

# ESTIMATING THE ECONOMIC IMPACT OF THE PNEUMOCOCCAL CONJUGATE VACCINE IN NEPAL: DATA COLLECTION CHALLENGES

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## INTRODUCTION

- Data on the economic impact of pneumococcal conjugate vaccine (PCV) for families and the healthcare system are important to sustain support for a vaccine program that began rolling early 2015.
- We present methods used to estimate the economic impact of PCV in Nepal to illustrate data collection challenges. This study is embedded in the PCV impact evaluation (PneumoNIA) program to estimate the cost of pneumococcal disease and the proportion of household experiencing catastrophic health expenditure due to pneumococcal disease. The discussion surrounding data collection challenges is preliminary as data collection activities for this study have not concluded.

## METHODS

- We are prospectively collecting resource utilization data, out-of-pocket expenditure data and demographic data on children aged 1-59 months hospitalized for pneumonia, meningitis and sepsis from five hospitals in Nepal (Figure 1).

FIGURE 1: Study sites in Nepal



TABLE 1: Data collection forms

Data Collection Forms	Time of Completion	Frequency Completion	Data Source
Participant Consent and Enrollment (Paper Only)	At the time of informed consent.	One time	Consenting Caregiver
E-Patient Characteristics Form	Within 24 hours after admission to hospital and study enrollment	One time	Inpatient Medical Record(s)
E-Pre-Hospitalization Out-of-Pocket Expenditures		One time	Caregiver Interview
E-Daily Out-of-Pocket Expenditures	Each day during the patient's hospitalization.	Multiple times	
E-Household Demographics	One day prior to discharge or morning of discharge	One time	Inpatient medical record
E-Hospitalization Resource Utilization	Within 48 hours after hospital discharge	One time	
E-Participant Study Termination	Within 24 hours of consent withdrawn or loss to follow-up	One time	Caregiver and inpatient medical record

## RESULTS

- Seven data collection forms (Table 1) were developed to collect information described in Figure 2. All caregiver interviews were translated to Nepali using simple language.
- A 3-day training gave Medical Officers (2 per site) and Hospital Co-Investigators (1 per site) an opportunity to review data collection tools, provided role playing opportunities and practice of data abstraction and interview skills. It also provided an opportunity to identify data collection challenges and make adjustments to data collection tools. Training was followed by 2 days of practice and observation at each hospital.
- A handbook was developed to describe data collection tools and approaches to collect, enter and monitor data.
- All data collection forms were piloted 2 weeks in April 2016 following training and focused on assessing the flow of data. Challenges of completing data collection and entry and monitoring procedures were identified during training, as well as during the pilot study and subsequent data collection activities.
- Full data collection began May 1, 2016.
- For more information about the study methodology and preliminary study findings refer to posters ISPPD-096 and ISPPD-097.

- All forms were found to be appropriate for data collection pertaining to study.
- The quality of medical records and billing records and amount of information contained in these records varied across hospitals.
- Gaining access to patient billing information and resource price lists required additional engagement with the hospital administration and billing offices.
- Some caregivers of patients in intensive care were not willing to participate in interviews. To ensure the costs of the severe cases were captured while maintaining respect for families' wishes, the protocol was updated to obtain consent for review of medical records only without the daily interviews that were more extensive and took longer to complete.
- External factors, including the earthquake in April 2015 and national fuel crisis in fall/winter 2016, had the potential to impact generalizability due to changes in household income and expenditures and care-seeking behaviour.
- Key differences at the study hospitals were identified during the trainings and piloting that required revisions to the data collection forms and study protocol:
  - Caregivers must purchase medications and medical supplies outside the hospital at Dharan, Kanti, and Nepalgunj hospitals, while Patan and Tansen hospitals provide these in hospital. Data collection forms were edited to ensure all expenses and resource use data is captured.
  - Costs of tests and procedures vary significantly between hospitals and change 2-4 times a year requiring price lists to be collected from each hospital multiple times throughout data collection.
  - Admissions to hospitals in Dharan and Nepalgunj are lower than expected due to the growing number of other public and private health facilities in those regions.

## CONCLUSION

- There are many data collection challenges that can be overcome through careful planning of data collection, data entry and data monitoring procedures.
- Prospective data collection yields detailed economic data necessary for use in a variety of economic evaluations and minimizes the impact of internal and external factors and biases during data collection.

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FIGURE 2: Data components

