OCG response to cholera in Haiti,

October 2010 – March 2011

Evaluation report (external)

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With support of Sabine Kampmueller, Vienna Evaluation Unit

The Vienna Evaluation Unit

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List of abbreviations

AST	aspartate aminotransferase (liver test)
CFR	case fatality rate
CS	stabilisation centre
CTC	cholera treatment centre
CTU	cholera treatment unit
DINEPA	National Directorate for Potable Water and Sanitation
HQ	headquarters
HR	human resources
IEC	information, education and communication
IV	intravenous
MSF	Médecins Sans Frontières
MSF-CH	MSF-Switzerland
MSPP	Ministry of Health Services and Population (Ministère de la Santé Publique et de la Population)
NGO	non-governmental organisation
OCA	Operational Centre Amsterdam (MSF)
OCBA	Operational Centre Barcelona-Athens (MSF)
OCG	Operational Centre Geneva (MSF)
OCP	Operational Centre Paris (MSF)
ORP	oral rehydration point
ORS	oral rehydration solution
PAHO	Pan-American Health Organization
PaP	Port-au-Prince
RRT	rapid response team
UN	United Nations
WatSan	water and Sanitation
WHO	World Health Organization

Executive summary

The MSF response to cholera in Haiti was of extraordinary scope and happened under extremely difficult circumstances: cholera re-appeared for the first time in 100 years and spread rapidly; the humanitarian situation in the country was already bad, and had worsened after the earthquake in January 2010; there was political unrest; and there had been no particular preparation for an outbreak of the disease.

MSF's Operational Centre Geneva (OCG) requested an evaluation of its response in order to analyse the overall effectiveness and appropriateness of different strategies used. The evaluation process had to ensure sharing and documentation of the main lessons learned for future cholera interventions. The evaluation methodology included a review of epidemiological data and documents, a web survey among international staff, interviews, a lessons learned workshop, and a field visit to Haiti.

Main findings

A total of 31,558 cholera cases were treated in OCG cholera treatment structures in two departments (Nord and Ouest–Léogâne). This equals 15% of all cases reported to the Haitian Ministry of Health Services and Population (MSPP) between October and February 2010 (overall, MSF sections treated 110,445 cases, or 53% of all cases). The overall case fatality rate (CFR) in OCG structures was 1.5%, which is higher than the total MSF CFR of 1.1%.

The explanation may be that while other MSF sections worked in urban settings, OCG covered a lot of remote rural areas, where access and supervision were more difficult. According to OCG data, the attack rate would have been 4% in the Nord department and 1.35% in Ouest–Léogâne. This will need to be compared to the final results of a population-based retrospective survey to assess morbidity and mortality due to cholera by Epicentre. Preliminary findings suggest an attack rate above 10%.

MSF played an important technical role in the nationwide cholera response. Medical coordinators provided input to national guidelines and strategy, while MSF teams trained and supported a number of other actors on technical issues.

Social mobilisation was key to rapid intervention and scale-up. Timely and appropriate communications efforts, which concentrated on local media, helped to gain acceptance and utilisation of services, despite initial public consternation. Thanks to existing information, education and communication (IEC) capacities in Léogâne, expertise was quickly made available and a comprehensive strategy implemented.

A reasonable balance was found between preventive and curative activities after the initial phase of the emergency (six weeks). Efforts could have been timelier, with a more rapid deployment and more initial resources, and with separate teams responsible for curative and preventive action.

A decentralised rural strategy was implemented, effectively, but with some delay. A widespread network of cholera treatment units (CTUs), cholera treatment centres (CTCs) and oral rehydration points (ORPs) was established by multidisciplinary teams composed of medical, WatSan and IEC staff.

Risk assessment and preparedness for cholera were insufficient in Haiti. The risk of a diarrhoeal epidemic in this context was downplayed too much given the sanitary situation, which worsened after the earthquake.

The management of cholera in pregnant women was innovative and led to good outcomes. The protocol developed was judged simple, feasible in an emergency context, and cost-efficient, especially in terms of lives saved.

Overall case management was good, but there is space to improve specific aspects, for example the utility of Plan A, B and C classifications, the systematic use of zinc for children, the availability of intraosseous drills, the overuse of intravenous (IV) fluids etc.

An overall WatSan strategy for community outreach was lacking, despite the water and sanitation activities carried out around cholera treatment facilities. For excreta disposal, an innovative process using physiochemical treatment with hydrated lime (piloted by OCA in Haiti) was applied where safe pits could not be provided.

Epidemiological data collection on field level was appropriate, though it focused on data from OCG-supported health facilities only, and did not include surveillance of the general population (which some would like to see). Data were effectively used to map cases, plan and orientate activities.

Technical briefings of expatriate staff did not happen systematically before departure, increasing the burden in the field. The deployment of a 'flying training team' for the various upcoming CTUs and CTCs proved successful.

Laboratory services to understand parallel infections were underused. In the absence of regular biological confirmation, treatment protocols were not adapted to possible other bacterial causes of diarrhoea.

The exit strategy in the Nord department was clear, with timely and successful efforts to train, involve and communicate with other partners, primarily the MSPP.

Cholera vaccination was not implemented as a preventive activity.

<u>Recommendations for future cholera responses:</u>

1. Ensure a balance between PREVENTIVE and CURATIVE strategies.
2. Strengthen the epidemiological capacity to monitor and orientate the response.
3. Define a clear WatSan strategy outside CTCs and CTUs.
4. Develop guidelines for social mobilisation in cholera response.
5. Invest in staff preparation and training for cholera response.
6. Use laboratory services to monitor and react to outbreak dynamics.
7. Improve specific issues in case management (eg use of zinc).
8. Prepare to use vaccination as part of a prevention strategy.
9. Contribute to the revision of the MSF Cholera Guidelines.

1 Introduction

1.1 Background

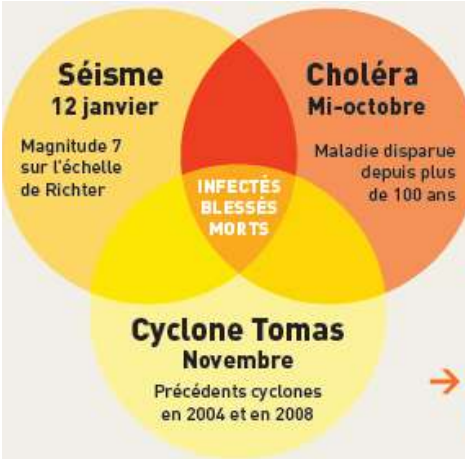
The earthquake of 12 January 2010, which killed an estimated 230,000 people and injured 300,000, damaged Haiti's already weak health system. Nearly 1.5 million people were left homeless and moved into spontaneous settlement sites throughout Port-au-Prince and other cities. These sites have poor sanitation and hygiene conditions and leave their residents vulnerable to diseases – particularly water-borne diseases.

Haiti is the poorest country on the American continent, with more than 70 percent of the population living on less than US$2 per day. Before the earthquake, 70 to 80 percent of Haitians could not afford healthcare. Even before the earthquake, the healthcare system failed to address the basic medical needs of the population in Port-au-Prince; the effects of the earthquake on this already deficient healthcare system were devastating.

One year after the earthquake, at least 800,000 people were still sleeping in tents or in the open each night, while rising political instability has brought additional challenges.

Since 19 October 2010, when the first cases of cholera were confirmed, Haiti has faced **one of the most severe outbreaks of cholera of the past century**. The outbreak has been made more complex by the humanitarian situation resulting from the earthquake.

Figure 1: Humanitarian crisis in Haiti



Source: ACF, Haiti Le bilan 1 an après, 2011

1.2 Chronology of events and MSF involvement

MSF has been present and active in Haiti for the past 19 years. OCG started operations in immediate response to the earthquake in January 2010 and – following the emergency intervention – constructed and continues to run a container hospital in Léogâne.

In the immediate aftermath of the earthquake, when hundreds of thousands of people were forced to find whatever shelter they could in ad hoc displacement camps with dangerously substandard hygiene facilities and little or no services, a potential outbreak of disease was a major concern.

In the middle of October, word came from the Artibonite region in central Haiti, north of the capital, that patients were presenting with cholera-like symptoms. Cholera had not been seen in

Haiti in many decades, but nonetheless the signs – rapid and severe dehydration caused by excessive vomiting and diarrhoea – were all too apparent.

On 21 October 2010, the day after MSF received word of the cholera-like symptoms, an MSF team travelled to Saint Marc and Petite Rivière, in the Artibonite region, to work with local health staff and authorities to start treating patients. The MSPP – with the support of the Pan-American Health Organization (PAHO) – investigated and declared the outbreak immediately after the first cases were confirmed.

Soon more cases were presenting in Saint Marc, in nearby Petite Rivière, and soon in Gonaïves, and teams had to quickly scale up their capacity in the region. The next area to experience the outbreak was in the north – the cities of Cap Haïtien, Port de Paix and Gros Morne – beginning on 29 October.

At this point, it was clear to MSF's field managers that the cholera outbreak was going to be a huge issue that required a large-scale response across several sectors. On 31 October, large numbers of patients began arriving at MSF-supported hospitals in Port-au-Prince's Cité Soleil slum with the symptoms of cholera.

The consensus was that cholera was very likely to spread widely in a country where most people lacked access to clean drinking water and sanitation, where the population was unfamiliar with the necessary prevention measures, and where most national health staff had no previous experience of the disease. But the transmission dynamics were difficult to predict, because the only precedents were several decades old.

The MSF team in Léogâne prepared for cholera cases and had set up a CTU next to the hospital by the time the first cases arrived in the week of 25-29 October. The team's medical coordinator (MedCo) also anticipated the challenges presented by cholera during pregnancy, given the high number of deliveries in Léogâne's maternity ward, and the team started to consider what specific measures to take.

