

# An opportunistic approach to rubella screening in general practice

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**SUMMARY.** *An opportunistic rubella screening programme in a general practice is described. Self-adhesive stickers placed on the medical records envelope were used to alert staff and to record information on rubella status. Out of the total target population of women aged between 10 and 40 years, three sample cohorts were audited: the 15, 20 and 30 years age groups. Between the first and second audits a practice policy on rubella immunization screening was implemented over a period of 11 months. After 11 months the proportions of 20- and 30-year-olds whose rubella status was known had risen from 50% to 88% and from 67% to 87% respectively. For the 15-year-old cohort, which would have been included in the schools immunization programme, the increase was negligible. Serological testing in the practice identified 24 women (7% of all those tested) who were seronegative and to date 19 of these women have been vaccinated. The screening method was shown to be simple and effective and to involve little extra staff time.*

## Introduction

THERE are still approximately 50 cases of congenital rubella per year in this country.<sup>1</sup> Consequences of maternal infection have recently been reviewed.<sup>2</sup> It is hoped that the vaccination policy in the UK will result in a decrease of congenital rubella, once a greater proportion of women have been vaccinated.<sup>3</sup> School vaccination programmes have been slow to achieve high levels of uptake and there has been marked regional variation in their success.<sup>4</sup> Between 1979 and 1981, the proportion of schoolgirls immunized rose from 73% to 84%.<sup>3</sup> However, a report from a Glasgow practice showed little difference in rubella status between male and female teenagers.<sup>5</sup> Local figures for Gloucester schools in 1981 show variations of vaccine uptake rate between 79% and 95%, with an average for the county of 84% (personal communication). What can be done in general practice to prevent congenital rubella? There have been several studies which have attempted to screen entire populations at risk within a practice.<sup>6,9</sup> Other studies have concentrated on sections of the at-risk group, for example, family planning attenders<sup>10-12</sup> and female employees.<sup>13</sup> A recent review of records in 29 practices showed an improvement in the recording of rubella immunity from a similar review two years previously, but in 60% of records there was still no information about rubella status.<sup>14</sup> In Gloucestershire 5% of antenatal patients were found to be seronegative (personal communication, local Public Health Laboratory Service).

How have practices attempted to screen their patients? Selective programmes of screening, such as antenatal and family planning attenders or new arrivals, will leave other women at risk. Postal invitations to women identified from age-sex registers often have inadequate response rates,<sup>7,8</sup> and the cost of postage is considerable.<sup>8</sup> Serological testing when offered immediately during a consultation appears to be very acceptable — one study showed 84% of family planning attenders agreed to this.<sup>11</sup>

An opportunistic approach seems most applicable to rubella screening. In one study 85% of women aged from 12 to 40 years were serologically tested in a period of 18 months.<sup>6</sup> In another, over three years, 85% of women were found to be rubella protected.<sup>9</sup> Tagging of notes by reception staff has been advocated as a means of reminding doctors and nurses to 'remember rubella' when women consult for other reasons.<sup>8,9</sup>

The pros and cons of vaccinating adult women without a serological test have been discussed.<sup>10</sup> The main worry about this approach is the possibility of teratogenicity should the vaccine be inadvertently given in early pregnancy. Recent reports suggest this does not cause congenital rubella,<sup>15</sup> but these findings may not apply to RA27/3 vaccine,<sup>3</sup> and the administration of any live vaccine in pregnancy seems unlikely to gain acceptance. It is preferable to test adult women first and only to vaccinate those found to be seronegative.

In the author's practice information on rubella status is present in a number of places in the patients' records. Every three months the Community Child Health Service notifies the practice of rubella vaccinations performed and also sends notification of any schoolgirl who fails to be vaccinated after two attempts through her school. The practice offers rubella vaccination to all girls, by postal invitation, at the age of 10 years. It is hoped that this policy will result in a higher overall uptake of vaccination, as compliance may be better at the younger age.<sup>3</sup> All vaccinations given are notified to the Family Practitioner Committee (FPC) and this should avoid duplication of work by the Community Child Health Service.

## Aims

The aims of the study were: to establish a rapid system for monitoring rubella status in the practice; to ensure 100% uptake of rubella vaccine in girls by the age of 15 years; to increase the percentage of women of childbearing age known to be 'rubella protected'; and to establish a programme that involves little extra time or finance.

## Method

The study was carried out in 1984 in a group practice in Gloucester, which has a list size of 7300 and three full-time partners, one trainee and two practice nurses.

