



ELSEVIER

www.elsevier.com/locate/worlddev

doi:10.1016/j.worlddev.2008.04.002

Rethinking Cholera and Typhoid Vaccination Policies for the Poor: Private Demand in Kolkata, India

DALE WHITTINGTON

*University of North Carolina at Chapel Hill, NC, USA**Manchester Business School, UK*

DIPIKA SUR

National Institute for Cholera and Enteric Diseases (NICED), Kolkata, India

JOSEPH COOK

University of Washington, Seattle, WA, USA

SUSMITA CHATTERJEE

National Institute for Cholera and Enteric Diseases (NICED), Kolkata, India

BRIAN MASKERY

University of North Carolina at Chapel Hill, NC, USA

MALAY LAHIRI

National Institute for Cholera and Enteric Diseases (NICED), Kolkata, India

CHRISTINE POULOS

Research Triangle Institute (RTI), Research Triangle Park, NC, USA

SRABANI BORAL

National Institute for Cholera and Enteric Diseases (NICED), Kolkata, India

ANDREW NYAMETE, JACQUELINE DEEN, LEON OCHIAI

International Vaccine Institute (IVI), Seoul, Republic of Korea

and

SUJIT KUMAR BHATTACHARYA *

National Institute for Cholera and Enteric Diseases (NICED), Kolkata, India

Summary. — The “old” familiar diseases of cholera and typhoid remain a serious health threat in many developing countries. Health policy analysts often argue that vaccination against cholera and typhoid should be provided free because poor people cannot afford to pay for such vaccines and because vaccination confers positive economic externalities on unvaccinated individuals. In 2004, we conducted a contingent valuation (CV) survey of 835 randomly selected adults from two neighborhoods in Kolkata, India to provide information on private demand for cholera and typhoid vaccines for themselves and for household members to support more nuanced financial and economics analyses of such vaccination programs. The median private economic benefits of providing a typhoid vaccine to a household with five members is about US\$23 in a middle-income neighborhood (US\$27 for a cholera vaccine) and US\$14 in a low-income slum (US\$15 for a cholera vaccine). Our research raises an intriguing possibility. If user charges were set at a level to recover the costs of a vaccination program, there could be sufficient demand for the vaccine so that coverage of the vaccinated population might ensure that all the remaining unvaccinated individuals would be protected as well through indirect herd protection.

© 2008 Elsevier Ltd. All rights reserved.

Key words — typhoid, cholera, vaccine demand, willingness to pay, Kolkata, India

* This work was supported by the Diseases of the Most Impoverished Program, funded by the Bill and Melinda Gates Foundation and coordinated by the International Vaccine Institute. The International Vaccine Institute is supported by the governments of the Republic of Korea, Sweden, and Kuwait. Final revision accepted: April 30, 2008.

1. INTRODUCTION

Cholera and typhoid fever impose both a private economic burden on patients and their families (treatment costs, lost productivity, pain and suffering, risk of death) and a financial burden on the public health systems in developing countries (Crump, Luby, & Mintz, 2004). Though both diseases can be controlled with improved housing, water supply, sanitation, and food handling in many typhoid- and cholera-endemic areas, these investments are expensive to implement and unlikely to occur in the near term. New-generation vaccines against cholera and typhoid are safe and effective (Acosta *et al.*, 2004) and could be useful short-term public health tools in reducing incidence rates among endemic populations as well as in preventing large outbreaks. Vaccination programs against cholera and typhoid may protect not only vaccinated individuals, but in some cases unvaccinated individuals as well. By reducing the number of cases of these diseases, vaccination campaigns thus have the potential to deliver significant private and public economic benefits.

The International Vaccine Institute, with support from the Bill and Melinda Gates Foundation, launched the Diseases of the Most Impoverished Program (DOMI) in 2000 to accelerate the development and introduction of new-generation vaccines against cholera, typhoid fever, and shigellosis. The program involves a number of activities, including epidemiological studies, vaccine technology transfer, and sociobehavioral and economic studies. The DOMI research program provides much of the information needed to answer the question of how to deploy these new-generation vaccines against cholera and typhoid. However, the investment case for the use of cholera and typhoid vaccines remains controversial. There are now a large number of under-utilized vaccines that could be used against diseases common in developing countries. The effectiveness and duration of these vaccines differ, and periodic re-vaccination is typically necessary. Even when intellectual property rights issues are resolved, and the cost of the vaccine to the health sector in developing countries is reduced, the delivery costs of these vaccines are still significant. Because both governments' and international donors' financial resources for health care are limited, priorities must be established. Financial realities may dictate that households themselves pay for part of the costs of new vaccination programs, even when vaccination confers positive externalities on unvaccinated members of the population. Information on private demand of new-generation cholera and typhoid vaccines is an important piece of the puzzle in the determination of where and how these new-generation vaccines are most effectively utilized.

