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#### 2468. Impact of a Herd Immunity Educational Intervention on Parental Concern About Measles

Bridget Griffith, MPH<sup>1</sup>; Brandon Koch, PhD<sup>2</sup>; Andy Becker, PhD<sup>2</sup>; Dawn Nederhoff, MPH<sup>3</sup>; Fareed Awan, PhD<sup>3</sup> and Nicole Basta, PhD, MPH<sup>1</sup>; <sup>1</sup>Epidemiology and Community Health, University of Minnesota School of Public Health, Minneapolis, Minnesota, <sup>2</sup>Biostatistics, University of Minnesota School of Public Health, Minneapolis, Minnesota, <sup>3</sup>Philosophy, University of Minnesota College of Liberal Arts, Minneapolis, Minnesota

**Session:** 252. Vaccine Policy and Hesitancy

*Saturday, October 6, 2018: 12:30 PM*

**Background.** Maintaining high coverage of measles, mumps, and rubella (MMR) vaccination is important for preventing outbreaks and maintaining herd immunity (HI), which benefits both individuals and communities. We aimed to determine whether information about the benefits of HI and local MMR vaccination rates could change a parent's concern about their child's risk of contracting measles.

**Methods.** We conducted a survey at the 2016 Minnesota State Fair among Minnesota residents ≥18 years who had at least one child aged 6–18 years. Participants were asked to choose the correct definition of HI, to estimate the MMR vaccination coverage in their county, and guess the minimum MMR vaccination coverage needed to prevent measles outbreaks. We delivered an educational intervention through the interactive survey informing participants about the benefits of herd immunity, the actual MMR coverage in their county, and that ≥95% coverage is needed to prevent outbreaks. Before and after the educational intervention, participants were asked to report their level of concern about their child contracting measles. We calculated adjusted predicted percentages from logistic regression models to evaluate changes in concern about risk pre- and post-intervention and to assess factors associated with concern about measles.

**Results.** Among the 493 participants, 92.7% reported vaccinating their child with MMR, though one third were not familiar with HI. Prior to receiving information, those knowledgeable about HI were significantly more likely to be concerned about their child getting measles (predicted percentage 80.2% [95% CI: 75.7–84.6]) than those who were unfamiliar with HI (predicted percentage 69.8% [95% CI: 62.1–77.5]),  $P$ -value for the difference = 0.027. Participants believed that MMR vaccination was, on average, 9.0% [95% CI: 6.9–11.0] lower than the actual coverage in their local area.

**Conclusion.** Information about HI and local vaccination coverage rates did not impact parental concern about their child being at risk for getting measles. Overall, parents learned that local MMR vaccination rates were higher than they had expected.

**Disclosures.** All authors: No reported disclosures.

#### 2469. Knowledge, Attitudes, Confidence, and Hesitancy Toward Vaccines Among Residents in Pediatric and Family Practice Programs

Barbara Pahud, MD MPH<sup>1</sup>; S Elizabeth Williams, MD, MPH<sup>2</sup>; Brian R. Lee, MPH, PhD<sup>3</sup>; Shannon Clark, MPH, CCRC<sup>4</sup>; Kadriye O Lewis, EdD<sup>5</sup>; Don Middleton, MD<sup>6</sup> and Sharon Humiston, MD, MPH<sup>7</sup>; <sup>1</sup>Pediatric Infectious Diseases, Children's Mercy Hospital, Kansas City, Missouri, <sup>2</sup>Vanderbilt University School of Medicine, Nashville, Tennessee, <sup>3</sup>Health Outcomes, Children's Mercy Kansas City and University of Missouri-Kansas City SOM, Kansas City, Missouri, <sup>4</sup>Infectious Diseases, Children's Mercy Hospitals and Clinics, Kansas City, Missouri, <sup>5</sup>Pediatrics, Children's Mercy Hospital, Department of Pediatrics, UMKC School of Medicine, Kansas City, Missouri, <sup>6</sup>University of Pittsburgh Medical Center St. Margaret's, Pittsburgh, Pennsylvania, <sup>7</sup>Pediatrics, Children's Mercy Hospital, Kansas City, Missouri

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**Background.** Healthcare provider immunization education is vital to accurately address concerns regarding vaccines, but such training is not standardized across residency programs. To assess educational needs and develop a vaccine curriculum for pediatric (Peds) and family medicine (FM) residents, the Collaboration for Vaccination Education and Research (CoVER) was established. There is a need to identify knowledge, attitudes, and hesitancy regarding vaccines among residents.

