Med. J. Malaysia Vol. XXXI No. 1 September, 1976

Have We Conquered the Communicable Diseases?

Dr. Paul C. Y. Chen

IN THE developed countries, the bulk of communicable diseases have been controlled. As a result, the three leading causes of death in young children are accidents, congenital anomalies and malignant neoplasms, which for example accounted for 59% of all deaths in 1971 among children aged one to four years in Australia. On the other hand, the diseases in a developing country such as Malaysia are most commonly the set of communicable diseases that are faecally-transmitted or air-borne. Thus, in Malaysia, pneumonia, diarrhoeas, home accidents and diphtheria accounted for 54% of all deaths among children aged one to four years of age (Chen, 1975). The World Bank (1975) in its Health Sector Policy Paper notes that the most widespread diseases in developing countries are the faecally-transmitted diseases the most common of which are the intestinal parasitic and infectious diarrhoeal diseases including poliomyelitis, typhoid and cholera. In Malaysia the infection rates for round worm, whipworm and hookworm in rural children aged seven to twelve years of age were found by Bisseru and A. Aziz Ahmad (1970) to be 86%, 88% and 54% respectively. Such intestinal parasitic diseases are frequently chronic and debilitating rather than causes of acute illness or death. Nonetheless, they are important since infestation by 13 – 40 round worms can result in a loss of 4 gm. of protein each day (W.H.O. 1967).

Much improvement in the health of the rural people of Malaysia has been made since Independence, particularly in the field of maternal and child health. Some of the communicable diseases, such as diphtheria, have been reduced to a great extent. Thus, the incidence of diphtheria which was 28 per 100,000 population in 1959 dropped to a low of 3.7 per 100,000 population in 1972 (Fig. 1). This is partly due to the development of the maternal and child health services and partly to a change in the schedule of immunizations made available to children (Dugdale, 1969; Chen & Choong, 1971).

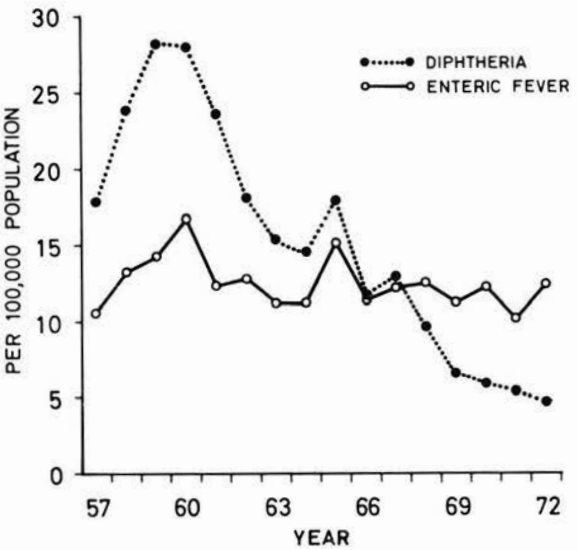

Fig. 1
Reported incidence (notifications) of diphtheria and enteric fever per 100,000 population in Peninsular Malaysia, 1957 to 1972.

However, the incidence of many of the faecally-transmitted diseases has remained unchanged. For example, the incidence of enteric fever (typhoid) has continued at a steady rate of about 12 per 100,000

population throughout the 15-year period from 1957 to 1972 (Fig. 1). This is related to the fact that faecally-transmitted diseases share a common origin – the contamination of food, water and soil with human waste. If water is not safe for drinking or is insufficient for personal hygiene and sewage disposal, diarrhoeal disease will continue to spread easily. Consequently, even though much has been achieved against some of the air-borne diseases such as diphtheria and tuberculosis, the problem of the faecally-transmitted diseases such as enteric fever, dysentery, diarrhoeas and other intestinal infections has continued to affect the people particularly the children.

The 1970 Housing Census (Malaysia, 1973) showed that 52.5% of living quarters in Peninsular Malaysia did not receive a piped water supply and that in the rural areas such quarters constituted 67.7% of rural dwellings (Table I). It also indicated that 10.4% of rural dwellings obtained their water supplies from rivers, canals and drains. In other words, it was observed that piped water was not available to the vast majority of rural living quarters which account for almost two-thirds of the living quarters in Peninsular Malaysia. In the same report it is noted that 40.3% of rural dwellings had inadequate toilet facilities, made up of 13.1% whose latrines discharged into rivers and 27.2% which had no latrines at all (Table II). These two factors combine to create the environmental situation that facilitates the spread of faecally-transmitted diseases particularly those associated with contaminated water supplies (Fig. 2).

