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17th NATIONAL IMMUNISATION CONFERENCE 2021

Immunisation in the COVID pandemic era

Tuesday 29 June to Thursday 1 July 2021

Virtual Conference

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ABSTRACT BOOK

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P1 - Poster Presentations -
ePosters

Long-Term Immunogenicity and Effectiveness of 9vHPV Vaccine in Preadolescents and Adolescents

Authors: SE Olsson[2], **Mr Tim Lindauer[1]**, J Menche[1]

Affiliation: [1]Seqirus, Parkville, Australia, [2]Karolinska Institute at Danderyd Hospital, Stockholm, Sweden

Abstract
Background/Objectives: The pivotal 36-month Phase III immunogenicity study of 9vHPV vaccine in girls and boys 9-15 years was extended to assess long-term immunogenicity and effectiveness through approximately 10 years. We describe results of an interim analysis after approximately 8 years.

Methods: Participants 9-15 years receiving three doses of 9vHPV vaccine (0, 2 and 6 months) were enrolled in the extension (females, n=971; males, n=301). Serum was collected at Day 1 and Months 7/12/24/36/66/90 to assess antibody responses. For effectiveness analysis (for participants ≥16 years), genital swabs were collected (to assess HPV DNA by PCR) and external genital examination (to detect external genital lesions) was conducted every 6 months. Pap tests were conducted annually for females ≥21 years; participants with cytological abnormalities were triaged to colposcopy based on a protocol-specified algorithm. External genital and cervical biopsies on abnormal lesions were performed. Tissue samples were adjudicated by a pathology panel. Specimens were tested by PCR to detect HPV DNA.

Results: Antibody GMTs peaked around Month 7, gradually decreasing through Month 90, consistent with previous 9vHPV studies. Seropositivity rates remained >90% through Month 90 for each 9vHPV type. No cases of HPV6/11/16/18/31/33/45/52/58-related high-grade intraepithelial neoplasia or genital warts were observed in the per-protocol population. Incidence rates of HPV6/11/16/18/31/33/45/52/58-related 6-month persistent infection in females and males in per-protocol population were low (49.2 and 37.3 per 10,000 person-years, respectively) and within expected ranges.

Conclusions: This interim analysis demonstrates sustained immunogenicity and effectiveness through approximately 7 and 8 years, respectively, post-9vHPV vaccination of individuals 9-15 years.

'Links2HealthierBubs' Cohort Study: safety, uptake, effectiveness of influenza and pertussis antenatal vaccines.

Authors: Dr Minda Sarna[1,2], Professor Ross M Andrews[3,4], Dr Hannah C Moore[1,2], Dr Michael J Binks[3], Ms Lisa McHugh[3], Associate Professor Gavin Pereira[1,5], Associate Professor Christopher C Blyth[2,6], Professor Paul Van Buynder[7], Associate Professor Karin Lust[8], Dr Annette K Regan[1,2,9]

Affiliation: [1]Curtin University, Perth, Australia, [2]Wesfarmers Centre of Vaccines and Infectious Diseases, Telethon Kids Institute, Perth, Australia, [3]Menzies School of Health Research, Charles Darwin University, Darwin, Australia, [4]National Centre for Epidemiology and Public Health, Australian National University, Canberra, Australia, [5]Telethon Kids Institute, Perth, Australia, [6]School of Medicine, University of Western Australia, Perth, Australia, [7]Griffith University, Southport, Australia, [8]Royal Brisbane and Women's Hospital, Brisbane, Australia, [9]School of Public Health, Texas A&M University, College Station, United States

Abstract
Introduction/Background & Aims: Pregnant women and infants are at risk of severe influenza and pertussis infection. Inactivated influenza vaccine (IIV) and diphtheria-tetanus-acellular pertussis vaccine (dTpa) are recommended during pregnancy to protect both mothers and infants. In Australia, uptake is not routinely monitored but coverage appears sub-optimal. Evidence on the safety of combined antenatal IIV and dTpa is lacking, as is knowledge of population-level vaccine effectiveness. We will establish a population-based cohort of mother-infant pairs to measure the uptake, safety, and effectiveness of antenatal IIV and dTpa vaccines in three Australian jurisdictions.

Methods: 'Links2HealthierBubs' is an observational, retrospective cohort study established through probabilistic linkage of maternal, infant, and child administrative health data. The cohort includes registered births between 2012 and 2017 in Northern Territory, Queensland and Western Australia. Jurisdictional vaccination registers will be used to identify antenatal vaccination status and the gestational timing of vaccination. Information on maternal, fetal, and child health outcomes will be obtained through linkage to hospital and emergency department records, notifiable diseases databases, developmental anomaly registers, birth, and mortality registers.

Results: The Links2HealthierBubs cohort will include ~607,605 mother-infant pairs. Initial analysis of 134,698 West Australian mothers who gave birth between 2012 and 2016 showed 7.0% were vaccinated for influenza alone, 7.7% for pertussis alone, and 7.9% for both vaccines. Data collection in Northern Territory and Queensland is ongoing.

Conclusions: Links2HealthierBubs is the first national population-based study to evaluate the impact of antenatal vaccination programmes in Australia. Results will be used to guide national maternal immunisation policy.

Safety and Immunogenicity of 15-valent Pneumococcal Conjugate Vaccine in healthy infants

Authors: Dr Jennifer Coram[1], Dr Heather L. Platt[1], Kimberly A. Hurtado[1], Tulin Shekar[1], Shu-Chih Su[1], Dr Alison Pedley[1], Dr Camilo J. Acosta[1], Assoc Prof Bruce Tapiero[2], Dr Robert A. Clifford[3], Dr Nicola P. Klein[4], Dr David C. Hurley[5], Dr Kevin G. Rouse[6], Prof David Greenberg[7], Richard D. McFetridge[1], Jon E. Stek[1], Dr Kara Bickham[1], Dr Luwy K. Musey[1]

Affiliation: [1]MRL Research Laboratories, Merck & Co., Inc, Kenilworth, USA, [2]Hospital Sainte-Justine, Research, Montreal, Canada, [3]Coastal Pediatric Research, Charleston, USA, [4]Kaiser Permanente, Research, Oakland, USA, [5]Cottonwood Pediatrics, Research, Murray, USA, [6]The Children's Clinic, Research, Jonesboro, USA, [7]Soroka Medical Center, Research, Beersheba, Israel

Abstract

Background: A phase 2 study compared safety and immunogenicity of V114 (1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19F, 19A, 22F*, 23F, 33F*) to PCV13 in infants.

Methods: This randomized, blinded, comparator-controlled study evaluated lot consistency, vaccines were administered concomitantly with other routine pediatric vaccines at 2, 4, 6, and 12-15 months of age. Subjects received either Lot 1 V114 [n=350], Lot 2 PCV15 [n=347], or PCV13 [n=347]. Safety profiles were compared after each dose. The primary outcome measure was serotype-specific IgG≥0.35µg/mL for the 13 serotypes shared with PCV13 and IgG geometric mean concentrations (GMCs) for all 15 serotypes were measured by the pneumococcal electrochemiluminescence (Pn ECL) assay at 1-month post-dose 3 (PD3).

Results: At PD3, V114 met non-inferiority criteria for 13 of 13 shared serotypes with PCV13. Higher percentage point differences of response rates for serotype 3 in V114 versus PCV13 were observed (V114 Lot 1 – PCV13: 24.2% [18.6%, 30.0%]; V114 Lot 2 – PCV13: 22.3% [16.5%, 28.3%]). Both lots of PCV15 induced higher GMCs than PCV13 to serotypes 22F* and 33F*.

Most subjects in each group reported clinical AEs, and a comparable proportion of subjects reported serious AEs across groups (Lot 1 V114: 4.0%; Lot 2 V114: 3.7%; PCV13: 2.9%).

Conclusions: Both lots of V114 were non-inferior to PCV13 based on the proportion of subjects meeting the threshold value of ≥0.35µg/mL for serotype-specific IgG at 1-month PD3. Tolerability was comparable in all vaccine groups, and no safety signals were observed.

*Serotypes unique to V114

Providing a paediatric Influenza immunisation service, targeting immune compromised patients

Authors: Mrs Cathy Boundy[1], Joanne Hickman[2], Leanne Czerniecki[1]

Affiliation: [1]Monash Health, Clayton, Australia, [2]NUM Immunisation Clinic Monash Health

Abstract

Background: Infants and children younger than 5 years of age are at high risk of getting severe influenza infections that require hospitalisation, while children with underlying health problems are an even greater risk. At the beginning of the influenza season there was an identified opportunity to target children who were already attending Monash Children's Outpatient clinics. The group of children that stood out the most as needing such a service were the ones that fall into the juvenile idiopathic arthritis/connective tissue disease/ Lupus categories. 130 of these patients are on immunosuppressive medications and would benefit from an annual influenza vaccine.

Method: An immunisation service was set up in collaboration with the outpatients department of the Monash Children's hospital. An immunisation nurse circulated throughout the waiting room and spoke with specialist clinicians in order to target immune suppressed patients.

Results: Many of the children had never had influenza vaccine in the past and some of these families were hesitant regarding influenza vaccination.

Conclusion: Providing an effective immunisation service for these children and their families has shown to improve awareness regarding the importance of vaccinating against influenza. The service also highlights the scope to improve vaccine delivery to better target at-risk patients and greater uptake of vaccination.

MF59 Adjuvanted quadrivalent influenza vaccine for prevention of influenza in older adults

Authors: Mr Chris Clarke[1], Dr Alexander Kennedy[1], M Tham[1], B Zhang[2], W Vermeulen[2], B Leav[2], C Verhoeven[2], J Edelman[2], I Smolenov[2], A Figueroa[2]

Affiliation: [1]Seqirus Australia, Parkville, Australia, [2]Seqirus Inc, Summit, USA

Abstract

Background: The MF59-adjuvanted trivalent influenza vaccine (aTIV) has been consistently shown to offer additional clinical benefits over standard TIVs in older adults. To address the uncertain benefit of aTIV vs standard quadrivalent influenza vaccine (QIV), an adjuvanted QIV (aQIV) including a second B strain was developed to improve strain coverage for older adults.

Methods: The clinical development program for aQIV in adults ≥65 years included two Phase III, randomised, controlled trials. The immunogenicity of aQIV vs aTIV comparators was assessed during NH2017/18 influenza season, while the absolute efficacy of aQIV was evaluated during NH2016/17 and SH2017 seasons (with dTpa as comparator). The dominant circulating strain during both seasons was mismatched A/H3N2.

Results: In the immunogenicity study (n=1778), the HI antibody response to aQIV was non-inferior for strains common to aTIV comparators (GMT and SCR) and superior for the B strain not included in these comparators. In the efficacy study (n=6790), absolute efficacy against any RT-PCR confirmed influenza was 19.8% [95% CI; -5.3, 38.9] using the protocol-specified ILI definition, in line with global estimates of VE for influenza vaccines in these seasons. VE estimates were higher when other ILI definitions were used: 32.1% [95% CI; 10.2, 48.7] using a modified CDC ILI definition and 51.1% [95% CI; 28.2, 66.7] using a WHO ILI definition (analysed post-hoc). aQIV was well-tolerated in both studies with no safety concerns identified.

Conclusion: aQIV demonstrated increased immunogenicity and clinical protection in older populations compared with aTIV and non-influenza vaccine comparator respectively, with a positive benefit-risk profile.

Co-designing a tailored immunisation strategy in Maitland; reminders, outreach and homevisitng

Authors: Dr Susan Thomas[1,2], Ms Helen Higgins[3], **Mr Patrick Cashman[2]**, Ms Jody Stephenson[2], Ms Paula Taylor[2], Mr Fakhrul Islam[2], Professor David Durrheim[1,2]

Affiliation: [1]University Of Newcastle, School of Medicine and Public Health, Callaghan, Australia, [2]Hunter New England Local Health District, Population Health , Wallsend, Australia, [3]Hunter New England Local Health District, Child and Family Health Nurses, Maitland, Australia

Abstract

Background: Hunter New England Local Health District used the World Health Organization's Tailoring Immunization Programmes (TIP) guide to identify areas of low childhood coverage. In Maitland, 2016, 62.3% of one year olds were fully immunised. Parent's weren't opposed to immunisation but experienced socio-economic hardship, competing priorities and service access barriers. A flexible approach using reminders, outreach and homevisitng was suggested as an improvement strategy.

Methods: In 2017 a working party was formed comprised of immunisation stakeholders and community representatives to translate study findings and co-design a tailored strategy. The group met monthly, strengthening engagement with General Practice and reorienting Child and Family Health Nurses (CFHN) services. The Three Step Process was developed and recently implemented.

Results: Step One used monthly data from the Australian Immunisation Register to identify one year olds not fully immunised. Parents were sent a personalised reminder with a novel card informing them where they could access bulk-billing GPs. If Step One was unsuccessful, Step Two offered families a local outreach appointment where CFHNs could immunised the child. If Step Two was unsuccessful, Step Three offered parents a homevisit from the nurses. Preliminary results found 76.5% of one year olds were fully immunised (2018). Implementation is ongoing. An outcome evaluation is planned.

Conclusion: TIP was useful in identifying low coverage areas and designing tailored strategies to address barriers. Implementing change in service delivery takes time and requires clarity of new roles/responsibilities. Further capacity building amongst staff may be required. Strong partnerships are central throughout the process.

Monash Health Whole of Life Hospital Based Immunisation Service

Authors: Mrs Joanne Hickman[1], Dr Michelle Giles[1, 4, 7], Professor Jim Buttery[1,8,9,3]

Affiliation: [1]Monash Health, Melbourne, Australia, [2]Monash University, Clayton, Australia, [3]Murdoch Research Children's Institute, Melbourne, Australia, [4]The Alfred Hospital, Prahran, Australia, [7]Western Health, Melbourne, Australia, [8]University of Melbourne, Melbourne, Australia, [9]Royal Children's Hospital, Melbourne, Australia

Abstract

Clear context: Monash Immunisation (MI) was first established in 2011, as Australia's first hospital based all age immunisation service. MI serves the largest health-care network in Victoria, ranging from preterm infants to the elderly, including a large antenatal service. Monash Health provides tertiary health-care to Melbourne and Victoria's south eastern catchment. It also provides a phone advice service for health-care providers, local government immunisation providers and the community.

Process: MI is open five days a week, providing drop-in opportunistic immunisations and those prescribed by Monash Health clinicians. MI also provides SAEFVIC vaccine safety clinics, and offers supervised immunisations for day stay and overnight inpatients.

MI provides one of only two government funded BCG immunisation services for high-risk travellers under the age of five years in Victoria.

Analysis & Outcomes: The service has seen annual activity growth of 15 to 25%. In 2019 it is predicted that we will administer around 17,000 vaccines and receive 12,000 phone calls.

The adult to paediatric numbers was around a 3:2 ratio, however once MCH was built and co-located next to Monash Medical Centre, the ratio has extended to 7:3, due to geographical barriers. To achieve maximum reach within current financial constraints, MI has extended their services to clinics such as spina bifida, renal dialysis, antenatal, Children's Cancer Centre, paediatric rheumatology, and cystic fibrosis clinics. By embedding immunisation programs within current structures, MI support is needed only in a consultative role. It also provides an outreach service in collaboration with South Eastern Melbourne Primary Health Network.

During 2020 Monash Immunisation operated from a drive in model of care. 6,600 vaccines were delivered for the our high risk population from April 2020 to November 2020. A consumer survey was conducted with an overwhelmingly positive experience for patients.

Maternal Immunisation Uptake Audit at the Women's and Children's Hospital, North Adelaide

Authors: **Kathryn Riley[1,2]**, Mary Walker[1], Michelle Clarke[1,2], Professor Helen Marshall[1,2]

Affiliation: [1]Women's And Children's Hospital Network, North Adelaide, Australia, [2]Robinson Research Institute and Adelaide Medical School, University of Adelaide, Adelaide, Australia

Abstract

Background: Immunisation during pregnancy offers a mechanism to protect not only pregnant women but also their infant from serious infectious diseases. Influenza immunisation for pregnant women has been provided in Australia since 2010. In 2015, South Australia introduced a funded program for women to receive diphtheria-tetanus-acellular pertussis vaccine during each pregnancy. Although funded and recommended for pregnant women, there is little information about the uptake of this maternal immunisation program. It is essential that the uptake of vaccines recommended during pregnancy is monitored to ensure pregnant women and their infants are protected against these diseases.

Methods: Maternal immunisation data for influenza and pertussis vaccination was collected via medical case notes of women who delivered at the Women's and Children's Hospital during August 2016 and 2017. The percentage of women receiving influenza and pertussis vaccination during pregnancy was calculated and compared by year using chi square tests.

Results: 846 medical case notes were reviewed of women who delivered at the Women's and Children's Hospital during August 2016 and 2017. In 2016, 49% (n=196/402) of women received an influenza vaccination during pregnancy which increased to 58% (n=259/444) in 2017(p=0.004). In 2016, 62% (n=249/402) of women received a pertussis vaccination during pregnancy which increased to 71% (n=317/444) in 2017(p=0.004)

Conclusion: Our results showed that maternal immunisation uptake increased over time and that pregnant women had a higher uptake of pertussis vaccination than influenza vaccination. However, the uptake of pertussis and influenza vaccination during pregnancy remains suboptimal for this important vulnerable population.

20 Years of Universal Varicella Vaccination in the USA: Insights for Implementation

Authors: **Ms Julianne Bayliss[1]**, L Wolfson[2], E Richardson[2], B Kuter[2], J Kyle[2], Dr Debra Bourke[1], V Daniels[2]

Affiliation:[1]Seqirus, Parkville, Australia, [2]Merck & Co. Inc, Kenilworth, USA

Abstract

Background: The US introduced universal varicella vaccination (UVV) in 1996 (1-dose, children 1- 12 years; 2-doses, ≥13 years without varicella disease history). Routine uptake among 1-2 year olds was slow, reaching 90% coverage after 10 years. A second routine dose was introduced in 2006, reaching 90% rapidly. This study estimates the impact of UVV in the US, evaluates alternative coverage uptake scenarios, and examines implications for implementation of UVV in other settings.

Methods: Dynamic transmission model with age-specific vaccine coverage used to evaluate three scenarios: (A) UVV given actual coverage, including catch-up among pre-adolescents and older ages; (B) UVV with hypothetical two-dose program with rapid achievement of 95% 1st dose and 90% 2nd dose coverage, with both doses started together (no catch-up vaccination); (C) Hypothetical 2-dose UVV program with ten year delay between implementation of 1st and 2nd doses (no catch-up vaccination).

Results: Between 1996-2018, UVV with actual coverage (A) prevented an estimated 68,745,397 varicella cases and 2023 deaths; the 2-dose program (B) with high coverage from the outset, and without teenage catch-up, would have resulted in 13,236,904 additional cases averted, however, the age-shift in varicella cases is estimated to result in 576 additional deaths.

Conclusions: Vaccination of those outside targeted age ranges (12-15 months and 4-6 years) for paediatric vaccination was an important component of preventing an age-shift in varicella incidence. Rapidly achieving high coverage with the first dose would have led to earlier sustained reductions in varicella incidence, and modelling can provide important insights for design of UVV.

Protecting our most vulnerable: Reflections from Perth Children's Hospital Influenza vaccination program

Authors: Patricia Clifford[1], **Miss Filomena Mascaro[1]**

Affiliation: [1]Perth's Children's Hospital, Perth, Australia

Abstract
Influenza (flu) vaccination of young medically at-risk children, reduces the risk of hospitalisation and severe infection. The Perth Children's Hospital (PCH) outpatient department sees up to 800 children a day, capturing large numbers of eligible children. A dedicated nurse-led team delivered a 13-week targeted flu vaccination program at the Stan Perron Immunisation centre and mobile delivery service throughout outpatient areas from May to July 2019. Notifications for flu infection were unusually high early in the 2019 season. The PCH Immunisation service broadened flu vaccine eligibility to all children and families of the Child and Adolescent Health Care Service (CAHS) with the goal of providing optimal protection to our most vulnerable children.

Practical use of public health guidelines for the management of Meningococcal Disease

Authors: Brianna Morello[1], Dr Lynne Giles[1], Dr Adriana Milazzo[1], Prof Helen Marshall[1,2,3,4]

Affiliation:[1]University of Adelaide, Adelaide, Australia, [2]Vaccinology and Immunology Research Trials Unit (VIRTU), Adelaide, Australia, [3]Women's and Children's Hospital, Adelaide, Australia, [4]Robinson Research Institute, Adelaide, Australia

Abstract
Context: Invasive Meningococcal Disease (IMD) is a rare but serious infection caused by Neisseria meningitidis bacteria. Even with prompt treatment, IMD cases have high risk of mortality or long-term side-effects. Public health management of IMD is ongoing, and a major priority is the prevention of disease transmission from IMD cases to their close contacts. The Communicable Disease Network Australia (CDNA) has developed national guidance for public health staff on how best to manage IMD cases and contacts.

Process: Public health guidelines for the management of IMD were sourced from the CDNA, along with seven other guidelines from international public health agencies (n=8). Guidelines were appraised in four key domains: stakeholder involvement, developmental rigour, clarity and applicability. Results from the appraisal were used to develop a structured survey tool for delivery to public health staff in Australia, regarding their use of CDNA guidelines for management of IMD contacts.

Analysis: The sporadic nature of IMD, along with limited evidence surrounding the risks of disease transmission, has led to discrepancies in management strategies between countries. Within Australia, there is limited understanding of how CDNA recommendations are being implemented in practice. Survey outcomes will be used to determine public health staffs knowledge, attitudes, and practices regarding guideline implementation for management of IMD case contacts.

Outcomes: Communicable disease control is a global issue, requiring trans-national co-operation in public health management strategies. Additionally, an understanding of how public health staff use guidelines in practice will allow for the development of more tailored and applicable recommendations.

Impact of Q-VAX® pre-vaccination screening results -analysis of the Q Fever Register

Author: Dr. Daphne Sawlwin[1], Eve Williamson[1], Jane Deane[1], Dr. Annie Solterbeck[2], Yu Daniel[1]

Affiliation: [1]Seqirus Pty Ltd, Parkville, Australia, [2]Statistical Revelations Pty Ltd, Melbourne, Australia

Abstract
Background: The Australian Q Fever Register is an occupational register owned and funded by the Australian Meat Processor Corporation. It stores information on the immune status of registered individuals, including pre-vaccination screening results (Skin Test and Serology) and Q-VAX® vaccination record. A positive result from either Q fever skin test or serology can indicate prior exposure and sensitisation to Coxiella burnetii, and contraindicates vaccination. This study assessed concordance between the two tests and their use in confirming the decision to vaccinate.

Method: A retrospective analysis was performed on the dataset of all individuals on the Q Fever Register entered between 2002 and 2015. Vaccination events and result of skin test and serology occurring on different days were matched using a windowing technique to align individual records.

Results: 138,040 registered individuals produced 140,786 records, of which 94% (132,276) included results from both skin test and serology. 121,370 (91.8%; CI 91.6-91.9) records showed agreement between the skin test and serology results, of which 98.9% of negative and 99.3% of positive concordant results resulted in appropriate vaccination outcomes. Of the records showing discordant pre-vaccination test results, there were 8,185 Skin Test Positive-Serology Negative results and 2,710 Skin Test Negative-Serology Positive results. Despite the contraindication, these results led to vaccination in 2.2% and 5.1% of cases respectively.

Conclusion: There is a high concordance between Q-VAX® Skin Test and serology results that suggest skin test can determine vaccination. However, there is a small number of cases where serology provided additional information required to vaccinate individuals.

Lack of recognition of pertussis risk for patients with chronic respiratory diseases

Authors: Ms Roshnee Randhawa, **Dr Claire Borg[1]**, Kyu-Bin Oh[2], Michael Nissen[2]

Affiliation:[1]Gsk, Abbotsford, Australia, [2]GSK, Singapore

Abstract

Background: Adults with chronic respiratory diseases are more susceptible to respiratory infections and an increased burden of symptoms. Specifically, pertussis infection in adults with asthma or chronic obstructive pulmonary disease (COPD) can lead to longer periods of cough, increased frequency of night-time symptoms and increased medication use.

Methods: Qualitative and quantitative surveys to understand perception of vaccine preventable diseases and decisions relating to vaccination in high-risk groups, including those with respiratory disease, was undertaken with GPs and the general public on a yearly basis between 2017 and 2019.

Results: Most GPs proactively check pertussis vaccination status only for specific groups of adult patients (range 60-65%), with those in contact with infants most often being checked (79% in 2019). In 2019, only 1 in 5 patients with respiratory diseases were proactively asked about their pertussis vaccination status, an increase compared with previous years (2% in 2017; 15% in 2018).

In 2019, the majority (68%) of respondents diagnosed with asthma or COPD indicated low levels of concern regarding their risk of contracting pertussis. However, 81% stated that they would consider vaccination if recommended by their GP. Importantly, 66% of GPs would be more likely to recommend pertussis vaccination for their patients with respiratory diseases if an advisory body recommended it.

Conclusions: There is a significant opportunity to improve the awareness of pertussis and the uptake of pertussis containing vaccines in all Australian adults, but particularly for those with chronic respiratory diseases as a risk factor.

1A - Advocacy and Government Policy

Long Oral Presentations

No Jab No Pay/Play: how much impact on child immunisation rates?

Author: Dr Katie Attwell[1], Prof David Lawrence[1], Ms Rebecca Seth[1], Dr Frank Beard[2], Ms Alexandra Hendry[2]

Affiliation: [1]The University Of Western Australia, Perth, Australia, [2]National Centre for Immunisation Research and Surveillance, Sydney, Australia

Abstract

Background: In 2016 the Australian Government introduced No Jab No Pay (NJNPay) whereby parents of incompletely vaccinated children lost access to certain financial assistance. Victoria and Queensland simultaneously introduced variants of No Jab No Play (NJNPlay) policy (joining NSW's 2014 policy) which restricted these children's access to day-care and early childhood education.

Methods: For each state, we fitted separate AutoRegressive Integrated Moving Average interrupted time series models for the percentage of incompletely vaccinated 12-month old children, using quarterly immunisation coverage data from 2009-2017. The model tested for immediate change in immunisation coverage at the time of policy introduction, as well as subsequent change in rate of decrease.

Results: From 2009-2018, the percentage of incompletely vaccinated children decreased by about 0.5% annually, from 12.5% to 7.5%. In 2016, there was an immediate decrease of 1% in the number of not fully immunised children nationally. Although this decrease was only statistically significant in Queensland (-1.2%, p=0.02) and Tasmania (-1.7%, p = 0.03), the direction of the change was consistent across all states. After policy introduction, the percentage of not fully immunised children continued to decrease at the same rate as previously. However, no statistically significant sustained intervention effect was found for any state.

Conclusion: Our study documents an immediate one-off decrease of 1% associated with 2016 NJNPay/Play policy introductions. However the subsequent rate of decrease has been similar to that of pre-2016.

No Jab, No Play, Which Way?: Australian state-level daycare vaccine mandates 2014-2019

Author: Dr Katie Attwell[1], Associate Professor Glenn Savage[1]

Affiliation [1]University Of Western Australia, CRAWLEY, Australia

Abstract

Background: Australia has been at the forefront of high income countries applying stringent consequences on vaccine refusers. Four States have restricted access to childcare and early education via "No Jab, No Play" (NJNPlay) policies. Little is known about how the dynamics of policy development shaped each State's policy design and implementation, or how the policies operate in practice and comparatively.

Methods: This paper draws on qualitative analysis of Hansards, policy documents and semi-structured interviews with key actors from government, opposition, bureaucracy, academia and civil society. It utilises a 'policy assemblage' methodology (Baker and McGuirk 2017; Savage 2019), considering the interplaying dynamics inherent to the method.

Results: Since 2014, NJNPlay policies have expanded to four States and (in some jurisdictions) become more restrictive. However, each has emerged with distinct features and characteristics due to local historical and context-dependent 'conditions of possibility.' Influential factors included interventions by specific policy actors – particularly with regard to agenda-setting – and lesson-drawing from other jurisdictions. Both were especially pertinent regarding the construct of the "vulnerable child" who, in not being the children of refusers, was not the desired target of exclusions. The treatment of the "vulnerable child" has been hotly politically contested and resulted in different outcomes. The Federal "No Jab, No Pay" policy, which has no exemptions or grace periods, was also influential.

Conclusion: NJNPlay policymakers grappled with the two disparate reasons for under-vaccinated children – access and acceptance. State-based policies reflect local drivers and influences as well as national influences.

Manufacturing Consent for Vaccine Mandates: Communication Campaigns in France and Australia

Author: Sian Tomkinson, **Dr Katie Attwell[1]**, Dr Jeremy Ward[2]

Affiliation [1]University Of Western Australia, CRAWLEY, Australia, [2]Centre Nationale de la Recherche Scientifique, Paris, France

Abstract

France and Australia are among a handful of high-income jurisdictions to recently introduce more comprehensive and restrictive mandatory childhood vaccination regimes in response to parental refusal. Governments making childhood vaccination more mandatory can be met with pushback from the public. Hence such policies may be accompanied by some form of communication to manufacture consent for either vaccination, mandatory vaccination policies, or both. This paper examines the French and Australian government's new mandatory vaccination regimes, the communication strategies undertaken to manufacture consent for them, and the complex ways these policies interact. The analytical focus is the content

of the websites at the centre of the communications campaigns as well as relevant texts and key informant interviews conducted in both countries. We report three key findings. First, both countries' governance strategies intertwine persuasion with coercion in complex ways. Second, each website reflects local constructions of under-vaccination, especially regarding social groups and motivations. Third, vastly different communication styles reflect alternative ways of constructing the public as well as differences in the use of communication expertise in website production. These factors produce different tactics regarding manufacturing consent for vaccination and for vaccine mandates. We conclude that manufacturing consent for vaccination is a laudable exercise, but the involvement of numerous actors and institutions results in various interests, objectives, and conceptions of what drives audience reception, resulting in divergent strategies. Manufacturing consent for vaccine mandates themselves is a more complex task that relies on understandings of community, knowledge, and effective channels of state power.

Standing up for my child: The lived experience of non-vaccinating Australian parents

Author: Dr Kerrie Wiley[1], Dr Katie Attwell[2], Ms Catherine Helps[1], Dr Chris Degeling[4], Professor Paul Ward[3], Professor Stacy Carter[4], Professor Julie Leask[1]

Affiliation [1]University Of Sydney, Sydney, Australia, [2]University of Western Australia, Perth, Australia, [3]University of Adelaide, Adelaide, Australia, [4]University of Wollongong, Wollongong, Australia

Abstract

Background: Vaccine refusal is a polarising subject in Australia producing an evolving social landscape that non-vaccinating parents must navigate. Understanding the lived experience of non-vaccinating parents is important to addressing it as a social phenomenon, but few studies have examined it in the post No Jab, No Pay / Play era.

Methods: We recruited a national sample of parents who rejected some/all vaccines for their children <18 yrs. Strategies included advertising on national radio, in playgrounds in low coverage areas, and snowballing. Grounded Theory methodology guided data collection (via semi-structured interviews) and analysis.

Results: Twenty-two parents from five states and a variety of regional and urban locations were interviewed. Parents did not identify as the "anti-vaxxers" often portrayed in the media and described frustration at being portrayed as "idiots" in general discourse, believing they were defending their child from harm. They described social ramifications of their decisions including relationship loss, social isolation, fear of judgement when attending medical facilities, and discrimination by medical professionals and other parents. The experience of being stigmatized was further cemented by the legislative changes, which for many increased their steadfastness in their position.

Conclusion: Non-vaccinating Australian parents feel stigmatised for defending their child from perceived harm, reporting a range of social, psychological and financial effects. The legislative strategy to financially penalise them has only confirmed their perception of stigma, leading many to remain even more steadfast in their decision. This insight should be used to inform engagement with non-vaccinating parents and future policy approaches.

No fault compensation for Australia? What Australian advocates can learn from overseas.

Author: Ms Shevaun Drislane[1]

Affiliation [1]University Of Western Australia, Crawley, Australia

Abstract

Background: Despite introducing significant policies and programs to improve vaccination rates in Australia (such as 'No Jab, No Pay'), Australia has yet to implement a no fault compensation (NFC) scheme for the small number of individuals who experience serious adverse effects following vaccination. By not implementing NFC, Australia fails to recognise its responsibility to individuals who are harmed by i) complying with vaccine mandates, and ii) contributing to protection of public health. This research explores how advocates can play a role in the enactment of such a policy.

Methods: Case studies of the United Kingdom and United States were compiled from primary and secondary sources and qualitatively analysed using multiple streams analysis and social movement theories to explain how advocates for NFC; in particular parents of vaccine injured children; were driving forces in the establishment of NFC schemes. Findings from this process were subsequently applied to qualitative analysis of empirical interviews with Australian experts and actors, in order to highlight factors in Australia that may impede or encourage the enactment of NFC.

Results: NFC advocates in the U.K. and U.S. effectively used social movement strategies (including framing, generating public attention and forming beneficial alliances) to initiate NFC policy implementation. Comparisons are drawn with Australia to analyse the applicability of a similar framework of strategies.

Conclusion: Lessons from UK and US offer guidance to current and potential advocates as to how they could encourage the Australian government to establish an Australian no fault compensation scheme for serious adverse effects following vaccination.

1B - Vaccine Preventable Diseases

Long Oral Presentations

2020GSK Grant Winner:
Improving engagement in pre-travel care and uptake of pre-travel vaccination amongst venerable travellers

Author: Sarah McGuinness

Abstract

Travellers play a key role in the spread of infections globally, and are an important source of imported infections in countries with high public health standards and robust communicable disease control systems, such as Australia. Migrants who return to their country of origin to visit friends and relatives (VFR travellers) are at greater risk for a range of preventable infections (including hepatitis A, typhoid and measles) compared to other travellers. In culturally diverse Australia, a quarter of the population are first generation migrants, and almost 1 in 4 short-term international departures are for the purpose of VFR. VFR travellers are less likely to seek pre-travel health advice and more likely to decline vaccine recommendations than other travellers. Contributing factors include a lack of awareness of or access to pre-travel services, misconceptions of health risks, and language barriers. Despite nearly two decades of literature highlighting the disproportionate burden of travel-related infectious disease acquisition in VFR travellers, evidence-based strategies to improve VFR traveller engagement in pre-travel care and address barriers to uptake of pre-travel vaccination are lacking.

We propose to develop and launch an evidence-based health promotion campaign targeted at VFR travellers that aims to increase awareness of the risks associated with VFR travel, encourage greater attendance for pre-travel health consultations, and motivate VFR travellers to protect their health through pre-travel vaccination. Our proposal has three phases. In Phase 1, we will utilise existing collaborations to recruit two groups of VFR travellers through three Australian tertiary hospitals and their associated pre-travel clinics: i) unwell VFR travellers presenting to hospital with a travel-related infection, and ii) well VFR travellers attending for pre-travel advice. With both groups, we will conduct quantitative surveys and qualitative semi-structured interviews informed by established conceptual frameworks for health beliefs and behaviour (Health Belief Model and COM-B model) and use a mixed methods analytic approach to identify and understand key barriers and enablers to engagement in pre-travel care and uptake of pre-travel vaccination. Data collected in Phase 1 will also be used to identify the top 3 VFR communities of highest priority, key information sources for VFRs, and key stakeholder groups (e.g. migrant healthcare providers, migrant community groups, community organisations, travel agents) for the next phase of our project. In Phase 2, we will use a co-design process to develop culturally-appropriate health promotion materials and determine the most appropriate channels for dissemination (e.g. social media, internet-based, local radio, print materials). A purposive selection of VFR travellers, representatives from community stakeholder groups and healthcare providers will be invited to participate in co-design workshops, with interpreters employed where necessary. In Phase 3, we will work with stakeholders to launch a health promotion campaign that aims to improve knowledge and awareness of travel health risks, engagement in pre-travel care, and uptake of pre-travel vaccination amongst VFR travellers.

