Contemporary history

Child health in Nigeria: past, present, and future*

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I looked at the list of former Windermere lecturers and realised the great honour conferred on me by being invited to give this lecture. It is also a tribute to the vigour of Nigerian paediatrics and paediatricians, whose frustrations and achievements form the major part of this lecture, and to those paediatricians, mostly your members, who set us on our path—Dick Jelliffe, the late Bob Collis, Arthur Tompkins, Ralph Hendrickse, David Morley, Hugh Jolly, the late Bruno Ganz, the late Richard Dobbs, and Bob Prosser, to name a few—and to those of you in this country who have inspired, taught, and supported us in our gigantic struggle to improve the health of our children.

Before the arrival of paediatrics in Nigeria in 1952, children were given scant attention. The earliest health services were provided for sailors and slaves. Malaria took a heavy toll of the lives of explorers and missionaries who ventured inland, but the latter were the most persistent and dedicated to providing services for the indigenes. The government services were developed mainly to care for European civil servants and army personnel and were also preoccupied with eradicating malaria and improving sanitation. From 1900 onwards small hospitals and dispensaries were in evidence in towns with no medical missionary establishments. By 1925 Lord Lugard wrote:

'The diseases of tropical Africa are comparatively few; blackwater fever, malaria, dysentery and anaemia are the principal ones. Lung diseases, enteritis and cholera are rare or uncommon among Europeans. We have now, in the African Tropics, a most efficient medical service, and generally speaking, excellent hospitals with an adequate nursing staff. To the skill of the doctors and the improvements they have effected in sanitation etc, it is due that the returns of deaths and invalidings now show such a wonderful decrease.'¹

The historian of the Nigerian health services, Ralph Schram, comments: 'Lugard undoubtedly felt that the advances were wonderful, but for 9.5 million Africans in Nigeria, the day of excellent hospitals and improvements in sanitation were still far off.'¹

Dr I L Oluwole began the first school health services in Lagos in 1925, and maternal and child welfare services were established in the rural areas, mostly by missionaries, around 1926. One of the earliest was in Ilesha, where, many years later, Professor David Morley carried out his historic studies. In the 1920s it was noted that deliveries often took place on the mud floor. The rooms were dark, smokey, and overcrowded. The deliveries were supervised largely by grandmothers, who often introduced puerperal sepsis. The babies were left unattended until the third stage of labour, with oozing cords open to infection from tetanus, a risk only increased by dressing the cord with cow dung.

In 1930 consciences were stirred in Britain about the health of mothers and children in Nigeria, and Dr Mary Blacklock was sent out by the Leverhulme Research Foundation to investigate 'certain aspects of the welfare of women and children in the colonies', but little action was taken. In 1931 a report on health in colonial Africa stated that 'the main factors which led to high infant and general mortalities are lack of sanitation, widespread incidence of debilitating diseases such as malaria, helminth infections, schistosomiasis, and venereal diseases, lack of medical care, and dietetic deficiencies'. It is still so today, with a few more additions to the list.

Collecting of vital statistics became compulsory in Lagos in 1863. More than a century later, however, important statistical data were rare, and the little information that existed was not properly used. For example, in 1952, Dr S L Adesuyi, a medical statistician, stressed the stupidity of providing hospital beds almost exclusively for adults (90%) when children needed 40–50%. Moreover, the provision

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of beds for women was only 20% when about half of the patients were women.

Infant mortality for Lagos was stated to be 450 per 1000 in 1900.¹ Fifty years later it fell to 86 per 1000 and in 1973 it was reported at 70 per 1000 and 44.7 per 1000 by the United Nations *Demographic Year Book* and the Federal Office of Statistics (Lagos), respectively. Because of the tremendous growth of the medical services and the prosperity of the people there has been a steady decline in infant mortality in Lagos and perhaps throughout the Federation; however, the method of reporting and collecting data is such that the vital statistics for the nation are still unreliable.

More reliable data are available from surveys. The Rural Demographic Sample surveys carried out in 1965–6 give the country's infant mortality as 178 per 1000, that of Lagos as 143 per 1000, and that of the former Western region and the former Federal Territory as 79 per 1000. The surveys also reported a child mortality (0–5 years) of 322 for boys and 306 for girls in rural Nigeria. Using age specific mortality, 40% of 1000 children born at year 0 will have died by the age of 5, most of these deaths occurring in the first year. Data from our paediatric emergency room at Lagos University Teaching Hospital also indicated that infants (0–1 year) have the highest mortality among children admitted.

