The Teaching of Nutrition at Maternal and Child Health Centres in the Tropics

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I.—General Considerations

(1) *Attention Paid to the Teaching of Nutrition*

The amount of attention paid to the teaching of nutrition by MCH (Maternal and Child Health) Centres in tropical countries as a whole tends to be inadequate, especially with regard to the pregnant and lactating woman, stress being too often given to minor curative work and to milk distribution; when teaching is actively practised, it appears quite often to be unplanned, unthought out and insufficiently orientated to local food habits. It must, however, be noted that there is great variation in both quality and method of approach in different centres and many are of the highest standard, being well aware of specifically local problems and making every attempt to modify traditional and customary methods of feeding rather than superimposing totally alien ideas.

(2) *Relation of Teaching to Local Reality*

It is apparent, in some instances, that senior staff—including paediatricians, public health nurses and midwives—find it difficult to adjust their preconceived ideas of infant feeding to the local reality of available indigenous foods, customary traditional methods and religious or superstitious taboos and prejudices. This difficulty applies to senior staff of all nationalities—as in all cases their training has been in Europe or America, or their paediatric textbooks have been written to suit Western methods of infant feeding.

It would appear that at present an initial "phase of bewilderment" must always occur under these circumstances until it becomes realised that the cherished views and methods learnt during training are of a limited use in a different part of the world with a very different culture, especially as regards food habits. This stage often appears to be characterised particularly by inapplicable advice (i.e., early weaning from the breast), over-elaborate food and cooking demonstrations (i.e., using aluminium saucepans and very accurate measures) and a tolerance of impossibly complicated health posters, which can have no meaning to local mothers. In most cases a gradual adjustment is usually made after this initial phase, which seems to last for six months at a minimum. In a small minority, however, an "ivory tower" attitude of withdrawal from reality may develop, whereby teaching of inappropriate Western style infant feeding is persisted in, despite the fact that both teacher and recipient must have realised that it makes no sense in the particular circumstances.

(3) *Methods of Teaching Used*

The following methods of teaching of nutrition may be seen in MCH centres: (1) rapid discussion and advice to mothers during routine attendance; (2) talks either to small groups or larger gatherings; (3) advice during home visiting; (4) cooking and food demonstrations; (5) use of food models; (6) posters; (7) films and film strips. Details of the various methods will be discussed later, when possible improvements are considered.

II.—Suggested Improvements

The teaching of nutrition at MCH Centres is concerned with three groups: the pregnant woman, the infant and the lactating mother, and is aimed at reaching the mothers attending and the junior MCH staff, especially those in training.

(1) *General Principles*

Some of the general principles which appear to be involved in the development of successful and realistic teaching of nutrition in tropical MCH centres are discussed below in outline.

(a) *Pre-assignment Training.*—Despite their usually excellent training and experience, senior staff at MCH Centres are very often totally unaware of the existence of the type of nutrition problem they will meet and, as a result of this, take a period of months to adjust themselves during which time they will not be able to benefit the Centre as far as this important aspect is concerned and may indeed do temporary harm.

It is suggested that by using some form of pre-assignment training this initial difficult and wasteful period might be shortened or even eliminated. Ideally, a short course of *tropical* paediatrics, with particular emphasis on nutrition, would be invaluable.

There is at present a great need for a short presentation of the major difficulties and controversies of infant feeding in subtropical and

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tropical countries. This should not necessarily attempt to give solutions to the various problems, but should be mainly concerned with describing their existence. A booklet of this type could be used for pre-assignment reading and should tend to shorten or eliminate the initial "phase of bewilderment."

As has been noted, it is felt that some type of briefing on the more important features of general tropical paediatrics is also essential, especially as many aspects have a nutritional significance, as, for example, heavy infestation with *Ascaris lumbricoides* and chronic hyperendemic malaria. Some type of concise course of instruction would be most suitable, but is not at present catered for anywhere in the world. In addition, the value of an up-to-date textbook on child health in the tropics, orientated particularly towards preventive paediatrics, would be very great.

(b) *Survey of Various Aspects of Local Infant Feeding.*—(i) *Local Infant Feeding*: It is suggested that an initial duty of a newly appointed MCH physician should be to undertake a preliminary outline survey of local methods of infant feeding. This cannot obviously be carried out from personal experience, but an effective basis can be obtained by enquiring from local paediatricians, public health workers, midwives, etc. A week spent doing this alone would be useful and would form a nucleus around which later more detailed information could be built as acquired.

