

PAPERS AND ORIGINALS

Child Health in a Changing Community*

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The lecture is increasingly regarded as one of the less satisfactory instruments of teaching. Yet institutions retain it, especially when connected with the name of a person whose memory is still relevant to the attitudes and activities of their members. It provides a pause in which we can remember our ancestors and consider present responsibilities in terms of past experience.

Significance of Charles West

My message, for real as well as ritual reasons, begins with Charles West. Born in 1816 and living until 1898, we can think of him as a comprehensive Victorian; a man who "helped to make the reign of Queen Victoria a memorable period in the history of medical progress" (*British Medical Journal*, 1898).

The establishment of the Hospital for Sick Children in 1852 is considered West's most significant achievement; and its achievements in the century which followed and present reputation provide ample justification for this view. His reasons for doing so were equally important. When only 23, distressed by the prevailing ignorance, he began to study the diseases of children, and between 1848 and 1884 produced seven editions of his lectures on the diseases of infancy and childhood (West, 1874). He created not only an institution but a subject. And, within the subject, he is our contemporary in a special sense. Appointed lecturer in midwifery to the Middlesex Hospital in 1845, he illustrated in practice that partnership between paediatrics and obstetrics which is today a first priority in practice and research.

* Charles West lecture delivered at the Royal College of Physicians of London on 22 October 1970.

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Experience and Inquiry

The biology of reproduction and the size and function of hospitals are still lively issues today. What more is called for if we are to meet contemporary needs? The only response I can make is to review my own experience and decide whether it contributes to the answer or not. But no man lives to himself, and my lessons have been learnt with friends in Newcastle and elsewhere over the past 25 years. My first problem is where to begin. It is a sound clinical rule that when in doubt one should go back to the patient, so I shall start with an everyday yet for me sensitizing experience.

On 21 May 1947 I left the hospital and went to a house in an old part of Newcastle. The family—mother, father, Sally aged 3, and Edward 3 weeks—received me in their one living room, which was adequately furnished and made invitingly warm by a blazing but unguarded fire. Father, a labourer, was temporarily unemployed. They had lost their first child when a week old from intestinal obstruction. A week before my visit Edward, then 14 days old, had started a cold and cough. As his sister was prone to recurrent colds, and one of these had started 10 days before Edward's, the family doctor accepted his illness as an upper respiratory infection—and I agreed. Four days later the first whoop was heard, and I learnt that whooping cough could occur in the second week of life. The illness became steadily worse and at the end of the fourth week he was admitted to hospital. Mother was unhappy there; father could not cope with the fretting 3-year-old girl; and so after three days mother returned home taking the baby with her. For the next fortnight the illness was alarmingly severe. Yet, after a temporary break, mother resumed breast feeding, with added bottle feeds and with boiled water containing 2 drops of brandy in between. Edward recovered, without lung damage, had a satisfactory childhood, and is now a trained electrician.

For me this was a new beginning. In the next 15 years I made some 3,000 visits to every kind of family in every circumstance of life. It was in those family visits that the central question of this lecture took shape. *What are the contemporary needs of children and parents and what kind of medicine can meet them effectively and with professional satisfaction?*

My subject then is the health of children today in relation to the community in which they live. The word community comes easily from professional lips at the present time. We hear daily of "the need for community care," the role of "the

community physician," and even of "the community paediatrician." I suspect that many who use these terms have fallen into the error, which I often do myself, of thinking we have found a solution when in fact we have found only a phrase. I shall not attempt to define "community" but simply describe the communities in which I work—trying to avoid the tacit assumption that community is synonymous with "outside hospital."

My three main communities are these: the Newcastle Region stretching from Berwick to Northallerton and from Newcastle to Whitehaven, containing the industry of Tyne and Wear and Tees; the mining communities of Northumberland and Durham, the hill and valley farms, the Border fells and the lakes and hills of the Lake District; and the City and County of Newcastle upon Tyne, a resilient community which has lasted from Hadrian to Henry Miller and retains a remarkable capacity for continuity and change. These local communities are set within the national community, and its influence on services and satisfaction is so profound that it remains the ultimate context of child health and must be included here. Their populations are shown in Table I.

TABLE I—Children in Three Communities in 1968

Community	Age			Total 0-14
	0-1	1-4	5-14	
City of Newcastle	4,000	14,000	36,000	54,000
Newcastle Region	48,000	212,000	468,000	728,000
England	775,000	3,115,000	6,971,000	10,861,000

Population is given to nearest thousand.

