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COMMENTARY

New cholera vaccines—for whom?

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There is good and bad news from the cholera front. The pictures of the cholera epidemic that struck the predominantly Rwandan refugee population in and around Goma, Zaire, are still vivid. This outbreak was first reported on July 20 and samples taken at that time were confirmed as being *Vibrio cholerae* O1, biotype El-Tor, serotype Ogawa, resistant to tetracycline, doxycycline, ampicillin, amoxycillin, chloramphenicol, and cotrimoxazole, but sensitive to other agents such as furazolidone. According to a preliminary WHO/UNHCR report, up to August 9 there were 56 950 estimated non-fatal cases or deaths from cholera. This figure corresponds to an attack rate of 8% among the 700 000 refugees. The case-fatality rate initially exceeded 10% but decreased rapidly after a massive response by the relief community, mainly organisation and rapid provision of water. More than 80% of the cholera cases occurred before August 1.

Now to the good news. New cholera vaccines have been investigated—eg, the inactivated oral WC/rBS vaccine and the live oral CVD-103HgR vaccine, marketed in Sweden and Switzerland, respectively. The field trial reported in this issue by Sanchez et al showed a protective efficacy with the WC/rBS vaccine of 86% against symptomatic cholera 3 weeks after the first dose in Peru. Thus the results of an early trial in Bangladesh have been shown to be applicable elsewhere. There, a protective efficacy of 85% after 6 months has been reported, with adults still protected (protective efficacy 40%) in the third year of follow-up.[1] However, the latest trial is far more than mere confirmation since it relieves concerns about the protective efficacy in El Tor infections and in a predominantly O blood group population. There are no field trial data yet for the CVD 103-HgR vaccine, but the product is highly immunogenic, providing a protective efficacy of 62% (against El Tor) to 100% (against classic cholera) in challenge studies in volunteers 8 days after ingestion of a single dose.[2] So far, neither vaccine protects against *Vibrio cholerae* O139 Bengal but work is in progress towards this goal. Both vaccines are safe. These results reinforce the view that the traditional injectable inactivated whole-cell cholera vaccine with a short-lasting protective efficacy of 30–60% is obsolete.

For whom are the new vaccines indicated? Refugees will be at highest risk of cholera outbreaks during the initial chaos. Typically, as in Goma, where the refugees started to arrive on July 14, the common-source epidemic is over in less than 3 weeks. There would have been no time for an efficient WC/rBS vaccine immunisation campaign, and WHO was correct in deciding not to recommend it in this situation. Such a campaign would have contributed little to the course of the epidemic and would have meanwhile led to withdrawal of resources from implementation of far more important measures such as water chlorination, latrine construction, preparation of clinics, and community outreach networks to distribute oral rehydration solutions. In other emergencies, immunisation with one of the new vaccines should be considered as part of a cholera control strategy, with due attention being paid to factors such as the presumed duration of the outbreak.

Many disaster relief workers leaving for Goma were immunised against cholera in travel clinics, including that of the WHO in Geneva. Development of prophylactic efficacy during the Goma mission was not anticipated, but this practice may have been justified since these same workers may later be dispatched to other cholera outbreak zones. Psychological aspects also played a part. Although no cases of cholera were diagnosed among the relief workers (the subsequent shigella outbreak had a far greater impact; Chaignat CL, personal communication) this group faces an appreciable risk and thus cholera immunisation can be recommended. Regular booster doses will be needed.

The most important task for the new vaccine is to prevent endemic disease, as achieved in the field studies.[1,2] In the early stages of the cholera epidemic in South America, a decision was taken to use neither the old vaccine nor any of the new vaccines, the latter because they were still developmental with unproven efficacy (PAHO and WHO meeting on cholera vaccine, May, 1991; unpublished report). The strategy of the 1970s now needs re-evaluation[3] and a forthcoming conference at WHO will address this question. Cost-benefit evaluations will be the decisive factor. Apart from the good protective efficacy and excellent safety of the new vaccines, the as yet ill-defined duration of protection will also be important. For some situations, a vaccine strategy may be beneficial depending on the degree of endemicity,