



Delivering Oral Cholera Vaccine (DOVE)

Johns Hopkins Bloomberg School of Public Health
Baltimore, Maryland, USA

Jacqueline Deen, MD, MSc

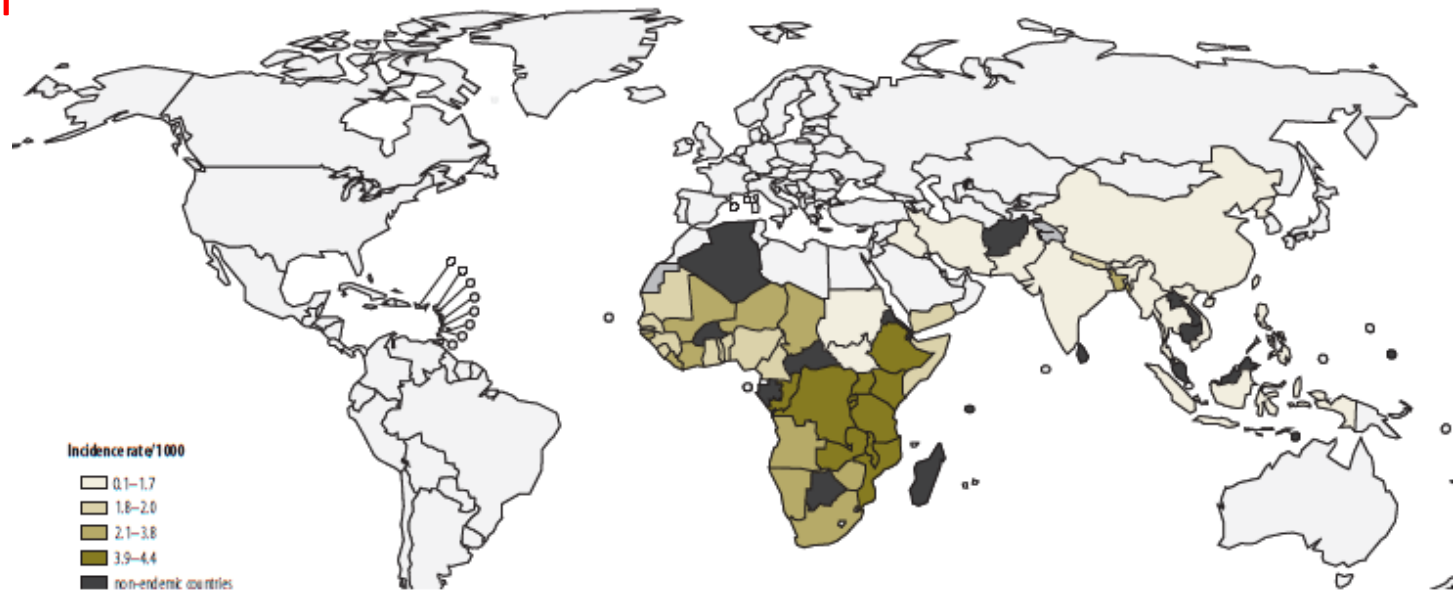


Outline

- The cholera disease burden
- How OCV can make an impact
- The DOVE project
- OCV: Opportunities and challenges

- ~1.4 billion people at risk for cholera in endemic countries
- ~2.8 million cholera cases and ~100,000 deaths annually
- More cholera cases in Asia but more cholera deaths in Africa

Inci





Cholera can cause devastating outbreaks



Zimbabwe 2009 © MSF



Haiti 2010 © Aurelie Lachant/MSF



WHO statement on OCV

“Oral cholera vaccines which have proven to be safe and effective are now considered to be part of a comprehensive and multidisciplinary approach to cholera prevention and control.”

WHO. *Weekly epidemiological record*. 2012, 87, 289–304



Internationally available, WHO-prequalified OCVs





OCV provides direct and indirect (Herd) Protection

- OCV reduces the risk for cholera (direct protection)
- If vaccine coverage is $\geq 50\%$:
 - OCV also reduces the risk in persons who did not receive vaccine (indirect or herd protection)
 - Protection becomes even higher for those who had received the vaccine
- Herd protection is likely due to reduced excretion resulting in decreased transmission in the community



