Cholera control
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Cholera vaccination campaigns give the public a false sense of protection. But with the correct use of the available resources, backed by health education messages, a great deal can be achieved even in the most desperate situations.

Although cholera evokes more fear that almost any other infectious disease (except possibly AIDS) in the minds of the public and health administrators alike, it is amazing how little is done about it once the epidemic scare has passed. This is unfortunate since cholera is best controlled by activities in between epidemics. For these to be successful, it is important to consider why cholera occurs in certain communities and populations (and not in others); and why, despite all the recent advances in medical science, people still die from it.

Cholera occurs primarily in areas where other acute diarrhoeas abound—that is, where conditions favour the spread of the causative germs from one person's faeces to another person's mouth. Germs are generally carried by contaminated water or food in places where there is a lack of safe water and proper excreta disposal facilities, and where personal and food hygiene practices are deficient. These factors, again, are closely connected with socio-economic status, overcrowding and cultural and traditional practices, particularly those that relate to the care of sick people, funerals, and food consumption.

Recently, cholera germs (or vibrios) have been found to multiply in many cooked foods left at an ambient temperature; thus the habit of eating leftover food may play a more important role than was thought previously. Many instances have been reported of cholera being caught through eating seafoods. Ceremonies such as the washing of dead bodies and feasting during funerals are known to have helped the disease to spread.

The cholera vibrio responsible for the current pandemic, which has affected more than 90 countries since 1961, is the Ogawa or Inaba serotype of the El Tor biotype of *Vibrio cholerae* 01. This biotype is somewhat more hardy and therefore survives longer outside the human host than the classical biotype. The two biotypes currently co-exist only in Bangladesh. Cholera infection, in its endemic form, may persist in a community as subclinical or mild cases that go unrecognised as cholera for a time. The El Tor biotype has now been shown to survive also in aquatic reservoirs (shellfish, plankton) until circumstances become favourable for the vibrios to multiply and infect man. Depending on these factors, cholera outbreaks may occur seasonally or periodically at intervals of several years. The recent epidemics in drought-stricken countries of Africa, associated with migration, water and food scarcity and lowered resistance of the victims, are examples of such epidemiological events.

It is well known that individuals are not equally susceptible to cholera; resistance has been found to be associated particularly with high gastric acidity and immunity acquired by repeated infections. The latter may explain why, in an endemic area, cholera is particularly common in children and young adults. Cholera is rare in infants (breast milk appears to be protective) and is particularly serious in pregnant women who abort unless they are quickly rehydrated.

Modern methods of treatment, which can limit the number of deaths among patients to about one per cent, are now widely known; yet death rates of up to 30 or 40 per cent continue to be seen, particularly during the first few weeks of cholera epidemics. The only reason for this high case-fatality is the lack of treatment facilities with trained health workers and of supplies at or near the sites of epidemics. Unfortunately, scarce resources are often spent on inappropriate fluids, useless antimicrobials and other drugs. Unnecessary laboratory investigations using scarce material and manpower are also common. After laboratory confirmation of the first few cases of an epidemic, all cases of watery diarrhoea should be treated as cholera.

The improvement of sanitary facilities, installation of a safe water supply, and food safety measures, accompanied by health education, are the most important activities for the immediate and long-term control of cholera. Although the current socio-economic situation in many developing countries does not permit rapid progress in these fields, some simple measures are available that may provide considerable relief. For example, a recent study in India has shown that proper storage of water at home in narrow-mouthed earthen or other containers can significantly reduce water contamination. Domestic chlorination of water with chlorines (bleach), consumption of only cooked food when it is still hot, and washing of hands with soap and water after using the toilet and before preparing food or eating are all feasible and effective means of cholera control. If available manpower, supplies and other resources can be directed to these activities and backed up with intensive health education conveying realistic and practical messages, a great deal can be achieved even in the most desperate situations.

The limitations of vaccination, chemoprophylaxis, and quarantine measures in cholera control are now widely recognised. Vaccination campaigns give a false sense of protection to the public and a false sense of achievement to health administrators. Most of the currently available vaccines are not tested for potency, which is the only reliable proof that the vaccine can provide even the partial protection seen in field trials. In the early 1970s, who used to receive requests for the supply of 20 to 22 million doses of cholera vaccine each year; such requests amount now to only about half a million doses a year. The El Tor biotype causes many asymptomatic infections (as many as
An East African girl draws water from a polluted well—potential source of epidemic disease.

Photo WHO/J. Bland

100 carriers for every clinical case in overcrowded communities with poor hygiene); and because cholera vaccine does not prevent the carrier state, the spread of the disease by carriers cannot be prevented by vaccination. It was in recognition of this and other limitations of the current cholera vaccine that the Twenty-Sixth World Health Assembly in 1973 abolished the requirement of a certificate of vaccination against cholera in the International Health Regulations.

While the treatment of contacts of patients with antimicrobials appears theoretically an attractive strategy to prevent cholera, experience with this approach has been disappointing. This is mainly because any drug needs time to work and its effect is short lasting. In a newly affected area, infection is usually much more widespread than appears from the number of clinical cases, which means that not all carriers are treated, nor are all carriers treated simultaneously. In addition to being ineffective, mass treatment with antimicrobial drugs causes the emergence of resistant V. cholerae 01 strains.

There have been many examples of a “cordon sanitaire” failing to prevent the spread of cholera both within a country and between countries. This is not at all surprising because it is almost impossible to arrest or even efficiently monitor movements of populations. Restrictions on travel and trade have not prevented the introduction of cholera to any area, but have caused unnecessary harassment and led to attempts to suppress information about the presence of the disease.

Most cholera cases can be adequately treated with oral rehydration therapy, which is simple and inexpensive. This therapy can be provided by a trained health worker without formal professional education if proper supplies of ORS packets are available. Only a small proportion of patients (usually two to five per cent) develop a severe disease requiring intravenous fluid, which needs to be available in all treatment centres. Antibiotics are not essential but can help to reduce the duration and volume of diarrhoea. They should be available to be given orally when vomiting stops; injectable antibiotics are costly and unnecessary. There is no need for any other drugs.

Recent experience in Bangladesh has again demonstrated that the cholera death rate can be reduced to around one per cent by strengthening community-based treatment centres through supplies and training. If treatment is made available at or near the site of an outbreak, cases rarely die and there is no panic; moreover, cases and their contacts do not travel for treatment and there is less spread.

The improvement of water supplies, sanitation, and food safety to make countries “non-receptive” to cholera clearly cannot be achieved overnight. Nor can vaccination and mass chemoprophylaxis help to prevent the introduction of cholera or its spread. Recognising these constraints and, more importantly, the implications of recent advances in knowledge about cholera and acute diarrhoeal diseases, health administrators have come to realise that cholera can best be controlled through a comprehensive diarrhoeal disease control programme. The benefits of such a programme are enormous since other diarrhoeas are 80 to 90 times more frequent than cholera. The strategies of this programme include proper treatment of cases to reduce mortality from all diarrhoeas, and the promotion of appropriate maternal and child health and sanitation practices to reduce morbidity.

One important element of a control programme is the training of all health workers in treatment, with emphasis on oral rehydration therapy, and making this simple, inexpensive method available through all treatment facilities and community health workers. At the same time, a simple surveillance system needs to be set up for early detection of epidemics, to ensure prompt control measures and also rapid notification and international collaboration in the case of cholera. Thorough searching for cases and prompt treatment near their homes constitutes the most effective strategy for cholera control, alongside efforts to prevent the disease through sanitary measures supported by health education.

A global commitment to the control of all diarrhoeal diseases in the context of primary health care is without a doubt the key to success in cholera control.