

Nutrition Rehabilitation Units

A TRANSKEIAN EXPERIMENT

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SUMMARY

We describe our aims in opening our Nutrition Rehabilitation Unit and its organisation, with emphasis on health education, home budgeting, and demonstration of how kwashiorkor can be cured by a good diet. Our problems of selection concern mostly the recognition of kwashiorkor and infections, proximity to hospital, and finally the problem of follow-up.

Looking to the future, it seems obvious to us that follow-up at home is going to become increasingly important. It is an opportunity for combining encouragement, (e.g. persuading mothers to start vegetable gardens), and for health education; also for informing other visitors who may be interested in what is going on, and this constitutes personalised health education.

We hope to start clinic-related Nutrition Rehabilitation Units in the district, thus obviating distance from and cost of transport to, the hospital itself.

We are still very much at the beginning of our Transkei experiment.

S. Afr. Med. J., 48, 2177 (1974).

All Saints' Hospital, situated 80 kilometres west of Umtata in the Transkei, serves a population of approximately 140 000 Xhosas, the large majority of whom conform closely to traditional tribal culture and practice. We started a Nutrition Rehabilitation Unit here in April 1973, for, like those at so many other hospitals, we are aware that in this community our curative inpatient work with children suffering from protein calorie malnutrition (PCM) does not go nearly far enough. No community illness can be cured with hospital beds.

We called our Nutrition Rehabilitation Unit *Kwazondle Upile*, Kwazup for short, which means 'The home where you will grow healthy with food'. After the first year, we evaluate what we are doing at this 'grass-roots' level of nutrition. We discuss the aims of Kwazup, how it functions, the problems involved, and what we are learning for its future development. How successful are we? We feel that we are working along the right lines, but have very little objective evidence to reassure us of this.

AIMS

We may summarise our aims as curative, educational and preventive.

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We aim to demonstrate to mothers that the 'swelling' disease, *isifo sodumbo*, can be cured by correct feeding; hospitals, injections, and medicines are unnecessary (unless, of course, the child is critically ill and needs inpatient care). To this end, we try to keep the hospital out of Kwazup as much as possible. Nurse Lwana, who runs it, does not wear a nurse's uniform, and most of the mothers call her *Sisi* (my sister). No doctor does rounds; there are no temperature charts, no medicine cupboards, and the living accommodation is in huts, not a hospital ward. At present Kwazup is perhaps too near the hospital—about 30 m from the main entrance gate and, geographically at any rate, a part of it.

ORGANISATION

The only direct contact of a mother and her child with a doctor is when the decision is being made to admit them to hospital. Usually, they are referred from our under-fives clinic for possible admission, and a doctor makes a brief physical examination to assess the severity of the kwashiorkor, and to exclude other diseases, particularly any suggestion of severe diarrhoea. An X-ray film of the chest is taken and the haemoglobin is measured. Pulmonary tuberculosis, which is very common in this part of the Transkei, is not in itself a contra-indication to admission if it is asymptomatic; several children have been on TB treatment. A haemoglobin of 10 g/100 ml is taken as the lower limit of normal; below this they receive oral iron medication. A level under 7 g/100 ml warrants hospital admission. In many cases where admission to the ward is necessary, the mother stays in Kwazup until her child is well enough to join her there.

Once the child has been passed by the doctor, the next stage is scrutiny of the mother. The ideal mother is a respected member of her local community, active, highly-motivated and sociable. Her home conditions and the family circumstances, including the source of income, are assessed; and also her personality. For example, will she look down on the other mothers? Might she teach her neighbours when she goes home about the causes of kwashiorkor and its prevention? Or will she hardly learn anything herself? Or, most important, might she work against the teaching and be a bad influence on other mothers? We are most unwilling to co-operate with witch-doctors or their pupils; on three occasions we have dealt with one who gave medicines and enemas 'on the quiet' for the swelling, and in one case this probably contributed substantially to the death of a child.

Kwazup is run by an enrolled auxiliary nurse and a housekeeper. The housekeeper, unqualified beyond Std VI, was chosen as someone with whom one could work compatibly. The mothers apparently feel more at ease with

her than with the nurse, and talk more freely to her—so she is an essential member of the team.

The conditions in Kwazup resemble those in their own homes as much as possible. We do not restrict admissions to the more primitive 'red' women, but attempt to cater for the better-educated mothers as well. We started with four thatched huts; the floors were cleaned with cow-dung and the walls with soil, in the usual way. The women sleep on whatever they are used to: beds, mattresses, grass mats, empty sacks. They all perform the basic household chores.

All the mothers are encouraged not to depend on buying food. So Kwazup buys no meat or fish or eggs, all of which are very expensive. It has its own fowl-run, and mothers are shown how to rear chickens to produce their own supply of eggs. Skim milk powder, soup, Pronutro, soya beans, brown beans and peas are used with the basic mealies to complete the diet. Breakfast consists of porridge and Pronutro, with tea for the mothers and a drink of reconstituted skim milk for the babies. Dinner is samp with beans, or with home-made bread or soya beans, or with *amasi*; or dry porridge with soup and fat provides further variety. Supper is another variation of the same theme. As a daily basic protein supplement, each child has 8 heaped dessertspoonsful of Pronutro and 4 dessertspoonsful of skim milk powder.

