

# MEDICAL PRACTICE

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## *Contemporary Themes*

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### **Measles immunisation: results of a local programme to increase vaccine uptake**

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#### **Abstract**

Investigations showed that the measles immunisation programme in our health board was a failure. Surveys of health care staff and parents to determine the cause of the problem identified several aspects of concern: the immunisation of children was often left to parental initiative, with only 29% of general practitioners playing an active part in recalling children by the 15th month of age; general practitioners, clinical medical officers, paediatricians, and health visitors all required education on several aspects of measles immunisation; parents also required more information about the importance of preventing this disease. A coordinated effort to remedy these problems was introduced which achieved an increase of 13% in vaccine uptake during 1984. These findings may have implications beyond our own area.

#### **Introduction**

Fife, an area with a population of 343 000, shares with many other regions of the United Kingdom a poor record of measles immunisation. Our vaccine uptake for 2 year olds in 1980 was 54%, a level that is totally inadequate to achieve measles eradication.<sup>1</sup> This state of affairs prevailed in spite of the existence of a vaccine which is devoid of major adverse reactions and which appears to confer permanent immunity.<sup>2</sup>

Although mortality from measles is low in Britain, it continues to cause appreciable morbidity.<sup>1,4</sup> In 1982 there were over 100 000

notifications in the United Kingdom,<sup>5</sup> of which 10 589 were notified in Scotland.<sup>6</sup> During that epidemic year 1492 cases were notified in Fife, a rate of 436 per 100 000 population, of whom 50 required hospital care; 42% of those admitted had respiratory complications, including bronchiolitis and bronchopneumonia, 28% had otitis media, and 20% had convulsions.

The situation in the UK contrasts with the USA, where vigorous efforts have been made to promote immunisation. Uptake rates of over 95% have been achieved,<sup>7</sup> and this has resulted in a notification rate of 0.7 cases per 100 000 population.<sup>8</sup>

At the end of 1982 a group of staff met to discuss the failure of our measles immunisation programme and to devise a strategy to remedy the situation. We now report the results of these efforts.

#### **Methods**

First we wrote to all general practitioners, clinical medical officers, and health visitors in Fife at the end of 1982 informing them of the level of measles immunisation in their own local area, and encouraging them to increase vaccine uptake. Next we set up a series of surveys to obtain an overall picture of the measles immunisation programme. We took a cluster sample of 20 of the 64 practices in Fife and interviewed all 56 general practitioners and 43 health visitors in these practices. In addition we interviewed all 20 clinical medical officers and hospital paediatricians (three consultants and three registrars). After this we identified 396 families with a 2 year old child who had been born in Fife, from whom we sought to interview a simple random sample of 93 parents. At the end of each interview we had the opportunity to discuss various aspects of measles immunisation and to promote the vaccine.

We followed these interviews with a survey of the general practitioners, clinical medical officers, and health visitors of the children who had not been immunised by their second birthday. These follow up surveys took place when the child was between 3 and 4 years old. The aim was to relate the experiences of parents to the stated practices of health care staff.

All interviews were carried out personally by one of us. Standard techniques were used throughout.<sup>9</sup> All the surveys were designed to give a maximum standard error of less than 8%. In all cases the results have been

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calculated and presented on the basis of unbiased estimates of the universe populations.

On the basis of our findings we implemented a coordinated health education programme at the beginning of 1984. This was aimed at doctors, health visitors, and parents and included the publication and distribution of local measles immunisation guidelines, a monthly community health report covering all aspects of communicable diseases and immunisation, and regular press, radio, and television reports and appearances. All these efforts were regularly reinforced by meetings and discussions with the staff concerned.

## Results

We successfully interviewed all health care staff in our survey and 91 of the 93 families. Two families who had left Fife have been excluded from the analysis. Table I shows the results of the general practitioner survey. Though an estimated 85% of general practitioners encouraged immunisation, only 29% had an active recall system aimed at ensuring immunisation by 15 months of age. Among the reasons offered by the 15% who did not encourage measles immunisation were low vaccine efficacy and vaccine complications. Although all the health visitors interviewed encouraged vaccination, five thought that it was only moderately useful.