Impact of meningococcal vaccine programs on carriage of Neisseria meningitidis in adolescents

Authors: Kumaran Vadivelu[15], Professor Helen Marshall[1,2,3], **Mark McMillan[1,2,3],** Ann Koehler[4], Andrew Lawrence[5], Thomas Sullivan[6], Jenny MacLennan[7], Martin Maiden[7], Shamez Ladhani[8], Mary Ramsay[8], Caroline Trotter[8,9], Ray Borrow[10], Adam Finn[11,12], Charlene Kahler[13], Jane Whelan[14], Peter Richmond[16,17]

Affiliation: [1]Vaccinology and Immunology Research Trialss Unit, Women's and Children's Hospital, Adelaide, Australia, [2]Robinson Research Institute, Adelaide, Australia, [3]Adelaide Medical School, The University of Adelaide, Adelaide, Australia, [4]Communicable Disease Control Branch, SA Health, Adelaide, Australia, [5]SA Pathology, Adelaide, Australia, [6]School of Public Health, University of Adelaide, Adelaide, Australia, [7]Department of Zoology, University of Oxford, Oxford, England, [8]Immunisation Department, Public Health England, London, England, [9]Departments of Pathology & Veterinary Medicine, University of Cambridge, Cambridge, England, [10]Meningococcal Reference Unit, Public Health England, Manchester, England, [11]Bristol Children's Vaccine Centre, University of Bristol, Bristol, England, [12]Schools of Cellular and Molecular Medicine & of Population Health Sciences, University of Bristol, Bristol, England, [13]Marshall Centre for Infectious Disease Research and Training, School of Biomedical Science, University of Western Australia, Perth, Australia, [14]GlaxoSmithKline Vaccines , Amsterdam, Netherlands, [15]GlaxoSmithKline Vaccines, Rockville, United States, [16]School of Medicine, University of Western Australia, Perth, Australia, [17]Wesfarmers Centre of Vaccines and Infectious Diseases, Telethon Kid's Institute, Perth, Australia

Abstract

Introduction: Carriage prevalence of Neisseria meningitidis is highest in adolescents. In South Australia in 2017, 34,489 senior school students enrolled in a cluster RCT to assess impact of 4CMenB on carriage of Neisseria meningitidis. In February 2019 a state funded program was introduced for 15-20 year olds. Additionally a nationally funded MenACWY vaccine program was introduced in April 2019 for 14-19 year olds. This study aimed to assess the impact of 4CMenB vaccine on carriage prevalence in school leavers in SA.

Methods: Repeat cross-sectional study assessing carriage prevalence in 2018, 2019 and 2020. An oropharyngeal swab is obtained from each adolescent and a risk factor questionnaire completed. Vaccination history is confirmed through the study database, immunisation provider and Australian Immunisation Register.

Results: 4062 swabs were collected in 2018 and 2859 in 2019 (to date). Carriage of disease-associated meningococci was 5.4% in 2018 compared to 4.1% in 2019 (OR=0.73 (95%CI 0.57, 0.93); p=0.01). Carriage of genogroup W and Y was lower in 2019 compared to 2018 (OR=0.16 (95%CI 0.04, 0.70), OR=0.70 (95%CI 0.48, 1.00)) respectively. Carriage prevalence of all Neisseria meningitidis was lower in 4CMenB vaccinated (7.6%) compared to unvaccinated (10.4%) adolescents (OR=0.71 (0.52, 0.98); p=0.035). There was no reduction in carriage of genogroup B. Drinking ≥3 alcoholic drinks in one session and kissing ≥1 person were independent risk factors for carriage of disease-causing strains (aOR=3.0 (95%CI 1.86, 4.87), aOR=2.1 (95%CI 1.42, 3.03)).

Conclusion: Evidence of an impact on carriage was observed although most likely an effect of meningococcal ACWY vaccine.

Influenza vaccination by Vaxxas patch; clinical trial results and real-world applications.

Author: Mr Charles Ross[1]
Presenter: Mr Robert Booy

Affiliation: [1]Vaxxas Pty Ltd, Woolloongabba, Australia

Abstract
Background: The Vaxxas patch is a High-Density Micro-Array Patch (HD-MAP) for vaccine delivery into the skin. We have conducted a phase I trial using the HD-MAP to deliver monovalent influenza vaccine. This is the first clinical evaluation of the vaccine dose-sparing potential of a MAP.

Methods: HD-MAPs were coated with a split inactivated influenza virus. Healthy volunteers were vaccinated with doses of 15, 10, 5, or 2.5 µg of A/Singapore haemagglutinin (HA) via HD-MAP applied to the forearm (FA) or upper arm (UA). Control groups received uncoated HD-MAPs applied to the FA or commercially available influenza vaccine delivered intramuscularly (IM) to the deltoid.

Results: 2.5 µg HA administered by HD-MAP induced haemagglutination inhibition (HAI) and microneutralization (MN) titres that were not significantly different to those induced by 15 µg HA injected IM. HD-MAP delivery of 15 µg (FA and UA) and 10 µg (FA) HA resulted in a faster increase in HAI responses than IM injection.

Conclusion: Vaccination using the HD-MAP resulted in immune responses that were equivalent to or enhanced compared with IM injection. Using the HD-MAP, a 2.5 µg dose (1/6 of the standard dose), induced HAI and MN titres equivalent to those seen with 15 µg HA injected IM. Removal of cold-chain, simplicity of use and the potential enhanced immunogenetic advantages of dose sparing and early onset kinetics makes the HD-MAP ideal for real world applications such as pandemic influenza and developing countries.

MenB vaccine impact on MenB disease, carriage and gonorrhoea in South Australia

Author: Professor Helen Marshall[1,2], Dr Bing Wang[1,2], Mr Mark McMillan[1,2], Dr Prabha Andraweera[1,2], Ms Sara Almond[3], Ms Michele AHoure[3], Mr Noel Lally[3], Ms Emma Denehy[3], A/Prof Ann Koehler[3], Dr Louise Flood[3]

Affiliation: [1]Vaccinology and Immunology Research Trials Unit, Women's and Children's Health Network, Adelaide, Australia, [2]Robinson Research Institute and Adelaide Medical School, Adelaide, Australia, [3]Communicable Disease Control Branch, SA Health, Adelaide, Australia

Abstract
Background: A meningococcal B (MenB) immunisation program was introduced in South Australia (SA) for those 6 weeks to < 4 years of age from 01 October 2018 and for those 15-20 years of age from 01 February 2019. We aimed to evaluate coverage, safety and vaccine impact on MenB disease, carriage of Neisseria meningitidis and gonorrhoea following program introduction.

Methods: Coverage was estimated using the Australian Immunisation Register. Adverse events following immunisation (AEFI) were reported to SA Health. Vaccine coverage and safety are reported descriptively. Oro-pharyngeal swabs will be collected from school leavers 12 months post implementation of the adolescent program. Vaccine impact will be assessed separately for the infant and adolescent program and for gonorrhoea in young adults using a Poisson regression analysis.

Results: One dose 4CMenB vaccine coverage one year following program commencement was 93% in infants <12 months, and 74% in children 1-3 years of age. One dose 4CMenB vaccine coverage seven months following program commencement was 77% for adolescents in Year 10 and approximately 36% for young adults. The reporting rate for AEFI was 86/100,000 with 21 serious adverse events reported. There was a reduction in meningococcal disease in the vaccinated cohorts in 2019 with all cases occurring in un/under vaccinated children; one case in < 1 year olds, 2 cases in 1-3 year olds, 1 case in 15-20 year olds compared to 14 cases in 2018.

Conclusion: MenB vaccine is effective against MenB disease in a state population program and has an acceptable safety profile.

Uptake and influenza vaccine effectiveness in Australian children with chronic lung diseases

Authors: Dr Nusrat Homaira[1,2], Dr Parveen Fathima[3], Dr Faye J. Lim[3], Dr Hannah C Moore[3], Dr Heather Gidding[4,5], Dr Christopher Blyth[3,6,7,8], Dr Tom Snelling[3,7], Prof Adam Jaffe[1,2]

Affiliations: [1]Unsw, Sydney, Randwick, Australia, [2]Sydney Children's Hospital, Randwick, Australia, [3]Wesfarmers Centre of Vaccines and Infectious Diseases, Telethon Kids Institute, The University of Western Australia, Perth, Australia , [4]Faculty of

Medicine and Health, The University of Sydney Northern Clinical School, Women and Babies Research, Sydney, Australia, [5]National Centre for Immunisation Research and Surveillance, Westmead, Australia, [6]School of Paediatrics and Child Health, The University of Western Australia, , Perth, Australia, [7]Department of Infectious Diseases, Princess Margaret Hospital for Children, Perth, Australia, [8]Department of Microbiology, PathWest Laboratory Medicine WA, Princess Margaret Hospital for Children, Perth, Australia

Abstract

Influenza is one of the main viral aetiologies associated with exacerbations of chronic lung diseases (CLDs) in children. The Australian National Immunisation Program recommends influenza vaccine for children aged ≥6 months with chronic medical conditions. However, there are limited data on uptake vaccine and effectiveness of influenza in children with CLDs. We performed a retrospective cohort study using population-based linked administrative data for all children aged ≤7 years with CLDs (including severe asthma, cystic fibrosis, bronchopulmonary dysplasia and other chronic/congenital lung diseases) born in New South Wales and Western Australia between 2001-2012 and followed until 2013. The exposure was influenza vaccination status obtained from the linked national immunisation registry. The primary outcome was any influenza-coded hospitalisation retrieved from the hospital dataset. Cox regression models were used to assess the effectiveness of influenza vaccination in preventing hospitalisation. Of the 1,407,182 children born during 2001-2012, 18,954 children (1.4%) had one or more CLDs; 2479 children (13%) received ≥1 doses of influenza vaccine. The incidence/1000 child-years (95% CI) of influenza-associated hospitalisation in vaccinated children with CLDs was 54.38 (42.04 – 69.75) and for unvaccinated children was 30.45 (29.04–31.93). The hazard ratio of being hospitalised with influenza in vaccinated children compared to unvaccinated children was 1.48 (1.14-1.93). The incidence/1000 child-years (95% CI) of influenza-associated hospitalisation in vaccinated children with CLD was 49.9 (38.2-65.2) and in unvaccinated children was 26.1 (24.6-27.6). The hazard ratio of being hospitalised with influenza in vaccinated children compared to unvaccinated children with CLDs was 1.4 (1.0-1.8).This large population-based study has demonstrated low uptake of influenza vaccine in children with CLDs. Strategies to improve influenza vaccine uptake and recording of influenza vaccination status may provide better estimates for vaccine effectiveness.

1C - VPD in special populations

Long Oral Presentations

Maternal vaccine effectiveness in preventing influenza illness in young Australian infants.

Authors: Ms Jocelynne McRae[1,2], A/Prof Christopher Blyth[3,4,5], Prof Allen Cheng[6,7], Dr Helen Quinn[1,2], A/Prof Nicholas Wood[1,2], Prof Kristine Macartney[1,2,8]

Affiliations: [1]Discipline of Child and Adolescent Health, School of Medicine, The University of Sydney, Sydney, Australia, [2]National Centre for Immunisation Research and Surveillance, Westmead, Australia, [3]School of Medicine, University of Western Australia, Perth, Australia, [4]Department of Infectious Diseases, Perth Children's Hospital , Perth, Australia, [5]Wesfarmers Centre of Vaccines and Infectious Diseases, Telethon Kids Institute, University of Western Australia, Perth, Australia, [6]Infection Prevention and Healthcare Epidemiology Unit, Alfred Health, Melbourne, Australia, [7]School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia, [8]Department of Infectious Diseases and Microbiology, Children's Hospital Westmead , Sydney, Australia

Background: Infants <6 months of age are at high risk of severe hospitalised influenza. We sought to explore risk factors for hospitalisation and predictors for disease severity. Maternal vaccine coverage and vaccine effectiveness (VE) in Australian infants were estimated for a four-year period (2016-2019).

Methods: Clinical and demographic data on infants hospitalised between 2011 to 2019 was captured using two active prospective Australian sentinel hospital surveillance networks. Multivariate regression analyses were performed to predict severity outcomes. Cases and controls captured through a test-negative design study were used to estimate maternal VE against early infant hospitalisation using conditional logistic regression. Control infants provided an estimate of maternal vaccine coverage.

Results: Of 680 laboratory-confirmed cases from 2011-19, 14.5% were Indigenous Australians. Median age was 2.6 months, 19.2% were born premature, 19.0% had an underlying medical condition. Factors associated with intensive care unit admission (14.7%) were age <1 month (aOR 3.95, 95%CI: 1.47, 10.60), comorbidity (aOR 7.69, 95%CI: 4.04, 14.64) and prematurity (aOR 2.60, 95%CI: 1.40, 4.81). The pooled maternal VE estimate for 2016-2019 for infants <6 months was 37% (95% CI: 2%, 60%) and higher for infants <2 months at 49% (95% CI: 11%, 71%). Maternal vaccine uptake among controls was 37.7%.

Conclusions: Infants aged <6 months experience severe influenza. Maternal vaccination is effective at reducing infant disease but varies by season and efforts are needed to increase uptake.

Immunisation of Victorian Aboriginal children: patterns of service access.

Authors: Ms Kylie Carville[1], Ms Cathy McNamara[2], Ms Chelsea Taylor[2], Ms Lucinda Franklin[3]

Affiliation: [1]VIDRL At The Doherty Institute, Melbourne, Australia, [2]Immunisation Section, Office of Health Protection, Victorian Government Department of Health and Human Services, Melbourne, Australia, [3]Communicable Diseases Epidemiology and Surveillance, Office of Health Protection, Victorian Government Department of Health and Human Services, Melbourne, Australia

Background: The National Immunisation Program (NIP) can be delivered by a range of services, including general practice, councils, and for Aboriginal people, by Aboriginal Community Controlled Health Organisations (ACCHOs). Understanding where Aboriginal children are immunised can help target immunisation policy and programs, and other health messages.

Methods: Australian Immunisation Register (AIR) reports are available to the Immunisation Section of the Victorian Government Department of Health and Human Services to assist with best practice immunisation. Data on service accessed was analysed for Aboriginal children aged <7 years who had received at least one immunisation during 2016. As AIR 'provider type' is a mix of service and individual provider type the data were recoded (ie 'Medicare GP' was recoded to general practice or ACCHO). Prior immunisations received by these children were also analysed.

Results: In 2016, 3,598 Aboriginal children received 14,760 immunisations during 6,784 visits. ACCHOs and Council were each the site of 19% of visits, with 58% at general practice. Most children attending general practice only used general practice (70%), whilst children ever attending an ACCHO or Council were more likely to use multiple services. Only 3% of immunisations were given when overdue, with more delivered at ACCHOs ($p<0.05$). Details on pattern of service use by age and dose will be presented.

Conclusion: General practice plays a key role in delivery of immunisation to Aboriginal children in Victoria. However, ACCHOs play a key role, with children attending an ACCHO more likely to use a range of services and to be overdue

A Nurse Practitioner led immunisation service for adults with special vaccination requirements

Author: Madeline Hall[1]

Affiliations: [1]Royal Brisbane and Women's Hospital, Herston, Australia

Context: Most jurisdictions in Australia have dedicated immunisation services for children with special vaccination requirements. There are very few dedicated services available for adults, many of whom have medical conditions that increase the risk of infectious diseases. This often means that vaccines are withheld due to concerns of potential Adverse Events Following Immunisation (AEFI).

Process: Aiming to ensure access and equity to quality health care, a Nurse Practitioner (NP) led adult immunisation service has been established at the Royal Brisbane and Women's Hospital, for adults who have a history of:

- a severe reaction to a previous vaccine;
- severe allergies;
- current immunocompromise, due to disease or treatment.

Analysis: Through the expanded role of the NP, advanced physical assessment, ordering and interpreting of diagnostic results, referrals to other health care providers, and prescribing of appropriate medications can be provided to adult patients with special vaccination requirements. Following a comprehensive assessment, vaccinations can be provided in the hospital setting, with an extended period of observation afterwards. This provides reassurance for patients who may be concerned with having an AEFI in the community setting, and ensures that any untoward medical occurrence can be dealt with promptly.

Outcomes: Patient and clinician feedback has been very positive, with an increase in referrals to the service occurring each year. The service has reduced waiting times significantly for these patients as they no longer need to be seen by a medical officer prior to vaccinations being administered, and ensures that vaccines are not withheld unnecessarily.

1D - Vaccine Safety

Long Oral Presentations

Safety of meningococcal B vaccine in adolescents in Australia

Authors: Bing Wang[1,2], A/Prof Ann Koehler[3], **Dr Bing Wang[1,2]**, Ms Michele A'Houre[3], Dr Michael Gold[1,2], Dr Helen Quinn[4,5], A/Prof Nigel Crawford[6], A/Prof Nicole Pratt[7], Dr Thomas Sullivan[8,9], Prof Kristine Macartney[4,5]

Affiliation: [1]Robinson Research Institute and Adelaide Medical School, University Of Adelaide, North Adelaide, Australia, [2]Vaccinology and Immunology Research Trials Unit, Women's and Children's Health Network, North Adelaide, Australia, [3]Communicable Disease Control Branch, SA Health, Government of South Australia, Adelaide, Australia, [4]National Centre for Immunisation Research and Surveillance (NCIRS), Westmead, Australia, [5]Discipline of Child and Adolescent Health, University of Sydney, Sydney, Australia, [6]Murdoch Children's Research Institute (MCRI), Royal Children's Hospital & Department of Paediatrics, The University of Melbourne, Parkville, Australia, [7]School of Pharmacy and Medical Services, University of South Australia, Adelaide, Australia, [8]School of Public Health, The University of Adelaide, Adelaide, Australia, [9]SAHMRI Women & Kids, South Australian Health & Medical Research Institute, Adelaide, Australia

Background: Meningococcal B (4CMenB) vaccine is licensed in many countries but has had limited use in adolescents despite this age group being at increased risk of meningococcal disease. The study aimed to assess the safety profile of two doses of 4CMenB in adolescents.

Methods: Cluster randomised controlled trial of senior high school students in South Australia with participating schools randomised to intervention (4CMenB) or control. Vaccine safety was monitored using the South Australian Vaccine Safety Surveillance System, a passive reporting system for adverse events following immunisation (AEFI). This was enhanced by soliciting AEFI reports from parents/students/teachers/providers to a designated telephone line and follow-up of AEFI reports.

Results: 34,489 students were enrolled, with 58,637 doses of 4CMenB vaccine administered to 30,522 students from April 2017 to December 2018. Of 18,348 and 12,174 students vaccinated in 2017 and 2018, 28,115 students received both vaccine doses. Of a total of 193 reported AEFI in 187 individuals, 70 (including 9 SAEs) individuals sought medical review. Of those who sought medical review 84% (59) provided follow-up data and 97% of these (57) reported resolution of symptoms. Most common AEFI were injection site reactions, headache and nausea. AEFI were more frequently reported in younger students ($p<0.001$), females ($p=0.049$), from schools with high level of educational advantage ($p=0.048$), following the first dose ($p=0.004$), and in 2017 ($p=0.049$).

Conclusion: In this largest post-licensure cohort-based adolescent study of 4CMenB the reporting rate of AEFIs was low providing real-world evidence of 4CMenB safety in this age group.

Self-controlled case series analysis of zoster vaccine safety using primary care data

Authors: James Totterdell[2], **Dr Anastasia Phillips[1,2,3]**, Catherine Glover[3], Kendall Chidwick[4], Dr Julie Marsh[2], Professor Tom Snelling[2], Professor Kristine Macartney[1,3]

Affiliation: [1]University Of Sydney, Camperdown, Australia, [2]Telethon Kids Institute, Nedlands, Australia, [3]National Centre for Immunisation Research and Surveillance, Westmead, Australia, [4]NPS Medicinewise, Surry Hills, Australia

Background: Australia introduced a funded vaccination program with live attenuated herpes zoster vaccine (ZVL) in November 2016, delivered through general practice. MedicineInsight, a nationally representative primary care database, was used to investigate the risk of pre-specified outcomes following live attenuated herpes zoster vaccine (ZVL) in Australia.

Methods: Individuals aged 70 to 79 years who received ZVL between 1 November 2016 and 31 July 2018 were identified within a nationally representative primary care database. The self-controlled case series (SCCS) method was used to estimate the relative incidence (RI) of seven events (injection site reaction (ISR); burn [negative control]; myocardial infarction (MI); stroke; rash; rash with a prescription for an antiviral within 2 days; and clinical attendance) during a post-vaccination, at-risk window compared with a time distant to vaccination.

Results: A total of 332,988 vaccination encounters among 150,054 individuals were identified during the study period; over 2 million clinical attendances were observed. There was an increased RI of ISR in the seven days following ZVL (RI=77.4, 95% CI 48.1 to 124.6); the RI of clinical attendance (RI = 0.94, 95% CI 0.94 to 0.95) and stroke (RI=0.58, 95% CI 0.44 to 0.78) were lower in the 42 days following administration of ZVL compared to control periods. There was no evidence of a change in the RI of MI (RI=0.74, 95% CI 0.41 to 1.33), rash (RI=0.97, 95% CI 0.88 to 1.08), or rash with antiviral prescription (RI=0.83, 95% CI 0.62 to 1.10) in the 42 days following ZVL compared to control periods.

Conclusions: No new safety concerns were identified for ZVL in this study based on a novel primary care data source using an SCCS design. An expected increased risk of ISR was identified; findings in relation to cardiovascular disease were reassuring but require confirmation using additional data, including hospital records.

Shoulder Injury Related to Vaccine Administration (SIRVA): A Case Series

Authors: **Dr Daryl Cheng[1,2,3]**, Ms Mel Addison[1,2], Ms Georgina Lewis[1,2], A/Prof Nigel W Crawford[1,2,3]

Affiliation: [1]Royal Children's Hospital, Parkville, Australia, [2]SAEFVIC, Murdoch Children's Research Institute, Parkville, Australia, [3]Department of Paediatrics, University of Melbourne, Parkville, 3010

Background: Shoulder injury related to vaccine administration (SIRVA) is a rare serious adverse event following immunisation (AEFI) secondary to incorrect vaccine administration into the sub-deltoid bursa or shoulder joint space.

Aim: This case series highlights the occurrence, symptoms, diagnosis, management and long-term outcomes of SIRVA and to assist formalising a clinical case definition.

Methods: All suspected cases of SIRVA reported to Surveillance of Adverse Events Following Vaccination In the Community (SAEFVIC) Victorian database between May 2007 to June 2019 were included. Clinical descriptions surrounding the suspected SIRVA event were sourced, including management, investigations and long-term outcome. All cases were followed up via a phone call.

Results: 65 cases of SIRVA were identified, 84.6% female, median age 44 years (28.5-56.5 years IQR). The most common vaccines administered in SIRVA cases were influenza (55.6%) and dTPa (22.2%). Half (49.2%) of SIRVA cases had an immediate onset of symptoms.

The majority (93.8%) of cases had all four key SIRVA characteristics: rapid onset of pain at time of injection; pain on movement of arm; decreased range of movement and absence of any pre-existing injury or infection. Two-thirds (64.6%) of cases had medical imaging: of those all had ultrasound and 4.7% having MRI. 66.2% of cases used over-the-counter medications to relieve their symptoms

Follow-up contact has been conducted on an ongoing basis, ranging from 1 month to 3 years following immunisation.

Conclusion: This is the largest reported case series of SIRVA and development of a standardised case definition is important to assess vaccine administration errors.

1E - Immunisation Program & service delivery

Long Oral Presentations

Stakeholder perspectives on the national HPV vaccination program

Authors: Dr Caitlin Swift[1], Dr Aditi Dey[1,2], Dr Harunor Rashid[1,2], Ms Katrina Clark[1], Dr Ramesh Manocha[1,2], Dr Frank Beard[1,2]

Affiliation: [1]National Centre For Immunisation Research And Surveillance, Westmead, Australia, [2]University of Sydney, Sydney, Australia, [3]Healthed, Burwood, Australia

Abstract

Background: Australia has been a world leader in human papillomavirus (HPV) vaccination and was the first country to implement a fully funded national HPV vaccination program, from 2007 for girls and 2013 for boys. In 2018 the program changed from 4-valent HPV vaccine to 9-valent HPV vaccine (9vHPV) and from a 3-dose to 2-dose standard schedule. As part of a comprehensive evaluation of the program we assessed stakeholder perspectives on factors influencing program outcomes and impact.

Methods: Semi-structured telephone interviews with key stakeholders (including jurisdictional immunisation program managers and relevant experts) and online survey of immunisation providers (including general practitioners, school-based nurse immunisers, practice nurses and Aboriginal Health Workers), from October 2019 to February 2020.

Results: We conducted 26 interviews with 42 participants and received 1513 online survey responses. The 2-dose schedule is better accepted by schools and students and has reduced program cost and resource requirements with no change in observed adverse event profile. However, course completion rates are perceived to not have increased as anticipated, due to the 6-12 month dosing interval and reduced opportunities for school-based catch-up vaccination. The main barriers to increasing coverage were reported to be absenteeism and consent form return. Vaccine hesitancy is not currently a major issue but remains a potential threat to the program given the power of social media, and public attitudes should be closely monitored.

Conclusion: While Australia's HPV vaccination program is perceived as highly successful, measures to further enhance impact and mitigate potential threats to the program are important.

2020 GSK Grant Winner - Development of guidelines on holding students with disabilities to give immunisations in schools

Author: Jenny O'Neill

Abstract

High overall immunisation coverage in Australia masks under-immunisation of young people with a disability. Comprehensive and timely immunisation is especially important for this high-risk group due to the associated health issues which predisposes them to severe consequences of vaccine-preventable disease. There are a number of barriers to immunisation for young people with disability, particularly the absence of assent due to difficulties with cognition, communication and/or severe anxiety about immunisation. This can lead to severe behavioural difficulties and vaccine refusal as well as possible psychological and physical harm to the young person and/or provider(s).

Guidelines for the ethical and practical use of restraint for immunisation for children are not well developed. Restraint of adolescents with disability receiving their vaccinations through the School-based Immunisation Program is a specific issue. Currently there is a wide variety of practice in the use of restraint for students with disability for immunisation in specialist schools. Whilst ethically, there must be attention paid to the autonomy of the individual, there are consequences in respecting student refusal and not immunising. In this already under-immunised population. Data suggests that if only those students with disabilities who demonstrate assent are immunised, up to 30% of the students in specialist schools who have parental consent will miss their adolescent vaccinations.

This proposal seeks to design and develop a best-practice guideline, including a decision tree to guide the use, appropriateness and method of restraint to immunise young people with disabilities in the school setting to ensure optimal safety for immunisers and students. Such a guideline would ensure best practice, minimise variation in care and ensure appropriate support is given to maximise immunisation coverage in this vulnerable population. This guideline would also provide guidance for alternative pathways to achieve successful immunisation, such as psychological support for needle phobia or immunisation under sedation in a hospital setting.

The development of this guideline would be led by consultation with a small group of experts in immunisation, disability and ethics. Best practice would be developed based on available evidence to target barriers to immunisation service delivery within the school-based immunisation program and to address resource constraints. A larger group of stakeholders involved in the school-based Immunisation Program would then be consulted for feedback using a modified Delphi technique, ensuring consensus is reached before finalising the tool. The guideline will optimise adolescent immunisation for all young people with disability across Australia and may provide guidance for other situations where immunisation is being considered in cases where an individual's assent is unable to be obtained. This is an innovative approach to optimising immunisation service delivery for young people at risk of missing immunisation to ensure safe and successful immunisation in the least distressing and restrictive way.

Global tools for assessing the behavioural and social drivers of childhood vaccination

Authors: BeSD Working Group[7], **Professor Julie Leask[1]**, Dr Lisa Menning[2], Dr Gilla Shapiro[3], Dr Kerrie Wiley[4], Francine Ganter-Restrepo[2], Noel Brewer[5,6]

Affiliation:[1]University of Sydney, Sydney, Australia, [2]World Health Organisation, Geneva, Switzerland, [3]University Health Network, Toronto, Canada, [4]Sydney School of Public Health, University of Sydney, Camperdown, Australia, [5]Department of Health Behavior, Gillings School of Global Public Health, University of North Carolina, Chapel Hill, United States, [6]Lineberger Comprehensive Cancer Center, University of North Carolina, Chapel Hill, United States, [7]BeSD Working Group: Neetu Abad (Centers for Disease Control and Prevention, US), Cornelia Betsch (University of Erfurt, Germany), Vinod Bura (World Health Organization, Indonesia), Gustavo Correa (Gavi, the Vaccine Alliance, Switzerland), Ève Dubé (Laval University, Canada), Wenfeng Gong (Bill and Melinda Gates Foundation, US), Benjamin Hickler, (UNICEF New York, US), Monica (International Initiative for Impact Evaluation [3ie], India), Mohamed Jalloh (Centers for Disease Control and Prevention, US), Saad B. Omer (Emory University, US), Deepa Risal Pokharel (UNICEF, Pakistan), Jennifer Requejo (UNICEF, New York, US), Nick Sevdalis (Kings College London, UK), Gilla Shapiro (University of Toronto, Canada), Gillian SteelFisher (Harvard University, US), Charles Wiysonge (South African Medical Research Council, South Africa), ,

Abstract

Background: Childhood vaccination is not reaching coverage targets in most countries. Systematically assessing the drivers of vaccination will help countries increase vaccination coverage. The World Health Organization established the Measuring Behavioural and Social Drivers of Vaccination (BeSD) working group to develop a set of tools to meet this need.

Methods: The tools include a survey, in-depth interview guides, and implementation guidance. For the survey, we examined reviews of the drivers of vaccination, refined a conceptual model of key constructs, and developed indicators and candidate survey items. We drafted qualitative interview guides for caregivers, health workers, community workers and program managers. Interviews with end-users in countries and regions assessed needs and capacity. Field testing has begun in 5 countries to refine survey items based on cognitive interviews. We are also piloting the in-depth interview guides. The refined survey will be psychometrically validated using a sample of 300 caregivers per country.

Results: In-depth interviews with 20 stakeholders emphasized the need for quality data collection tools that facilitate action. The model incorporates domains of thinking/feeling, social processes, intentions, and practical issues with 20 linked constructs, indicators and items. Ongoing cognitive interviews are assessing the survey items and revealing participant meanings and interpretations of items. The in-depth interview guides as drafted and ready for pilot testing. Tools are expected to be finalized and widely disseminated in 2021.

Conclusion: The BeSD tools will support countries as they prioritise actions to improve coverage and enable tracking of vaccination drivers over time.

1F - Addressing anticipated hesitancy with COVID vaccination

Long Oral Presentations

COVID-19 vaccine acceptance in three priority groups in NSW

Authors: Bianca Bullivant[1,2], Dr Katarzyna Bolsewicz[1,2,3], Dr Catherine King[1,2], Katrina Clark[1], Dr Frank Beard[1,2]

Affiliation: [1]National Centre for Immunisation Research and Surveillance, Westmead, Australia, [2]University of Sydney, Sydney, Australia, [3]University of Newcastle, Wallsend, Australia

Abstract

Background: Vaccination will be critical for controlling the COVID-19 pandemic. Health and aged care workers, older adults and adults with comorbidities are priority groups for COVID-19 vaccination in Australia, because of their increased risk of exposure, infection, transmission and/or risk of serious illness. However, evidence on factors likely to influence COVID-19 vaccine acceptance among these priority groups in Australia is scarce. This study aims to build such evidence.

Methods: We conducted in-depth interviews with participants from priority groups in the state of New South Wales. We thematically analysed the data to identify factors influencing COVID-19 vaccine acceptance. The interview schedule was informed by literature, as well as guidance from the WHO Behavioural and Social Drivers of Vaccination group on gathering data during the COVID-19 pandemic.

Results: Factors positively influencing vaccine acceptance included higher perceived risk of COVID-19 disease, trust in science and the vaccine development process, and confidence in vaccine efficacy and safety. Barriers included concerns about vaccine safety and efficacy, low perceived risk of COVID-19 disease, and lack of trust in health authorities.

Conclusion: Barriers and facilitators of COVID-19 vaccine acceptance can inform the development of evidence-based public health messaging. Such messaging should be widely utilised to support the acceptance of COVID-19 vaccines among these priority groups. Acceptance will be essential to achieve high uptake and disease control.

COVID-19 disease and vaccination: Experiences and beliefs of young adults in Perth

Authors: Ms Leah Roberts[1], Dr Lara McKenzie[1], Dr Samantha Carlson[1,2], A/Prof Christopher Blyth[2,3,4,5], Dr Katie Attwell[1,2]

Affiliation:[1]School of Social Sciences, University Of Western Australia, Perth, Australia, [2]Wesfarmers Centre of Vaccines and Infectious Diseases, Telethon Kids Institute, Perth, Australia, [3]School of Medicine, University of Western Australia, Perth, Australia, [4]Department of Infectious Diseases, Perth Children's Hospital, Perth, Australia, [5]Department of Microbiology, PathWest Laboratory Medicine WA, QEII Medical Centre, Perth, Australia

Abstract

Introduction: The community interviews component of the Coronavax project seeks to uncover the conditions necessary for high COVID-19 vaccine uptake as they pertain to prospective recipients attitudes and experiences. This present study is conducted in adults aged 18–29 years living in Metropolitan Perth, and explores their willingness to be vaccinated when it is their turn. In second and third waves of COVID-19 around the world, young people are increasingly driving the spread, so this groups' uptake is important to limit disease burden. A lack of confidence in vaccines can hamper uptake, as seen in the swine flu pandemic H1N1 vaccine.

Methods: in-depth, semi-structured interviews are underway between February – April 2021 with up to 20 people aged 18–29 years who live in Metropolitan Perth. Thematic analysis will be undertaken using NVivo 12 with the research written up by June. Topics explored include pandemic and lockdown experience; trust in the health system and vaccination; access, activation and prioritisation of vaccines; views on government responses and potential mandates; communication needs; and possible motivations to vaccinate important to this group, such as the ability to travel, attend large gatherings and to protect their loved ones.

Results: we will identify the COVID-19 vaccine intentions of young adults in a state where the risk of COVID-19 disease has been so far limited.

Conclusion: understanding the role of COVID-19 disease threat along with other systemic and local factors will enable the development of evidence-informed strategies to drive vaccine uptake in young adults.

AusVaxSafety expansion for COVID-19 vaccines: part of the national pharmacovigilance strategy

Authors: Nicola Carter[1], Ms Alexis Pillsbury[1], Dr Helen Quinn[1,2]

Affiliation: [1]National Centre For Immunisation Research And Surveillance, Westmead, Australia, [2]Discipline of Child & Adolescent Health, The University of Sydney Children's Hospital Westmead Clinical School, Westmead, Australia

Abstract

Since 2014, AusVaxSafety has monitored the safety of influenza vaccines, and new vaccines under the National Immunisation Program (NIP). More recently AusVaxSafety has commenced monitoring the safety of COVID-19 vaccines in Australia.