TABLE II—Sources of the Experience. Community Studies Involving Children in Newcastle

1934 and 1938	Health and nutrition of Newcastle Children between 1 and 5 years (Spence, 1934)
1939	The causes of infantile mortality in Newcastle (Spence and Miller, 1941)
1947-62	The thousand family survey (Miller <i>et al.</i> , 1960)
1960-69	Newcastle maternity survey (Fairweather <i>et al.</i> , 1966)
1960-62	Newcastle survey of child development (Neligan, 1966; Neligan and Prudham, 1969)
1951 →	Regional study of haemolytic disease of the newborn (Walker, 1971)
1969 →	General practice/hospital relationship study

The study of the relationship between community and child health in Newcastle began with the first report of the first medical officer of health in 1872. Table II shows the collaboration of city health department and university and the widening circles of inquiry.

TABLE III—Entry to School. Expected Obstacles to Health and Education in all Newcastle Children

Disability	Children	Prevalence (%)
Intellectual retardation	200	5
Defective language	200	5
Disturbed behaviour	160	4
Retarded growth	120	3
Squint	200	5
Bed wetting	600	16
Recurrent wheezing	280	7
Recurrent seizures	25	0.6
Disability from accident	20	0.5
Cerebral palsy, blindness, deafness	12	0.3
Miscellaneous	20	0.5

Children entering school in 1968: 4,000.

Pattern of Child Health

What is the picture of child health in Newcastle revealed by these studies? Let me remind you quickly of the familiar indices: perinatal mortality rate falling from 41 in 1948 to 25 in 1968, with a notable improvement in the quality of health in low-birth-weight babies treated in an intensive care unit; the presence of substantial malformations detected at birth or early in the preschool years in just over 2% of all liveborn children; and children who are 3 in (7.5 cm) taller

and 5 lb (2,270 g) heavier on entry to school than they were 40 years ago. Yet a substantial minority carry their congenital disabilities with them into childhood and others are handicapped by recurring or persisting illness. The picture on entry to primary school at 5 years is shown in Table III.

TABLE IV—Newcastle upon Tyne. Frequency of Common Illness during Childhood*

Illness	Age		Total Episodes
	0-5	5-15	
Infections:			
Respiratory	80,000	110,000	190,000
Infectious disease	21,000	45,000	66,000
Alimentary	18,000	13,000	31,000
Acute unknown	5,000	?	?
Pyogenic meningitis	100	?	?
Accidents	15,000	32,000	47,000
Disturbed behaviour	900	9,000	10,000
Disorders treated by surgery	4,000	13,000	17,000
Tonsillectomy	1,400	8,500	10,000
Other	2,600	4,500	7,000

*This table is derived from the observed illness in 760 representative families studied from 1947 to 1962 and with figures adjusted to nearest thousand.

The main illnesses and disorders which the children of Newcastle experienced during the last 15 years are shown in Table IV. It emphasizes the continuing importance of infection, especially respiratory infection, of accidents; and of disturbed behaviour. More than half the total surgery was for the removal of tonsils and adenoids. Apart from meningitis, where the total is incomplete, this list omits a number of important but less frequent diseases. Stansfeld, working in an adjoining community of comparable size, has been studying urinary tract infection for the past 20 years. In his view a reliable estimate of incidence in preschool children is still lacking, there will be 600 schoolchildren in Newcastle with significant bacteriuria, and at best 22 new cases of urinary tract infection will actually reach hospital every year.

About 1,400 Newcastle children (7%) have one or more seizures in the preschool years (Miller *et al.*, 1960). In the Newcastle Region there are at present some 3,000 children with congenital heart disease who have survived the first year (M. Farmer, personal communication). Each year 70 children develop malignant disease (Newcastle Regional Registry, 1969). The list is still incomplete, but is sufficient to indicate the extent and character of disease affecting children today.

TABLE V—Newcastle upon Tyne. Expected Handicaps in all Children Leaving School at 15*

Handicap	Number	Prevalence (%)
Intellectual retardation	200	5
Established respiratory disease	120	3
Severe reading defect	120	3
Neurological damage	60	1.5
Epilepsy	40	1
Stuttering	40	1
Malformations	30	0.7
Formal contact with the law	300	8.5
Smoking (boys) (Bynner, 1959)	250	14
Maladjustment	?	?