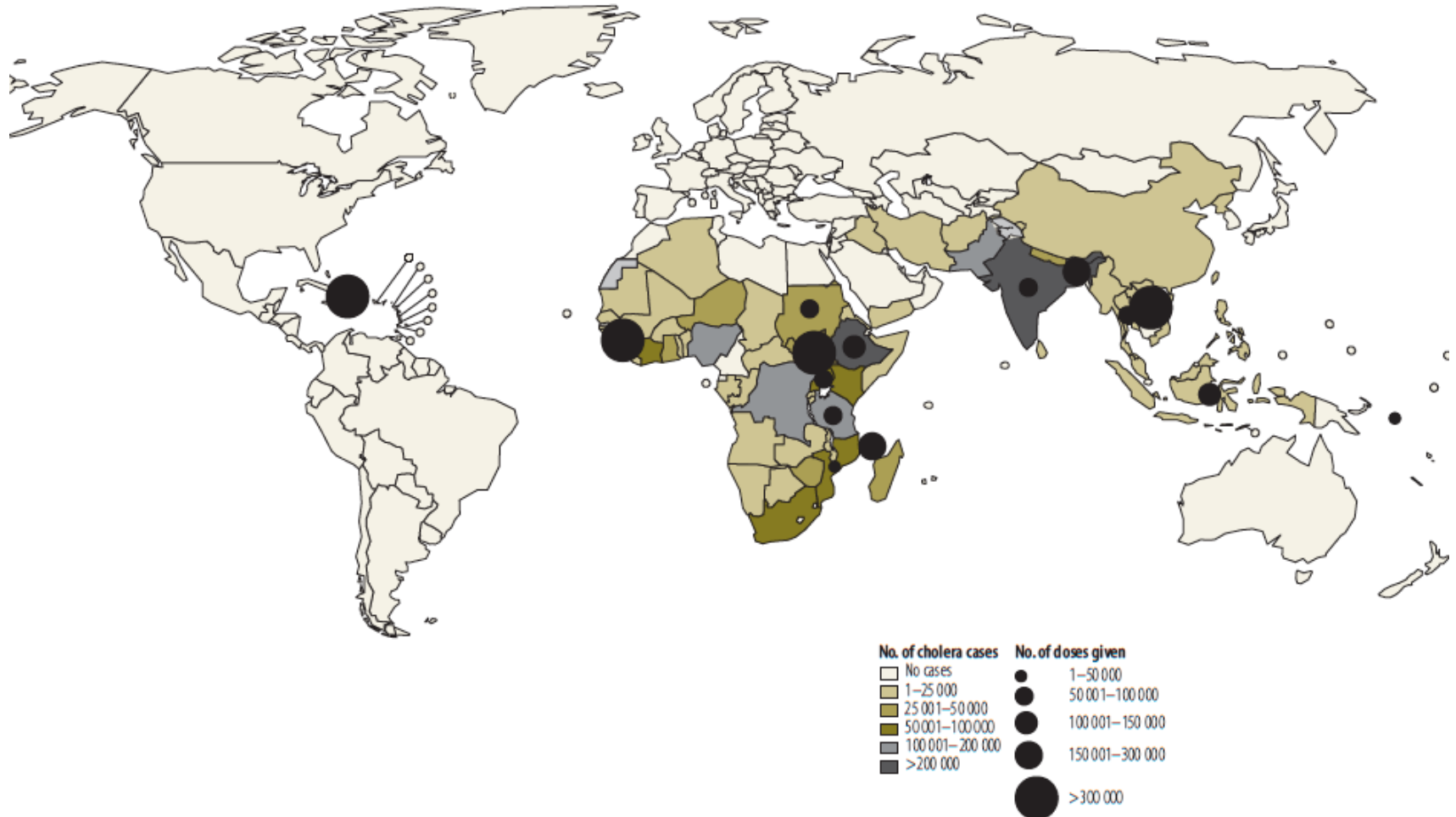
OCV can make an impact if:

- It can be provided to the right populations at the right time
- It is available in sufficient amounts and at reasonable cost
- Policy makers learn how and when to use it
- It is integrated with WaSH interventions and case management



