Beyond expectations: rotavirus immunisation program is likely cost-saving in Australia

Reyes JF¹, Wood JG¹, Beutels P¹,³, Macartney K, McIntyre P², Menzies R², Mealing N, Newall AT¹,

1. School of Public Health and Community Medicine, UNSW Australia, Sydney, NSW, Australia
2. National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases (NCIRS), University of Sydney, Westmead, NSW, Australia
3. Centre for Health Economics Research and Modelling Infectious Diseases (CHERMID), Vaccine and Infectious Disease Institute, University of Antwerp, Antwerp, Belgium
Background/Aim

• Rotavirus vaccination in Australia
  – Funded and included in the National Immunisation Program in 2007 with the aim to prevent acute gastroenteritis (AGE) due to rotavirus
  – Predictive/Pre-implementation economic analysis conducted by industry as part of PBAC submission/s and by academic groups

• Retrospective/post-implementation CEA
  – Primary aim was to provide more accurate estimation of the costs and benefits of the program (i.e. the value for money achieved)
  – Model utilises post-implementation data, unavailable in prior analyses (e.g. hospitalisations, vaccination uptake, adverse events, etc.)
Hospitalisations: coded rotavirus +/- unspecified AGE (rate per 100,000)

- Cause of AGE often unavailable in routine databases
  - Changes in rotavirus specific outcomes may underestimate impact
  - Substantial declines in unspecified AGE coincidental with program
Preliminary results: 2007-2012

• 0-4 years: Approx. hospitalisations prevented
  – Coded rotavirus: 16,000 (2,700 annually)
  – Unspecified AGE: 60,000 (10,000 annually)
  – Total prevented: 76,000 (12,700 annually)

• 5-14 years: Approx. hospitalisations prevented
  – Coded rotavirus: 300 (50 annually)
  – Unspecified AGE: 5,000 (800 annually)

• Including coded rotavirus + unspecified AGE
  – Rotavirus vaccination program estimated to have been cost-saving
Why did pre- models underestimate the value?

• Estimated lower no. prevented hospitalisations
  – May have underestimated pre-vaccination rotavirus burden
  – Herd protection effects not included in previous analyses

• Costs inputs assumed in the models
  – Academic analyses used private vaccine costs (base-case)
  – Hospitalisation costs higher closer to vaccine introduction

• Implications
  – Number of countries who are still evaluating whether to implement rotavirus vaccination programs

• Further research
  – Better understand if changes in unspecified AGE hospitalisations are attributable to vaccination efforts
Acknowledgments

Funded by an ARC Linkage project grant (LP120200043), linkage partners NCIRS/CHW & University of Antwerp.

Those who have supplied data for the broader project (analysis forthcoming): ABS, NSW health, BEACH, ACIR.

Reference group (including Paul Scuffham, Rosalie Viney, and Jodie McVernon), who do not necessarily endorse conclusions