We report here on one in a series of DOMI-supported studies of private demand for cholera and typhoid vaccines in developing countries, including Vietnam (Canh *et al.*, 2006; Cook, Whittington, Canh, Johnson, & Nyamete, 2007; Kim *et al.*, 2008); Lingchuan county, China (Guh *et al.*, 2008); Matlab, Bangladesh (Islam *et al.*, 2008); and Beira, Mozambique (Lucas *et al.*, 2007). These studies used stated preference methods (both contingent valuation and choice experiments) and similar (but not identical) survey instruments to measure private demand and WTP. This paper presents the first empirical estimates of private demand and willingness to pay (WTP) for cholera and typhoid vaccines in Kolkata (Calcutta), India. This Kolkata study is of special interest because of the high incidence of cholera and typhoid in the neighborhoods where the surveys were conducted, the long-standing interest of the global public health community in cholera in Kolkata, and

the significance of Kolkata itself, one of the world's largest megacities.

In the summer of 2004, we interviewed 835 randomly selected individuals in two different neighborhoods in Kolkata, inquiring how many cholera or typhoid vaccines the respondent would purchase (for themselves and for their household members) if such vaccines were available for purchase at a specified price. This approach, called contingent valuation (CV), has been widely used in the environmental field for goods that are not sold in a marketplace (Carson, 2000; Hanemann, 1994). It has also been used in the health field for goods or services that are not widely available (Bayoumi, 2004; O'Brien & Gafni, 1996), including vaccines (Cropper, Haile, Lampietti, Poulos, & Whittington, 2004; Suraratdecha, Ainsworth, Tangcharoensathien, & Whittington, 2005; Whittington, Matsui, Freiburger, Van Houtven, & Pattanayak, 2002).

Our objective in the study reported here was to obtain the best estimates of private demand for cholera and typhoid vaccines in a low-income slum and a middle-class neighborhood in Kolkata. To ensure the reliability and validity of our results, we took the approach of many CV studies and followed a set of guidelines for what constitutes "best practice." Although these guidelines are constantly evolving, the interested reader should begin with those proposed by the NOAA panel (Arrow, Solow, Portney, Learner, & Radner, 1993; Carson, Flores, & Meade, 2001; Carson & Mitchell, 1993). For our Kolkata study, we took "best practice" to mean (1) carefully trained enumerators, who would conduct face-to-face interviews; (2) a survey instrument and scenario that was carefully worded and pretested to insure that the good or service in question (typhoid or cholera vaccine) was well understood by the respondent; (3) a reminder to the respondent that personal and family budget constraints and other types of competing expenditures should be considered; (4) a "cheap talk" passage (Cummings & Taylor, 1999); and (5) a dichotomous-choice (yes/no) valuation question for a specific price, rather than an open-ended elicitation method (for more recent work on elicitation formats and post-decision confidence measures see Bennett & Tranter, 1998; Vossler & McKee, 2006). In addition, to reduce the threat of hypothetical bias associated with some stated preference surveys (Carson, Flores, Martin, & Wright, 1996; Harrison, 2006; Hoffer & List, 2004), we gave some respondents "time to think" (overnight) about the offered information before giving their reply.

The WTP estimates from this Kolkata study are important for several reasons. First, because such estimates promote a better understanding of households' perceptions of the economic benefits to be gained from vaccination programs, they can improve policymakers' economic assessments of vaccination programs. Second, assessments of private demand, such as the WTP estimates derived here, can help donors, governments, and policymakers design financially sustainable programs that maximize the number of people vaccinated for a given budget. Third, understanding the factors associated with households' WTP can enable public health professionals to design better information programs to promote vaccination campaigns.

2. BACKGROUND

Kolkata (formerly Calcutta, population 13 million) is the third largest city in India. Located in the Ganges-Brahmaputra river delta in the state of West Bengal, the city and the surrounding region (including Bangladesh) have long been a locus of endemic cholera. A passive surveillance survey con-

Download English Version:

<https://daneshyari.com/en/article/991772>

Download Persian Version:

<https://daneshyari.com/article/991772>

[Daneshyari.com](https://daneshyari.com)