AusVaxSafety COVID-19 vaccine specific surveys were developed within the SmartVax and Vaxtracker tool. Sites expansion was undertaken to include vaccination hubs and primary care sites involved in early vaccine roll-out. Analytics were developed to enable real-time monitoring of COVID-19 vaccines, including daily reporting of vaccine safety data and signal detection.

For COVID-19 vaccine surveillance, surveys are being delivered at day 3 and 8 post vaccination, capturing details about solicited events, and repeated after each dose. There is also a late survey, delivered at day 42 post vaccination to capture details of any hospitalisation that has occurred since vaccination. For Phase 1a delivery in hubs, the system has established links between jurisdiction COVID-19 vaccination databases in some states, while in others a patient QR-code enrolment system is used at clinics. As of 21 March, AusVaxSafety had 63,447 participants for COVID-19 vaccine surveillance: 47,296 Comirnaty dose 1, 3,430 Comirnaty dose 2 and 12,720 AstraZeneca dose 1.

The introduction of COVID-19 vaccines in Australia and worldwide requires the most important vaccine safety surveillance in our generation. AusVaxSafety has been able to rapidly adapt its existing post-licensure safety surveillance to respond to this public health need, providing early data to the government, immunisation providers and the public on the safety of COVID-19 vaccines.

Optimising COVID-19 vaccination communication: a qualitative exploration identifying vaccination priority groups' needs

Authors: Dr Jane Oliver[1,2], Kathleen Bagot[1], Jane Tuckerman[1,2], Darren Suryawijaya[1,2], Carol Jos[1], Simon Bell[3], Jess Kaufman[1,2], Ruby Biezen[2], Julie Leask[4], Jane Munro[1,5], Lena Sanci[2], Jo-Anne Manski-Nankervis[2], Holly Seale[6], Margie Danchin[1,2,5]

Affiliation: [1]Murdoch Children's Research Institute, Parkville, Parkville, Australia, [2]The University of Melbourne, Parkville, Australia, [3]Monash University, Clayton, Australia, [4]The University of Sydney, Camperdown, Australia, [5]Royal Children's Hospital, Parkville, Australia, [6]The University of New South Wales,, Kensington, Australia

Abstract

Background: Groups prioritised to receive COVID-19 vaccines in Australia include healthcare/aged/disability care workers, adults aged >70 years-old, and adults with certain medical comorbidities. To optimise vaccine uptake, tailoring communication strategies to these groups' specific information needs and concerns is key. This qualitative study aims to understand priority groups' intentions, concerns and barriers to receiving a COVID-19 vaccine, and their information preferences.

Method: This project is part of a mixed-methods study supported by the Victorian Government. Victorian adults were invited to complete a COVID-19 vaccine intention survey if they were healthcare/aged/disability care workers (Group 1), or aged ≥70 years, or aged 18-69 years with chronic medical conditions (Group 2). Interview participants were recruited from survey completers consenting to be contacted for interviews (n=20 from each group). Based on survey responses, purposive sampling targeted those who were either unsure or did not intend to receive and/or recommend COVID-19 vaccines. Semi-structured interviews explored participants' COVID-19 vaccine opinions, questions, barriers, and preferred communication channels. Interviews were conducted remotely (Zoom/phone) and audio-recorded with consent, then transcribed verbatim and analysed inductively with content/thematic analysis (NVivo).

Results: Interviews and analysis are underway, and will be finalised in May. Emerging themes include feeling like a 'guinea pig', lack of information about vaccine rollout, wide-ranging concerns about vaccine safety and efficacy, and distrust in government or pharmaceutical company messaging. Final themes, subthemes, and inter-rater reliability will be presented.

Understanding attitudes to mandatory influenza vaccination policy in response to COVID-19

Authors: Dr Gabriela Willis[1,2], Dr Rhea Psereckis[1], Dr Shannon Melody[1,3]

Affiliation: [1]Public Health Services, Department of Health, , Australia, [2]Notre Dame University School Of Medicine, Fremantle, Australia, [3]Menzies Institute for Medical Research, University of Tasmania, , Australia

Abstract

Introduction: Annual influenza vaccination is an effective way to prevent influenza outbreaks in residential aged care facilities (RACF). In 2020, in response to the COVID-19 pandemic, influenza vaccination became mandatory for staff and visitors to RACF for the first time in Australia. This survey aimed to understand responses to the policy in Tasmania.

Methods: A cross-sectional anonymous online survey was undertaken in January/February 2021 aimed at Tasmanian RACF managers, staff, residents, and visitors. Descriptive analysis of responses was undertaken.

Results: The majority of the 549 participants were female (84%); 54% were RACF staff, 43% were visitors and 1% residents. There was an increase in self-reported vaccination uptake in 2020 compared to previous years (2016-19) in both staff (99% vs. 60%) and visitors (87% vs 53%). Mandatory influenza vaccination was considered a good policy by 78% of staff and 71% of visitors. Participants opposed to the policy cited disagreement with coercion and the removal of personal freedoms as key reasons. Seventy percent of participants believed that the policy had prevented some families seeing each other. Continuation of the policy in 2021 was supported by 70% of participants for staff and by 59% for visitors, although 58% believed that staff should have the right to refuse vaccination.

Conclusion: Mandatory influenza vaccination for staff and visitors to RACF was, generally, well supported by participants, although negative consequences were acknowledged by many. These results greatly increase our understanding of attitudes to mandatory vaccine policy in RACF and have significant relevance to COVID-19 vaccine policy.

COVID Vaccine perceptions of Fever Clinic patients and Secondary School parents

Authors: Ms Bianca Garcia, Ms Paula Nihot, **Ms Annie Hackett**, Helen Clifford[1]

Affiliation: [1]GOLD COAST HEALTH, GOLD COAST, Australia

Abstract
Current COVID-19 vaccine perceptions provide important guidance on how community groups might uptake the vaccine rollout. In late 2020 Gold Coast Health explore community perceptions with 2 convenience sample surveys while undertaking other quality improvement consultations.

The majority of parents of school immunisation program students (n=572) and Patients who attend public hospital Fever Clinics (n=2704) reported that they definitely or probably intend to receive vaccine while less than 10% were definitely not intending to receive vaccine.

There were clear preferences for General Practitioner services to both provide the service and guide vaccination decisions. Survey participants were most likely to use government websites to access information about COVID vaccine, however there were variations in the other information sources and influences across groups by level of intention to receive the vaccine.

The results of these surveys provide valuable insight into community perceptions and communication strategies for these target groups going forward.

COVID-19 vaccine intentions in Victorian healthcare workers and prioritised adults

Author: Mr. Darren Suryawijaya[1,2], Dr Jessica Kaufman[1,2], Dr Jane Oliver[1,2], Carol Jos[1], Monsurul Hoq[1], A/Prof Jane Munro[1,3], A/Prof Jo-Anne Manski-Nankervis[2], Dr Ruby Biezen[2], Prof Lena Sanci[2], Prof Simon Bell[4], A/Prof Holly Seale[5], Prof Julie Leask[6], Dr Jane Tuckerman[1,2], Dr Katie Bagot[1], A/Prof Margie Danchin[1,2,3]

Affiliation: [1]Murdoch Children's Research Institute, Parkville, Australia, [2]The University of Melbourne, Parkville, Australia, [3]Royal Children's Hospital, Parkville, Australia, [4]Monash University, Clayton, Australia, [5]The University of New South Wales, Kensington, Australia, [6]The University of Sydney, Camperdown, Australia

Abstract
Background: To optimise uptake of COVID-19 vaccines, communication strategies must address the information needs and concerns of groups prioritised to receive and deliver vaccination, including healthcare workers, older adults and adults with comorbidities. This survey study aimed to understand the vaccine intentions and informational needs of people prioritised for COVID-19 vaccination in Victoria.

Methods: This project is part of a mixed-methods study supported by the Victorian Government. An online survey was completed by Victorian adults: healthcare or aged/disability care workers ("healthcare workers"), or aged ≥70 years or 18-69 years with comorbidities ("patients"). Using custom items and items adapted from the World Health Organization Behavioural and Social Drivers of Immunisation COVID-19 vaccine survey, we assessed intention to vaccinate, information needs, and behavioural drivers of COVID-19 vaccine uptake. Descriptive statistics and relative risk measures were used to identify associations between intention to vaccinate, vaccine confidence and demographic variables.

Results: Over 2588 healthcare workers and 1975 patients completed the survey from February-March 2021. Interim analysis showed that among healthcare workers, intention to receive a COVID-19 vaccine was highest among doctors (94%, n=94) and lowest in personal support workers (58%, n=59). Intention among nurses was 76% (n=1749). Intention to vaccinate among people aged ≥70 was 90% (n=696) and among those with comorbidities 84% (n=649). The predominant concerns were vaccine safety, side effects and efficacy. The most trusted sources of information were medical professionals and scientists/researchers. Additional analyses will also be presented.

Discussion: Final results will inform the Commonwealth COVID-19 Immunisation Program implementation in Victoria.

P2 - Poster Presentations -
ePosters

Effectiveness of BCG vaccination against Mycobacterium tuberculosis infection in UK-based adults

Author: Dr Anthea Katelaris[1,2], Dr Charlotte Jackson[3], Dr Jo Southern[4], Dr Rishi K Gupta[3], Prof Francis Drobniewski[5], Prof Ajit Lalvani[6], Prof Marc Lipman[7], Prof Punam Mangtani[8], Prof Ibrahim Abubakar[3]

Affiliation:[1]Faculty of Public Health and Policy, London School of Hygiene and Tropical Medicine, London, United Kingdom, [2]National Centre for Epidemiology and Population Health, Research School of Population Health, Australian National University, , Australia, [3]Institute for Global Health, University College London, London, United Kingdom, [4]National Infection Service, Public Health England, London, United Kingdom, [5]Department of Medicine, Imperial College, London, United Kingdom, [6]National Institute for Health Research Health Protection Research Unit in Respiratory Infections, Imperial College London, London, United Kingdom, [7]UCL Respiratory, Division of Medicine, University College London, London, United Kingdom, [8]Department of Infectious Disease Epidemiology, London School of Hygiene and Tropical Medicine, London, United Kingdom

Abstract

Background: It has been unclear whether BCG vaccination prevents acquisition of Mycobacterium tuberculosis (Mtb) infection or only limits progression from latent TB infection (LTBI) to active disease. Recent studies in children have found BCG appears to reduce acquisition of Mtb, measured using interferon-gamma release assays (IGRAs), which allow assessment of infection unaffected by prior BCG (a limitation of tuberculin skin tests). We explored whether BCG vaccination continues to be associated with decreased prevalence of Mtb infection in adults.

Methods: We conducted a cross-sectional analysis of data from adult contacts of tuberculosis cases participating in a UK cohort study. Vaccine effectiveness (VE) of BCG, ascertained based on presence of a scar or vaccination history, against LTBI, measured via IGRA, was assessed using multivariable logistic regression. The effects of age at BCG and time since vaccination were also explored.

Results: Of 3453 recent tuberculosis contacts, 27.5% had LTBI. There was strong evidence of an association between BCG and LTBI (aOR=0.70, 95%CI 0.56-0.87, p=0.0017) yielding a VE of 30%. VE declined with time since vaccination, but there was evidence that LTBI prevalence was lower amongst vaccinated individuals even >20 years after vaccination, compared with non-vaccinated participants.

Conclusion: BCG is associated with lower prevalence of LTBI in adult contacts of tuberculosis. These results contribute to growing evidence that suggests BCG may protect against Mtb infection as well as disease. This has implications for immunisation programmes and TB control efforts worldwide, and supports the use of IGRAs as an intermediate endpoint to assess new vaccines.

Factors Associated with HPV Seropositivity in Sexually Active Men

Authors: J Palefsky[2], A Giuliano[3], S Goldstone[4], B Dubin[5], A Saah[5], A Luxembourg[5], C Velicer[5], J Menche[1], **Mr Tim Lindauer[1]**, J Tota[5]

Affiliation: [1]Seqirus, Parkville, Australia, [2]Department of Infectious Diseases, University of California, San Francisco, USA, [3]Center for Immunization and Infection Research in Cancer, Moffitt Cancer Center and Research Institute, Tampa, USA, [4]Icahn School of Medicine at Mount Sinai, New York, USA, [5]Merck & Co., Inc., Kenilworth, USA

Abstract

Background/Objectives: The pivotal 36-month Phase III immunogenicity study of 9vHPV vaccine in girls and boys 9-15 years was extended to assess long-term immunogenicity and effectiveness through approximately 10 years. We describe results of an interim analysis after approximately 8 years.

Methods: Participants 9-15 years receiving three doses of 9vHPV vaccine (0, 2 and 6 months) were enrolled in the extension (females, n=971; males, n=301). Serum was collected at Day 1 and Months 7/12/24/36/66/90 to assess antibody responses. For effectiveness analysis (for participants ≥16 years), genital swabs were collected (to assess HPV DNA by PCR) and external genital examination (to detect external genital lesions) was conducted every 6 months. Pap tests were conducted annually for females ≥21 years; participants with cytological abnormalities were triaged to colposcopy based on a protocol-specified algorithm. External genital and cervical biopsies on abnormal lesions were performed. Tissue samples were adjudicated by a pathology panel. Specimens were tested by PCR to detect HPV DNA.

Results: Antibody GMTs peaked around Month 7, gradually decreasing through Month 90, consistent with previous 9vHPV studies. Seropositivity rates remained >90% through Month 90 for each 9vHPV type. No cases of HPV6/11/16/18/31/33/45/52/58-related high-grade intraepithelial neoplasia or genital warts were observed in the per-protocol population. Incidence rates of HPV6/11/16/18/31/33/45/52/58-related 6-month persistent infection in females and males in per-protocol population were low (49.2 and 37.3 per 10,000 person-years, respectively) and within expected ranges.

Conclusions: This interim analysis demonstrates sustained immunogenicity and effectiveness through approximately 7 and 8 years, respectively, post-9vHPV vaccination of individuals 9-15 years.

Repeat maternal Tdap-vaccination does not enhance infant immune-interference to childhood immunisations

Authors: Ms Sonia McAlister[1,2], Dr Anita van den Biggelaar[1,2], Ms Camille Gibson[1,4], Dr Ruth Thornton[1,3], Associate Professor Peter Richmond[1,2,4]

Affiliation: [1]Wesfarmers Centre of Vaccines & Infectious Diseases, Telethon Kids Institute, Perth, Australia, [2]School of Medicine, The University of Western Australia, Perth, Australia, [3]School of Biomedical Science, The University of Western Australia, Perth, Australia, [4]Perth Children's Hospital, Perth, Australia

Abstract

Background: Maternal pertussis immunisations protect infants against severe pertussis disease before they can receive their own vaccinations. However, these have been associated with blunting of infant antibody responses to some antigens in the primary vaccination series. We investigated if blunting was enhanced in infants whose mothers received their second compared to a first Tdap booster during pregnancy.

Method: Infants were recruited before beginning their primary vaccinations including diphtheria-tetanus-acellular pertussis vaccine (DTPa; 2, 4 and 6 months) and the 13-valent pneumococcal conjugate vaccine (PCV13; 2 and 4 months). Maternal pertussis immunisation status was assessed retrospectively.

Serum IgG specific to pertussis toxin (PT), pertactin (PRN), filamentous hemagglutinin (FHA), fimbriae 2/3 (FIM 2/3), tetanus toxin (TT), diphtheria toxoid (DT), and all PCV13-serotypes were measured pre- and post-primary vaccination series (2 and 7 months) using multiplexed immunoassays developed in-house.

Results: Sixty-two children have been recruited to date with 20 women having received a first, and 42 a subsequent Tdap dose during this pregnancy.

GMCs and seropositive/seroprotective rates for DTPa and PCV13-specific IgG responses after primary vaccinations were comparable between groups, regardless of whether the mother was re-vaccinated within two years or longer since the previous dose. Infant PT-IgG titers before and after primary vaccinations were inversely correlated ($R=-0.6$, $p<0.0001$), and the same was found for DT-IgG ($R=-0.5$, $p<0.0001$).

Conclusion: These preliminary results suggest that repeated Tdap vaccination in pregnancy does not lead to greater interference of childhood immunisation responses. These findings support administering maternal Tdap boosters during every pregnancy to protect vulnerable infants.

Minimising Immunisation Pain of childhood vaccines in Younger children: The MIPY Study

Authors: Mrs Narelle Jenkins[1], Ms Francesca Orsini[1], Ms Sonja Elia[1], Dr Kirsten Perrett[1,2,3]

Affiliation: [1]Royal Children's Hospital, Parkville, Australia, [2]Murdoch Children's Research Institute, PARKVILLE, Australia, [3]The University of Melbourne, PARKVILLE, Australia

Abstract

Background: The pain associated with routine scheduled immunisations may result in distress and/or anxiety for children and parents. Long-term effects of painful procedures may result in needle phobia or non-compliance with vaccination. The Australian Immunisation Handbook recommends the routine use of distraction techniques to reduce children's distress with immunisation. It is therefore imperative that immunisation service providers optimise effective pain management strategies. Feasibility and power calculation for the MIPY study was established from a pilot study conducted in 2017.

Methods: The MIPY study is a three-armed, single centre, randomised controlled trial of 492 participants, strategically set up and conducted at the Royal Children's Hospital (RCH) Immunisation Centre. The aim of the MIPY Study is to evaluate the efficacy of two novel devices, Coolsense® and Buzzy® with cooling pads (wings) versus standard care to minimise pain during immunisations in younger children aged 3.5 to 9 years of age inclusive.

Results: No significant differences were found across the three groups of parental report of child's pain, despite lower scores in the standard care and Buzzy® with wings groups. The children in the standard care group reported a lower level of pain than those in the Buzzy® with wings and Coolsense® groups, however this was not statistically significant.

Conclusion: This study revealed acceptability of the two novel devices during immunisations, however these devices were not superior to standard care in minimising immunisation pain. The results highlight the fact that fear experienced by young children plays a significant role in their behavioural response to any intervention. The value of using current standard care practices such distraction with bubbles in young children should not be underestimated.

An Update on Pertussis Epidemiology in Australia, 2013–2017

Authors: Dr Kushani Marshall[1,2], Dr Helen Quinn[1], Alexis Pillsbury[1], Prof Robyn Lucas[2], Dr Aditi Dey[1], Dr Frank Beard[1], Prof Peter McIntyre[1]

Affiliation:[1]National Centre for Immunisation Research and Surveillance, Westmead, Australia, [2]The Australian National University, Canberra, Australia

Abstract
Background: Significant recent changes in Australian pertussis immunisation policy include the introduction of pertussis immunisation for pregnant women and the re–instatement on the schedule of the 18-month booster dose. This study analyses pertussis notification, hospitalisation, and mortality data from 2013 to 2018 in the context of trends since 1995.

Methods: We used the National Notifiable Diseases Surveillance System, National Hospital Morbidity Database, and data from the Australian Coordinating Registry, for descriptive analysis of pertussis notifications, hospitalisations, and deaths from 2013 to 2018, examining trends between 1995 and 2012 at both national and jurisdictional levels. We used incidence rate ratios (IRR) to compare pertussis incidence in infants aged <2 months and 6–11 months for each year from the 2015 to 2018 (post-maternal immunisation) period against the 2010 to 2013 (pre-maternal immunisation) period.

Results: Annual national all-age incidence of pertussis notifications between 2013 and 2018 was 63.6 per 100,000 population, 40% less than between 2006 and 2012. Between 2016 and 2018, infants aged <2 months had the lowest notification rates of age groups <5 years, with highest notification rates in pre-adolescents aged 9–11 years. The IRR for infants aged <2 months decreased in the post-maternal immunisation period from 0.4 (95% Confidence Interval [CI]: 0.3–0.5) in 2015 to 0.1 (95% CI: 0.1–0.2) in 2018. For infants aged 6–11 months, the IRR was 0.9 (95% CI: 0.8–1.0) in 2015, 1.1 (95% CI: 1.0–1.2) in 2016 and declined to 0.7 (95% CI 0.6–0.8) in 2017 and 2018. Notification and hospitalisation rates in Indigenous children were 3–8 times higher across all age groups <5 years.

Conclusions: Pertussis remains the second most frequently notified vaccine preventable disease in Australia, after influenza, but dramatic decreases in incidence were observed in infants too young to receive any doses of pertussis-containing vaccine.

Measles Outbreak in a Brisbane Pacific Islander Community: Community Engagement Response

Authors: Mrs Rachel Perry, Anuradha Styamurthy[1], Mr Phil Rocha, Mr Christian James, Ms Winnie Niumata, Ms Daphne Santos, Ms Tracey Vidler, Dr Kari Jarvinen

Affiliation: [1]Metro South Public Health Unit, Queensland Health, Brisbane, Australia

Abstract
Context: During October 2019, a large outbreak of measles with 24 confirmed cases affected the Brisbane Pacific Islander community involving two family groups in the Logan area. This was in the wake of multiple outbreaks in surrounding nations including New Zealand, Samoa, Tonga and Fiji. Travel to and from these countries complicated by the low vaccination rates was thought to be responsible for the outbreak.

Process and Analysis: Several community projects were undertaken by the Brisbane Metro South Public Health Unit to engage with the Pacific Islander community. Access to the right information and easy availability of vaccines to the people in need were the cornerstones of the projects. The Public Health Unit together with multicultural health workers from the Hospital and Health Service and the Logan City Council Immunisation team devised strategies to help the community and stop the transmission of measles.

Outcomes: Successful implementation of the projects reached out not just to the Logan community involved in the outbreak but also to all Pacific Islanders in Queensland. Some of the outcomes of the projects include posters in multiple languages on measles and free/ walk-in immunisation clinics, videos that included messages on the safety of vaccines from local community leaders, testimony from affected patients and voices of popular community representatives. Other highlights include social media posts on vaccine requirements for travel and advocacy through the Good Start Program for children and youth. Pop-up MMR clinics in workplaces and churches including the Pastor's house helped bring the community together to fight the outbreak.

Prevalence and aetiology of respiratory illnesses during pregnancy

Authors: Mrs Michelle Clarke[1,2], Dr Suzette Coat[2], Ms Kathryn Riley[1,2], Ms Brianna Morello[2], Professor Helen Marshall[1,2]

Affiliation: [1]Women's And Children's Hospital, North Adelaide, Australia, [2]Robinson Research Institute and Adelaide Medical School, Univeristy of Adelaide, Adelaide, Australia

Abstract
Background: Respiratory illnesses during pregnancy have the potential for significant consequences for pregnant women and their infants, but there is little evidence for the burden or aetiology of these illnesses. This study aimed to estimate the prevalence and aetiology of acute respiratory illness in pregnant women.

Methods: Pregnant women attending their first antenatal appointment at the Women's and Children's Hospital between October 2017 and May 2018 were invited to participate. Participants were provided with swab kits and instructions for self-collection of nasal swabs if they developed respiratory symptoms lasting at least 48 hours. Diary cards were provided to document symptoms and any medical advice sought. Infant birth details were collected from medical records. Laboratory testing of participants' swabs was undertaken using a routine respiratory pathogen polymerase chain reaction (PCR) panel.

Results: The study enrolled 134 women and obtained 22 nasal swabs collected during acute symptomatic respiratory illnesses. Of the 134 women enrolled, 121 (90%) completed the study to delivery. Of these, 17 mothers (14%) reported at least one respiratory illness. A pathogen was detected for 16/22 swabs. Rhinovirus was the most common pathogen identified (8/22; 36%), followed by RSV (3/22; 14%), and Influenza (3/22; 14%). Medical advice was sought for 8/22 respiratory illnesses (36%).

Conclusion: Self-collection of nasal swabs identified a respiratory pathogen for 16/22 swabs collected and processed demonstrating feasibility for self-collection of nasal swabs for respiratory illness research. Less than 50% of women experiencing a respiratory illness during pregnancy sought medical care

IMD in Australian children: Differences in serogroup distribution and clinical presentation.

Authors: Mrs Christine Heath[1], Dr Bing Wang[1,2], Mrs Michelle Clarke[1,3], Associate Professor Nicholas Wood[3], Professor Peter Richmond[4], Professor Jim Buttery[5], Associate Professor Julia Clark[6], Professor Robert Booy[3], Professor Helen Marshall[1,2]

Affiliation:[1]Women's And Children's Hospital, North Adelaide, Australia, [2]Robinson Research Institute and Adelaide Medical School, The University of Adelaide, Australia, [3]National Centre for Immunisation Research and Surveillance, Westmead, Australia, [4]University of Western Australia and Telethon Kids Institute, Australia, [5]Monash University and Murdoch Children's Research Institute, Australia, [6]University of Queensland and Queensland Children's Hospital, Australia

Abstract

Introduction: Although uncommon, invasive meningococcal disease (IMD) causes death in young healthy children and adolescents in 5-10% of cases. The epidemiology of IMD varies with meningococcal W disease increasing in Australia and other countries over recent years. Recent evidence suggests atypical clinical presentations associated with serogroup W and Y disease.

Methods: The Paediatric Active Enhanced Disease Surveillance (PAEDS) network is a national hospital-based active surveillance system employing prospective case ascertainment for a number of vaccine preventable diseases. Specialist nurses screened hospital admissions at seven hospitals with a paediatric service in Australia to identify children 0-15 years of age admitted with IMD using standardised protocols and data collection forms.

Results: 124 cases of IMD were identified between 2016-2019. The majority of cases were serogroup B (65/124, 52.4%) followed by serogroup W (35/124, 28.3%). In South Australia, 86% (31/36) of IMD cases were due to serogroup B compared to 66% (21/32) due to serogroup W in Western Australia. The median age at admission was similar for serogroup B and serogroup W (2.1 years vs 2.3 years). More IMD cases were male (72/124, 58.1%) and this was consistent for serogroups B, W and Y. Presence of a rash was documented for 78/124 cases (63%) and this was more common for serogroup B (48/65, 74%) than serogroup W (16/35, 46%) (p=0.005).

Conclusions: IMD continues to cause morbidity and mortality in Australian children. Differences in clinical presentation and varying serogroup predominance are important for early diagnosis and management, public health and vaccine policy.

Achieving High Coverage with the Herpes Zoster Vaccine: the Australian experience

Authors: Dr Philip McCloud[8], Dr Alicia Stein[6], **Associate Professor John Litt[1]**, Professor Tony Cunningham[2], Professor Dominic Dwyer[7], Associate Professor Michael Woodward[3], Dr Alan Leeb[4], Professor Robert Booy[5], Dr Debra Bourke[6]

Affiliation:[1]Flinders University, Adelaide, Australia, [2]Westmead Institute, Sydney, Australia, [3]Austin Repatriation Hospital, Heidelberg, Australia, [4]Illawarra Medical Centre, Ballajura, Australia, [5]National Centre for Immunisation Research and Surveillance, Westmead, Australia, [6]Seqirus Pty Ltd, Parkville, Australia, [7]Westmead Hospital, Westmead, Australia, [8]McCloud Consulting Group, Belrose, Australia

Abstract

Background: Zoster causes considerable morbidity in older persons. Zostavax, a vaccine against shingles, reduces the incidence of shingles by 51% and the burden of illness by two-thirds. This presentation highlights the impact of Zostavax anti-viral prescriptions following NIP funding, and discusses specific activities that helped achieve a significant vaccine uptake in this population.

Method: Dates of commercialisation, product availability and dose distribution data were obtained from Seqirus TM prior to and post NIP funding. Educational programs and other health care professional (HCP) initiatives were provided by Seqirus and assessed for impact of general awareness of the disease state and vaccination availability compared to the dose distribution data. Dose distribution data was used as an indicator of uptake, given the limited registration of adult immunisation data in Australia.

Result: Vaccine dose distribution coverages increased from approximately 1-2% prefunding to 66% post funding. Comparing funded programs uptake coverages globally shows Australian distribution data to date to be among the highest. Factors contributing to the program's success include: Government, key opinion leaders and HCP collaboration and communication; a range of comprehensive educational activities as well as private market supply for three years prior to funding leading to an increased awareness of both the vaccine and disease burden.

Conclusion: Recommendations, funding and reimbursement policies supporting HZ vaccination exist worldwide. Educational campaigns, funding and administrative costs directly impact vaccine uptake. Reimbursement is necessary but not sufficient to improve vaccination coverage in adults. The Australian experience highlights initiatives to help increase the focus on adult immunisation.

Modelling the influenza disease burden in Australian adults aged ≥ 50 years

Authors: Professor Raina MacIntyre[1], **Dr Aye Moa[1]**, Dr Robert Menzies[2]

Affiliation:[1]University of New South Wales, Sydney, Australia, [2]Sanofi Pasteur, Sydney, Australia

Abstract

Background: The burden of influenza increases during the season, but actual incidence of infection may be underestimated by routine surveillance systems. Statistical modelling methods are used to estimate such disease burden in the population. We aimed to estimate the influenza morbidity among people 50-64 and ≥65 years old in Australia between 2001-2017 in the study.

Methods: Weekly counts of laboratory-confirmed influenza notifications from the National Surveillance System were used as a covariate in the model. A generalised-additive regression model was applied to estimate the age-specific rate of influenza-attributable respiratory, and influenza and pneumonia (IP) hospitalisation per 100,000 population in Australia. A smoothing spline was used to control for unmeasured time-varying factors in the model.

Results: For adults ≥65 years old, the average annual hospitalisation rate of 280.3 (95%CI: 272.6, 287.9) for respiratory, and 120.7 (95%CI: 117.4, 124.0) for IP per 100,000 were estimated attributable to influenza. In adults 50-64 years old, the corresponding rates were 78.0 (95%CI: 75.5, 80.6) and 31.7 (95%CI: 30.7, 32.7) respectively. The estimated hospitalisation rate varied across the seasons. Compared to other years, the 2017 season had the highest rate in both age groups and disease categories.

Conclusion: The burden of severe influenza remains highest in adults ≥65 years old. However, there is a significant burden of disease in younger adults, who have lower vaccination rates. Improved vaccine uptake in all adults and the use of high potency vaccines in adults aged ≥65 years are the best available intervention to reduce the high disease burden.

2A - Vaccine VPD

Long Oral Presentations

2020 GSK Grant Winner - The Migrant Immunisation Access (MIA) Project

Author: Jane Tuckerman[1]

Affiliation: [1]MCRI, Parkville, Australia

Abstract

Aim: The Migrant Immunisation Access (MIA) Project aims to improve equity of access to immunisation among children of migrant parents by identifying gaps in health service delivery and exploring migrant experiences and awareness of immunisation services in the City of Melbourne, Victoria.

Background and Rationale: Migrant parents are often unaware of the National Immunisation Program (NIP) requirements. Many parents only learn their children are overdue for vaccinations when enrolling in kindergarten or childcare, as a result of the No Jab No Play policy. Under this policy in Victoria, children cannot enrol in kindergarten or early childcare services unless their immunisations are up to date for age, or they are on a recognised catch-up schedule.

Determining a customised 'catch-up' schedule requires specialist knowledge of Australian catch-up rules. Evidence from previous studies indicate that catch-ups may be incorrect, with the wrong number or type of vaccines administered, raising safety concerns. Complex catch-up schedules are resource intensive for providers, due to the time taken to collect the history, calculate vaccine requirements, upload a history to the Australian Immunisation Register and communicate any vaccine requirements with parents.

Current models of immunisation service delivery are not meeting the needs of many Migrant families due to the extensive workload in determining the required catch-up schedule.

This problem has significantly increased in Victoria since 2016, when the No Jab No Play policy was introduced. In the City of Melbourne council, an average of 368 catch-up schedules have been completed annually since 2016, compared to an average of only 74 completed annually in the 3 years prior to the policy. This represents a 451% five-year increase, with 98% of these in children recently arrived or having returned from a period overseas. To address this burden, it is critical to understand the immunisation access challenges facing migrants in this community to inform effective strategies to address health service delivery gaps.

Methods: The MIA Project will be undertaken in two phases. In phase one, a baseline examination of retrospective administrative data will be undertaken to determine client demographics (i.e. who is missing out on immunisation services), council workload and resourcing impact. In phase two, we will use a prospective survey with migrant parents presenting to Melbourne City Council Immunisation Service to explore the impact of the No Jab No Pay and Play policy, health service use, patterns of early childhood education and referral patterns to immunisation service providers. Additionally, translator-assisted qualitative focus groups with families will further explore parent experiences of immunisation service delivery, access, and sources of immunisation information. Interviews with service providers and the Department of Health will also be conducted to understand available resources and provider training needs.

Outcomes: These data will identify barriers and improve understanding of current immunisation service delivery for Migrant, as well as the impact of the No jab immunisation policies on minority groups. This single-council pilot project will inform a funding application for a larger state or national study of migrant immunisation access barriers.

The burden of pertussis potentially preventable by optimising infant vaccination timeliness

Authors: Dr Duleepa Jayasundara[3,4], Dr Deborah Randall[1,4], Dr Sarah Sheridan[2,4,5], Dr Vicky Sheppeard[3], Prof Peter Richmond[6,7,8], A/Prof Christopher Blyth[6,7,8], A/Prof James Wood[5], Dr Hannah Moore[6], Prof Peter McIntyre[2], **Dr Heather Gidding[1,2,4,5]**, Bette Liu[9]

Affiliation: [1]The University Of Sydney Northern Clinical School, St Leonards, Australia, [2]National Centre for Immunisation Research , Westmead, Australia, [3]NSW Ministry of Health, St Leonards, Australia, [4]Women and Babies Research, Kolling Institute, St Leonards, Australia, [5]School of Public Health and Community Medicine, UNSW Medicine, University of NSW, Kensington, Australia, [6]Wesfarmers Centre of Vaccines and Infectious Diseases, Telethon Kids Institute, Perth, Australia, [7]Perth Children's Hospital, WA, Australia, Perth, Australia, [8]University of Western Australia, Perth, Australia, [9]UNSW, Syndey, Australia

Abstract

Background: Previous Australian studies have shown that on-time Diphtheria-Tetanus-Pertussis (DTP) vaccination coverage is as low as 50-60% in certain subpopulations. We estimated the potentially preventable burden of pertussis if, counter-to the-fact, all three primary DTP doses were given on time.

Methods: Perinatal, immunisation, pertussis notification, and death data were probabilistically linked for 1,371,681 infants born in New South Wales and Western Australia in 2000-2012. Children who died before 1 year of age, had pertussis before the recommended age for DTP1 (61 days) or had DTP1 too early (<39 days old) were excluded. Children vaccinated >15 days after the due date for any dose were categorised as delayed and propensity score matched, to control for confounders, with children

who received all doses on time. Rates of pertussis up to 1 year of age in the matched sample were obtained using Poisson regression methods.

Results: The crude rate of pertussis in the 57% of infants who received all 3 doses on-time was 159/100,000, compared with 282/100,000 in the delayed group. Controlling for confounders, this translates to 87 (95% CI: 68-105) pertussis cases per 100,000 infants on average that could have been prevented had all infants been vaccinated on time; 22% of these preventable cases were in infants who were not vaccinated within the first year of life.

