THE ASSESSMENT OF HEALTH IN CHILDHOOD *

BY

NORMAN B. CAPON, M.D., F.R.C.P.

Professor of Child Health, and Director of the Department of Child Health, University of Liverpool.

The assessment of health in childhood is a task which doctors are called upon to perform in various circumstances, and these may be considered in three main categories:—

1. **The assessment of 'individual' health.** One child is under consideration; the judge is usually the family practitioner or a consultant (general physician, paediatrician or specialist). It may be that the child is ill and the doctor has to decide whether health is improving or deteriorating. It may be that the child's parents believe him to be well and they ask whether their view is correct.

2. **The assessment of 'group' health (A).** A relatively small group of children is under consideration, e.g. the pupils of a certain school; the judge is the medical officer in charge of the health of the group, e.g. a school medical officer. He cannot be expected to study each child as closely as is done in 1 (above), and there are some who consider that it would be undesirable for him to do so because the public (including children) still associates doctors with the idea of disease, and particular care should be taken to avoid causing neurosis in children. Yet his examination of the child must be modelled upon the technique and methods used in 1 (above); and his duty is not confined to the assessment of each individual child's soundness, for he must also concern himself with the state of health of the children as a group and with the practical measures necessary to maintain good health.

3. **The assessment of 'group' health (B).** Under this heading come questions of health in respect of large numbers of children, e.g. all those who live in a certain city or county; the health of all children of a certain age-period in a country, such as neonatal health. The judge is often a medical statistician, or an epidemiologist, or a medical administrative officer; and he applies his own technique of study to clinical observations which have usually been made by others.

The difficulties of assessing health are well known and need not be stressed; it is the chief purpose of this paper to call attention to certain fundamental principles governing the assessment of health in childhood; and to describe the technique by which these principles are applied whether to an individual

child or to a group (A). No further reference will be made to 'group' health (B).

Definitions and standards

What do we understand by the word 'health'? The Concise Oxford Dictionary defines 'health' as 'soundness of body'. Though we need not find fault with the word 'soundness', but might, if preferred, substitute 'wholeness' or 'well-being' for it, we cannot limit our definition to 'body'; the child, like the adult, is an individual who possesses mind and spirit as well as body; to be healthy he must be sound in all respects. Furthermore, health ('ease' of mind, body and spirit) is a positive, dynamic term, and we must train ourselves to look for positive indications, both structural and functional, of its presence, and not to rest satisfied with the absence of signs of dis-ease ('negative' health).

What standards are we to adopt? For children we cannot set our standards too high, though 'maximum' is not always the most suitable adjective by which to describe the ideal, e.g. for features such as height and weight. Generally speaking 'optimum' is a preferable word in respect both of structural (anatomical) and functional (physiological) characteristics; for it stresses the quality of standard towards which the mind of the examiner should be turning though it does not, unfortunately, give an exact description of the standard itself. On this point, to which some further reference will be made later, it should be noted that there is a prevalent tendency to employ, through thoughtlessness or ignorance, standards which are patently sub-optimal. For instance, comparison of a group of 'healthy' (so-called) children of lower middle-class status with a corresponding group of children attending a private preparatory or public school reveals differences, e.g. in weight, height, bony and muscular development, posture, mental alertness and ability, which leave no doubt that the general soundness of the former group is inferior to that of the latter group. The doctor whose work is limited to children of a particular grade or status may be unconsciously handicapped in his conclusions because his standards are debased; and the administrative medical officer, dealing with average rather than optimum standards, may present to the public a report which paints the picture in unjustifiably

* Based upon a lecture given to the Medical Officers of Schools Association.

rosy colours. Average standards are sometimes helpful but often dangerous unless accompanied by an explanatory note to make their nature clear.

Some may ask whether it is possible to draw up optimum standards applicable, without variation, to each of the children composing a group. To the clinician it seems apparent that individual peculiarities consequent upon normal hereditary influences must necessarily complicate the task of arriving at agreed (optimum) standards.

Upon what evidence is the assessment of health to be made?