Table I

Percentage Distribution of Water Supply by Strata and Type, Peninsular Malaysia, 1970

Strata	Piped water	Wells, pumps	Rivers	Canals, drains	Others
Metropolitan	89.6	8.9	0.2	0.3	1.0
Urban large	71.4	26.3	1.2	0.3	1.2
Urban small	61.5	34.5	1.9	0.4	1.6
Rural	32.3	54.4	8.1	2.3	2.9
Total	47.5	43.0	5.6	1.6	2.3

Source: West Malaysia Census of Housing, 1970, Final Report.

Table II

Percentage Distribution of Toilet Facilities by Strata and Type, Peninsular Malaysia, 1970

Toilet facilities	Metropolitan	Urban large	Urban small	Rural	Peninsular Malaysia
Adequate	**95.1**	**84.6**	**83.4**	**59.7**	**69.8**
Flush	52.3	28.9	16.4	10.3	18.6
Bucket	34.8	37.6	45.8	5.0	17.2
Pit	8.0	18.1	21.2	44.4	34.0
Inadequate	**4.9**	**15.4**	**16.6**	**40.3**	**30.2**
Over rivers	3.2	4.5	6.4	13.1	10.1
None	1.7	10.9	10.2	27.2	20.1

Source: West Malaysia Census of Housing, 1970, Final Report.

Fig. 2

The ecological setting against which faecally-transmitted diseases are spread. The cultural practice of using river waters, which is often contaminated, is an age-old practice that must be taken into account in the control of such diseases.

Studies in several developing countries in Latin America have indicated that health improvement results from better water supplies and sewage facilities (Van Zijl, 1966). In the Philippines improved water supply and toilet facilities reduced the incidence of cholera by 70%. Some studies, on the other hand, do not show that improved water supplies and sewage facilities result in improvements in health. This is due to the fact that the cultural practices of the people may interfere. Drinking water may continue to be stored in contaminated jars. People may continue to prefer contaminated river or well water because of greater convenience, taste or other cultural reasons (Chen, 1971). However, it has been noted that by connecting the water supply system into individual homes, not only is the water readily and conveniently available, but also it is unnecessary for water to be stored in jars – a practice that used to result in the contamination of the water and in the breeding of vectors of diseases such as the Aedes mosquito. The W.H.O. Expert Committee on Enteric Infections (1964) underlined the importance of health education in the prevention of enteric fever. It noted that the customs, beliefs and cultural practices of a people must be heeded and woven into the fabric of any preventive programmes.

Health education and efforts to change the behavioural patterns of people are difficult tasks fraught with many pitfalls. Thus the fortunately rare instances of failure do not mean that improvement in water supplies and sewage facilities are futile but merely indicate the difficulties that are likely to be encountered when attempts are made to change behaviour patterns.

The cost of providing water supplies is usually very high. However, relatively simple techniques of providing water supplies are nowadays available. Several very effective rural water supply systems have been constructed in rural Sarawak. Nonetheless, even these simple techniques are relatively costly – each gravitational water supply system to a village of about 100 homes can cost $20,000 or more. In view of the limited resources of individual states, the responsibility of providing financial and manpower resources to construct such supply systems should obviously be a federal one.

References

Bisseru, B. & A. Aziz Ahmad (1970) Intestinal parasites, eosinophilia, haemoglobin and gamma globulin of Malay, Chinese and Indian school children, *Med. J. Malaya, 25,* 29.

Chen, P.C.Y. (1971) Socio-cultural aspects of a cholera epidemic in Trengganu Malaysia. *Trop. geogr. Med., 23,* 296.

Chen. S.T. (1975) Pneumonia and diarrhoeas: killers of toddlers in developing countries. *Trop. geogr. Med., 27,* 103.

Chen. S.T. & Choong, M.M. (1971) The early immunization of infants in Malaysia, *Med. J. Malaya, 26,* 15.

Dugdale, A.E. (1969) The built-in failure rate of immunization at infant health clinics, *Lancet 1,* 409.

Malaysia (1973) *West Malaysia Census of Housing, 1970, Final Report,* Department of Statistics, Kuala Lumpur.

Van Zijl, W.J. (1966) Studies on diarrhoeal disease in seven countries, *Bull. Wld. Hlth. Org., 35,* 249.

World Bank (1975) *Health Sector Policy Paper,* World Bank, New York.

W.H.O. (1964) Expert Committee on Enteric Infections, *W.H.O. Techn. Rep. Ser. 288,* 22.

W.H.O. (1967) Expert Committee on Control of Ascariasis, *W.H.O. Techn. Rep. Ser. 379,* 12.