

## *Personal practice*

# The school entry medical examination

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**SUMMARY** We describe our comprehensive examination of 5 year old school entrants. The examination includes a parental interview, measurements of growth and visual acuity, and an audiometric sweep test all carried out by the school nurse and a paediatric examination and neurodevelopmental assessment carried out by the school doctor. The continuing need for such an examination, at least in urban areas, is discussed and illustrated by some data from the North Paddington Primary School Study. We emphasise the practical use of the neurodevelopmental assessment.

Until 1974 the medical inspections of schoolchildren were governed by statutory regulations that at one time specified even the ages at which they were to be carried out. The value of such inspections was first seriously questioned some 25 years ago when the regulations were amended, and in the 1960s the nature and conduct of routine periodic medical inspections was a frequent topic in public health journals. Since the reorganisation of the National Health Service (when the regulations were repealed and medical examinations of pupils ceased to be obligatory) articles on the routine examinations of schoolchildren have rarely appeared in either public health or paediatric journals in the United Kingdom. This is surprising, not only because 60% of the examinations currently carried out by school doctors are designated routine periodic medical examinations, which still involve over a million pupils (one eighth of the school population), but also because in 1984 all but one of the 201 district health authorities were undertaking routine examinations of children who were 'rising 5' and embarking on full time compulsory education; one authority was reviewing its policy (C Haines. Personal communication.)

One reason for this paucity of publications may be the fact that at the same time that routine periodic medical examinations were becoming discredited child health services were paying increasing attention to the early identification of disabilities and handicaps. Consequently, an extensive literature has been accumulating in a variety of journals on the developmental screening of children during the

preschool years. The view has been expressed that an examination of children at the age of 4½ years should be the final one in a preschool health care programme and replace the routine examination of children on entry to school, and this has been the only context in which reference to the latter has sometimes briefly appeared. Interestingly, only 18 district health authorities have formally adopted the examination at 4½ years as the substitute for an examination after entry to school.

On the other hand, many paediatricians have been showing an increasing interest in 'minimal brain dysfunction', and school doctors are having to be increasingly involved in learning and behaviour disorders of children in school.<sup>1</sup> Papers dealing specifically with the examination of young children in relation to the early detection and investigation of learning disability are consequently more numerous than those that describe a comprehensive examination. When these papers have appeared they have invariably been in the context of a special study rather than of everyday clinical practice.

In 1973 we published a brief report about a study where we comprehensively examined 5 year old children in Isle of Wight schools.<sup>2</sup> Subsequently, we reported on the method of our examination.<sup>3</sup> Over the last 10 years we have made a number of modifications to our original examination and now use almost all our research procedures daily in our service sessions in schools. We shall describe these in more detail here before providing some general data that in our opinion confirm the need for every

child on entry to an infant school to have a comprehensive examination by the school doctor and nurse. In another paper we present specific data about the neurodevelopmental items in our examination,<sup>4</sup> which we believe justify their inclusion in a comprehensive entrant examination.

The nurse carries out measurements of growth and visual acuity and an audiometric sweep test and completes an interview with the parent. The doctor reviews the interview with the parent and carries out a paediatric examination and neurodevelopmental assessment of the child.

### **The school nurse's role**

Each child is weighed and measured, the readings then being checked against Tanner-Whitehouse standard age percentile charts\* for height and weight attained. Weight is also checked against height percentile charts.<sup>5</sup> In cases of children whose height is found to be below the third percentile for age the measurement is also checked against standard height percentile charts that allow for the height of the parents.<sup>6</sup> Weighing machines (Avery) were available in all schools; these were regularly checked by the authority's Weights and Measures Department. The children wore vest and pants. Heights were measured in bare feet using rules attached to the wall; occasionally the rule was attached to the weighing machine and if there was doubt about a reading this was repeated using a Harpenden portable Stadiometer<sup>†</sup>.

Distant and near visual acuity is tested using Sheridan charts. The child's colour vision is also checked by the school nurse using the Guy's Sheridan-Gardner charts, though we are not ourselves convinced of the educational need for doing this as early as 5 years. The school nurse does these tests in school usually a day or two before the child is examined in the presence of his parent. She also carries out a pure tone audiometric sweep test of all new entrants, if possible during their first term in school.