**Methods.** In July 2017, an anonymous 30-item survey was sent to residents from 26 US institutions participating in CoVER. Items included (1) vaccine knowledge, (2) attitudes toward vaccines, (3) resident vaccine hesitancy, and (4) demographics. Differences in proportions were calculated using Fisher's Exact test while the Kruskal-Wallis test was used to compare continuous outcomes.

**Results.** Of 1,447 residents invited, 746 completed the survey (52% response rate). Among participants, 12 were excluded due to inability to determine residency type and or year. The final cohort consisted of 734 residents (Table 1). Knowledge (Figure 1): Percent correct increased with residency year from PGY1 to PGY4 (49%, [95% CI 47–51]; 64% [95% CI 58–70]; test for trend  $P < 0.001$ ). Compared with FM residents, Peds residents were more likely to answer knowledge questions correctly (56%; 49%;  $P < 0.001$ ). Attitudes (Table 2): Confidence in communicating with parents increased with training ( $P < 0.001$ ) but confidence in vaccination did not. Hesitancy (Figure 2): Three percent of residents ( $n = 21$ ) self-reported as vaccine hesitant. They were more likely to be FM (75%,  $P < 0.001$ ). Residents were more likely to delay a vaccine in someone without a medical contraindication with increased year of training ( $P < 0.001$ ).

**Conclusion.** This initial assessment of the residents' knowledge, attitudes and hesitancy shows that despite increasing knowledge with training, vaccine confidence was unaffected. It was surprising to find hesitancy among residents, highlighting the need for further vaccine education. Future steps include evaluation of a vaccine education curriculum in residency training to increase confidence in the benefits of vaccination.

**Disclosures.** **B. Pahud**, Pfizer Foundation: Grant Investigator, Research grant. GlaxoSmithKline: Investigator, Salary. Alios Biopharma/Janssen: Investigator, Salary. Pfizer: Consultant, Consulting fee and Speaker honorarium. Seqirus: Consultant, Consulting fee. Sanofi Pasteur: Consultant, Consulting fee. **B. R. Lee**, PCORI: Grant Investigator, Research grant. KCALS: Grant Investigator, Research grant. Merck: Investigator, Salary. **D. Middleton**, Merck: Scientific Advisor, Consulting fee. Pfizer: Scientific Advisor, Consulting fee. GlaxoSmithKline: Scientific Advisor, Consulting fee. Sanofi Pasteur: Scientific Advisor, Consulting fee.

#### 2470. The Effect of Information–Motivation–Behavioral Skills Model-Based Continuing Medical Education on Pediatric Influenza Immunization Uptake: A Randomized, Controlled Trial

William Fisher, PhD, FCAHS<sup>1,2</sup>; John Yaremko, MD<sup>3</sup>; Vivien Brown, MD<sup>4</sup>; Hartley Garfield, MD<sup>5</sup>; Emmanouil Rampakakis, PhD<sup>6</sup>; Constantina Boikos, MScPH, PhD<sup>7</sup> and James A. Mansi, PhD<sup>8</sup>; <sup>1</sup>Department of Psychology, Western University, London, ON, Canada, <sup>2</sup>Department Obstetrics and Gynaecology, Western University, London, ON, Canada, <sup>3</sup>McGill University, Montreal, QC, Canada, <sup>4</sup>University of Toronto, Toronto, ON, Canada, <sup>5</sup>The Hospital for Sick Children, University of Toronto, Toronto, ON, Canada, <sup>6</sup>JSS Medical Research Inc., Westmount, QC, Canada, <sup>7</sup>Research and Development, Seqirus, Kirkland, QC, Canada, <sup>8</sup>Research & Development, Seqirus, Kirkland, QC, Canada

