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Screening in Practice

Screening and surveillance of school aged children

John W Tuke

Three progressive moves seem to be taking place. Firstly, the white paper *Promoting Better Health*, through its encouragement of disease prevention and health promotion, accepts that much morbidity and premature mortality is behaviourally determined and therefore preventable. Secondly, the wish to move towards a true concept of primary health care in Europe, not a provision normally contained within traditional medical services, extends the role of the family doctor into that of an observer of patients throughout their lifespan.¹ This is one definition of surveillance: "The ongoing supervision of the preventive care of a practice population" (C R Hart, personal communication). Thirdly, individuals and their families are the nearest and often the best observers of deviation from normality, and as they are usually correct this latent resource should be exploited.²⁻⁶

Who needs observation?

Children from 5 years to school leaving, because they are developing and dependent on the ingredients of their environment, are especially vulnerable when some physical, emotional, or intellectual problem intrudes to interfere with social and educational progress. Environment, nutrition, and immunisation have radically changed the epidemiology of childhood; physical illness has been largely replaced by problems of communication, behaviour, and social inadequacy. If failure to achieve, school difficulties, drug and alcohol abuse, smoking, and adolescent problems (box) are to be predicted and prevented an accessible and responsive facility is required to give timely and effective help.⁷⁻¹⁰ This means listening to and taking seriously the anxieties of children, parents, and teachers and is the basis of the flexible and reactive model of school health services pioneered in Northumberland.¹¹ Initial assessment can be made by someone with an understanding of child development, the early indicators of dysfunction, and the available facilities for their management. Surely this includes the general practitioner.

Every child and the whole child

Community health departments have a responsibility to every child of school age living within the district, including those in families who move and are difficult to trace and those not registered with a general practitioner. A further statutory duty, resulting from

What can we prevent or modify?

Preschool indicators	At school	Later
Undervalued	Poor self esteem	Difficulties in relationships
Slow development of speech or language	Underachievement	Poor employment prospects
Poverty	Solvent abuse	Drug misuse Alcohol misuse (drink driving; accidents)
Emotional or behavioural difficulties	Behaviour problems School problems	Repeat in next generation Smoking
Family problems Child abuse		
	Smoking	

the 1981 Education Act, is the early identification of children with special needs. This is not restricted to formal education. It is intended to ensure that from the age of 2 years children with disabilities or handicaps that might affect their education are formally assessed and a statement prepared indicating the help required. The act relates to the 20% of children who at some time during their schooling will require special assistance.¹² Such children must be reviewed at least annually, and it is the duty of the local authority to coordinate this process and to include medical advice.

Particular problems

HEARING

The child with bilateral perceptive or sensorineural hearing loss will have been identified before school entry. The average age for first diagnosis has been reduced from 3½ years in 1978 to 11 months in 1988, which, although not ideal, should allow most of these children to achieve acceptable speech, language, literacy, and social expectations.

A much more common problem in the school years is conductive hearing loss due to middle ear disease, especially otitis media with effusion—"glue ear." Repeated screening of school children has not been shown to affect long term outcome of this impairment, and it is doubtful if this should be continued.¹³⁻¹⁵ Evidence for the long term effectiveness of available treatment is hard to find, and complications of treatment are not unknown.^{14 14a} This does not imply that it is unhelpful to know of the existence of partial

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deafness, and it is therefore considered necessary to screen every child on school entry.¹⁶ This problem is usually temporary, and appropriate arrangements can be made to compensate. Repeated hearing screening during the school years is of doubtful value, but stopping it would highlight the need for attentive listening on the part of the health services, whether in the school or at primary care level.¹⁷ Children, parents, and teachers who suspect hearing impairment are usually correct.

VISUAL PROBLEMS

By contrast, follow up of the 1300 children aged 10 in the child health and education study showed a reduced prevalence of visual problems,¹⁸ which may result from the long standing vision screening programme. This, together with the unpredictable but remediable nature of refractive problems, is the basis for the proposal to continue this examination at 5, 8, 11, and 14 years.