When parent and child attend together as a rule it is the nurse who will interview the parent, recording information on a parent interview schedule. If for some reason neither parent can attend the school medical the nurse will visit the child's home to collect this history. The doctor may well begin the neurodevelopmental examination of the child while

this interview is going on in the same room, keeping an ear open to the parent's replies and of course judiciously joining in if it is appropriate. The schedule provides information about the child's birth and medical history, his present health and development, and his accommodation and family history. It also includes a slightly modified version of the Rutter Parental Behaviour Scale, which we use as a questionnaire and which can be rapidly reviewed by the doctor and positive findings discussed with the parents (it can also be scored for research purposes).

### **The school doctor's examination**

The doctor's examination of the child is a combination of a developmental, neurological, and paediatric examination. We describe the developmental and neurological (neurodevelopmental) items first because in practice the first thing we do with the child is to look at some pictures. We shall complete our description of this part of the examination before moving on to the physical examination, although in practice they constantly overlap. We have found that when the individual items are carried out in the order shown in our aide-mémoire (see Appendix) the examination progresses in a way that is logical and effective clinically and enjoyable for the child. Looking at pictures, chatting, and 'playing games' helps to establish a good rapport with the child so that cooperation is maximum. It is exceedingly rare for a 5 year old not to respond to this approach, and the sequence we follow allows a smooth and gradual change from the child doing things himself to his allowing things to be done to him.

The neurodevelopmental examination is principally a means of making some assessment of the efficiency of a child's perceptual-motor-communication performance in relation to his entry to full time education. This is dependent upon a large number of overlapping component functions, involving a number of sensory perceptions and motor organisations, but initially the neurodevelopmental examination has to be confined to an assessment of movement, vision, hearing, speech and language, and overall ability to learn (general intelligence). None of these can be tested strictly in isolation; it has to be deduced that function in these fields is unimpaired from the child's response to a battery of tests. Several ready compiled batteries already exist in a commercial form—for example, the Denver Developmental Screening Test—but for a variety of reasons we have found these unsatisfactory for the neurodevelopmental examination of entrants to school in this country, and we believe it

\*Tanner-Whitehouse and Chin and Morris height and weight charts are available from: Castlemead Publications, Swain's Mill, 4a Crane Mead, Ware, Herts SG12 9PY, England.

†Harpenden Stadiometer is available from: Holtain Ltd, Crymmych, Dyfed, UK.

is better that school doctors design their own battery, selecting from the very many tests that are available those that they personally find are easy to apply and allow a reasonably reliable assessment to be made.

An important consideration in selecting tests is the equipment they require. It needs to be minimal and simple, at the same time enabling one to make an overall assessment of each aspect of a child's functioning, which can then be recorded as normal or abnormal. Most tests contain very similar, often identical, material, and it is their use and interpretation that is important. We describe, therefore, in some detail some of the material that we use to show its objective rather than its superiority to other test material. We use the following: the Reed Hearing Test Card\*, Renfrew Action Pictures†, 12 coloured bricks, paper, and pencil.

The Reed Test was designed as a test of hearing for speech in which the child is asked to point to a named picture, which is one of four on a card. Eight cards are provided in a hard back folder (12 x 4 inches), which can stand on the table like an easel, allowing each card to be flipped over after use. It is necessary to ensure that the child knows the names of the objects to which he may be asked to point before the hearing test, but we check this by using the cards as a picture vocabulary test; the pictures we use are house, cup, bus, chicken, lamb, key, feet, sheep, tree, dog, cot, doll, and sock. We have added four tangible objects for the child to name that do not appear on the cards (thumb, watch, pencil, and chair). The reader will readily note that these picture items could be provided from many other sources—for example, Ladybird books. After asking the child to name the picture of the 'house' he can be asked about three kinds of material used in building one. He can also be asked to define certain pictures and objects identified in the vocabulary test—that is, house, cup, bus, key, knife, watch, pencil, and chair. Picture vocabulary, defining use, and naming materials are all standardised items that help in the assessment of ability. By the end of these tests the doctor must be sure the child knows the names of the objects on the cards to be used for the hearing test. We initially use only three cards for this purpose—numbers 5, 6, and 7.

We look at three elements of communication—the semantic, the syntactical, and the transmission system. The child's articulation of single words can be checked during the picture vocabulary test.

