Letters to the Editor

Cholera treatment in Goma

SIR—Siddique and colleagues report (Feb 11, p 359) on the treatment of diarrhoeal diseases in the recent Goma refugee crisis. Médecins Sans Frontières (MSF) was said to have been running treatment centres at Mugunga camp between July 26 and Aug 7, 1994. MSF has had a drug distribution project in the Kivu region since February, 1992, in support of the Ministry of Health. This project responded to the refugee influx by urging emergency assistance from headquarters and by setting up dispensaries at sites where refugees gathered. The dispensary at Mugunga was handed over to another non-governmental organisation (NGO) on July 24, after which MSF concentrated efforts on Munigi, Kibumba, and Katale camps, and on Goma town. MSF did not operate any cholera treatment centre at Mugunga in that period. We would also like to challenge some of Siddique and colleagues' interpretations.

Siddique et al provide comparisons of case-fatality rates before and after cholera in Katindo treatment centre. The improvement is attributed to the undeniable skill of the ICDDR,B team, but it is claimed that similarly low case-fatality rates could have been achieved from day 1 (July 19) in all camps if NGO-aid workers had been more skilled. However, it is unsound to compare data from different times and places during this epidemic. Experience with other epidemics shows that case-fatality rates are often high during the first week and decline as soon as the response gets organised.[1] MSF obtained a rate of 3·3% in Malawi (784 cases), ranging from 5·6% in week 1 to 1·5% in week 4.[2] In Goma, the case-fatality rate in centres operated by MSF was 11·8% (16 482 cases) from July 22 to Aug 3; the breakdown by Siddique's periods of observation is shown in the table. Cases may not have been comparable because origin, access to centre, physical condition, and other factors varied. Moreover, the admission criteria might have been different. In Kibumba and Katale, distribution points for oral rehydration solution were set up all over the camp for milder cases, and only severe cases were managed by the cholera treatment centres.

It is also suggested that international medical aid was not of a professional standard. MSF recruited and sent to Goma only fully qualified staff, including Zairean and Rwandan nationals. These personnel were supervised by senior staff. MSF's cholera treatment guidelines and medical supplies are based on WHO recommendations.[3] This was a huge disaster and high-standard medical care was not achieved during the first week of the epidemic, when very few health professionals were faced with an appalling number of cases under difficult conditions. We agree that some NGOs in Goma[4] could be characterised more by their enthusiasm than by their efficacy but regret that Siddique generalises to all agencies. We would also suggest a cost-benefit analysis of the contribution of the many consultants and civilian or military governmental agencies who were present.

Siddique's article risks distracting attention from the main issue, the scale of the disaster. Almost a million people arrived in Goma in the 4 days July 14–17. This provincial town in poverty-stricken Zaire had few services to offer to the refugees. The first suspect case of cholera was reported on July 19 and up to 6000 cases were reported on a single day.[5] By that time, the airport's capacity was fully used, roads were blocked by crowds moving north, dead bodies had accumulated on the roadsides, and the desperately needed 5 million litres of water a day were not immediately available; every health professional present in those early days was overcome by the events.

The huge death toll could only have been prevented by an international political response to anticipate the deteriorating situation in Rwanda. Disasters of the scale of Goma should not happen, but if they do the death toll will be strikingly similar.

Period	Number of cases	Number of deaths	Case-fatality rate
July 22–27	10 885	1535	14·1%
July 28–29	2047	175	8·5%
July 30–Aug 3	3550	229	6·5%

Table: **Case-fatality rate in MSF cholera treatment centres, at Kibumba, Munigi, and Katale camps, and Goma**

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1 Mulholland K. Cholera in Sudan: an account of an epidemic in a refugee camp in eastern Sudan, May–June 1985. *Disasters* 1985; **9:** 247–58.

2 Moren A, Stefanaggi S, Antona D, et al. Practical field epidemiology to investigate a cholera outbreak in a Mozambican refugee camp in Malawi, 1988. *J Trop Med Hyg* 1991; **94:** 1–7.

3 World Health Organization. Guidelines for cholera control. Geneva: WHO, 1993.

4 Tuffs A. Rwanda aid wrangle. *Lancet* 1994; **344:** 676.

5 The Goma Epidemiology Group. Public health impact of Rwandan refugee crisis: what happened in Goma, Zaire, in July, 1994? *Lancet* 1995; **345:** 339–44.

SIR—*The Lancet* of Feb 11 carried articles by the Goma Epidemiology Group and from the International Centre for Diarrhoeal Disease Research in Bangladesh (Siddique et al). The Goma Epidemiology Group covers many important issues, and we feel, as representatives of two teams in the field during this period, that a few more points are worth highlighting. Siddique and colleagues' analysis of the diarrhoeal outbreak makes interesting reading, but since population figures were not known and since such a low percentage of ill people reached health facilities, mortality rates are at best crude guesswork.

The criticisms of Siddique et al are valid on an individual case basis, for example that the administration of oral replacement salts (ORS) was not always practised correctly. This must be improved if similar situations arise again, as they surely will.

But why, at first, did so few ill people reach help? Initially, there was chaos. There may have been good organisational reasons why the first attempts at providing outside medical help were concentrated in two or three distinct areas, even to the extent of planning to build a hospital, but what was needed was "outreach facilities" to find those who were ill and unable to reach centralised health centres. Later on, when an infrastructure had been established, larger hospital-type facilities became more appropriate as a back-up.