In the Nord department, MSF were asked to intervene by the World Health Organization (WHO) and PAHO. Between the MSF sections it was decided that OCG would do an exploratory mission. The situation in the Nord department was out of control and becoming worse: cases of cholera were increasing rapidly, panic and stigmatisation were rife amongst the population, and dead bodies were being dumped in the street. The MSPP had started to set up a treatment centre in the sports centre next to the hospital, but was overwhelmed by the situation. An OCG team arrived on 2 November and the following days and supported the cholera response in collaboration with the MSPP.

By late December, the Nord, Nord-Ouest and Sud-Est departments, the Artibonite region, and the area just west of Port-au-Prince were all seeing case numbers decrease. However, the cholera outbreak was not yet over – even in July 2011, during our visit, the outbreak had not stopped. Aside from MSF, the Cuban Medical Brigades have been the most active actor in the area of treatment of cholera cases in Haiti.

MSF was able to continue working throughout several bouts of violence in the country. During riots in the northern city of Cap Haïtien, OCG teams still managed to open new CTCs and travel throughout the city to provide treatment services. In early December 2010, when rioting rocked Port-au-Prince following elections, MSF was still able to provide treatment in its network of CTCs in the capital.

Globally, MSF's main focus in cholera outbreaks is on the most severe cases – essentially on saving lives – while pushing other actors to fill in the gaps by carrying out prevention activities. But in Haiti, OCG adopted a different strategy: maintaining a balance between curative and preventive activities, with a focus on carrying out community awareness efforts at an early stage, even when curative services were overstretched.

Figure 2: Map of Haiti

2 Evaluation process

2.1 Objectives of the evaluation

The objectives of the evaluation are:

- To document the OCG strategies used, especially the innovative ones.
- To describe the constraints and challenges of the Haitian setting.
- To analyse the main epidemiological outcomes.
- To analyse the factors which influenced effectiveness of the intervention strategies.
- To describe the main lessons learned for future cholera interventions.
- To propose the development of a new OCG intervention framework/ model for cholera in particular and for diarrhoeal diseases in general.

As part of *learning before*, the review also describes the take-up of lessons learned documented in previous MSF cholera evaluation reports.

The WHO's Cholera Guidelines and MSF's 2004 Cholera Guidelines served as a reference for this review.

2.2 Methodology

Combined methodologies used:

- Anonymous web survey by all international MSF staff in Haiti during the outbreak.
- Document review (see annexes).
- Final epidemiological data analysis.
- Synthesis and status of implementation of previous recommendations of former MSF cholera evaluations at the start of cholera outbreak in Haiti (Oct 2010).
    - Iterative consultation through face-to-face or phone interviews of MSF key informants and external partners.

  These consultations were structured using a questionnaire of five open-ended questions.
- Participation in global meetings, including round table discussions and presentations on cholera response, at:
    - MSF Epicentre Scientific Day, 16 June 2011, Paris.
    - WHO GOARN Steering Committee Meeting, 29-30 June 2011, Geneva .
- MSF lessons learned workshop, 19 July 2011, Geneva.
- Field visit to Haiti, 24 July to 4 August 2011 (including travel) with staff interviews and site observations, including visits to CTC and CTU.

2.3 Limitations

The description and comparison of costs could not be done as foreseen, due to the non-availability of financial data.

The comparison with epidemiological outcomes of a population-based retrospective survey to assess morbidity and mortality due to cholera in Haiti by Epicentre did not take place, because of a delay in the finalisation of the study.

3 Results

3.1 Facts and figures (epidemiological outcomes)

MSF-OCG intervened in three main areas but, after the first rapid assessment, handed over Les Cayes region to other NGOs already in place. The handover included training on how to run a CTC and sharing of MSF protocols and guidelines. MSF-OCG concentrated on two main areas (see Figure 3 below):
All Nord department (Cap Haïtien), except five sites in the southern part that were managed by OCP until February 2011 and then handed back to OCG.

- Léogâne region in Ouest department

The other parts of the country were covered by other sections (see Figure 3 below).

Figure 3: Coverage of Haiti with MSF cholera projects (all sections), January 2010

MSF-OCG treated 15% (31,558 patients) of the patients reported to the MSPP (see Table 1 below); 12% of reported deaths occurred in MSF-OCG structures; the CFR was 1.5%.

Between them, MSF and the Cuban Medical Brigades treated around 80% of the total number of cases detected and reported to the MSPP.

Table 1: Cholera cases, deaths and CFR from week 24/2010 to week 5/2011, Haiti

	Cases	**Deaths**	**CFR**
MSPP data*	209,034	4,030	1.9%
MSF-all sections**	110,445 (53% of MSPP cases)	1,215 (30% of MSPP deaths)	1.1%***
MSF-OCG	31,558 (15% of MSPP cases)	467 (12% of MSPP deaths)	1.5%

* MSPP data from inside and outside health structures

** MSF data from health structures

*** The CFR for MSF data 2011(Epicentre data may help to estimate epidemic duration) is the "lethality" of a subset of the population that came to MSF supported health structures. This MSF CFR does not estimate or represent the true lethality in the population or in rural areas.

In Table 2 the characteristics of the Haiti epidemic for MSF-OCG are summarised and compared with typical patterns found in other settings. MSF-OCG health facilities were located in a mix of rural/open and urban settings. The attack rate was 4.03% in the Nord and 1.35% in the Ouest department (see Table 3). This will need to be compared with the final results of a population-based retrospective survey to assess mortality due to cholera in Haiti by Epicentre. Preliminary findings suggest an estimated real attack rate above 10%.

The CFR of 1.5% attests to the good quality of care delivered in MSF-OCG health structures. The CFR is still higher than for all MSF structures in general, which may be explained by the fact that OCG treatment facilities were covering much more remote rural areas. Therefore access to MSF health structures was more difficult and more patients presented late when they were already severely dehydrated.

Table 2: Typical characteristics of cholera outbreaks and comparison with Haiti outbreak

Characteristics	**Open situation/ rural**	**Urban settings/ slums**	**Closed situation/ refugee/IDP camps**	**Haiti 2010-11 (MSF-OCG data only)**
Delay to epidemic peak (in weeks)	6 to 12	4 to 8	2 to 4	Unknown*
Epidemic duration	3 to 6 months	2 to 4 months	1 to 3 months	Unknown**
Population density	Low	High	High to very high	Low (rural), high (urban)
Attack rate	0.1 to 2%	1 to 5%	1 to 5%	2.1%, based on MSPP data till week 6 of 2011, using 2009 population data (209,034 cases for 9,923,243 susceptible people ie whole population)***
Case fatality rate	<5%	2 to 5%	<1%	1.5% for MSF-OCG data 1.1% for all MSF, 1.9% for total MSPP, incl. MSF
Population characteristics	Numerous, mobile, scattered	Dense, mobile	Small, not very mobile	Numerous, mobile following earthquake, scattered

* Intervention and data collection in the Nord department started when outbreak was already ongoing
** Variable depending on the different sites; now endemic >10 months, not under control in July
*** 2011(Epicentre data may help to estimate epidemic duration)

MSF-OCG epidemiological data and epidemic curves must be interpreted as two different sub-identities (Nord department and Ouest department–Léogâne), as the dynamic of the outbreaks and the time of intervention were totally distinct. Even within the Nord department, different epidemics occurred (see Figure 4 below).

The main epidemiological outcomes are described in Table 3 below. There were nearly 10 times more cases managed in the Nord department (28,654) than in the Ouest-Léogâne (2 ,904).

Of those arriving in treatment centres, only 18% were **severe forms** (IV+/- ORS) in the Nord department compared to 44% in the Ouest–Léogâne.

Figures on IV consumption need to be further investigated. Calculations suggest a consumption ranging from 13.7 l to 30.7 l/severe case.[1] An **overuse of IV fluids** was confirmed by most of the interviewees, and may have the following explanations:

- Inappropriate case management (IV fluids kept for too long, over-hydration, etc).

1 According to the epidemiological data presented in the Epicentre epi data collection tool, patients were divided into severe (IV+/- ORS) or moderate (ORS only) cases and not according to Plan A, B or C. It seems that the severe cases were considered as Plan B+C and moderate Plan A.

- The volume reported could be from the pharmacy stock level, and therefore include all "lost", broken bags of Ringer's lactate, as well as all the donations made to other partners.

Table 3: Summary of main epidemiological outcomes in the two MSF-OCG sites, Haiti

Observed figures Week 42 to week 5	***Nord department (pop 711 294)***	***Ouest department– Léogâne (pop 214 861)***
First cases treated by MSF	Week 42 (22 Oct)	Week 43 (28 Oct)
Expected cases*	18,000	4,400
Total cases	28,654	2,904
Cases <5 yrs	3,244 (11% of total cases)	253 (9% of total cases)
Number of deaths among cases	433	34
Total CFR**	1.5% (mixed of closed and open settings)	1.2% (1 open setting with 3 closed settings)
Attack rate	4.03%	1.35%
Peak outbreak	1 peak (week 50)	2 peaks (weeks 51 and 2)
Number of cases/week at peak	4,052 cases	374 and 316 cases respectively
Proportion of severe forms **(IV+/- ORS and Plan C)*** **	18%	44%

* assuming an AR of 3%.
** CFR <1% if appropriate treatment in closed setting, 2% to 5% in open and semi-closed settings.
*** usually approximately 25% of severe form.

In both departments there was a slow but continuously increasing proportion of children <5yrs, which indicates the presence of other diarrhoeal diseases mixed with the cholera cases.

