

# Immunization, practice records and the white paper

ERIC PENNINGTON, BSc, MB

Trainee General Practitioner, Kings Norton, Birmingham

R.M.L. WILCOX, MRCGP

General Practitioner, Kings Norton, Birmingham

**SUMMARY.** *The accuracy of all immunization records for a cohort of two to three year olds, registered with one general practice, was investigated. Information was obtained from practice notes, the practice computer, the district health authority records and the parents of those children whose records indicated they had outstanding immunizations. The combined results revealed a rate for completed immunization schedules of 72%, but the rate recorded by the district health authority was only 40%. All the records were defective because the systems for exchange of data were not functioning properly. The government's white paper on primary health care links practice income to performance, and immunization rate is one index of this. On the basis of the district health authority records, this practice would be wrongly penalized.*

## Introduction

THE object of this study was to determine the immunization rate for a cohort of patients on one practice list on one day. At the same time, the efficiency of immunization recording was studied to assess the accuracy of practice and district health authority records. The government's proposals<sup>1</sup> that remuneration of general practitioners might become more dependent on services provided, such as immunization, means that it is essential that such records are complete and accurate. It has been stated that district health authority records are an accurate and representative estimate of the immunization rate for general practices and that the major error in accuracy is population drift in and out of an area, rather than failure to record or notify immunizations.<sup>2</sup>

The study practice has four full-time partners and a list size of approximately 8500. All the patients registered with the practice live within the boundaries of one urban health district where the annual turnover of population was 10.9% in 1987. Immunization is carried out by the practice nurse and by the local health clinic.

## Method

Data were taken from three sources: the computerized practice age-sex register, the patients' notes and the district health authority records. The sample population was those children aged two to three years who were registered with the practice on 19 August 1987. The uptake of diphtheria, tetanus and poliomyelitis vaccine (with or without pertussis) and the measles vaccine was studied. The practice computer produced a list of names which were entered as deficient in one or both of these immunizations and all the patients' notes were also examined. At the same time, the complete list of patients was given to the district health authority who produced a list of all the immunizations recorded for these children.

All the results were combined and the patients with immunizations not up to date were visited to check with their parents whether this was really the case. This produced a figure which should be close to the true immunization rate for the practice.

## Results

At the time of the study there were 156 children aged two to three years on the practice list. The details of their immunization records are shown in Table 1. It took 10 minutes to access the records from the practice computer, one week to search the practice notes, six weeks to obtain details from the district health authority and four months to visit the parents of patients whose records suggested that their immunizations were not up to date.

The computer failed to distinguish between patients who had not been immunized and those who had no records because they had recently joined the practice. Interestingly, the practice had information about more patients than the district health authority for all immunizations except measles. The practice's records included information about patients who had recently joined the practice. The district health authority recorded that only 40% of the schedules were complete while the practice computer recorded 51% and the practice notes 56%. Combining the results the figure rose to 71% and only two more immunization items were found by visiting the parents. The district health authority had 221 immunization items recorded, while the practice notes recorded 229 items and the combined figure was 268. The only errors found were false negatives.

The most important result was that only three children out of the cohort of 156 had received no immunization. The parents of two of these had made a deliberate choice which had been documented but the third had failed to attend without discussing this with the practice or the health clinic. All other defaulters

Table 1. Details of immunization records for 156 children.

	No. (%) of children				
	Practice computer	Practice notes	District health authority record	Combined results	After visiting patients
Measles vaccine carried out	93 (60)	95 (61)	103 (66)	126 (81)	128 (82)
DTP or DTP <sup>a</sup> vaccine completed	119 (76)	134 (86)	118 (76)	142 (91)	142 (91)
Complete schedule carried out	79 (51)	87 (56)	63 (40)	110 (71)	112 (72)
No immunizations recorded	3 (2)	3 (2)	3 (2)	3 (2)	3 (2)
No files/untraceable patient	—	10 (6)	15 (10)	3 (2)	3 (2)

<sup>a</sup> Diphtheria, tetanus and poliomyelitis, with or without pertussis.

had received parts of the immunization regimen. Only two immunization items reported by parents were not on any of the records and both of these patients had recently moved to the practice from outside the district health authority area.

### Discussion

In other practices levels of immunization vary from 80% for the triple vaccine and 40% for measles<sup>3</sup> to 84% overall.<sup>4</sup> The figures obtained in this study are similar to other published results.<sup>2-5</sup> However, a measles uptake of 81% in a practice in Fife failed to prevent a measles epidemic.<sup>6</sup> The World Health Organization recommends an uptake of 90% to prevent a measles epidemic and this practice is continuing to try to persuade patients to receive the measles vaccine.

This study has highlighted a number of problems inherent in a dual system for the provision of immunization and a triple system for recording child immunization data.

The practice notes were the most accurate source of information on immunization. This came as no surprise as these records are used to follow up opportunistically those children who have failed to attend for their original immunization programme. However, the practice notes were incomplete as information on some children immunized at the health clinic failed to reach the practice after being documented in the district health authority file.