TABLE I—Measles immunisation practice among general practitioners in Fife

	%
General practitioners who encourage measles immunisation	85
but with no active recall system	54
with personal recall system	20
with HV recall system	11
General practitioners who encourage measles immunisation, have active recall by general practitioner or health visitor, and immunise by 15th month	29

All the clinical medical officers encouraged immunisation but two thought that it was only moderately valuable and four indicated that they did not immunise until late in the second year. Of the three consultant paediatricians, two considered that measles immunisation was very worthwhile with the third considering it to be only moderately valuable. None gave unqualified active support, while the junior staff reflected the views of their consultants.

Table II indicates the main influences on the attitudes of parents towards measles and measles immunisation. Recollection of their child's immunisation state disagreed with our central child health records in eight out of the 91 interviewed, in all of which examination of the child's individual clinic record confirmed the parents' claim that immunisation had been completed. Thus 49 (54%) of these children were recorded centrally as immunised by their second birthday when the true level of immunisation was 63%.

TABLE II—Survey of 91 parents of 2 year old children in Fife

	No	%
Did not regard measles as a serious disease	31	34
Sources of information on measles immunisation		
Health visitor	74	81
Media	72	79
Health education material	72	79
Medical profession	41	45
Family	14	15
Influences on measles immunisation		
Health visitor	39	43
Family	30	33
Medical profession	20	22
Media	19	21
None	31	34
Measles immunisation considered		
Safe	40	44
Moderate risk	32	35
Don't know	19	21
Attitudes towards compulsory pre-school immunisation		
Would support such a policy	63	69
Would oppose such a policy	15	16
No firm views on such a policy	13	14

Various reasons were offered by parents, general practitioner, clinical medical officer, and health visitor for non-immunisation or late immunisation of 33 children in our follow up survey. The principal reasons included advice not to have pertussis or measles vaccine because of contraindications to the former (8); history of measles under 2 years of age (6) or repeated upper respiratory tract infection (1); family history of epilepsy (3); allergy, or

asthma (2); and professional inertia (13). We included in this last category those cases in which no reason for withholding immunisation was given or in which professional staff said that the reason was parental apathy. In no child could we find a single valid medical reason for not giving measles vaccine, nor did a single parent actively object to immunisation of their child. By the time of this follow up survey a further 16 of the 91 children had been immunised, giving a final immunisation rate of 80%.

Table III shows the quarterly trends in measles immunisation status in Fife and in Scotland since 1980. These show an increase of 13% in vaccine uptake in our area since beginning our campaign and an 8% increase throughout Scotland during the same period.

TABLE III—Cumulative trends (%) in measles immunisation in Fife and in Scotland on the 30th September since 1980

Year of birth	Year of immunisation				
	1980	1981	1982	1983	1984
1978 Fife	54				
Scotland	50				
1979 Fife		55			
Scotland		52			
1980 Fife			56		
Scotland			55		
1981 Fife				60	
Scotland				58	
1982 Fife					73
Scotland					66

## Discussion

In the face of evidence that measles vaccine is effective and safe why should low acceptance rates continue to be the norm? We aimed in our surveys at determining why children were not being immunised and how this could be remedied. Because the survey design entailed personal interviews with staff and parents we achieved a 100% response rate.

Our results showed that not all general practitioners were convinced of the value of measles immunisation and an estimated 54% appeared to leave the initiative to parents. Moreover, only 29% actively recalled children for immunisation by the 15th month in spite of evidence that the optimum time is between 12 and 15 months of age.<sup>10,11</sup> Centralised computer recall systems have been known for several years to have a significant effect on immunisation uptake rates,<sup>12,13</sup> and a recent study from Glasgow has shown that a motivated practice with such a system can achieve uptake rates of 90%.<sup>14</sup> Our own health board maintains a computerised child health record but this plays no part in recall, and we found that its accuracy left a lot to be desired. We are now introducing a more effective system to overcome administrative weaknesses we believe are responsible for the poor quality of the current data.