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**Background.** Seasonal vaccination against influenza is the most important public health strategy to prevent influenza morbidity and mortality in children 6–23 months of age. However, influenza immunization uptake in this population remains sub-optimal. While parents look to healthcare professionals (HCPs) for guidance, HCPs may be neither aware of the burden of influenza disease in infants nor familiar with ways to address parental influenza vaccine hesitancy. The objective of this research was to describe the impact of an Information–Motivation–Behavioral Skills model (IMB)-based, accredited, online Continuing Medical Education (CME) program on seasonal influenza vaccination in children 6–23 months of age in Ontario, Canada during the 2016/2017 influenza season.

**Methods.** A multi-center, randomized, controlled trial was conducted whereby HCPs were randomized to either an accredited IMB-based CME or to routine practice (no CME). The CME addressed influenza burden in young children and identified parental barriers (hesitancy) to influenza vaccination, designed to inform, motivate, and upskill HCPs. All vaccine options were reviewed, including the adjuvanted, trivalent, inactive, influenza vaccine (aTIV). Immunization rates were compared between groups using Pearson's chi-squared and a logistic regression model adjusting for socio-economic status at the clinic-level.

**Results.** A total of 68 HCPs were recruited: 33 randomized to the CME group and 35 to routine practice. HCP interactions with parents were evaluated during 628 visits: 292 visits by HCPs in the CME group and 336 by HCPs in the routine practice group. Parents seen by HCPs in the CME group were ~30% more likely to agree to immunize their child with seasonal influenza vaccination compared with parents seen by HCPs in the control group ( $P = 0.007$ ). The adjusted odds of influenza immunization were 1.5 times higher in the CME group compared with the control group. Children in the CME group were ~20% more likely to receive aTIV compared with children in the control group ( $P < 0.001$ ).

**Conclusion.** HCP education with a tailored health behavior uptake model based CME addressing the burden of influenza disease in young children and influenza vaccine hesitancy was associated with a significant increase in influenza immunization.

**Disclosures.** **W. Fisher**, Seqirus: Consultant and Investigator, Consulting fee and Speaker honorarium. **J. Yaremko**, Seqirus: Collaborator and Investigator, Speaker honorarium. **V. Brown**, Seqirus: Investigator, Speaker honorarium. **H. Garfield**, Seqirus: Investigator, Speaker honorarium. **E. Rampakakis**, Seqirus: Independent Contractor, Consulting fee. **C. Boikos**, Seqirus: Employee, Salary. **J. A. Mansi**, Seqirus: Employee and Shareholder, Salary.

#### 2471. The State of Cost-Utility Analyses in Vaccines: A Systematic Review

Jason Lee, MSc, MBiotech<sup>1,2</sup>; Patricia Lu, PharmD, RPh<sup>1,2</sup>; Gary Lam, PharmD, RPh<sup>1,2</sup>; Thomas Shin, MA, MPH<sup>1,3</sup> and Ayman Chit, MBiotech, PhD<sup>2,4</sup>; <sup>1</sup>Sanofi Pasteur, Toronto, ON, Canada, <sup>2</sup>Leslie Dan School of Pharmacy, University of Toronto, Toronto, ON, Canada, <sup>3</sup>Department of Mathematics and Statistics, York University, Toronto, ON, Canada, <sup>4</sup>Sanofi Pasteur, Swiftwater, Pennsylvania

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**Background.** Economic evaluations are a major consideration of public health decisions on vaccine programs. Given the growth in the number of published cost-utility analyses of vaccines, we sought to better understand global trends in these studies by describing trends in growth, quality, and study findings in the published literature over time.

**Methods.** We reviewed published economic evaluation of vaccines using the Tufts CEA Registry, a comprehensive database of 5,546 published healthcare related