Among the pictures we use routinely are some that require articulation of the consonants l, k, r, s, sh, and th (their selection is based on Ingram<sup>7</sup> and Morley<sup>8</sup>). Articulation of words within sentences can be heard during informal conversation with the child throughout the examination and also in the standard sentence the child is asked to repeat after the doctor has spoken it. A normal 5 year old child should be able to repeat from memory a 10 syllable sentence; it is useful if this also contains the above six consonants.

Finally, to complete the assessment of speech and language when the child has not talked freely we use three Renfrew Action Pictures (numbers 6, 7, and 8) that depict in each instance a pair of linked activities. The child is required to construct a grammatically correct sentence that describes the actions depicted. For instance, one picture shows a child climbing a ladder against a house with a cat clinging to the roof; one possible response would be 'He's climbing the ladder to get the cat down'. Standardised scores of the syntax are supplied, and from a count of the number of items of information the child manages to convey on his own verbal initiative and the number of grammatically correct forms he uses in doing so it is possible to obtain a score of his expressive language. We used scores in our research study. We emphasise that the aim here is to hear the child use a syntax relative to his age, and at times he will do so in spontaneous sentences. Usually, the child's actions, behaviour, and conversation throughout the examination provide many additional opportunities to observe his understanding and use of the spoken word, which are aspects also of intelligence.

We introduce the small 1 inch bricks by asking the child if he can count, and then to do so to five while we place five bricks in a line on the table. Asking him to count the bricks confirms that he has a concept of number and not just a good memory. The bricks are then used to check his understanding of opposites (tall and short towers) and relative positions in space—on, under, behind, beside, etc. These are simple practical reasoning tests and are supplemented by construction and drawing tests that are not only performance as opposed to verbal tests of intelligence but also equally useful in the assessment of eye-hand coordination (fine manipulation). There are a wide variety of such performance tests, some better standardised than others. For the 5 year old entrant we use a timed (seven seconds) building of a three block bridge and an untimed building of a six block bridge from models and reproduction from memory of two simple patterns with coloured bricks, one from memory after a demonstration and the other without a demonstration.

\*Reed Hearing Test Card is available from: The Royal National Institute for the Deaf, 105 Gower St, London WC1, England.

†Renfrew Action Picture is available from: Miss C E Renfrew, 2a North Place, Old Headington, Oxford, England.

We then hand the child a pencil and ask him to draw in turn a circle, square, and triangle, copies of which are placed in front of him one at a time—that is, he is not shown how to draw these shapes. We use the scoring criteria standardised by Terman and Merrill.<sup>9</sup> From this task we note his hand performance for drawing, the maturity of his pencil grip, and not only his ability to distinguish and reproduce each shape but also his executive skill in drawing them (motor precision).

Moving away from the table, we next ask the child to copy a series of movements that show arm-hand coordination. We have found that getting him to lightly pat the back of each hand quite quickly (12 times in five seconds) and regularly and then to place his arms and hands in four positions is a good method. Items 5–8 from Berges-Lezine's imitations of gestures<sup>10</sup> are valuable tests that draw on several central nervous system functions, including visual perception, concept of body image, muscle and joint sense, and motor organisation and control. These tests have been standardised and are simple yet informative and fun for the child to do. We would emphasise at this point that throughout the examination of a child's functioning we are concerned not only with his ability to achieve the end point but also the manner in which he does so and the quality of his performance.

The traditional finger-nose test (in its several versions) is widely used in neurological examination and we have found it useful on some occasions. It has the added advantage that it moves the centre of attention to the face and paves the way for what the child may sometimes feel is the most submissive part of the examination, requiring his willingness to open his mouth wide. Once this has been achieved he is seldom reluctant to undress for the rest of the physical examination and the neurodevelopmental tests involving the use of the lower limbs.

Examination of the head and face allows one to assess rapidly most of the cranial nerves. After observation of the child's facies we observe and/or feel for motor asymmetry when asking him to close his eyes tightly, show his teeth, open his mouth, and move his tongue around. While testing for motor imperistence (mouth held open wide and tongue protruded for 20 seconds) his dental health can be assessed. At this point too pupillary response to light and the position of the light reflex can be observed. We do not routinely use the cover test as the importance of a latent squint seems to be doubtful, and we have found an asymmetrical light reflex, reduced visual acuity in one eye, and observation of eye movements throughout the examination (but especially when the child is carrying

out the neurodevelopmental tests previously described) are more reliable methods of detecting (or confirming the mother's suspicions of) the presence of an overt squint. Finally, we examine the ears with an auriscope.