Conclusion: Our study provides evidence that poor vaccine timeliness is a key contributor to the residual burden of pertussis. The findings can inform cost-benefit analyses of targeted programs and messaging to reduce delays.

Live Zoster Vaccine: 8 Years Effectiveness against Herpes Zoster and Postherpetic Neuralgia

Authors: M Marks[2], J Bartlett[3], B Fireman[3], J Hansen[3], E Lewis[3], L Aukes[3], Dr Debra Bourke[1], **J Bayliss[1]**, P Saddier[2], N Klein[3]

Affiliation: [1]Seqirus, Parkville, Australia, [2]Merck & Co., Inc., Kenilworth, USA, [3]Kaiser Permanente Vaccine Study Center, Oakland, USA

Abstract

Background: Zostavax™, a single dose, live attenuated zoster vaccine, is licensed in >50 countries for the prevention of herpes zoster (HZ) and postherpetic neuralgia (PHN). Duration of protection is being evaluated in a long-term observational study. We report vaccine effectiveness (VE) over 8 years following vaccination in people ≥60 years of age (60+).

Methods: The study is conducted in a US healthcare plan as an open cohort that members enter unvaccinated when they become age-eligible for vaccination. HZ cases are identified in vaccinated and unvaccinated by having an HZ diagnosis code with an antiviral prescription. PHN cases are identified as having a PHN-specific diagnosis code ≥90 days after first HZ code. VE against HZ and PHN were estimated using Cox regression adjusting for sex, birth year, race/ethnicity, healthcare use, comorbidities and immunocompromise status.

Results: Between 2007 and 2016, ~480,000 of the 1.5 million study participants were vaccinated (coverage >70% in 60+) and >60,000 HZ episodes with >4,000 PHN cases occurred. VE against HZ and PHN tended to decrease over time to an average 27% and 49% in the 8th year post-vaccination, respectively. Overall average VE against HZ and PHN over the first 8 years following vaccination were 41% and 63%, respectively. Average VE by age at vaccination (60-69, 70-79, and 80+ years) was 44%, 39% and 35% for HZ, and 65%, 64% and 62% for PHN.

Conclusions: Average VE over 8 years was ~40% against HZ and ~60% against PHN in all 60+ age groups, including in people 80+.

Susceptibility to hepatitis B among globally mobile university students in Australia

Authors: Dr Anita Heywood[1], William Hu[2], Dr Amit Saha[3], Dr Abela Mahimbo[4], Professor Nicholas Zwar[5], Dr Bill Kefalas[6], Professor C Raina Macintyre[3], Dr Holly Seale[1], Professor William Rawlinson[7]

Affiliation: [1]Unsw Sydney, Unsw Sydney, Australia, [2]Faculty of Medicine, UNSW Sydney, Sydney, Australia, [3]The Kirby Institute, UNSW Sydney, Sydney, Australia, [4]UNSW Centre for Primary Health Care & Equity, UNSW Sydney, Sydney, Australia, [5]Bond University, Gold Coast, Australia, [6]University Health Service, UNSW Sydney, Sydney, Australia, [7]NSW Health Pathology, Randwick, Australia

Abstract

Background: Migrants from endemic regions are the highest risk group for chronic hepatitis B (HBV) infection in Australia. Post-arrival screening for HBV is recommended for refugees, but may not be undertaken for migrants, including international students. While coverage for the HBV infant program is high (>90%), coverage during the 1990s was below 75%, and young Australian adults entering university, may be susceptible to a number of vaccine preventable diseases, including hepatitis B. Few seroprevalence studies of hepatitis B are available in Australia. We estimated prevalence of HBV core (HBcAb) and surface (HBsAb) antibodies among a cohort of Australian university students at UNSW Sydney by country of birth.

Methods: A cross-sectional survey of UNSW Sydney students aged 18-27 years assessed vaccination history and pre-travel health seeking practices between 2016 and 2018. Consenting students provided a blood sample tested using standard test kits for HBV antibodies.

Results: Eight students (1.0%, 95%CI 0.5-2.0%) were HBcAb positive, including 6 international and 2 domestic students. Prevalence of HBsAb was 65.4% (95%CI 62.0-68.6%) overall, and higher among domestic Australian-born (218, 73.9%, 95% CI 68.6-78.6%) compared to migrant students (86, 68.3%, 95% CI 59.7-75.7%) and international students (222, 58.0%, 95% CI 53.0-62.8%) ($p<0.001$). Country of birth, age at arrival and having a parent born overseas were significant predictors for seronegativity.

Conclusions: Few students showed evidence of current or past infection, whereas immunity to HBV was low, particularly among migrant groups. This highlights the need to identify and provide vaccines to susceptible students as well as screen high risk groups for chronic infection.

2B - Vaccine Safety
Long Oral Presentations

Telephone helpline data utility for syndromic surveillance of adverse events following immunization

Authors: **Dr Yonatan Moges Mesfin**[1], Professor Jim Buttery[1], Professor Allen Cheng[1], Dr. Joanne Enticott[1]

Affiliation: [1]Monash University, Clayton, Australia

Abstract

Background: Possible adverse events following immunization need to be identified and managed in a timely way to maintain public and provider confidence in vaccine programs and minimize vaccine hesitancy. This study aimed to evaluate the ability of telephone health helpline data to augment the existing passive vaccine surveillance system in Victoria, Australia.

Methods: Using routine telephone helpline call data collected from 1 February 2009 to 31 December 2017, calls categorized as related to an AEFI were compared against the expected level estimated from historical data. In addition, reports to the Victorian enhanced passive surveillance system (SAEFVIC) were included as a reference. The temporal pattern cross-correlation coefficient at different time lags was estimated as a measure of timeliness evaluation. Statistical temporal AEFI signal was examined using a statistical algorithm specifically using the Farrington method.

Result: During the study period, 0.68% (13,719) of all telephone helpline calls were AEFI calls. In the same period, SAEFVIC received 10,367 AEFI reports. Cross-correlation analysis across the entire period showed that the maximum positive correlation (r=0.4) between the two datasets occurred at a negative lag of 1 week and in 2010 (r=0.66) at a negative lag of 2 weeks. Critically, telephone helpline detected the 2010 incident of increased febrile convulsions following seasonal influenza vaccination 3 weeks earlier than it was detected at that time.

Conclusion: This study demonstrates that telephone helpline data could serve as a valuable component of an integrated AEFI early signal detection system.

Is infant intussusception 21-days following rotavirus vaccine more severe? A prospective study

Authors: **Dr Meru Sheel**[1,2,9], Associate Professor, Nicholas Wood[1,2], Professor Kristine Macartney[1,2], Professor Jim Buttery[3,4], Ms Nicole Dinsmore[1], Prof Helen Marshall[5], Prof Elizabeth Elliott[2,6], Dr Anne Kynaston[7], Prof Peter Richmond[8], Prof Peter McIntyre[1,2]

Affiliation: [1]National Centre for Immunisation Research and Surveillance, Westmead, Australia, [2]The University of Sydney, Children's Hospital Westmead Clinical School, Faculty of Medicine and Health, Sydney, Australia, [3]Department of Infection and Immunity, Monash Children's Hospital, Monash Health, Melbourne, Australia, [4]Monash Centre of Health Research and Implementation, Department of Paediatrics, Monash University, Melbourne, Australia, [5]Women's and Children's Health Network and Robinson Research Institute and Adelaide Medical School, The University of Adelaide, Adelaide, Australia, [6]Australian Paediatric Surveillance Unit, Kids Research Institute, Sydney Children's Hospitals Network, Westmead, Australia, [7]Queensland Children's Hospital , Brisbane, Australia, [8]Wesfarmer's Centre for Vaccines and Infectious Diseases, Telethon Kids Institute, Perth, Australia, [9]National Centre for Epidemiology and Population Health, Research School of Population Health, ANU College of Health and Medicine, Australian National University, Canberra, Australia

Abstract

Background: Data on relative severity of intussusception (IS) post-receipt of rotavirus vaccine are limited, but important for risk communication. We compared IS ≤21 days after rotavirus vaccination (vaccine-proximate, VP) with IS >21 days (non-vaccine proximate (NVP).

Methods: Using a national active prospective hospital-based study in the Paediatric Active Enhanced Disease Surveillance (PAEDS) network, July 2007 to February 2018, we identified infants aged ≤9 months meeting Brighton level 1 criteria for IS and vaccinated for rotavirus. We analysed IS across 5 parameters: length of stay (LOS) ≥1day, surgical reduction, bowel resection, intensive care (ICU) admission.

Results: Of 741 possible IS cases, 326 (43.9%) were eligible; 87 (26.7%) VP-IS and 239 (73.3%) NVP-IS. VP-IS cases (24.1% ≤14 weeks) were significantly younger than NVP-IS (7.1% ≤14 weeks) but did not differ by sex, country of birth or seasonality. IS cases aged ≤14 weeks compared with those aged >25 weeks were significantly more likely to have LOS ≥1 day (OR 2.53, 95% CI 1.10-5.83) or require bowel resection (OR 3.22, 95% CI 1.30-7.80). Following age, sex and seasonality adjustment, there were no significant differences between VP-IS and NVP-IS cases for LOS ≥1 day, requiring surgery or bowel resection. No differences in ICU admission were observed (p=0.71).

Conclusions: Given high vaccine uptake in Australia, most IS cases occurred in infants aged ≤14 weeks. Younger cases were more severe, but after adjustment for age, VP-IS was not significantly more severe than NVP-IS by any measure we examined, further supporting the strong benefit:risk ratio of rotavirus vaccine.

Antenatal influenza vaccination and risk of childhood influenza and other respiratory infections

Authors: **Mr Damien Foo**[1,2], Dr Minda Sarna[1,2], Associate Professor Gavin Pereira[1,3], Dr Hannah Moore[2], Dr Annette Regan[1,2,4]

Affiliation: [1]School of Public Health, Curtin University, Perth, Australia, [2]Wesfarmers Centre of Vaccines & Infectious Diseases, Telethon Kids Institute, Perth, Australia, [3]Telethon Kids Institute, Perth, United States, [4]School of Public Health, Texas A&M University, College Station, United States

Abstract

Background: In Australia, antenatal influenza vaccination is recommended to protect both infants and mothers. However, the long-term impacts of antenatal influenza vaccination on paediatric health, including immunity to infection, are not well understood.

Methods: We conducted a retrospective, population-based cohort study of Western Australian mothers and singleton livebirths using Birth Registration data between 2012 and 2016. Laboratory-confirmed influenza infections for children up to the age of five were identified from the Western Australia Notifiable Infectious Diseases Database. We compared the incidence of laboratory-confirmed influenza infection among offspring whose mothers received an inactivated influenza vaccine during pregnancy to those with unvaccinated mothers. Cox regression models with inverse-probability of treatment weighting will be used to estimate the risk of laboratory-confirmed influenza in maternally vaccinated and unvaccinated children.

Results: Of the 159,544 mother-infant pairs, 24,819 (15.6%) received an inactivated influenza vaccine during pregnancy. The incidence of laboratory-confirmed influenza was 4.8 per 1,000 for maternally vaccinated children and 6.5 per 1,000 for unvaccinated children: 0.5 per 1,000 maternally vaccinated infants and 1.0 per 1,000 unvaccinated infants aged < 6 months; 1.0 per 1,000 maternally vaccinated infants and 0.9 per 1,000 unvaccinated infants aged 6-11 months; and 3.3 per 1,000 maternally vaccinated children and 4.6 per 1,000 unvaccinated children aged 12 months to 5 years.

Conclusion: Preliminary findings suggest a lower incidence of laboratory-confirmed influenza among maternally vaccinated children compared to unvaccinated children. Our analyses of the association between antenatal influenza vaccination and laboratory-confirmed influenza and other acute respiratory infections are ongoing.

2C - Immunisation Program & service delivery

Long Oral Presentations

Using the Perinatal Data Collection to Improve Maternal Vaccination

Authors: Ms Erin Nolan[1], Mr Rhydwyn McGuire[2], Ms Mareeka Hair[2], Dr Sonya Ennis[2], **Dr Vicky Sheppeard[2]**

Affiliation: [1]NSW Ministry of Health, St Leonards, Australia, [2]Health Protection NSW, St Leonards, Australia

Abstract

Background: Maternal influenza and pertussis vaccination fields have been included in the NSW Perinatal Data Collection since 2016.

Methods: Perinatal records were extracted for all birth events in NSW from 2016 to 2018 (N= 285,923). Variables of interest were maternal age, Aboriginality, country of birth (allocated to WHO region), smoking, number of pregnancies, socioeconomic status, health district of residence, hospital of birth and mode of antenatal care. We constructed a logistic regression model in R to determine how these variables influenced recorded influenza and pertussis vaccination status. We also plotted vaccination coverage over time.

Results: Overall recorded vaccination rates increased from 43% and 27% in 2016 to 75% and 44% in 2018 for pertussis and influenza respectively. Women in more remote areas, born in South East Asia or Western Pacific, who had combined care or a private obstetrician, were more likely to have a pertussis vaccination record. Aboriginal women, women born in the European region, who smoke, had multiple previous pregnancies, lowest socioeconomic status, or who had no formal care were less likely to have pertussis vaccination record. Relationships were similar for influenza, except that Aboriginal women were more likely to have an influenza vaccination record, and the relationship with remoteness was absent. Interactions with age, local health district and hospital were detected for both vaccines.

Conclusion: The perinatal data collection is a rich source of information about women who have vaccination recorded during pregnancy, allowing targeted strategies at the health system and individual level to improve maternal vaccination over time.

PRIME - access, equity and innovation in immunisation for refugee background communities

Authors: A/Prof Georgia Paxton[1,2,3], Chelsea Taylor[4], Kate Wilkinson[5], Rachael James[5,6], Genevieve Chappell[5], Tanya Perrin[6], Allyson McMahon[6], Mona Abbouchi[6], Farah Moualla[6], Angela Dunn[7], Rebecca Frederickson[7], Rachael Trimbos[7], Lisa Beck[8], Jayne Birkett[8], Carolyn Hilf[8], Sophie Deenmamode[5,8], Catherine Cursio[9], Sheenagh McShane[9], Bernadette Flanagan[10], Tracey Cabrie[10], Hannah Jurhmann[10], Louise Wilson[10], Lauren Tyrrell[11], Stephen Pellissier[4]

Affiliation: [1]Royal Children's Hospital, Parkville, Australia, [2]University of Melbourne, Parkville, Australia, [3]Murdoch Children's Research Institute, Parkville, Australia, [4]Department of Health and Human Servicess, Melbourne, Australia, [5]VCS Population Health, East Melbourne, Australia, [6]City of Whittlesea, South Morang, Australia, [7]Hume City Council, Broadmeadows, Australia, [8]City of Greater Dandenong, Dandenong, Australia, [9]Asylum Seeker Resource Centre, Footscray, Australia, [10]Cabrini Asylum Seeker and Refugee Health Hub, Brunswick, Australia, [11]Victorian Foundation for the Survivors of Torture, Brunswick, Australia

Abstract

Context: Victoria has large refugee and asylum seeker populations, all requiring catch-up vaccination. We present findings from PRIME: Program for Refugee Immunisation, Monitoring and Education (11/2016-11/2019).

Process: PRIME has included 4 stepped pilot projects across 3 local government areas (LGA) and 2 asylum seeker health services, evaluation, and development of PAIVnG software to support immunisation delivery. All projects included 5 elements: i) referral pathways; ii) community education/engagement; iii) provider education/engagement; iv) vaccination provision; and v) tracking/reporting on catch-up vaccination.

Analysis: Overall 7652 people were notified to the program, 1124 (14.7%) were up to date at notification. Of those in Australia ≥12 months at notification, 304/427 (71.2%) children 0-9 years, 217/411 (52.8%) adolescents 10-19 years, and 97/1367 (7.1%) adults were up to date. 6149 people were referred for catch-up and 5355/6149 (87.1%) initiated vaccination. To date, 3436 people have completed catch-up after initiation, with documented completion for 4555/7652 (59.5%). Examining cohorts followed ≥12 months within the projects shows completion of catch-up for 342/356 (96.1%) children 0-9 years, 603/672 (89.7%) adolescents 10-19 years and 1081/1328 (81.4%) adults who initiated vaccination. Median completion time was similar in LGA (21 weeks, IQR 9-27) and primary care (23 weeks, IQR 11-37). Program data revealed 1733 errors/inconsistencies for 1307 patients, with 1704/1733 (98.3%) occurring in primary care.

Outcomes: These population data confirm low baseline immunisation coverage and shortfalls in existing service delivery. PRIME demonstrates that catch-up vaccination is achievable through community/provider engagement and support for service delivery, while highlighting challenges with tracking/documentation and delivering vaccination in primary care.

Examining hospital based influenza promotion and vaccination of children with medical comorbidities

Authors: Dr Holly Seale[1], Miss Vanessa Ma[1], Dr Pamela Palasanthiran[2]

Affiliation: [1]University Of New South Wales, Sydney, Australia, [2]Sydney Children's Hospital Network (SCHN), Sydney, Australia

Abstract
Background: Hospital specialists play a key role in promoting influenza vaccination to high-risk children (HRC). Despite this, missed opportunities to vaccinate are common and uptake amongst these children is suboptimal. It has been suggested that missed opportunities to discuss or provide the vaccine are not isolated events but are representative of systematic failings. Before we can design new interventions to improve uptake, it is important to understand the landscape around the promotion and delivery. A qualitative study at one large Sydney paediatric hospital, was undertaken to explore the landscape around influenza vaccination of HRC.

Methods: Semi-structured interviews were conducted with staff members at a paediatric hospital in Sydney, Australia between April and July 2018. The interviews were transcribed and analysed iteratively to generate the major themes.

Results: Approaches used to promote and/or deliver the influenza vaccine varied among the participants. Some described the vaccine as an ingrained component of their clinical consultation. Others acknowledged that there was missed opportunities to discuss or provide the vaccine, citing competing priorities as well as a lack of awareness, time and resources. While there was some support for sending reminders and/or educating patients through the hospital, there were differing perspectives on whether tertiary centres should be delivering the vaccine.

Conclusion: Hospital-based interventions to increase vaccine uptake must consider the needs of staff. Easily accessible information and increased awareness of the recommendations among staff may lead to improved uptake in this hospital. Additional resources would be required to increase on-site delivery of the vaccine.

Assessing the usefulness of polio supplementary immunisation activities: A systematic review

Authors: Dr Amy Vassallo[2], Ms Kimberly Dunbar[1], Mr Busayo Ajuwon[1], Dr Catherine King[3,4], **Dr Meru Sheel[1]**

Affiliation: [1]National Centre for Epidemiology and Population Health, Australian National University, Canberra, Australia, [2]The George Institute for Global Health, University of New South Wales, Sydney, Australia, [3]The Children's Hospital at Westmead Clinical School, the Faculty of Medicine and Health, The University of Sydney, Sydney, Australia, [4]National Centre for Immunisation Research and Surveillance, Westmead, Australia

Abstract
The Global Polio Eradication Initiative launched in 1988 aims to increase polio vaccination coverage by conducting supplementary immunisation activities (SIAs) to reduce transmission and control polio outbreaks. Between 2018-2020, globally there were 54 polio outbreaks. Polio SIAs boost vaccination coverage, but their usefulness at strengthening routine immunisation systems is debatable.

We systematically examined polio SIA's impact on delivery of routine vaccination, workforce and service delivery. We searched nine databases for studies reporting on key outcome indicators. A total of 20 studies were included.

Vaccination coverage outcomes were included in 14/20 (70%) studies, workforce implications in 13/20 (65%) and impacts on health service delivery in 18/20 (90%). Impact of SIA on routine vaccinations was positive in seven studies, neutral in three and negative in one. Overall, polio SIAs provided training and capacity building for health workers, strengthening the local workforce. We found an increase in health service delivery , particularly in difficult to access areas; increased social mobilisation and community awareness about vaccination; and less frequent disruption to routine health services. Most studies contained cross-sectional data, and thus sustainability of these public health interventions and long-term impacts were not measured.

Polio SIAs can offer a platform for delivery of routine immunisation and other preventive public health programs but are not well utilized. Outcome data were heterogeneous, highlighting the need for standardized tools to implement and evaluate post-vaccine introduction outcomes. Findings from this review will inform evaluation of polio SIAs and provide critical considerations for the deployment of COVID19 mass vaccination campaigns

2D - VPD in special populations & others

Long Oral Presentations

Genital warts on the decline: Successes of Australian human papillomavirus vaccination program

Authors: Dr Harunor Rashid[1,2], Dr Aditi Dey[1,2], Ms Han Wang[1], Dr Frank Beard[1,2]

Affiliation: [1]National Centre For Immunisation Research And Surveillance (ncirs), The Children's Hospital At Westmead, Westmead, Australia, [2]Faculty of Medicine and Health, The University of Sydney, Sydney, Australia

Abstract

Background: Australia was the first country to implement a fully funded human papillomavirus (HPV) vaccination program, from 2007 for girls with extension to boys in 2013. We aimed to evaluate changes in genital warts hospitalisation rates pre- and post-program implementation.

Methods: Hospital admissions 2004–2016 that included ICD-10-AM codes A63.01-A63.09 (anogenital warts) as principal or additional diagnosis were obtained from the National Hospital Morbidity Database. Average annual age-specific hospitalisation rates in the pre-vaccine (2004–2007) and post-vaccine (2008–2016) periods were calculated per 100,000 population and stratified by age group, sex and Indigenous status.

Results: Preliminary findings show an overall decline in genital warts hospitalisation rates in post-vaccine (10.0 per 100,000 population) compared to pre-vaccine period (16.9 per 100,000). Hospitalisation rates in females aged 20-29 years decreased from 69.8 per 100,000 in pre-vaccine period to 22.8 per 100,000 in post-vaccine period. Hospitalisation rates also decreased in females aged 10-19 years, from 32.7 per 100,000 in pre-vaccine to 6 per 100,000 in post-vaccine period. In males aged 20-29 years, rates decreased from 29.7 per 100,000 in 2004–2007 to 20.6 per 100,000 in 2008-2013 and 13.4 per 100,000 in 2014–2016. Final results, including by Indigenous status, will be presented at the conference.

Conclusion: There has been a progressive reduction in genital warts hospitalisation rates, which reflect the more severe end of the disease spectrum, in both males and females. This, along with previously documented decreases in high grade cervical abnormalities, highlight the successes of the HPV vaccination program.

9-Valent HPV Vaccine Efficacy in Women with Prior HPV Exposure

Authors: Professor Suzanne Garland[1], Professor Anna Giuliano[2], Associate Professor Elmar Joura[3], Dr Oliver Bautista[4], Dr Alain Luxembourg[4]

Affiliation: [1]Department of Obstetrics and Gynaecology, The University of Melbourne, Parkville, Australia, [2]Center for Immunization and Infection Research in Cancer, Moffitt Cancer Center, Tampa, USA, [3]Department of Obstetrics and Gynecology, Comprehensive Cancer Center, Medical University of Vienna, Vienna, Austria, [4]Merck & Co., Inc., Kenilworth, USA

Objectives: We report efficacy estimates against cervical, vulvar, and vaginal disease caused by all 9 vaccine HPV types and prevention of related cervical surgeries compared with a historic placebo population.

Methods: Three international, randomised, double-blind studies were conducted in women 16-26 years; pivotal efficacy study evaluating 9vHPV vaccine (n=7106) vs 4vHPV vaccine (n=7109) and historic efficacy studies of 4vHPV vaccine (n=8810) vs placebo (n=8812) (FUTURE I and FUTURE II). End-of-study data were used to evaluate 9vHPV vaccine efficacy and incidence rates compared with placebo by baseline vaccine HPV type status (assessed by PCR) in a modified intent-to-treat population.

Results: Among women negative for all 9vHPV vaccine types, 'any grade' and 'high grade' cervical disease related to HPV 6/11/16/18 was significantly reduced vs placebo by 99.0% and 100%, respectively, and HPV31/33/45/52/58-related disease reduced by 96.9% and 95.3%, respectively. 9vHPV vaccine didn't prevent disease related to vaccine types detected at baseline but significantly reduced disease related to other vaccine HPV types. ≥93.0% reductions were observed in incidence of biopsy and definitive therapy related to vaccine-type lesions in women negative for the respective HPV types at baseline, including those positive for other 9vHPV vaccine types.

Conclusions: The 9vHPV vaccine reduces cervical, vulvar and vaginal disease caused by the targeted HPV types compared with a population of unvaccinated women. Among women positive for one or more HPV types at baseline, efficacy against other targeted HPV types was maintained. These data support the potential for 9vHPV vaccine to prevent disease among sexually active, HPV-infected women.

Creating accessible immunisation services for former refugee children: A health system perspective

Authors Lara Cavit, Nadia Charania

Affiliation: [1]Auckland University of Technology, Auckland, New Zealand

Abstract

Background: The world is witnessing the highest level of forced displacement on record leading to a global rise in refugees requiring resettlement. Children are particularly at high risk of acquiring vaccine preventable diseases (VPDs). In New Zealand (NZ), reported age-appropriate vaccination rates are lower in migrant and refugee children compared to non-migrant children.

Methods: A qualitative study was undertaken to explore factors associated with access and uptake of immunisations and develop strategies to improve age-appropriate vaccinations among refugee children post-resettlement in NZ. Semi-structured interviews were conducted with health providers (nurses and doctors) and key informants across eight resettlement locations in NZ. Collected data were transcribed verbatim and thematically analysed.

Results: Preliminary findings suggest there is considerable variability across the resettlement locations regarding the provision of immunisation services for refugees. Key factors influencing immunisation uptake include: structural barriers (e.g., lack of clinic time, funding, data management systems and access to interpreters), health providers' skills and knowledge, and access barriers for refugee caregivers (e.g., communication difficulties, transport issues, lack of knowledge of health services and competing resettlement priorities). Participants suggested numerous strategies to improve coverage, including: educational campaigns, cultural training for health providers, after-hours clinics, specialised maternal and child health clinics, dedicated refugee liaison roles within general practices and specialised outreach immunisation clinics.

Conclusion: These findings highlight root factors that impact immunisation uptake among vulnerable refugee children. To reduce the burden of VPDs, strategies must address the barriers to vaccine uptake faced by both families of refugee backgrounds and health providers.

Prevalence, Incidence, and Natural History of HPV Infection in Women Aged 24-45

Authors: Professor Suzanne Garland[1], D Ferris[2], D Brown[3], A Giuliano[4], E Myers[5], E Joura[6], S Kjaer[7], G Perez[8], A Saah[8], A Luxembourg[8], C Velicer[8]

Affiliation: [1]The Royal Women's Hospital, Parkville, Australia, [2]Department of Obstetrics and Gynecology, Georgia Cancer Center, Augusta University, Augusta, USA, [3]Obstetrics and Gynecology, Georgia Cancer Center, Augusta University, Augusta, United states 3Department of Infectious Diseases, Indiana University School of Medicine, Indianapolis, USA, [4]Center for Immunization and Infection Research in Cancer, Moffitt Cancer Center and Research Institute, Tampa, USA, [5]Department of Obstetrics and Gynecology, Duke University Medical Center, Durham, USA, [6]Department of Gynecology and Obstetrics, Comprehensive Cancer Center, Medical University of Vienna, Vienna, Austria, [7]Danish Cancer Society Research Center and Department of Gynecology, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark, [8]Merck & Co., Inc., Kenilworth, USA

Background: The natural history of HPV anogenital infection in young women has been studied extensively, but less is known about HPV natural history in mid-adult women.

Methods: Secondary analyses of data from 3817 women aged 24-45 who participated in a global clinical trial of the 4vHPV vaccine. Among all participants (vaccine and placebo groups), we calculated country-specific baseline prevalence of anogenital infections for 14 HPV types: 9vHPV types, and 5 non-vaccine high-risk types (35/39/51/56/59). Rates of incident and persistent infection among 989 placebo recipients naive to all 14 HPV types at baseline were estimated. Risk of incident infection associated with selected baseline characteristics were also estimated.

Results: Prevalence of anogenital HPV infection among women aged 24-45 varied by country; highest in France at 29.2% (9vHPV types) and 21.7% (non-vaccine types), and lowest in the Philippines at 7.6% (9vHPV types) and 5.1% (non-vaccine types). Among placebo recipients, HPV incidence per 100 person-years was 5.2 (9vHPV types) and 4.7 (non-vaccine types), and incidence of persistent infection was 2.7 (9vHPV types) and 2.1 (non-vaccine types). Factors independently associated with acquiring a new infection with at least one 9vHPV type included younger age, being single, current tobacco use, younger sexual debut, and greater number of lifetime sex partners or new sex partners in the last 6 months.

Conclusions: Although incidence of new HPV infections decreases with increasing age, mid-adult women still acquire new infections, including those that persist. These findings can inform cervical cancer screening and HPV vaccination strategies targeting unvaccinated adult wome

2E - Mixed
Long Oral Presentations

SMS Precall - Community Yarnings - Connecting Our Mob

Author: Miss Nicole Gordon-Cooke

Affiliation: [1]Queensland Health, Cairns, Australia

Abstract
The SMS Precall Initiative was commenced on October 2019 as part of the Connecting Our Mob Project – Improving Indigenous Immunisation in urban Far North Queensland.

Current and historical data has shown that there are significant differences between Aboriginal and Torres Strait Islander children and non-indigenous children's vaccination rates.

Following extensive community consultation, this proactive initiative aimed to:

• improve overall vaccination coverage and timeliness

• provide a new platform for increasing the profile of Immunisation requirements

• Increase community involvement in their immunisation needs

Aboriginal and Torres Strait Islander community members were interviewed in face-to-face opportunistic settings to determine immunisation barriers and enablers. Prior to leaving hospital, new parents were provided with education regarding the importance and schedule of infant immunisations. Finally, routine community consultation assessed and evaluated the SMS precall process.

SMS immunisation reminders served as a timely an effective reminder to parents and guardians of Aboriginal & Torres Strait Islander children, that their baby's vaccinations are due or overdue. Qualitative evaluation revealed that significant barriers to timely immunisation included: lack of knowledge about immunisation and confusion over immunisation schedules.

After implemenattion initial review has shown significant evidence of community acceptance, and improved timeliness of immunisations. Ongoing evaluation of the initiative through consultation with community members in conjunction with evaluation of immunisation timeliness data to be secured will determine longevity of the project.

Attitudes and beliefs associated with influenza vaccination among Australian adults

Authors: Mallory Trent[1], Prof Daniel Salmon[2], Prof C Raina MacIntyre[1]

Affiliation: [1]Biosecurity Program, Kirby Institute, University of New South Wales, Kensington, Australia, [2]Johns Hopkins Bloomberg School of Public Health, Baltimore, USA

Background: Despite significant burden in Australia, only half of adults are vaccinated for seasonal influenza in any given year. We applied the health belief model to identify attitudes and beliefs predictive of influenza vaccination in 2019.

Methods: We administered an online survey to a representative sample of Australian adults aged 18 and over. We designed questions using the theoretical constructs of the health belief model; we measured agreement using 2- and 4-point Likert scales. Using simple and multivariable log-binomial regression, we identified attitudes and beliefs associated with influenza vaccination in 2019.

Results: Among 1,444 participants, 51.7% reported influenza vaccination in 2019. Vaccination rates were 77.4% and 45% for adults over and under age 65, respectively. Based on preliminary results, vaccination is associated with perceived influenza susceptibility and perceived vaccine effectiveness. Thirty-seven percent of participants agreed with 'the flu jab can give you the flu', and they had lower vaccine uptake (RR=0.52, 95% CI=0.46-0.59). Other significant perceived barriers include preferring to develop immunity 'naturally', believing the vaccine was too expensive, and not having time for vaccination. Vaccine uptake was significantly higher among participants that reported having a doctor recommend it (RR=3.04, 95% CI=2.61-3.54). Additional analysis will be presented.

Conclusion: Vaccine uptake was higher than previous estimates, which may be explained by increased media attention in 2019, a severe 2017 influenza season, and increased vaccine accessibility at pharmacies. However, there are several perceived barriers caused by vaccine misinformation and inaccessibility which may be limiting uptake among Australian adults.

Impact of pneumococcal vaccination on pneumonia hospitalisations in Indigenous children

Authors: Dr Caitlin Swift[1], Dr Sanjay Jayasinghe[1,2], Dr Frank Beard[1,2], Dr Aditi Dey[1,2], Ms Katrina Clark[1], Professor Peter McIntyre[1]

Affiliation: [1]National Centre For Immunisation Research And Surveillance, Westmead, Australia, [2]University of Sydney, Sydney, Australia

Abstract

Background: Pneumococcal vaccines have been funded on the National Immunisation Program (NIP) for all Indigenous children since 2001. In QLD, NT, SA and WA, in addition to 3 doses of 7-valent pneumococcal conjugate vaccine (7vPCV) a 23-valent pneumococcal polysaccharide vaccine (23vPPV) was given in the second year of life, replaced in 2011 with 13-valent PCV (13vPCV). We assessed pneumonia hospitalisations from 1999 to 2018 in Indigenous children <5 years in these four jurisdictions.

Methods: Hospitalisations with a primary diagnosis of all-cause pneumonia were categorised as pneumococcal, specified non-pneumococcal and unspecified using ICD-10-AM code categories. Age-specific pneumonia hospitalisation incidence rates were calculated by financial year and the percentage change in incidence calculated by vaccine periods.

Results: From pre-7vPCV (1999-2002) to late-13vPCV (2014-2018) hospitalisation incidence in children <5 years declined by 50% (2814 to 1401 per 100, 000) for all-cause and 85% (133 to 20 per 100, 000) for pneumococcal pneumonia. From pre-13vPCV (2008-2011) to post-13vPCV (2011-2018) pneumococcal pneumonia hospitalisations declined significantly by 74% (95%CI 43-88%) in <12 months but there was no significant change in 12-23 months or 2-4 years. All-cause pneumonia steadily increased from 2013/14 to 2017/18 in 12-23 months (1702 to 2958 per 100, 000) and 2-4 years (585 to 917 per 100, 000), driven by increasing hospitalisations coded as specified non-pneumococcal and unspecified pneumonia.

Conclusion: Large declines in coded pneumonia hospitalisations add significantly to reductions in invasive disease previously documented post pneumococcal vaccination in Indigenous children. Recent increases in all-cause pneumonia in children 1-4 years warrant further investigation.

2F - COVID Clinics and virus mutation challenges

Long Oral Presentations

Pharmacists' reporting practices to the Australian Immunisation Register: Readiness for COVID-19 vaccinations

Authors: Ms Cyra Patel[1], Ms Lauren Dalton[1], Dr Aditi Dey[1,2], Ms Kaitlyn Vette[1], Professor Peter McIntyre[1,3], Professor Kristine Macartney[1,2], Dr Frank Beard[1,2]

Affiliation: [1]National Centre For Immunisation Research And Surveillance, Westmead, Australia, [2]University of Sydney, Sydney, Australia, [3]University of Otago, Dunedin, New Zealand

Background: Pharmacists will play a key role in administering vaccinations as part of Australia's COVID-19 vaccination program. Little is known about how pharmacist-delivered vaccines are recorded and reported to the Australian Immunisation Register (AIR).

Methods: We surveyed pharmacists nationally between 5 June and 13 July 2020 about their practices and experiences recording and reporting vaccination encounters. We obtained data on the number of vaccines administered by survey respondents that were recorded in AIR in April and May 2020 to calculate the proportion of vaccination encounters reported to AIR.