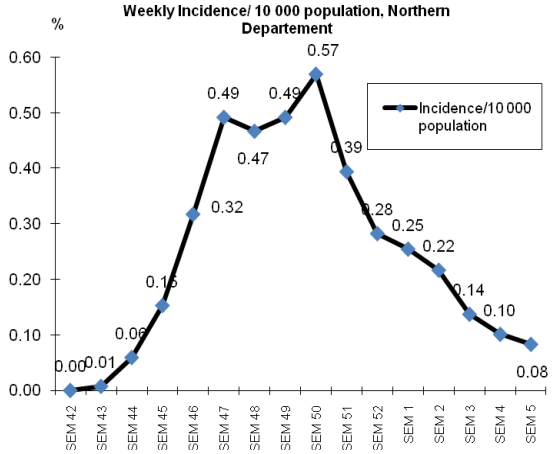
3.1.1 Epidemic and response in the Nord department

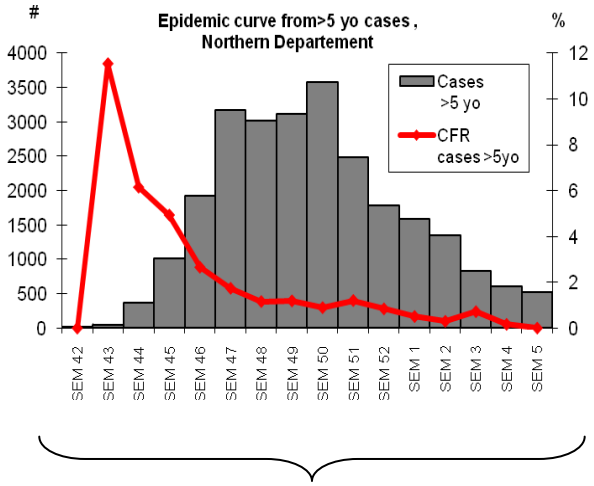
The cholera epidemic in the Nord department started on 22 October 2010; the first cases were reported in Cap Haïtien in week 42. A CTC was put in place by the MSPP general hospital in the city's sports centre. The peak of the epidemic was in December (week 50). The maximum weekly incidence was 0.57/10,000 population (week 50). The CFR climbed to more than 10% in the first weeks (11.1% in week 43) then decreased steeply and stayed below 2%.

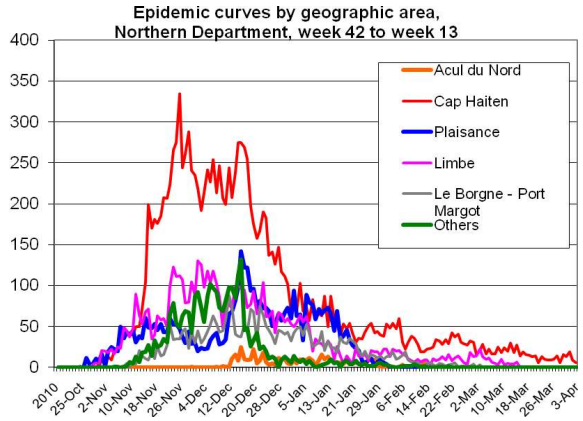
The second CFR peak observed in week 3 (after the epidemic peak) in children <5 yrs can be interpreted as the coexistence of different epidemics.

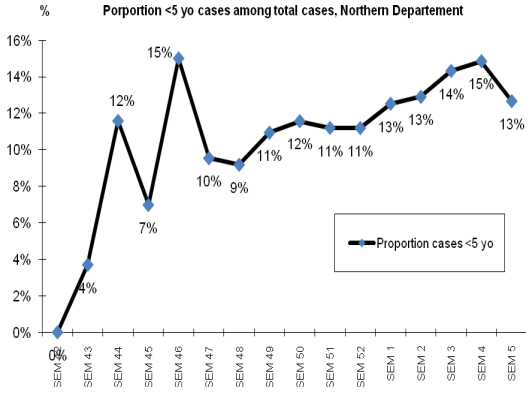
The proportion of severe cases (IV +/- ORS so approximately Plan C + Plan B) reached 29% in week 47 and decreased to 7% in week 5.

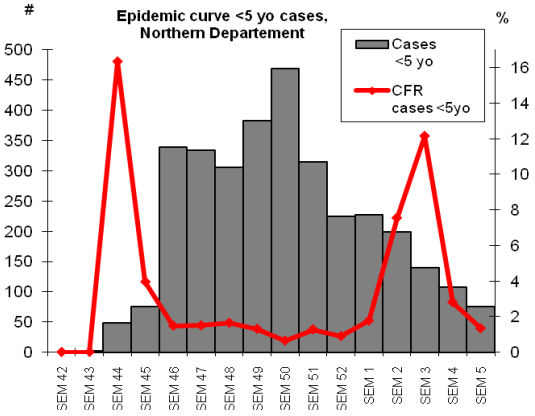
Figure 4: Epidemiological graphs, Nord department, MSF-OCG, weeks 42 to 5, Haiti

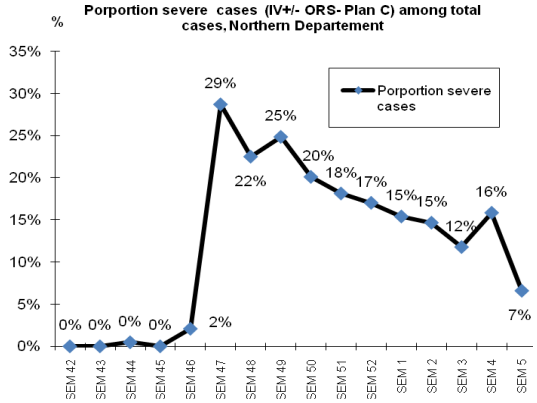


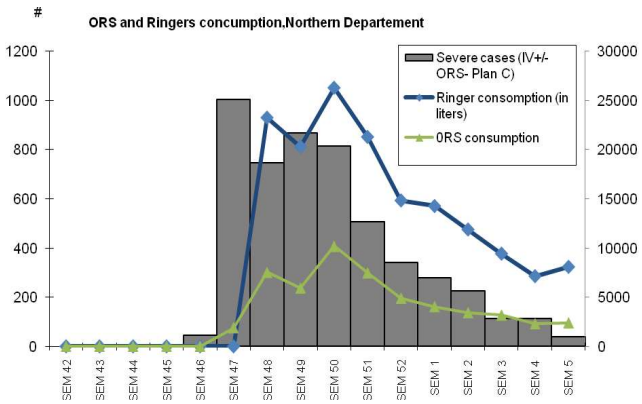










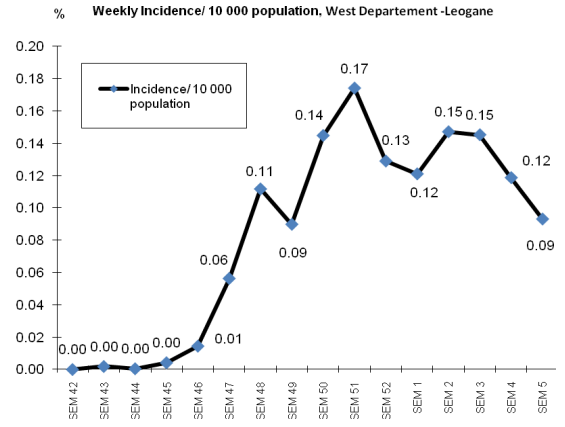


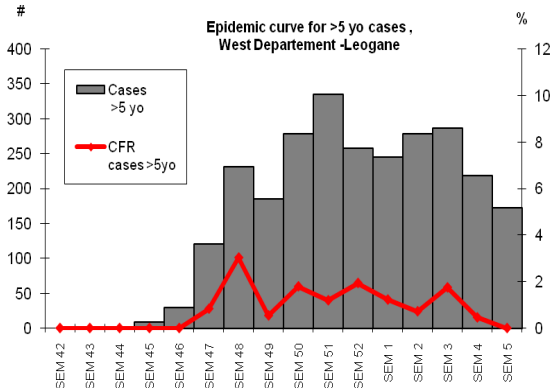
3.1.2 Epidemic and response in the Ouest department–Léogâne

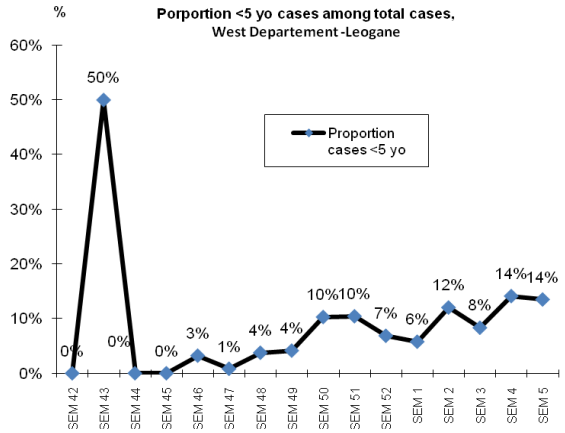
First cases in the Ouest department–Léogâne were reported in week 43. The epidemic presented two peaks (week 51 and week 3), similar to what was observed in Port-au-Prince (which was covered by other MSF sections). The two peaks were more distinct in the epidemic curve of children <5yrs. The maximum weekly incidence was 0.17/10,000 populations (week 51). The CFR climbed to 2.9% (in week 48) then stayed around 1.5%. No deaths <5 yrs have been observed.

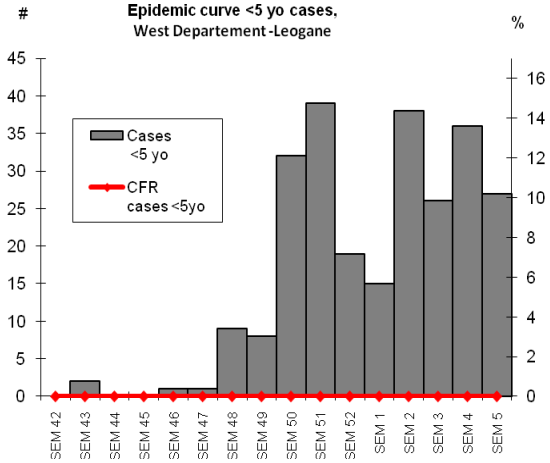
The proportion of severe cases (IV +/- ORS so approximately Plan C + Plan B) reached 100% in week 43. It then reduced to an average of about 45 % from week 49 to reach 35% in week 5.