With the opening of the first medical school in Ibadan in 1948, paediatrics arrived in the country in the early 1950s. Health problems began to be defined mainly as they presented in hospitals, and solutions were found where it was possible. There were, however, few community studies.

At that time, the ratio of doctors to population was stated as 1:40 000. The desirable ratio for a country in the African region according to the World Health Organisation was 1:10 000. Nigeria was determined to achieve that ratio as soon as possible in the hope that health care would thus be available to all. It did so in 1980, by which time 13 medical schools were functioning. The health of our children, however, has hardly improved.

Neonates

The high perinatal mortality attests to the poor quality of our obstetric care—45.6 per 1000 in Lagos,² 60.7 per 1000 in Ibadan,³ and 52.3 per 1000 in Ife.⁴ These hospital data (except the data for Lagos, which are for the whole city) include the outcome of deliveries attended in the early stages by traditional midwives and brought to hospital when they go wrong. In Lagos 38% of deliveries were assisted by traditional healers, or took place at home.

In 1981, in the rural areas of Bendel State, Akenzua found eight traditional midwives per 1000 population.⁵ Among other responses he received from these midwives, 56% did not think it was necessary to wash their hands and 36% the perineum before delivery, and 20% would manage cases such as transverse lie and prolapsed cord and 92% breech deliveries on their own. They are often known to fail. Asked about the methods used to resuscitate a baby who fails to cry at birth, the answers varied from 'sprinkle alligator pepper on baby' (60%), to 'plug the anus with finger and pour cold water on baby' (8%), and 'Nothing! It's God's wish' (4%). All of them were willing, however, to be trained in modern ways of midwifery and practice to improve the quality of their service, and they are therefore a potential source of health manpower in the rural areas.

In a provincial hospital in Ondo with no paediatric unit, intrapartum asphyxia due to prolonged labour was the commonest cause of the high perinatal mortality. Other causes were prematurity, twinning (16.4%), and congenital malformations. In the University College Hospital, Ibadan, the causes of high perinatal mortality were twinning (10% of all pregnancies and also an important cause of prematurity), malpresentation, toxæmia, and the tendency of women in Ibadan to have large families.³ The women admitted to the hospital in Obadan were highly selective, and that hospital also had an excellent paediatric unit.

Eighty per cent of babies are delivered in an unhealthy environment by unskilled attendants. In hospitals or health centres they are discharged into the same contaminated environment within 48 hours. Ill babies pour from the community into hospital wards where facilities are most inadequate. In Lagos in 1981, 35% of newborn babies admitted from the community were infected, 31.5% were preterm, and 19.5% jaundiced. Moreover, 1021 jaundiced babies were treated as outpatients, 677 of whom received exchange transfusions. Similar experiences have been reported from Ibadan and other centres.

Five conditions account for 76% of neonatal deaths in hospital—jaundice, infection, congenital malformations, tetanus, and low birth weight (ranging from 21.3% in the North⁶ to 7.3% in Lagos,⁷ for babies born in hospital). Infections, including tetanus, are the major causes of death. Except for congenital malformations, all the conditions stem from factors in the environment.

Neonatal jaundice is more severe in babies admitted from the community than in those born in the hospital, and glucose-6-phosphate dehydrogenase deficiency is the commonest cause among the

former group. In 1967–8, 52% of children registered in our neurological clinic had cerebral palsy due to neonatal jaundice. In Lagos mothers of babies admitted for jaundice stated that they had used mentholated dusting powder on the umbilical cord. A controlled trial in infants deficient in glucose-6-phosphate dehydrogenase who had been born in hospital indicated that those who had had the powder applied to the umbilical cord developed jaundice more often and more severely.⁸

In 1983 it was reported that herbalists were familiar with jaundice in the newborn and believed it to be transferred from the mother (and occasionally from the father) to the fetus or caused by shortage of blood in the newborn, fever, mosquito bites, blood spilling into the eyes of the baby at birth, bad water in the baby's body, and the mother eating bananas during pregnancy.⁹ They would treat it by administering concoctions of herbal medicine or washing the baby with black soap.

Older children

The emergency room, where only very ill children are admitted, is the busiest unit in academic paediatric departments. It is the point of entry from the community into the outpatient department and for 80% of admissions into the wards. It mirrors the health problems in the community and provides an indication that the community health support systems have failed.

Most conditions seen in the emergency room are preventable or easily cured if diagnosed and treated early. But these diseases are not 'interesting' to the 'tertiary' trained and situated physician until they occur in their worst form. The worst hit are children aged 2 years and below. These children constituted 94% of all admissions to the emergency room in Ibadan in 1968 and a similar proportion of deaths in Lagos. The situation remains the same in 1984.