DISORDERS OF COMMUNICATION AND LEARNING

Most of the one in five children who need help at some time in their school career have communication or learning disorders. More than half of children who experience difficulty in learning to talk, go on to have school problems. The objective is to assess such children and offer help before prolonged experience of failure reinforces the impairment to become a more serious disability. At school entry some 4-5% of children have speech or language problems,¹⁹ some of which are complex. Some health districts carry out a formal screening of all children for speech and language development, but others depend on raising the awareness of parents and teachers (box).

ASTHMA

Morbidity and mortality from asthma can be greatly reduced by effective treatment. The availability of such treatment indicates the need for a degree of surveillance of any child with a history suggesting this complaint, the commonest chronic disorder of childhood.^{20 21}

A question of screening

Screening of children—the detection of occult disease or defects by means of a test—has so far been mentioned only for hearing at school entry and for vision at this time and later. On the basis of accepted criteria for any screening programme it is inappropriate to consider mass testing for hypertension, scoliosis, or urinary tract infection in school aged children.²² This would not exclude the possibility of setting up a

programme restricted to a particular “at risk” group. For example, screening for haemoglobinopathies in schoolchildren in south east France has been found cost effective.²³

Handicapped children

Education begins at birth and almost all disability affects education. Few handicaps can be adequately dealt with by any one person or agency, and help for a disabled child often needs organising quickly and reviewing regularly because of the child’s changing needs. In most health districts this is done by collaboration between the community health services, led by the consultant community paediatrician, and occupational therapists, psychologists, physiotherapists, and others; it may also involve social services and voluntary organisations. Although many agencies may be involved (at a rate inversely proportional to the child’s age), the interested concern of the family doctor in a constructive and coordinating role can only be useful and is likely to be welcomed. He or she is in an ideal position to monitor and question the quality of the care the patient receives and to review the arrangements made before the child leaves school.

The successful management of the handicapped child is often complicated, with critical periods needing special help—for example, during adolescence, when evolving self identity results in poor esteem, unhappiness, and underachievement and there is a tendency to reject the school environment. Integration in mainstream education is a great deal to ask at this time, and understanding support from the family doctor may be crucial.

Diabetes and epilepsy exemplify the need for collaboration between community health, primary care, and hospital services. The family doctor may need to initiate coordination. Paediatric departments are slow to communicate with schools, and the need for confidentiality may obstruct the passage of information. It may be very difficult for teachers to cope effectively with a child’s day to day management if they are not fully informed that a child has diabetes or epilepsy, but it is rare, after proper explanation, for a parent to refuse to allow information to be passed to a head teacher.

Education for health

The potential for prevention of illness and for health promotion in the captive audience from 5 years to school leaving is probably underestimated, as is the power to influence families through their children. There can be little doubt that health education plays an increasingly important part in the curriculum of every school, though much of this is informal.

As a former chief medical officer pointed out, “Prevention is inextricably bound up with treatment services and simple preventive measures are more convincing and acceptable to the public when their advocates are those who bring relief in overt illness.”²⁴ The family doctor is a powerful voice for health promotion and will reinforce any efforts made by national and educational agencies.²⁵ As well as children, young people visit their doctor. In one study 37% of 14 year olds had consulted their family doctor in the previous three months; elsewhere, 59% of adolescent girls and 22% of boys had done so during the same period,^{26 27} which shows the extent of this opportunity for health promotion.

Organisation

Although the 1990 contract intends to redress inequalities in preschool surveillance,²⁸ the school

entry examination remains an important occasion and includes consultation with parents. A selective method is appropriate whereby a profile of the 5 year old child is drawn from a series of reports from the preschool clinic, health visitor, class teacher, and parents, together with up to date records of immunisation and hearing and vision screening. If these are all complete and satisfactory the child need not be examined except if requested by teacher or parent.¹¹

Subsequently the school health service is involved on an informal and collaborative basis. The trained school nurse is the focal point of the system, with the school doctor and community paediatrician easily accessible as and when required. Flexible responsiveness is the key.