The vegetable garden was started primarily as an educational aid, but does provide some produce for the mothers to eat. We are trying to demonstrate trench gardening, as learnt from the Valley Trust in Natal; briefly, this entails digging a trench up to a metre deep and refilling it in reverse, so that veld grass and topsoil are at the bottom. In an area of poor rainfall, this bottom layer acts as a sponge and retains a great deal of water. The first crop should be leguminous, and this is dug in at the flowering stage. We have followed this with a crop of peas for harvesting, and we hope that the difference between trench-grown vegetables, and those grown in the ordinary way, will be so great that the mothers become interested. We have also demonstrated that spinach thrives on washing-water; and this is a good crop because of its continuous yield.

We have a large demonstration hut, for showing cooking methods, with an enclosed mud stove to minimise the risk of burns so commonly sustained by toddlers with open fires. We hope that our pit-latrines may also be an effective demonstration to the receptive mother. Another health education theme is the grinding of mealies out of doors, to prevent Transkei silicosis, as described by Palmer and Daynes.¹

For most of the mothers, money is always hard to come by, and we teach them as much as possible about home budgeting and being economical generally. For instance, very little sugar is used; it is expensive as well as being unnecessary. During the summer months, the women go out and gather wild vegetables, and these are dried for use in winter. Mothers who might be staying until winter starts, are encouraged to pick and dry vegetables for taking home.

To utilise the husks from stamped mealies, some pigs are kept; the piglets, when grown and ready for eating, are shared between the man who looks after them and Kwazup.

Our share is divided again: half to sell, half to eat. Pigs are easy animals to keep, provided one knows exactly how many the husks and scrapings from plates, etc. will feed. We also have a fowl-run, and chickens are sometimes given to the women who work hard and are good members of the home in other ways.

At the beginning of each week a small group of mothers is taken into the larder, shown the supplies, and asked to plan ahead for the week, detailing exactly which items will have to be bought. This budgeting ahead is not a familiar idea with them.

Not all the economy measures are directed towards food. The demonstrations and lessons are diversified to include knitting, crocheting and sewing, in the hope that the mothers will not buy as ready-made, articles which they can make themselves.

As for the budget of Kwazup itself, we charge mothers 50 cents per week. We had approximately 700 mother-weeks in the first year, and the income from this source covered the running costs of the home, except for overheads such as the three staff salaries.

PROBLEMS

Selection

During the first 12 months 170 mothers and their babies were admitted, but not all of them stayed for an uneventful 3 weeks and then went home with healthy babies and the ability to keep them healthy. Seventeen children died, making a death rate of 10%, and 13 were transferred to the hospital. So a total of 30 children, apparently, should never have been admitted to the home. Screening takes place in the clinic, by a doctor in outpatients and ourselves, with the aim of ensuring that the children who are accepted need *only* a correct diet to make them healthy. What went wrong? Let us look at these figures more closely.

Six children had been in Kwazup for 2 days or less when they died. This short period suggests that the initial screening was deficient, since the factors contributing to death must have been present at this time. Three had severe diarrhoea; dehydration is notoriously difficult to assess in a child who is oedematous, and practically all the mothers gave a history of frequent loose stools. Recently we have begun to detain doubtful children in the outpatient department overnight, so that the frequency and state of the stools can be accurately recorded by nurses. The children are then only admitted if this record is satisfactory. As Table I shows, the other 3 died from severe kwashiorkor.

Of the 11 who were in Kwazup for more than 2 days before they died, 2 developed measles, both having been living there for longer than the incubation period. We give measles vaccine to all admissions, but this does not always prove to be effective.

We are much in need of some guidance here. We know that children with severe kwashiorkor have deficient antibody production, hence their greater susceptibility to infections. Are we wasting our money in giving them measles vaccine? Our reasoning at present is that measles is a very devastating disease and that these children, above all others, need all possible protection. We feel that re-

search along these lines would be of enormous benefit. How severe does kwashiorkor have to be to stop the efficacy of measles vaccine?

The 2 children who got measles and 1 other who died suddenly from an undiagnosed fever, must all have acquired these infections after the initial screening. Three had deteriorating PCM, and 3 severe diarrhoea; of these, 4 also had TB. In the case of one of the children who died of severe diarrhoea, part of the blame may be laid on the mother—a syringe and some other things were found among her belongings and she admitted having given the child surreptitious enemas. Our problem is: how do we recognise those children whose kwashiorkor needs more than a proper diet?

Of the 17 deaths, 6 had pulmonary tuberculosis as a complicating factor. In these 6, the diagnosis had been definite; some of the others had doubtful hilar shadows on the chest X-ray film and were awaiting a repeat Heaf test. So the actual number of children affected is probably greater than 6. We know that TB must be treated with the greatest of respect in a child with kwashiorkor; these figures should alert us to the dangers of admitting these children, and perhaps we can learn from this that we should only take children with very mild kwashiorkor if they have TB as well.

