**Title:**
The Effectiveness of Combined Appointments and Influenza Immunization Rates in a Rural WIC Population

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**Session Title:**
Rising Stars of Research and Scholarship Invited Student Posters

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**Keywords:**
acceptability of immunizations, pediatric influenza immunizations and public health

**References:**
Becart, E. (2014). *Meta-analysis of barriers and boosters from 78 coverage assessments supported by the CMN.* Retrieved from http://www.coverage-monitoring.org/wp-content/uploads/2014/04/BB-meta-analysis-FV.pdf

Bennett, K., Bennett, K.J., Pumkam, C., & Probst, J.C. (2011). Rural-urban differences in the location of influenza vaccine administration. *Vaccine, 29,* 5970-5977.

Cohen, V., Jellinek-Cohen, S.P., Likourezos, A., Lum, D., Zimmermand, D.E., Willner, M. A., …Marshall, J. P. (2013). Feasibility of a pharmacy-based influenza immunization program in an academic emergency department. *The Annals of Pharmacotherapy, 47,* 1440-1447. Doi:10.1177/1060028013502456

Dawood, F.S., Iuliano, A. D., Reed, C., Meltzer, M.I., Shay, D.K., Cheng, P., …Widdowson, M. (2012), Estimated global mortality associated with the first 12 months of 2009 pandemic influenza A H1N1 virus circulation: A modeling study. *Lancet, 12,* 687-695.

Groom, H., Hopkins, D.P., Pabst, L.J., Morgan, J.M., Patel, M., Calonge, N., ... Zucker, J. (2015). Immunization information systems to increase vaccination rates: A community guide systematic review. *Journal of Public Health Management & Practice, 21*, 227-248. doi: 10.1097/PHH.0000000000000069

Hongvivatana, T. (1984). Data analysis: Social science perspective. *SEARO Technical publication no. 4: Evaluating primary health care in South-East Asia, proceedings of a regional seminar.* New Delhi, World Health Organization Regional Office for South-East Asia: World Health Organization.

Monto, A. S., Davenport, F. M., Napier, J. A., & Francis, Jr., T. (1970). Modification of an outbreak of influenza in Tecumseh, Michigan by vaccination of schoolchildren. *Journal of Infectious Diseases, 122*, 16-25.

Paskett, E., Thompson, B., Ammerman, A.S., Ortega, A.N., Marsteller, J. & Richardson, D. (2016). Multilevel interventions to address health disparities show promise in improving population health. *Health Affairs, 35,* 1429-1434. doi: 10.1377/hlthaff.2015.1360

Tanahashi, T. (1978). Health service coverage and its evaluation. *Bulletin of the World Health Organization, 56 (2),* 295-303.

UNICEF (2013, December). *Reaching universal health coverage through district health system strengthening: Using a modified Tanahashi model sub-nationally to attain equitable and effective coverage.* Retrieved from http://www.unicef.org/health/files/DHSS_to_reach_UHC_121013.pdf

**Abstract Summary:**
Understanding how to increase childhood influenza immunizations is necessary for prevention of illness. The purpose of this activity is to examine predictors and barriers to influenza immunization in a rural low-income WIC population. Implementation of these results may also increase overall rates of childhood immunizations.

**Learning Activity:**

| LEARNING OBJECTIVES | EXPANDED CONTENT OUTLINE |
|---|---|
| The learner will be able to identify predictors that influence the likelihood a care-giver will have their child receive an influenza immunization | Information will be provided which introduces potential predictors identified in Tanahash's Access to Care model. These predictors are examined and the strongest predictor as to whether or not a care-giver will have their child receive an influenza immunization is identified. This will be delivered through a poster presentation and discussion. |
| The learner will be able to identify a strategy to increase the rate of immunization | This will be accomplished through discussion and presentation of the data which supported offering an influenza at the time of the visit increased the rate of immunizations. This will be delivered through a poster presentation and discussion. |

**Abstract Text:**

**Purpose**: The purpose of this descriptive retrospective study was to examine predictors and barriers to influenza immunizations receipt in a low-income WIC population. It is hypothesized that combining the WIC appointment and the immunizations at the time of the appointment will likely increase the rates of influenza immunizations.

**Method**: A quality improvement project was conducted in October 2010 in which 129 caregivers of children having WIC appointments were randomly assigned to receive (a) influenza immunizations at the time of the WIC visit or (b) educational materials and a later immunization. Caregivers completed a survey about their perceptions of influenza immunizations. Tanahashi's access to care model (1978) was used to identify predictors (acceptability, accessibility, availability, and effectiveness) of influenza immunizations.

**Analysis**: Analysis of data collected from September to November 2010, chi-square test was performed to assess the relationship between group assignment and immunization receipt. Logistic regression was used to examine the relationship of the dependent variable, immunization receipt, with the potential variables of acceptability, accessibility, availability, and effectiveness.

**Results**: Participants who received only the educational materials and an opportunity to receive an immunization at a later date were less than half as likely to get immunized (15.6%) as those who were offered a same day influenza immunization (39.3%). There was a statistically significant association between whether or not influenza immunization was offered at the time of the WIC appointment and the rate of influenza immunization, $\chi^2(1)=7.905$, $p=.005$. The acceptability scale (Tanahashi's model) was a

significant predictor (AOR = 2.261, p = .019) of immunization receipt but items measuring accessibility, availability, and effectiveness were not significant predictors (*p*s all > .16).

**Conclusions**: These findings suggest that offering immunizations at the time of a WIC appointment may increase overall rates of childhood immunizations. Further research with Tanahashi's model is needed.