Recently many practices have installed microcomputers in the hope that this will, among other things, improve their performance in the recall of immunization defaulters. This practice has a Ciba Geigy CGPMP system which provides an automated age-sex register, retaining all the accumulating errors of the manual card system. Other workers studying age-sex registers have found similar levels of error with different parameters. Both Fraser and Clayton,<sup>7</sup> and Sheldon and colleagues<sup>8</sup> found a 10% error in patient addresses compared with practice notes and concluded that age-sex registers will always contain a degree of inaccuracy.

Information on immunizations performed in child health clinics run by the district health authority is gathered on clinic returns for entry onto the authority's computer system. General practice information is entered on form FP73, and returned to the family practitioner committee who then forwards the forms to the district health authority for inclusion in the master record. At the time of this study, the district health authority was using a locally developed system which had no facility for sorting patients by general practitioner. When the patient list was presented to the health authority in this study, each name had to be keyed into the computer and the resulting information hand typed. This process took six weeks because of shortage of clerical staff. However, since this study, the district health authority has taken delivery of a new computer system, the national child health computer system. General practice immunization notifications will be sent direct to the health authority for inclusion in the record before payment is made by the family practitioner committee. It remains to be seen whether this will improve data storage and recall.

While this duplication of effort seems to have little effect on the rate of uptake of immunization,<sup>3,9</sup> it has a detrimental effect on record keeping. There is no benefit to child, general practitioner or district health authority in collecting and hoarding this data separately when its main purpose is to enable a recall system to identify and send for the defaulters.

As the district health authorities have a statutory obligation to keep comprehensive records on all children, it would seem reasonable that the master record should be maintained at district level, rather than being based on computerized practice records as some have suggested.<sup>10</sup> The record must be ac-

curate, up to date, and immediately accessible and correctable by the general practitioner. The practice computer would then not need to duplicate the storage of information, but would act as an interface with the master record held at the district health authority, thus avoiding duplication of data entry in different locations. This presupposes a standard data string, or better still, a standard general practice computer programme supplied and updated by the Department of Health and Social Security (as for G-PASS in Scotland).

The government's white paper on primary health care<sup>1</sup> proposes linking practice remuneration to efficiency and services provided. One measure of this would be uptake of immunization. In this study the district health authority figure of only 40% of immunizations being completed would imply, wrongly, that the practice is performing badly and this would be reflected in its remuneration.

In conclusion, poor record keeping, caused mainly by a triple system of data storage, provides a poor basis for immunization recall. This can only be rectified by a single, well maintained system of data storage, which the district health authority has an obligation to provide. This does not exist at present, and the practice computer best overcomes the deficiency.

### References

1. Secretaries of State for Social Services, Wales, Northern Ireland and Scotland. *Promoting better health (Cm 249)*. London: HMSO, 1987.
2. Mant D, Phillips A, Knightley M. Measles immunisation rates and the good practice allowance. *Br Med J* 1986; **293**: 995-997.
3. Naish A, Copeman R, Singer R, Mills A. Survey of immunisation in a North London practice. *Br Med J* 1983; **286**: 24-25.
4. Robinson PJ. Uptake of pre-school immunization in a rural practice. *J R Coll Gen Pract* 1983; **33**: 500-504.
5. Morgan M, Lakhani AD, Morris RW, et al. Parents' attitudes to measles immunization. *J R Coll Gen Pract* 1987; **37**: 25-27.
6. Walker D, Carter H, Jones I. Measles, mumps and rubella: the need for a change in immunisation policy. *Br Med J* 1986; **292**: 1501-1502.
7. Fraser RG, Clayton DG. The accuracy of age-sex registers, practice medical records and family practitioner committee registers. *J R Coll Gen Pract* 1981; **31**: 410-419.
8. Sheldon MG, Recher AC, Barnes PA. The accuracy of age-sex registers in general practice. *J R Coll Gen Pract* 1984; **34**: 269-271.
9. Anderson R. Uptake of measles vaccine in an army group practice. *Update* 1987; **35**: 1213-1220.
10. Aylett M. The computer as a monitor: child health and vaccinations. *Update* 1987; **35**: 1107-1114.

### Address for correspondence

Dr E. Pennington, 11 Wychall Lane, Kings Norton, Birmingham B38 8TE.

## MRCGP EXAMINATION – MAY/JULY 1989

The dates for the next examination are as follows:

Written papers: Tuesday 9 May 1989 at centres in London, Manchester, Edinburgh, Newcastle, Cardiff, Belfast, Dublin, Liverpool, Leeds, Birmingham and Bristol. Oral examinations: in London from 29 June to 8 July inclusive and in Edinburgh from 26 to 28 June inclusive. The closing date for applications is Friday 24 February 1989.

Further details and an application form can be obtained from the Examination Administrator, Royal College of General Practitioners, 14 Princes Gate, London SW7 1PU.