

Family doctor advice is the main determinant of pneumococcal vaccine uptake

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Pneumococcal disease is an important cause of avoidable morbidity and mortality. In Britain the estimated annual incidences of pneumococcal pneumonia, bacteraemia and meningitis are 100/10⁵, 7/10⁵ and 0.5/10⁵ respectively.^{1,2} Population aging, and the growing problem of antibiotic resistant pneumococci make these problems of increasing public health importance.³ The current 23-valent pneumococcal vaccine covers 96% of all serious infections,³ and is recommended for patients with chronic pulmonary disease, heart disease, renal disease, liver disease, immunodeficiency and immunosuppression, asplenia and severe splenic dysfunction, and diabetes.⁴ However, uptake is believed to be low, with one recent survey suggesting that only 4% of those at risk had been covered.⁵ We conducted a study of hospitalised patients with definite indications for pneumococcal vaccine to identify factors involved in the receipt or non-receipt of vaccine.

Subjects, methods and results

We surveyed patients admitted as medical emergencies (any cause) to the Emergency Admissions Unit of the Queen Elizabeth Hospital, a large teaching hospital in Birmingham, United Kingdom, prospectively between 2 April and 30 May 1998. Case records were used to identify patients with one or more chronic illnesses for which pneumococcal vaccine was currently recommended. A structured interview was then used to gather data on pneumococcal vaccine uptake (where given, by whom, and the reasons for receipt and non-receipt); details of recent health service contacts were also recorded. The interview schedule was piloted on 21 patients admitted as medical emergencies (any cause) to the same unit between 2 and 4 January 1998, after which minor amendments were made. During each interview, care was taken to avoid any possible confusion between pneumococcal and influenza vaccination. During the pilot study, patients' self reported vaccination histories were validated by telephone calls to general practitioners, and shown to be in complete agreement.

Analyses were performed using SPSS version 6.1.3. From a total of 466 consecutive patients, 384 case records (83%) were successfully screened; the remaining 82 records were missed because the patient was transferred to another hospital (n=15), discharged (n=55) or died (n=12) before screening could take place. Of 384 screened patients, 260 (68%) had indications for pneumococcal vaccine. Of these, 233 (90%) agreed to participate in the study.

Participants ranged from 21 to 97 years of age (19-44 = 28 (12%); 45-64 = 66 (28%); 65-74 = 53 (22%); 75-84 = 66 (28%); ≥85 = 20 (9%)), 106 (46%) were male, 39 (17%) non-white, 40 (17%) current smokers, and 100 (43%) previous smokers. Their indications for vaccine included chronic heart disease (n = 116 (50%)), chronic pulmonary disease (n = 110 (47%)), diabetes (n = 36 (15%)), chronic renal disease (n = 23 (10%)), immunodeficiency or immunosuppression (n = 9 (4%)), chronic liver disease (n = 8 (3%)) and asplenia or severe splenic dysfunction (n = 7 (3%)); 64 (27%) had more than one indication for vaccine. Their main reasons for hospital admission during April/May 1998 were pulmonary disease (n= 102 (44%)), cardiac disease (n = 87 (37%)), renal disease (n = 21 (9%)), diabetic emergencies (n = 8 (3%)), hepatic disease (n = 7 (3%)), haematological emergencies (n = 3 (1%)), malignancy (n = 3 (1%)), and anaemia with bleeding (n = 2 (1%)).

Of the 233 participants, 34 (15%) had been vaccinated; two more (1%) were unsure of their vaccination status. Two hundred and thirty subjects offered reasons for receipt or non-receipt of vaccine (table 1). Among recipients, the vast majority (85%) had done so because of advice received from their general practitioner. In comparison, less than 10% of patients had received advice from hospital

Table 1 Reasons for receipt and non-receipt of pneumococcal vaccine among 230 hospitalised patients with indications for vaccine

	Number	%
<i>Patients who did not receive vaccine</i>		
Main reason for non-receipt		
Unaware vaccine existed	150	76.5
GP had not recommended it	29	14.8
GP recommended, but patient refused	1	0.5
Fear of adverse reaction	4	2.0
Vaccine contraindicated due to current therapy	3	1.5
Could not be bothered	8	4.1
Did not think it would work	1	0.5
Total	196	100.0
<i>Patients who received vaccine</i>		
Main reason for receipt		
GP had recommended it	29	85.3
Advice from relatives	1	2.9
Advice from hospital staff	3	8.8
Advice from general practice nurse	1	2.9
Total	34	
<i>Where vaccine was administered</i>		
In general practice setting	25	73.5
In hospital	1	2.9
In residential home	8	23.5
Total	34	100.0
<i>Person administering vaccine</i>		
General practitioner	25	73.5
Hospital doctor	1	2.9
Nurse in general practice	7	20.6
Nurse in community	1	2.9
Total	34	100.0

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Accepted for publication 25 April 1999

staff. Similarly, general practitioners and practice nurses administered almost 95% of vaccine. The main reasons stated for non-receipt of the vaccine were lack of awareness that it existed (77%) or failure to receive a recommendation from the general practitioner (15%). Four patients had previously suffered an adverse reaction to influenza vaccine and were afraid of a similar response to pneumococcal vaccine; the vaccine was contraindicated for three others because of current chemotherapy or radiotherapy.

Of 233 patients, 229 (98%) had been hospitalised and 156 (67%) had attended a hospital outpatient clinic, at least once in the past five years (or since the onset of their vaccine defining illness if < 5 years). Only two persons (1%) had not attended their general practitioner in the past 12 months.

Comment

Although based on a series of hospitalised patients, virtually every unvaccinated person in this study represented a missed opportunity to deliver pneumococcal vaccine. This offers 57–87% protection against invasive disease (bacteraemia or meningitis) even though its effectiveness in high risk patients against pneumonia (in the absence of bacteraemia) is less firmly established.⁶ Vaccine uptake was 15%, representing a level of coverage similar to that seen for influenza vaccine in the United Kingdom in the late 1980s. This finding is consistent with the amount of pneumococcal vaccine currently distributed in the United Kingdom compared with other developed countries especially the USA.⁷ However, unlike annual

influenza vaccination, pneumococcal vaccine may be given opportunistically at any time of year. The patients in this study had come into contact with health care workers on many previous occasions, presenting opportunities to offer vaccine; however it is clear that many of these were missed and only one patient actually refused vaccine when offered it. As with influenza vaccination, our data highlight the pivotal influence of an offer from a member of the primary health care team, in determining whether pneumococcal vaccination takes place. Proactive management of pneumococcal vaccination in primary care settings could therefore help improve uptake. However, it is also clear that a large proportion of hospitalised patients could be opportunistically vaccinated against pneumococcal disease if this issue was considered before discharge.

Conflicts of interest: none.

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