In the absence of a history of illness or injury physical examination is subsequently confined to inspection of the skin, auscultation of heart and lungs for the presence of abnormal sounds, checking for hernias and in boys for undescended testicles, and looking at posture and limbs. We do not routinely check the blood pressure, although there are proponents of doing this as a routine, but we feel more study is needed before it is adopted routinely. Similarly, testing for bacteriuria in girls is certainly feasible but at the time of the study it had not been recommended<sup>11</sup> until a non-radiological technique for detection of renal scarring had been developed (but see a recent comment<sup>12</sup>).

Muscle tone and power, and limb reflexes, can readily be assessed at this stage when the child is relaxed and no longer apprehensive about having to see the doctor. We do not believe the plantar response is a useful routine test: most children dislike it and in consequence its results may confuse the doctor more than assist him. On the smaller child these tests—and indeed much of the paediatric examination of the face, trunk, and limbs, can be carried out with the child sitting on the mother's lap or doctor's table. They are then lifted off for the completion of the neurodevelopmental tests (locomotion) and palpation of the groin. We observe gait as the child enters the room, but we also ask him to walk across the room for some specific reason; the carrying out of an instruction distracts from the embarrassment some children have in parading in front of the doctor, as well as being another occasion for observing intelligent responses. Walking heel-toe in a straight line and hopping on each leg have their own end point. For the child the examination ends with his returning to the table for a speech discrimination (Reed) test if this has not been done at an earlier stage.

The final note the doctor has to make is about the child's behaviour. This is based, firstly, on the parent interview schedule, particularly the Rutter Scale, and the kind of relationship between parent and child that becomes apparent from the way they react to the situation/examination. Secondly, we observe the child's behaviour towards ourselves during the examination, his attitudes towards participating in the tests, his level of motor activity, and his attention span. Thirdly, the teacher will have some observations to make about the child's behaviour in the classroom and how he gets on with other children.

**The nature of and need for an entrant examination**

The special importance of a routine school entrant examination stems from its educational context. It is the youngest age after birth at which it is possible to ensure that all children are seen, because education is compulsory at 5, and it provides an opportunity to carry out a comprehensive assessment in relation to the child's introduction to formal teaching in a group situation. The examination that we carry out only takes 15 to 20 minutes. The importance of the child's responses has then to be assessed, and in the light of these conclusions the doctor has to advise both parent and teacher that the child's health and development seem to be perfectly normal; alternatively, he has to alert the teacher and perhaps the unaware parent to the presence of problems in either health or development and discuss with both the implications of such problems for the child's education and care principally in school but also, when it may be relevant, at home. There are many advantages and few disadvantages in the parent and teacher both being present for the examination and subsequent discussion. Because from inclination and training most doctors are so often more interested in disease and disorder it is important that we stress how the whole procedure of the entrant examination is as much concerned with the confirmation of normality and advice to both parent and teacher about how this may be maintained and promoted as it is with the identification of abnormality and any necessary action to deal with this.

The school entrant examination is a form of preventive health care applied to a specific population group and for this reason has often been regarded as a screening procedure.<sup>13</sup> True, it makes use of three screening procedures—that is, measurement of the growth and visual acuity and audiometric sweep tests. There is, however, a crucial difference between screening and assessment: screening requires only the observation and recording that the child does or does not achieve at a given moment a predetermined, arbitrary threshold of performance; assessment requires an interpretation of his responses and a clinical judgment as to the need for any action. The effectiveness of entrant medical examinations must not be gauged in terms of its efficiency as a screening procedure.

