

Identifying vulnerable population groups: On-time infant vaccination coverage in Australia

Moore, H¹, Fathima, P², Gidding, H³, de Klerk, N⁴, Liu, B⁵, and Sheppard, V⁶

¹Telethon Kids Institute

²Wesfarmers Centre of Vaccines and Infectious Diseases, Telethon Kids Institute

³School of Public Health & Community Medicine, The University of New South Wales

⁴Telethon Kids Institute, University of Western Australia

⁵School of Public Health and Community Medicine, UNSW Medicine, University of New South Wales, Sydney, New South Wales, Australia

⁶Communicable Diseases Control Branch, New South Wales

Introduction

Immunisation coverage is a good measure of immunisation program effectiveness. Coverage of the 3-dose infant schedule in Australia assessed at age 12 months is >90%. Timeliness is an important goal for population immunity, but on-time coverage of the 2-4-6 month schedule and coverage in specific populations is rarely reported.

Objectives and Approach

We conducted a retrospective population-based cohort study of 1.9 million Australian births, 1996-2012 (approximately 42% of Australia's population). Individual data from state-held birth and perinatal records were combined with Commonwealth-held immunisation and death records, through probabilistic linkage. We assessed on-time coverage across 13 demographic and perinatal characteristics of diphtheria-tetanus-pertussis vaccines (DTP) defined as vaccination 14 days prior to the scheduled due date, to 30 days afterwards.

Results

On-time DTP vaccination coverage in non-Aboriginal infants was 88.1% for the 2-month dose, 82.0% for 4-month dose, and 76.7% for 6-month dose; 3-dose coverage was 91.3% when assessed at 12 months. On-time DTP coverage for Aboriginal infants was 77.0%, 66.5%, and 61.0%; 3-dose coverage at 12 months was 79.3%. Appreciable differences in on-time coverage were observed across population subgroups. On-time coverage in non-Aboriginal infants born to mothers with ≥ 3 previous pregnancies was 62.5% for the 6-month dose (47.9% for Aboriginal infants); up to 23.5% lower than for first-borns. Infants born to mothers who smoked during pregnancy had coverage 8.7-10.3% lower than infants born to non-smoking mothers for the 4- and 6-month dose. A linear relationship was apparent with increasing socio-economic disadvantage and

decreasing on-time coverage.

Conclusion/Implications

On-time vaccination coverage of the 2-4-6 month schedule is only 50-60% across specific population subgroups representing a significant avoidable public health risk. Australian Aboriginal infants, multiparous mothers, and those who are socio-economically disadvantaged are key groups most likely to benefit from targeted programs addressing vaccine timeliness.