Caution

Recommendations for greater uniformity may sometimes fail to recognise the differing population needs within the United Kingdom. The rarity of studies that have shown effectiveness through identified outcome measures does not necessarily justify the dismantling of existing screening and surveillance programmes, which may have developed an equilibrium with local needs.²⁹ Contact between a school nurse and children in a particular area, on whatever pretext, may have hidden merits.

Another definition of the goals of screening and surveillance of children has been quoted (from Katherine Mansfield) in the report of the committee on child health services: "By health I mean the power to live a full, adult, living breathing life in close contact with what I love—I want to be all that I am capable of becoming."⁶

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ONE HUNDRED YEARS AGO

The Corporation of Liverpool has, at the present time, an opportunity of proving itself worthy of the great responsibilities that devolve upon it as the governing body of a city whose wealth and importance in our country is second only to that of the capital. Of all such responsibilities none are more serious than those connected with the preservation of the public health. Every citizen of the great Lancashire town should interest himself in the subject which is now under consideration, for the policy of its Corporation to-day will not only affect the present, but also future generations. One of the chief blots in the municipal sanitary arrangements of Liverpool is the existence in the very heart of the city of a public abattoir for the slaughtering of cattle brought to this great commercial centre and port by rail or steamer. The premises have been enlarged from time to time to meet increasing demands, and still further extension is considered necessary for the purpose of the business, which is here conducted on a very large scale; but their situation is most unsuitable from a sanitary point of view. The site is surrounded by a dense population, whose dwellings almost abut on the walls of the abattoir, while the Royal Infirmary, the University College, the Workhouse Hospital, with about a thousand beds, and the Lying-in Hospital, are all within a short distance from it. The offensive effluvia, inseparable from slaughter-houses and places where the accessory trades of gut scraping, hide dressing, etc., are conducted, pervade the surrounding streets and render them unhealthy. The danger arising from a public abattoir in such a situation has been pointed out by successive medical officers of health during the last forty years. Dr. Duncan, the first medical officer of health appointed in England, wrote strongly against it in his report of 1851. Dr. Trench, who succeeded Dr. Duncan, in his 1865 report also condemned the existence of the abattoir in its present situation, on sanitary grounds.

In 1884 Dr. Stopford Taylor, the present medical officer of health, was instructed by the City Council to prepare a return of the death-rate from all causes within a radius of 500 yards of the abattoir for ten years past, making of course the proper corrections for persons dying in public institutions. The result of this inquiry clearly shows the existence of an influence unfavourable to health in the part of the town where this aggregation of slaughterhouses and other effluvia trades is situate, the death-rate being 29 per cent. in excess of that of the whole city, and, what is even more significant, 56 per cent. in excess of that of the wards in which the special area lay. Such facts as these point conclusively to the need of a radical change, whereby the necessary business of cattle slaughtering may in future be carried on under conditions which do not endanger the public health. This necessitates the removal of the abattoir from its present situation to a locality within easy access of the city, but, at the same time, at a reasonable distance from dwelling-houses. It behoves the Corporation of Liverpool to consider this subject with a due sense of its importance and of the magnitude of the interests involved. Vested rights must be respected, and fair compensation must be paid for this as for other necessary town sanitary improvements. But the common right of a neighbourhood to breathe an uncontaminated atmosphere is above all those arising from usage, and it is the duty of municipalities—the guardians of the public health—to protect that which of all others should be the most sacred right belonging to the people. We trust that when this subject is again discussed narrow views will not be allowed to prevail, but that the Corporation will be guided in its deliberations by the same breadth of principle which has placed another great city council in the foremost place amongst the staunch supporters and the best representatives of local self-government. (*British Medical Journal* 1890;ii:373)