Assessment is relatively straightforward as regards physical health, vision, and hearing, but it is not quite so easy in respect of the results of neurodevelopmental testing. The tests we have selected can be scored on a three point scale from which an overall neurodevelopmental score can be calculated by adding up the subscores obtained on five groups of tests (Table 1). In everyday practice

Table 1 *Tests contributing to the neurodevelopmental score (see Appendix)*

Neurological score:	Head circumference Berges-Lezine Finger-nose Motor symmetry – eye – face Motor persistence Tongue movements Nystagmus Cranial nerves Squint Reflexes
Motor score:	Motor precision (quality of drawing skill) Pencil grip Hand patting Finger-nose Gait Heel-toe walk Hopping
Visual perception score:	Squint Visual acuity Building with bricks Drawing shapes Berges-Lezine
Speech and language score:	Picture vocabulary Definitions Articulation (words and sentences) Renfrew action pictures (information)
Ability score:	Picture vocabulary Definitions Materials Sentence repetition Practical reasoning items Renfrew action pictures (information) Building with bricks Drawing shapes

we have found it unnecessary to calculate any scores as we are now familiar enough with the various patterns of response to reach a clinical decision as to their importance. Elsewhere we show how such clinical use of the tests can actually give a rather better prediction of later learning difficulties than the neurodevelopmental score or its subscores can,<sup>4</sup> probably because it can take into account the context and quality of the child's responses. Prediction, we hasten to add, is a tool of research and its use is not necessary in daily practice—nor advisable until such time as we have effective methods of intervention.

It is often claimed that nowadays a comprehensive examination of every 5 year old child on entry to school is a luxury that cannot be afforded and if carried out at all it should be done at the age of 4½ before the child starts school and by either the general practitioner or the clinic doctor. We believe there are cogent arguments for this education oriented examination to be done in school by the doctor and nurse who will continue to provide health care in the school and often be talking to

teachers and parents. This provision of health care for the child in relation to his functioning in school is all important. An interpretation of his neurodevelopmental state to the teachers allows them to plan an educational programme diagnostically suited to that child's abilities. We see this as just as important a responsibility as, for instance, explaining the importance of a child's epilepsy, asthma, or diabetes.

As for regarding the examination as a luxury, we would point out that two thirds of schoolchildren in this country live in inner city or suburban areas where a relatively high proportion of children are socially disadvantaged and do not receive satisfactory health surveillance during their preschool years. Furthermore, such children are by and large more than likely to have problems of one kind or another on entry to school and to experience difficulty in their learning and behaviour during their later school years. Our own studies in Paddington show how true this still is. In the 15 primary schools in which we worked there were significantly greater numbers of children from families of social classes 4 and 5, and 15% were socially disadvantaged\*. At least one third had no records of assessments of health and development before entry, and of those for whom records were available two out of five had not been examined since the age of 2, and half of these had problems. Forty per cent of all the children had problems on entry to school and just as many still had problems by the age of 10 (Tables 2 and 3). Only 6% of the children with a problem at 5 had seen their general practitioner because of that problem during the previous 12 months, and all nine had a physical health problem, including one boy with undescended testicles (out of three so diagnosed at the entrant examination) and one with a congenital heart disorder (out of five so diagnosed on entry).

\*This was a clinical opinion expressed by the doctor on the basis of family size, overcrowding and lack of amenities at home, marital discord, the presence of serious illness to the family, and other such information obtained at the entrant examination or from health visitors and social workers.

Table 2 *Problems identified among 351 school entrants in 1978*

<i>Problems</i>	<i>Prevalence of individual problems (%)</i>	<i>Prevalence among all problems (%)</i>	<i>Rates of social disadvantage in school entrants with problems (%)</i>
Physical health	13	23	9
Vision	8	14	28
Hearing	8	14	18
Speech and language	8	14	28
Ability (intellectual)	14	26	14
Behaviour	5	9	50
Study group as a whole at 5 years	<i>Rate for all problems</i>		<i>Rate of social disadvantage</i>
	40		15

Table 3 *Problems present among 230 children aged 10 years*

<i>Problem</i>	<i>No of problems</i>	<i>Prevalence (%)</i>
Physical health (excluding dental disease)	24	10.4
Vision (excluding colour vision)	25	10.8
Hearing	4	1.7
Speech and language	1	0.4
Enuresis	5	2.2
Reading	18	9.8*
Learning	35	15.2
Behaviour	20	8.7
Total No of children with problems	101/230	43.9

\*Only 183 out of 230 children had a reading test.