A computer printout was requested from the FPC, listing all female patients from 10 to 39 years in date of birth order. This gave a total study population of 1800 women, divided into 30 one-year cohorts. Three sample cohorts were chosen for the audit: women aged 15 years, 20 years and 30 years. The 15- and 20-year-olds should have been vaccinated at school, but women aged 30 years would have left school before the vaccination programme was implemented.

## Recording rubella status

Self-adhesive pink stickers, placed on the top right hand corner of the records envelope, were used to record rubella status for all females aged 10-39 years inclusive. The sticker was marked as follows:

- 'V' Documented evidence of rubella vaccination
- 'S' Sterilized
- 'Neg' Seronegative for rubella
- 'Sero ref' Serological test refused after full discussion

A red and white chequered sticker marked 'Rub' was used for patients found to be seropositive for rubella.

Computerized records of rubella vaccination were available from the Community Child Health Service for girls aged between 10 and 17 years and the stickers on the records of these girls were marked 'V' before the first audit was made.

#### First audit — February 1984

For each of the sample cohorts, the patients' records were drawn by the reception staff and searched by the author for information on rubella status. Women whose records could not be found or who were no longer registered with the practice or who had not consulted for some time were excluded from the study. Women who had been vaccinated for rubella or who were seropositive or who had been sterilized were classified as 'rubella protected'. A husband's vasectomy was not included under sterilization, although it has been in other studies.<sup>9</sup> Women who were seronegative or who had no information on rubella status in their records were classified as 'rubella risk'.

During this and subsequent audits no stickers were placed on the records envelopes, so that the process of audit of the sample cohorts had no effect on the results. At each audit the time taken to search the notes was recorded.

#### Implementation of practice policy

The following practice policy was agreed:

1. Whenever records are drawn for any consultation reception staff are to add a blank pink sticker for any female patient between the ages of 10 and 39 years.
2. The blank sticker reminds the doctor or nurse to search the notes and mark the sticker accordingly. Only documented evidence of immunization or seropositivity is accepted.
3. If no information is found the subject of rubella is discussed with the patient, stressing that clinical diagnosis is an unreliable guide to immunity. Girls aged 10 to 14 years are offered vaccination immediately if it has not been done previously. Women aged 15 years or more are offered a serological test with immediate venepuncture if possible. Women declining a serological test are spared repeated enquiry by writing 'Sero ref' on the sticker. Reasons for refusal are recorded.
4. When a serological test result is received the records envelope is marked accordingly and the result is entered in a special book. This saves time when patients telephone for results.
5. Those found to be seronegative are informed by letter. When attending for vaccination they are warned to avoid pregnancy

for the next three months. Family planning advice is given as appropriate. Seronegative women who fail to attend for vaccination are followed up by further letters, phone calls or visits.

#### Second audit — December 1984

Eleven months after starting the project the records of the three sample cohorts were re-examined. The women were classified according to the stickers on the records envelope. If there was no sticker or a blank sticker, the classification was based on information in the records.

#### Results

Of the 181 women listed as being in the three sample cohorts, 20 were excluded for the reasons given earlier. The final composition of the cohorts was: 57 women aged 15 years, 50 aged 20 years and 54 aged 30 years. The three cohorts are not comparable and the results were therefore analysed separately. The significance of change between the first and second audits was tested by McNemar's test, which considers those women who changed status only. Results are expressed as chi-square with one degree of freedom.

The results for the 15-year-old group (Table 1) show a small rise in the number who were known to be rubella protected (two girls) ( $\chi^2 = 0.5$ , not significant). At the first audit a comparison was made between record of vaccination as obtained by the FPC computer list, and record of vaccination in the practice records. Using practice data alone 69% of the women were recorded as vaccinated. Using the computer list alone 74% were recorded as vaccinated. The two sources of data combined showed that 86% of the women were vaccinated at the first audit. The results for the 20-year-olds (Table 1) show that the percentage who were known to be rubella protected rose significantly from 50% to 88% ( $\chi^2 = 17.1$ ,  $P < 0.001$ ). The results for the 30-year-olds (Table 1) show that the percentage who were known to be rubella protected rose significantly from 67% to 87% ( $\chi^2 = 9.1$ ,  $P < 0.01$ ).

The first and second audits took eight and three hours to perform, respectively.