*This estimate is derived from observations made on a representative sample of 760 children in 1962.

Each year 4,000 Newcastle children leave school. The majority are taller, heavier, healthier, and better educated than ever before. Yet the facts in Table V show a substantial legacy of disease and disability. Not less than 1 in 10 of these children go into adult life with intellectual limitation, physical handicap, recurrent illness, educational deficiencies, or difficulties of emotional control and social adaptation. And if Bynner's (1959) estimate applies to our community 14% of boys will be smoking 20 or more cigarettes a week.

Community Influences on Child Health

I have sketched in broad outline the pattern of child health in Newcastle and in the Northern Region. Now I want to look more closely at the communities in which children live and their influence on health. There are five: family, neighbourhood, school, town, and nation. How can a doctor assess these communities, and are such assessments useful in everyday practice?

FAMILY

I will begin with the family and describe our halting journey towards understanding. Assessment in terms of the father's occupation, the Registrar General's concept of social class, provides a useful outline map but reveals little of family behaviour.

We began with three questions: Were the parents present or absent? If absent, we considered the children handicapped by *deprivation*. Did they provide sufficient room, food, clothing, and supervision? If not, we recorded this as *deficiency*. Was the family able to stand on its own feet or was it excessively dependent on the community? If the latter, we considered it a *dependent* family.

We found strong positive correlations between the presence of these family symptoms and development and illness in the children, especially with growth failure, severe lower respiratory infection, gastroenteritis, squint, and enuresis. Their distribution among our families was also illuminating (Table VI).

TABLE VI—Newcastle Family Survey. Quality of Family Life

Families whole and sound	47%
Families with some adverse factors	45%
Families seriously sick with all three adverse factors	8%

These figures hardly supported Spence's view that "the majority of parents are stalwart people coping with their problems and remaining loyal to their responsibilities," or, if they did, the margin was uncomfortably small. We now knew the whole spectrum of family life and how broad was the band of seriously defective care.

This disquieting picture sent us back to the primary responsibilities of parents to their children: that they should be present, provide an adequate standard of material care, participate in family life, and establish satisfactory personal relationships.

TABLE VII—Newcastle Family Survey 1947-62. Presence or Absence of Parents in 763 Families

	Father	Mother
Always present	564	704
Died	45	21
Divorced or legally separated	23	2
Never lived with mother	19	—
Living apart—no legal separation	8	2
Intermittent absence	104	34

The first necessity was still that both parents should be present. In the 15 years of our study one in eight children lost or never knew their father, and the high level of absence from death, divorce, and separation is clear (Table VII). Douglas (1970) showed that this level of parental deprivation applies to the country as a whole, and in families with children under 15 divorce and separation occur mainly when the children are young. Intermittent absence also merits closer scrutiny than it has received in mothers and fathers; two out of three of our mothers worked outside the home during the 15 years. This will continue and may be desirable. It is for married women to decide how much work they want

to do outside the home and for society to assist in providing facilities and laying down standards for the satisfactory care of the children.

If the first duty of parents is to be present, the second is that they should provide satisfactory material care; fathers earning sufficient money and mothers translating this into comfortable homes and consistent child care. But this is not enough for optimum health; the parents must share together in home making and child rearing. Moore, in his sculptures of the family, has sensed the increasing involvement of fathers in family life. Today's father is not embarrassed by looking after the baby, comes increasingly to the outpatient department, and is often as well informed about the child's health as his wife. This is a positive advance in child care.

TABLE VIII—Newcastle Family Survey. The Family—Parental Personality (Percentages)

Personality	Kind. Effective	Kind. Ineffective	Dominating	Aggressive	Anxious	Apathetic	Criminal
Mothers	33	12	14	2	25	14	—
Fathers	46	18	9	17	1	8	1

How successful were our parents in their personal development and relationships? Most were kind and, like the rest of us, some were more efficient than others. Yet 17% of the fathers were unduly aggressive and 39% of the mothers persistently anxious or apathetic (Table VIII). This pattern of parental personality made it less surprising that 19% of our children had had substantial and prolonged periods of disturbed behaviour by their 12th year.

