 ENVIRONMENTAL SANITATION IN URBAN AND RURAL AREAS: ITS IMPORTANCE IN THE CONTROL OF ENTERIC INFECTIONS

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Many different kinds of microorganisms cause enteric disease, but transmission generally depends on fecal contamination. Thus the most fundamental of all the actions needed to combat enteric infections in developing countries is provision of water supply and sewerage systems in both urban and rural zones.

Endemic and epidemic enteric diseases have beset all the countries of Central and South America throughout their histories and now represent their first or second cause of morbidity and death. There is some indication that the overall current mortality rate may be declining, but the total number of deaths is rising because of unprecedented population growth. The high toll exacted is and will remain excessive.

A host of specific organisms or combinations thereof can produce enteric disease. Which ones, precisely, are involved will vary with time and place, the age of susceptible persons, and other factors. Nevertheless, epidemiologic studies make it abundantly clear that all these infections generally have a common source: namely, human excreta in the wrong place—in water, in food, on the hands, and frequently on household facilities and equipment.

This simple truth, unpleasant as it is, has long been universally recognized. But this recognition has not been matched by measures primarily aimed at raising levels of personal and household hygiene. Until such steps are widely implemented, we shall continue to suffer from endemic enteric infections, punctuated periodically by explosive epidemics.

What environmental measures are most likely to interrupt this vicious cycle of disease and ultimately contribute to its demise? In the first place, excreta must be removed from direct contact with people. Today, people literally live in and consume these human discharges. Second, it should be made possible for people to wash, so that personal hygiene is both recognized and practiced. Third, food preparation and handling must be carried out in sanitary surroundings. And fourth, public comprehension of these elementary essentials must finally be achieved.

These measures are difficult and complex to implement, but less costly than many would suppose. They cannot wait upon the elusive quest for nonexistent vaccines—obviously an area for continuing research. They can be

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carried out independently of the development of more skilful diagnostic and therapeutic measures, even without improved identification of specific causative organisms.

The environmental determinants of the enteric diseases are clear. Why then the eternal corrective adjustments and delay? Workers in this field are often intimidated by the sheer mass of people exposed, by the logistics of the measures to be employed, by the financing and manpower costs, and by a resulting general lack of motivation.

Simpler prevention and control activities are then pursued which have a demonstrably lower potential for success. Vaccines are a case in point. Even if efficient ones were at hand, and they are not, the likelihood of their providing the complete answer is very low. Their use would have to be repetitive lest, when interrupted, the diseases occur again because the environmental “soil” has remained untouched and hazardous.

The conclusion to which one is driven is that a vast educational process is essential to raise personal understanding of cleanliness and to arouse official motivation and will. Difficult and time-consuming, of course, but where is the alternative?

This program must be accompanied by rapid provision of adequate water supplies to both rural and urban areas. We shall always be confronted by those who say such an objective is unrealistic, costly, and well-nigh impossible. In the Americas, history has already demonstrated that much of this argument is untrue.

Let us look first at urban water supply. Some 12 years ago, World Bank loans granted for this purpose to the Americas amounted to approximately US$100,000. In 1973 the cumulative total of such loans exceeded $1,000,000,000. To this figure one must add capital investments by local communities of $2,600,000,000. In other words, the total grew in 12 years from $100,000 to approximately $3.7 billion—hardly a demonstration of infeasibility. Furthermore, over 75 per cent of the urban population was supplied with water—an unheard-of figure about a decade ago.

The rural situation is quite different. Only some 12 per cent of the total funds involved have been invested in rural areas, and rural sanitary conditions, as compared to urban ones, are much more difficult to improve. Nevertheless, this problem, which is being attacked by the World Bank, the Inter-American Development Bank, and the Pan American Health Organization, must also be overcome.

Excreta removal lags even further behind, in urban as well as rural areas. Accomplishment of this job, which remains a challenge and necessity, must begin now.

Incidentally, costs often intimidate the health officer when they should not. In many instances they are modest and easily repayable in whole or in part. The fiscal processes alarm, because they are unfamiliar. They are nonetheless perfectly workable where wholeheartedly pursued by practitioners experienced in this art. Certainly the environmental determinants of enteric diseases will never be countered by listing the array, and it is extensive, of all the financial, political, and cultural obstacles to their correction. The tools are at hand. Why not use them?

Many times the Health Ministry is not the ministry responsible for raising and spending these funds. Health officials, however, bear a continuing responsibility for leadership in this area and do serve as the major catalyst for expeditious action.

In parallel with the aforementioned actions we shall need improved management, studies on cheaper and easier technology, far better service to the poor, and increased manpower at all levels. These things are and always will be in short supply. While we seek them, implementation of the well-known primary measures need not be deferred. They have been postponed long enough! Prevailing circumstances have been greatly aggravated by rapid population growth and urbanization. These events have not changed the essential nature or validity of the solutions required, but they have pointed up the need for more intense effort to see that these solutions are attained.
SUMMARY

In Central and South America, enteric infections constitute one of the leading causes of disease and death. The terrible toll is exacted by a host of different microorganisms, virtually all of which are transmitted via contact with human excreta. To change this picture we need many more water supply and sewerage systems, better food preparation and handling, and public comprehension of how elementary good hygiene promotes good health. Attaining these objectives will be difficult, but less costly than one might suppose, and there is little to be gained by delay. The basic environmental causes of enteric disease are clear, current conditions have been aggravated by rapid population growth and urbanization, and basic corrective measures have already been postponed long enough.