Results: The 243 eligible respondents used multiple methods to record vaccinations administered in pharmacies (electronic software: 93%; paper records: 68%). The majority (71%) used automated uploads from pharmacy software to report to AIR while 41% manually entered data into the AIR site, with 13.5% using both methods. Respondents identified automated reporting from pharmacy software as the most important enabler of reporting, while difficulties accessing and using AIR were substantial barriers. Among 121 respondents (50%) who provided sufficient data, 82% of vaccinations administered (72,045 of 87,665) were reported to AIR. However our results are likely biased, with these respondents more likely to record data electronically and use automated reporting methods.

Conclusion: Accurate and complete data on coverage of COVID-19 vaccines is key to program delivery and evaluation. With reporting to AIR now mandated by legislation, systems-level changes to increase access to AIR and adoption of electronic and automated means of recording and reporting data to AIR, alongside ongoing education and support, are needed.

Mid-pandemic vaccine intentions and healthcare utilisation among families of COVID-19 tested children

Authors: Carol Jos[1], Tria Williams[1], Dr Jessica Kaufman[1,2], Myles Loughnan[1], Keana Loschiavo[1], A/Prof Margie Danchin[1,2,3]

Affiliation: [1]Murdoch Children's Research Institute, Parkville, Australia, [2]University of Melbourne, Parkville, Australia, [3]Royal Children's Hospital, Parkville , Australia

Abstract

Background: Victoria, Australia experienced strict COVID-19-related restrictions in 2020. Families of children tested for COVID-19 may have experienced additional periods of isolation, potentially limiting access to influenza vaccination and routine childhood vaccines. We aimed to explore healthcare utilisation, vaccine uptake and intention to vaccinate against COVID-19 among families of children tested for COVID-19 at the Royal Children's Hospital (RCH), Melbourne.

Methods: This study is part of a larger longitudinal study investigating the impacts of COVID-19 testing and restrictions on children's health and psychosocial wellbeing during the second wave of the COVID-19 pandemic. Recruitment began in July 2020. Survey data collected three months after testing assessed influenza and routine vaccine uptake and COVID-19 vaccine intentions. Descriptive statistics were calculated with STATA v16.0.

Results: Surveys were collected from 220 families. Reported uptake of flu vaccine for parents (84%) and children (79%) was much higher than reported in previous years (adults 18.8%, children 39.7%). Parents reported 100% of children due for routine vaccination were vaccinated. Parents' intention to receive COVID-19 vaccines for themselves (95%) and their children (94%) was extremely high. Since the start of COVID-19 restrictions, families delayed routine check-ups with general practitioners (24.1%), dentists (43.6%) and allied health services (22.7%).

Discussion: Families tested for COVID-19 at the RCH in 2020 reported very high vaccine uptake and intention to vaccinate against COVID-19. Healthcare utilisation data suggest that people prioritised vaccination despite delayed routine care. The longitudinal study will continue to explore vaccine acceptance and uptake up to 12 months following COVID-19 testing.

Victorian Specialist Immunisation Services (VicSIS) – Bolstering adult clinics for COVID19 vaccines

Authors: Dr Sally Gordon[1], Dr Hazel Clothier[1,2], Ms Michelle Wolthuizen[1], Dr Annaliese Van Diemen[1], A/Prof Nigel W Crawford[1,2]

Affiliation: [1]Victorian Department Of Health, Melbourne, Australia, [2]SAEFVIC-MCRI, Melbourne, Australia

Abstract
Vaccine safety services in Victoria are managed by Surveillance of Adverse Events Following Vaccination In the Community (SAEFVIC), who coordinate the management, monitoring and reporting of adverse events following immunisation (AEFI). Given the COVID-19 vaccine rollout prioritises high-risk adults, a need was identified to rapidly enhance adult vaccine safety services through a Victorian Specialist Immunisation Services (VicSIS) network based geographically on Local Public Health Units, and funded and coordinated by the Victorian Department of Health with support from SAEFVIC (MCRI). VicSIS is comprised of nine COVID-19 Specialist Immunisation Clinics which provide comprehensive consultation both pre- and post-vaccination. Pre-vaccination consultations are for persons at-risk of AEFI (e.g. previous anaphylaxis to a vaccine or polysorbate 80) or those with special requirements (e.g. immunocompromised). Post-vaccination consultations are for persons who experience an AEFI following a dose of a COVID-19 vaccine and who require review prior to consideration of further doses, or ongoing follow-up of their AEFI. There are two additional allergy-specific services supporting the network, particularly important given the vaccine allergy signal flagged in the northern hemisphere. VicSIS will provide individual immunisation recommendations, allergy testing and vaccination under supervision as required. A group of subject matter experts has also been developed to provide expert guidance on high or special-risk groups, or adverse events of special interest (e.g. serious acute neurological events). The VicSIS has been established to support at-risk individuals as part of the COVID-19 vaccine program, however, will ultimately act as health systems strengthening to bolster adult immunisation services into the future.

Strengths and Challenges of large-scale paediatric SARS-CoV-2 testing: A mixed method evaluation

Lessons learned from the COVID-19 vaccination clinic at Austin Health, Melbourne.

Authors: Ms Sonja Elia[1], Mr Sean Mace[2], Ms Bernadette Twomey[2]

Affiliation: [1]Royal Children's Hospital, Melbourne, Australia, [2]Austin Health, Heidelberg, Australia

Abstract
Context: The Australian Technical Advisory Group on Immunisation (ATAGI) advised the Australian Government on which groups should be prioritised for the first doses of COVID-19 vaccination in Australia, consistent with guidance from the World Health Organisation (WHO). In Victoria, nine hubs at public hospitals in Melbourne and regional Victoria were announced as providing the priority vaccinations. Austin Health was nominated as the hub for north-eastern Melbourne metropolitan region.

Process: The COVID-19 vaccination clinic was established within a 5 week period. An appointment booking and interim vaccine management system was developed, refrigeration units purchased and IT infrastructure tested. Recruitment for the nursing and pharmacy workforce was undertaken, as well as cleaning and administrative staff employed. The vaccination clinic commenced on 22nd February 2021, starting with hotel quarantine and border protection workers, emergency services and frontline health care workers.

Analysis: Establishing the clinic had many challenges, including but not limited to the physical layout of the six cubicles, the vaccine drawing up process, anaphylaxis management, minimising anxiety and distress for vaccinees and the supervision of emergency authorised staff. Austin Health employed an Immunisation Nurse Practitioner for two weeks to assist in managing these challenges. The feedback from those receiving the COVID-19 vaccines at Austin Health was extremely positive.

Outcomes: Through efficient planning and supervision, Austin Health demonstrated successful implementation of a COVID-19 vaccination hub. Progress is being continually monitored, especially since the 9th March 2021, the hub is gradually being expanded to include an additional 20 cubicles at another Austin Health campus.

Responding to the global pandemic: Therapeutics in Development for COVID-19

Author: Dr Krystal Evans[1]

Affiliation: [1]GlaxoSmithKline Australia , Melbourne, Australia

Abstract
In response to the global COVID-19 pandemic GSK have been working with scientific partners to develop a broad portfolio of potential COVID-19 vaccines and treatments. Using a monoclonal antibody platform technology in collaboration with VIR Biotechnology, we have sought to accelerate existing and identify new antiviral antibodies that could be used as therapeutic or preventative options for COVID-19. This presentation will provide an update on the clinical development of a neutralizing monoclonal antibody against SARS-CoV-2, including mechanism of action, resistance properties in the context of emerging viral variants and an update on the clinical development program.

3A - Rapid Fire - Clinical Practice & program Implementation

Short Oral Presentations

Re-immunisation for children ≥10 years old. Post oncology treatment. A prospective audit.

Authors: Nadine Henare[1], Ms Sonja Elia[1], Associate Professor Nigel Crawford[1], Dr Kirsten Perrett[1]

Affiliation: [1]Rch, Parkville, Australia

Abstract

Background: Post chemotherapy and haematopoietic stem cell transplant (HSCT) recipients are at higher risk for vaccine preventable diseases than the general population. Few countries have standard re-immunisation guidelines for these patients and those available are based on limited evidence. The RCH has developed a new comprehensive immunisation guideline that demonstrates a change to current Australian Immunisation Handbook practice, incorporating the use of the paediatric hexavalent formulation of DTPa-IPV-HepB/Hib. This reduces the number of vaccines per visit, thereby potentially improving compliance with timely immunisation and possibly decreasing psychological and physical pain.

Methods: All children ≥ 10 years of age presenting to the RCH Immunisation Drop-in centre will be immunised according to the new post-chemotherapy and post-HSCT guideline. A follow-up text message to parents will be made on day 1 and day 3-5 post each dose of DTPa containing vaccine to obtain a parent report or self-report for children ≥ 15 years of age of local injection site reactions (ISR).

Results: From November 2019 to May 2020, we aim to have audited 50 patients to monitor for adverse events following immunisation. Results of this audit and the new immunisation guideline will be presented at the conference.

Conclusion: This new post-chemotherapy/post-HSCT immunisation guideline should improve compliance and patient's experience when receiving post-therapy vaccines. We do not expect adverse events following immunisation, such as ISR, to occur more often. The outcomes of this audit will add to the evidence and potentially build provider confidence.

Symptoms and sequelae following Invasive Meningococcal Disease in Australian adolescents and adults

Authors: Mr Mark McMillan[1,2], Margaret Angliss[3], Jane Jones[4], Abira Chandrakumar[5], Anton Alvaro[6], Jim Buttery[7], Christopher Blyth[8], David Shaw[9], David Gordon[10], Bing Wang[1,2], Helen Marshall[1,2]

Affiliation: [1]Vaccinology and Immunology Research Trials Unit, Women's and Children's Health Network, North Adelaide, Australia, [2]Robinson Research Institute and Adelaide Medical School, The University of Adelaide, Adelaide, Australia, [3]Monash Health, Paediatric Infection & Immunity Department,, Clayton, Australia, [4]Telethon Kids Institute, Subiaco, Australia, [5] Central Adelaide Local Health Network, SA Health, Adelaide, Australia, [6]Adelaide Medical School, The University of Adelaide, Adelaide, Australia, [7]Department of Paediatrics, Royal Children's Hospital, , Australia, [8]Department of Infectious Diseases, Perth Children's Hospital, Perth, Australia, [9]Infectious Diseases Service, Central Health Service, Adelaide, Australia, [10]Microbiology and Infectious Diseases, SA Pathology, Flinders Medical Centre, Bedford Park, Australia

Abstract

Introduction: Early detection of invasive meningococcal disease (IMD) is often difficult but remains critical for timely administration of antibiotics.

Methods: A case note audit of IMD cases between 2005-18 in 15-25-year-old adolescents/adults was conducted in 5 metropolitan hospitals (Perth n=1, Melbourne n=1 and Adelaide n=3). Data was collected on clinical course, management and sequelae.

Results: A total of 74 IMD cases were included in this interim analysis, 70 (96%) B, and 3 (4%) C. The mean age at presentation was 18.9 years (SD 2.2), with 40 (54%) male. First presentation was most often at the Emergency Department 34/74 (46%), followed by General Practitioners 27/74 (37%). A non-blanching rash was identified in 43/74 (58%) of adolescents and was associated with allocation of a higher triage priority category. Approximately half of IMD presentations were triaged as category 3-4 (24/47 [51%]). Complaining of a stiff neck (9/24 category 3-4), and photophobia (12/24 category 3-4) were not associated with allocation of category 1-2. Almost all (94%) demonstrated severe sepsis in the first 48 hours of admission. Approximately half required admission to an Intensive Care Unit (ICU) 38/74 (51%), resulting in a mean ICU stay of 2.4 days (SD 1.5, range 1-7 days). On hospital separation 46/74 (62%) were discharged without sequelae, 24/74 (32%) were discharged with sequelae, and 2/74 (2.8%) had died.

Conclusion: IMD is a rapidly progressive condition that can lead to severe sequelae. Increased awareness of signs of meningitis may improve time from presentation to antibiotic administration.

Hepatitis B immunity and hepatitis B immunoglobulin following paediatric community needle-stick exposure

Authors: Dr Krist Ewe[1], Dr Anita Campbell[1,2,3], Dr Christopher Blyth[1,2,3,4]

Affiliation: [1]Department of Infectious Diseases, Perth Children's Hospital, Perth, Australia, [2]Division of Medicine, University of Western Australia, Perth, Australia, [3]Wesfarmers Centre for Vaccines and Infectious Diseases, Telethon Kids Institute, Perth, Australia, [4]Department of Microbiology, PathWest Laboratory Medicine, Perth, Australia

Abstract

Background: Long-term hepatitis B immunity has been demonstrated following completion of the primary vaccination series in childhood. Some guidelines recommend a hepatitis B surface antibody (anti-HBs) directed approach following community-acquired needle-stick injury (CANSI) to inform hepatitis B post-exposure prophylaxis (PEP) management. We sought to assess the utility of anti-HBs testing post-CANSI and adherence to PEP at a tertiary paediatric hospital. Methods: Children presenting to an Australian tertiary paediatric hospital following CANSI (2014-2019) were identified retrospectively using medical and laboratory records. Immunisation status was obtained from the Australian Immunisation Registry.

Methods: Children <18 years presenting to Princess Margaret or Perth Children's Hospital with a diagnosis of CNSI from January 2014 to January 2019 were identified retrospectively using relevant ICD-10 coding. Additional data was sought from the medical record, diagnostic laboratory and Australian Immunisation Register.

Results: Fifty-six children with CANSI were identified. Of those with immunisation records, all had completed hepatitis B vaccinations (n=52). At presentation, 44% (n=23) had anti-HBs

Conclusion: Despite 95% of cases receiving a birth plus 3 dose hepatitis B vaccine regimen, almost half were non-immune to hepatitis B. Many did not receiving HBIG as per recommended by current guidelines. No cases of acquired blood-borne virus infection were observed.

The broader role of the immunisation pharmacist

Authors: Annie Cobbledick[1], Ms Sonja Elia[1]

Affiliation: [1]The Royal Childrens Hospital, Parkville, Australia

Abstract

Context: Pharmacist vaccination is an innovative opportunity to improve immunisation rates. In Victoria, Pharmacist Immunisers can administer Influenza, Diphtheria, Tetanus and Pertussis and Measles, Mumps and Rubella vaccines to individuals aged 16 years and over. This paper evaluates the broader role of a pharmacist within the Immunisation service at the Royal Children's Hospital (RCH), Melbourne.

Process: The role of the Immunisation Pharmacist began on 16 April 2018. Tasks undertaken taken by the pharmacist were recorded in an Electronic Medical Record (EMR). These included vaccines verified, dispensed and administered, as well as identification of overdue vaccines and notes written in patient's files. Data regarding phone calls answered was also recorded from February 2019 to September 2019.

Analysis: Over the 12 month period, the pharmacist verified 350 vaccines, dispensed 66 vaccines to various wards and administered 75 vaccines in the Drop-in centre. Clinical notes were documented within individual patient records in the EMR (93). Identification of due or overdue vaccines was documented on the patient's problem list within the EMR on 119 occasions, which prompts ward staff to follow up vaccination status. During an 8-month period, the pharmacist answered 1,763 phone calls, accounting for 23% of phone calls received within the service.

Outcomes: The pharmacist role in the immunisation service at RCH has demonstrated value in Immunisation service delivery, not only in the Drop-in centre, but the broader hospital environment. Future implications include further expansion of the role and scope of practice, to provide additional support and contribution to the service.

Help, I need advice, management of immunisation errors.

Author: Bernadette Heaphy[1]

Affiliation: [1]The Immunisation Advisory Centre, The University of Auckland, NZ, Wellington, New Zealand

Abstract

Protecting the community from vaccine preventable disease depends on the establishment of effective systems and a skilled workforce. Vaccine administration is a frequent, repetitive task, but even with excellent teaching and knowledge, errors do to occur. It is important that there is a focus on best practice and the prevention and management of errors. In 2019, the Immunisation Advisory Centre (IMAC) undertook to review and update the New Zealand (NZ) national document What to do when things go wrong, which gives standardised advice on responding to vaccine administration errors. This review was a collaborative process blending the science of what is known about the effects of errors, the art of dealing with people in times of uncertainty and maintaining confidence in our immunisation programme. It involved bringing together the experience and knowledge of NZ vaccine experts and incorporating this with elements of pragmatism and international best practice advice. The primary audience for the newly named Management of Vaccination Errors are immunisation coordinators, public health unit medical officers of health and IMAC staff. The document aims to ensure timely and consistent advice following the reporting of errors made by immunisation providers. The presentation will cover the key aspect of this process and comment on the document's usefulness.

Examining prescribing of immunisations for inpatients at a tertiary paediatric hospital

Authors: Dr Anita Campbell[1], Ms Filomena Mascaro[2], Ms Stacey Fitzgerald[2], Ms Natasha Andres[3], Ms Lena Ng[3], Ms Monir Jalili[3], Professor Lynne Emmerton[3], Associate Professor Christopher Blyth[2,4,5,6], Dr Anita Campbell[2,4,5]
Presenter: Selina Lim

Affiliation: [1]Pharmacy Department, Perth Children's Hospital, Nedlands, Australia, [2]Stan Perron Immunisation Service, Perth Children's Hospital, Nedlands, Australia, [3]School of Pharmacy and Biomedical Sciences, Curtin University , Bentley, Australia, [4]School of Medicine, University of Western Australia, Crawley, Australia, [5]Wesfarmers Centre of Vaccines and Infectious Diseases, Telethon Kids Institute, Nedlands, Australia, [6]Department of Microbiology, Pathwest Laboratory QEII Medical Centre, Nedlands, Australia

Abstract
Aim: The aim of this study was to investigate the adherence of inpatient immunisation prescribing at a tertiary paediatric hospital against best practice national guidelines.

Methods: A retrospective cohort study was conducted at Perth Children's Hospital (PCH) for inpatients ≤16 years, prescribed a vaccine on the WA immunisation schedule (WAIS) from July 2018-February 2019. Information was obtained from medical and pharmacy dispensing records and Australian Immunisation Register (AIR). Prescriptions were assessed against National Safety and Quality Standards (NSQS), WAIS and the Australian Immunisation Handbook. Overdue vaccination was defined as delay ≥ one month according to the child's age and WAIS.

Results: Of the 110 vaccine prescriptions included, 11 (10%) contained at least one prescription drug error. Nine prescriptions (8%) had incorrect dose (underdose [n=3], overdose [n=4] and potential overdose corrected by ward pharmacists [n=2]), all related to age-based dosing for influenza vaccine. Three (3%) had incorrect route and one duplicate vaccine administration was identified. Seventeen had abbreviations not accepted by NSQS (Ṫ most frequent). Only 51% of inpatient vaccines prescribed were entered into AIR. Nineteen prescriptions (17%) were for overdue vaccinations.

Conclusions: The majority of vaccines prescribed were adherent to national prescribing guidelines. All dosing errors were related to age-based dosing for influenza vaccine. A lower proportion of inpatients were up-to-date with immunisations (83%), compared with WA rates overall (> 90%). More easily accessible vaccine prescribing resources have subsequently been developed in this hospital setting and could be applied more broadly, along with further education for uploading vaccinations onto AIR.

Text2Vax: a national survey of pregnant women's vaccine reminder perceptions and preferences.

Authors: Dr Minda Sarna[1,2], Associate Professor Christopher C Blyth[2,3,4], Dr Holly Seale[5], Associate Professor Margie Danchin[6,7], Dr Jessica Kaufman[6,7], Associate Professor Melissa S Stockwell[8], Professor Tom Snelling[1,2], Assistant Professor Annette K Regan[1,2,9]

Affiliation: [1]School of Public Health, Curtin University, Bentley, Australia, [2]Wesfarmers Centre of Vaccines and Infectious Diseases, Telethon Kids Institute, Nedlands, Australia, [3]School of Medicine, University of Western Australia, Nedlands, Australia, [4]Department of Paediatric Infectious Diseases, Perth Children's Hospital, Nedlands, Australia, [5]School of Public Health and Community Medicine, University of New South Wales, Sydney, Australia, [6]Murdoch Children's Research Institute, Melbourne, Australia, [7]University of Melbourne, Melbourne, Australia, [8]Department of Pediatrics and Population and Family Health, Columbia University, New York City, United States, [9]School of Public Health, Texas A&M University, College Station, United States

Abstract
Background: Pregnant women and young infants are at risk of severe influenza infection. Antenatal influenza immunisation is recommended to protect both mother and child, but vaccination uptake remains low in Australia. Short message system (SMS) reminders are an efficient, inexpensive way to distribute vaccination reminders to special-risk groups. This study aims to identify perceptions and preferences for routine SMS reminder systems to encourage antenatal influenza vaccination among Australian women.

Methods: A national sample of pregnant women and women planning pregnancy were invited to complete a 39-item online survey on SMS vaccination reminder preferences and healthcare experiences. Frequencies and 95% confidence intervals were estimated for each of the participant responses.

Results: A total of 629 women participated in the survey in August 2019. Most women were aged between 25 and 34 years (66.2%), were non-Aboriginal (96.1%); the largest proportion were ≥27 weeks of pregnancy (47.3%). The most common healthcare professionals that women saw for their antenatal care were midwives (36.9%), general practitioners (GPs) (29.8%) and obstetricians (26.1%). Overall, 77/92 (83.7%) of participants who were planning pregnancy and 496/537 (92.4%) of pregnant women felt an SMS reminder was an appropriate strategy for reminding women of the need for vaccination. Participants felt that their antenatal care provider (83.6%) and/or a GP (74.6%) were the best professionals to send a SMS reminder. Timing and frequency were reported as less important than the sender of the message.

Conclusion: Incorporating text messaging into antenatal care has the potential to successfully prompt influenza vaccination among pregnant women.

3B - Rapid Fire - Immunisation program

Short Oral Presentations

A State-wide Paediatric/Adolescent Vaccination Program to Prevent Invasive Meningococcal W Disease

Authors: Palee Holdsworth[1], Dr Robyn Gibbs[1], Chloe Thomson[1,2], Dr Barry Coombs[1], Darren Westphal[1], Dr Lauren Bloomfield[1,3], Dr Rebekah Dawson[1], Jenny Vo[1], Sharon Gough[1], **Dr Paul Effler[1]**

Affiliation: [1]WA Health, Perth, Australia, [2]School of Population Health, University of Western Australia , Perth, Australia, [3]Edith Cowan University, School of Medical and Health Sciences, Perth , Australia

Abstract

Context: In 2015 the incidence of invasive meningococcal disease began rising in WA, and between 2016 and 2017 the number of infections doubled from 23 to 46, respectively, making this the highest annual total reported since 2005. This increase was especially concerning because it was driven by the emergence of meningococcal serogroup W disease (MenW). MenW has caused significant recent outbreaks overseas and has a high case-fatality ratio. Other jurisdictions in Australia were also experiencing rapid increases in MenW disease, suggesting that a large outbreak may be imminent.

Action: WA Health responded to this growing threat by launching a state-wide provider and school-based MenACWY vaccination program for 15-19 year olds in January 2017, and expanded the program in January 2018 by adding a provider-based vaccination program for all 1-4 year olds. Vaccinating adolescents and young adults was the initial priority because high rates of meningococcal carriage in this cohort drive disease transmission in the wider community. Young children were added to the prevention effort because they were experiencing the highest rates of clinical disease.

Outcome: As of November 2019, 83% (n=113,675) of all children in WA aged 13-59 months and 72% (n=100,197) of students in Years 11 and 12 and those aged 18-19 years have been vaccinated against MenACWY. Notably, year-to-date in 2019, no MenW disease has been reported among the 15-19 year old cohort and the incidence of MenW disease among WA children aged < 5 years has dropped 16-fold, from 8.1 per 100,000 in 2018 to 0.5.

The value of Aboriginal Health Worker immunisation providers

Authors: Kylie Hart[1], Mrs Stacey Fitzgerald[1], Prof Christopher Blyth[1,2,3], Dr Anita Campbell[1,2,3], Mrs Palee Holdsworth[4], Mrs Robyn Gibbs[4], Mrs Suzanne Clews[4]

Affiliation: [1]Stan Perron Immunisation Service, Department of Infectious Diseases, Perth Children's Hospital, Nedlands, Australia, [2]School of Medicine, University of Western Australia, Wesfarmers Centre of Vaccines and Infectious Diseases, Crawley, Australia, [3]Telethon Kids Institute, Nedlands, Australia, [4]Communicable Disease Control Directorate, Department of Health, Government of Western Australia, East Perth, Australia

Abstract

I am an Aboriginal Noongar woman from the South-West region of WA. My journey as an Aboriginal Health Worker (AHW) started in the community in 2008, doing home visits, health checks and promoting wellness to families and children. In September 2019 my journey has taken me to Perth Children's Hospital (PCH) joining the Stan Perron Immunisation Service as an AHW immunisation provider.

In metropolitan Perth, Aboriginal children <5-years have lower vaccination rates (87%) and overall are at increased risk of vaccine preventable diseases. An average of 110 Aboriginal children visit PCH outpatients each week. My role as an AHW immunisation provider includes; identifying Aboriginal children attending PCH and not up-to-date with immunisations, having a yarn with families to educate them of the importance of getting our children up-to-date and awareness of the risks if they are not, supporting families to attend the PCH Immunisation drop-in-centre for catch-up and linking with community providers and the WA Aboriginal Immunisation Network.

Since 2015, WA Department of Health have a practical AHW immunisation course available and have in development a WA Structured Administration and Supply Arrangements (SASA) to allow AHWs to administer immunisations according to the schedule. In the month pre- and post-establishment of the AHW role at PCH there was a 68% increase (19 versus 32) in Aboriginal children attending PCH Immunisation drop-in-centre. This highlights the value we as AHWs have in our community and as immunisation providers, because we are the key to engage and understand our families and provide holistic care.

Strengthening immunisation in our region: NITAG technical twinning between Timor-Leste and Australia

Authors: Dr Sarah Sheridan[1,2], Dr Sudath Peiris[3], Dr Virna Martins-Sam[4], Dr Solange Fernandes[5], Dr Sanjay Jayasinghe[1], Ms Chloe Damon[1], Dr Catherine King[1], Ms Alexis Pillsbury[1], Professor Kristine Macartney[1]

Affiliation: [1]National Centre For Immunisation Research And Surveillance, Westmead, Australia, [2]University of New South Wales, Randwick, Australia, [3]World Health Organization, Country Office, Dili, Timor-Leste, [4]NITAG Timor-Leste, Dili, Timor-Leste, [5]Ministry of Health Timor-Leste, Dili, Timor-Leste

Abstract
Context: Timor-Leste established a National Immunisation Technical Advisory Group (NITAG Timor-Leste) in 2015. NITAG members have limited prior vaccinology expertise. WHO, Gavi Alliance and others aim to support equitable use of vaccines in lower-income countries including through introduction of new vaccines, and improved immunisation program delivery and sustainability. With Gavi support the Australian National Centre for Immunisation Research and Surveillance (NCIRS) began a 5-year commitment in 2019 to support NITAG-Timor-Leste make evidence-based immunisation recommendations through a technical twinning approach.

Process: Based on priorities identified by Gavi, WHO, NITAG Timor-Leste and Ministry of Health members, initial activities are focused on building capacity in (i) evidence-based decision-making with direct translation of these skills to inform recommendations on potential introduction of pneumococcal conjugate vaccine (PCV) and human papilloma virus (HPV) vaccine, and (ii) adverse events following immunisation causality assessment.

Outcomes: NCIRS delivered a 2-day evidence-based decision-making workshop to NITAG Timor-Leste members. Potential PCV introduction was used as a case-study, participants undertook evidence-gathering and synthesising, and engaged in critical discussion about important locally-relevant policy decisions. Workshop activities directly contributed to the NITAG Timor-Leste decision-making on a PCV program and on HPV vaccine. Regular contact and working together on key technical documents with the NITAG secretariat, has strengthened technical and administrative capacity whilst achieving relevant outcomes for NITAG Timor-Leste.

Discussion: This novel partnership is contributing to capacity-building in immunisation in Timor Leste. The long-term NITAG strengthening approach may provide a foundation and new approach to strong and enduring relationships between countries to strengthen immunisation programs.

The Australian Regional Immunisation Alliance: Supporting countries in the Asia Pacific region

Authors: Prof Kristine Macartney[1,2], Ms Chloe Damon[1], Dr Chris Morgan[3], Prof Fiona Russell[4], Prof Ross Andrews[5], Prof Julie Leask[1,2], Prof David Durrheim[6]

Affiliation: [1]National Centre For Immunisation Research & Surveillance, Westmead, Australia, [2]The University of Sydney, Sydney, Australia, [3]The Burnet Institute, Melbourne, Australia, [4]Murdoch Children's Research Institute (MCRI), Melbourne, Australia, [5]The Australian National University, Canberra, Australia, [6]The University of Newcastle, Newcastle, Australia

Abstract
Context: Vaccines remain one of the most cost-effective means to improve public health worldwide, yet despite great efforts, certain countries in the Pacific region have suboptimal vaccination coverage and a high vaccine preventable disease (VPD) burden.

Process: The Australian Regional Immunisation Alliance (ARIA), composed of key Australian immunisation experts from multiple universities and research institutes, was established in April 2019. ARIA is led by a Steering Committee comprising members with diverse skills. The alliance aims to better harness Australia's extensive expertise to work collaboratively with governments, global immunisation partners, non-government organisations and other partners to strengthen and expand immunisation in the region.

Analysis: ARIA has four principles: 1) Harmonisation; 2) Sustainability; 3) Collaboration; and 4) Results-focused. Alliance members meet regularly and are establishing a collaborative community of practice.

Outcomes: Competitive funding from the DFAT Indo-Pacific Centre for Health Security was obtained in late 2019 to support countries to improve coverage, focusing on Papua New Guinea, Timor Leste, the Solomon Islands and other Pacific Island Countries. In early 2020 regional consultation and analysis in these countries will be conducted to consolidate knowledge on immunisation coverage needs and strengthening activities; this will lead to selection of capacity-building activities to be delivered in conjunction with countries and key stakeholders (including WHO, UNICEF and others). An on-demand "one-stop-shop" supplying immunisation expertise and assistance in response to incidents or threats to VPD control as they arise will also be established. Outcomes of these activities to mid-2020 will be available for presentation in detail.

Establishing RSV surveillance at a tertiary children's hospital- preventative therapies are coming!

Authors: A/Prof Nigel Crawford[1,2,3], Ms Annette Alafaci[1], Dr Jeremy Pratt[1], Dr Angela Todd[4], Professor Ian Barr[4]

Affiliation: [1]MCRI, Parkville, Parkville, Australia, [2]RCH, Parkville, Australia, [3]Department Paediatrics, University Melbourne, Parkville, Australia, [4]Doherty Institute, WHO Influenza collaborating centre, University of Melbourne, Parkville, Australia

Abstract
Background: Respiratory syncytial virus (RSV) is a common infection, responsible for a broad spectrum of illnesses in children and adults. There are a number of vaccine candidates and other preventative therapies (e.g. long-acting monoclonal antibodies [mAb]) in the pipeline.

Methods: In 2017, the World Health Organisation launched a surveillance pilot, testing the feasibility of leveraging the Global Influenza Surveillance and Response System platform to determine the burden of RSV in 15 countries globally. This included Australia, with a clinical site at the Royal Children's Hospital (RCH) and laboratory at the Doherty (University of Melbourne)

Results: Prospective surveillance from 1st August 2017- 30th June 2019 identified 2254 Severe Acute Respiratory Infection (SARI) cases, of which 684 (30%) were RSV positive, with a peak incidence in June/July. The median length of hospital stay was 3 days (range 1-76 days). Overall 198 (31%) of cases were admitted to intensive care, 31 (5%) were intubated and 261 (41%) had a co-morbidity, including a history of prematurity (20%). In 2019, the most common hospital admission diagnoses was bronchiolitis ([95/208] 45%). RSV subtyping (n=658), identified 54% typed as A and 46% as B. Phylogenetic analysis showed that the RSV A & B viruses have been genetically stable over the study period.

Conclusion: Local Australian data, confirming RSV seasonality and hospitalisation impact, is required to determine optimal strategies for preventative interventions, such as maternal antenatal vaccination and infants long acting mAb, with Phase 3 trials focusing on administration just prior to the commencement of the RSV season.

Needle in a haystack: probabilistic-matching to review the accuracy of the AIR

Author: Liz Walker[1]

Affiliation: [1]Australian Government Department Of Health, Canberra, Australia

Abstract

Background: Medicare enrolled individuals are automatically added the Australian Immunisation Register (AIR) and assigned a unique identifier (UI), while individuals not enrolled in Medicare can be added by a recognised vaccination provider and allocated a supplementary identifier (SI). These SI records undergo a daily resolution process to match to UI records.

Methods: We evaluated new records as they entered the AIR from 1 July–25 October 2019 for infants born 1 July–30 September 2019. We used probabilistic matching to link records using a combination of variables – first name, last name, date of birth, sex, address, immunisation date and vaccination provider code, and incorporated inexact matching and weighting by frequency.

Results: We identified 5,378 new records initially assigned as SIs from 66,535 new records (8%), and matched 31% to UIs (1,646/5,378). Of the 31%, records with exact matching occurred 61%, missing address 13%, alternative names/misspellings 11%, alternative address 9%, multiple errors 4% and alternative/missing date of birth or sex 2%. The majority of matched SI infants received their first vaccination before Medicare enrolment (98%) and those with a first dose of Infanrix® hexa, 92% had their records transferred to their UI (median 11-days, range 0-68 days).

Conclusion: We found almost a third of SI records matched to UIs, highlighting the importance of matching records to keep the register up-to-date and accurate. The frequent resolution of many SI records into UIs and an inability to identify a denominator for the remainder validates why SI records are excluded when calculating immunisation coverage.

3C - Rapid Fire - Immunisation acceptance & equity & select setting

Short Oral Presentations

Health-literacy demand and cultural appropriateness of online refugee and migrant immunisation resources.

Author: Miss Ikram Abdi[1], Ms Bernice Murphy[2], Dr Holly Seale[1]

Affiliation:[1]University Of New South Wales, Kensington, Australia, [2]Centre for Culture Ethnicity and Health, Richmond, Australia

Abstract

Background: The internet is a source of health information for many consumers. However, little is known about the availability of online resources about immunisation (for children and adults) directed at refugee and migrant populations. The aim of this study was to evaluate the health literacy demand (understandability, actionability & readability) and cultural appropriateness of immunisation resources in Australia for these communities.

Methods: Our study involved two search approaches. Firstly, Google trends was used to identify the most common search terms used in Australia. Search terms used included 'immunisation', 'vaccine' and 'refugee immunisation' amongst others. These search terms were entered into: Google, Bing, Duck Duck Go and Yahoo and the first 5 pages of results for each search were examined. Searches were conducted from November 2018 to June 2019. Secondly, requests were sent out directly to key stakeholders in local health districts and state/territory health departments. Understandability and actionability were assessed using the Patient Education Materials Assessment Tool (PEMAT). The Simple Measure of Gobbledygook (SMOG) and the Flesch readability ease tools were used to assess readability. Cultural appropriateness was assessed using additional criteria developed by the Centre for Culture, Ethnicity and Health (CEH), Victoria, Australia.Results27/33 resources were included in the analysis. The overall mean understandability score was 70% (range: 50–100%). The overall mean actionability score of the resources was 47% (range: 0–83%). In terms of readability, the mean score was a 10.5, which was indicative of an eleventh grade reading level. The average Flesch-Kincaid readability score was 47.7. The average score for cultural appropriateness was 79% (range: 29–100%).

