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EDITORIAL

A warm chain for breastfeeding

Immunisation is preventive medicine par excellence. If a new vaccine became available that could prevent 1 million or more child deaths a year, and that was moreover cheap, safe, administered orally, and required no cold chain, it would become an immediate public health imperative. Breastfeeding could do all this and more,[1,2] but it requires its own "warm chain" of support—that is, skilled care for mothers to build their confidence and show them what to do, and protection from harmful practices. If this warm chain has been lost from the culture, or is faulty, then it must be made good by health serv ces.

Breastfeeding helps to limit fertility and prevent ovarian and premenopausal breast cancer. It helps to prevent sepsis in newborn babies, and gut, chest, ear, and urinary tract infections in all young children, and is valuable in the management of both acute and persistent diarrhoea. In countries with a moderate or high infant mortality rate, artificially fed infants are at least 14 times more likely to die from diarrhoea than are breastfed children, and 4 times more likely to die from pneumonia. Even in countries where infant mortality is low, artificially fed infants require hospital treatment up to 5 times more often than those who are fully or partly breastfed.[3] In France, the cost of these extra admissions is conservatively estimated to be over 71 million francs (about US$12 million, £8 million),[4] with the cost of outpatient and other treatments making a total of 1116 million francs (US$ 199 million). In the UK, hospital costs are said to be as much or more. While exclusive breastfeeding for at least 4 and if possible 6 months (as recommended by WHO[12]) is optimal, even breastfeeding for a few weeks, or partially, is beneficial and has definite advantages over not breastfeeding at all.

There is a growing list of conditions associated with artificial feeding,[2] including insulin-dependent diabetes mellitus and multiple sclerosis. In New Zealand and the USA, sudden infant death syndrome (SIDS) is commoner in bottle-fed infants, although recent reports of British studies did not identify bottle-feeding as a risk factor.[5] Premature babies fed on formula are more likely to die from necrotising enterocolitis than those fed on breast milk. Intolerance and allergy to cow's milk products affect as many as 7·5% of children, including some supposedly fully breastfed infants who were given prelacteal formula in the maternity ward.[6] Bottle feeding contributes to dental decay and malocclusion. Several studies have shown that the intellectual development of breastfed children is slightly but significantly better than that of children fed artificially.[7] This difference has been linked to the absence from non-human milks and

from almost all formulas of long-chain polyunsaturated fatty acids, which are essential nutrients for developing nervous tissue, and which are provided by breastmilk.[8]

Although social change and commercial influence have contributed much to the decline of breastfeeding, health care practices must take their share of responsibility, since the decline is generally greatest where mothers give birth in hospital and the warm chain of protection and support is broken. Practices known to be harmful are still common in maternity wards—eg, separation of mothers and babies, restrictions on the duration and frequency of breastfeeds, giving babies routine supplements of water or formula, and giving mothers free samples of formula to take home. Moreover, forms of care known to be beneficial are often not practised—eg, helping mothers to start breastfeeding as soon as they are ready (if possible within about an hour of delivery) and to position their babies at the breast, and ensuring that the advice given is consistent and that personal support is provided by a knowledgeable individual.[9,10] Important reasons for poor support are that most health workers have not acquired the relevant knowledge and skills in their basic training, and that most administrators lack conviction that change is needed and are unwilling to provide in-service training or the staff time necessary to help mothers.

Families need to be able to make a truly informed choice about feeding their babies. Too often the message they receive is mixed. While they pay lip service to "breast is best", all that many doctors and midwives are able to do when a mother has difficulty with the natural method of feeding is to recommend that she use an artificial one, reassuring her as they do so that "formula is equally good". Such ambivalence is endorsed by the conspicuous presence in many health facilities of breastmilk substitutes and formula manufacturers' leaflets, which likewise imply that breastfeeding can be difficult and that bottle feeding is the easy answer. Although lack of funds is usually blamed for the absence of alternative educational materials, lack of commitment is equally important. Workers who are committed to breastfeeding have managed to fund the production of simple effective materials cheaply.

Too often, a mother who indicates her intention to bottle feed is told nothing more about breastfeeding. Health workers defend their restraint on the grounds that they do not want to make mothers feel guilty. However, such guilt as there may be in this context has not been adequately studied, nor is it clear which mothers if any need such protection. If a mother chooses to bottle feed, her choice should be respected; but it is surely desirable to give clear and complete information about both methods of feeding. If a mother is uncertain, or if she really wants to breastfeed but finds it difficult, or if she had a bad experience previously, then she needs help. She needs a warm chain of skilled support, not cold assurance that failure does not matter. A mother who feels that she has failed may carry the disappointment and pain with her always; her emotional reaction to other women who breastfeed can interfere with her ability to help them, whether they be friends, members of her family, or, if she is a health worker, her patients.

Promotion needs to be clearer and stronger than it has been, and it needs to address barriers to breastfeeding. Messages that only idealise breastfeeding, or that exaggerate its benefits, may be ineffective.[11] But even strong appropriate messages may be counterproductive if they are delivered with no accompanying support. Mothers easily feel pressured to breastfeed, and are criticised if they have difficulties or do not enjoy it. If they lack confidence, they may decide that breastfeeding is impossible. So messages should address locally researched barriers, and be integrated with appropriate health care. Recommended practices are summarised in the "Ten steps to successful breastfeeding" which form the basis for the Baby Friendly Hospital Initiative, now promoted by UNICEF and WHO throughout the world.[12] To complete the warm chain, and sustain breastfeeding, consistent complementary care should be extended beyond the maternity ward, from antenatal clinics to primary care and community services, for sick and well children, throughout the breastfeeding period. To provide such care, health workers need training in appropriate clinical and counselling skills.

It is becoming clear that supportive care and counselling can increase breastfeeding success.[13] To facilitate their widespread introduction, WHO and UNICEF, as well as encouraging and assisting local initiatives, have developed training packages of 18 and 40 hours for health workers with different needs.[14,15] These materials are now being translated and adapted for use world wide.

Policy makers need to understand that provision of a warm chain for breastfeeding is as valuable as provision of a cold chain for vaccines and likewise requires adequate resources. Governments and funding agencies need to be convinced that the investment is worthwhile. Even if a warm chain is not free, it might more than pay for itself.

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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,