Primary medical care in Bhutan

J. S. BERKELEY, MD, FRCGP, MFCM, DIP.SOC.MED.
Senior Lecturer, Department of General Practice, University of Aberdeen

SUMMARY. I describe a systematic method of planning primary medical services for Bhutan in the light of the needs of the community and coping with current problems which include an infant mortality rate of 153. Objectives were defined which included decentralizing decision taking as much as possible by establishing relatively independent health units consisting of a team of three staff caring for about 10,000 people.

I believe that the principle of adapting health services to meet the needs of the local community is equally valid in the United Kingdom.

Introduction

IN 1974 I was invited by the Royal Government of Bhutan to help establish a medical training school. I had previously worked in Bhutan from 1968 to 1970 while carrying out epidemiological surveys for the development of a leprosy control programme, and was therefore familiar with many of the medical problems found in the rural communities. The University of Aberdeen granted me two years' leave of absence to enable me to accept this invitation to be Principal of the Health School.

This century has been described by Fendall (1972) as "brilliant in its scientific discoveries, superb in its technological breakthrough, but woefully inept in its application of knowledge to those in need". How has the rapid accumulation of medical knowledge been applied to the benefit of humanity? In developed countries during the last decade there has been an increasing emphasis on the needs of the elderly—problems that more often respond to simple medical or social management than to sophisticated procedures. In the developing countries the outstanding requirement is the application of yesterday's knowledge, and McKeown (1976) has emphasized that with the exception of vaccination against smallpox, the improvement of health in Britain during the nineteenth century resulted from an increase in food supplies, which led to better nutrition and an improvement in hygiene affecting the quality of water and food.

The health care system of a country contributes indirectly to social security. In a developing country parents are dependent for their security in old age upon children to look after them, and the first major objective must therefore be a reduction in mortality in the first year of life. In common with many other developing countries, when the Royal Government of Bhutan planned the modern development of its health service, the main motivation was to obtain an improvement in the maternal and child health in the rural communities.

Bhutan

Bhutan is an independent kingdom about the size of Switzerland, sandwiched between Tibet and India. The population of just over one million people is mainly of Mongolian stock, with strong cultural ties to Tibet. The people live in small villages, scattered over a very mountainous countryside. Houses are large and well built, though the standards of hygiene are primitive. The economy is based on agriculture and in the fertile valleys of western Bhutan, rice is the main crop. Before the Chinese occupation of Tibet there was a flourishing trade cycle—rice was taken up to Tibet and traded for salt, and the cloth which the Bhutanese women had been weaving during the winter months was traded in India for metal goods.

The people are very religious, their Buddhist practices forming an integral part of everyday life, and also providing colourful ceremonies performed by the priests (lamas) during religious festivals. The Buddhism of Bhutan revolves around demons and magic, and therefore the evil spirits which may cause disease must be appeased by religious ceremonies or pujas. The main doctrines of re-birth account for the occurrence of many

© *Journal of the Royal College of General Practitioners*, 1979, **29**, 530-533.

diseases. Leprosy, a punishment for sins in a previous life, can be cured in the next re-birth only if one leads a good life now. Congenital defects are due to sin by that particular part of the body in a previous life.

There is a major problem in communication. The developing network of roads capable of taking vehicles is expensive to maintain, and landslides often block the road for days at a time. The traditional use of the horse remains the main means of travel and transport for the majority of the population. The difficulty of access to doctors or hospitals is one of the main reasons for the current pattern of development of primary medical care services in Bhutan.

Health service

The medical services in Bhutan are controlled by a Director of Health Services and the country is divided into seven zones, each with a Zonal Medical Officer in charge. The ratio of doctors to population is about 1:20,000 and most of the doctors are based on one of the five hospitals in the larger towns in Bhutan. By comparison the ratio of doctors to patients in Britain is 1:900.

Since 1961 there has been a rapid development of education, agriculture, and animal husbandry, as well as health services by a series of Five Year Plans. In the current period the main emphasis in the Health Service has been on the needs of the rural population, who comprise over 90 per cent of the population. The development of primary medical care may be considered by examining the current medical situation, the objectives and requirements for a new service, and the execution and evaluation of this service.

It is customary to take an epidemiological approach to planning and in the light of known needs and available resources to define the composition of the health team required to provide those services. In Bhutan, in common with many developing countries, there is a lack of available data. The first national census was carried out in 1969 and the registration of births and deaths has only recently been initiated. Hospital returns are available but, as in any other country, they reflect only a selected population, and tell one little about the real needs of the community.