Conclusions: Our findings suggest that there are currently not many refugee-specific resources on immunisation. Future work needs to better improve the health literacy demand of online immunisation information. Engaging with members from migrant communities is also recommended so that appropriately tailored resources are co-developed.

Global overview of barriers to childhood vaccination: Vaccine Barriers Assessment Tool project

Authors: Dr Jessica Kaufman[1,2], Ms Jane Tuckerman[1,2], Dr Carissa Bonner[3], Professor David Durrheim[4,5], Dr Daniel Costa[3], Professor Lyndal Trevena[3], Dr Susan Thomas[4,5], A/Prof Margie Danchin[1,2,3]

Affiliation:[1]Murdoch Children's Research Institute, Parkville, Australia, [2]University of Melbourne, Parkville, Australia, [3]University of Sydney, Sydney, Australia, [4]University of Newcastle, Newcastle, Australia, [5]Hunter New England Health, Newcastle, Australia, [6]Royal Children's Hospital, Parkville, Australia

Abstract

Background: The Vaccine Barriers Assessment Tool (VBAT) project aims to develop and validate a measurement instrument for diagnosing the causes of under-vaccination and predicting childhood vaccine uptake in Australia and New Zealand. Understanding vaccination barriers is crucial to design and target effective interventions. To ensure instrument comprehensiveness, we conducted a global review of systematic reviews to identify and summarise all parent-level barriers to childhood vaccine uptake.

Methods: We searched the Epistemonikos review database with predefined search criteria. Qualitative and quantitative systematic reviews, published in English, reporting data on any barriers to vaccination in children aged <5 years were included. Reviews addressing seasonal or pandemic influenza were excluded, as were reviews reporting non-modifiable determinants or reporting barriers not relevant to parents (e.g. health system structure). Review details (authors, location, focus), barrier descriptions, number and design of primary studies, and direction of reported association with vaccine uptake were extracted. Evidence underpinning the identified factors was narratively synthesised. Barriers were inductively coded independently by two authors and a framework of overarching categories was developed.

Results: We screened 419 papers and identified 31 relevant reviews. A total of 583 descriptions of barriers were extracted. Inductive coding generated a list of 64 barriers in 6 overarching categories: 1) Access, 2) Clinic or Health System Factors, 3) Concerns and Beliefs, 4) Health Perceptions and Experiences, 5) Knowledge and Information, and 6) Social or Family Influence.

Conclusion: Key barriers identified will be presented and inform item selection in the next phase of the VBAT project.

Recognising the Nurse Immuniser role in addressing gaps in access and equity

Author: Dr Sandra Miles[1,2]

Affiliation:[1]Australian Catholic University, Banyo, Australia, [2]The Prince Charles Hospital, Chermside, Australia

Abstract
Clear context: Nurse immunisers are registered nurses who undertake further professional education to prepare them for a semi-independent role providing life course immunisation for clients across a variety of settings. While nurses play a key role in health care, their expertise and availability as nurse immunisers is being ignored in public health policy. This represents a significant waste of resources. Enhancing the leadership and practice role of nurse immunisers would greatly improve immunisation outreach across Australia.

Process: An evaluation study of graduate destination from one course and a document analysis pertaining to nurse immunisation was undertaken in 2018/2019.

Analysis: Over 1000 nurse immunisers have been prepared from one course alone, meaning there are thousands available for practice within Australia. Graduates from one course use their nursing expertise across a wide variety of clinical settings and locations; yet only 35% continue working in immunisation services, due to a lack of employment opportunities. One recent graduate is a clinical nurse in a TB unit on Thursday Island who added immunisation to her capabilities. This type of outreach is essential for our ATSI remote population and can dramatically improve service delivery nationally.

Document analysis reveals the nurse immuniser role became available in 1997; yet current policies do not acknowledge this role. Successive governments have missed opportunities to provide Medicare service access specifically for nurse immunisers. Therefore, this role is significantly underutilised.

Outcomes: Public health policy must recognise nurse-immuniser expertise to reduce access and equity gaps and improve outreach to hard-to-reach and hard-to-convince populations.

HPV vaccine coverage in Australia and associations with vaccine information exposure onTwitter

Authors: Dr Amalie Dyda[1], Dr Zubair Shah[1], Dr Didi Surian[1], Ms Paige Martin[1], Professor Enrico Coiera[1], Dr Aditi Dey[2], Professor Julie Leask[3], Associate Professor Adam Dunn[1]

Affiliation:[1]Australian Institute of Health Innovation, Sydney, Australia, [2]National Centre for Immunisation Research & Surveillance, The University of Sydney, Sydney, Australia, [3]Faculty of Medicine and Health, Susan Wakil School of Nursing and Midwifery, The University of Sydney, Sydney, Australia

Abstract
Introduction: Human papillomavirus (HPV) vaccine protects against HPV-related cancers, yet vaccine coverage in Australia could be improved. One factor which affects uptake is attitudes, yet surveys to measure this take time and are expensive. We aimed to investigate whether estimates of HPV vaccine information exposure on Twitter were associated with regional differences in coverage.

Methods: A total of 655,690 HPV vaccine related tweets were identified between 6 September 2013 and 1 September 2017. An algorithm for grouping text-based data, known as topic modelling, was used to group together Tweets about HPV vaccines as positive or negative. Proportional exposure to different topic groups were investigated in 25 regions of Australia. This topic information by location was then used to model HPV vaccine coverage in both genders.

Results: Models that included information about topic exposure on Twitter were more closely correlated with HPV vaccine coverage (female: Pearson's R = 0.75 [0.49 to 0.88]; male: R = 0.76 [0.51 to 0.89]) than models that used information about employment and education (female: 0.39 [−0.02 to 0.68]; male: 0.36 [−0.04 to 0.66]). Topics with the greatest reach in number overall were positive about vaccination. A higher proportion of exposures among Twitter users in low coverage regions were negative about vaccination.

Conclusions: Vaccine information exposure on Twitter was significantly associated with HPV vaccine coverage in Australia which suggests that social media either reflects or influences vaccine acceptance. Monitoring location specific information exposure on Twitter may be useful as an indicator for differences in vaccine acceptance.

Pop up vaccination clinics in response to a measles outbreak

Dr Bhakti Vasant[1], Mr Christian James[1], Ms Gilly Hermosilla-Silva[2], Mr Brett Esbensen[2]
Presenter: Georgia Clifton

Affiliation:[1]Metro South Public Health Unit, Brisbane, Australia, [2]Logan City Council, Logan, Australia

Abstract
Background and methods: Although Australia has eliminated endemic measles, sporadic measles outbreaks continue to occur. In outbreak settings, rapid delivery of measles, mumps and rubella (MMR) vaccine is challenging, due to the narrow window for post-exposure prophylaxis and large numbers of people potentially exposed. The Brisbane South region generally maintains high levels of immunisation in children, but records are not readily accessible for people vaccinated before the introduction of state and national immunisation databases.

In October to November 2019, 24 cases of measles were notified to our Public Health Unit (PHU). The measles outbreak disproportionately affected children and young adults from the Pacific Islander community. Representatives from this community emphasised the important role of the church to the community. In partnership with local council, pop up vaccination clinics were held in churches, as well as workplaces, educational facilities and healthcare facilities.

Outcomes and conclusions: Over 600 MMR vaccines were administered at twelve vaccination clinics, including three clinics in churches of different denominations. Vaccine records were also checked; over 500 people who attended the clinics had evidence of two doses of MMR and did not require further vaccination. Vulnerable groups, including pregnant women and immunocompromised people, were identified and referred to the PHU for follow up. By arranging pop up clinics, our PHU was able to target at-risk contacts for MMR vaccines in an outbreak setting. This approach may have a role in preventing tertiary transmission of measles.

Increased influenza vaccination coverage for 0-4-year-olds in Tu Ora Compass Health

Author: Louise Lewis[1]
Affiliation:[1]Tu Ora Compass Health, Wellington, New Zealand

Abstract
Context: 'System Level Measures', introduced in 2016, focus on children, youth and vulnerable populations. This includes 'Ambulatory Sensitive Hospitalisation' (ASH) rates for 0-4-year-olds (keeping children out of hospital). Respiratory conditions account for most ASH events for Māori, Pacific and other children in the region. Funded influenza vaccination has been available for eligible children in New Zealand since 2013, but coverage rates are low.

Process: Reducing respiratory-related ASH admissions was identified as a priority for 2018/2019 alongside initiatives to increase influenza vaccination coverage in the context of a potential epidemic. A collaborative approach was adopted to design an effective methodology that would identify children 6 months to 4 years eligible for funded vaccination and highlight others who may also qualify.

Analysis: A report was developed listing all enrolled children in the target population at the practice-provider level and a link to the eligibility criteria was added. In 2019, the report was updated to include all respiratory-related admissions, not just ASH and contained data going back 24 rather than 12 months. Education was delivered to primary and secondary care to raise awareness of the benefits of influenza vaccination for this target group and increase opportunistic immunisation.

Outcomes: Influenza vaccination coverage for eligible 0-4-year-olds increased in Tu Ora Compass Health network from 15.3% in 2018 to 18.6% in 2019 to date, in Tu Ora Compass Capital & Coast from 15.7% to 18.6% and Tu Ora Compass Wairarapa, 13.6% to 18.7%. Comparable improvement was seen for Pacific children, but less so for Maori children.

3D - Rapid Fire - Special Pops

Short Oral Presentations

Relative effectiveness of adjuvanted, high-dose and standard influenza vaccines in older adults

Authors: Dr Alexander Kennedy[1], Christoper Clarke[1], Victoria Divino[2], Joaquin Mould-Quevedo[3], Shanthy Krishnarajah[3], Mitchell DeKoven[2]

Affiliation:[1]Seqirus, Parkville, Australia, [2]IQVIA, Falls Church, USA, [3] Seqirus Vaccines Ltd, Summit, USA

Abstract

Background: The adjuvanted trivalent influenza vaccine (aTIV) was shown to be more effective than standard TIV (TIV-SD) in older adults, however little is known about its relative effectiveness (rVE) against other current influenza vaccine alternatives.

Methods: A retrospective cohort analysis was conducted to determine rates of influenza-related hospitalisations and physician office visits in the United States from professional fee claims, prescription claims and hospital charge data. Pairwise adjusted comparisons were conducted between aTIV with high-dose TIV (TIV-HD), quadrivalent vaccine (QIV) and TIV-SD using inverse probability of treatment weighting (IPTW) to estimate adjusted rates. rVE was calculated as ([1-RR]* 100%).

Results: The study enrolled influenza vaccine recipients aged 65 years and over (aTIV=234,313; TIV-HD= 1,269,855; QIV=212,287; and TIV-SD=106,491). There was no difference between aTIV and TIV-HD for prevention of influenza-related hospitalisations/ER visits, but rVE was 8.6% and 11.3% compared with QIV and TIV-SD, respectively ($p<0.05$). aTIV was significantly more effective than all other vaccines in preventing influenza-related office visits with rVE ranging between 16.6% and 36.3% ($p<0.001$). While trends were observed, for the majority of endpoints tested there were no significant differences between aTIV and other vaccines in preventing all-cause and serious cardiorespiratory hospitalisations. However aTIV was significantly more effective than all other vaccines in preventing 'other respiratory events' and vs TIV-SD in reducing all-cause hospitalisations and pneumonia.

Conclusion: Among US older adults in 2017/18, aTIV was at least as effective as other influenza vaccines and appeared superior for selected outcomes.

Catching-up children with cochlear implants

Authors: Dr Siu-min Tay[1], Ms Patricia Clifford[1], Ms Filomena Mascaro[1], Ms Stacey Fitzgerald[1], Associate Professor Christopher C Blyth[1,2,3], Dr Anita Campbell[1,2]

Affiliation:[1]Stan Perron Immunisation Service, Department of Infectious Diseases, Perth Children's Hospital, Nedlands, Australia, [2]School of Medicine, University of Western Australia, Crawley, Australia, [3]Wesfarmers Centre of Vaccine and Infectious Diseases, Telethon Kids Institute, Nedlands, Australia, [4]Department of Microbiology, Pathwest Laboratory QEII Medical Centre, Nedlands, Australia

Abstract

Aims: Cochlear implant (CI) recipients are at significantly increased risk of invasive pneumococcal disease (IPD) compared with healthy children and therefore are recommended additional pneumococcal vaccinations. The aims of this study was to 1) examine the immunisation status of children with CI retrospectively and prospectively, assessing adherence to immunisation guidelines and 2) evaluate the effectiveness of educational reminder letters to families of CI recipients, not up-to-date with pneumococcal vaccinations in the retrospective cohort and to prospectively evaluate Specialist Immunisation Clinic review for children planning CI.

Methods: The Stan Perron Immunisation Service and the Children's Hearing Implant Program (CHIP) at Perth Children's Hospital (PCH) examined CI recipients <18 years from 2008-2018. Adherence to pneumococcal vaccinations was assessed via the Australian Immunisation Register. IPD episodes were captured from ICD-10 codes and laboratory databases. Community feedback was obtained for reminder letters for those under-vaccinated. Immunisations status was revaluated five-months later.

Results: Of 155 children identified, 88% were not up-to-date with pneumococcal vaccinations. Following the reminder letters, 56 patients received additional pneumococcal vaccinations, 27% attended PCH Stan Perron Immunisation Centre and 72% remained not up-to-date ($p=0.0006$). Three episodes of IPD occurred post-CI insertion (average 143 days) in <18-month olds, all with mastoiditis and not up-to-date with pneumococcal vaccinations at the time of IPD.

Conclusions: Incidence of IPD in <5yr with CI in the pneumococcal vaccine-era locally is 612/100 000, more than 30 times the estimated population incidence. Letter reminders are effective in improving vaccination rates; however there's considerable need for improved community-provider awareness.

Provider recommendation is key for uptake of pertussis vaccine in older Australians

Authors: Ms Roshnee Randhawa[1], Claire Borg[1], Kyu-Bin Oh[2], Michael Nissen[2]

Affiliation:[1]Gsk, Abbotsford, Australia, [2]GSK, Singapore,

Abstract
Background: For most Australian adults, regardless of whether vaccines are funded or privately purchased, coverage remains low for several vaccines and target populations.

A growing proportion of pertussis notifications occur in adults. A correlation exists between older age and increased hospitalisation rates due to complications arising from pertussis infection.

Methods: Qualitative and quantitative surveys have been undertaken with general practitioners (GPs) and the general public by an independent third-party five times since 2014 to understand the barriers to vaccination in Australian adults, focussing on pertussis.

Results: Throughout the research period (2014-2019), a median of only 17% of patients aged ≥65 years (range 14%-23%) recalled ever receiving a pertussis vaccination as an adult, despite a clear recommendation from the Australian Technical Advisory Group on Immunisation.

Although pertussis was one of the top 5 vaccine-preventable diseases discussed with adult patients, only a median of 51% of GP respondents (range 45%-64%) discussed pertussis compared to influenza with a median of 80% (range 76%-92%).

Among adults aged ≥65 years, 67% (2019) recognised pertussis as a serious disease; however, only 11% were considerably concerned about the impact of the disease on their own health.

There were several reasons why an adult may not receive a pertussis vaccine, but if a GP recommended it 66% of respondents indicated they would get vaccinated.

Conclusion: GPs play a key role in pertussis vaccination rates in supporting healthy aging for their patients, with their recommendation being a strong predictor of an adult receiving a pertussis vaccine.

Vaccine-preventable disease burden and immunisation coverage among migrants and refugees worldwide

Authors: Dr Nadia Charania[1], Nina Gaze[1], Janice Kung[2], Stephanie Brooks[3]
Affiliation:[1]Auckland University Of Technology, , New Zealand, [2]University of Alberta, John W. Scott Health Sciences Library, Edmonton, Canada , [3]University of Alberta, Department of Pediatrics, Edmonton, Canada

Background: To design effective interventions to reduce the burden of vaccine-preventable diseases (VPDs) among migrants and refugees worldwide, we need to understand what disparities in VPD burden and immunisation inequities exist in comparison to locally-born populations.

Methods: We conducted two scoping reviews following Arksey and O'Malley's framework. We searched empirical, peer-reviewed literature published in English between 2006 and 2018 using MEDLINE, EMBASE, CINAHL, Sociological Abstracts, and Web of Science databases. Relevant data were charted in Microsoft Excel and results were summarised using a descriptive analytical method.

Results: Forty-five studies reported differences in VPD burden and/or immunisation coverage between migrants and non-migrants worldwide. Almost all studies comparing VPD burden (n = 17, 89%) reported higher burden among migrants compared to non-migrants, while most studies measuring immunisation coverage (n = 26, 70%) noted lower rates among migrants. Seventy studies discussed an intervention to reduce VPD burden among migrant and refugee populations. Interventions were implemented in a variety of settings and focused at the individual, community, provider and/or system level. Effective interventions were designed to overcome barriers to accessing services related to language, culture, distance and cost. Engagement with community members and co-design approaches were effective ways to address migrants' specific needs.

Conclusion: The literature suggests that migrants and refugees generally experience higher VPD burden and lower immunisation rates compared to non-migrants. These findings are important for programme planning by highlighting attributes of effective interventions to reduce VPD burden. Future research is needed to evaluate interventions to inform policy and programme decision-making.

Resources to support healthcare providers' engagement with vaccine hesitant individuals

Authors: Mr Joshua Karras[1], Eve Dubéb, Margie Danchin, Jessica Kaufman, Holly Seale

Affiliation:[1]University of New South Wales, Kensington, Australia

Abstract
Background: To combat the global threat of vaccine hesitancy, there is an urgent need to improve healthcare providers' confidence and skills in communicating with vaccine hesitant individuals. While many interventions have been evaluated in research settings, it is unclear how many are accessible to providers. This scoping review aimed to identify and appraise the availability and accessibility of online dialogue-based resources which aim to support vaccination conversations.

Methods: Dialogue-based interventions were defined as strategies aiming to improve an individual's confidence and communication skills to engage with and respond to vaccine hesitant individuals. Interventions were identified by searching various health based repositories. To simulate the searching approach used by providers, common search terms were used and set numbers of hits reviewed.

Results: We identified a total of 31 interventions, of which 29 were reviewed (two were deemed ineligible). All interventions were text-based and instructional in nature. Interventions were often difficult to find, appearing on the fifth to tenth page of search entries. They were also frequently disguised under seemingly non-descript and nonspecific titles. Not all resources were freely available or downloadable.

Conclusion: Healthcare providers need to be able to easily access relevant, credible resources to support effective and efficient communication to address vaccine hesitancy. Emphasis should be placed on ensuring that interventions developed in research settings are translated into publicly and freely available resources. Having a central repository that includes links to the evaluated interventions and resources would be beneficial.

Tetanus Prone Wounds and Vaccine Coverage in the Paediatric Setting

Authors: Ms Lynne Addlem[1], Mrs Sonja Elia[1]
Affiliation:[1]Royal Children's Hospital, PARKVILLE, Australia

Abstract
Context: Tetanus in the paediatric population is a relatively uncommon illness in Australia due to our high immunisation coverage rates. The 3 recent documented paediatric cases have been in unvaccinated children where medical treatment was not sought. Tetanus prone wound clinical practice guidelines (CPG's) recommend children receive a tetanus booster if they have not had a vaccine in the last 5 years.

Process: From 01/01/2018 to 30/06/2018 we conducted a retrospective clinical audit of 3,139 patients aged 9-13 years who presented to the Royal Children's Hospital (RCH) with a wound deemed to be tetanus prone. The audit assessed clinical notes to determine whether immunisation status was documented, if a vaccine was required and whether the recommended vaccine was administered.

Analysis: Of the 3,139 patients, 322 (10%) were assessed as having a tetanus prone wound. Of the 322, 131 (40.6%) patients did not have immunisation status documented; 7 (2%) patients were found to be unimmunised or had not completed a primary course of tetanus containing vaccine, none of these patients were recognised and treated accordingly. 235 (72%) required a tetanus vaccine as per the CPG and 221 (68%) did not receive the vaccine.

Outcomes: These results highlight a lack of understanding by treating teams regarding the Immunisation schedule and the tetanus prone wound CPG. The RCH Immunisation service has facilitated the review of the CPG and identified the need for continuing education to ensure the best clinical outcomes for our paediatric population.

3E - Rapid Fire - Vaccine Safety

Short Oral Presentations

Re-vaccination protocol for Dravet syndrome: experience at Royal Children's Hospital 2016-2019

Authors: **Ms Georgina Lewis[1,3]**, Dr Gabriel Dabscheck[3], Dr Katherine Howell[1,2,3], Dr Margie Danchin[1,2,3]

Affiliation: [1]Murdoch Children's Research Institute, Parkville, Australia, [2]University of Melbourne, Parkville, Australia, [3]Royal Children's Hospital, Parkville, Australia

Abstract

Background: Dravet syndrome (DS) is a severe developmental and epileptic encephalopathy, beginning in the first year of life, with an incidence of 1 in 15,500 – 40,000. Children with DS often have vaccine-proximate seizures (VPS) or status epilepticus (VP-SE), defined as occurring within 14 days of a vaccine. There is no published data evaluating revaccination protocols for children with DS or other causes of VP-SE.

Methods: A revaccination protocol was developed for children with DS, and other children with VP-SE. The protocol included admission to hospital for revaccination with prophylactic benzodiazepines and anti-pyretics; children were discharged after 48 hours if there were no VPS. Children who were revaccinated using the DS protocol were retrospectively identified from the SAEFVIC (Surveillance of Adverse Events following Vaccination in the Community) and medical records reviewed to identify VPS and VP-SE post revaccination.

Results: 11 children with a history of DS or VP-SE (6 with DS, 5 with other causes of VP-SE) were revaccinated using the DS protocol. There were 15 admissions, 4 for live vaccines. Vaccines administered included scheduled National immunisation Program (NIP) vaccines between 12 months to 4 years, influenza and meningococcal B vaccines. No child had recurrent VP-SE. One child had self-resolving seizures during the admission, and two had seizures one week after a live vaccine.

Conclusion: No child had VP-SE when revaccinated while receiving prophylactic benzodiazepines and anti-pyretics. The protocol will be evaluated in larger prospective studies and future consideration will be given to the protocol to prevent seizures post-live vaccines.

NSW School HPV active AEFI surveillance pilot 2019

Authors: **Mr Patrick Cashman[1,2]**, Ms Jody Stephenson[1], Dr Sonya Ennis[9], Mr Dennis Meijer[9], Ms Natasa Veselinovic[8], Ms Salwa Gabriel[6], Ms Janice Kitson[4], Ms Lisa Allchin[7], Ms Claire Pearson[5], Professor Kristine Macartney[3,10,11], Professor David Durrheim[1,2]

Affiliation:[1]Hunter New England Local Health District, Newcastle, Australia, [2]University of Newcastle, Newcastle, Australia, [3]National Centre for Immunisation Research and Surveillance, Westmead, Australia, [4]South Western Sydney Local Health District , Liverpool, Australia, [5]Sydney Local Health District, Camperdown, Australia, [6]Western Sydney Local Health District, Parramatta, Australia, [7]Nepean Blue Mountains Local Health District, Penrith, Australia, [8] Illawarra Shoalhaven Local Health District , Wollongong, Australia, [9]Health Protection NSW, Sydney, Australia, [10]Departments of Infectious Diseases and Microbiology, Sydney, Australia, [11]Discipline of Child and Adolescent Health, Sydney Medical School, Children's Hospital, Westmead, Australia

Abstract

Context: AusVaxSafety (AVS) uses automated SMS technology to solicit reports of adverse events following immunisation (AEFI) in the days following vaccination. From 2018, AVS began monitoring the safety of human papillomavirus (HPV) vaccine in adolescents, expanding in October 2019 to include active surveillance of HPV vaccine in NSW through school-based immunisation programs.

Process: AusVaxSafety worked with NSW Health to establish secure automated data transfer of school immunisation records to Vaxtracker software. The process was guided by eHealth NSW protocols for data and system security. This project pilot was implemented across five metropolitan Public Health Units (PHU) in Sydney and Wollongong.

Analysis: During the one month pilot from 14 October 2019 to 9 November 2019 there were 6,479 SMS sent to parents and carers of students in 87 schools 3-6 days following HPV vaccination. 3,535 (55%) AEFI surveys were completed. 287 (8%) reported any symptoms, 39 (1%) reported fever and 11 students sought medical attention. Vaxtracker survey responses of medical attendance were managed by local PHU Nurses. They assessed the need for further AEFI review and potential notification to TGA. PHU nurses reported that the follow-up of medically attended reactions by contacting parents or carers where indicated added to confidence and trust in the school immunisation program and assisted in timely consideration for future vaccination.

Outcome: The addition of school-based vaccine safety surveillance further demonstrates the utility and adaptability of the AusVaxSafety system. Such active surveillance assists in encouraging high coverage and improving confidence in school immunisation programs.

Potential hypersensitivity reactions following childhood immunization. How common is true vaccine allergy?

Authors: **Dr Chloe-Maryse Baxter**[1], Ms Adele Harris[2], Ms Victoria Scott[2], Dr Kirsten Perrett[3,4,5]

Affiliation:[1]*Department of General Medicine, Royal Children's Hospital, Parkville, Australia,* [2]*Surveillance of Adverse Events following Immunisation in Victoria (SAEFVIC), Murdoch Children's Research Institute, Parkville, Australia,* [3]*School of Population & Global Health, University of Melbourne, Melbourne, Australia,* [4]*Department of Allergy and Immunology, The Royal Children's Hospital, Parkville, Australia,* [5]*Population Allergy Research Group and Melbourne Children's Trial Centre, Murdoch Children's Research Institute, Parkville, Australia*

Abstract

Background: Immediate hypersensitivity (potential IgE-mediated) reactions are rare potentially allergic adverse events following immunisation (AEFI). We recently reported (respectively in Human Vaccines & Immunotherapeutics in 2018 and Vaccine in 2015) that these reactions occur at a rate of 1 per 20 million vaccine doses administered in pre-school aged children and that most children who have skin testing or vaccine challenge can tolerate challenge to the index vaccine without subsequent reaction. However, neither of these publications followed the same children from vaccine reaction to outcome. We will describe the outcome of investigation and management including re-vaccination, of sequential cases of immediate hypersensitivity reported to SAEFVIC (Surveillance of Adverse Events Following Vaccination in the Community) over a 2-year period.

Methods: All paediatric cases (<18 years) of potential immediate hypersensitivity (including anaphylaxis, angioedema, urticaria, rash) occurring <1 hour post-vaccination reported to SAEFVIC in Melbourne, Australia between 1st July 2015-30th June 2017 were assessed. Case details were analysed from SAEFVIC reports and the Royal Children's Hospital electronic medical record.

Results: There were 172 reports in 170 children. Results will be analysed and reported descriptively by reaction symptom, investigation and management. The outcome following skin testing and challenge to the index vaccine will be reported and true vaccine allergy rate calculated based on vaccine doses administered over the reporting period. Full results will be presented at PHAA.

Conclusions: This information will provide evidence to establish a best practice model in the investigation and re-vaccination of children who have had a potential IgE-mediated reaction following vaccination.

Serious Acute Neurological Events (SANE) following immunisation

Authors: **Mrs Adele Harris**[1,2], Associate Professor Lynette Kiers[3,4], Associate Professor Nigel Crawford[1,2,3]

Affiliation:[1]Murdoch Children's Research Institute, Parkville, Australia, [2]Royal Children's Hospital, Parkville, Australia, [3]University of Melbourne, Parkville, Australia, [4]Royal Melbourne Hospital, Parkville, Australia

Abstract

Background: Serious Acute Neurological Events (SANE) are an uncommon adverse event following immunisation (AEFI) with the only known association reported in the scientific literature being Guillain Barre Syndrome (GBS) and Influenza vaccine.

In 2018 SAEFVIC (Surveillance of Adverse Events Following Vaccination In the Community) noticed a spike in the number of SANE reports in Victoria with a rate of 10 per 1000, 5 times higher than the average reporting rate over the previous 3 years of 2 per 1000. This increase flagged a potential signal which underwent further investigation. Reports meeting the criteria where deidentified and forwarded with any clinically significant correspondence to a neurologist for further evaluation and diagnostic confirmation.

Body: From January 2018-July 2019 SAEFVIC identified 16 reports of possible SANE cases. The vaccine recipients varied in age from 20 months to 49 years.

These reports were extracted from the SAEFVIC database and evaluated to determine if they satisfied specific SANE criteria, two cases were excluded following review. Confirmed diagnoses included: Myelitis (2), optic neuritis (5), Guillain Barre Syndrome (4), Multiple sclerosis (1), acute disseminated encephalomyelitis (1) and encephalitis (1). The vaccines implicated in these events included infant and adolescent National Immunisation Program (NIP) scheduled vaccines (6), seasonal influenza vaccine alone (5), influenza plus travel vaccines (1) and occupational vaccines (2).

Summary: The SANE events identified were temporally associated with differing vaccine antigens and brands. The age of vaccinee and neurological events were also widely variable. No signal of clinical significance was identified. Ongoing SANE surveillance is required.

GP representation rate as a proxy-measure to monitor adverse event following vaccination

Authors: Prof Jim Buttery[1], Prof Allen Cheng[1], Dr Jock Lawrie[1], Dr Joanne Enticott[1], Prof Jim Buttery[1,2]
Presenter: **Yonatan Mesfin**

Affiliation:[1]School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia, [2]Infection and Immunity, Monash Children's Hospital, Melbourne, Australia

Introduction: GP representations following vaccination were shown previously to be elevated during the 2010 seasonal influenza episode. We explored whether a large de-identified GP dataset potentially available in near real-time, could detect increased all-cause representations in a timely way in 2010 and 2015, where known influenza safety signals occurred.

Methods: Retrospective analysis of aggregated data from the AURORA research program of the Population Level Analysis and Reporting General Practices (POLAR-GP) network, from 2008-2017 from over 300 Victorian practices.The surveillance period commenced March 5 for 22 weeks each year. All analyses were categorised by age group: 6 months–9years, 10–18 years, 19–64 years and ≥ 65 years. Up to 6207 influenza vaccines were administered in children <9 years each year, and up to 191,731 to all ages each year. Representations from day 1-7 post-influenza vaccination were included using an observed-expected analysis, with the one-side log-likelihood ratio (LLR) CUSUM chart. LLR >1.5 and 2 were explored as thresholds.

Results: Representation rates increased over time across all age groups. 98% of representations occurred day 1-3 post-vaccination. Increased representations were detected in 2010 in children less than 9 years from 4 weeks following program commencement, and in 2015 in adults from 1 week following commencement. Data allowed influenza brand analysis.

Conclusion: Crude representation rates from aggregated de-identified GP datasets offer a potentially sensitive adjunct vaccine safety signal detection mechanism available in near real-time. They offer cost-effective value as part of an integrated syndromic surveillance system in vaccine safety.

Volume counts: investigating a spike in serious adverse neurological events following immunisation

Authors: Ms Hazel Clothier[1,2,3], Dr Jock Lawrie[1,2], A/Professor Nigel Crawford[1,4,5], Professor Jim Buttery[1,2,6]

Affiliation: [1]SAEFVIC, Murdoch Children's Research Institute, Melbourne, Australia, [2]Monash Centre for Health Research Implementation, Monash University, Clayton, Australia, [3]School of Population & Global Health, University of Melbourne, Parkville, Australia, [4]Immunisation Service, Royal Children's Hospital, Parkville, Australia, [5]Department Paediatrics, University of Melbourne, Parkville, Australia, [6]Monash Immunisation, Monash Health, Clayton, Australia

Abstract

Background: Serious adverse neurological events (SANE) are known rare adverse events following immunisation (AEFI), particularly with influenza vaccines. They can also occur with temporal association to immunisation without causal association. In 2018 a spike in SANE reported to SAEFVIC, the Victorian AEFI surveillance system, was observed, triggering a signal investigation.

Methods: AEFI reported to SAEFVIC from 2008-2018 were analysed using Microsoft Power BI. SANE were defined as reports of acute disseminated encephalitis, Guillain Barré syndrome, multiple sclerosis, optic neuritis or transverse myelitis. Epidemiology was described by case demographics and vaccines administered. Weekly reporting and annual comparisons were analysed as counts, reports per vaccine doses distributed and as proportional reporting ratio (PRR) across all vaccines and the influenza vaccines subgroup. Signal thresholds were PRR ≥2 and Chi-squared (ChSq) ≥4.

Results: SAEFVIC received 12 reports of SANE in 2018, higher than any previous year of reporting (range 0 to 7). SANE were reported for paediatric and adult vaccinees receiving a broad range of vaccines. The PRR of SANE across all vaccines was significantly higher in 2018 compared to previous years (PRR 2.51, ChiSq 6.78). However, influenza vaccine subgroup analyses dissipated the 2018 SANE reporting disproportionality signal (PRR 1.57, ChiSq 0.48).

Conclusion: PRR is a useful tool to for investigating AEFI reporting signals. The increased frequency of SANE reports observed in 2018 was hypothesised to be a consequence of increased influenza vaccine administration. This signal was reported to the Therapeutic Goods Administration and is the subject of a national clinical case review.

3F - Ensuring equity and access to COVID vaccine

Long Oral Presentations

Culturally and Linguistically Diverse Communities' Covid-19 Vaccine Perceptions: A Rapid Consultation

Authors: Ms Dipti Zachariah, **Dr Danielle Muscat**[1]

Affiliation: [1]University Of Sydney, University Of Sydney, Australia

Abstract

Background: Although there is a large and growing body of research related to COVID-19 (including vaccine perceptions), views of culturally and linguistically diverse communities are often overlooked, with the potential to exacerbate existing inequities.

Methods: Western Sydney Local Health District Multicultural Health services conducted a rapid consultation of community COVID-19 vaccine perceptions. Interviews were conducted in-language, including: Chinese, Bengali, Tamil, Kurmanji, Dinka, Chaldean, Ethiopian, Arabic, Nuba, Krio, Dafurian, Samoan, Dari, Korean, Hindi, Punjabi, Spanish, Turkish. Questions centred around sources of information, understanding and perceptions of the vaccine and vaccine safety, with responses analysed using Thematic Analysis.

Results: 80 phone interviews were conducted with 23 communities in February 2021. While most people felt the vaccine was safe (e.g. based on overseas effectiveness data; trust in Australian regulatory processes), some communities were unsure given conflicting messages from different sources and lack of information about effects and side-effects. Communities reported obtaining information about the vaccine from government sources (e.g. NSW Health website), as well as community news and radio, family and friends and multicultural health meetings. Moving forward, participants reported that translated material is essential, and argued for the need for grassroots level dissemination, such as via community leaders and ambassadors, ethnic radio, and/or religious and social groups.

Conclusion: These findings highlight the need for targeted and tailored vaccine information and avenues of information dissemination for our culturally-diverse communities. The success of our rapid consultation approach also provides valuable learnings about how others can engage with diverse and under-represented communities to promote equity.

