

**Effectiveness of hygiene kit distribution to
reduce cholera transmission in Kasai-Oriental,
Democratic Republic of Congo: a prospective
cohort study and process evaluation**

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- The Democratic Republic of Congo (DRC) accounts for 5-14% of the global cholera burden annually, with >56,000 cholera cases and 1190 deaths in 2017 alone
- DRC has been experiencing outbreaks of cholera annually since the 1970s, whilst also experiencing multiple humanitarian crises across the country that in turn exacerbate the risk of cholera epidemics³⁻⁶
- 80% cholera transmission is within the household
- Household contacts have 100 times risk of cholera
- Transmission through shared drinking water, food and caring responsibilities

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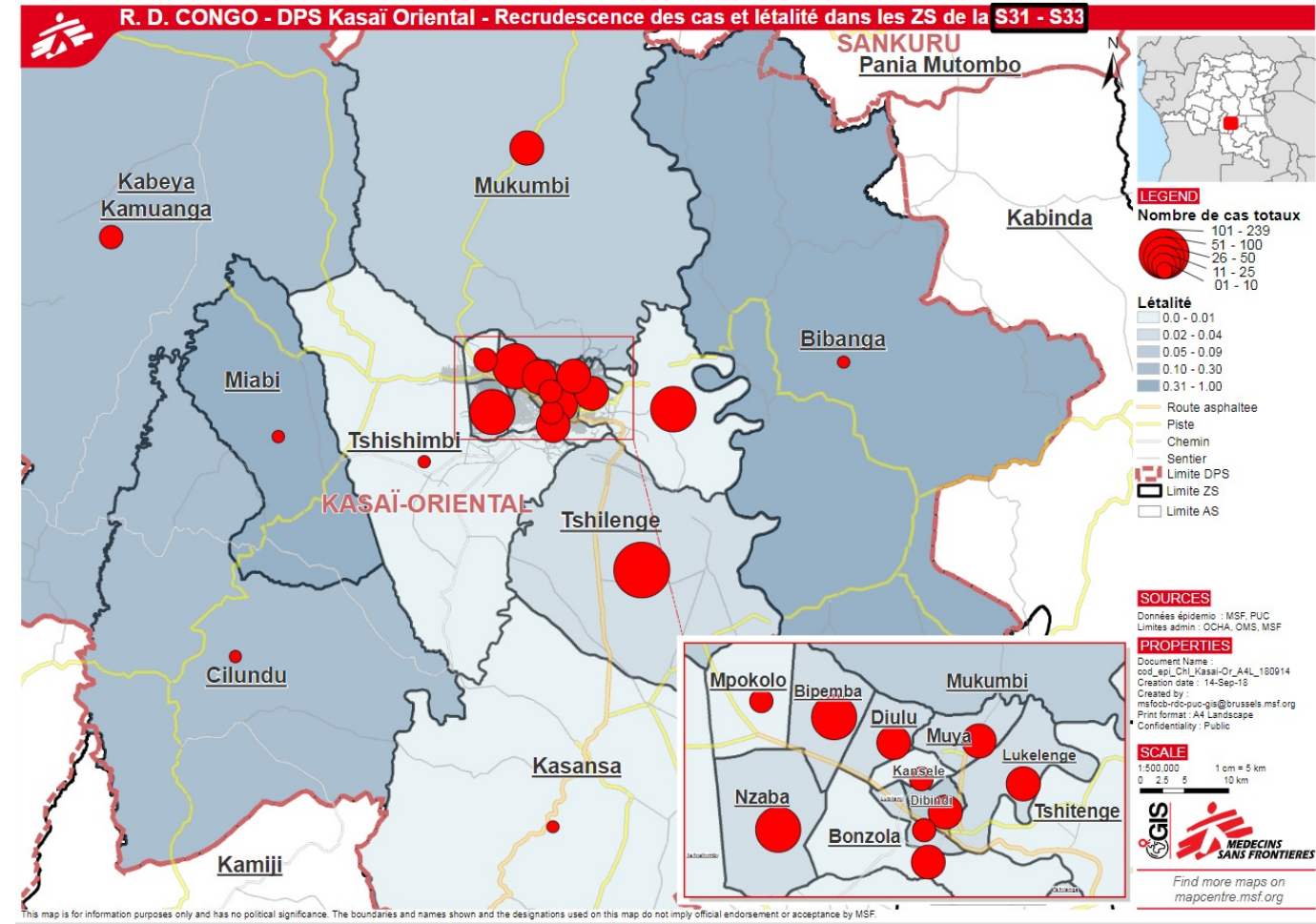
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Objectives

1. To investigate the effectiveness of hygiene kit distribution combined with health promotion to reduce suspected cholera and self-reported diarrhoea among household contacts of suspected cholera patients admitted to MSF-supported CTUs in Kasai-Oriental province, DRC.
2. To identify the successes and barriers of the hygiene kit distribution strategy for cholera control in order to understand delivery, use and scalability, and to propose recommendations to optimise future programmes.