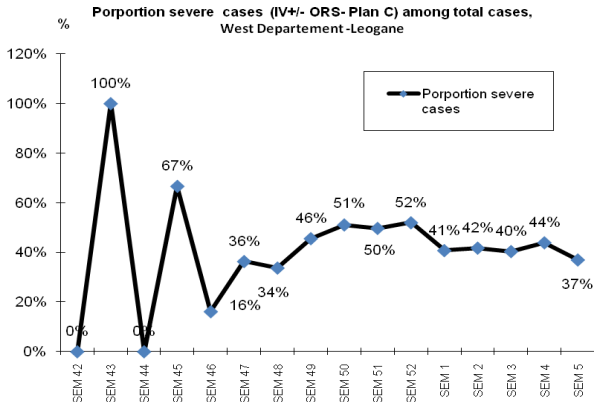
Figure 5: Epidemiological graphs, Ouest department–Léogâne, MSF-OCG, weeks 42 to 5, Haiti











3.2 Innovative strategies

The following section highlights new approaches used in the Haiti cholera response. Some approaches may have been used – in part – elsewhere, but in Haiti specific experiences were made with comprehensive strategies.

3.2.1 Social mobilisation strategy

In Haiti the close alignment between IEC/health promotion and communication was very important. The synergy between teams was essential, with IEC officers providing the same information through personal contact that communication teams were providing through the media.

For both communication and IEC officers, the approach was proactive. They worked to constantly identify new opportunities and channels for communication, rapidly analysing people's perceptions of what MSF was doing and at times shifting the public debate, for example from the controversy over the origin of the epidemic to practical options for treatment and prevention.

The effectiveness of the strategy was confirmed by the fact that many people arriving at the treatment centre said they had already heard (for example, through radio spots) about the symptoms of cholera and where to go if they fell ill. A decrease in admissions of severe cases (Plan C) proved that people increasingly knew how to seek treatment rapidly. While, at the start of MSF's intervention, the population rejected the idea of treatment facilities opening in their neighbourhood, they later on requested that treatment facilities were opened close by. MSF quickly became well known and highly appreciated by the population; the team received regular congratulations for the work they were doing.

3.2.1.1 Communications strategy

The Cap Haïtien experience showed the relevance of focusing on local communications during an outbreak of this magnitude. A local communications strategy was implemented and resulted in MSF gaining good visibility and acceptance within the community. The aim of the strategy was to demystify the disease, destigmatise the victims, encourage them to seek care promptly and keep the population updated on changes in cholera management. The approach was flexible, with the message being adjusted – in collaboration with the IEC and the medical team – based on questions posed by the population, observed changes, the evolution of the epidemic and related activities.

Before MSF arrived, the sports centre was seen as a 'centre of death'. Initially, most journalist's questions were focused on mortality. This changed with successful communications around the fact that the vast majority of patients were cured in the CTC.

At the beginning of the epidemic, prevention messages and job announcements were made via the radio (followed by the 'cholera spot'), and resulted in a shower of CVs. This was a good indicator that the messages were being heard by the population.

One factor that was important to the success of the communications strategy was the large scale utilisation of mainstream local media (acknowledging the popularity of radio in Haiti). Outreach teams identified the radio stations listened to in rural areas. The rapid recruitment of a journalist from the region, who had good local media contacts, and was able to speak the language and understand local sensitivities, greatly facilitated relationships and work with the media.

Complementary written information was considered important to avoid misunderstandings. Messages were recorded by the team and used for broadcasting repeatedly on the main radio

and TV channels in the region. Visits to CTCs were organised for journalists and interviews with medical staff were facilitated (including pictures and film footage). Local health authorities were also involved in interviews. A progress report was prepared and delivered to the MSPP to provide information on the extent and evolution of work. It was combined with a message of thanks, focusing on the successful collaboration with the MSPP. The official closure of the CTC in the sports centre was carried out alongside local authorities, and with a donation of sports equipment, in the presence of the media. This helped ensure wide media coverage to assure people that it was safe to use it once again as a sports centre.

A summary report is available from Aurélie Lachant, Communications Advisor at OCG.[2]

3.2.1.2 IEC strategy

The information, education and communications (IEC) teams were organised differently in the Nord department and the Ouest department-Léogâne. In Léogâne, MSF already had an IEC team in place who quickly shifted their attention from post-earthquake work to cholera prevention. A first training on cholera for the 16 health agents took place in October 2010. The IEC team in Léogâne was very involved in different areas of the response beyond direct prevention work, for example soliciting acceptance for the construction of CTUs and CTCs, mapping cholera cases, and collaborating closely with WatSan teams.

In the Nord department there were two strategies, one focusing on the city of Cap Haïtien and its environs, and the second focusing on other rural communities. The latter was implemented in direct collaboration with the WatSan teams.

Fifty-five health agents were initially recruited to cover all MSF-supported structures and to work with patients, accompanying family members, local associations, churches and communities. Their responsibility was to diffuse messages on prevention, either face-to-face or to a wider audience. The emphasis was on a genuine interaction with patients, based on the understanding that cured patients would be the best ambassadors. Group sessions were organised through partners, for example local authorities, churches and schools. Information centres were opened in four locations; when the first one opened in Cap Haïtien, it had about 300 visitors daily.

In the rural areas, mixed IEC and WatSan teams were established to work jointly on safe drinking water in respective communities, for example installing boards with instructions for water treatment near water sources. These teams worked alongside the rapid response teams, who intervened in communities with newly emerging cases of cholera. Later on their work was handed over to the '*brigade communitaire*' organised by the MSPP.

The experience and the tools used in IEC work in the Nord department are summarised in a report by Hugues Juillerat published in March 2011.[3]

3.2.2 Rural strategy

Overall deployment in the north of Haiti started from the urban centre and went on to the outskirts, to semi-rural areas and then finally to rural areas. CTCs and CTUs (22 structures in total) were established in areas with a significant number of cases. A total of 97 oral rehydration points (ORPs) were set up, initially on the request of the community (especially in the north), and then on MSF's initiative, according to mapping and needs (ie a high number of cases in a given area). In the north there were intermediary forms: 'Centre traitement intermediaries' and 'stabilisation centres' (CS). Structures were transformed before closing down to adjust to the

2 Aurélie Lachant: Urgence choléra en Haiti : Rapport de capitalisation sur la stratégie de communication locale mise en œuvre par OCG à Cap Haïtien. Novembre 2010 – Janvier 2011.
[3]Hugues Juillerat: Urgence choléra en Haïti: Rapport de capitalisation sur la stratégie IEC à Cap Haïtien. Novembre 2010 – Janvier 2011

decreasing number of cases, for example CTCs and CTUs were scaled down to become CS and ORPs.

Where health facilities existed, isolation corners were set up nearby in order to continue case management after cases had reduced. The exit criterion for MSF was five or fewer patients per day for one full week.

Four multidisciplinary outreach teams were established to reach remote affected areas. Each team was composed of a medical, a WatSan and an IEC person. Their role was to follow the ORPs and CTIs, conduct IEC and collect data. Later on these teams became 'rapid response teams', which responded to alerts and reinforced medical and hygiene training etc.

The approach in Léogâne was similar in terms of mixed teams jointly addressing the different areas (medical, IEC, WatSan) in collaboration with a widespread volunteer network. The model of 'ORPs light' (about 100 in total) was slightly different there: all patients were referred on, while in the Nord department the ORS points took care of uncomplicated plan A cases (which amounted to approximately one-third of cases).

Severely dehydrated patients were referred from ORPs to CTUs or CTCs by public means of transport rented by MSF (tap-taps or moto taxis). These vehicles could be reached on a special number and were adapted to transport cholera patients.

The OCG teams clearly considered community leaders to be important stakeholders and gave them responsibility for land allocation and the recruitment and motivation of community staff.

3.2.3 Treating pregnant women

Cholera in pregnancy[4] is associated with high risk of stillbirth or abortion. Reported foetal loss, in the limited literature available, varies between 13.5% and 53%.

In Haiti, more than 270,000 cholera cases were registered between October 2010 and March 2011. Since the beginning of the outbreak, anecdotal accounts had related high foetal loss among women delivering in the cholera treatment units.

A specialised cholera isolation unit for pregnant women was set up inside the MSF hospital compound in Léogâne. Treatment for obstetric complications was available, including C-sections, neonatal resuscitation and an intensive care unit.

In this unit, World Health Organization (WHO) protocols for cholera treatment were more aggressively applied in terms of fluid and glucose replacement. All women had intravenous access established at admission, regardless of their hydration status. All received antibiotic treatment with erythromycin. Glucose was systematically added to intravenous treatment to prevent hypoglycaemia. Foetal status was monitored during hospitalisation, either clinically or with ultrasound.

Between 13 December 2010 and 28 February 2011, 102 pregnant women were admitted to the CTU in Léogâne. Of 102 women, 14 (13.7%) were in the first trimester, 50 (49%) in the second and 38 (37.3%) were in the third trimester of pregnancy. No maternal deaths occurred during admission to the unit. Of the 102 pregnant women, 81 (79.4%) preserved their pregnancies, seven (6.9%) delivered live newborns, with one neonatal death five days later, and 14 (13.7%) had a negative outcome: there were seven miscarriages and seven deaths in utero. Seven foetal losses occurred before admission, five in the second and two in the third trimester.

4 Summary adopted from an abstract entitled 'Pregnancy and cholera: pregnancy outcomes from specialised cholera treatment units for pregnant women in Leogane, Haiti"; presented at the MSF Scientific Day in London in 2011 by Mathieu Bichet, Iza Ciglenecki, Javier Tena and Nelly Staderini.

The Léogâne experience is the largest description of outcomes of pregnancy in cholera-infected patients. The results of foetal loss are comparable or better than most other published results. This indicates that specialised cholera units for pregnant women with close follow-up and more aggressive rehydration could help to reduce foetal loss.

3.3 Global findings and conclusion

The cholera intervention in Haiti was of an extraordinary scope and must be considered very successful given the circumstances encountered: it was the first time that cholera had been seen in the country for 100 years; there was political unrest, a rapid spread of the disease, and there were no emergency-preparedness measures in place. Much of the credit for the success of the intervention is due to the first team in Cap Haïtien for their strategic view and hard work, but also for their precise prediction of how the epidemic would evolve.