Following the usual practice in clinical medicine evidence is obtained from two sources: (i) the previous history of each child, and (ii) the facts elicited at clinical examination.

In regard to previous history, cognizance must be taken of the factors, both hereditary and environmental, which have been operating towards and against health, and of the developmental progress and performance of the child. By a review of the past we shall be helped in assessing the present and forecasting the future. Admittedly it is sometimes impossible to obtain a satisfactory history, even when the parents attend for the purpose; in any case the task is time-consuming. But a diligent and patient attempt should be made, for otherwise the examiner's opinion has to be based solely upon his observations at a single examination. One might as well attempt to form an opinion of a tennis player's competence by studying a single photographic exposure cut from a film of the player in action.

Whilst it is advisable that the clinical examination should include tests of functional efficiency as well as a survey of the child's structural soundness, a careful history may make a valuable additional contribution to this important (physiological) aspect of the child's health. In eliciting this history help will be obtained by bearing in mind the points described below.

What are the chief factors influencing health in childhood?

These factors, when favourable, may be described as the 'foundations of good health in childhood'. They are:—

(i) **HEALTHINESS OF THE PARENTS.** This includes the hereditary transmission of either beneficial or harmful characteristics; the state of the mother's health (physical and mental) during pregnancy; the financial circumstances, diet, working and living conditions of the mother during pregnancy; and the duration of the pregnancy.

(ii) **THE CHARACTER OF THE CHILD'S BIRTH AND THE STATE OF HIS HEALTH DURING THE NEONATAL PERIOD.** In this connexion the history may provide valuable information upon the baby's weight at birth; the presence or absence of birth-injury, respiratory difficulties, jaundice, and neonatal disease.

(iii) **A SUITABLE DIET.** The financial status of

the parents again needs consideration; as also their housing condition, employment, and state of intelligence. One wants to know if the child was breast-fed, and for what period, and if the mother's health, hygiene and diet during lactation were favourable. The subsequent diet given to the child requires careful consideration, particularly in respect of total quantity, variety, vitamin and iron content.

(iv) **HEALTHY HYGIENE AND MANAGEMENT.** One may have to rely upon general impressions based upon evidence noted above. To the child housing conditions, clothing, the care of the skin, and opportunities for sound sleep and for exercise in fresh air and sunlight are of much greater importance than to the adult.

(v) **A SAFE, COMFORTABLE AND PEACEFUL HOME.** Under this heading should be considered not only the physical advantages of a well-ordered, comfortable home, but also that other kind of safety or security (mental and spiritual) which is enjoyed by those children whose parents are happily married and are living together in a state of concord and mutual respect. The loss of this sense of security, though obviously not understandable by the child, may have serious effects upon his nervous system, and through this upon his bodily health.

(vi) **TRAINING IN THE FORMATION OF GOOD AND REGULAR HABITS.** This training, e.g. in regard to sleep, feeding, plan of life in general, and control of the sphincters—when given by sensible parents and without undue emphasis or displays of emotion—promotes the child's general health and sows the seeds of self-reliance and well-ordered discipline. Many parents fail to realize how important a part the simple events of a child's life may be caused to play in promoting stability of the nervous system and in fostering the formation of robust character and attractive personality.

(vii) **THE STIMULUS OF GOOD EXAMPLE.** Parents of sound nervous stability, who are at one and the same time sympathetic, understanding and firm, give to their children the advantages of leadership and example which are the stronger for being founded on affection. Without these advantages children frequently become highly strung, unbalanced, undisciplined, and unhappy; their general health is sub-optimal.

(viii) **OPPORTUNITIES FOR SELF-EXPRESSION AND DEVELOPMENT (PHYSICAL, INTELLECTUAL AND MORAL).** Without these opportunities, wisely guided by unselfish parents, the child's body and spirit fails to expand and is liable to be stunted and distorted. In some cases ignorance or apathy of the parents may be responsible; in others the home conditions leave much to be desired; in others it is a case of unwise and sometimes selfish over-protection which, in sparing the child the pin-pricks of his early years, deprive him of the ability and strength with which to meet the greater trials of manhood. Under these and similar circumstances full health is not attained.

