

PUBLIC HEALTH PROGRAMS – ARE THEY REALLY NECESSARY

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The need for adequate public health services by a community is a basic one. Such programs as home and school nursing, water and sewer facilities, milk and food sanitation, vector control and refuse disposal have markedly contributed toward disease prevention. The sanitarian must not forget to emphasize that there is a valid economic justification for complete public health services. This fact is often overlooked. The public health worker has a very real job of selling to do in order to bring about general acceptance of the philosophy that "sanitation is a way of life."

The struggle for the survival of the human population cannot be separated from the struggle of all other organisms. Disease may be said to occur, in most instances, because the individual or group moves into an unfavorable relationship with their environment or with other individuals. Human beings and groups struggle not only with other organisms, but also against the physical and social environment in which they live (3).

The Health Department attempts to control man's environment through the operation of public health programs based upon proven principles of preventive medicine.

DISEASE FACTORS

The fact that certain foods sometimes cause illness or death upon ingestion was recognized early in man's history; however, the reasons why this happened were not thoroughly understood until about 75 year ago when the germ theory was demonstrated and accepted as a fact (3).

The primary causes of food contamination are by (a) infection of food by organisms such as bacteria; (b) autolysis or spontaneous disintegration of food by enzyme action; and (c) adulteration of food by unsalubrious materials. Microbial contamination of food is equally analogous to the bacterial contamination of water. All facts available certainly indicate that every step in the handling of food or drink may be a contributing factor to its contamination. It is, therefore, up to the sanitarian of the public health team to visualize every point in its processing including a check of the personnel, equipment and techniques in order to achieve satisfactory control (3).

There is a very close relationship between communicable and noncommunicable diseases (3). This should not be overlooked; this connection could prove to be an important factor in determining the effectiveness of the control technique.

For example, malnutrition may let certain patho-

gens invade the body and, consequently, produce certain communicable diseases through secondary infection by pathogens. Hookworm is considerably more widespread among undernourished persons than among those who have adequate diets. This is true, even though both groups may be equally exposed to infection. Silicosis predisposes for tuberculosis and bad housing results in exposure, and reduces body defenses to the extent that pathogens may invade the body and cause communicable disease. Infectious hepatitis may injure the liver and produce cirrhosis of the liver.

Some diseases may be indirectly connected to insanitary or unhealthy environmental conditions, and these may give rise to other noncommunicable and communicable diseases. Such diseases as rheumatic fever and diphtheria are examples. Rheumatic fever may bring about rheumatic heart disease, and diphtheria may weaken the heart muscles and hence cause heart disease after the diphtheria organisms have disappeared. These examples seem to further emphasize the need for good public health practices because both communicable and noncommunicable diseases may be brought about by exposing the individual to unfavorable physical or social environments.

ECONOMIC FACTORS

A study of all of the facts indicates that public health activities may be justified on an economic basis, and it seems that this particular approach has not been emphasized to the citizen as often as it should be. If it can be shown that adequate public health programs can actually save money for the community, wide acceptance of our goals and proposals would seem to be assured.

It must be admitted that the costs of all government services have arisen along with other costs in our economy. We cannot deny that, proportionately speaking, the expenditure for public health services represents an area of considerable expansion in recent years. An important factor bringing about this expansion in health services is that the need for adequate health services has finally been demonstrated to a greater number of communities than in the past. Health Department services have been, in many cases, less than adequate and there is still, understandably, considerable opposition to the expansion in public health services in many communities and areas. This inadequacy is true because the apparent

high costs of public health programs are invariably associated with the adequacy of them (4).

The implication should not be drawn that an expensive program is necessarily the best one, however, it is true that adequate public health is rarely obtained on a minimum budget. Many health department operations are actually useless, and in some instances dangerous to the welfare of the community they attempt to serve when they are operated as minimum services.

During any discussion of this economic factor it should be made clear that healthy living obtained through the efforts of public health teams is admittedly expensive. Most intelligent people can appreciate the fact that a considerable amount of human suffering has been alleviated by public health programs. Many have, however, come to feel that the public health department represents an added, and perhaps unnecessary, expense to the taxpayer.

An increase in the money judiciously spent on public health services, including both the medical and sanitation programs, actually can bring about a decrease in the net bill for personal and community health and welfare.

Most people will grant that even though the construction and costs of water purification, sewage collection and disposal systems are undeniably high, in their absence a similar or very likely greater cost would have to be borne by the individual and the community. These costs would be expressed through increased medical expenses and lost earning power.

