

**1397. Long term impact of the 13-valent pneumococcal conjugate vaccine use in infant immunization program on all-cause pneumonia hospitalizations in British Columbia, Canada: a time series analysis**

Nirma Khatri Vadlamudi, BA, BS, MPH<sup>1</sup>; David M. Patrick, MD, MHSc, FRCPC<sup>2</sup>; Linda Hoang, MSc, MD, DTM&H, FRCPC<sup>3</sup>; Caren Rose, PhD<sup>4</sup>; Mohsen Sadatsafavi, MD, PhD<sup>5</sup>; Fawziah Marra, BSc (Pharm), PharmD<sup>5</sup>; <sup>1</sup>Faculty of Pharmaceutical Sciences, The University of British Columbia, Vancouver, British Columbia, Canada; <sup>2</sup>University of British Columbia, VANCOUVER, BC, Canada; <sup>3</sup>British Columbia Center for Disease Control, Vancouver, BC, Canada; <sup>4</sup>University of British Columbia, Vancouver, BC, Canada; <sup>5</sup>British Columbia Centre for Disease Control, Vancouver, BC, Canada; <sup>6</sup>University of British Columbia, Vancouver, British Columbia, Canada, Vancouver, BC, Canada

**Session:** P-63. Pediatric Vaccines

**Background.** Pneumonia is a leading cause of hospitalization and in-patient mortality globally. We determined the impact of 13-valent pneumococcal conjugate vaccine (PCV13) use on all-cause pneumonia hospitalization rates eight years after the vaccine was introduced in British Columbia, Canada.

**Methods.** Routine administrative databases, such as, hospital discharge abstract databases, registry and demographics were used to build the cohort. Overall and age-specific all-cause pneumonia hospital admissions per month (Jan 2000 to Dec 2018) for those aged < 2 years, 2-5 years, 6-17 years, 18-64 years and ≥ 65 years were obtained using International Classification of Diseases 9 and 10 codes (480-486, J12-J18). Changes in the all-cause pneumonia hospitalization incidence rates before and after the PCV13 vaccine program introduction were evaluated using a negative binomial regression and time-series modelling while adjusting for seasonality, influenza-likeness illnesses, 7-valent pneumococcal conjugate vaccine (PCV7) program and pre-PCV13 vaccine secular trends.

**Results.** Long term use of the PCV13 vaccine in the infant immunization program was associated with significant declines in all-cause pneumonia hospitalization rates among all children, < 2 years (IRR: 0.63; 95% Confidence Interval (CI): 0.59-0.67), 2-5 years (IRR: 0.82; 95%CI: 0.77-0.87) and 6-17 years (IRR: 0.73; 95%CI: 0.69-0.78). All-cause pneumonia rates did not change significantly in those aged 18-64 years (IRR: 0.98; 95%CI: 0.96-1), whereas a modest increase was observed in those 65 years and over (IRR: 1.05; 95%CI: 1.02-1.07). Consequently, we did not observe significant change in the overall rate (IRR: 1.02; 95%CI: 1-1.02).

**Conclusion.** Significant reduction in all-cause pneumonia hospitalization rates in children demonstrates long term beneficial effect of PCV13 use. A modest increase in all-cause pneumonia hospitalization rates in adults aged 65 years and over indicates a need for further microbial investigation.

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**1398. Maternal Knowledge and Perceptions about Routine Immunisation in a Slum Area of Pakistan**

Ghulam Mustafa, M.B.B.S, F.C.P.S<sup>1</sup>; Abdul Mannan Mustafa, M.B.B.S<sup>2</sup>; <sup>1</sup>Children hospital and the institute of child health, Multan, Punjab, Pakistan; <sup>2</sup>CMH Institute of Medical Sciences, Multan, Multan, Punjab, Pakistan

**Session:** P-63. Pediatric Vaccines

**Background.** To know the baseline coverage and potential obstacles for children vaccination before starting a health awareness program.

**Methods.** A cross sectional study on immunization coverage in the slum area of Multan, Pakistan was conducted and a total of 312 mothers were interviewed face to face for Knowledge, Attitudes, and Perceptions (KAP).

**Results.** Among the children less than 3 years, 33 % fully, 46 % partially and 21 % were not at all immunized. High levels of BCG and OPV zero rates (79%) and low rates of OPV3/DPT3 (48%) and measles (41%) vaccines were found. Majority of the mothers were satisfied with the program. Most of the mothers were aware about the importance of vaccination but were ignorant for the need to complete the schedule. There were many misconceptions and beliefs among the mothers of partial and unimmunized children. The majority were of view that vaccines contain ingredients that will make the children infertile.

**Conclusion.** There is a need to enhance the maternal knowledge about the vaccine preventable diseases and importance of completing the immunization schedule. Also the misconception about the vaccines need be specifically addressed.