There are great difficulties in obtaining any epidemiological data not the least of these being fear amongst the people, who may suspect the reason for a medical survey. However, in spite of many difficulties a number of extensive surveys have been made. A venereal disease survey found a seropositive syphilis rate of 8·8 per cent, a figure similar to findings in other parts of the Himalayas. This survey also enabled some calculations of vital statistics to be made from the data collected: crude birth rate 38 per 1,000; infant mortality rate 153 per 1,000 live births; stillbirth rate 51 per 1,000 live births; and an abortion rate of 76 per 1,000 pregnancies were recorded. Extensive surveys were carried out throughout the country to determine the prevalence of tuberculosis and leprosy, the findings being similar for both diseases with a prevalence rate of 15 per 1,000.

A recent nutrition survey observed that frank poverty was not encountered in any of the areas visited. Pockets of malnutrition, however, occur in the maize and buckwheat growing areas of central and eastern Bhutan. Among the rest of the population the calorie intake and possibly protein intake as well are reasonably adequate except in the pre-school group. Goitre is a major problem and in some areas up to 80 per cent of the female population are affected. Smallpox has now been eradicated, but malaria in southern Bhutan is a growing problem with a pattern similar to the neighbouring areas of India where there has been a sixty-fold increase in the annual number of cases over the last 10 years.

The major morbidity in the general population arises from infective and parasitic diseases. Diarrhoea is the commonest single condition, reaching a peak incidence in the summer months of June, July and August, which is hardly surprising as there is no protected water supply and houses rarely have latrines. Many of the infants with gastro-enteritis are quite dehydrated when seen and require urgent fluid replacement. Worms are common but they are only a presenting complaint when there is a heavy infestation. Epigastric pain is common and is usually related to the large quantities of chillis in the diet. Among the respiratory disorders, the main complaints are coughs and colds. Bronchitis and pneumonia occur, but asthma is a relatively rare condition in Bhutan. Hypertension occurs and a number of older people are seen with congestive heart failure, but the incidence of myocardial infarction seems to be extremely low. With the traditional practice of cooking on open fires and with the increasing number of motor vehicles, trauma is a serious cause of morbidity.

The childhood infectious diseases run a more severe course than similar diseases seen in Britain—for example, it is not uncommon for a child with measles to develop bronchopneumonia. Such complications together with the problems of dehydration following gastro-intestinal disease lead to high infant mortality, and it is said that up to one half of the children die before they are five. Maternal morbidity and mortality from obstructed labour, retained placenta, and post-partum haemorrhage are significant problems. It is these two factors of maternal and child health that have been the greatest stimulus to the present development of primary medical care.

Traditional folk medicine is widely practised. The Buddhist lamas perform religious rituals or pujas and offer prayer for the sick person. A wide variety of roots and herbs are well documented by the folk doctors and medicines are prepared by carefully guarded formulae. They also use blood letting and cautery in appropriate conditions.

Objectives

There is no reason to suppose that the number of doctors and fully trained nursing staff available in Bhutan will increase significantly in the near future. It is for this reason that the decision was taken to make an entirely new approach to Bhutan's community health problems. Primary health care is front-line care with a major emphasis on prevention, particularly in relation to the problems of infective and parasitic diseases. If the health of a community is going to be improved, then there must be combined action by the health authorities to treat disease, the agricultural workers to improve food supplies, and the engineers to ensure adequate safe water. This means that any health service must be relevant to the needs of the community, and the health professionals have to be prepared for their role both in the health team and in the local community.

In developing the primary health care service it was decided that the main objectives would be to adopt an integrated approach to preventive and curative medical services, and at the same time to achieve as much decentralization as possible so that health care would be undertaken in the rural areas by workers suitably trained for performing these activities.

It must be kept in mind that in a sparsely populated mountainous country like Bhutan, access to hospitals and doctors may be very difficult. For this reason, health staff must be trained to a sufficient level to enable them either to treat the patients' problems or to manage them in such a way that the patient can be transported for two or three days to the nearest hospital. This is the important distinction between the health service in countries such as Bhutan and those countries where a much lower level of training for health auxiliaries is acceptable, owing to the adequacy of supervision by doctors and access to hospital. The aim in Bhutan is to establish relatively independent health units each with a team of three health staff who will be responsible for about 10,000 people.

