal influenza vaccination to pregnant women and their families. Methods: We conducted a 16-year retrospective cohort to evaluate risks associated with influenza-associated maternal acute respiratory infection (ARI) in New Zealand. ARI hospitalisations during the May-September influenza season were identified using select ICD-10-AM primary and secondary discharge codes from chapter J00-J99 (diseases of the respiratory system). Cox proportional hazards models were used to calculate crude and adjusted hazard ratios (aHR) and 95% confidence intervals (CI). Results: We identified 822,391 pregnancies among New Zealand residents between 2003 and 2018; 5,095 (0.6%) had >1 associated ARI hospitalisation during the influenza season; these pregnancies were at greater risk of preterm birth (aHR 1.5, 95% CI 1.3-1.7), and low birthweight (aHR 1.7, 95% CI 1.5-2.0) than pregnancies without such hospitalisations. We did not find an association between maternal ARI hospitalisation and fetal death (aHR 1.1, 95% CI 0.6-1.4) during the influenza season. Maternal influenza vaccination was associated with reduced risk of preterm birth (aHR 0.8, 95% CI 0.7-0.9), and low birthweight (aHR 0.9, 95%CI 0.8-0.9), and fetal death (aHR 0.5%, 95% CI 0.3-0.7). Conclusion: In this population-based cohort, being hospitalised for an ARI during the influenza season while pregnant was a risk-factor for delivering a preterm or a low birthweight infant and vaccination reduced this risk.

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Pregnancies among New Zealand residents of reproductive age, 2003-2018



†There were N= 882,705 pregnancies for years 2003-2018 but n= 59,478 occurred in women who were not New Zealand residents and 836 in women not of reproductive age (15-49 years).