Gastroenteritis and malnutrition

Nigeria is suffering the decline in breast feeding reported from various parts of the world. In Lagos in 1968 dietary histories of patients with malnutrition indicated that bottle feeding was added to breast feeding by all mothers during the babies' first month of life.¹⁰ In Ibadan in 1973 a report to the United Kingdom Committee of the Freedom from Hunger Campaign showed that bottle feeding was started at less than 1 month of age by 52% of mothers, and 94% introduced bottle feeding by the age 2–3 months. In Lagos most mothers of malnourished children surveyed bottle fed their babies because they 'took a fancy' to it. In Ibadan mothers

said that it gave the baby 'health and strength', concepts popular in Nigerian culture and often used in food advertising.¹¹

Many mothers also stated that breast milk was not sufficient. Early bottle feeding is known, however, to lead to a possible failure to empty the breast, resulting in a dampening of the 'let down' reflex and reduced breast milk output. The need for bottle feeding is thereby increased and ultimately super-venes. When, because of ignorance or poverty, dilute formula feeds are thereafter given to the baby, marasmus develops.

Added to bottle feeding, the highly contaminated environment, poor personal hygiene, ignorance, and the dearth of a potable water supply also account for the high incidence of gastroenteritis.

Oral rehydration therapy is gaining ground rapidly and saving many lives. Its use was taught to mothers in our primary health care service in Lagos. After four years a community survey indicated that 61% of 247 registered mothers knew the correct formula but only 32% of these had used the solution during their child's last episode of diarrhoea, which showed a reluctance of mothers to take responsibility for the care of a condition which, in their experience, could lead to death. At the same time, the dread of a depressed fontanelle is clearly shown by potions and pastes applied to it, but which is not associated with loss of fluid and the need to replace it. More efforts are needed at community level to promote the use of oral rehydration solution by mothers.

Most children are weaned on maize gruel. This inappropriate feeding practice at the weaning period, whereby culture or ignorance dictates that predominantly carbohydrate diets are fed to the infant, is a major cause of diarrhoea and malnutrition. This is in spite of the fact that there are staple food items in the community suitable for weaning infants successfully.

In Ilesha the mothers of malnourished children knew of the disease protein energy malnutrition, 64% calling it 'kosoko' (no hope) or 'orinla' (big head).¹² They believed that the child had 'supernatural powers' to die and be reborn. They also believed that the disease was communicable. None mentioned an inadequate diet as the cause.¹²

Children with malnutrition seen in hospital are the tip of the iceberg, with a large reservoir of potential cases ready to be struck down by measles, tuberculosis, whooping cough, and diarrhoea. It is necessary, therefore, to restore the mother's confidence in breast feeding and instil into her relevant and effective weaning practices, otherwise our present knowledge about infant feeding will have been acquired in vain.

Malaria/convulsions

In the clinics malaria presents as fever. It is the commonest complaint, most frequent and severe in children aged between 9 and 24 months. By age 5 years the clinical manifestations of malaria are less severe, and the child has acquired considerable immunity. It is therefore rare for malaria to be the cause of death in this holoendemic area in older and school children, but the infection does give rise to a high prevalence of morbidity.¹³

This pattern, however, is changing due to the widespread use of antimalarial drugs. For example, in the rural clinic established by David Morley in Imesi-Ile, where the children were given pyrimethamine prophylaxis, parasite rates were lower in patients in the treated than in the untreated village.¹⁴

The most severe forms of malaria are seen in hospitals. One form presents with high fever and prolonged convulsions. It is also common in children aged between 9 months and 3 years. Thirty to 40% of the children die within 72 hours of admission. Malaria parasites can be shown in the blood film of a third of the patients. The disease is dreaded by the parents, who believe that when the children clench their teeth death is imminent. To prevent this disaster, the child's mouth is severely traumatised in the attempt to keep it open. In one case, a father squeezed the buccal pad of fat into the child's mouth by exerting pressure on both sides of the cheek. Shock treatment is also applied, such as burning of the feet or buttocks or rubbing pepper into the eyes.

A mixture containing mainly cow's urine, tobacco leaves, and various herbs, shown to cause hypoglycaemia in rabbits,¹⁵ is given to many. This poison is a major contributor in about 60% of the deaths due to this condition.

We surveyed mothers in the community regarding the use of cow's urine mixture; 27% gave it to their children regularly once, twice, or more daily, on its own or mixed with herbs or other medicines, and, in most cases, the child always improved. The mixture is given routinely to prevent convulsion, and so when the child convulses, a large amount is poured down his throat. This is the community's perception of a drug now known to be poisonous. Its use is considerably reduced in the urban areas but continues in the villages.