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**1399. Parental Perceptions of the Childhood Vaccination Schedule and Combination Vaccines in the United States (US)**

Tanaz Petigara, PhD<sup>1</sup>; Xinyi Ng, PhD<sup>2</sup>; Ya-Ting Chen, PhD<sup>3</sup>; Jyoti Aggarwal, MHS<sup>4</sup>; Jenna Bhaloo, MPH<sup>5</sup>; Michelle Goveia, MD<sup>6</sup>; David Johnson, MD, MPH<sup>7</sup>; Gary S. Marshall, MD<sup>8</sup>; <sup>1</sup>Merck & Co., Inc., Philadelphia, Pennsylvania; <sup>2</sup>Pharmerit International, Bethesda, Maryland; <sup>3</sup>Merck, North Wales, PA; <sup>4</sup>Sanofi Pasteur, Swiftwater, PA; <sup>5</sup>University of Louisville, Louisville, KY

**Session:** P-63. Pediatric Vaccines

**Background.** Ten different vaccine series are recommended by the US Advisory Committee on Immunization Practices from birth to 18 months. Combination vaccines can reduce the number of injections and visits required to complete the schedule

in a timely manner. There is limited current information on parents' perception of the vaccine schedule and combination vaccines.

**Methods.** An online survey was completed by 100 parents who had at least one child under 2 years, were involved in vaccination decisions, and had accompanied their child to a vaccination appointment. Parents who reported not ever vaccinating their children were excluded. Parents' perception of, and adherence to, the recommended schedule, communication with providers, and knowledge of combination vaccines were collected. Descriptive analyses were performed.

**Results.** Ninety-six percent of parents (mean age=30.7 years; range 19.0-50.0; 91% white) reported their provider as a source of vaccination information, followed by internet searches (63%), family and friends (45%). Most (84%) followed all their provider's recommendations and trusted the information given to them (87%). State day care and pre-school requirements influenced vaccination decisions for nearly 80% of parents.

Over 80% of parents thought it is important to protect against diseases covered by the vaccination schedule. One-third had at some time asked to delay or not administer vaccines; depending on the vaccine, up to 50% ultimately had their child vaccinated as recommended. Top reasons for delaying vaccination were to avoid crying and pain from multiple injections (82%), and the concern that too many vaccines would overwhelm the immune system (64%). Top reasons for refusal were religious views (57%) and the belief that the vaccine was not needed (52%).

On average, parents would accept their child receiving 3 injections in one visit. Most parents were aware of combination vaccines (84%); however, one-third reported that their child had not received, or they were unaware of their child receiving, a combination vaccine.

**Conclusion.** Providers are in a strong position to influence vaccination decisions by parents. Whereas parents are motivated to avoid the pain of multiple injections, many are unaware that their children are receiving combination vaccines.

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**1400. Physician Attitudes towards Combination Vaccine Use in Infants up to 24 months of age in the United States (US)**

Ya-Ting Chen, PhD<sup>1</sup>; Xinyi Ng, PhD<sup>2</sup>; Tanaz Petigara, PhD<sup>3</sup>; Jyoti Aggarwal, MHS<sup>4</sup>; Jenna Bhaloo, MPH<sup>5</sup>; Michelle Goveia, MD<sup>6</sup>; David Johnson, MD, MPH<sup>7</sup>; Gary S. Marshall, MD<sup>8</sup>; <sup>1</sup>Merck, North Wales, PA; <sup>2</sup>Pharmerit International, Bethesda, Maryland; <sup>3</sup>Merck & Co., Inc., Philadelphia, Pennsylvania; <sup>4</sup>Sanofi Pasteur, Swiftwater, PA; <sup>5</sup>University of Louisville, Louisville, KY

**Session:** P-63. Pediatric Vaccines

**Background.** Combination vaccines reduce the number of injections and improve the timeliness of vaccination coverage. US Advisory Committee on Immunization Practices (ACIP) recommendations state that combination vaccines are generally preferred over equivalent individual component vaccines. Healthcare providers strongly influence parental decisions about vaccination. We sought a contemporary understanding of physician's attitudes towards combination vaccine use in infants.

**Methods.** We conducted an online survey of US physicians (70 pediatricians and 30 family practitioners) who administer vaccines to infants aged 0-24 months and spend at least 2 days a week providing patient care. Information was collected on attitudes towards combination vaccines and factors that influence the choice of combination vaccine used in clinical practice. Descriptive analyses were performed.

**Results.** Physicians (mean age=50.2 years, range 30.0-70.0; 66% white; 37% women) reported a median of 4 injections (range 2-9) as the maximum that parents would accept at a single visit, and 71% routinely explained what combination vaccines are to parents. When deciding which pentavalent vaccine to use, physicians considered how the brand fits into the current vaccine schedule (71%); upfront purchase costs (64%); and availability as a prefilled syringe (61%). The main reasons for using combination vaccines were to reduce the number of injections (96%); ensure the infant is up-to-date with vaccinations (86%); and reduce the pain that the infant experiences with multiple injections (68%). More than half reported that their institution or practice has a program to incentivize infant vaccination according to schedule. If a hexavalent vaccine-based schedule was available, 76% of physicians said they would choose it over their current schedule comprising pentavalent or equivalent component vaccines.

**Conclusion.** Choice of pentavalent combination vaccine among pediatricians and family practitioners was largely dependent on convenience and cost-related factors. Over three-quarters would be inclined to use a hexavalent vaccine schedule if available.

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