The accuracy of age–sex registers in general practice

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SUMMARY. A 'point-prevalent evaluation' of the accuracy of the age–sex register (ASR) was undertaken in 10 general practices. The average ASR inflation rate was 4 per cent when compared with the Family Practitioner Committee (FPC) register (range 2.2–8.3 per cent) and 7.2 per cent when compared with the patients themselves (range 2.6–19.4 per cent). List deflation was no more than 2 per cent overall. There was a wide inter-practice variation in the accuracy of the ASR, and two of the factors that may be associated with this are the situation in an inner city renewal area and a large proportion of patients in the 20–40 years age group. When the patients were asked to verify the information contained on the ASR it was found that the address was incorrect for 10 per cent of patients (range 5.0–20.0 per cent) and the date of birth was incorrect for 5 per cent.

Before using it for research purposes, the ASR should be checked against the FPC register, and in view of our findings it should also be checked with a sample of the patients themselves to ensure a sufficiently accurate population denominator.

Introduction

IT is now widely accepted that the age–sex register (ASR) is an important tool in general practice for clinical care, education and research.[1] Several studies have demonstrated that such registers can become inaccurate to the point where their usefulness is doubtful.[2,3] Fraser and Clayton quantified the inaccuracies in the ASR and suggested procedurees for checking accuracy.[4]

As part of a continuing study concerning the accuracy of practice registers, we have carried out a 'point-prevalent evaluation' of the ASR in 10 general practices.

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Method

In 10 general practices in the Nottingham area, the practice ASR was compared with both the Family Practitioner Committee (FPC) register and with the patients themselves. The practices, all of which already kept an ASR, were volunteers with interests in teaching or research. They were drawn from inner-city, urban and rural areas around Nottingham.

Initially, we encouraged each practice to check its ASR against the patients' medical record envelopes in order to produce as accurate a practice register as possible. Random samples were then drawn from these corrected registers and checked against the FPC register. From those patients identified on both registers a further random 5 per cent sample was drawn, and the patients were contacted by questionnaire or by a personal visit to nonresponders to ascertain the accuracy of the information recorded in the practice register. Similarly, a random sample was drawn from those patients on the practice register but not identified on the FPC register and attempts were made to contact them by postal questionnaire or by visit if they failed to respond. Finally, a random sample of the FPC register was taken and checked against the practice ASR.

Results

The population in the 10 practices, as recorded by the FPC, was 83,544. From this total, a population of 13,477 patients was drawn from the study practices in random samples varying between 5 per cent in some practices to 100 per cent in one practice with a computerized register. Of this population, 12,956 patients (96.1 per cent) were identified on the FPC register and 521 (3.9 per cent) were not. Within the practices there was a range of 91.7 to 97.8 per cent of the sample found to be present on both registers (Table 1).

From the 12,956 patients who were identified on the FPC register, a random sample of 789 (6 per cent) was taken. A total of 732 patients (92.8 per cent) were contacted, either by questionnaire or visit, and found to be registered with the practice (Table 1); the remaining 57 patients (7.2 per cent) were not identified in the community. The range between practices varied from 80.6 to 100 per cent of those on both the practice ASR and the FPC register who were in fact present in the community and contacted.

A random sample of 71 patients (14 per cent) was then taken from the 521 patients who were not identified on the FPC register. The sample was spread evenly across all 10 practices. A total of 51 patients (71.7 per

Table 1. The results of checking the practice age–sex register (ASR) with both the Family Practitioner Committee (FPC) register and also with the patients themselves.

Practice (from FPC register)	List size	Sample taken from practice age–sex register		Random 5 per cent of patients on practice ASR and FPC register	
		Sample size	Percentage of patients positively identified on FPC register	Sample size	Patients not present in the community % (No.)
A	11,296	1,167	*91.7*	93	*19.4* (18)
B	5,530	5,562	*96.0*	74	*5.4* (4)
C	5,427	2,775	*97.4*	71	*0* (0)
D	10,517	459	*97.8*	92	*5.4* (5)
E	13,137	1,131	*95.8*	118	*5.1* (6)
F	4,228	370	*97.6*	63	*11.1* (7)
G	7,223	351	*97.2*	68	*5.9* (4)
H	11,765	580	*97.0*	65	*7.7* (5)
I	7,165	720	*96.7*	74	*6.8* (5)
J	7,256	362	*96.4*	71	*4.2* (3)
Total	83,544	13,477	*96.1*	789	*7.2* (57)

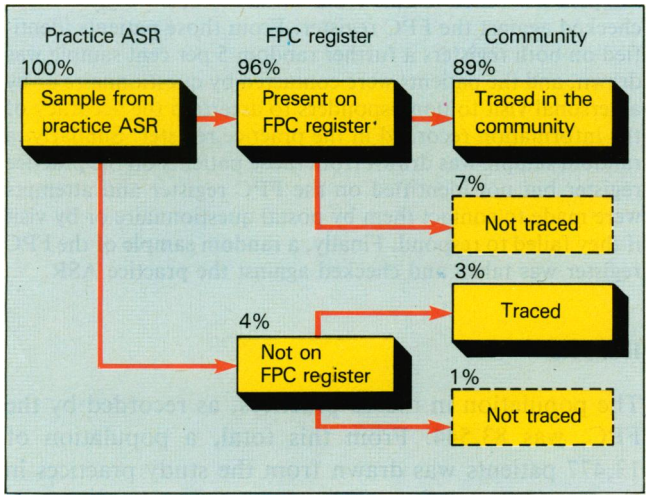

Figure 1. *Flow chart showing percentage of patients taken from the practice age–sex register (ASR) who were on the FPC register and also present in the community. Note: Results of all practices combined. All figures are expressed as a percentage of the original sample taken from the age–sex register.*

cent) were contacted as present in the community by questionnaire or visit, while the remaining 20 patients (28.2 per cent) were not traced.