Willingness to vaccinate against COVID-19 in Australia

Authors: Dr Rachael Dodd[1], Dr Erin Cvejic[1], Dr Kristen Pickles[1], Dr Brooke Nickel[1], Dr Carissa Bonner[1], Dr Julie Ayre[1], Carys Batcup[1], Dr Tessa Copp[1], Samuel Cornell[1], Thomas Dakin[1], Jennifer Isautier[1], Professor Kirsten McCaffery[1]

Affiliation: [1]The University Of Sydney, Sydney, Australia

Abstract

Background: Vaccination against COVID-19 has begun rolling out across multiple countries worldwide. Access is only one issue. Even in Australia where access is free, rollout might still be compromised by hesitancy or concerns about the COVID-19 vaccine, so it is important to investigate these.

Methods: We conducted an online longitudinal survey of Australian adults from April to November 2020. We asked about intentions toward a potential COVID-19 vaccine (If a COVID-19 vaccine becomes available, I will get it).

Results: In April (n=4362), 85.8% agreed they would get the COVID-19 vaccine it if it became available. In June (n=1371) this was 87.2% of the sample; in July (n=1274), this was 90% of the sample. Inadequate health literacy and lower education were associated with reluctance to be vaccinated against COVID-19. The top three reasons for agreeing to vaccinate were: 1) to protect themselves and others (28.6%), 2) belief in vaccination and science (15.7%), and 3) to help stop the virus spread (14.7%). For those who were indifferent (June= 7.4%; July= 4.6%) or said they would not get the vaccine (June= 5.4%; July= 5.6%), the top reasons were concern about the safety of the vaccine in its development (35.8%) and potential side effects (9.8%).

Conclusion: These findings highlight some determinants of willingness to accept a COVID-19 vaccine prior to one being available. We need to understand and address citizen's concerns that may prevent optimal uptake, build motivations into messaging, and prioritise public trust by informing and involving the community in the process.

Enhancing the COVID-19 vaccination program: focus on Culturally and Linguistically Diverse Communities

Authors: Dr Holly Seale[1], Associate Professor Anita Heywood[1], Lisa Woodland[2], Associate Professor Ben Harris-Roxas[3], Dr Abela Mahimbo[4], Ikram Abdi[1]

Affiliation: [1]University Of New South Wales, Sydney, Australia, [2]NSW Multicultural Health Communication Service, Sydney, Australia, [3]South Eastern Sydney Research Collaboration Hub, UNSW Centre for Primary Health Care and Equity (CPHCE), University of New South Wales, Sydney, Australia, [4]School of Public Health, UTS Sydney, Sydney, Australia

Abstract
This presentation will focus on key findings from social research designed to help strengthen the implementation and delivery of the Australian COVID-19 vaccination program with a focus on vaccinating individuals from Culturally and Linguistically Diverse (CaLD) backgrounds. The research aimed to identify the factors impacting efforts to engage with people from CaLD backgrounds during the pandemic and identify strategies to improve communication about the COVID-19 vaccination program. The insights come from over 40 in-depth interviews undertaken with stakeholders across Australia working in the sector including: Government agencies, government funded community-based organisations, CaLD community peak bodies/Councils, migrant resource centers, refugee health services, settlement services, translation services, women's support groups and community groups.

We identified that during the pandemic there have been information "voids", resulting from delays in the availability of resources, as well as resources not reaching communities. These voids were often filled with information originating from country of origin. To counter this issue, it is strongly recommended that government work with community stakeholders to ensure communities are engaged. A range of strategies were proposed to enhance communication, as well as strategies to overcome possible barriers to accessing a COVID-19 vaccination site.

To realise equitable outcomes for Australia's COVID-19 vaccine program and to ensure that there are high levels of vaccine confidence and acceptance amongst all segments of the Australian community, it is critical that we understand the factors that have impacted on people from CaLD backgrounds and identify the strategies and community influences.

A rapid response to meeting COVID-19 vaccine implementation needs among vulnerable refugees

Authors: Dr Abela Mahimbo[1], A/Prof Melissa Kang[1], Ms Ikram Abdi[2], Prof Angela Dawson[1]

Affiliation: [1]University of Technology Sydney, Ultimo, Australia, [2]University of New South Wales, Kensington, Australia

Abstract
Background: Refugees in Australia are likely to be under-immunised when compared to the Australian population due to a multitude of factors. As the COVID-19 vaccine program is being implemented, the support and engagement of refugee communities is critical for its success. Whilst refugees have been shown to be generally receptive of immunisation, vaccine hesitancy and reluctance pose a significant threat to uptake, particularly for new pandemic vaccines due to existing misinformation and conspiracy theories. To ensure public acceptance of the vaccines, it is crucial to understand what information the target groups need, how and where they access that information and factors influencing their behaviours.

Methods: Underpinned by the behavioural and social drivers (BeSD) tool developed by WHO, six focus groups with refugees from four language groups (Dinka, Arabic, Farsi/Dari and Karen) in metropolitan and regional NSW will be undertaken. The focus groups will explore refugees' knowledge and perceptions towards COVID-19 infection and vaccines, their confidence and intention to vaccinate, the social drivers and potential barriers to vaccinate, their vaccine literacy needs and strategies to optimise vaccine uptake. Data collection is currently under way.

Conclusions: As the vaccine roll out is currently in the early phases, this study is timely and relevant. The WHO BeSD framework will be critical in ensuring quality data on the drivers and barriers to COVID-19 vaccines uptake is collected and will be useful in informing policies and practices around specific information needs and targeted approaches aimed at delivering vaccines and ensuring equitable access for this group.

Vaccine Story: The journey a vaccine takes to a remote Australian community

Author: Tobias Speare[1]

Affiliation:[1]Central Australian Rural Practitioners Association Inc., Alice Springs, Australia, [2]Centre for Remote Health, ALICE SPRINGS, Australia

Abstract
The effectiveness of vaccines is dependent on correct storage and overcoming 'last- mile' logistical challenges. This is especially relevant in remote Australia where vast distances, sparse populations and workforce limitations pose significant risks to the vaccine cold chain. Recent research highlighted questions regarding the integrity of the cold chain when transporting vaccines to remote Aboriginal communities. In response, a health promotion video- Vaccine Story (https://vimeo.com/338754911) was developed to raise awareness of threats to the cold chain during transport.

"Vaccine Story" shows a vaccine's journey from supply centre to administration in a remote Aboriginal community. It is aimed at anyone involved in the process of transporting vaccines to remote communities. It highlights some last-mile logistical challenges of vaccination in remote Australia, as a stimulus for people to seek clarification and ask questions. A plain English explanation of how vaccines work is provided to give the message significance- this is why you should care that the esky is packed correctly or why you check a bus is scheduled.

An online evaluation survey (63 respondents) demonstrated a deficiency in vaccine cold chain knowledge. Respondents acknowledged the effective health messaging and recommended the video's use as a training tool. Interviews with health professionals involved in vaccination will provide greater understanding of the value of the Vaccine Story video as a training tool.

Vaccine Story addresses some concerns regarding vaccine transportation to remote Aboriginal communities through strengthening understanding of the importance of the cold chain among those involved in the transportation and storage of vaccines.

Supporting consumers and TGA manage COVID-19 vaccine side effects

Authors: **Osanda Wijeratne**[1], Dr Swapna Kiran[1]

Affiliation: [1]Healthdirect Australia, Haymarket, Australia

Abstract
Healthdirect Australia has developed and launched a self-guided triage tool for consumers to check possible side effects from the COVID-19 vaccines.

The Healthdirect COVID-19 Side Effects Symptom Checker is built within the existing healthdirect symptom checker tool, which also contains a set of questions for COVID-19 symptoms.

The aim of the side effects symptom checker is to provide an accurate source of information about symptoms consumers may be experiencing and provide advice as to what they should do next.

Once users have entered their information, a disposition page will display the most appropriate next steps, such as manage symptoms at home, see a GP, call 000 or go to the nearest ED. All disposition pages encourage users to report their symptoms, no matter how mild, to the TGA.

Healthdirect built the questions and multiple choice answers in close collaboration with and using clinical guidelines from the TGA - turning dense medical information into a consumer friendly format that retains clinical robustness and ensures user safety.

The user-friendly interface helps to guide users through the questions with ease. It uses health literacy principles, simple language and provides additional information where required, so as to minimise barriers to getting to the end and receiving the advice.

The symptom checker is launched for Phase 1a and during phase 1b will be available widely via SMS, websites, leaflets and apps.

4A - Vaccine coverage

Long Oral Presentations

2018 GSK Grant Winner - SMS Pre-call to increase immunisation coverage among Indigenous children in Central Queensland

Author: Mrs Dianne Krenske

Abstract

Immunisation coverage among Aboriginal and Torres Strait Islander peoples is significantly lower in Australia compared to non-indigenous population; closing this gap is one of the leading public health challenge. In Central Queensland Hospital and health service area for the past 5 years the immunisation coverage among Aboriginal and Torres Strait Islander children have lagged behind the non-indigenous children.

Central Queensland Public Health Unit led a pilot study (known as SMS Precall project) between October 2015 and September 2016 to look at the effectiveness of automated SMS precall service to parents 5 days before their child's 6 week, 4, 6 and 12 month vaccinations. The automated SMS were generated using the hospital data management software (i.e. HBCIS) used by Queensland Health to track patient encounters. The SMS Precall project used the software to track mothers of infants targeted by the project. Clinics were created in the software program at regular time intervals, whereby parents are sent automated SMS reminders five days before the due date of their child's 2 month, 4 month, 6 month, 12 month vaccinations. In this way, the existing infrastructure of the hospital data management system was used to identify relevant children and their parents and transmit the SMS reminders.

We found that, this simple and scaleable intervention improved the timeliness and rates of of immunisation, especially for the 6 month vaccinations among Aboriginal and Torres Strait Islander children. The largest increase was the improvement of vaccination coverage in indigenous children aged 6 months with 88.3% vacciantned within 31 days of this date in the SMS group compared with 64.0% in the control group ($p < 0.05$). As a direct result of this study immunisation rates among Aboriginal and Torres Strait Islander children aged one year old have improved from around ≤80.0% in 2013, to ~ 90.0% in 2017. However, this is still lower than the non-Indigenous rates of ~95.0% for the same year. Rates for 2 year old Aboriginal and Torres Strait Islander children have always been lower, sometimes by as much as 13.7% (Quarter 3, 2015) and more recently, by as much as 11.4% (Quarter 2, 2017). Coverage rates for 5 year old non-Indigenous children were consistently above the target of 95.0% in 2017, but in contrast, for Quarters 1 and 3 the rates for Aboriginal and Torres Strait Islander children aged <5 years were below this target (at 94.1% and 93.5%, respectively) and 2.2%-2.7% lower than the non-Indigenous rates (which were 96.3% and 96.2%, respectively.

In our pilot study we have evelauated the effectiveness of SMS Precall in a smaller geographical area (i.e. Gladstone) in Central Queensland. Now, we aim to roll out this project among the whole Aboriginal and Torres Strait Islander population in Central Queensland. Moreover, as part of this project promotional material and information will be provided to parents of Aboriginal and Torres Strait Islander children by maternity staff, Child Health, Aboriginal Medical Services and General Practices explaining the project. This project is easily scaleable (as it will be using exisiting IT infrasture) and address important health inquity issue; timely uptake of immunisation to prevent vaccine preventable diseases and deaths among Aboriginal and Torres Strait Islander children.

Impact of key national policy changes on immunisation medical exemption rates (1996-2018)

Authors: Ms Celeste Marsh[1,2,3], Professor Ross Andrews[3,4], Ms Rachel Nevin[1], Dr Masha Somi[1]

Affiliation:[1]The Australian Government Department of Health, Canberra, Australia, [2]The Australian Institute of Health and Welfare, Canberra, Australia, [3]National Centre for Epidemiology and Population Health, Australian National University, Canberra, Australia, [4]Menzies School of Health Research, Charles Darwin University, Darwin, Australia

Abstract

Background: Policies which incentivise immunisation are commonly credited with raising immunisation coverage rates, however little is known about their impact on the uptake of immunisation medical exemptions (IME). The Australian Government Department of Health (DoH) is therefore investigated trends in IME rates, particularly around key policy changes.

Methods: This is a time-series retrospective longitudinal study using IME-related data for individuals (0-19 years) from the Australian Immunisation Register (1 Jan 1996-30 June, 2018). We describe IMEs over time, by recipient and provider characteristics, by region and exemption sub-type; medical contraindication or natural immunity. Incidence rate ratios were calculated to measure the impact of three key policy changes on IME rates.

Results: For individuals aged 0-6 years, medical contraindication exemption rates increased in the two years following the implementation of the Immunise Australia Program (1998; IRR(CI): 8.3 (6.8-10.4), $p<0.001$) and announcement of the 'no jab, no pay' policy (2015; IRR(CI):1.7(1.6-1.8), $p<0.001$) compared to that prior. The 'no jab no pay' related rate rise was short-lived with reductions in rates in all States/Territories in 2017. In the 2017-2018 financial year, children holding an IME at their fifth birthday accounted for 0.5% of all eligible five-year-olds in Australia.

Conclusions: Australian national immunisation policies have affected IME seeking and granting behaviour. However, increases in coverage rates as a result of these policies are likely to outweigh the effects of a temporary rise in IME rates. It is important that we continue to monitor IME granting to ensure immunisation policies are having the desired effect.

How well are vaccinations in pharmacy captured in the Australian Immunisation Register?

Authors: Kaitlyn Vette[1], Lauren Dalton[1], Dr Aditi Dey[1,2], Brynley Hull[1], Dr Frank Beard[1,2]
Affiliation:[1]National Centre For Immunisation Research And Surveillance, Sydney, Australia, [2]University of Sydney, Sydney, Australia

Abstract
Background: In recent years pharmacists have had an expanding role in vaccination in Australia, with scope varying by jurisdiction. Pharmacy peak bodies have reported that over one million influenza vaccinations were administered in pharmacies in 2018 and over two million in 2019. We aimed to assess pharmacy vaccination reporting to the Australian Immunisation Register (AIR).

Methods: Descriptive analysis of pharmacy vaccination data in AIR from 1 January 2015 to 30 September 2019. Stakeholder interviews and national online survey of pharmacists to assess awareness of AIR, vaccination record management, and AIR reporting practices including barriers and enablers.

Results: In 2018 and 2019, 110,562 and 431,173 pharmacy vaccinations were reported to AIR, the majority for influenza (95% and 97% respectively). This suggests substantial underreporting to AIR when compared to industry-reported figures. Between 2018 and 2019, pharmacy vaccinations reported to AIR increased in all jurisdictions, ranging from a 2-fold increase in Victoria to 25-fold in NSW. In addition to influenza, 468 doses of measles-mumps-rubella, 80 doses of meningococcal and 14,125 doses of diphtheria-tetanus-pertussis vaccine were reported to AIR by pharmacies in 2019. More detailed data, including interview and survey results, will be presented at the conference.

Conclusion: There appears to be substantial underreporting of pharmacy vaccinations to AIR. Accurate AIR data are important at both the individual and population level. Understanding barriers and enablers to pharmacy reporting of vaccination encounters will inform measures to improve the accuracy of AIR data over time.

Vaccination coverage in children with mothers born overseas: a population-based cohort study.

Authors: Miss Ikram Abdi[1], Dr Heather Gidding[2], Dr Hannah Moore[3], Dr Holly Seale[1], Dr Robert Menzies[1]

Affiliation:[1]University Of New South Wales, Kensington, Australia, [2]University of Sydney, Camperdown, Australia, [3]Wesfarmers Centre of Vaccines and Infectious Diseases, Telethon Kids Institute, West Perth, Australia

Abstract
Background: Overall, infant immunisation coverage is currently >90% in Australia, but there are pockets of under-immunised children including children from migrant backgrounds. This study aimed to examine whether on-time vaccination coverage of diphtheria-tetanus-pertussis dose 3 (DTP3) for children born in Australia differed by mother's region of birth and if so, what factors were associated with these differences.

Methods: We conducted a population-based cohort study using linked data on perinatal, immunisation and birth records for 2 million children born in Western Australia and New South Wales between 1996 and 2012. We assessed on-time coverage of DTP3 (vaccination from 2 weeks prior to, and up until 30 days after, the due date) in children with mothers born overseas. Logistic regression models were developed to determine factors associated with on-time coverage for each maternal region of birth and all regions combined, adjusting for a range of demographic factors. Adjusted estimates of coverage were calculated for the different regions of birth.

Results: On-time DTP3 coverage was 76.2% in children of Australian born mothers, lower in children of mothers from Oceania (66.7%) and North America (68%), and higher in children born to mothers from South-East Asia (79.9%) and Southern Asia (79.3%). While most variables were consistently associated with lower coverage in all regions of birth, higher socioeconomic status and jurisdiction of birth showed varied results. Adjusted estimates of DTP3 coverage increased in children born to mothers from Australia (78.3%), Oceania (70.5%), Northern Africa (81.5%) and the Middle East (79.6%). DTP3 coverage decreased in children born to mothers from Europe and former USSR (74.6%), North-east Asia (75.2%), Southern Asia (76.7%), North America (65.5) and South/Central America and the Caribbean (73.2%).ConclusionsOn-time vaccination rates differed by mother's region of birth. More research is needed to determine the main reasons for these remaining differences to improve vaccine uptake and also help guide policy and practice.

4B - Equity and Access

Long Oral Presentations

2018 GSK Grant Winner - A multidisciplinary approach to needle phobic children presenting for immunisation

Authors: **Ms Rebecca Doyle[1,2]**, Dr Julia Clark[1,3], Ms Leanne Philips[1], Ms Laurelle Nelson[1], Ms Cortney Sadleir[1], Ms Caitlyn Fletcher[1], Ms Roxanne Taylor[1], Ms Hannah Coulter[1], Ms Anna Kinnane[1], Ms Siobhan Gawrych[1], Ms Alison Blaikie[1], Dr Alexandra Donaldson[1,4], Dr Vanessa Rich[1], Dr Sophie Wen[1,3]

Affiliation:[1]Children's Health Queensland, South Brisbane, Australia, [2]Griffith University, Nathan, Australia, [3]University of Queensland, St Lucia, Australia, [4]EPIC Procedural Anxiety Forum, SPANZA, Morisset, Australia

Abstract

Background: Queensland Specialist Immunisation Service receives referrals for needle phobic children who may remain unvaccinated. This increases risk of contracting a vaccine preventable disease and lowers herd immunity in the community. The current approach does not meet the needs of this cohort and sedation options are limited. A multidisciplinary model of care can reduce associated stress and anxiety, address safety concerns, and optimise vaccination rates.

Methods: The aim was to develop and pilot a cost-effective, collaborative, consumer-oriented, multidisciplinary model of care. Three clinics were held at Queensland Children's Hospital where patients attended multidisciplinary consultation. A case meeting followed to collaboratively formulate individualised patient plans which included a range of techniques and interventions. Children had access to a sedation pathway if required.

Results: Participants totalled 25. 84%(n=21) were successfully vaccinated with 90%(n=19) requiring multiple vaccines at one visit. 19%(n=4) were vaccinated with occupational therapy support using clear procedural plans, and 1 child used VR goggles. 38%(n=8) were vaccinated using patient-controlled Entonox® and 28%(n=6) under Quantiflex® and/or oral sedation. 2 children were vaccinated under GA booked for unrelated reasons.

Conclusion: Results indicate an individualised, collaborative approach is preferable to a "one size fits all" model of care. Multidisciplinary consultation provides opportunity for discussion between patients, families and health professionals and allows consumer involvement in planning their care. Parents report reduced frequency and duration of appointments. Staff report more efficient organisation of resources. Further analysis is required to determine effect on costs for caregivers; clinician hours per patient; and wastage of vaccines.

Knowledge Attitudes Perceptions of Arab Australian Community Toward Human papillomavirus Vaccination Program

Authors: **Dr Faeza Netfa[1,2]**, Dr Mohamed Tashani[1], Dr Catherine King[1,3], Dr Harunor Rashid[1,3], Professor Robert Booy[1,3], Professor Rachel Skinner[1,2]

Affiliation:[1]The University of Sydney Children's Hospital Westmead Clinical School, The Child and Adolescent Discipline Health, Sydney/Westmead, Australia, [2]Kids Research, The Children's Hospital at Westmead, Westmead 2145, Sydney, NSW, Australia, Sydney/Westmead, Australia, [3]National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases, The Children's Hospital at Westmead, University of Sydney, Sydney/Westmead, Australia

Abstract

Background: The National School-Based Human Papillomavirus (HPV) Vaccination Program in Australia achieves generally high uptake. However, there is variable uptake across schools. Little is known about HPV vaccine acceptability among parents of adolescents of culturally and linguistically diverse backgrounds. This study aimed to explore knowledge, attitudes, perceptions and decision-making of parents from Arabic backgrounds in Australia towards the HPV vaccination offered to their adolescent children.

Methods: Qualitative interviews were conducted in Western Sydney, with parents of adolescents from Arabic backgrounds, whose children were offered HPV vaccine in schools. Recruitment was conducted via informal personal contacts, and passive snowballing. Face to face interviews were conducted in Arabic by a bilingual qualitative researcher. These were audio-recorded, transcribed, and then translated into English. Qualitative data were coded and categorised using NVivo 12 software. Thematic analysis was used to analyse the interview transcripts and identify emerging themes and sub-themes.

Results: A number of key themes for 15 interviews are reported: 1) Lack of awareness and knowledge of HPV and HPV vaccination, 2) Barriers to accessing and understanding the vaccine information sheet, 3) Parents' preferences for information provision, 4) The role of parents' religious beliefs in forming attitudes, and 5) Lost opportunities to educate parents about HPV vaccination during GP visits.

Conclusion: The findings point to the need to address cultural, language, and communication barriers to improve awareness and acceptability of HPV vaccination in the Arabic community. Educational strategies should be tailored to this community based on their specific information needs.

Improving childhood immunisation rates: experiences from the Central Coast Local Health District

Authors: Dr Katarzyna Bolsewicz[1,2], Ms Donna Moore[3], Dr Peter Lewis[3], Ms Colleen Gately[3], Mr Andrew Dixon[3], Mr Paul Cook[3], Dr Susan Thomas[1,2]

Affiliation: [1]The University of Newcastle, Callaghan, Australia, [2]Hunter New England Local Health District, Wallsend , Australia, [3]Central Coast Public Health Unit, Gosford, Australia

Abstract

Background: In the Central Coast Local Health District (CCLHD) childhood immunisation (CI) rates are around 95%, however, pockets of under-immunisation exist. We used the World Health Organization's Tailoring Immunization Programmes (TIP) to identify areas of low vaccine coverage and gain a greater understanding of factors that influence CI.

Methods: Australian Immunisation Register (AIR) data (2016-2018) were analysed to identify areas with persistently low coverage. Individual and group interviews with carers, community members and service providers were conducted and data thematically analysed. Themes were identified and presented to stakeholders for feedback before finalisation.

Results: Umina Beach had 218 children at least one month overdue for at least one vaccination during 2018. Data from 21 interviews and focus groups with 52 participants informed five themes: 1. Socio-economic factors may apply pressures on families that influence CI; 2. Parents largely support immunisation and are knowledgeable about its benefits to their children and the community; 3. Immunisation service providers are committed, experienced and collaborate with community partners; 4. AIR data and reminder systems could be better used to inform service delivery and prompt parents before immunisations are due; 5. Service access can be improved by locating nurse led clinics in Umina and by providing after-hours services.

Conclusions: The TIP approach identified strengths and opportunities to improve CI coverage in Umina. It provided new information useful in developing a tailored immunisation strategy. Awareness of the impact of socio-economic factors on families can help in planning primary health care services that provide equitable access to immunisation.

Improving access for vulnerable young people to vaccinations: a nurse-led model

Authors: Ms Belinda Tominc[1], Dr Dot Henning[1], Ms Christine Parrott[1], Mr Stuart Cook[1]

Affiliation: [1]The Royal Children's Hospital, Melbourne, Australia

Abstract

Context: Young people made up 26% of the 24,817 persons classified as homeless in Victoria, Australia on Census night 2016 (ABS 2018). When young people are faced with homelessness, school disengagement, addictions, and mental health issues, vaccinations may be of low priority. The Young People's Health Service at The Royal Children's Hospital has piloted an innovative nurse-led program to improve vaccination access for these young people.

Process: An outreach model was developed for services providing refuge, drug and alcohol support, secure welfare, and flexible learning. The project commenced in February 2019 and aims to improve access and uptake of vaccinations for vulnerable young people (12-24 years) who are not up-to-date with the state-wide vaccination schedule.

Analysis: Preliminary results found 98% (n=223) of young people referred to the program in a six-month period were not up-to-date with scheduled immunisations. Vaccines were predominantly missed in secondary school, with some also missing childhood vaccines such as Measles, Mumps and Rubella (21%).

Promisingly, 74% of the young people who spoke to a nurse about immunisations during this first six months were willing to commence catch-up. The percentage of young people who were up-to-date increased from 2% (n=4) to 15% (n=35).

Outcomes: Immunisation is a significant preventative health measure that homeless or otherwise marginalised young people are missing. Our targeted nurse-led model has demonstrated a willingness for the young people to engage with immunisation catch-up, despite competing priorities.

References: ABS 2018. Census of population and housing: estimating homelessness, 2016. ABS cat. no. 2049.0. Canberra: ABS.

4C - Select settings

Long Oral Presentations

Influenza vaccine for Paediatric Intensive Care Unit (PICU) patients

Authors: Ms Sonja Elia[1], Assoc. Prof Nigel Crawford[1,2,3], Prof. Trevor Duke[1,2,3], Ms Yvette Moore[1], Ms Nikki Marriner[1], Dr Shidan Tosif[1,3]

Affiliation:[1]Royal Children's Hospital, Melbourne, Eltham, Australia, [2]Murdoch Children's Research Institute, Parkville, Australia, [3]The University of Melbourne, Parkville, Australia

Abstract

Clear context: Influenza disease in children with co-morbidities is associated with increased rates of hospitalisation and complications. This is the first study to describe the number and medical profile of patients receiving influenza immunisation whilst an inpatient in PICU at the Royal Children's Hospital (RCH) Melbourne.

Process: Over two seasons: 19/04/2018 – 07/08/2018 and 02/05/2019-10/10/2019 an Immunisation nurse met the PICU nurse coordinator weekly on the ward. They identified potential patient's eligible and stable enough to receive the influenza vaccine whilst in the PICU. A database audit reviewed all patients who received an influenza immunisation whilst admitted in the RCH PICU during 2018-19.

Analysis: In the study period, 123 patients (31 in 2018 and 92 in 2019) were identified as eligible for influenza vaccine. Majority of patients were male (59%) with a median age of 49 months. 103/123 (84%) had received an influenza vaccine: 26/123 (21%) whilst a PICU inpatient; 60/123 (49%) prior to admission and 12/123 (10%) once discharged from PICU to the general ward environment. A further 5/123 (4%) received the vaccine following discharge from hospital. Overall, of the total eligible patients, only 20/123 (16%) did not receive the vaccine, either due to being too unwell (8), parents refused (9) or no reason provided (3). Nil adverse events were reported.

Outcomes: In a vulnerable patient group we have demonstrated the suitability and acceptability of patients receiving the influenza vaccine whilst in PICU and tailored interventions to follow-up once they leave PICU to optimise protection.

Using mixed methods to compare influenza vaccination at pharmacy vs GP

Authors: Mallory Trent[1], Prof Daniel Salmon[2], Prof Raina MacIntyre[1]

Affiliation:[1]Biosecurity Program, Kirby Institute, University of New South Wales, Kensington, Australia, [2]Johns Hopkins Bloomberg School of Public Health, Baltimore, USA

Abstract

Background: To improve influenza vaccine uptake, all states and territories in Australia have passed legislation allowing pharmacists to administer influenza vaccines.

Methods: We anonymously surveyed a representative sample of Australian adults online in 2019. Among adults that reported influenza vaccination in 2019, we used chi-squared test to identify factors associated with pharmacy vaccination. We used thematic analysis to interpret participants' reasons for their choice in vaccination provider.

Results: Our sample included 745 adults that self-reported influenza vaccination in 2019. Among these, 543 (72.9%) were vaccinated in a medical setting, 95 (12.8%) were vaccinated in pharmacy, and 107 (14.4%) were vaccinated elsewhere. Based on preliminary results, participants vaccinated in pharmacy, rather than a medical setting, were more likely to be under 65 ($p<0.01$) and not have chronic comorbidities ($p<0.01$). The proportion receiving the vaccine for the first time did not differ significantly between those receiving the vaccine in pharmacy compared to medical settings ($p=0.07$). The top reported reasons for being vaccinated in pharmacy related to convenience (51.6%), cost (30.5%), and needing the vaccine quickly (12.6%).

Conclusion: Overall, people vaccinated in pharmacy were younger and healthier than those vaccinated by their doctor, likely due to the fact that NIP funded vaccines are not available at pharmacies. Pharmacies may be increasing vaccination by removing barriers related to cost and convenience.

Rotavirus vaccine effectiveness during G2P[4] rotavirus epidemic in rural/remote Australia.

Author: Dr Bianca Middleton[1], Dr Helen Quinn[2], Mr Mark Jones[3], Dr Marie Estcourt[3], Ms Heather Cook[4], Ms Nevada Pingault[5], Dr Deborah Fearon[6], Prof Paul Effler[5,7], Assoc Prof Anna Ralph[1], Assoc Prof Margie Danchin[8], Prof Tom Snelling[3]

Affiliation: [1]Menzies School of Health Research, Charles Darwin University, Darwin,, Australia, [2]National Centre for Immunisation Research and Surveillance, Sydney,, Australia, [3]Wesfarmers Centre for Vaccines and Infectious Diseases, Telethon Kids Institute, Perth,, Australia, [4]Centre for Disease Control, Department of Health Northern Territory, Darwin,, Australia, [5]Communicable Disease Control Directorate, Department of Health WA, Perth,, Australia, [6]Department of Paediatrics, Alice

Springs Hospital, Alice Springs,, Australia, [7]University of Western Australia, Perth,, Australia, [8]Murdoch Children's Research Institute, Melbourne,, Australia

Abstract
Background: Rotavirus vaccines were introduced into the National Immunisation Program in 2007. In 2017, there was a G2P[4] rotavirus outbreak which began in Central Australia, Northern Territory and subsequently spread to the Kimberley, Pilbara and Goldfields regions of Western Australia. This outbreak provided a unique opportunity to calculate the real-world vaccine effectiveness of Rotarix and RotaTeq during the G2P[4] epidemic, and to ascertain the protection afforded by both vaccines to Indigenous children living in rural and remote northern Australia.

Methods: Using a retrospective case-control study the real-world vaccine effectiveness of oral Rotarix and oral RotaTeq rotavirus vaccines was determined by comparing the vaccination status of rotavirus cases from two state-based notifiable disease registers – Northern Territory Notifiable Disease System and Western Australian Notifiable Infectious Disease Database – with the vaccination status of population controls from the Australian Immunisation Register. Vaccine effectiveness was also calculated for children who were complete versus partially vaccinated, and amongst children

Results/Conclusion: The results of this retrospective case-control study will be presented and provide a unique opportunity to compare the performance of two oral rotavirus vaccines, Rotarix and RotaTeq, during the same G2P[4] rotavirus epidemic. These results will help inform policy decisions about which vaccine is best suited to protecting the vulnerable population of indigenous children living in rural and remote northern Australia.

Introducing mandatory influenza vaccination for healthcare workers in NSW: Lessons learnt

Author: Dr Holly Seale[1]

Affiliation: [1]University Of New South Wales, Sydney, Australia

Abstract
Background: In 2018, influenza vaccination became mandatory for any healthcare provider working in certain high-risk wards/departments in NSW. At the time this change isolated NSW from the policies/practices occurring in the other Australian States/Territories. Given this marked change, it was important to examine the introduction of this directive change.

Methods: In-depth interviews were undertaken with a range of key stakeholders, working at each level of the healthcare system: hospital, local health district (LHD), and state department. We wanted to capture the viewpoints of those responsible for policy design, as well as those responsible for the implementation and delivery of the updated vaccine directive.

Results: Seventeen interviews were undertaken in 2018. Various approaches were used to support the implementation of this updated vaccine directive with some LHDs opting to utilise the staff from public health units and from the LHD. Overwhelmingly, participants were supportive of the introduction but spoke about the short lead time and the difficulties with identifying and keeping track of staff members who were required to be vaccinated. Some sites spoke about manual data entry/checking and having multiple databases in order to be able to report compliance. Participants also spoke about the challenges associated with the non-compliance option of wearing a mask.

Conclusion: The introduction of mandatory vaccination directives requires long lead times. Hospitals must be given time to prepare and identifying the resources/approach that will be taken. Too much time is currently being dedicated to tracking down staff members and entering data into multiple systems.

4D - Acceptance demand hesitancy

Long Oral Presentations

"Tell me how you got here": Non-vaccinating parent's pathways to vaccine rejection

Authors: Dr Kerrie Wiley[1], Professor Julie Leask[1], Dr Katie Attwell[2], Ms Catherine Helps[1], Dr Chris Degeling[3], Professor Paul Ward[4], Professor Stacy Carter[3]

Affiliation: [1]University Of Sydney, Sydney, Australia, [2]University of Western Australia, Perth, Australia, [3]University of Wollongong, Wollongong, Australia, [4]University of Adelaide, Adelaide, Australia

Abstract

Background: Recent research illuminates the characteristics of Australian non-vaccinating parents in well-defined geographic communities however the process by which parents come to reject vaccines is less clearly understood. This qualitative study sought to address this gap.

Methods: We recruited a sample of parents who had rejected some or all vaccines for their children < 18 yrs. Recruitment strategies across Australia included advertising on national radio, in community centres and playgrounds in low coverage areas, and snowballing. Semi-structured interviews were undertaken. Grounded Theory methodology guided data collection and analysis.

Results: Twenty-two parents from five states and a variety of regional and urban locations were interviewed. The processes of vaccine rejection described by parents displayed both commonality and variation. All spoke of wanting happy, healthy, robust children, but varied in their life and vaccination trajectories. Some considered themselves "alternative" and others "mainstream". Participants had moved both away from and toward vaccination over time. One group had decided before birth that they never would vaccinate their children and had not changed. Others stopped vaccinating after perceived post-vaccine reactions in their children. Still others initially rejected vaccines, but eventually accepted them.

Conclusion: The variation and dynamic nature of the vaccination trajectories described by non-vaccinating parents suggests that non-vaccination is not a static destination but rather the result of ever-changing experience and continual risk assessment, and that not all fit the "alternative lifestyle" stereotype. This suggests that a nuanced personalised style of engaging with non-vaccinating parents is more appropriate than a one-size-fits-all approach.