We would agree that there are some children in every infant school, and many children in most schools in some places, whose health and development during the preschool years has been entirely satisfactory and even documented as being so. Nevertheless, we believe that their parents should be offered an interview with the school doctor and nurse and a decision not to give the child a comprehensive examination taken then on clinical grounds, rather than in advance as a matter of administrative policy.

**Appendix**

**ENTRANT MEDICAL EXAMINATION**

NAME:    School

Date of Birth: Age M / F S.M.O.

Date of first entry to Nursery / Infant School: Date of examination: Parent Present: Ma / Pa / No

MEASUREMENTS				VISION		
Height:	cms.	Age %-ile	th.	Without glasses	R	L
Weight:	kgs.	Hgt. %-ile	th.	With glasses	R	L
Head circumference:		cms		Near vision	R	L
Parent's height:		Ma/Pa	cms.	Colour vision	Pass /	Fail

**SUMMARY of ASSESSMENT**

1. Health	good	poor	unsatisfactory
2. Nutrition	good	poor	unsatisfactory
3. Vision	normal	slight defect	impaired
4. Hearing	normal	slight loss	impaired
5. Speech	normal	slight defect	marked defect
6. Language	normal	restricted	retarded
7. Ability	normal	limited	retarded
8. Manipulation	normal	rather clumsy	dyspraxic
9. Locomotion	normal	rather clumsy	dyspraxic
10. Behaviour	normal	minor problem	major problem
11. Social Circumstances	normal	unhelpful	disadvantagous

**ACTION**

No action required / Referral required: to  (use code)

Other (specify):

See again

**Appendix—contd.**

EXAMINATION
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Naming and Defining Objects

<u>House</u>	<u>Names</u>		<u>Define by Use</u>		
	Yes	No	Yes	No	
Materials:	House made of . . .	Yes	No	Number answered correctly:	
	Door made of . . .	Yes	No		
	Window made of . . .	Yes	No	(pass 2)	/ 3
<u>Cup</u>	Yes	No	Yes		
<u>Bus</u>	Yes	No	Yes		
Chicken	Yes	No			
Lamb	Yes	No			
<u>Key</u>	Yes	No	Yes		
Feet	Yes	No		Number named correctly:	
Sheep	Yes	No		(pass 16) / 18	
Tree	Yes	No			
Dog	Yes	No			
Cot	Yes	No		Number defined correctly:	
Doll	Yes	No		(pass 5) / 8	
<u>Knife</u>	Yes	No	Yes	No	
Thumb	Yes	No			
<u>Watch</u>	Yes	No	Yes	No	
<u>Pencil</u>	Yes	No	Yes	No	
<u>Chair</u>	Yes	No	Yes	No	

Hearing and Speech

Articulation (words)	Normal	/	Defect :	(r - sh - th - s - l - k)
Hearing	Pass	/	Fail	
Auditory discrimination	Pass	/	Fail	
	(Repeat sentence : "Susan can polish the red bicycle")			
Auditory memory	Pass	/	Fail	
Articulation (sentence)	Normal	/	Defect :	(r - sh - th - s - l - k)



**Appendix—contd.**

Language (Renfrew Action Pictures)

CARD 6		INFORMATION (pass 10)
CARD 7		/ 14
CARD 8		GRAMMAR (pass 14)
		/ 21

Practical Reasoning

Compares 2 towers	yes	no
Counts to 5	yes	no
Counts 5 bricks	yes	no

Reasoning correct : (pass 3)	/ 3
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

Construction and Drawing

Can build:	3 block bridge	yes	no
	(7 secs)		
Can draw:	6 block bridge	yes	no
	block pattern II	yes	no
	circle	yes	no
	square	yes	no
	triangle	yes	no

Performance correct: (pass 4)	/ 6
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Motor precision: good R / L fair tripod - poor awkward - other:-

Hand-arm Co-ordination

Hand patting	R on left fist	regular 12 in 5 secs.	irregular fewer
	L on right fist	regular 12 in 5 secs.	irregular fewer
Berges-Lezine	5.  pass / fail	7.  pass / fail	
Finger-nose	6.  pass / fail	8.  pass / fail	
	pass	deviation - R / L	tremor