TABLE IX—Newcastle Family Study. Parental Attitudes to Neighbours on a Municipal Housing Estate

Intimate — frequent visiting	14%
Good — occasional visiting	28%
Formal — no visiting	26%
Isolated — no contact	32%

NEIGHBOURHOOD

When we consider neighbourhood, improvement over the past 20 years has been impressive: in the number of new houses, the quality of domestic amenities, the decline in overcrowding, and the ease of shopping. It would seem self-evident that to change from drab overcrowded houses in the decaying areas of a city to the light and space of a new housing estate must mean a better quality of life. But people take themselves with them, and so we looked more closely at 50 unselected families who had moved (Table IX). For many the change was welcome and relationships were good, but in one-quarter neighbourly contact was cool and one-third remained stubbornly isolated. The contrasting behaviour of mothers and children in the "friendly" and the "isolated" families was significant. In the first group one mother was being treated for depression, in the second group there were four. In the first group there were two disturbed children but with no signs of delinquency, and in the second group there were 10 with severe maladjustment, all considered potential delinquents. These differences illustrate the importance of emotional as well as domestic geography in community plans for rehousing.

IMMIGRANTS

This analysis of parental personality and neighbourly relations is a necessary prelude to considering another change in the community context of child health—the coming of new citizens from the newly independent countries of the Commonwealth. We have little first-hand experience of this in

Newcastle. But the uneven distribution—0.3% in Newcastle, 4% in Bradford, 5% in Wolverhampton, and 7% in Hackney—has distorted not only the civic burdens but the public attitude. Our first duty is to see the problem in its true proportions. In 1969 there were between 1 and 1.25 million coloured citizens in this country, comprising 2.5% of the population; of these, 350,000 were under 15 years, 3% of all children. With 35,000 births a year they contribute 4% of the total births. The mean family size at 3.3 is above the 2.3 for those longer settled in the country.

The second point is that while there are complex economic and cultural tensions affecting the adults, the problems in children are in some ways less intense. In Bradford, for example, perinatal mortality, which was 49 in 1965, had fallen, through the use of existing services, to 27 by 1969. And while it is necessary for the safe treatment of the individual that family doctors and paediatricians should know how to recognize and deal with sickle-cell disease or the unusual infection, the larger problems—nutritional rickets, anaemia, and severe burns—were common in our own society 40 years ago. They are socially determined and will yield to social remedies.

There is one important disorder which requires special comment—severe emotional disturbance, especially in younger children. The aetiology lies in the profound changes in the pattern of family life which translation to a new community brings; and an important element is the poor quality of child minding which many immigrant mothers accept. I would suggest, however, that before comparisons are made and judgements reached we look in comparable detail at the conditions prevailing in the multitude of play and nursery groups which indigenous working mothers have produced for their preschool children.

SCHOOL

The environment of education is changing rapidly, but the subject is too important for simple summary. The doctor has a contribution to make, because severe difficulty with reading or school phobia is just as much a physical sign as a fever or rash, and often more serious. Experience in our family and child development surveys has convinced me that the interface between medicine and education is one of the most important areas of child health and needs comprehensive re-examination. It was therefore particularly rewarding to read *Education, Health and Behaviour* (Rutter *et al.*, 1970). This is precisely the kind of information we need before rational decisions regarding the School Health Service can be made. The account of our families when the children were between 5 and 15 years of age, which is awaiting publication, will provide complementary information from an urban community. The school years are of critical importance, not only for acquiring learning skills but in the establishment of wholesome or unwholesome attitudes to work, authority, and social responsibility. In my view the full contribution of the School Health Service has yet to be developed.

TOWN

Change and the shadow of change are affecting our towns. It is 27 years since a catalytic book with that title was published and the time is ripe for a contemporary review. For some things, bigger may mean more efficient, but not for all. The question "where do you come from" still has deep meaning for most of us. On Tyneside people dispense with prepositions and simply say "I belong Newcastle." The town hall still exerts a wide ranging effect on our daily lives, and the separation of its health and welfare services from those of family practice and hospital is a major professional and administrative problem which we must resolve.

NATION

The child's final community is the nation. One day we hope it will be the world, but that day lies far ahead. You may feel at this point that I have moved far beyond the frontiers of my experience, but, though not equipped to provide the answers, I cannot evade the ultimate questions. "Health," as René Sand reminded us, "is purchasable." Each country has the services it is able or willing to afford. An important, if incomplete, analysis of this was made by Titmuss (1948) in his Lloyd-Roberts lecture "Parenthood and Social Change." In essence, he reached the conclusion that in certain respects social attitudes were inimical to the family. His evidence was drawn mainly from direct taxation, which favoured the man and wife without children. And the explanation lay in the general tendency of Government—in spite of intimations of awareness such as children's allowances and school meals—to consider the nation as a collection of individuals rather than families. Has this ambivalent attitude changed? The information in Tables X-XII is incomplete and may be misleading but it has been produced by experienced people.