Particularly important are the length of breast feeding and the customs at weaning. Superstitions must be taken into account, such as the idea the mother may produce poisonous milk in one or both breasts, as believed in Lahore, or that certain "hot" (*garam*) foods are bad for babies in hot weather, as widely held in India. The influence of certain religious beliefs are of great importance—such as, for example, the fact that the Koran advises prolonged breast feeding, while stricter Buddhists may be averse to drinking cow's milk, as they feel it is robbing the calf, or, alternatively, "drinking the cow's blood." Special customs not primarily nutritional should be noted, such as the habit of quietening infants with opium drops; while magico-religious ceremonies must be appreciated, such as when, in parts of India, the baby is fed his first rice on a propitious day as calculated from his horoscope (*anna prasam*).

The attitude to milk must receive particular attention, as a correct understanding of this is essential, especially as the standard methods of weaning in the West are always associated with the use of cow's milk, whereas animal milk is not a traditional food in any age group, including infants, amongst most of the Mongolo-Malayan peoples of South-East Asia, who have an active dislike for the flavour and smell of milk and who keep buffaloes mainly as beasts of burden.

(ii) *Local Forms of Infant Malnutrition*: A knowledge of the locally prevalent forms of infant malnutrition is absolutely necessary as supplying the "mirror image" of infant feeding. Again this should be acquired early or by enquiring from local practitioners, nutritionists, etc., who may in addition be able to advise as to useful articles or reports published concerning infant malnutrition in the area. Again a week spent in this way would be of the utmost value.

(iii) *Local Foods and Cooking*: A first hand knowledge of local foodstuffs is essential. Preliminary information should again be sought for by enquiring from the same sources as previously suggested, as well as from experienced local housewives. Visits to markets are very useful and should be repeated so that seasonal variations can be seen. The prices of food must be known roughly so that they may be compared with the amount of marketing money mothers are likely to possess. The availability of certain foods is often of paramount importance—in particular the following: (a) animal milk, whether from cow, buffalo, goat, sheep or camel, or as a tinned product; (b) sources of vitamin C rich fruit juices and pulps, such as guava, prickly pear, pawpaw; (c) green vegetables, frequently rich in vitamin C, carotene, iron and protein, such as Jew's mallow and cassava leaves. With relation to milk, the possible use of various milk products in infant feeding should be enquired into, including sour milk, curd and cream cheese.

Methods of cooking, including the types of fuel, grates and utensils, and an idea of the meal patterns of adults must also be investigated, while local weights and measures must be understood. Particularly important in infant feeding is a certain knowledge of the capacity of the cups, bowls and spoons used—as, for example, the flat china spoon used in many parts of South-East Asia.

(iv) *Scientifically Modified Infant Feeding*: The main nutritional problems as far as tropical MCH centres are concerned are: the diet during pregnancy and lactation, the optimal length of breast feeding, the best age for the introduction of semi-solid foods, the correct age for the intro-

duction of vitamin C containing fruit juices and pulps, suitable high protein, non-milk weaning foods and easily available, cheap local foods containing iron and vitamins A and C. Details cannot be given in the present paper, but are fully discussed elsewhere (Jelliffe, 1955). Advice given on infant feeding in the tropics can be based approximately on the same scientific principles as elsewhere, although it is not certain that this is completely justified. For example, the effects of a high temperature and humidity on infant metabolism are not known, while certain findings—such as the rarity of clinical scurvy among most apparently vitamin C deficient tropical infants—suggest that in some instances various processes of adaptation may take place within the body.

A constructively critical attitude should be adopted to the traditional methods used in feeding mothers and infants. Advice given should aim at continuing beneficial customs—such as prolonged "on demand" breast feeding and the discontinuance of sexual intercourse for a period of months after delivery, while discouraging customs which, after real thought, are considered to be harmful, such as dietetic restriction during pregnancy in order to produce a small baby and an easy delivery, or the forced feeding of infants in the first week of life. It must, however, be re-stressed that a particular custom or method, however strange to the Western trained paediatrician, must be very carefully considered before being condemned. In addition, there are often a large number of customs which may possibly not appeal to the child health worker but which apparently have little effect, either harmful or beneficial, on the infant. It is wise not to pay attention to these, but to concentrate on the major issues.

It is also necessary that mothers be advised concerning the blandishments of advertisements for some foods; in particular, the various carbonated and cola drinks, unvitaminised vegetable "ghee" and condensed milk may be mentioned.

All aspects of infant and maternal feeding in the tropics must, therefore, be orientated towards local customs and cheap and easily available foods. The outstanding problem of finding a suitable high protein food for the "kwashiorkor phase" of infancy must be considered in relation to local foodstuffs, whether animal or vegetable. For example, the following vegetable protein mixtures may be of use in this context in various parts of the world: a *burghul-hommos* mixture (a gruel of pre-cooked wheat and chick peas) (*Cicer arietinum*) (Arab refugee camps), *kishkeh* (*burghul* soaked and dried in sour milk) (Lebanon and Syria), "*buburidjo*" (a gruel prepared of green gram and other vegetables), *nasitim* (steamed rice) with added soya products, such as curd or *tempeh* (fungus digested soya bean), as may be employed in Indonesia.