(1) Difficult context

This outbreak was made more complex by the humanitarian situation resulting from the 12 January earthquake. The living conditions of the population in Haiti made the country extremely vulnerable to the spread of cholera. Responding to the outbreak was challenging, because the population had never seen the disease, health workers were inexperienced in the management of cholera, and the existing health system was weakened by the earthquake. Pre-election violence and demonstrations played a significant role in limiting response activities at the very beginning, when supplies were blocked for days on the road.

(2) Lead technical role played by MSF in cholera response

From the very start of the cholera alert, and the declaration of the outbreak by the MSPP just two days later, MSF took an advisory and support role – supporting the MSPP as well as other actors. In addition to the huge numbers of cases directly treated by MSF, the organisation had an important impact in terms of technical support.

Medical coordinators were consulted for the definition of the national protocol, and advised on strategies. MSF treatment protocol was approved as the national MSPP one. Fifty-three percent of all cases nationwide were treated by MSF teams, including 15% by OCG (between October 2010 and February 2011). In addition, a number of actors received training and technical support from OCG and other MSF sections. MSF inter-sectional collaboration was judged effective, relevant and efficient.

(3) Insufficient risk assessment and preparedness for cholera

The risk of an epidemic in the Haitian water and sanitation context, and after a major natural disaster, had been downplayed in Haiti. OCG (like other sections within MSF, and like the government itself) had no real preparedness plan or activities for Haiti, and had no pre-positioned supplies, either locally or in the region, for cholera and other epidemic-prone diarrhoeal diseases. Different factors explain this, including the conclusion of humanitarian actors that 'epidemic disease was unlikely', and that overstating its risk could lead to the misallocation of resources and promote needless fear. In addition, cholera had been absent from Haiti for 100 years before October 2010.

Inside MSF, there was disagreement about the likelihood of cholera breaking out. One cholera kit was pre-positioned in Port-au-Prince due to an individual's decision. There had been a SMART test (a rapid test for cholera) in Port-au-Prince until September 2010, but it was sent back to HQ because of the near-expiry date and was not replaced.

(4) Rural decentralised strategy implemented effectively but with delay

The rural activities started around six weeks after the start of the CTC and CTU activities in the Nord department. Considering the scope of the emergency inside the city, and the

limited resources available at that time (of both HR and supplies), it is hard to imagine how an earlier start would have been possible.

The strategy was to implement a widespread network of CTUs and CTCs plus oral rehydration points (ORPs) in the community. The mode of deployment changed many times, depending on the phase of the epidemic and on collaboration with other partners. Over time it shifted from direct and rapid implementation to increased supervision and training in advance of the handover to the MSPP. For more details see 3.2.2.

(5) Reasonable balance between preventive and curative activities

In a smaller outbreak, MSF would be as focused on trying to break transmission as on treatment, carrying out community awareness and education efforts, chlorinating water, and so on. In the Haiti situation, however, it was necessary to decide how to be most effective with the available capacities. Other MSF sections mainly focused on serving the most severe cases in urban areas, while pushing other actors to fill in the gaps elsewhere. OCG successfully carried out most of the aforementioned comprehensive prevention activities in both urban and rural areas. The initial efforts could have been timelier, with the allocation of more resources and a more rapid deployment. After the initial stage (six weeks) OCG had achieved a reasonable balance between preventive and curative activities.

(6) Social mobilisation as key to intervention and rapid scale-up

Timely and appropriate communications efforts, which concentrated on local media (allowing international communications to be managed from Port-au-Prince), together with immediate IEC and health promotion activities, were key factors in the success of this response. Despite initial public consternation, these measures helped gain acceptance and utilisation of services, and allowed rapid intervention and scale-up. Thanks to the existing health promotion and IEC[5] capacities in Léogâne, expertise and resources were quickly made available for both the Nord department and for Léogâne. For more details see 3.2.1.

(7) Overall good case management, but space for improvement

Medical case management by OCG was appropriate and followed agreed standards (average CFR <2% in MSF-supported health structures). However, issues that affected the quality of the case management were:

- Intra-osseous drill for children and adults (when IV access is not possible) was judged useful, but was introduced late in Haiti.
- An over-use of IV fluids has been identified through analysis of epidemiological data and through interviews.
- Zinc was added to the treatment protocol for children,[6] but with some delay. Medical staff are not fully aware of the usefulness of zinc supplementation in diarrhoea control.
- Cholera kits had not been updated and were therefore not adapted to the needs (eg no zinc, no paediatric drips, no erythromycin).
- Misunderstandings were observed among medical staff (and between different MSF sections) regarding the level of dehydration, administration mode (IV or oral), and treatment plan. This leads the evaluator to question the usefulness of Plan A, B, C classifications.

5 OCG uses the term 'IEC' to describe all social mobilisation and health promotion activities. The evaluator considers this terminology inadequate, as it downplays what social mobilisation/ health promotion is about and the range of activities that can go with it.

[6] Zinc supplementation for diarrhoea treatment is evidence-based and a WHO recommendation since 2005. Zinc reduces mortality in children, reduces admissions to hospital for diarrhoea, and reduces the duration and severity of treated episodes.

(8) Innovative management of cholera in pregnant women

Pregnant women received special attention in OCG-supported CTUs and CTCs. A new protocol for cholera in pregnancy evolved, which led to good outcomes. Such success has not been documented elsewhere before. The strategy used in Léogâne was also adopted by the OCG team in the Nord department (though has still to be adopted by other MSF sections).

The protocol for managing pregnant women with cholera was innovative and implemented for the first time in Haiti. The approach was judged simple, feasible in an emergency context and cost-efficient, especially in term of lives-saved for mothers and babies. For more details see 3.2.3.

(9) Much work, but no comprehensive strategy on water and sanitation

There was much activity in the area of water and sanitation, with a clear focus on ensuring safety and hygiene around cholera treatment facilities. MSF WatSan teams played an important role in training and providing support to other actors.

In terms of water treatment, there was a plethora of approaches to chlorination at household and community levels. Multiple chlorination products with different dosages and dilution methods (utilised by various MSF sections, NGOs and the UN) confused the population and had a negative impact. No harmonisation was achieved, a situation which was still unchanged in July 2011.

Within OCG an overall WatSan strategy for community outreach was lacking. There were not enough experienced WatSan people who could have coached and coordinated outreach teams. It is also important to distinguish between staff needs for curative activities (inside CTUs and CTCs) and staff needs for preventive activities (outside CTUs and CTCs). The WatSan officer responsible for the prevention activities was too often absorbed by demanding CTC/CTU strategy. This affected the timeliness of the implementation of a preventive WatSan strategy outside CTCs and CTUs.

(10) Innovative faeces/excreta management

Faeces/excreta management in CTUs and CTCs was mainly done using pits, but this was not possible everywhere due to the high water table. Therefore in some CTUs (eg Bravo and Cap Haïtien), faeces had to be stored in large tanks until a solution for disposal was found. An innovative process was implemented by OCG to treat and dispose of faeces using physiochemical treatment with hydrated lime (this was piloted by OCA in collaboration with Brighton University).

(11) Inadequate technical briefings before departure increases pressure in the field

The extensive briefing and training of expats (especially first missioners) is considered important to ease pressure on experienced staff in the field.

The first wave of staff, including those on their first mission, was all too often sent directly to the field, without receiving a face-to-face briefing in Geneva. Briefing in the field takes up valuable time in an emergency, and often had to be kept basic. At HQ level, efforts were made to conduct special briefing sessions in Geneva (partly in collaboration with MSF in Paris), but due to many practical challenges (expats not passing through Geneva, timing of departures, line managers lacking the time to conduct the briefings), these sessions were irregular and insufficient. Only at a later stage (after January 2011) were additional, experienced staff hired by the medical department to help with the medical briefings and debriefings at HQ. On the field level, the deployment of a 'flying training team' to help prepare for opening new CTUs and CTCs proved successful.

(12) Underuse of laboratory services to understand parallel infections

WHO and MSF recommendations for use of laboratory confirmation in cholera outbreaks were not implemented (there was no lab use in the middle of the outbreak, and no regular AST testing before March 2010, etc).

The increasing proportion of children being brought to most CTUs and CTCs during the five-month period indicates the presence of diarrhoeal diseases other than cholera. In the absence of regular biological confirmation of a sample of cases throughout the outbreak, treatment protocols were not adapted to cover possible other bacterial causes of diarrhoea, such as shigellosis.

(13) Appropriate collection and relevant use of epidemiological data, but disagreement on ambitions

Epidemiological data collection (data managers in CTCs and CTUs) and analysis (OCG epidemiologists) were globally appropriate in regards to the emergency context. Even if OCG data included only cases who presented in CTUs, CTCs or ORPs (so representing just the 'tip of the iceberg'), they were effectively used by field teams to map cases, plan and orientate their activities. Epicentre's intersectional epidemiologist positions were of great use and ensured smooth coordination and collaboration between MSF and the MSPP.

Within OCG, there is disagreement about MSF's role in epidemiological surveillance in Haiti, especially related to data collection for rural areas outside MSF structures. Some believe that MSF should enlarge its role in surveillance to be able to better map the evolution of the outbreak in the community and so intervene more efficiently. Others think it is far beyond MSF's mandate to do this, and that the MSPP and WHO should keep the lead in surveillance for sustainability and efficiency purposes.

The evaluator believes epidemiological surveillance in rural areas (outside MSF health structures) is, for the moment, far beyond MSF's mandate and current capacities. Instead MSF should work collaboratively with the MSPP and WHO to share data and refine their mapping to better orientate strategic decisions.

(14) Clear exit strategy in Nord department in collaboration with the MSPP

Though the issue of exit is beyond the scope of this evaluation, we will touch on it here, as the efforts underway could be directly observed during the field visit. OCG ended its intervention in the north in September 2011 and has handed over activities to the MSPP. Though it was an obvious challenge for the teams to let go of the responsibility for high quality medical care, the efforts made from the beginning to train, involve and communicate with other partners, primarily the MSPP, have yielded very good results in terms of their capacity to manage future cases. With additional funding, the MSPP has taken over a majority of MSF's locally-hired staff and continues a large part of MSF's activities. MSF did not pay health staff according to MSPP salaries, which later caused the MSPP some difficulties with regard to the handover.

