Pre-school development screening in a health centre — the problem of non-attendance

C. B. FREER, MRCGP
Lecturer, Department of Community Medicine, University of Glasgow, Ruchill Hospital

T. A. OGUNMUYIWA, MB, CH.B, DPH
Postgraduate Student, Department of Community Medicine, University of Glasgow, Ruchill Hospital

SUMMARY. Poor attendance at a health centre pre-school child screening clinic (total default rate 41·2 per cent) raises the question of whether selective screening would be a more realistic alternative to comprehensive screening. Furthermore, an analysis of the outcome of screening over one year has shown a low prevalence of abnormalities and underlines the need to justify such programmes as worthwhile screening tests.

The most efficient method of detecting childhood abnormalities at an early a stage as possible remains an open question, but with present financial restrictions and staff shortages, whatever programmes are used, rigorous continuing evaluation is essential.

Introduction

WITH the apparent failure of the 'at risk' register (Sheridan, 1962) to detect childhood handicaps at an early stage (Richards and Roberts, 1967) there has been increasing support for periodic developmental screening of all pre-school children (*Lancet*, 1975). The Scottish sub-group on the Child Health Service stated that it was "the best means of identifying handicapping conditions at the earliest possible time" and also suggested that screening should be an integral part of primary medical care (Scottish Home and Health Department, 1973). This has become more feasible with the growth of health centres and increasing support for the concept of primary health care teams (British Medical Association, 1974).

In January 1973 a pre-school developmental screening programme was introduced at Woodside Health Centre, Glasgow and involved five of the eight practices based in the centre. Attendances taken over the first two years were disappointing (default rate 24 per cent) and it was also felt that the clinic system was too rigidly arranged. Accordingly a new visual chart system for screening was introduced in January 1975. Details of the attendance patterns for 1973/74 and the new programme are described elsewhere (Barber *et al.*, 1976), but briefly the programme involves screening at six weeks, three months, six months, nine months, twelve months, eighteen months, two years and three years. The bulk of the testing is the responsibility of the health visitor, with the general practitioners examining the child at three months and two years but acting as a support for the health visitor at the other examinations.

This study examines the first 12 months of the new screening programme with particular reference to attendance and outcome of screening.

Method

One of the five practices in the 1973/74 study (practice 1) was chosen for this analysis. This is a group practice of three doctors with about 8,700 patients. The child screening charts, health-centre and health-visitor records were examined in detail and information on attendances and outcome for the 12 months of 1975 extracted.

Results

Attendance

A total of 192 children were invited to attend for screening visits in 1975. One of these children was found to be abnormal at the three-month visit and was then withdrawn from the screening programme. Accordingly the following results refer to a total population of 191 children.

Table 1. The distribution of attendance at child screening clinics in 1975.

Examination age	6/52	3/12	6/12	9/12	12/12	18/12	24/12	*Total*
Number called	64	61	60	60	59	68	75	447
Number attending	43	42	37	31	34	39	37	263
Number defaulting	21	19	23	29	25	29	38	184
Percentage defaulting	*32.81*	*31.15*	*38.33*	*48.33*	*42.37*	*42.65*	*50.67*	*41.16*

One hundred and twenty-seven of these children had been involved in the 1973/74 programme, and the remaining 64, because they were born in 1975 or late 1974, were confined to the 'new' screening schedule.

In 1975 these 191 children generated 263 screening visits out of a possible 447 giving a default rate of 41·2 per cent. Details of attendances for each clinic are given in Table 1 and show that the default rate increased progressively from 32·8 per cent at the six-week examination to 50·7 per cent at two years.

This shows a significant reduction in attendance since the 1973/74 programme when the total default rate for this practice was 29·8 per cent, and this reduction was seen consistently at each screening clinic (Table 2).

To determine whether this high default rate represented an irregular attendance pattern or the same children defaulting on each occasion the records of the 64 children confined to the 1975 programme were examined in detail (Table 3).

Excluding those children with only one possible visit, eight out of 56 children (14 per cent) did not attend any examination; and of those children with five, four and three possible visits, seven out of 41 (17 per cent) attended only one examination.

Outcome of screening

During 1975 the screening programme detected three children with abnormalities. The infant withdrawn from the programme had been labelled 'normal' at the six-week visit but was found to have visual problems and delayed psychomotor development at the three-month examination. Specialist assessment subsequently established cortical blindness and mental deficiency.

In the attendance study group of 191 two abnormalities were detected and referred for specialist assessment. One child had a right genu valgum which did not require active treatment and the other a systolic murmur. The latter child has been investigated and found to have a ventricular septal defect.