In 1935 lobar pneumonia caused the death of 2,039 males in New York City, 809 of them between the ages of 20 and 50. Since the deaths occurred among working males, it has been estimated that these deaths represented an economic loss of 20 million dollars. This fact was noted and used when it was found necessary to request \$50,000 to provide adequate pneumonia control work. It has been estimated that the expenditure of this sum would save 5 million dollars. It was pointed out by some authorities that when 2 million dollars of State and Federal funds were used in 1937 to prevent and control syphilis, this was a paltry sum when compared to the 10 million dollars spent on the syphilitic insane annually (4).

In 1930 the Commissioner of Health of Detroit, Michigan, requested \$200,000 a year for each of 5 years for early tuberculosis finding and hospitalization. He was able to demonstrate that the total extra appropriation of one million dollars for this purpose would repay itself several times over by the end of that period. At that time only 15% of the new cases of tuberculosis were found while still in the minimal stage, 30% were moderately advanced, and 55% were far advanced. By 1943, as a result of the accelerated program for case finding and hospitalization, the fig-

ures for minimal and far advanced cases were literally reversed so that 55% of the newly diagnosed cases were in the minimal state and 17% had progressed to the far advanced stage. When it is considered that the average hospital stay for minimal cases in Detroit was 9 months in contrast to 2 years or more for far advanced cases, the enormous savings to the taxpayers in terms of hospital costs alone is most evident. It was calculated that the initial investment of \$200,000 in preventive medical procedures saved about \$1,400,000 per year (4).

Large savings from milk and food sanitation programs also may be realized when one considers hospital costs and labor lost from milk, food, water and vector borne diseases.

Rats are notoriously destructive because of their knowing habits and it is an accepted fact that some of our worst fires have been attributed to rodents such as rats and mice. Rats cost the United States 500 million dollars each year. A rat destroys \$200 worth of food annually. These facts indicate that costs other than those from wages lost and hospitalization may be realized by a municipality (3).

The refuse collection and disposal systems of the municipality or district may also be important factors, both as an indicator of the sanitary status of the area and as a valuable reclamation tool and eventual source of income. An efficient, properly operated garbage and trash collection and disposal system will not only reduce the insect and rodent population of a community but if the Sanitary Landfill procedure is used, it can effectively and efficiently reclaim much otherwise worthless land for future use (1).

Insect control programs also should be considered as being potentially capable of paying financial dividends to a community or health district. Flies and mosquitoes are vectors of diseases such as typhoid fever, dysentery, malaria and encephalitis. Certain areas of the United States have long had a history of malaria and encephalitis endemicity (6). Adequate mosquito control should not fail to consider the public health aspect of the work along with the nuisance phase where the local conditions indicate such action is needed.

A local health unit may easily determine for itself just how expensive communicable diseases are to a community. Statistical information may be obtained from the local and State Health Departments, the State Employment Bureau, local hospitalization insurance companies and similar sources. These data should clearly indicate how substantial savings could be realized by a municipality, district, or locality by well planned, effective public health services.

In Fargo, North Dakota, data obtained from such sources as these just mentioned, indicated that approximately \$61,000 was lost in wages and through

hospitalization expenses during the first 9 months of 1960 (2, 5).

PUBLIC HEALTH PERSONNEL

A brief word regarding the size of the staff needed to carry out a minimum effective public health program might not be amiss at this point. The recommendations suggested by some public health authorities state that a ratio of 1 per 50,000 population be used for medical personnel; 1 per 15,000 for sanitary personnel; 1 per 5,000 for nursing staff (1 per 2,500 population of bedside nursing is included); and 1 per 15,000 for office personnel (4). On this basis a considerable number of districts and units in the nation are understaffed. It is readily granted that local conditions should determine the required number of staff members; however, as a general rule, units with less than minimum staff requirements would be more likely to carry out a substandard public health program.

CONCLUSIONS

1. Disease occurs, primarily, because the individual or group is related unfavorably to the physical or social environment.
2. The Health Department's health and sanitation programs are needed to control the environment.
3. Public health activities may be further justified on both an altruistic and economic basis.
4. The effectiveness of any given public health

program may be related in direct proportion to the adequacy of its budget.

5. The increase in public health budgets is due to a rise in cost of all government operations, and the realization in many areas that long overdue changes in staffing and programing are due.

The public health profession must attempt to prove to the taxpayer that the health and sanitation programs are actually worth the rather large sums that are currently being requested. This can be done by (a) stressing the relationship of communicable and noncommunicable diseases to man and his environment; and (b) by indicating the actual monetary savings that may be effected by public health activities.

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