Feasibility and acceptability pilot of the multi-component P3-MumBubVax antenatal vaccine promotion intervention

Authors: A/Prof Margie Danchin[1], Jessica Kaufman[1,2], Katie Attwell[4], Jane Tuckerman[1,2], Jacinta O'Sullivan[1], Prof Julie Leask[5], Annette Regan[7], Prof Helen Marshall[8], Prof Tom Snelling[9], Kirsten Perrett[1,2,3], Kerrie Wiley[5], A/Prof Katherine Lee[1,2], Prof Saad Omer[6]

Affiliation: [1]Murdoch Childrens Research Institute, Melbourne, Australia, [2]University of Melbourne , Parkville, Australia , [3]Royal Children's Hospital, Parkville, Parkville, Australia , [4]University of Western Australia, Perth, Australia , [5]University of Sydney, Sydney, Australia , [6]Yale University, New Haven, USA, [7]Texas A&M University, College Station , USA, [8]University of Adelaide, Adelaide , Australia , [9]Telethon Kids Institute, Perth, Australia

Abstract

Background: Pregnancy is a critical time for vaccine decision-making, but maternal influenza (35-60%) and pertussis (65-80%) vaccine coverage remains suboptimal. The multi-component P3-MumBubVax intervention has been designed for Australian midwives to optimise maternal and childhood vaccine uptake. A pilot study was conducted to assess feasibility of the intervention.

Methods: Midwives and pregnant women 18-22 weeks gestation were recruited at the Royal Women's Hospital, Melbourne. P3-MumBubVax includes components at three levels: 1. Practice (stickers to prompt and record vaccine discussions/delivery; clinic 'vaccine champions'); 2. Provider (website with vaccine communication training, learning exercise/fact sheets, links to other child vaccination resources) and 3. Parent (SMS reminders, website, fact sheets). Online surveys assessed intervention feasibility, implementation, acceptability and impact on maternal vaccine uptake.

Results: 25 midwives and 62 pregnant women were recruited with a survey response rate of 72% and 90% respectively. 76% of midwives completed training, 78% used sticker prompts, 55% the website and 61% fact sheets. 87% of pregnant women reported short vaccine discussions (1-3 minutes) about influenza (86%) and pertussis (82%) vaccines.

All midwives were satisfied with the intervention and 94% felt more confident. Women were very satisfied with text messages (content [94%]; timing [89%]) and vaccine discussions (63%). Self-reported maternal vaccine uptake was 82% and 93% for influenza and pertussis (baseline 2017-2018: 43% influenza,60% pertussis) and 96% of infants were fully vaccinated at 3 months on AIR.

Conclusion: The P3-MumBubVax intervention is feasible, acceptable and scalable in the Australian public antenatal setting. However further evaluation is required to determine effectiveness.

Influenza vaccination of children medically at-risk: practice level barriers in medical practitioners

Authors: Jane Tuckerman[1,2,3,4], Dr Jesscia Kaufman[2,3,4], A/Prof Margie Danchin[2,3,4], Prof Helen Marshall[1,5,6,7]

Affiliation: [1]Adelaide Medical School, University of Adelaide, Adelaide, Australia, [2]Murdoch Children's Research Institute, Melbourne, Australia, [3]University of Melbourne, Melbourne, Australia, [4]Royal Children's Hospital, Melbourne, Australia, [5]Robinson Research Institute, North Adelaide, Australia, [6]Vaccinology and Immunology Research Trials Unit, North Adelaide, Australia, [7]South Australian Health and Medical Research Institute, North Adelaide, Australia

Abstract

Background: Understanding the influenza vaccination practices of general practitioners (GP) and paediatric specialists caring for children with special risk medical conditions (SRMC) is imperative for determining improvement strategies. This study aimed to identify the complexities associated with providing the influenza vaccine or a recommendation at the tertiary and primary care, practice level.

Methods: Medical practitioners treating children with confirmed SRMCs were interviewed to explore influenza vaccination practices and challenges. Interviews were digitally recorded and transcribed verbatim. Thematic analysis was conducted jointly by two authors to inductively code these data. Resulting themes were then mapped according to COM-B ('capability', 'opportunity', 'motivation' and 'behaviour'), a theoretical framework for understanding barriers and potential interventions.

Results: 26 Medical practitioners (21 GPs and 5 specialists) completed semi-structured interviews. Identified themes, grouped by COM-B category, included: Capability - communication strategies, professional boundaries and knowledge and Motivation - clinical prioritisation, responsibility and professional role. However, much discussion was focused on barriers and potential drivers that fall under Opportunity - such as communication resources, social acceptance and normalisation, recommendation as standard practice and consistent messaging, with systems to identify children, prompt clinicians and remind parents reported as the most urgently required.

Conclusions: At the practice level, several structural barriers to influenza recommendation exist. These include lack of processes to identify children with SRMC, limited use of reminder systems and unclear delineation of role responsibility between specialists and GPs. Interventions to increase influenza vaccine coverage for children with SRMC will require addressing practice level structural barriers and improving collaboration.

Why do pregnant women decline influenza vaccination? Learnings from a NSW study.

Authors: Ms Jocelynne McRae[1,2], Dr Aditi Dey[1,2], Ms Samantha Carlson[3], Dr John Sinn[4], Dr Frank Beard[1,3], Prof Peter McIntyre[1], Prof Kristine Macartney[1,2], A/Prof Nicholas Wood[1,2]

Affiliation: [1]Discipline of Child and Adolescent Health, Faculty of Medicine and Health, The University of Sydney, Sydney, Australia, [2]National Centre for Immunisation Research and Surveillance, Westmead, Australia, [3]School of Public Health, Faculty of Medicine and Health, The University of Sydney, Sydney, Australia, [4]Department of Neonatology, Royal North Shore Hospital, St Leonards, Australia

Abstract

Background: Influenza vaccine uptake in pregnancy, while steadily improving, remains one of the least well-accepted national vaccine programs in Australia. This study sought to understand more about women who decline vaccination in pregnancy to which there is a paucity of data.

Methods: Pregnant women from two hospitals in Sydney were surveyed as part of a 2017 NSW Health pregnancy influenza vaccine campaign evaluation. Characteristics and predictive factors between women who declined vaccination and women who vaccinated were compared using Pearson's chi-square test and multivariate logistic regression.

Results: Among 642 women surveyed, 58% self-reported influenza vaccination during their pregnancy and 19% declined vaccination. Women who declined influenza vaccination were more likely to: lack a maternity care provider recommendation (aOR 6.06, 95% CI: 3.50-10.50), be recommended against vaccination (aOR 4.17, 95% CI: 2.07–8.38), never previously have been vaccinated for influenza (aOR 2.75, 95% CI: 1.64-4.59), and, among third trimester women, not have been vaccinated for pertussis (aOR 2.55, 95% CI: 1.32–4.89). On univariate analyses, women who declined vaccination were more likely to disagree or feel uncertain about vaccine safety or effectiveness compared to women who vaccinated.

Conclusions: Recommendations from a maternity care provider remain key to a woman's decision to vaccinate for influenza during pregnancy. Providers should initiate vaccine discussions early in pregnancy as part of routine antenatal care. Continued efforts are needed to improve messaging on the benefits, safety and effectiveness of influenza vaccination to pregnant women.

Understanding Hospital-Based Influenza Vaccination for Children with Medical Comorbidities

Authors: Mr Daniel Norman[1,2,3], A/Prof Margie Danchin[4,5,6], Dr Holly Seale[7], A/Prof Pamela Palasanthiran[8,9], Prof Kristine Macartney[10,11], Dr David Tran[5,12], Dr Hannah Moore[1,3], A/Prof Christopher Blyth[1,2,3,13,14]

Affiliation: [1]Telethon Kids Institute, Perth, Australia, [2]Division of Paediatrics, School of Medicine, Faculty of Health and Medical Sciences, The University of Western Australia, Crawley, Australia, [3]Wesfarmers Centre of Vaccines & Infectious Diseases, Perth, Australia, [4]Vaccine and Immunisation Research Group, Murdoch Children's Research Institute, Melbourne, Australia, [5]Department of General Medicine, Royal Children's Hospital, Melbourne, Australia, [6]Department of Paediatrics and School of

Population and Global Health, The University of Melbourne, Melbourne, Australia, [7]School of Public Health and Community Medicine, The University of New South Wales, Randwick, Australia, [8]Department of Immunology and Infectious Diseases, Sydney Children's Hospital Network, Sydney, Australia, [9]School of Women's and Children's Health, University of New South Wales, Sydney, Australia, [10]The University of Sydney, Discipline of Child and Adolescent Health, Sydney, Australia, [11]National Centre for Immunisation Research and Surveillance, Westmead, Australia, [12]Department of Paediartics, Northern Health, Epping, Australia, [13]Department of Infectious Diseases, Perth Children's Hospital, Perth, Australia, [14]Department of Microbiology, PathWest Laboratory Medicine WA, Perth, Australia

Abstract

Background: We have identified the key role that hospitals and hospital-based providers play in increasing influenza vaccine uptake in Australian children with medical comorbidities. Current hospital influenza healthcare delivery and clinician attitudes are poorly understood. We explored clinical staff perspectives and healthcare delivery pathways for hospital-based influenza vaccination.

Methods: We conducted semi-structured interviews and discussion sessions with hospital-based subspecialists, general paediatric and immunisation teams in four tertiary paediatric hospitals and three general community hospitals in three Australian states during 2019. Questions were developed a priori using previous published survey results. Interview transcripts were thematically analysed using grounded theory. Themes were categorised per the Capability-Opportunity-Motivation-Behaviour (COM-B) model and appropriate behavioural interventions were identified using the Theoretical Domain Framework (TDF).

Results: Staff identified importance of influenza vaccination for at-risk children and their role in promoting uptake. Vaccine-specific knowledge, access to immunisation records, and procedural factors limited hospital sites' capacity for influenza vaccination. Two central domains emerged from analysis of the transcripts from interviews and discussion groups sessions. 1) The interactions between paediatricians and nurses with parents/patients for influenza vaccine recommendation and 2) The hospital environment for influenza vaccination delivery and recording. Streamlined AIR access, simplified information sheets and patient-directed electronic vaccination reminders were potential interventions identified by participants.

Conclusion: Behavioural and structural factors continue to limit Australian paediatric hospital-based influenza vaccine use. Future interventions should prioritise targeting provider knowledge gaps, simplify immunisation processes, and provide patient reminders to improve influenza vaccine coverage in children with comorbidities.

4E - Mixed

Long Oral Presentations

Impact of meningococcal B vaccine on meningococcal carriage density and persistence

Authors: Mr Mark McMillan[1,2], Luke Walters[3], Thomas Sullivan[4,5], Lex Leong[3], Mark Turra[3], Andrew Lawrence[3], Ann Koehler[6], Adam Finn[7], Ross Andrews[8,9], Helen Marshall[1,2]

Affiliation: [1]Vaccinology and Immunology Research Trials Unit, Women's and Children's Health Network, North Adelaide, Australia, [2]Robinson Research Institute and Adelaide Medical School, The University of Adelaide, Adelaide, Australia, [3]Microbiology and Infectious Diseases Directorate , Adelaide, Australia, [4]SAHMRI Women & Kids, South Australian Health & Medical Research Institute, Adelaide, Australia, [5]School of Public Health, The University of Adelaide, Adelaide, Australia, [6]Communicable Disease Control Branch, SA Health, Adelaide, Australia, [7]Bristol Children's Vaccine Centre, Schools of Cellular and Molecular Medicine & of Population Health Sciences, University of Bristol, Bristol, Australia, [8]Menzies School of Health Research, Charles Darwin University, Darwin, Australia, [9]National Centre for Epidemiology & Population Health, Australian National University, Canberra, Australia

Abstract

Background: Higher density of Neisseria meningitidis carriage may be associated with transmission of the meningococcus. Our aim was to establish the impact of 4CMenB vaccine on N. meningitidis carriage density.

Methods: We compared 4CMenB vaccine to control among 24,269 South Australian students aged approximately 15-18 years in a cluster randomized trial. Oropharyngeal swabs were collected at baseline and 12 months later to detect N. meningitidis carriage. Colony forming units per millilitre (CFU/ml) were estimated by generating a standard curve that plotted qPCR cycle threshold values against log-normalised CFU.

Results: Among the 914 students with N. meningitidis carriage at 12 months, there was no difference in mean carriage density between the vaccinated (n=435, 3.80 log CFU/ml [SD 1.29]) and control group (n=479, 3.73 log CFU/ml [SD 1.30]; p=0.50). Higher N. meningitidis carriage density at baseline was associated with an increase in the odds of persistent carriage at 12 months (n=508, odds ratio per 1.0 log CFU/ml increase in density = 1.37 [95% CI, 1.18, 1.59], p<0.001). Students with baseline carriage who were vaccinated had decreased persistent N. meningitidis carriage at 12 months compared to unvaccinated students (82/187 [31%] vs 105/187 [43%], odds ratio 0.60 [95% CI, 0.40, 0.90], p=0.01)

Conclusion: 4CMenB vaccine did not reduce carriage density 12 months post vaccination, despite evidence of increased carriage clearance. Higher carriage density is likely to enable transmission through prolonged periods of population exposure.

Respiratory syncytial virus-associated deaths in Australian children, a rare but important outcome

Author: Ms Gemma Saravanos[1,2], Professor Kristine Macartney[1,2,3], Associate Professor Nicholas Wood[1,2,3], Dr Philip Britton[1,3,4]

Affiliation: [1]The University of Sydney, Sydney, Australia, [2]National Centre for Immunisation Research and Surveillance, Sydney, Australia, [3]The Children's Hospital at Westmead, Sydney, Australia, [4]The Marie Bashir Institute, Sydney, Australia

Abstract

Background: Respiratory syncytial virus (RSV) disease is a leading cause of hospitalisation in young children. RSV-deaths are believed to be rare in high-income countries however no studies have explored death as a primary outcome of RSV disease in Australian children.

Methods: First, we described national RSV-coded hospitalisations ending in death occurring in children aged less than 15 years from 2006-2015. Then we retrospectively identified laboratory confirmed, RSV- deaths occurring in children aged less than 16 years from 1998-2018 at a tertiary/quaternary paediatric hospital. An expert panel reviewed cases to confirm RSV contribution to death. The frequency and clinical characteristics of these cases was described.

Results: A total of 86 RSV-coded hospitalisations ending in death occurred nationally over a ten-year-period. These were recorded in all years and age groups, 47 (54.7%) deaths occurred in children aged less than two years. At a single centre we identified 20 RSV confirmed deaths over a 20-year-period. Deaths were distributed evenly across study years. Median age of cases was 2.4 years (IQR 0.7-6.3 years). All cases had at least one significant comorbidity and greater than half (11, 55%) were classified as healthcare acquired RSV infections.

Conclusions: Deaths occurred in all ages in both datasets with predominance in younger children. In the single hospital series, RSV-death occurred exclusively in children with comorbidities. These children should be considered for existing and future targeted prevention of RSV disease. Healthcare acquired RSV infection was common highlighting the need to re-assess hospital infection prevention and control strategies.

Herpes zoster vaccine coverage in Australia following a national vaccination program

Author: Ms Jialing Lin[1], A/Prof James Wood[1], Dr Carla Bernardo[2], Prof Nigel Stocks[2], A/Prof Bette Liu[1]

Affiliation: [1]School of Public Health and Community Medicine, The University of New South Wales, Sydney, Australia, [2]Discipline of General Practice, Adelaide Medical School, University of Adelaide, Adelaide, Australia

Abstract

Background: The national herpes zoster (HZ) vaccination program, targeting adults aged 70-79 years old, commenced in November 2016, but there is limited information on vaccine coverage following program commencement.

Methods: Using a national de-identified electronic primary care dataset, MedicineInsight, we extracted records from patients turning 50-90 years old during 2016-2018, on HZ vaccination status. Among patients considered regular attenders, we estimated crude and adjusted average monthly HZ vaccine uptake since program implementation as well as cumulative vaccine coverage until December 2018 by age group. Multivariate logistic regression was used to analyse characteristics associated with higher vaccine coverage.

Results: In the targeted cohort (70-79 yrs) the adjusted average monthly vaccine uptake was 5.5% (N=51216) in 2016, 3.3% (N=49272) in 2017 and 1.7% (N=36155) in 2018 and cumulative vaccine coverage was 46.9% (25791/55034). This was substantially higher than non-targeted age groups. Among those 70-79 yrs, vaccine coverage differed by sex (women: 48.5% versus men: 45.1%); by jurisdiction (South Australia: 55.6% versus Northern Territory: 27.6%); by remoteness status (inner regional areas: 48.9% versus remote/very remote areas: 38.2%); and by socioeconomic advantage (high: 49.6% versus low: 41.8%).

Conclusions: Our estimates of HZ vaccine coverage are higher than the only other reported numbers based on the Australian Immunisation Register and we also found significant differences in coverage by population subgroups. The use of electronic medical records can complement other data for estimating vaccine coverage in Australian adults.

The case for policy change on passive immunisation for preventing CRS

Authors: Dr Megan Young[1], Prof Allan Cripps[1], Prof Graeme Nimmo[2]

Affiliation: [1]Griffith University, Southport, Australia, [2]Pathology Queensland, Brisbane, Australia

Abstract

Background: Congenital rubella syndrome is costly in terms of both morbidity and healthcare dollars. An effective vaccine exists and is the mainstay of prevention but is contraindicated in pregnant women. National recommendations for passive immunisation for non-immune pregnant women post-exposure to rubella historically suggest 20mL of normal human immunoglobulin (NHIG) within 72 hours may reduce the risk of foetal infection.

Methods: A Cochrane systematic review was conducted to establish the effectiveness of passive immunisation for preventing congenital rubella syndrome. Pharmacokinetic modelling estimated the minimum effective dose of rubella antibodies required for post-exposure prophylaxis. Current use of NHIG for this purpose in Australia was assessed and utilised to estimate the budgetary impact of recommended changes to the intervention.

Results: Passive immunisation appears effective for preventing rubella up to 5 days post-exposure, although there was insufficient evidence to make direct conclusions about effectiveness for preventing congenital rubella syndrome. Pharmacokinetic modelling estimated 0.5mL NHIG would be sufficient for pregnant women weighing up to 160kg. With no record of NHIG being used to prevent congenital rubella syndrome in Australia in recent years, the numbers of cases of congenital rubella syndrome notified between 2000 and 2018 were used to estimate the budgetary impact of recommending 0.5mL NHIG for a pregnant woman within five days of exposure. The maximum annual cost was estimated to be AU$422.

Conclusions: Considering the risk-benefit ratio of the intervention, Australian guidelines should be amended to actively recommend post-exposure passive immunisation for non-immune pregnant women within five days of rubella exposure.

4F - Reaching your COVID vaccine priority groups

Long Oral Presentations

Electronic consent form for school immunisation- technology bringing efficiencies to enhance engagement

Authors: Ms Annie Hackett, Ms Miriam West, Mr Ian Hunter, Helen Clifford[1]

Affiliation: [1]GOLD COAST HEALTH, GOLD COAST, Australia

Abstract

The Queensland requirement for schools to provide parent contact information to school immunisation program (SIP) providers means innovative new technology can impact immunisation consent returns, immunisation rates and staff workloads.

An independent reviewer (MPH student) interviewed key staff for opinions and feedback regarding pre and post implementation activities. Document analysis included standardised annual outcome reports (consent rates, cohort sizes, return rates), parent surveys and quality monitoring reports.

SIP paper consent forms were setup as electronic forms to be completed online in 2017 and communication of changes were communicated to school principals, key school contacts and parents. Parents/guardians were emailed a link to the electronic consent form which included immunisation information to ensure informed consent. Non returns were reminded with up to 3 text messages. Traditional paper-based consent forms were also delivered via courier to the schools for those unable to use the electronic system.

Post implementation, an increase of up to 16.8% was observed in consent submissions. Quality improvements were noted in consent processing, workflow factors and an increased connection between consumer and provider. Parents reported a high level of acceptance of the new system.

The use of electronic consent systems demonstrated improved consent form returns by addressing common barriers parents identified to immunisation consent submission processes. Once fully implemented, electronic consenting systems have multiple positive impacts on the efficiency and effectiveness of immunisation program service provision. This form of consenting system shows a potential to be adapted to other community-based health programs including COVID vaccine rollout.

Offering COVID-19 vaccine to Aboriginal Communities in South Eastern Sydney

Authors: Mrs Anne Allen, Professor Mark Ferson, Doctor Vicky Sheppeard, Ms Tracey Papa, Ms Natasha Larter, Mr Timothy Croft, Ms Tara Green, Ms Margaret Broadbent, Ms Seaneen Wallace, Ms Tiana Parashko, Mr Kevin Heath, Ms Susan Griffiths

Affiliation: [1]SESLHD Public Health Unit, Randwick, Australia

Abstract

Aboriginal and Torres Strait Islander adults are at greater risk of COVID-19 and developing serious illness due to higher rates of chronic health conditions and in some cases crowded living conditions. South Eastern Sydney Local Health District (SESLHD) is developing a program offering COVID-19 vaccination to local Aboriginal people. The Public Health Unit (PHU) is coordinating the program in collaboration with the District's Aboriginal Health Unit.

During the pandemic, the PHU established an Aboriginal Support Officer (ASO) Team made up of Aboriginal Health Workers to provide culturally safe and appropriate support to Aboriginal people identified as COVID -19 cases or contacts. Under the guidance of Aboriginal Health Workers, the PHU successfully delivered influenza clinics for Aboriginal people during lockdown. Feedback, integral to the success of these clinics, was maintaining strong relationships, and ongoing consultation with Aboriginal Health Workers and Aboriginal communities. This will be necessary to facilitate appropriate COVID-19 vaccination roll-out.

To establish COVID-19 clinics, the ASO Team has undertaken ongoing consultation with respective communities and organisations using an on-line survey; developed and promoted a webpage for central source of reputable COVID-19 information; facilitated community meetings to address vaccination questions and ensure vaccination roll-out provides equitable access for all Aboriginal people in SESLHD. One example to improve uptake has been vaccinating the ASO members first and sharing their experiences with the community. These strategies have assisted in ensuring this Aboriginal community consented to distributing important information and learnings about offering COVID-19 vaccine to Aboriginal communities which is transferable in public health in the future.

Due to early consultation it has identified the need for community-based COVID-19 clinics for Aboriginal people. The PHU and ASO Team will work together to offer community clinics, commencing Phase 1b of the National Program in April 2021. The data from these clinics will be presented

Coordinating allied healthcare student vaccination: lessons learned and application to COVID-19 vaccinations.

Authors: **Dr Caroline Crossley**[1], Professor Sandra Thompson[1]

Affiliation: [1]Western Australian Centre For Rural Health, Geraldton, Australia

Abstract

Background: Due to concerns about the adequacy of healthcare student immunisation rates and documentation, an audit was undertaken at a rural university placement site. Students attend from various states and universities, so the site allows for examination of healthcare student immunisation assurance processes at local, state and national levels.

Methods: In 2019, we reviewed allied health student immunisation compliance with Australian Immunisation Handbook recommendations at a University Department of Rural Health. Gaps in current processes, including vaccination documentation, were assessed through reviewing forms, guidelines and stakeholder feedback.

Results: Of 150 healthcare students, 26% provided evidence that they were immunised to national standards. Inconsistency of immunisation recommendations across universities, states and disciplines were identified. Moreover, whether responsibility for assuring immunisation compliance lay with universities or placement sites was ambiguous. Students provided immunisation information most commonly as university 'sign-off' forms. However, each form varied in requirements and terminology, making them difficult for supervisors to interpret. In particular, some forms stated only that a vaccine had been 'recommended' rather than given, and most forms were completed only once, which is problematic for vaccines requiring regular dosing or boosters.

Conclusions: Overall, these inconsistencies in existing healthcare student immunisation assurance processes revealed that further work towards more consistent and coordinated systems is required. The roll-out of the COVID-19 vaccination program offers a unique opportunity to reassess and reform these systems. Without this, we risk suboptimal student immunity and the potential for preventable COVID-19 infections in students who interface with vulnerable patients and the wider community.

P3 - Poster Presentations -
ePosters

Circulation and severity of respiratory syncytial virus subtypes in Australian children

Authors: Ms Gemma Saravanos[1,2], **Dr Isabelle Ramos[1]**, Associate Professor Nicholas Wood[1,2,3], Dr Philip Britton[1,3,4]

Affiliation: [1]The University of Sydney, Sydney, Australia, [2]National Centre for Immunisation Research and Surveillance, Sydney, Australia, [3]The Children's Hospital at Westmead, Sydney, Australia, [4]Marie Bashir Institute for Infectious Diseases and Biosecurity, Sydney, Australia

Abstract
Background: Respiratory syncytial virus (RSV) disease is a leading cause of hospitalisation in young children. Two antigenically distinct subtypes, RSV-A and RSV-B, are recognised. Differences between virus subtypes may have implications for assessing the efficacy and impact of future RSV vaccination strategies.

Methods: We retrospectively identified RSV-test positive children aged less than 16 years presenting to a tertiary/quaternary paediatric hospital from 2014 to 2018 inclusive. For each year, a representative, random sample of children testing positive for either RSV-A or RSV-B was selected. Demographic, clinical and subtype data was extracted from the medical record. Indicators of severity included admission type, length of stay, clinical syndrome, oxygen saturation at diagnosis, respiratory support requirement and intensive care admission. Features of each subgroup, RSV-A and RSV-B, were described and compared using appropriate statistical tests.

Results: A total 3749 RSV detections were identified during the five-year-period. Of these 1653 (44.1%) were RSV-A and 2096 (55.9%) were RSV-B. Co-circulation of subtypes occurred in all years with dominance of RSV-B evident in two years (2015 and 2017) and RSV-A in one year (2014). The demographics and clinical features of cases in representative subtype subgroups will be described and compared.

Conclusions: RSV-A and RSV-B co-circulation occurred in children presenting to this paediatric hospital during the study period. Understanding the presence of variation in circulation and disease severity between RSV subtypes in children presenting to hospital may inform future RSV vaccination strategies and associated surveillance.

To vaccinate or not: Immunisation disputes in the Family Law System

Authors: Ms Sonja Elia[1], Assoc. Prof Nigel Crawford[1,2,3]

Affiliation:[1]Royal Children's Hospital Melbourne, Parkville, Australia, [2]Murdoch Children's Research Institute, Parkville, Australia, [3]The University of Melbourne, Melbourne, Australia

Abstract
Clear context: It is known that Immunisation is one of the most successful public health measures. However, there are still parents who stand firm in their belief that vaccines are unsafe and cause significant side effects. The Immunisation Service at RCH provides advice to families who have questions/concerns about vaccines. But what about when separated parents war over whether to immunise their children. The 'No jab, No pay' and No play legislations came into effect on 1 January 2016 and has definitely impacted on Family Court disputes between separated parents in relation to immunisation of children.

Process and Analysis: From 2014-2019, the Immunisation Service at RCH has encountered 9 cases where immunisation was a major issue in dispute between the parents. The age of the children ranged from 23 months - 11 years. In all cases, the mother objected to immunisation of the child. These cases have placed the Immunisation medical and nursing staff in the frontline of the court process.

Outcomes: The decision to immunise falls under the scope of 'zone of parental discretion' and one parent could simply take a child to be vaccinated, knowing the other parent may well object. Our Immunisation service staff are reluctant to carry out vaccination in this instance for fear of professional repercussions and impact on the child in the context of a parental legal dispute. This presentation will discuss hypothetical cases and explore the ethical considerations of respecting parental differences with regards to immunisation, as well as considering the legal implications.

Starting Healthy habits early: Influenza vaccination among student health care workers

Authors: Dr Gabriela Willis[1], Professor Donna Mak[1,2], Dr Jelena Maticevic[1,2], Associate Professor Caroline Bulsara[6], Professor Max Bulsara[3], Emeritus Professor David Macey[4], Ms Maeve Berry[4], Ms Lauren Bloomfield[5], Dr Barry Combs[2], Professor Gervase Chaney[1], Dr Hollie Speake[1]

Affiliation:[1]School Of Medicine, University of Notre Dame, Fremantle, Australia, [2]Communicable Disease Control Directorate, Department of Health, East Perth, Australia, [3]Institute for Health Research, University of Notre Dame, Fremantle, Australia, [4]Murdoch University, Murdoch, Australia, [5]Edith Cowan University, Joondalup, Australia, [6]School of Nursing, University of Notre Dame, Fremantle, Australia

Abstract
Background: A 2014 study demonstrated low rates of influenza vaccination among health care worker [HCW] students at the University of Notre Dame [UND], 56% (95% CI 52-60%) overall weighted average, 53%, 57% and 61% for nursing, physiotherapy and medical students, respectively. Since then, annual influenza vaccination and/or documentation of influenza vaccination status has become mandatory for these students. On-campus influenza vaccination became available in 2018.

Method: HCW students at UND were invited to participate in online surveys of influenza vaccination uptake in 2018 and 2019. Semi-structured interviews were conducted to collect qualitative data on enablers and barriers to vaccination.

Results: A total of 422 students responded to the survey (199 in 2018 and 223 in 2019). The overall weighted vaccination rate of respondents was 91% (95% CI 88-93%) (79%, 90% and 95% for nursing, physiotherapy and medical students, respectively), a significant increase from 2014. Vaccination uptake in medical students increased from 83% (95% CI 76-90%) in 2018 to 99% (95% CI 96-100%) ($p<0.001$) after reporting of vaccination status was mandated in 2019.

Qualitative data regarding enablers, barriers, knowledge and understanding of influenza and the influenza vaccine, among HCW students and will be presented at the conference.

Conclusion: Influenza vaccination uptake among UND HCW students increased significantly following the introduction of mandatory vaccination/reporting of vaccination, and is higher than the 50% observed in HCWs employed by the WA Department of Health. It is hoped that this behaviour will continue after graduation upon entering workplaces where vaccination is not mandated.

Immunisation under nitrous oxide sedation at the Royal Children's Hospital Melbourne

Authors: Ms Nadine Henare[1], **Ms Sonja Elia[1]**

Affiliation: [1]Rch, Parkville, Australia

Abstract
Context: Sedation for immunisations is of particular importance in patients with anxiety disorders and/or needle phobia. The Nurse Practitioner (NP) in immunisation at the Royal Children's Hospital (RCH) Melbourne has facilitated addressing the deficiencies in the current management of needle phobic patients, by offering a unique immunisation under sedation service in the Immunisation Drop-in centre.

Process: Patients with needle phobia were previously referred to the Immunisation clinic to consult a paediatrician, and if available a bed booked on the same day in the Day Medical Unit. The patient then received immunisation's under nitrous oxide and/or Midazolam sedation. With the endorsement of an NP in the Immunisation Drop-in centre, the nitrous gases were installed so as to offer this service to patients in a less rigorous way.

Analysis: The sedation of patients in the Drop-in centre using nitrous oxide commenced in August 2018. From 01/08/2018 – 31/08/2019, 81 patients have accessed this service. Of the 81 needle phobic patients, 74 (91%) have been successfully immunised. Of the 7 who were unsuccessful, the family was offered the Midazolam and/or nitrous oxide Day Medical admission, but none have followed this up. One patient did have the vaccines at a GP visit.

Outcomes: Using nitrous oxide sedation in the Immunisation Drop-in centre has been extremely positive with 91% of referred patients able to receive due/overdue vaccines. The endorsement of an NP in immunisation at the RCH has demonstrated improved efficiencies in service delivery for needle phobic patients.

Maternal Immunisation Uptake Audit at the Women's and Children's Hospital, North Adelaide

Authors: **Kathryn Riley[1,2]**, Mary Walker[1], Michelle Clarke[1,2], Professor Helen Marshall[1,2]

Affiliation: [1]Women's And Children's Hospital Network, North Adelaide, Australia, [2]Robinson Research Institute and Adelaide Medical School, University of Adelaide, Adelaide, Australia

Abstract
Background: Immunisation during pregnancy offers a mechanism to protect not only pregnant women but also their infant from serious infectious diseases. Influenza immunisation for pregnant women has been provided in Australia since 2010. In 2015, South Australia introduced a funded program for women to receive diphtheria-tetanus-acellular pertussis vaccine during each pregnancy. Although funded and recommended for pregnant women, there is little information about the uptake of this maternal immunisation program. It is essential that the uptake of vaccines recommended during pregnancy is monitored to ensure pregnant women and their infants are protected against these diseases.

Methods: Maternal immunisation data for influenza and pertussis vaccination was collected via medical case notes of women who delivered at the Women's and Children's Hospital during August 2016 and 2017. The percentage of women receiving influenza and pertussis vaccination during pregnancy was calculated and compared by year using chi square tests.

Results: 846 medical case notes were reviewed of women who delivered at the Women's and Children's Hospital during August 2016 and 2017. In 2016, 49% (n=196/402) of women received an influenza vaccination during pregnancy which increased to 58% (n=259/444) in 2017($p=0.004$). In 2016, 62% (n=249/402) of women received a pertussis vaccination during pregnancy which increased to 71% (n=317/444) in 2017($p=0.004$)

Conclusion: Our results showed that maternal immunisation uptake increased over time and that pregnant women had a higher uptake of pertussis vaccination than influenza vaccination. However, the uptake of pertussis and influenza vaccination during pregnancy remains suboptimal for this important vulnerable population.

Public health impact of using high dose influenza vaccine in older Australians

Authors: Prof. Raina Macintyre[1], Dr J. Kevin Yin[2,3], Dr Edward Thommes[4,5], Dr Fabián P Alvarez[6], Dr Aye M Moa[1], Dr Nathalie Largeron[6], Dr Robertus van Aalst[4,7]

Affiliation: [1]Kirby Institute, University of New South Wales, Sydney, Australia, [2]Regional Medical Affairs, Sanofi Pasteur, , Asia & JPAC, [3]Faculty of Medicine and Health, The University of Sydney, Sydney, Australia, [4]Regional Epidemiology and Health Economics, Sanofi Pasteur, Swiftwater, USA, [5]Department of Mathematics and Statistics, University of Guelph, Guelph, Canada, [6]Health Economics and Value Assessment, Sanofi Pasteur, Lyon, France, [7]Department of Health Sciences, University Medical Center Groningen, University of Groningen, the Netherlands

Abstract

Introduction and Objectives: Older adults (≥65) are at increased risk of influenza-associated hospitalisation and death. Since 2018 two influenza vaccines have been registered in Australia exclusively for this population: high dose trivalent unadjuvanted vaccine (HD-TIV; Fluzone® High-Dose) and standard dose trivalent MF59-adjuvanted vaccine (aTIV; Fluad®). In 2019 only aTIV was publicly funded for older Australians.

A recent study directly comparing HD-TIV with aTIV estimates that HD-TIV was 12% (95% CI 3.3–20%) more effective in preventing respiratory hospitalisations in older adults. Here we applied this finding to estimate incremental benefits of HD-TIV over aTIV in Australia.

Methods: A decision tree model estimated the rate of respiratory hospitalisation for older-Australians over the peak period of influenza circulation from International-Classification-of-Diseases (ICD-10th Revision)-coded admissions (J00-99 as the principal diagnosis) over 16 seasons (2001–2017 excluding 2009 pandemic) in Australia. Key model inputs also included the national influenza vaccine coverage, and the unit cost of hospitalisation from Australian Refined Diagnosis-Related Groups.

Results: The average respiratory hospitalisation rate for older Australians when influenza circulates was 3,774/100,000 population. The average cost of such a hospitalisation was AU$7,171.

A publicly funded program in Australia using HD-TIV may avert an additional 10,038–11,195 respiratory admissions amongst older adults each year. Accordingly, the incremental cost avoidance per year may be AU$72.0–80.3 million.

Conclusion: Using HD-TIV instead of aTIV for older Australians could lead to substantial incremental health and economic gains due to reduction in respiratory hospitalisations. Respiratory admissions complement other influenza-related complications that drive the value of HD-TIV.

Funded by Sanofi Pasteur

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