(15) Vaccination not implemented as a preventive activity

Vaccination was not used in Haiti as a preventive measure to control the outbreak. The main reasons were:

- No pre-qualified vaccines existed at the start of the outbreak, but today (October 2011) pre-qualified vaccines exist .
- The manufacturer's stock of vaccines was not big enough to cover the needs in Haiti.
- Vaccine use would have required a lot of effort in terms of health education and resources, as with an efficiency of only 60-70%, an already sceptical Haitian population could easily have lost trust in MSF's capacity to respond effectively to the outbreak.
- The use of the vaccine, with its known weaknesses (efficiency, never used on a large scale to control a countrywide epidemic etc) could easily have exacerbated a tense situation and led to security issues amongst a population already suspicious of foreign humanitarian aid.

3.4 Take-up of previous 'lessons learned'

Many of the key findings emerging from previous evaluations of cholera outbreak response (eg OCG's 2007 *Evaluation report of epidemic response*, and MSF's intersectional evaluation reports following outbreaks in Angola in 2006 and Zimbabwe in 2009) apply again for Haiti.

There are a number of 'lessons learned' and recommendations, confirmed by the experience in Haiti, which should be revisited.

Table 5: Implementation status of previous recommendations:

	Source	**Implementation status (Oct 2011)**
• Missions should be better prepared for epidemics, ie **preparedness plans and emergency stocks** are to be checked and updated regularly.	• MSF-OCG 2007 Evaluation report, epidemic response • Angola 2006 cholera outbreak evaluation report, MSF all sections	No e-prep for diarrhoeal diseases in Haiti (true of all MSF sections). NB: One cholera kit was available for OCG.
• Expatriates should be carefully **trained and briefed** at headquarters beforehand. • **Adequate training** for all expatriates and national staff must be organised at an early stage.	• MSF-OCG 2007 • Zimbabwe 2009 • Angola 2006	Not done for cholera in Haiti on a standard basis and at an early stage (for the first wave, Oct to Dec 2010).
• **Ready-to-use training modules** (<u>for cholera</u>, meningitis) could help to quickly organise short training sessions in the country. • A one-day cholera training session has been developed by OCBA	• MSF-OCG 2007 • Zimbabwe 2009 • Angola 2006	No standardised ready-to-use module training in MSF-OCG exists
• **Update cholera guidelines**	• Zimbabwe 2009 • Angola 2006	Updated guideline not published (version 2004)
• **Add zinc** to MSF cholera kits and to treatment protocols where appropriate	• Zimbabwe 2009	Zinc not yet available in cholera kits. Addition of zinc to MSF treatment protocols was forgotten at early stage of the intervention. It has since been added.
• Investigate adaptation to treatment protocols for **malnourished** cholera patients and cholera patients with **HIV**	• Zimbabwe 2009	Not implemented on a standard basis in Haiti (ad hoc only). Malnutrition is an issue in Haiti.
• **Expatriates with experience** of treating cholera should be sent as quickly as possible to the field in an emergency.	• Angola 2006	Done for first wave of deployment, but significant lack of experienced staff for the second wave (majority were first mission).

• In order to **retain a pool of experienced expatriates**, continual training and monitoring of current knowledge, and experience of the HR pool, should be reinforced.	• Angola 2006	No continual training and monitoring; general issues with HR management.
• MSF should be responsible for the hiring and **remuneration of national staff**. If national staff are provided by the MoH, MSF should pay incentives from the first day that the MoH staff work in a health structure run by MSF.	• Angola 2006	Done in Haiti, but MSPP salary scale not respected so created huge difficulties for the handover to MSPP in Nord department. ORP and 'ORS light' points were run on a voluntary basis (non-paid) by community members. This was judged appropriate in the Haitian context.
• In order to optimise a cholera intervention, **curative and preventive strategies have to be considered together**. Tasks for both strategies have to be clearly described and **human resources independently** dedicated to each of the strategies.	• Angola 2006	HR (WatSan outside CTC/CTU, IEC, comms) were absorbed by curative activities at the beginning. Field staff had to advocate/ negotiate with HQ to get the necessary support.
• **Preventive water, hygiene and sanitation** results can be achieved in an emergency context (short timeframe) with targeted activities based on mapping of cases and environmental conditions.	• Angola 2006	Ad hoc strategy in Haiti, and not standardised in all sites. Bucket chlorination not implemented as a standard. Management of dead bodies outside CTU/CTC was an issue (MSPP role? MSF role to support?)

4 Recommendations

Here are the recommendations to further improve OCG response to cholera and overall diarrhoeal diseases in the future:

(1) Ensure balance between PREVENTIVE and CURATIVE strategies

Curative and preventive response activities should be implemented by two different teams, but following complementary strategies, under a common coordination mechanism. Each team should have its own budget, HR, strategies,etc. Curative and preventive strategies should be started at the same time in order to have a real impact on cholera.

(2) Strengthen epidemiological capacity to monitor and orientate response

Epidemiologists should be sent to the field together with the first medical staff to ensure timely implementation of a surveillance system based on CTC/CTU/ORP data. This will enable a dynamic "approximate" mapping of the outbreak. A pool of epidemiologists should be formalised within OCG to respond to this strategic need.

(3) Define a clear WATSAN strategy outside the CTC/CTU

In order to have a real impact on prevention, OCG must define a global WatSan strategy outside the CTC/CTU and invest accordingly.

On field level, two separate WatSan teams should be provided for each of the two response axes - curative and preventive - with distinct terms of reference.

- In a big outbreak, WatSan coordination and supervision at field level must be strengthened. A WatSan advisor as part of the emergency coordination team could ensure consistency for integrated WatSan activities.
- At HQ level, one proposition is to have a stronger Watsan capacity and consequently reposition/reorganise the service.
- At the minimum, WatSan technical activities for each cholera outbreak should include:
  - Bucket chlorination by dedicated staff/volunteers at water sources;
  - (And/or/then) chlorine distribution, always combined with training and IEC on how to chlorinate home water for individuals;
- In order to address the danger of markets as sites of cholera transmission, MSF should include safe market-related activities (latrines, hand-washing points, hygiene education, control of water sold in the markets etc) in its Watsan strategy and/or lobby for other actors to address these needs.

(4) Develop guidelines for social mobilisation in a cholera response

The Haiti experience has proved the usefulness of social mobilisation and health promotion in outbreak control. OCG should commit itself to a social mobilisation/health promotion strategy and develop capacities accordingly. A draft protocol has been proposed, based on the Haiti experience, and should be built upon and finalised.

(5) Invest in staff preparation and training for cholera response

- A modular system would improve the preparation of staff going to work in a cholera outbreak; this should consist of (self-acquired) theory and background information, specific briefing by an expert, and on-the-spot coaching and supervision.
- A technical tool for self-learning could be developed (e-learning or not).
- For briefings and debriefings, additional support staff should be hired at HQ level; these staff would closely cooperate with line managers.
- A training coordinator position for emergency interventions should be created.
- Training sessions and/or annual refresher courses on cholera (and other subjects?) should be considered for potential teams. The aim should be to ensure a consistent pool of trained or experienced staff.

(6) Use laboratory services to monitor and react to outbreak dynamics

Biological surveillance of residual cases is essential to understand and follow a cholera outbreak. OCG operations should follow a systematic method on how, when, why and which tests (rapid tests or gold standards) to use for laboratory confirmation in cholera outbreaks (including confirmation of outbreak, evolution of outbreak, end of outbreak, antibiotic susceptibility testing, concomitant outbreaks of other diarrhoeal diseases etc).

(7) Prepare to use vaccination as part of a prevention strategy

The cholera vaccine was used for the first time in 1997. There is a need for MSF to go forward and start using the vaccine as part of an overall preventive strategy during large or medium scale outbreaks. As the current main issue is the low level of stock, OCG should think about stockpiling the vaccine and using it in a reactive mode in a future outbreak. Two doses are needed, which will not be realistic under certain field conditions, so innovative ways of using the vaccine will need to be found.

(8) Improve specific issues in case management

- Intra-osseous drill for children and adults should be added to the cholera kit.
- MSF should adhere to the recommended use of zinc. It should be added to the cholera kit and to the treatment protocol, and its use explained to medical staff.
- Plan A, B and C classifications should be reviewed, as they are misleading. A simplified protocol should be decided instead.

(9) Contribute to the revision of MSF cholera guidelines

OCG's innovations and experiences in Haiti should be shared and integrated into the revised MSF cholera guidelines, specifically the new protocols for pregnant women and for the management of excreta and the specific lessons learned on IEC, communications and WatSan. The following should also be considered:

- Describe the WatSan activities to be implemented outside health structures.
- Describe possible strategies for rural settings, using the Haiti experience.
- Provide a range of already field-tested IEC materials, including posters, pamphlets, radio messages etc. These should be in English, French, Spanish and Portuguese, possibly on a CD rom.
- Add innovative IEC and local communication methods, for example using SMS to send text messages by mobile phone.

It is a sad fact that today, in Haiti, more than one million people remain homeless. Shelter is vastly inadequate, and water and sanitation services still fail to meet the needs of the people. Together they continue to create the conditions for future outbreaks of disease. In this context, cholera is unlikely to disappear from Haiti. Not only will cholera be endemic in the country, but epidemics are likely to recur. Haiti – and MSF – must be prepared to respond to such outbreaks in the future.