One statement by the Goma Epidemiology Group gives the clue to the biggest problem of all: "the diarrhoea epidemic had already peaked before July 29, when the relief operation was able to provide an average of only 1 L purified water per person per day. UNHCR recommends a minimum of 15–20 L of water per person per day". The lack of purified water was the most important health challenge. Once water was provided, mortality fell sharply. Water was so scarce that many comparatively healthy people arrived at the health facilities knowing that if they mentioned the word "diarrhoea" they would be given ORS to quench their thirst, a potentially dangerous practice in a healthy person or even one suffering from simple lack of water. It also rather distorted the statistics.

Our message is that in refugee crises too much emphasis is placed on treatment centres, inpatient care, and the number of beds available. This western style of medicine may be fuelled by the press or by other agencies that are ignorant of the true needs, namely public-health measures such as clean water (the most vital), sanitation (latrines and soap), food, shelter, and specific preventive measures, such as giving vitamin A supplements and measles vaccination. When these have been considered, curative care has a far greater chance of success.

Another question worth raising here is why staff of the UN High Commissioner for Refugees were reluctant to perform formal registration of refugees. Without such basic information effective aid is impossible.

Many organisations achieved a great deal in most trying circumstances, and their efforts must not be undervalued. Great movements of population will always result in enormous health and social problems. In the absence of political solutions to prevent such exoduses we will have to learn from the Goma experience. Governments should get together to plan and train for disasters of all kinds; if not, we will be having to learn the same lessons all over again.

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SIR—Siddique and colleagues draw attention to the inadequate use of ORS and the Goma Epidemiology Group highlight the lack of skills in oral rehydration of health workers, as contributory factors in the high mortality from cholera amongst Rwandian refugees in July, 1994. Less well acknowledged is the morbidity and possible mortality associated with misuse of ORS in developed countries.[1]

Reduced-osmolarity ORS is recommended for use in developed countries because it reduces the risk of hypernatraemia, and the International Study Group on Reduced-osmolarity ORS solutions (Feb 4, p 282) support its use for non-cholera diarrhoea in developing countries. Reducing the osmolarity does not prevent difficulties caused by incorrect preparation.

Since these reports were published, a 7-month-old girl was admitted to this hospital; she was near death from hypernatraemic dehydration. On admission her serum sodium was 182 mmol/L; she was shocked, comatose, acidotic, and in renal failure. On questioning, her mother claimed that on the advice and under the supervision of her general practitioner she had been giving her daughter Dioralyte (reduced osmolarity ORS) for the treatment of two episodes of vomiting. Her instructions were to mix a sachet with 2–3 teaspoons of water and administer the solution in a syringe. Four sachets were taken in this way over 24 h and her fluid intake was otherwise negligible. According to instructions on the packet each sachet should have been mixed with 200 mL of water but the confusing situation was compounded by the pharmacist's instruction label on the Dioralyte box, which merely stated "to be given as directed by the doctor", implying different ways of administration. She was rehydrated intravenously and recovered.

Rehydration with oral rehydration salts is a cheap, simple, and effective treatment. Its apparent simplicity masks its potential dangers. It is vital that health-care workers, in both developing and developed countries, understand its use and preparation, and detailed instructions should be given each time it is prescribed to avoid unnecessary deaths.

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1 Walker-Smith JA. The role of oral rehydration solutions in the children of Europe: continuing controversies. *Acta Paedtr Scand* 1989; **364** (suppl): 13–16.

SIR—The Goma Epidemiology Group (Feb 11, p 339), discussing the prevention of mortality from diarrhoeal disease epidemics, refers to the "prompt provision of disinfected water" and "bucket chlorination at untreated water sources". Disinfection of water is indeed important, but there are simpler (and older) ways of fighting cholera and shigellosis. The causal organisms can only multiply in alkaline media and die quickly at acid pH. Although these cultural characteristics were unknown, people in northern India in the "cholera season" used lime juice in water and beverages made from tamarind as prophylaxis. Salads were drenched in vinegar. Water melons were frowned upon and fruit salads were given a liberal dose of lime juice. If it were not for these measures, cholera and dysentery would have been even more menacing. That hypochlorhydria reduces natural immunity to cholera is noted in western medical texts. It makes sense to add simple acid-drink prophylaxis to the epidemiological armamentarium.

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Oral rehydration therapy

SIR—Oral rehydration therapy is an effective, low-cost treatment for diarrhoea. Its discovery in the 1960s in Bangladesh and India and its application globally by the WHO control programme for diarrhoea now saves the lives of over one million children a year and if fully used could save 3–4 million lives every year. Diarrhoea kills by depleting the body water and solutes causing circulatory collapse. The lifesaving power of oral rehydration therapy was first demonstrated in cholera patients. By 1971 there was sufficient knowledge to reduce deaths from about 40% to less than 3% even under chaotic field conditions, as existed when cholera broke out among refugees flooding into Calcutta from East Pakistan.[1] Siddique and colleagues from the International Centre for Diarrhoeal Disease Research, Bangladesh (Feb 11, p 359) achieve similar results in Rwanda. An International Study Group reported (Feb 4, p 282) that an oral rehydration solution (ORS) of lower osmolarity significantly decreased stool volume losses (42 mL/kg, or 28%) in children aged 1–24 months compared with controls, while maintaining hydration. In this hypotonic ORS, glucose and sodium were reduced from their concentration in the standard formulation (glucose from 111 to 84 mmol/L and sodium from 90 to 60 mmol/L). The patients studied had mild diarrhoea and modest volume losses (3·5–3·8% of body weight). Despite these moderate losses, oral replacement with the hypotonic ORS significantly lowered serum sodium. The study group concluded that the two solutions were equally safe.