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SURVEILLANCE IN CONTROL OF DIARRHOEAL DISEASES

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Surveillance is an indispensable part of a control programme for almost all the communicable diseases. In the present context it can be defined as the continuous appraisal of the occurrence of diarrhoeal diseases in a community based upon information supplied by persons involved in some way in the delivery of health care.

In the developed countries this often involves the employment of specific field and laboratory personnel to be responsible for collection of morbidity and mortality data and to conduct extensive laboratory studies. However, in the developing countries the situation is different. Because of many competing priorities and limitation of funds the approach to diarrhoeal disease surveillance in these countries must be very simple. Surveillance should be performed by the existing health services using available facilities; it should not require additional staff or highly specialized training. Reporting should be done by auxiliary health workers responsible for the delivery of health care,[1] who in the case of diarrhoeal diseases will most probably be those responsible for delivering oral rehydration fluid. Ideally this should be done at the village level but when this is not possible surveillance data can be obtained at treatment centres where only cases with severe dehydration are treated.

Persons responsible for surveillance should be provided with simple definitions and easy to complete surveillance forms for collecting data on diarrhoea cases and deaths. It is not necessary to collect morbidity data which, while interesting and more sensitive, put a larger burden on staff. At appropriate time intervals the data should be sent to the regional or national epidemiologist for analysis. In return, those collecting the data should be informed, on a periodic basis, of the usefulness of the data so as to provide them with an incentive for their efforts.

In addition to this treatment-based surveillance system, surveillance data can be obtained from ancillary personnel who are indirectly involved in health care. These types of persons vary according to country and region and

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include traditional medical practitioners such as ayurvedic physicians and village quacks, village chowkidars or other persons responsible for maintaining death records, village leaders, teachers, religious leaders and pharmacists. Such persons often keep records which may be useful in assessing the incidence of diarrhoeal diseases, especially when retrospective information is needed.

When funds are available, laboratories should be strengthened or established to determine on a sampling basis the aetiology of diarrhoeal diseases in different areas and populations. These laboratories need not be elaborate and, with innovation in their design, can provide much information. Important laboratory developments in recent years have greatly facilitated laboratory surveillance. These include:

(i) the use of transport media which sustain bacterial growth for long periods to transport rectal swabs to the laboratory. On an even simpler scale, blotting paper moistened with stool has been shown to be an excellent transport vehicle on which vibrios can survive for weeks;[2]

(ii) for the isolation of vibrios, the development of a medium - TCBS - which does not require autoclaving;[2]

(iii) most recently, the development of simplified ELISA assays which, for example, can detect rotavirus antigen in the stool within four hours of collection[3].

The advantage of laboratory-based surveillance is that it provides information on the most prevalent pathogens and on the population groups at greatest risk of infection from them. This is important for establishing priorities for control measures since each pathogen has an associated mode of spread and approach to its control. In addition, laboratory surveillance, even on a limited scale, provides an opportunity to conduct operational and basic research. For example, one can easily see how valuable the laboratory could be in helping to assess the impact of a new water system or method of sewage disposal.

Besides providing important baseline data the primary value of a surveillance programme - with or without much laboratory support - is in the early detection of diarrhoea epidemics, especially cholera epidemics. If a surveillance system is functioning well it should provide an early warning system, based on reported changes in pattern of incidence and severity of cases, so that prompt investigations can be conducted of cases clustered in time and place. While an epidemiological investigation is being conducted to determine the aetiology and source of these cases, treatment facilities and village health care workers can be augmented with the necessary staff and supplies for the treatment of cases.

To summarize, the success of a diarrhoeal disease surveillance programme will depend on its simplicity, its incorporation into the local health care system, and good communications between those receiving surveillance data and those reporting cases. A surveillance programme can provide important information for planning purposes and is the backbone of an early warning system for epidemic control.

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