Of the remainder, the children who were transferred to the children's ward and subsequently discharged or re-admitted to Kwazup, show the same pattern. One child in this group was transferred to the ward simply because its mother was unable to learn anything!

How many of these children, then, did we wrongly admit? Not all; many of them succumbed to infections which were not there during the original assessment. They are only beginning on David Morley's *Road to Health* while they stay in Kwazup; they are still particularly vulnerable to infections, and our first year's experience leaves no doubt that the common and dangerous ones are pulmonary tuberculosis, gastro-enteritis, and measles. But it does seem as if we have also been admitting children whose kwashiorkor is too severe, or takes too long to respond to dietary measures alone—9 out of 30 children came into this category. Experience will doubtless help to improve our assessment of its severity.

Proximity to the Hospital

This problem is not exclusive to All Saints' Hospital. When we admit children who are on the breast, their mothers come along as lodgers. These lodger mothers have a good time of it—no household chores, meat with their dinner, jam on their bread, sugar in their tea, to mention some of their privileges. Mothers in Kwazup, of course, get none of these luxuries, and do as many chores as they would be doing at home. Understandably, this creates much dissatisfaction. We try to reduce contact between these two groups as much as possible, and often a mother goes to live in Kwazup while her baby is still getting over the worst of his kwashiorkor in the ward. We have not yet solved this problem; possibly not until Kwazup moves further away from the hospital and completely loses its 'hospital department' image, will we overcome it.

TABLE I. THE PROBLEM OF MEDICAL SELECTION OF 170 CHILDREN ADMITTED TO KWAZUP

Deaths	
A. In 2 days or less at Kwazup	
Severe diarrhoea	3
Severe PCM	3
B. After 3 or more days at Kwazup	
Deteriorating PCM	3
Severe diarrhoea	3
Measles	2
PUO	1
Coma	1
Transfers to hospital	
Severe diarrhoea	4
Deteriorating PCM	3
Intercurrent infections (measles, otitis media, pneumonia)	3
Convulsions	2
Worsening TB	1
Total of deaths and transfers to hospital ... 29	
(17,6%)	

Follow-up

Let us first describe how our 170 children left Kwazup. We have already dealt with those who died or were transferred to hospital. Of the rest, 97 were discharged home directly from Kwazup, (we were satisfied with the condition of all but 5 of them); 16 mothers absconded with their children—the number is getting less as time goes on—and we are now over 3 months into our second year and so far only a further 2 have absconded. Three went home against advice. (The difference between the latter and those who abscond is that they let you know what they are going to do!) Finally, 5 were allowed to go home for a special purpose, intending to return, but who, in fact, never did.

These figures mean that out of 170 admissions, only just over half did, in fact, stay their allotted time, and each mother learned how to prevent kwashiorkor, and went home with a healthy child.

Follow-up is obviously of vital importance if we are to find out how successful our mother-teaching efforts have been, and to this end we selected at random 30 names from the admission list, and studied their clinic cards. Some interesting facts emerged. A total of 11 were on TB treatment; 2 out of 3 were males; the youngest was 9 months and the oldest 6 years old. The biggest group was, predictably, between 12 months and 2 years of age. But perhaps the most chastening fact was that within 3 months of discharge, only 4 children had been back to the clinic, and 2 of these had only returned once. The mothers leave Kwazup with subsidised protein foods and firm instructions to return to replenish their supplies and allow their children to be weighed and checked.

So our hospital records tell us nothing of the success or failure of our project. Spurred on, we acquired an extra weighing apparatus and went out to investigate. So far, in the 12 mothers whom we were able to trace, the results are definitely encouraging, although we are only at a very early stage of this new venture.

On the debit side, we discovered that 1 child had died a week after her mother absconded (the mother said she was hungry—incidentally she was the only one who made this complaint). Only 4 had vegetable gardens and only 1 of these was new. One mother had come home and immediately given the child to grandmother and disappeared.

On the credit side, all the children were healthy and all without exception had put on weight—one had put on over 2 kg, having been discharged only 3 weeks before. All except one of the huts were very clean, and all but one of the mothers were regularly giving their children eggs from their own fowls. This represents an encouraging break from the traditional taboo on eating eggs.

Another most encouraging fact learned was that 2 mothers had returned home to find that another child had

started swelling. The grandmothers wanted these children sent to hospital, but the mothers accepted the challenge, changed their diets, and these 2 now have no swelling at all.

We also found that our ideas on how mothers would cope at home were not always accurate. One mother who had seemed very dull, was in fact managing very well, and another who learned very quickly did not put the new ideas into practice at all. In answer to the question: 'Why didn't you come back to the clinic?', the mothers all said that their children were well, and that they only spent money for the bus if a child were really sick.

REFERENCES

1. Palmer, P. E. S. and Daynes, G. (1967): *S. Afr. Med. J.*, **41**, 1182.