Methods: study site

- Democratic Republic of Congo
 - Kasai-Oriental province
 - Kasansa district
- ~230,000 people
- Limited road access, low SES & limited number of HCF
- High burden on cholera in 2017-2018
- Outbreak started: 9th August 2018 (Week 28)



A prospective cohort study:

- Enrolment of suspected cholera patients and their patient-household sets at CTUs
- Baseline data collection within 48 hrs
- Households re-visited after seven days
- Data analysed for the association between hygiene kit use and **disease outcomes**, as well as the **evolution of water and food contamination** from enrolment to 7-day follow-up.

A process evaluation:

- Ran in parallel to the prospective cohort study
- Explored three domains of **implementation** of the intervention, **participants' responses** to the intervention and the **context** in which it was delivered.

Data collected between October 2018 – February 2019

Prospective cohort study population:

- 94 **suspected cholera cases / households**
- 444 **household contacts***

Process evaluation study population:

- 27 **households** who had received a hygiene kit (13 female; average age 43 years)
- 17 **implementers** (7 from MSF, 4 local government, 6 other NGOs; 3 female)
- 34 **programme reports / datasets**

* Household contacts were defined as individuals sleeping under the same roof and sharing a cooking pot with the suspected cholera case during at least the previous five days.

Methods: study intervention

- **One hygiene kit per household**, accompanied by standard WASH-related health promotion messages, was delivered by community health workers (CHWs) to the household contacts of patients on the **day of the patient's admission** to either of the two MSF-supported Cholera Treatment Units.
- Hygiene kit included a 10l handwashing device (bucket with tap), 20l jerrycan, water treatment products (Aquatabs™ disinfectant and/or P&G Purifier of Water™ combined flocculant/disinfectant) and 1kg of soap



Data collection: prospective cohort

QUANTITATIVE TOOLS & LABORATORY WORK



Household surveys

To measure WASH conditions and uptake and use of the intervention



Individual surveys

To measure self-reported clinical outcomes including symptomatic cholera and/or diarrhoea



Water and food samples

To measure environmental contamination with indicator bacteria *Enterococcus* spp.

Data collection: process evaluation

QUALITATIVE & QUANTITATIVE TOOLS



Review of inventories (supply chain manifests, receipts)



Review of clinical data



Structured observations at Health Care Facility (HCFs)



Review of project documents



Interviews (semi-structured & in-depth)

Summary of results: prospective cohort study

- Multivariate analysis suggested evidence of a dose-response relationship with increased kit use associated with decreased risk of suspected cholera: household contacts in the **high kit-use group had a 66% lower incidence of suspected cholera, the mid-use group had a 53% lower incidence and low-use group had 22% lower incidence**, compared to household contacts who had not received a hygiene kit.
- Drinking water contamination was also significantly reduced among households in receipt of a kit.
- There was no significant effect on self-reported diarrhoea or food contamination among this study population.

Summary of results: process evaluation

Successes:

- ✓ Majority received kits at admission
- ✓ Demonstrations clear
- ✓ Households satisfied with kit contents and used all components
- ✓ High adherence to handwashing device, jerrycan and soap
- ✓ Overall improvements in household WASH conditions*

Barriers:

- X Delayed cholera response
- X Delayed supply of kits
- X Limited supply of kits
- X Kits insufficient for 1-month use
- X Poor recall of water treatment practices by households
- X Limited water supply geographically

- Integration of WASH at the **point of admission** of suspected cases is possible and a promising intervention for case-targeted cholera control
- Positive **response, use and adherence** to hygiene kits by households
- But...there are barriers to the **timely supply, inadequate availability** and consequent **limited coverage** of the hygiene kits
- Further work is required to **identify ways to improve** implementation and delivery of this promising intervention.

Timeline

2016

- Project inception by MSF and LSHTM in May 2016

2017

- Scoping visits to South Sudan and Nigeria
- Development of study protocols
- Ethical approval applications process to LSHTM and MSF

2018

- Scoping visit to Democratic Republic of Congo (DRC)
- Ethical approval amendments and application in DRC
- Data collection in DRC between August 2018-December 2018

2019

- Data analysis
- Manuscript writing

2020

- End of the project in January 2020
- Submission and publication of 3/4 research outputs

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