In addition to these three children, examination of the health-centre and health-visitor records for the age range of the study group has revealed a child with a cleft palate, detected at birth and therefore not included in the screening programme.

Discussion

If the widespread support for comprehensive pre-school child screening is justified, then these attendance patterns present a serious challenge and it is of deep concern that so many children are not being seen at all or only once. The outcome of periodic screening of 191 children did not reveal a significantly large number of abnormalities and this was the experience of Bain (1974) in Livingstone New Town. This underlines one of the practical difficulties with pre-school child screening when there is a lack of detailed information on the incidence and prevalence of abnormalities in this age group. One report has suggested a prevalence of one in 40 malformations and serious diseases (National Association for Mental Health, 1971).

Unfortunately the size and structure of our study population did not allow the analysis and identification of those mothers and infants most likely to default, but in Livingstone many of the non-attenders came from 'problem families' (Bain, 1974). A recent study in the

Table 2. Comparison of screening clinic attendances for 1975 with those of 1973/74.

	6/52		6/12		10/12*		18/12	
Examination age	'73-'74	1975	'73-'74	1975	'73-'74	1975	'73-'74	1975
Number called	176	64	143	60	104	60	31	68
Number attending	137	43	97	37	67	33	22	39
Number defaulting	39	21	46	23	37	27	9	29
Percentage defaulting	*22.2*	*32.8*	*32.2*	*38.3*	*35.6*	*45.0*	*29.0*	*42.7*

*The third examination age for 1973/74 was at ten months. The structure for 1975 omitted ten months examination and instead took nine months and one year. The mean of these was taken to allow comparison.

Table 3. Details of attendance patterns for 1975.

Possible attendances	Total number of children	Number of clinics attended					
		5	4	3	2	1	0
Number with 5 possible attendances	10	2	6	0	0	2	0
Number with 4 possible attendances	15	—	5	2	3	4	1
Number with 3 possible attendances	16	—	—	4	7	1	4
Number with 2 possible attendances	15	—	—	—	8	4	3
Number with 1 possible attendance	8	—	—	—	—	5	3
Total	64	2	11	6	18	16	11

London Borough of Hounslow also found that the children in greatest need were those most likely to default (Zinkin and Cox, 1976). Thus developmental screening experiences the inverse care law (Hart, 1975) in common with other screening programmes such as cervical cytology *(Lancet,* 1976) and screening for bacteriuria (Rich *et al.,* 1976). Domiciliary child screening has been suggested to deal with defaulters (National Association for Mental Health, 1971; Bain, 1974; *Lancet,* 1975) but this cannot be a realistic solution with present staff shortages throughout the country.

However, even if domiciliary screening or any procedure were feasible and improved acceptance rates, an abnormality detection rate of three out of 192 children per year, one of which does not require active management, raises the question of whether pre-school screening of all children satisfies the requirements for a worthwhile screening programme (Holt, 1974; Whitby, 1974). In particular a study of the cost-effectiveness of comprehensive screening seems indicated before we embark on a national policy expensive in time and manpower.

While there is general agreement that some form of developmental screening of pre-school children is required, it is far from established that comprehensive screening is the best way to achieve the early detection of childhood abnormalities (Roberts and Khosla, 1972). In fact in the absence of domiciliary screening the attendance rates at this Woodside Health Centre practice and the reported rates for Livingstone (Bain, 1974) represent selective and not comprehensive screening, except that the attenders are selected by the mothers and not by the co-ordinators of the screening programme.

The original 'at risk' register concept generated so much enthusiasm and confidence that it was introduced without pilot studies and the registers were not designed to permit easy continuing evaluation. However, experience soon revealed discrepancies and shortcomings (Oppé, 1967; Richards and Roberts, 1967; Walker, 1967) and this led to the discrediting of selective screening in favour of comprehensive pre-school screening. Nevertheless the criticisms of the 'at risk' register were mainly related to the problems of criteria definition and the lack of uniform implementation of these criteria rather than the concept of 'at risk' or 'high risk' categories. In the present economic climate it may be that with improved and more uniform definitions of 'risk' groupings and a disciplined implementation selective screening could provide a more realistic alternative to the pre-school screening of all children. Certainly Alberman and Goldstein (1970) have shown that when resources are low, maximum benefit can be achieved by a selective approach to screening.

However, whatever method is used there remains the need for continuing evaluation of programmes which have important financial and manpower implications for a health service desperately short of both.

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