TABLE X—Income Tax and the Family

	1948	1948*	1970
Earned income	£1,000	£2,200	£2,200
	Tax Paid		
Married man:			
Wife at home 2 children	£180	£396	£441
Wife at home 3 children	£153	£336	£409
Married man:			
Wife earning 0 children			
£3 (£6.30*)	£184	£405	£404
£8 (£17.30*)	£145	£319	£380

*1948 prices updated for comparability.

TABLE XI—Child Health: National Expenditure 1967-8

	N.H.S.	Child Welfare	School Health
Cost £ million	200	12	21
Expenditure per child in each group £ ..	16	3	2.6

TABLE XII—Child Health: Age Cost of National Health Service in 1967

	Age:	0-14	15-44	45-64	65+	
Cost (£ million)		200	460	390	450	1,500
Proportion (%)		13	31	26	30	100
Cost per head (£)		16	22	29	67	—

The figures in Table X show only the effect of income tax on family income and do not take into account the benefits from special allowances or the depreciatory effect of rising prices; yet the trend which Titmuss illustrated in 1948 for families to pay a relatively increasing amount of tax compared with childless married couples has continued.

With even greater caution I draw your attention to the expenditure on health in childhood and the proportionate expenditure at different ages in adult life. The distribution may be right; but it is at least worth noting that society elects to spend three times as much on the declining years as on the years in which the quality of adult health and working behaviour are determined. Pole (1968), in his essay on economic aspects of screening for disease, says: "It would not do great violence to accepted values to give priority to preserving the lives of those with more years of life to preserve." I would accept that, with the addition of "if we also improve its quality."

But my concern is not primarily with economics, important though that is in the painful tension of priorities in medicine.

Social policy is based on social values. Few parents with young children sit on the policy-making committees of hospitals or local health authorities or in the Cabinet. Even if my

facts were wrong and my arguments fallacious, if they provoke a serious response to the question, *What are the values which determine the nation's policies for families and children today?*, I should be satisfied.

Needs of Children and Parents

I have considered the pattern of child health in Newcastle as the doctor sees it. How does it look to the parents? What are their needs and what do they expect from medicine today and tomorrow? Despite its importance our answers to this question are still very sketchy. Parents are more willing for education about sex and marriage to be given at school. After marriage, where there are family diseases, husbands and wives are seeking advice, and this will increase if genetic counselling services become more widely available and their purpose better understood.

A pregnant woman expects to be conducted safely and courteously through pregnancy and to give birth to a live and undamaged baby. A mother in this country today knows that, for the first time in history, the loss of one of her children is an unlikely event. Parents today expect for their children not only the expert treatment of disease but a better quality of health.

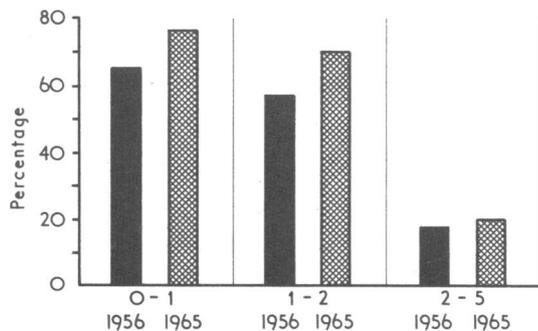


FIG. 1—Attendance at child welfare centres in 1956 and 1965. England and Wales.

This is borne out by the steady increase in the use of child welfare centres in the past 10 years (Fig. 1). Parents are telling doctors that they want this developmental surveillance with explanation and advice. Concerned in the preschool years with nutrition, growth, and infective illness, in the school years they become anxious about the child's school performance and personal behaviour. And, unless we choose to turn away, they will increasingly consult us about disturbed behaviour and educational failure as part of health. Above all, parents ask to be taken seriously, for doctors to listen to their observations and anxieties, to accept them as partners rather than clients in the common search for health.