Face and Head

Motor symmetry	teeth-showing	yes	no
	eyes-screwing	yes	no
Motor persistence	mouth open 20 sec.	yes	no
	tongue out 20 sec.	yes	no
Tongue Tremor		no	yes
Dental	decayed, missing, filled	nil	Number:
	gums healthy	yes	no
	orthodontic problem	no	yes
Upper respiratory tract	nasal catarrh	no	yes:
	tonsils healthy	yes	no: acute / chronic
	glands enlarged	no	yes:

**Appendix—contd.**

Eyes			nystagmus movements squint			no normal no		yes limited yes: treated					
Ears	R	-	healthy	/	dull	/	injected	/	bulging	/	grommet	/	wax obscures
	L	-	healthy	/	dull	/	injected	/	bulging	/	grommet	/	wax obscures
<u>Rest of body</u>													
Skin			-				healthy						lesion:
Heart sounds			-				normal						murmur:
Breath sounds			-				normal						added:
Umbilical hernia			-				absent						present
Inguinal hernia			-				absent						present: R / L
Testes			-				down						up: R / L
Trunk (incl. posture)			-				normal						abnormal:
<u>Limbs</u>													
Arms (incl. shape, muscle tone)							normal						abnormal:
Legs (incl. shape, muscle tone)							normal						abnormal:
<u>Reflexes</u>													
Biceps		R			present		absent		brisk				sym / asym
		L			present		absent		brisk				
Brachio-radialis		R			present		absent		brisk				sym / asym
		L			present		absent		brisk				
Knee jerk		R			present		absent		brisk				sym / asym
		L			present		absent		brisk				
<u>Locomotion</u>													
Gait					walks with even paces			can			cannot		
					heel-toe walk			steady		unsteady	cannot		
Hopping						R	steady		unsteady	cannot			
						L	steady		unsteady	cannot			
<u>Behaviour</u>													
Towards examiner							forthcoming / guarded / non-cooperative						
							shy-warms up / shy / shy-cries						
During examination							composed / petulant / difficult / clinging						
Level of activity							normal / slow / fidgety / over-active						
Attention span							normal / easily distracted / brief						

Odd Clinical Note

We thank Drs Sue Jenkins and Hilary Hart for their constructive interest during the preparation of this paper and our secretary, Lorraine Wilder, for her help in its presentation.

#### References

- <sup>1</sup> Whitmore K. *Health services in schools: a new look*. London: International Medical Publications, 1985.
- <sup>2</sup> Bax MCO, Whitmore K. Neurodevelopmental screening in the school entrant medical examination. *Lancet* 1973;ii:368-70.
- <sup>3</sup> Bax MCO. The assessment of the child at school entry. *Pediatrics* 1976;58:403-7.
- <sup>4</sup> Bax MCO, Whitmore K. The medical examination of children on entry to school: II the results and use of neurodevelopmental tests. *Dev Med Child Neurol*. (In press.)
- <sup>5</sup> Chinn S, Morris RW. Standards of weight-to-height for English children aged 5.0 - 11.0 years. *Ann Hum Biol* 1980;7:457-71.
- <sup>6</sup> Tanner JM, Goldstein H, Whitehouse RH. Standards for children's height at ages 2-9 years allowing for height of parents. *Arch Dis Child* 1970;45:755-62.
- <sup>7</sup> Ingram TTS. Developmental disorders of speech. In: Vinken PJ, Bruin W, eds. *Handbook of clinical neurology*. Vol 4. Amsterdam: North Holland, 1969:407.
- <sup>8</sup> Morley ME. *The development and disorders of speech in childhood*. 2nd ed. Edinburgh: Livingstone, 1965.
- <sup>9</sup> Terman LM, Merrill M. *Stanford-Binet intelligence scale: manual for the third revision form L-M*. London: Harrap, 1961.
- <sup>10</sup> Berges J, Lezine I. *The imitation of gestures*. Clinics in developmental medicine no 18. London: The Spastics Society Medical Education and Information Unit associated with Wm Heinemann Medical Books, 1965.
- <sup>11</sup> Newcastle Covert Bacteriuria Research Group. Covert bacteriuria in schoolgirls in Newcastle-upon-Tyne: a five-year follow-up. *Arch Dis Child* 1981;56:585-92.
- <sup>12</sup> Arneil GC. Urinary tract infection in children. *Br Med J* 1985;290:1925-6.
- <sup>13</sup> Hall DMB. *The child with a handicap*. Oxford: Blackwell Scientific Publications, 1984.

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