The attitudes of clinical medical officers, health visitors, and paediatricians showed that not all were fully convinced of the benefits of immunisation. Others have also shown that members of the health professions doubted the efficacy of measles vaccine, and that these doubts were passed on to the parents of children.<sup>15,16</sup>

This study identified 33 children who had not been immunised either as a result of inappropriate advice from health personnel or because of inertia on the part of the health service. We found it interesting to learn that 16 of these had been immunised by the time of the follow up survey, perhaps indicating a Hawthorne like effect but possibly also reflecting the benefits of a dynamic and individual based approach to health education.

We found that the medical profession had a relatively small influence on parents, 34% of whom appeared to be uninfluenced by the efforts of any health care staff. Clearly the health board and its department of community medicine must accept a major share of the criticism for this failure, having taken no positive initiatives in recent years on preventing this eminently preventable disease.

Parents' underlying attitudes and knowledge also play a part in the acceptance of any vaccine. Measles was not regarded as a serious illness by 34% and only 44% considered the vaccine safe. In spite of this, as many as 76 parents (84%) either supported compulsory

immunisation before school entry or were passive supporters of such a policy. Other countries which have adopted compulsory measles immunisation have virtually eradicated the disease. This has been most notable in Czechoslovakia and the German Democratic Republic,<sup>17,18</sup> and we have already referred to the practice in the USA, where immunisation is to all intents and purposes compulsory. Moreover, in Canada the medical profession has recently urged its government to adopt a similar approach.<sup>19</sup> We agree with Campbell that it is now time for our profession to follow the example of our colleagues in these countries and press for legislation to protect the rights of children to be free from this potentially dangerous disease.<sup>20</sup> We formed the opinion that most parents would welcome a clear cut policy on this matter.

Although we have been able to evaluate our health education programme for only a relatively short period, the early results are extremely encouraging in that we appear to have achieved a 13% increase in the uptake during 1984. In the absence of a policy of compulsory immunisation we think that the importance of adopting such a personal and rigorous approach has much to recommend it. Other health boards in Scotland have adopted different strategies for tackling this pressing problem and this has contributed to the general rise in measles immunisation rates throughout Scotland of 8% on average during the past year.

We acknowledge the help of all the staff who participated in our surveys and who continue to help in our campaign.

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# Green College Lectures

## Educating the doctor: basic medical education

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### Introduction

Basic medical education begins when a student enters the medical undergraduate course. In many countries it ends on graduation but in the United Kingdom the term embraces that period, usually called the preregistration year, which some prefer to call "general clinical training," between graduation and provisional registration on the one hand and full registration on the other (Crisp, personal communication). The content of training and experience afforded by that year are now under close scrutiny in pursuance of the responsibilities of the education committee of the General Medical Council (GMC) under the 1983 Medical Act for coordinating all stages of medical education.

During a symposium organised in December 1984 by the Association for the Study of Medical Education it emerged that many medical teachers question the validity and purpose of research into medical education. The *Lancet* suggested that, whatever the medical school of origin and its curriculum, much the same sort of young doctor emerged at the start of the preregistration year.<sup>1</sup> Similarly many teachers of medical students, unaware of the

techniques now available for defining precisely educational objectives and for assessing whether or not these have been achieved, nevertheless make critical comments on current medical education based solely on their personal experience as teachers and on the perceived response of those they have taught, while being unwilling to subject the educational process they have provided to independent peer review and critical analysis. I shall return to this topic later.

### Historical background

The present era of basic medical education in the United Kingdom and in the United States of America began with the Flexner Reports of 1910 and 1912.

Flexner's analysis, reported in his bulletin no 4 of 1910,<sup>2</sup> justly criticised the inadequate staffing and laboratory and clinical facilities provided by many private medical schools in the USA, some of which were run as commercial enterprises by local practitioners. He contrasted these with the newly established hospital based schools, such as Johns Hopkins, where there were full time heads of clinical academic departments with responsibilities equally divided among teaching, research, and service to patients. His European survey of 1912 was equally critical of the inadequacy of clinical teaching and of research in Germany, while in Britain he commented unfavourably on the almost total divorce between teaching in the basic sciences and that in clinical disciplines.<sup>3</sup> In his view the system of honorary hospital appointments, with teachers being financially dependent on extramural practice, diminished the quality of clinical training and research. Nevertheless, not until after publication of the Goodenough Report in 1944 and the subsequent introduction of the National Health Service in 1948 did

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