They expect, too, that their children, whatever their age, will be treated as persons in their own right. How difficult it is to get medical students to call babies by their names. And how often we fail to explain to the child himself the nature of his illness and the remedies we use. I shall always remember a sullen, depressed asthmatic boy of 12, who, when we were alone, burst out with "the doctors talk to mum and dad and they do tests and push medicine into me, but no one has ever told me what is the matter and whether I shall get better." No one concerned with children will not be uncomfortably aware of his deficiencies in this respect.

Response of Paediatrics

I have illustrated in a selective way the health of children and expectations of parents in our society. I now turn to the second half of my central question: *What kind of medicine can meet them effectively and with professional satisfaction?* The answer involves three basic aspects of medicine: techniques, people, and institutions.

Techniques

RESEARCH

The first necessity is and will remain research. To paraphrase William James, "without continuing inquiry there is no progression." My plea is that we should apply the same critical energy to the study of social as to cellular behaviour. The limitations of our own inquiries, so evident in what I have said, illustrate the need for collaboration with disciplines at present working more commonly in parallel than in partnership, especially psychology, sociology, social work, education, and economics.

MEASUREMENT OF DEVELOPMENT

Once the heavy cloud of infection began to lift paediatricians recognized how limited was our knowledge of growth and development—the biological justification for our subject. Thanks to the pioneer work of Gesell and then to the persistence of Illingworth, Tanner, Sheridan, and MacKeith in this country, of Milani-Comparetti in Italy, and of Frankenburg and Dodds in the United States, paediatrics is becoming more firmly based on the accurate assessment of growth and development. Our community surveys prompt two comments: firstly, that clinical observation can and should be complemented and corrected by measurement. Through the careful observation and interpretation of data from all births in a community, reliable measurement of the range of fetal growth can be made (Fig. 2).

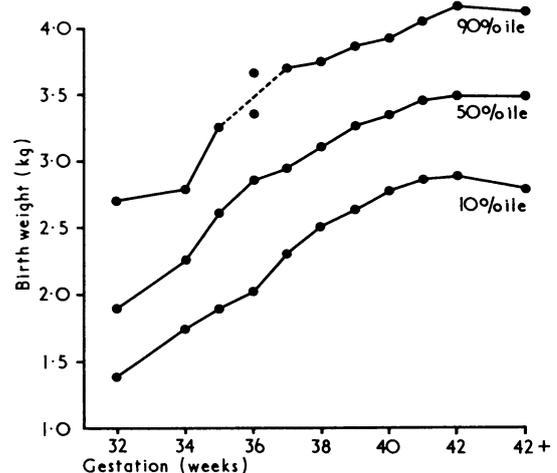


FIG. 2—Corrected percentile distribution in 1965 of 11,056 single legitimate live births in Newcastle in 1960-2.

Secondly, as in Fig. 3, the production of a standardized record for physical growth, combined with important developmental milestones, using percentiles and statistically validated norms, not only link growth and development quantitatively in the mind but provide a straightforward tool for developmental screening by doctors or nurses in surgery, welfare centre, or outpatient clinic.

To this general approach others are adding more sophisticated methods for the measurement of hearing, vision, and the development of language, reading, dexterity, and personal qualities. The bringing of developmental measurement to the centre of paediatrics has far-reaching implications for the future.

SURVEILLANCE

It is now widely accepted that the regular surveillance of all children should replace the earlier, initially valuable, concept of the "at risk" register. The Newcastle Maternity and Child Development Survey, starting with conception and continuing