(ix) **FREEDOM FROM INFECTION AND DISEASE.** It is

unlikely that complete freedom is attainable; the history of previous illnesses will be some indication to the examiner about possible sequelae.

After obtaining as much evidence as possible regarding the influence of the factors noted above, questions should be asked about the child's sleep, appetite, vitality and temperament. The approximate dates of certain attainments (sitting unsupported, walking, speaking) should be recorded.

What can we learn of a child's general health or soundness by clinical examination?

A careful clinical examination should be made under suitable conditions, i.e. in a warm room provided with a wash-handbasin, couch, weighing machine and height scale, and the necessary instruments. The examiner should train himself to make an active search not only for the features of disease but also for the positive signs of health, as detailed below. An experienced clinician who follows this plan and considers his findings alongside the previous history may justifiably claim that his overhaul of the child will furnish a reliable picture of the state of health. But the clinician must be prepared, when need arises, to seek the help of specialists, e.g. in regard to dental health; health of the eyes and ears; mental health; nutritional status. It must, however, be emphasized that these detailed studies, although individually important, are isolated parts of the whole, and ultimately it is the health of the complete individual—a complex, composite, living unit—that has to be weighed in the balance.

The following details should be noted during routine clinical examination; and in doing so it must be remembered that allowance may need to be made for climatic conditions and other environmental influences, and for the reaction of the child to the examination itself; e.g. on a cold day a child may look paler than usual, especially if he does not know the examiner and is feeling nervous.

WEIGHT AND HEIGHT. The weight should be recorded with the child in a light garment (knickers or underpants) only, and a succession of recordings at intervals is more valuable than a single result. The accuracy of the weighing machine should be checked regularly by one of the firms who undertake this service.

GENERAL INSPECTION. The child, wearing the light garment noted above, should be seen standing at ease and then walking and running. The following features characterize a large proportion of healthy children:—

- (1) The mucous membranes (e.g. the lips and palpebral conjunctiva) are definitely pink in colour.
- (2) The facial expression is happy, often radiant; smiling is frequent, and the eyes are bright and responsive.
- (3) The skin is smooth, elastic, and covers a sufficient layer of subcutaneous fat to give the limbs a rounded appearance.
- (4) The tissue-turgor is normal.

(5) The muscles are well formed, and their tonus is good.

(6) The limb-bones are almost straight.

(7) The stance is well balanced, erect, and graceful.

(8) The spine is straight and the shoulder-girdles do not drop.

(9) The arches of the feet are well formed.

(10) The movements of limbs and body, in walking and running, are characterized by elasticity, agility, vigour and poise.

Then follows the usual routine examination of the various systems, including inspection of eyes, ear-drums, mouth, tongue, teeth and throat, skin (including scalp) and urine. The abdomen should be examined by palpation while the child is lying down; the genitals should be examined at the same time. When there is some doubt regarding the significance of clinical signs (e.g. a trace of protein in the urine) it may be necessary to repeat the examination and to arrange for special tests.

At this point it may be asked whether routine clinical examination on the above lines can be regarded as a complete and adequate test of a child's health. If we are to insist upon the use of optimum standards the answer must be in the negative, because relatively slight deviations from the full normal may not be demonstrable without the assistance of the specialist. For instance, a minor error of refraction, or an 'island' of deafness, although impossible of recognition by the ordinary clinical examination, may have some influence upon posture, or may hinder the child's full development in the mental and intellectual spheres; and even if these secondary effects were recognized by an astute clinician, he would still require the help of specialist colleagues to unmask the cause. Before a general rule could be formulated upon this difficult question, the possible disadvantages of more searching examination, such as expense and the fear of inducing neurosis in both parents and child, would require consideration. Educated lay people are now sufficiently enlightened regarding the preservation of health as to take their children for periodic dental examination, followed by conservative treatment when necessary, and it seems probable that both medical and public opinion will develop along similar lines in regard to other aspects of full health. For instance, the educational psychologist is likely to play an increasingly important part in recognizing and advising upon deviations from full health, such as occur with special frequency in categories (v) to (viii) on p. 53 ('foundations of good health'). At the same time it may be claimed that an experienced paediatrician is competent to recognize those children who are in need of psychological or psychiatric examination, provided that he has sufficient time to take a detailed history and to study the child carefully; and the same holds good in regard to other forms of specialist examination which might be necessary. It would be at variance with sound practice if a situation were to develop in which children were given merely a perfunctory general

medical examination prior to visiting a number of specialists.

