Operational research in the public sector:

Making it work

Staff from ICDDR,B* describe the role of operational research in carrying out the national diarrhoea management programme at village level in Bangladesh.

The success of a health programme, or a component of it like the provision of oral rehydration therapy, depends on how effective it is in dealing with a particular problem, and on how well the service is utilised. Operational research involves measuring the effectiveness of a programme and working out the best way to get a job done with the resources available. It is often an in-service problem-solving methodology aimed at improving the service.

The situation

In Bangladesh an attempt is being made to assess the effectiveness of the national programme for diarrhoea management by operational research in one development area, or *upazila*, with about 200,000 population.

Two groups of workers carry out the national programme for diarrhoea management at the village level in Bangladesh. These are male Health Assistants (HAs) and female Family Welfare Assistants (FWAs). Both groups of workers should carry packets of oral rehydration salts (ORS) in an attempt to integrate health care and family planning services. Every household should theoretically receive two visits from these workers every 3 months.

In the Abhoynagar upazila, an evaluation team of government officials, field staff and research workers from the MCH-FP Extension Project of ICDDR,B has been working since 1982. This team is called PICA (Project Implementation Committee of Abhoynagar). A sample survey of Abhoynagar village women that year showed that, if there had been a case of diarrhoea in the home in the previous 3 months, 78 per cent of them sought help. Of these, 88 per cent approached non-governmental assistance, mostly the "village doctor", who does not usually have a medical qualification, or a traditional healer. Of the 12.5 per cent who used government services, 9 per cent went directly to the health centre and less than 3 per cent used the field workers, the HAs or the FWAs, who were supposed to be the main source of ORS and diarrhoea treatment advice. Despite the fact that a few of the field workers *are* the "village doctors", there is a serious lack of contact between the HAs, FWAs and the patients with diarrhoea.

Photo courtesy of ICDDR,B

The Project Implementation Committee of Abhoynagar (PICA) meeting to discuss the programme.

The method

In operational research, once a problem has been identified and it is apparent that the service is not functioning as well as it should, a number of steps may be followed.

1. **Identify the problem.** It may be difficult for health workers to realise there is a gap between the expectations of the programme supervisors, and what is actually happening. In Bangladesh it took some time for the Government officials to recognise and accept that ORS was not being delivered by the field workers.

2. **Determine if the problem is important and really worth investigating.** In Abhoynagar, ORS distribution was considered an important issue because seasonal diarrhoea epidemics are a real cause for concern.

3. **Examine the possible causes of the problem and identify which are the real stumbling blocks.** The PICA team examined four factors possibly limiting the diarrhoea treatment service.

- Field workers' lack of knowledge and skill in treating diarrhoea. Evaluation showed that this was not an important factor.
- Failure of the ORS supply system. This was a significant problem, particularly for the FWAs, and was partly due to demarcations between the different administration and emphasis of the health and family planning departments. 40 per cent of the FWAs had never carried ORS and did not consider it to be part of their job.
- Inadequate motivation of the field workers. Work targets and worker evaluation was mostly based on family planning services and, to a lesser extent, the collection of blood slides from children with fever.
- Inaccessibility of field workers when diarrhoea occurs. Contact between

families and field workers is infrequent. Even in good weather, a family would not be visited more often than once in two months by a HA and once in four months by a FWA. Monsoon and floods often disrupt visiting. Few mothers knew where the field workers lived, and as the HAs were men, even fewer would visit them.

4. **Develop new strategies to overcome each barrier.** Clearly the proposals must be feasible within the resources. In order to improve the ORS supply problem, the PICA team proposed that the FWAs would collect the packets they needed when they attended the monthly team meeting and collected their salary. Motivation was improved by supervisors' participation in practical training on oral rehydration, thereafter promoting this more enthusiastically from their own observations. They also requested regular reporting of diarrhoea cases by the field workers. During a seasonal diarrhoea epidemic these factors greatly increased the interest in the programme. In order to improve the inadequate worker-population ratio, PICA proposed a depot system for ORS packets, served by one neighbourhood mother for every 50 homes. She would need to be carefully selected and trained. An alternative distribution system would be to instruct, supply and use the "village doctors". Already they were recognised as providing much "primary care". They would sell the ORS packets and this is unacceptable in the national programme. The PICA is currently debating the possible strategies before proceeding to the next two stages of the operations research, namely to:

5. **Test the strategies in a limited area.** This may be difficult in the public sector since government workers are unfamiliar with an experimental model and normally see their responsibilities as simply providing a service.

6. **Modify the strategy or try another.** Often the most satisfactory method will be developed by testing out a new strategy.

Conclusions

Whatever the programme and the basic questions to be asked and answered by operations research, it is only possible with the involvement of both the personnel and the public. In addition, there must be commitment on the part of all concerned to try and make the changes required to improve the service.

Operational research should be a continuing process, a series of small steps which build on each other, a reallocation of resources, reducing to a minimum the gap between what is planned for a programme and what is actually provided for people at the periphery.

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To achieve effective control of diarrhoeal disease morbidity and mortality, both basic and applied research efforts must continue. In the longer term, a better understanding of the disease process itself should make protective vaccines and improved drugs for treatment widely available. Meanwhile, a better understanding of what is happening at primary health care level in the application of the knowledge we already possess could have important short and intermediate term benefits. Some immediate priorities in both research fields are listed below.

Basic research

- Antidiarrhoeal drugs that will safely and inexpensively decrease stool loss and therefore the risk of dehydration.
- Development of vaccines against rotavirus, enterotoxogenic E. coli, shigella and cholera organisms.
- Causes and pathophysiology of chronic diarrhoea.

Operational research

Improved treatment

- More effective oral rehydration solutions. Improved solutions may increase absorption from the bowel so effectively that the stool output is decreased. This may be by the addition of certain amino acids, dipeptides or glucose polymers to the solution, or by substituting a cereal powder for the glucose in the ORS. This will probably also have nutritional benefits.
- More regular and early use of oral rehydration within the primary health care system.
- Better distribution of ORS packets.
- Identification of local foods that are nutritionally valuable, physiologically absorbable and culturally acceptable during diarrhoea.

Preventive measures

- Modes of transmission of diarrhoeal infections so that spread can be interrupted.
- Behavioural studies into personal hygiene and sanitation to identify ways to limit transmission.
- Importance of measles vaccine in preventing diarrhoea and the associated malnutrition.
- Evaluation of the efficacy of any new vaccine and the best way to deliver it.

Better communication

- Understanding of traditional beliefs and practices about the causes and treatment of diarrhoea so that messages can be appropriate.
- More effective ways of reaching the public, and parents in particular, with information about why, when and how to start rehydration.
- Improving training techniques for health workers at all levels.
- Promotion of breastfeeding to prevent diarrhoea, and to improve nutrition during disease.
- Encouraging feeding of acceptable and absorbable local foods during diarrhoea and convalescence.
- Educational methods which can effectively improve personal hygiene practices.

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