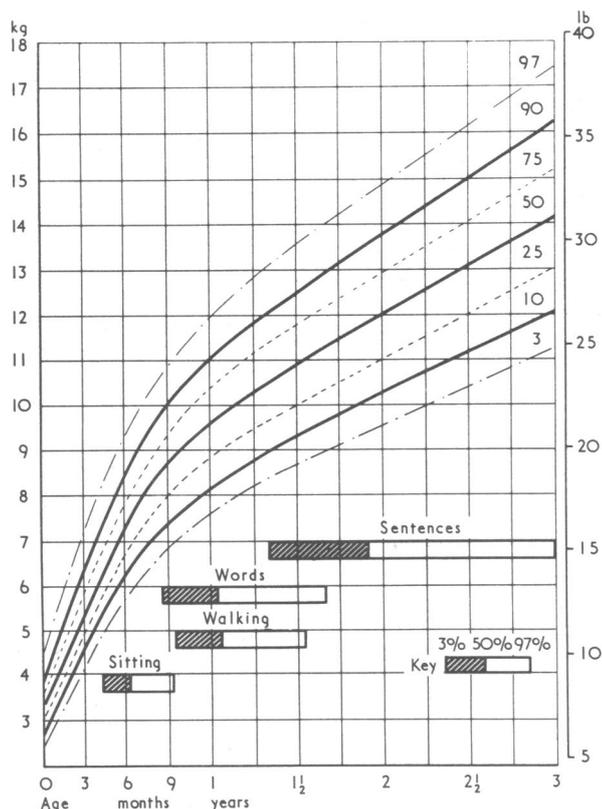


FIG. 3—Girls aged 0-3 years. Nude weight. Standardized record for physical growth and showing developmental milestones.

until the children are 15, will enable us to define with greater precision the content of prescriptive screening for the antenatal period, at birth, in the first five years, on entry to school, and in the primary and secondary phase. Similar information is coming from the national surveys by Douglas (1964) and by Butler and Alberman (1969), and at the educational half-way points from the Isle of Wight study (Rutter *et al.*, 1970). We cannot overemphasize their importance. For the first time we shall have some of the firm data required for a rational pattern of fetal, infant, preschool, and school care and, equally, for the proper design of assessment services for the handicapped. This habit of continuing assessment, however, will need technically sophisticated record systems to sustain it, and the Glasgow Child Health Linked Record System is pointing the way. Of course we cannot be certain that such schemes will provide all the help we want, or the right help; but they must be tried and we must be prepared for some failure as a normal part of all human endeavour.

TREATMENT

Increasing knowledge brings increasing responsibility. From the beginning the primary role of medicine has been to treat disease and relieve distress. That task remains; and since we accept that the first requirement of humane medicine is that it should be effective we know that there is room for improvement in almost every disease we handle: the perinatal illnesses, severe respiratory infection, meningitis, urinary tract infection, leukaemia, other malignancies, epilepsy, asthma, haemophilia, severe mental deficiency, and psychogenic illness. Improvement will mean a reappraisal of professional behaviour—firstly, in terms of centralizing the care of uncommon or complex disorders in a limited number of centres, and, secondly, the acceptance of regional or national programmes of treatment. Walker's (1971) 20 years' experience of the management of 4,000 mothers and children with haemolytic disease of the newborn has shown the practicality of the first, the way to develop it, and the superior results which follow. But such approaches will call for changes in

the attitudes of colleagues working in district hospitals, which will not always be easy for them to accept.

PREVENTION

Increasing knowledge faces us with a deeper responsibility still. Why are we still so resistant to the logic of prevention? This is a legacy of history, both from the character of man's early medical needs and the training of doctors to meet them. I believe the greatest single need in medicine in the next 25 years is to give prevention the degree of scientific attention that has been given in the last 25 to treatment. Yet, I confess, I don't know how to make it exciting.

TABLE XIII—What Can We Prevent? Immunization in Children Born in 1966 in England and Wales

Health Authority	% Immunized by 31 December 1968			
	Whooping Cough	Diphtheria	Poliomyelitis	Smallpox (Children under 2)
England and Wales	77	79	77	38
Swansea	42	43	67	24
Newcastle	63	65	60	19
West Sussex	95	95	96	85

Even when we consider the most effective preventive procedure ever discovered our response varies and in some areas and for one disease is seriously defective (Table XIII). But when parents and doctors have never seen these diseases how do you sustain the professional discipline necessary for continuing prevention?

Paediatrics must be concerned not only with preventing disease in childhood but, equally, with contributing to the control of the major disabling and killing diseases of adult life. We know that present affluence, strengthened at least in our community by the memory of past privation, has led to profound changes in feeding habits in infancy and early childhood. Though comparative incidence studies are lacking, our eyes tell us that obesity is increasing. We all know how difficult the treatment is, that fat children in most cases become fat adults, and if we are to prevent it we must start in infancy.

The prevention of atherosclerosis is more urgent still. In the important necropsy study by Strong and McGill (1969) fatty streaks were found in almost all the aortas of boys and girls aged 10-14 and in the coronary arteries of most persons aged 20 to 29. If, as they suggest, fatty streaking is both the first step towards the development of the more advanced lesions and at the same time potentially reversible, then the timing of prevention is earlier than we thought. If prevention includes changes in dietary patterns these should be established in children. But the eating habits of a community are not easily changed, however strong the evidence in favour of doing so.