Implementation

The implementation of the proposals for a primary health care service can be considered under three headings: the training of staff, organizational support, and evaluation of the scheme.

Training staff

In order to train the necessary staff a health school was established in the capital under an agreement between the Royal Government of Bhutan and the World Health Organization in conjunction with UNICEF. A two-year curriculum for training three categories of workers was prepared (Berkeley, 1978) and suitable people recruited for training. In general terms, the criteria for selection were that the candidates should be over 18 years of age, should have had nine or 10 years of schooling, should come from or be able to adapt to the rural environment, and should have the necessary physical health and emotional stability essential for work in a rural area. There are three categories of staff—the health assistant, who will be responsible for diagnosis and treatment, health education, and the general administration and leadership of the team; the auxiliary nurse/midwife who will be responsible for maternal health, child health, nutrition, and general nursing care; and the basic health worker who will be responsible for environmental hygiene, communicable disease surveillance, and family planning motivation. One of each category of staff will be posted to a health unit where together they will form the primary health care team. It was considered essential that if the team was to work together as an effective group, then they should be trained with that objective in mind and therefore much of the theoretical and practical training was given on a common basis. The health school started training in 1975 and already some 80 workers have been trained and are now employed in the health service.

Organizational support

If health workers are to be effective then there must be proper organizational support. One of the early tasks in Bhutan was the preparation of a drug formulary and estimation of the likely supplies that would be required by each basic health unit. On the basis of these calculations the necessary budgeting arrangements could be made. It goes without saying that to place trained health workers in rural areas without adequate medical supplies is inviting criticism and only brings the health service into discredit. Indications for the referral of patients were defined and an appropriate method of transferring these patients to hospital or obtaining necessary advice was established. Suitable staff were selected for training as supervisors and they also had the role of being responsible for continuing education.

Evaluation

Evaluation is essential, not only as a measure of the effectiveness of the health care system but also as a feedback to the health school for the improvement of training. Each health unit will be responsible for providing certain demographic and morbidity data to the Director of Health Services, and on the basis of this information a clearer epidemiological perspective can be obtained for the future planning of health services. Planned evaluation of the team will be carried out on the basis of indicators such as immunization levels in the community, infant mortality rates, and the nutritional status of pre-school children. Much of the improvement in general health will also be attributable to the effects of other departments, such as agriculture and animal husbandry, and the local district administrators will be asked to comment on the community's view of the participation of the health staff in the general welfare of the community.

Conclusion

In Bhutan the needs of the community were first defined, and then in the health school students were trained to recognize and manage these problems. This emphasis on the needs of the community rather than the role of health professionals is as relevant in Britain as it is in Bhutan.

In Britain our training of medical and nursing students is hospital centred, rather than related to the major needs of the community. We talk about the role of the team in general practice, but we are still failing to help students in the caring professions to learn how to work effectively together. When we consider the needs of our own patients, I believe that there is a lesson to be learned from developing countries such as Bhutan, where scarce resources necessitate a clear definition of the health problems and finding the most effective ways of tackling them. Finally, we may ask ourselves what our responsibilities are to those developing countries who may need our help in solving their medical problems.

References

Berkeley, J. S. (1978). Training health workers for primary care in a developing country. *Medical Education,* **12**, 209-213.

Fendall, N. R. E. (1972). Auxiliaries and primary medical care. *Bulletin of the New York Academy of Medicine,* **48**, 1291-1303.

McKeown, T. (1976). *The Role of Medicine.* London: Nuffield Provincial Hospitals Trust.

Minor tranquillizers and road accidents

In a prospective study of 43,117 people, prescriptions issued by general practitioners over two years were linked with records of hospital admissions and deaths. For 57 people injured or killed while driving cars, motor-cycles, or bicycles the medicines that had been dispensed in the three months before were compared with those dispensed for 1,425 matched controls. There was a highly significant association between use of minor tranquillizers and the risk of a serious road accident (relative risk estimate 4·9).

The increased risk of accidents to drivers given tranquillizers could be due to the known psychomotor effects of these drugs or to effects of the conditions being treated. Whatever the reason, patients taking drugs such as diazepam should be warned that they are at special risk.

Reference

Skegg, D. C. G., Richards, S. M. & Doll, R. (1979). Minor tranquillizers and road accidents. *British Medical Journal,* **1**, 917-919.