

## **New icddr,b study in The Lancet shows that oral cholera vaccine protects against endemic disease, this result will indeed speed up global cholera control efforts**

**09 July 2015, Dhaka:** *A double-dose, low-cost oral cholera vaccine administered through routine government health services can substantially reduce hospitalisation and deaths from cholera in densely populated urban settings, finds a new study by icddr,b and published in [The Lancet](#).*

While oral cholera vaccines were previously [shown](#) to be effective in trial settings, this is the first study to prove their effectiveness and feasibility in a real-life situation. The findings lend support to the use of the vaccines in routine mass vaccination programmes to help to control cholera in endemic countries.

Dr. Firdausi Qadri, Director for Centre for Vaccine Sciences at icddr,b and the principal researcher says that “our findings show that a routine oral cholera vaccination programme in cholera-endemic countries could substantially reduce the burden of disease and greatly contribute to cholera control efforts.”

The study took a cluster-randomised trial approach where the participants were randomly assigned to one of three groups: those who received Shanchol vaccine, those who received Shanchol and an intervention that encouraged hand washing and drinking water treatment with chlorine, and those who received no intervention at all, the control group.

The results show that at 65% vaccination coverage level the incidence of severely dehydrating cholera was reduced by 37% in the overall study population, irrespective of their vaccination status. The incidence of cholera decreased by 45% in the group that received both vaccination and hand washing-water treatment intervention. For participants that received the full two doses of the vaccine, the rate of hospitalisation decreased by more than 50%. For individuals who were vaccinated, it was shown to confer 53% protection two years after the vaccine was administered, a finding consistent with previous field trials.

Dr Qadri added, “Ultimately, the key to controlling cholera is clean water, improved hygiene practices and adequate sanitation facilities, which half the developing world – around 2.5 billion people – lack. These improvements require large investments for major infrastructural changes which remain a rather difficult reality for the world’s poorest nations as well as those affected by climate change, war and natural disasters.”

icddr,b researchers noted that adding the hand washing-water treatment component to vaccination improved the level of protection conferred by the vaccine but to a limited extent. However, they stressed that further efforts in determining means of improving water quality and making hand washing easier for low income communities with poor infrastructure should be pursued to reduce the incidence of cholera, critical components of global cholera control efforts.

The study by icddr,b’s [Centre for Vaccine Sciences](#) took place over two years, between 2011 and 2013, in the urban slums of Mirpur in Dhaka city, an area with a high rate of hospitalisation for severe dehydrating cholera. The study sample included 267,270 residents of this area who are considered to be at ‘high risk’ because of factors such as living in overcrowded quarters, unsafe source water, poor sanitation and unhygienic living conditions.

The vaccine was well tolerated with no serious adverse effects reported. The majority of adverse events were mild or moderate—the most common were acute watery diarrhoea, vomiting, abdominal pain, and fever.

It also assessed the level of protection provided by a two dose regimen of oral cholera vaccine Shanchol against severe dehydrating cholera that leads to hospitalisation. Shanchol is a low cost oral cholera vaccine – just 145 taka (US\$1.85) per dose – that has been prequalified for vaccination programmes by the World Health Organization as it was proven to be [safe and effective](#) in field trials.

A supplementary campaign to encourage hand-washing and to provide clean drinking water provided little additional protection to the target population. Speaking about the hygiene practices issue, Dr Leanne Unicomb former Head of the icddr,b’s Water Sanitation and Hygiene Research Group at icddr,b’s Centre for Communicable Diseases said “Washing hands with soap and treating water with chlorine are low cost means of reducing diarrhoea, yet they are difficult behaviours to practice frequently in low income settings where water can be limited and crowding is common”. She added, “We need to further work with the community to make these practices more convenient to reduce diarrhoea including cholera”.

Cholera exacts a tremendous toll on public health globally – 91,000 deaths and 2.8 million cases of cholera are [reported](#) every year and over 1 billion people are estimated to be at risk. Around half the deaths occur in children under 5 years of age. The burden of cholera is greatest in the developing countries where a large number of people live in unsanitary conditions without access to clean water, factors which are critical to the spread of cholera. Bangladesh alone has an estimated 300,000 cases and 4,500 deaths each year due to cholera (WHO 2012). While environmental factors can take a long time to improve, an oral cholera vaccine can provide a much-needed alternative in these settings.

The study was funded by the Bill & Melinda Gates Foundation and implemented in collaboration with Bangladesh's Ministry of Health and Family Welfare. Additional financial support was provided from core grants to icddr,b from the governments of Australia, Bangladesh, Canada, Sweden and the United Kingdom.

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**Notes to the Editor:**

About icddr,b

icddr,b (International Centre for Diarrhoeal Disease Research, Bangladesh) is a not-for-profit international health research institution located in Dhaka. Dedicated to saving lives through research and treatment, icddr,b addresses some of the most critical health concerns facing the world today, ranging from improving neonatal survival to HIV/AIDS. In collaboration with academic and research institutions throughout the world, icddr,b conducts research, training and extension activities, as well as programme-based activities, to develop and share knowledge for global lifesaving solutions.