#### Serological test results

Over the 11-month study period, 342 serological tests were performed in the whole practice: 318 (93%) were positive and 24 (7%) were negative. Of the 24 women who were seronegative, 19 (79%) had been vaccinated by the end of the study period. Of the remaining five, two had refused vaccination because their husbands had undergone vasectomies and the other three were being followed up.

**Table 1.** Rubella status of the three cohorts of women. Numbers are shown with percentages in parentheses.

	15-year-olds (n = 57)		20-year-olds (n = 50)		30-year-olds (n = 54)	
	First audit	Second audit	First audit	Second audit	First audit	Second audit
<i>Rubella protected</i>						
Rubella vaccinated	49	47 <sup>a</sup>	3	4	1	1
Seropositive/sterilized	1	5	22	40	35	46
Total	50 (88)	52 (91)	25 (50)	44 (88)	36 (67)	47 (87)
<i>Rubella risk</i>						
Seronegative	0	0	0	0	0	0
Unknown status	7	5	25	6	18	7
Total	7 (12)	5 (9)	25 (50)	6 (12)	18 (33)	7 (13)

<sup>a</sup>Between the first and second audits two girls were serologically tested and found to be seropositive.

### Vaccination of girls under 15 years old

Of the 10- and 11-year-olds in the practice, 118 have been invited by post to attend for vaccination. Of these 100 (85%) had been vaccinated at the time of the second audit. A further nine girls between the ages of 12 and 14 years were found to have missed vaccination at their school and were vaccinated at the surgery.

### Discussion

After 11 months of this programme, the results are encouraging. Tagging the notes has made little extra work for reception staff. Inevitably on some occasions no sticker was placed on the notes and sometimes doctors and nurses failed to take action when a sticker was present. The offer of an immediate venepuncture was readily accepted by most women and the use of the stickers avoided repeated searching of notes once the rubella status of a patient was known. The choice of the red and white chequered sticker should ensure that our tagging for seropositivity is comprehensible to other practices should the patient move from the district.

The method of audit using three sample cohorts allowed us to use smaller numbers to assess the effect of the screening programme. Nothing was done during the audits of patients' records to influence subsequent action on the part of reception staff, doctors or nurses. The lack of any significant change in rubella status of the 15-year-olds was probably due to the high starting level of rubella protection in this group (88%). However, both the 20- and 30-year-old groups showed significant increases in the proportions of women known to be protected against rubella. It seems likely that the increases in the percentages of women whose rubella status was known for the sample cohorts will be reflected by similar increases in the cohorts which were not subject to audit. It may be more important to look at those women over the age of 27 years who will have missed the programmes of vaccination at school.

Serological testing in the practice as a whole revealed that 7% of women were seronegative, a slightly lower figure than that found by other authors, who have reported rates of 11%,<sup>7</sup> 12%<sup>16</sup> and 14%.<sup>11</sup> This may be because we tested adult women even if they were known to have been vaccinated when at school. Vaccination of women found to be seronegative is the vital stage of any rubella screening programme; so far 79% of these women have been vaccinated and this compares with a wide range of 33%<sup>10</sup> to 91%<sup>16</sup> achieved in other studies. Vigorous follow up is essential if the efforts of screening are not to be wasted.

Call up of 10- and 11-year-olds for rubella vaccination at the practice has been successful. Of 118 sent for, 100 have now been vaccinated (85%). Future visits to the surgery and the school rubella programme will hopefully ensure that most of the remainder are vaccinated. An annual audit of the 15-year-old cohort will allow identification of the small number of girls who have missed vaccination and these will be recalled and followed up.

Is the cost of a rubella screening programme prohibitive? In one study<sup>9</sup> it was estimated that it cost the practice £30.00 to identify and immunize a seronegative adult woman. It has been suggested that the Department of Health and Social Security should recognize the extra effort and expense involved in rubella screening by having a fee set at a higher level for the immunization of a seronegative adult woman<sup>8</sup> (the current fee is £3.20). In this study only £60.00 of extra income was generated by screening adult women, whereas £340.00 was generated by vaccinating girls under the age of 15 years. The time spent by staff

on the exercise was so spread out that it was difficult to calculate the expenditure. Income from the vaccination of 10- and 11-year-olds will go towards the costs of screening.

In conclusion, this opportunistic method of rubella screening seems to be easy to operate and has achieved rapid results. It is now a regular part of the preventive method of the practice and monitoring rubella status will be carried out by reception staff and practice nurses.

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