General comments

(With special reference to the assessment of 'Group' health A)

The following observations are based upon the statements and views expressed above; they include the gist of a short memorandum on the routine medical inspection of school children which was drawn up by the British Paediatric Association in response to an inquiry by the Ministry of Education.

1. There can be few kinds of medical service more valuable to the welfare of the community than that of a school medical officer, provided that he (or she) is a keen practitioner who is adequately qualified to interpret and perform his duties and who can rely upon the co-operation and support of those with whom his work brings him into contact, especially his senior medical officers, the school teachers and the parents.

2. The school medical officer, whether a general practitioner or a whole-time public health officer, should have had paediatric training, and should hold the Diploma in Child Health. He should be attached, whenever possible, to a University Department of Child Health, or to a recognized Children's Hospital, or Children's Department of a recognized General Hospital. In this way he would be able to maintain contact with clinical paediatrics in a centre where teaching and research work are in progress; and the conditions of his employment should encourage him to do this. Even an enthusiastic doctor loses heart and zest when he is bound to a routine which soon becomes monotonous. The more experienced the practitioner the better does he recognize and understand the various constitutions, temperaments, outward appearances and functional capacities of the children before him, and the wiser he is in avoiding the danger of accepting sub-optimal standards.

3. The services of a paediatric consultant should be available to each Education Authority, to give advice upon cases referred to him and upon special problems which may arise.

4. The views of the British Paediatric Association regarding the duties of a school medical officer may be quoted in full:—

'He should be a medical officer to a group of schools and be responsible for the health of all the children while at school, and act, in fact, as a member of the school staff. He should superintend the general hygiene of the school, including sanitation and diet, and deal with epidemics. He should interview parents and take every opportunity of acquiring knowledge of the child's family background. He should teach older children in personal hygiene and the maintenance of health.

'He should be free to visit the school at any time and be encouraged to make investigations into any problems that might arise. In this way he would become known to the pupils and the pupils to him. During holiday times he could visit the hospitals or attend post-graduate study classes, and engage in research and investigations, some of which would be possible from his own records.'

To this it may be added that he should advise on the physical education of the children and he should maintain a close liaison with the school-teachers, particularly those who are concerned with physical education.

5. The school medical officer must have adequate time to enable him to carry out the medical inspections with care, and to hold interviews with parents and discussions with school-teachers. At the first examination an average of 15 minutes should be allowed for each child.

6. A suitably equipped and warm consulting room should be provided for the doctor's use in the school buildings, and adjacent rooms for the undressing of children and testing of urines.

A trained nurse who holds the certificate of Sick Children's Nurses should be present to give general assistance, including the recording of weight and height and testing of urines. If she also takes the history her notes should be checked, and where necessary amplified by the doctor during his interview with the parents.

7. Parents should be encouraged to attend in order that a reliable medical history may be available, and advice and encouragement given to them.

8. The record chart should be carefully drawn up, and should provide the doctor with space sufficient to enable him to keep careful notes not only of routine observations but also of particular aspects of child health which seem to offer useful prospects of adding to knowledge. Care should be exercised in regard to the terminology used; in the past confusion of thought has resulted from the use of descriptive words which in fact possessed a narrower significance than was intended, e.g. 'state of nutrition', or 'nutrition' to signify 'state of health in general'.

9. Suitable arrangements will be necessary for dental examination, followed by conservative treatment when necessary, and for the various specialist examinations which may be required.

10. Every encouragement should be given to the furtherance of research into the problems of assessing and preserving health in childhood; for instance, the wider application of so-called 'screening' methods in regard to nutrition, hearing, vision, mental health; the more intelligent use of physical exercises; and the relationship of physical and mental health to educational progress.