5 References

- MSF *Cholera guidelines*. 2004.
- WHO. *Prevention and control of cholera outbreaks: WHO policy and recommendations.* http://www.who.int/Cholera/technical/prevention/control/en/index.html. Accessed: 5 August 2011.
- WHO. *Cholera vaccine in complex emergencies: WHO recommendations*; Cairo meeting, 2005.
- WHO. *Cholera outbreak: assessing the outbreak response and improving preparedness*; Global Task Force on Cholera Control. Publication date: last update in November 2010.
- WHO. *Progress Report 2002: Global defense against the infectious disease threat.* Chapter on cholera, pages 74-79; 2003.
- WHO. *First steps for managing an outbreak of acute diarrhea*; Global Task Force on Cholera Control, Publication date: last update in November 2010.
- WHO. *Acute diarrhoeal diseases in complex emergencies: critical steps*; Global Task Force on Cholera Control. Publication date: last update in November 2010.
- BASICS (Basic Support for Institutionalizing Child Survival). *Controlling Cholera: A checklist for planners*; Published 1996.
- ICDDRB/USAID. *Cholera Outbreak Training and Shigellosis Program (COTS)*; www.cotsprogram.com. Version 1.0.
- MSPP/WHO. Anne Perrocheau, Carine Clermont, Daniel Henrys, Jonathan Novoa, Pierre-Yves Oger. *La réponse à l'épidémie de choléra en Haïti - Leçons Apprises*; 28 Mars au 22 Avril 2011.
- MSF-CH. Yann Lelevrier. *Evaluation des activités WatSan MSF-OCG*. Haiti département du nord, février/mars 2011.
- MSF-CH. Yann Lelevrier. *Eau, hygiene, assainissement propositions pour un plan de prévention Cholera* ; HAITI Département du Nord. Février-Mars 2011.
- MSF-CH. Hugues Juillerat–responsable prévention et promotion de la santé sur la mission d'urgence en Haïti. *Urgence choléra en haiti : rapport de capitalisation sur la stratégie iec à cap haïtien, novembre 2010 – janvier 2011*. mars 2011.
- MSF-CH. Hugues Juillerat. *Guide pour la mise en place de procédure d'éducation a la sante-destine a l'urgence Cholera ;* 2011.
- MSF-CH. Aurélie Lachant. *Urgence choléra en Haiti : Rapport de capitalisation sur la stratégie de communication locale mise en œuvre par OCG à Cap Haïtien*; Novembre 2010 – Janvier 2011.
- Fédération internationale des Sociétés de la Croix-Rouge et du Croissant-Rouge. *Haïti de l'urgence au long terme: le défi de l'assainissement*. Rapport spécial, six mois après, Genève, 2010.
- O'Hagan, Love and Rouse. *An Independent Joint Evaluation*; Joint CARE-Save the Children evaluation of earthquake response in Haiti.
- UNEG United Nation Evaluation Group. *Haiti Earthquake Response. Mapping and analysis of gaps and duplications in evaluations.* ALNAP Active Learning Network for Accountability and Performance in humanitarian action, DAC Network on development Evaluation. February 2011.
- Epicentre. Gerstl, S and Alberti, K. *Overall response tocCholera epidemics in Angola in 2006 – Evaluation of the MSF intervention (Internal Report)*. Paris, 2007.
- ALNAP. *Evaluating Humanitarian Action Using the OECD-DAC Criteria: An ALNAP Guide for Humanitarian Agencies*. ALNAP, Overseas Development Institute, London, March 2006.
- Oxfam. *Real Time Evaluation of the Cholera Response in Zimbabwe*; 09 February – 19 February, 2009.
- Haitian Red Cross. *Cholera outbreak: note on community beliefs, feelings and perceptions*; psychosocial support programme. December 2010.

- European Commission, Directorate-General Humanitarian and Civil Protection – ECHO. 'Terms of Reference for the Real Time Evaluation of DG ECHO's Response to the Haiti Crisis and Review'. 2010.
- Groupe URD. 'Beyond Emergency Relief in Haiti'. Produced at the request of the European Commission, January 2011.
- IASC. 'Response to the Humanitarian Crisis in Haiti following the 12 January 2010 Earthquake'.
- Inter-Agency Standing Committee. *Achievements, Challenges and Lessons to be Learned*, Haiti Earthquake Response 6-Month Report. 14 July 2010.
- MSF. *Haiti One Year After: A Review of Médecins Sans Frontières' Humanitarian Aid Operations;* 10 January 2011.
- Oxfam International. *Haiti Progress Report 2010: An Overview of Oxfam's Humanitarian Response to the Haitian Earthquake*. 6 January 2011.
- Oxfam International. *From Relief to Recovery: Supporting Good Governance in Post-earthquake Haiti*; Oxfam Briefing Paper, 6 January 2011.
- ALNAP. K. Smart. *Counting What Counts: Performance and Effectiveness in the Humanitarian Sector;* ALNAP Review of Humanitarian Action, Chapter 1.
- DAC, OECD. *Guidance for Evaluation Humanitarian Assistance in Complex Emergencies,* 1999;
- ALNAP, ODI. *Evaluating humanitarian action using the OECD-DAC criteria*, An ALNAP guide for humanitarian agencies. London, March 2006

6 Annexes

6.1 Terms of Reference

Review of the
OCG response to cholera in Haiti,
Oct 2010 – March 2011

Commissioned by:.....Operational and medical director, OCG
Starting date: .....26 June 2011
Duration: .....Three months

Terms of reference elaborated by: Iza Ciglenecki, Eric Comte, Annick Antierens, Monica Rull, Lauren Ligozat, Sabine Kampmüller, Anneli Eriksson (OCB)

CONTEXT

After the disastrous earthquake in Haiti in January 2010, cholera appeared in Haiti for the first time for almost a century in October 2010. Almost 300,000 people fell ill and more than 4,500 died.

MSF had treated more than 110,000 patients by mid-February 2011. OCG was running a significant part of this response in Cap Haïtien and Léogâne.

This was one of the biggest interventions in response to cholera that MSF has ever been involved in. A number of new strategies were applied and should be evaluated and documented for the future.

OBJECTIVE and PURPOSE

The objective of the evaluation is to provide an analysis of the overall effectiveness and appropriateness of different strategies used.

The evaluation process will ensure sharing and documentation of the main lessons learned for future cholera interventions.

KEY EVALUATION QUESTIONS

i) How appropriate were MSF's chosen strategies for responding to the nationwide epidemic in different settings (urban and rural)?
- *Describe strategies and compare them*
- *Describe constraints and challenges in various settings*
- *How was epidemiological information used for planning of activities and lobbying?*
- *Briefly describe the specific experience of treating pregnant women*
- *Consider input & resources per strategy*
- *Analyse main epidemiological outcomes*

ii) What were the main lessons learned?
- *Draw from capitalisations done by medical, WatSan, IEC and comms specialists*

The MSF cholera guidelines as well as the WHO guidelines will serve as a reference in the evaluation process.

EXPECTED RESULTS and INTENDED USE OF THE EVALUATION

- Describe epidemic in the regions where OCG (OCB?) was working
- Description, comparison and analysis of different strategies (set-up, partners, allocation of resources etc)
- Analysis/comparison of main medical outcomes (AR?, no of cases treated, CFR, etc)
    - Description/analysis of factors influencing effectiveness (staff qualifications/training etc)
- Description of preventive measures in each location
- (Global) description of partnerships, advocacy activities
- Description of the experience treating pregnant women
- **Summary of main lessons learned**
- Recommendations for possible changes to the cholera guidelines and generally for future interventions

The outcomes of a retrospective mortality study (by Epicentre) will be used for analysing community outcomes in relation to the MSF intervention.

PRACTICAL IMPLEMENTATION OF THE EVALUATION

Desk study/analysis of available epidemiological/outcome data for different locations.
Interviews with staff, ops managers etc.
Field visit to key locations, interview with partners, national staff etc.

RECOMMENDED DOCUMENTATION

Final report of the independent panel of experts on the cholera outbreak in Haiti

6.2 List of people interviewed or consulted

Name	Organisation	Means	Date
114 MSF staff with 58 responding	All OCG staff involved in cholera response • Staff from Cap Haïtien project • Staff from Léogâne project • Léogâne regular team involved in cholera • HQ staff, who had worked in the field during the outbreak • Regular coordination staff involved in cholera response • Selected MSF Epicentre staff	Web survey	From 24/06/2010 to 12/07/2011
8 MSF HQ staff lessons learned workshop, conducted by Sabine Kampmueller	OCG HQ staff involved in cholera response • Guillaume Queyras • Helmi Mekaoui • Esther Sterk • Annick Antierens • Aurélie Lachant • Véronique Mulloni • Naoufel Driri • Sebastien	Workshop	19/07/2011 in OCG office, Geneva
Dominique Legros	WHO HQ/DCE, Geneva and MSF OCG Board member	Phone	16/06/2011 and 20/07/2011
Pat Drury	Project manager, GOARN, Alert and Response Operations, GAR/ARO, WHO, Geneva	Face to face	29/07/2011
Miriam Henkens	Medical Coordinator, MSF International, consulted in Geneva	Face to face	29/07/2011
Pilar Ramon Pardo	Advisor, Alert and Response and Epidemic Diseases, Regional Office for the Americas, Pan-American Sanitary Bureau, WHO PAHO, Washington, consulted in Geneva.	Face to face	29/07/2011
Kate Alberti	MSF Epicentre, Paris	Phone	11/07/2011
Katharina Resch	MD, worked in rural CTC, Nord department	Phone	15/07/2011
Guillaume Queyras	Log, MSF OCG, Geneva	Face to face	12/07/2011
Ludovic	Log, based Cap Haïtien and Léogâne	Face to face	12/07/2011
Anne Perocheau	WHO Consultant for evaluation response cholera	Phone	15/07/2011
Oifa Bouriachi	Adj. RP, Emergency cell, MSF OCG, Geneva	Face to face	22/07/2011
Helmi Mekaoui	Adj. RP, Emergency cell, MSF OCG, Geneva	Face to face	19/07/2011 and 21/07/2011
Iza Ciglenecki	Emergency programmes manager, Emergency cell, MSF OCG, Geneva	Face to face and phone	08/07/2011 and 12/09
Laurent Ligozat	Associate director, Op Dep, MSF OCG, Geneva	Face to face	21/07/2011
Eric Comte	Medical director, Med Dep, MSF OCG, Geneva	Face to face	20/07/2011 and 15/09
Esther Sterk	Med dept, trop med expert in OCG, Geneva	Face to face	11/07/2011
Monica Rull	RP, MSF OCG, Geneva	Face to face	11/07/2011
Florian Teutsch	WatSan, MSF Vienna, Austria	Phone	18/07/2011
Hugues Robert	Chef de Mission	Phone	15/07/2011