Increasing experience with mass OCV campaigns

Mass oral cholera vaccination campaigns from 1997 - August 2014

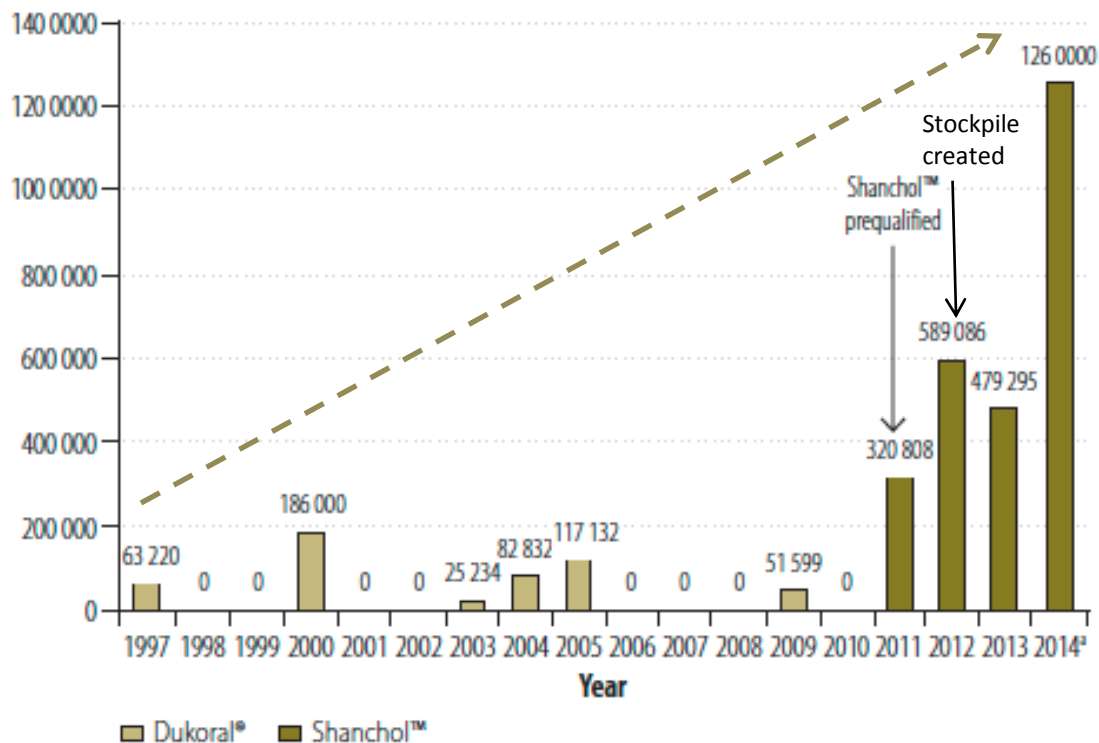




Increasing experience with mass OCV campaigns

- Over 2 million doses of Dukoral and Shanchol have been administered in public health mass vaccination campaigns in more than 14 countries

Number of OCV doses administered in mass campaigns, 1997 - August 2014



- Created in 2012
- Currently, nearly all available Shanchol doses are in the stockpile and reserved for use in outbreaks or complex emergencies
- Stockpile facilitates rapid deployment to control outbreaks
- Vaccine supply is limited – about 2 million doses produced annually
- If supply is increased, OCV deployment can be expanded to endemic countries



The DOVE Project

(Delivering Oral Vaccine Effectively)

- Created in 2012
- **The goal:** to ensure that populations at risk will benefit from receiving OCV in an appropriate and effective manner.
- Works with WHO, UNICEF and other partners



Mass vaccination campaign in Malawi in 2015 conducted by MoH, WHO and IVI

Where DOVE is currently working

- Cameroon
- Malawi
- South Sudan
- Uganda
- Nepal
- Philippines



- Helping to evaluate new strategies for vaccine campaigns
- Carrying out a safety study of OCV in pregnancy
- Assisting countries in applying for OCV from the WHO stockpile
- Assisting countries in M&E following OCV campaigns
- Planning to evaluate concurrent vaccination with OPV
- Able to assess immunogenicity of new OCV formulations



OCV deployment where it is needed

Opportunities

- Several agencies now advocate OCV use: WHO, UNICEF, MSF etc
- Increasing demand from countries
- OCV can be a key component in an integrated strategy for cholera control
- OCV can be used to revitalize National cholera control plans

Challenges

- Supply is not sufficient to meet epidemic and endemic needs worldwide
- Newer and easier to administer formulations would provide a major boost to cholera control measures



Developing new OCV formulations

Opportunities

- This is a killed whole cell vaccine
- No complex purification steps
- Production methods are well established
- R&D costs are low
- For those skilled in vaccine production, OCV is relatively simple

Challenges

- Keep at reasonable price
- Validate thermostability so OCV can be used outside cold chain
- More convenient formulation for distribution by health workers

- There is increasing use and demand for OCV
- DOVE helps ministries and agencies decide when, where, and how to use OCV as part of an integrated cholera control strategy www.stopcholera.org
- Insufficient OCV supply is the major challenge
- Newer formulations would be beneficial



- Bill & Melinda Gates Foundation
- DOVE team
- Country collaborators





Thank you!