An ideal regimen for malaria would be one by which the child could be partially protected so that he did not develop a severe attack of malaria and at the same time would still be capable of manufacturing antibodies against the parasite. One such regimen was described by Morley in 1971 in which pyrimethamine was given monthly and chloroquine

administered for any episode of fever.¹⁶ With this regimen, the number of febrile convulsions in the children in the community was considerably reduced, presumably due to the prevention of those caused by malaria. At the same time, the children were given an opportunity of developing immunity to malaria.

Measles

Of all the infectious diseases amenable to prevention through immunisation, measles is the most devastating. A high level of coverage with its vaccine is difficult to achieve because of expense and fragility. Although measles immunisation is recommended at the age of 9 months, in Lagos, for example, it is estimated that 30% or more of measles cases occur before that age, and vaccination at 6 months has often been ineffective. The fact that the child develops measles after immunisation erodes the mother's confidence in the vaccine and brings it into disrepute. In the Cameroons, workers from the Center for Diseases Control, Atlanta, Georgia, have documented a drop in the incidence of measles in the 0–8 months age group from 88.2 per 1000 to 31.8 per 1000, with a vaccination coverage of 40% in 9 month old infants.¹⁷ They also expect that higher rates of coverage in the 9–23 year age group will further reduce its incidence in the under 9 month age group.

From the evidence available in Nigeria, the performance of our Expanded Immunisation Programme since 1976 has been dismal. Evaluation in the Oranmiyan Local Government Area of Oyo State found very low levels of immunisation coverage for diphtheria, pertussis, and tetanus, polio vaccine, and measles vaccine between 1977 and 1981.¹⁸ The reasons for the poor performance were identified as:

- (a) inadequate community participation in the planning and implementation of the programme;
- (b) poor communication between different government representatives; and
- (c) inadequate publicity.

Moreover, vehicles were grounded for most of the year and frequent power failure caused wastage of large quantities of vaccines, which cast doubt on the potency of those administered to the children.

In 1984 it was reported that no child in Tafawa Balewa Local Government Area, Bauchi State, and only 9% in Owo Local Government Area, Ondo State, were fully vaccinated after three years of the programme. Irregularities in financing of the State and Federal Health Ministries led to erratic purchase and distribution of vaccines. A lack of

planning to involve the grassroot implementers and inadequate training and poor supervision were also found. None of the refrigerators at the local government office and the two health clinics visited were functioning because of power failure, nor was the stand by generator working. Considerable amounts of vaccines were spoilt due to neglect in monitoring vaccine storage temperature and potency. More than 94% of mothers did not know why their children were being immunised and at what age they should be immunised.

In spite of these gross deficiencies, the implementation of this programme was revised in Owo with the aid of UNICEF in 1983 and has resulted in a 38% coverage of children aged 1–2 years with target immunisation in the first month of the reactivated programme and 58% by the fourth, indicating that with commitment, efficient organisation, and management the immunisation state of our children can be considerably improved.

Running through this discussion is a well known theme—that children in developing countries are so ill and die in such large numbers because of the inimical environment in which they live. The human, socioeconomic, cultural, and environmental elements of the society, therefore, need to be transformed. Most of our people still believe in and utilise traditional medicine born out of superstition, spiritualism, and the worship of ancestors ingrained in us during our evolution over centuries. Many of us who have acquired the skills of modern scientific medicine were catapulted from a traditional past to this new era, perhaps in a generation. Just as when a pagan becomes a Christian, we tend to turn our backs on the past, enshrined in the community, and look to the future—the life and medicine of the developed world—forgetting that even that had a traditional past and developed through a process of research and application of its results. We have to go back to where our people are and evolve with them.

Most of our doctors, and particularly paediatricians, work in the pinnacle of the health care delivery system—the teaching hospitals—perpetually reaping the morbid harvest of the contaminated community. We do not possess the skills to work with and transform the community to stem the tide of ill children.

Asuquo Antia, one of our distinguished paediatricians, once sounded ‘a note of caution to all those concerned with child health in the Tropics that all change is not progress and that increased sophistication does not necessarily mean advancement.’¹⁹ But the question to be asked is, ‘What change do we need to ensure progress?’

David Morley in the early 1950s worked in Nigeria and was the first to see the need for

innovations in the delivery of child health services. Because of the shortage of doctors at that time he transferred most of the responsibilities for treating the early stages of the common diseases to nurses. Since then, we have learned that even lesser trained health personnel, down to the level of the village health worker, can be successfully trained to assume some of these responsibilities.