Aurélie Lachant	Communications officer (emergency), MSF OCG, Geneva	Face to face	13/07/2011
Kenneth Lavelle	Adj. RP, cell 2, MSF OCG, Geneva	Face to face	20/07/2011
Gerard Beddock	Head of mission, Port-au-Prince, Haiti	Face to face	25/07/2011
Cecile Bassi Foulon	Medical coordinator, Port-au-Prince, Haiti	Face to face	25/07/2011
Bruno Bellaton	Flying log WatSan, Nord dept (Cap Haïtien) , Léogâne, Haiti	Face to face	25/07/2011
Tatiana Kourline	IEC coordinator, Léogâne, Haiti	Face to face	27/07/2011
Baptistin Francois	IEC supervisor, Léogâne, Haiti	Face to face	27/07/2011
Sheila Fortune	IEC supervisor, Léogâne, Haiti	Face to face	27/07/2011
Luckenson Jean Francois	IEC supervisor, Nord dept (Cap Haïtien) and also in Léogâne, Haiti	Face to face	27 and 28/07/2011
Helen Rymshaw	Emergency coordinator, Nord dpt (Cap Haïtien) and from April 2011 field coordinator, Léogâne, Haiti	Face to face	27 and 28 /07/2011
Chery	National medical doctor (CTC Brache, CTU, Léogâne container hospital), Léogâne, Haiti	Face to face	28/07/2011
Marie Tesse	Nurse, Léogâne, Haiti	Face to face	28/07/2011
Marleen de Tavernier	Emergency MedCo, Port-au-Prince, Haiti (now with Save the Children in Léogâne)	Face to face	28/07/2011
Gaelle Breteau	Midwife, Léogâne, Haiti	Face to face	28/07/2011
Basette Gertoli	Log WatSan, CTC Brache, Léogâne, Haiti	Face to face	29/07/2011
IEC officers (9 persons)	Nord dpt (Cap Haïtien), Haiti	IEC Meeting, face to face	29/07/2011
Dr Julius	Medical doctor, CTC Bravo, Nord dpt (Cap Haïtien), Haiti	Face to face	29/07/2011
Dominique Elius	Log WatSan (in outreach tem, for CTC/CTU and WatSan trainer), Nord dpt (Cap Haïtien), Haiti	Face to face	30/07/2011
Dr Benson	Medical doctor (CTC Fort St Michel) and medical in IEC outreach team, Nord dpt	Face to face	30/07/2011
Laurence De Vignes	Field coordinator, Nord dpt	Face to face	30/07/2011 01/08/2011
Linda	Nurse, CTU Dondon, Nord dpt	Face to face	01/08/2011
Pierre Reynald	Dondon HC administrator, Nord dpt	Face to face	01/08/2011
Durosier Frisner	Director, Dondon town hall, Nord dpt	Face to face	01/08/2011
Ernst Robert Jasin	Director, MSPP, Cap Haïtien	Face to face	01/08/2011
Yannick Emboise	OXFAM hygiene promotion, Cap Haïtien	Face to face	01/08/2011
Ulrich Saint Just	Medical doctor (CTC sports centre), medical supervisor, and IEC supervisor, Cap Haïtien	Face to face	01/08/2011
Aurora Revuelta	Medical coordinator, OCA, Port-au-Prince	Face to face	02/08/2011
Virginie Garat	HR , E-cell, MSF HQ, Geneva	Face to face	14/09/2011
Veronique Mulloni	WatSan MSF HQ, Geneva	Face to face	12/09/2011
Dr Mike	Medical doctor, Staff Health, MSF Geneva	Face to face	14/09/2011
Hugues Juillerat	Health promotion specialist, MSF Haiti	Face to face	15/09/2011
Matthieu Bichet	MedCo, Haiti	Phone	26/09/2011
Anja Wolz	Emergency coodinator, Cap Haïtien	Not possible	Not feasible

6.3 Web survey results

Table 6 : Summary of the anonymous web survey participation

	Number
Total no of staff from MSF HR data + Epicentre staff	142
Total no of staff with email addresses	128
Total no of staff with valid email addresses	114
Staff who responded	58

Final **response rate** was **50.1% (58/114).** One-third of these had previous experience in a cholera response.

The vast majority of respondents (90%) considered the MSF response (totally or almost totally) appropriate. When asked more specifically about appropriateness in urban and rural settings, it was rated much more positively for urban settings, with 86 %, compared to 68 % for rural settings.

The three main areas of work considered as strengths in the MSF response:

- Case management: no of patients treated, reactivity setting up CTC/CTU etc.
- Logistics and supplies
- Epidemiology and surveillance.
- Involvement of the community (Com+IEC)

The main suggestions for improvement in the next three years ('weaknesses'):

- Human resources (experience +/- no)
- Training /briefing (pre-departure or on-the-spot) and debriefing (post-mission)
- WatSan (not Log)
- Cholera guidelines/protocols
- HQ□Field decision making process
- Involvement with other partners
-

Other issues emerging from the comments of respondents:

- Care of geriatric patients forgotten
- Funeral practices not tackled

Possible solutions proposed by respondents:

- Dedicated HR for **preventive activities**
- **More experienced RH** (with management skills)
- **New cholera guidelines or standard tools**: med, WatSan, social mob.
- **Clear standardised command line for decision making** between HQ and field coordinator in emergency
- More **WatSan** staff and resources, and greater WatSan role in decision making□ separation between WatSan and Log; need for a WatSan coordinator in field. More space to retain and develop core team of experienced WatSan staff in the field and at HQ
- **Early set up of training unit (HQ+ field)**. More support from HR department to send trainers during the initial stage of the outbreak
- Specialised standardisd **training "kits"**
- Be more humble in decisions/ interventions/ communications with other organisations. Quote "MSF doesn't know everything".

WatSan has been identified by 80% of the respondents as a huge priority for OCG to look at in the near future. **Involvement of the community** was not seen as a major weakness by 62% of the respondents. Example quote:
"This was not the main weakness, as the involvement of the community was the core of the strategy and was pushed to its extreme by OCG team in northern Haiti".

6.4 Comparison of response strategies

Table 5: Description and comparison of response strategies in MSF-OCG sites

	Nord department	**Léogâne**
Target population	Cap Haïtien urban 300,000+ Cap Haïtien rural 300,000 Exact total population for epidemiological purposes: 711,294	Léogâne urban 80,000+ Léogâne rural 200,000 Exact total population for epidemiological purposes: 214,861
Context	Cap Haïtien is the second biggest city in Haiti. The population in the department is spread over 19 municipalities and 80 communal sections (urban and rural). The most densely populated area is the district of Cap Haïtien.	35 km away from the capital Port-au-Prince. OCG runs a 160-bed private container hospital in Léogâne, focusing on secondary level care with trauma, paediatric, obstetric, maternal, orthopaedic and neonatal care (since 2010). Other towns covered by MSF-OCG in Ouest department were Gressier and St Etienne.
Number of MSF structures	Implementation of around 22 health structures; either autonomous, or integrated into already existing structures, and 70 oral rehydration points. OCG was present in nearly all municipalities. The following communes were covered by OCP: Ranquitte, La Victoire, Pignon and Saint Raphaël. Other sites were covered by the Cuban Medical Brigades: Plaine du Nord, Port Margot et Grande Rivière du Nord.	Four MSF-supported health structures (one CTC, two standard CTUs and one obstetric CTU) and 72 'ORS light' points at the emergency stage.
Main innovative strategic features	• Extensive **local communications, well integrated with IEC** activities (using outreach mobile team) and with medical activities, to calm and inform the frightened population. • Establishing a **decentralised system for triage, referral and treatment using community-run ORPs** in areas identified using CTC/CTU data (mapping). • Ensuring excreta management (pilot test of new method) at medical facilities.	• Timely use of existing IEC capacities for social mobilisation around cholera. • Maintaining a safe and efficient network for referral of severe cases to cholera treatment centres (**'ORS light'**). • Innovative care for **pregnant women** with cholera, with positive outcomes. • WatSan interventions at market places.

Rural strategy differences	• Strategy of ORPs run by community volunteers (MSF provided logistics, supplies and training, but no salary) with mobile MSF outreach team in charge of their supervision. • The ORPs took care of Plan A cases, meaning they effectively relieved CTUs and CTCs of about 30% of cases.	• Strategy of 'ORS light': one community volunteer with no specific building or location. Main role: referral and health promotion/ education, distribution of ORS. • Impression that in Léogâne more people came directly to CTUs and CTCs without being referred by 'ORS light' points, because of stigma when treated in their neighbourhood.
Other differences	• Almost no other medical actors during the emergency phase except the Cuban Medical Brigades. • Several private and church-run hospitals were treating patients – in rural areas MSF mainly supported these structures or established CTUs linked to them.	• As other actors increasingly got involved in cholera, OCG's focus moved to the most severe cases. • A major advantage in Léogâne was the **pre-existence of the hospital and the different services and experts**, which were effectively used to kick off or technically support the cholera response. This applied to the IEC team, who immediately shifted from their regular activities to cholera preparedness and response and provided HR for the Nord department. This also had an impact on maternity management, allowing staff to anticipate and initiate special care for pregnant women. Mental health staff also came up with a proposal for providing psychological support to cholera patients and bereaved families.
Dead body management	While MSF's theoretical strategy is to ensure the safe removal and burial of dead bodies, this was not fully possible due to cultural and political tensions. OCG managed the dead bodies only inside the CTU/CTC structure, and the MSPP was in charge of burials. Distribution of mortuary kits and training were offered, but the impact of this is difficult to evaluate. Dead body management in rural areas was not covered by OCG.	
Transport of patients	In both Nord and Ouest departments, MSF rented local means of transport (eg tap-taps) for the referral of cholera patients from the area. In Léogâne, these vehicles were adapted with cholera beds and plastic sheeting. There was a special phone number to be called for cholera patient transport. For transfer on foot, all ORPs were equipped with stretchers for carrying patients.	