(2) *Suggested Methods of Teaching Nutrition.*—The most important feature of the teaching of nutrition in MCH Centres is that there shall be agreement among different senior members of staff. At present there tends sometimes to be different "factions" within a Centre disagreeing over some minor aspect of the subject, such as the precise month at which fruit juice should be introduced, usually based on the training they have received in their various home countries rather than on observation of the local situation. It is necessary to formulate a provisional "doctrine d'alimentation," which may be modified by later experience, in order to avoid confusion among both mothers and, particularly, junior staff in training.

The following methods of teaching nutrition at MCH Centres must be considered:

(i) *Rapid Discussion and Advice During Routine Attendance*: This forms the mainstay of teaching at most Centres. As different members of staff may see mothers on different days, it is absolutely essential that agreement has been reached on the main aspects of advice to be given.

(ii) *Talks*: Talks appear to be of some value in the teaching of nutrition at MCH Centres, but often tend to be too complicated and often have the difficulty that translation is required, introducing the possibility of inaccuracies. Group discussions are usually impossible, except when supervised by a doctor fluent in the local language.

Talks by means of a loudspeaker to large crowds, as seen at some Centres in the Eastern Mediterranean, do not seem to be as effective as talks in smaller, more personal and friendly groups. However, if staff and time do not permit of this, the microphone talk should certainly be used instead.

The essential feature of a talk in this context would appear to be simplicity and to repeat the same message frequently. In many ways there is a danger of attempting to instil too much rather than the converse.

(iii) *Advice During Home Visiting*: This is undoubtedly of great importance, as mother and child will be seen in the crowded unhygienic

home with very limited cooking facilities, rather than dressed in their best clothes in the artificial atmosphere of the Centre. Home visiting should be used as a means of giving advice and, at the same time, of learning about problems of cooking and domestic economy by actual observation.

(iv) *Cooking and Food Demonstrations*: Cooking and food demonstrations are of paramount value, as the language difficulty is overcome to a great extent, while the interest of mothers can be held more easily. It is, however, absolutely essential that local apparatus—such as fires, grates, cooking utensils, etc.—be used. The demonstration should illustrate a single simple food preparation, possibly with a mother assisting.

(v) *Food Models*: At some Centres realistic wax models of food are sometimes available. They would seem to be of use, not as a set "exhibition" in a glass case, but as a means of emphasising a point during a talk or discussion.

(vi) *Posters*: Posters are in use in many places, but, because of their complexity, often appear to serve no other purpose than the possibly useful one of brightening the walls of the Centre and certainly have no meaning to local mothers. In particular one poster seen by the writer may be mentioned. This showed the effect of diet on the blood and bones and built its story around two drawings showing the human circulation and skeleton. What the impact on local superstitious mothers can be is difficult to visualise—possibly they regard it as an incitement to devil worship!

Ideal posters show the following characteristics: (a) simplicity, with only one idea presented at a time; (b) local people and scenes; (c) a minimum of writing, as the majority of mothers would, at present, be illiterate; (d) local cheap and easily available foodstuffs, as opposed to foreign or impossibly expensive foods. (One poster in a tropical MCH Centre showed strawberries, ham and cornflakes.)

In a few places commercial posters are used, sometimes disguised as large calendars. This should probably be discouraged, especially as they often advertise expensive brands of tinned milk.

Possibly the best type of poster would be one concocted by the staff of the MCH Centre, either by an artistic staff member or by means of "cut-outs" from local magazines. These should be tried out on representative mothers to find their reaction and interpretation before using them more generally. Posters may be fixed on a stiff cardboard or plywood so that they can be taken down from the wall and used during talks and discussions.

(vii) *Films and Film Strips*: There is no doubt that, in the teaching of nutrition at MCH Centres, practical demonstration is of much greater benefit than any film or film strip, although the latter have a considerable novelty value. Probably the film strip is more suitable, as the pace can be adjusted to the audience, while its cheapness makes it more likely that locally taken film strips, showing the sort of people and scenes that mothers are used to, will be feasible. On the whole, films and film strips appear to be more suitable for the junior staff than for mothers.

In this context it may be noted that the preceding summary on possible methods of teaching of nutrition at MCH Centres has been mainly concerned with mothers, but will apply, at a higher level, to the teaching of junior staff. However, in addition for the latter group, the clinic demonstration should probably be used more than at present. This need only be at a superficial level, but the demonstration of a weight chart becoming flattened after weaning, or the opportunity to see an anaemic conjuctiva, or be shown, briefly a case of rickets is an excellent stimulant to learning.

REFERENCE

Jelliffe, D. B. (1955). W.H.O. Monograph Series, No. 29. Infant nutrition in the subtropics and tropics.