Morley integrated preventive and curative services; introduced the home based record system; the ‘road to health’ chart; simple diagnostic tools such as the arm circumference strips; and therapeutic skills such as the use of salt, sugar, and water solution to prevent dehydration. Although he showed a reduction in mortality and morbidity in the treated villages using limited resources, the system rapidly deteriorated after his departure because there was no government and community participation.¹⁴ Of the two, the latter is the key to effective health services. Community participation means that the citizens control the process of transformation whereby they mobilise and act to improve the quality of their lives. In this process existing social structures or those created for the purpose, such as village health or development committees, must be the medium. Appropriate health technology must, as much as possible, be transferred to and used by the members of the community. On the other hand, local technologies found to be effective should be encouraged—for example, the Hausa cut the umbilical cord with a red hot knife. For this reason, tetanus is relatively uncommon in their newborns. At all times the aim is to develop the spirit of self reliance within the community and incorporate patterns of scientific health care into the traditional system. Properly motivated, the community will take action in its own interests towards achieving better health.

Mothers are our best ally in this enterprise. It is the uneducated woman (and they are in the vast majority) who bears the largest number of children and loses the most, who fails to understand simple concepts such as the meaning of the growth chart, and who performs worst of all in bringing her child for immunisation even when the services are made available, affordable, and accessible and are efficiently run. She is subjected to enormous social and cultural constraints that prevent her from utilising the services effectively and is also subjected to conflicting advice from ancient and modern health systems regarding the care of her child. In any case, the father’s role in these health decisions is often dominant. Moreover, the mother is striving to function in a modern economy with inadequate, inappropriate, or no educational preparation.

It is difficult to convince mothers of the need and

efficacy of preventive measures, hence elaborate 'outreach' or community based systems must be set up to induce her to use the services. For example, an infant's first visit to a health facility is usually for an episode of illness, often occurring past the age of 6 months when the first phase of immunisation should have been completed, and at a time when the child is most vulnerable to preventable infectious diseases.

There is evidence indicating that when adequate spacing or a reduced number of children per family is achieved their health improves. For example, as the size of the family increases so the chances of malnutrition,²⁰ low birthweight babies, gastroenteritis, respiratory infections, and a lowering of intelligence quotients also increase. Arguably, if parents perceive that their children will survive due to efficient child care services they will take steps to reduce the size of their families. Evidence in support of this hypothesis comes from Imesi-Ile, where it was found that the desire for additional births was less in the village with an efficient clinic for the under 5s than in one without.²¹

In Ebenbo village in Cross River State it was concluded that the women compensate by having additional children almost exactly equal in number to the number of deaths they have had, and that if child mortality can be reduced, there might well be a corresponding decline in completed family size.²² The smallest families are those of the highest social class, and they also have the lowest infant and child mortality.

The challenge is to establish a health care system that will touch the lives of every member of the community, especially children, who are the most vulnerable, and that will tackle those conditions causing the highest mortality and morbidity. The system must be organised from the grassroots, integrating preventive, promotive, and curative services; using the type of technology that the members of the community will accept, at a level they can utilise, maintain, and afford, and with an efficient and effective system of supervision and referral.

A first step is to study the principles underlying the implementation of such a system in a traditional setting. Without this we cannot reasonably expect to supplant a traditional health system that the people have learnt to trust, that is serving them well, and whose language is understood and verdict accepted. Traditional medicine demands compliance through dogma, communal pressure, and faith; scientific medicine demands reasons and proof, attributes acquired through modern education.

National programmes require political will and social and economic reforms. But, while waiting for these, the health technology should be put in place.

This should be the function of the universities at this time. Of all the tasks (preventive, promotive, and curative) necessary to improve the health of the population, only curative ones are predominantly emphasised and taught in medical schools.

Doctors are acknowledged leaders in the health care systems, and their opinions are sought and respected by governments. To be effective as an advocate for relevant services of the kind described above, our doctors should be trained to head a primary health care system and also to function as a house officer in a hospital on qualification. To accomplish this type of training, our medical schools should have a model primary health care practice area in which to teach community care to a standard of excellence, just as a teaching hospital is required to teach individual care. Fortunately, this need is being recognised and accepted, and medical curricula are being revised to train doctors with the relevant knowledge, attitude, and skills to tackle our health problems in our own setting.

The slogan is 'Health for all by the year 2000'. There never has been health for all, and never will be, but we can make health care available and accessible to all by the year 2000.

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