Earlier in this lecture I used Bynner's evidence that some 14% of boys are established smokers by their 15th year. And since smoking is involved in the development of coronary artery disease and chronic bronchitis, as well as bronchial carcinoma, and in women in the birth of low-birth-weight babies with a higher perinatal mortality, this should be our first preventive priority. Yet the strength of the addiction, its development ever earlier in childhood, the adult resistance to change, and the strength of the commercial interests involved, illustrate the formidable difficulties of prevention in such a situation. The wisdom of this College has never been more clearly shown than in its counsel to individuals and to the nation on this subject.

But none of the problems mentioned earlier compare in importance and complexity with the control of the destructive element in man's nature—expressed for children in battered

babies, road death and damage, delinquency, and war. I can only express my conviction that these are endemic diseases and therefore hold the view that medicine has some responsibility for their prevention. With one in five of our children with substantial disorders of behaviour by 11, with one in six of our fathers excessively aggressive, with not less than 2,000 battered children a year in the country as a whole, a remedy must be found, and the way lies through improved quality of parental and parent-child relationships. Our studies have left me in no doubt of the urgency of the need and of our ignorance of the way.

ANTICIPATION

Today our task is wider than prompt recognition and effective treatment, wider even than prevention in the sense I have defined it; we must anticipate and record the circumstances in which children are likely to fall ill or fall behind in developmental performance. Together with family doctors we must define and watch the vulnerable families.

People and Institutions

I do not propose to consider individually the people or the institutions needed to take child health through the remainder of this century. The British Paediatric Association is engaged in a comprehensive analysis and I will leave the detailed answer to them. There are, however, doubts which I have no wish to evade. Some have genuine fears that the professional implications of the kind of social analysis I have attempted would stretch the frontiers of medicine to the point where they would blur established concepts and blunt professional skills. The danger is real; but only if we assume that because a doctor sees that something needs doing he is necessarily the person to do it. We pay lip service to, but are slow to develop in practice, the greater medical profession of which Sir Theodore Fox (1956) spoke so cogently. Team work is the most overworked cliché of our time, and yet a rising standard of child health will be impossible without a partnership based on satisfactory training and mutual respect between family doctors, general paediatricians, paediatric specialists, child psychiatrists, psychologists, children's nurses, social workers, and teachers.

And must our traditional institutions lose their identity and meaning? I believe they will find in association a wider influence than they did in isolation. For example, the hospital can and should become increasingly the centre of this wider medical activity; but with one proviso, that it accepts the basic premise of the hospital "in the community," not the hospital "and the community." While fully accepting the need for specialization, the accompanying fragmentation of medicine has proved a sad and damaging sequel. One day there will be an academy of medicine in Britain and then the long journey back to unity of spirit with diversity of discipline will have ended.

Conclusion

Suggestions for Paediatrics Today and Tomorrow.—This survey of child health has been wide. My experience has taken me back to evolutionary biology, to the beginnings of life and the origins of man; to the recognition that society is as

deeply rooted in us as individualism and has been the most powerful instrument in man's survival. Yet we have been slow to apply scientific methods to the study of society or the personality of man. Time and again in our family surveys we knew, in Eliot's words, that "we had the experience but missed the meaning." In this biological context social medicine and personal medicine are complementary components in a single process and merit equal attention and respect. We must resist the temptation to believe that what we don't see doesn't exist.

In summary my conclusions are these: We must continue to strengthen the foundations of paediatrics in the biology of development; extend our studies of the social determinants of health and disease in child and family, especially by the use of well-planned local records; seek with psychology and psychiatry for a better understanding of the development of personality in the hope that we may find ways of diminishing maladjustment, excessive anxiety, and destructive aggression in children and parents; treat our patients with increasing skill and consideration and try as honestly as we can to overcome the dichotomy of treatment and prevention; establish these principles in the education of doctors and others professionally involved in the care of children; encourage National Government to make the family the basic concept in its social thinking; and give as much attention to the diagnosis of services as we do to the diagnosis of disease and subject our remedies to controlled trial. In this way we shall proceed rationally towards the necessary and attainable objective that we all seek—a *comprehensive child health service*.

This lecture has been for me a serious and, in the best sense, a disturbing exercise. If it has been too solemn I apologize and restore the balance with some lines from Auden:

At lucky moments we seem on the brink
Of really saying what we think we think,
But, even then, an honest eye should wink.

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