The sample of 732 patients (5 per cent of total population) present on both a practice register and the FPC register, who were contacted in the community, were also asked to verify the accuracy of the information in the practice register. The address was said by the patient to be incorrect in 81 cases (11.1 per cent) with a range between practices of 5.3 to 20.6 per cent. The date of birth was said to be incorrect in 39 cases (5.3 per cent), the surname in seven cases (1 per cent) and the forename in 23 (3.1 per cent) of the sample contacted. These findings are summarized in Figure 1.

In a random sample of 810 (1 per cent) of the FPC register checked against the practice registers a total of 18 patients (2.2 per cent) could not be identified (range between practices from 0 to 4.2 per cent). In addition, the address was different in 105 cases (13 per cent) and the date of birth different in 25 (3.1 per cent).

Discussion

This was a point-prevalent evaluation in which efforts were made to minimize the time-lag between taking the sample from the practice ASR and checking at the Family Practitioner Committee. Errors due to time-lag should be small as each register was checked in a matter of weeks. In this study, the practice registers may be considered to be in the optimum state for several reasons: the practices were highly motivated and interested in using an ASR; a research assistant visited each practice regularly; each practice knew the registers were being evaluated; and we actively encouraged each practice to check their ASR against the medical record envelope to produce as accurate a practice register as possible.

When the practice registers were checked against the FPC register, less than 4 per cent of patients were not identified. The range between practices varied from 2.2 to 8.3 per cent and these findings are similar to those of Fraser and Clayton.[4] When the registers were then checked by selecting a sample of patients present on both a practice register and the FPC register, we were able to trace 92.8 per cent in the community (range between practices was from 80.6 to 95.8 per cent). This percentage is lower than the 95.3 per cent (range 91.4 to

Table 2. The accuracy of age-sex registers (ASR) and the Family Practitioner Committee (FPC) register for tracing patients present in the community.

	ASR present FPC present			ASR present FPC absent		
Reference	Sample size	Patients traced (%)	Patients not traced (%)	Sample size	Patients traced (%)	Patients not traced (%)
Fraser and Clayton[4]	1,397	*95.3*	*4.7*	61	*27.9*	*72.1*
Present study	789	*92.8*	*7.2*	71	*71.8*	*28.2*

97.8 per cent) found by Fraser and Clayton in their study of five Leicestershire teaching practices.[4] However, if two atypical practices are excluded from our figures, then our results match their findings. The first atypical practice (A), which is in an inner city area with a large immigrant population, has an active urban renewal scheme in progress. This practice also had the highest inflation rate (8.3 per cent) when the practice register was compared with the FPC register. The other atypical practice (F) is on a new estate with a high proportion of young married couples. The percentage of 20 to 44 year-olds in this practice was 46 per cent compared with the average in the other practices of 36 per cent. As Fraser and Clayton pointed out, most ASRs significantly over-represent the 21 to 40 years age group and any practice with a higher than normal proportion in this age group is likely to have a greater degree of register inflation. We would therefore confirm the usefulness of the register status of patients as a good predictor of their actual presence as *bona fide* practice patients, as first put forward by Fraser and Clayton.[4]

When attempting to contact those patients present on the practice register but not identified on the FPC register, rather surprisingly we traced 72 per cent as being still present in the community. These findings do not confirm those of Fraser and Clayton (Table 2),[4] but the numbers are small and may reflect some of the particular problems associated with urban practices.

When a sample from the FPC was checked against the practice ASR, the list deflation was found to be 2.2 per cent. If we assume that there was a 7 per cent inflation of the FPC register as found in the sample of patients taken from the FPC register and traced in the community, then the total list deflation would be no more than 2 per cent overall.

As in the study by Fraser and Clayton,[4] we checked the information contained in the practice register by contacting a sample of patients. We again verified that, even in the best kept practice register (recently checked against the medical record envelopes), the address is likely to be incorrect in 10 per cent of cases (with a range of 5 to 20 per cent incorrect in the different practices). We also confirmed that both the ASR and medical record envelope have an incorrect date of birth for 5 per cent of patients. We would recommend that practices interested in research should avail themselves of every opportunity to enable the patients to correct the details contained on their record envelope. The use of patient questionnaires has previously been shown to be helpful in this respect.[5]

This study has confirmed the wide degree of variation between the accuracy of practice registers in different practices, but has highlighted two areas where the register is likely to be too inaccurate to be acceptable—inner city renewal areas and practices with a large proportion in the 20 to 40 years age group.

These findings represent the best possible position for the practice register and we agree with the conclusions of Fraser and Clayton,[4] that a sample of each practice register must be checked against the FPC register and also with the patients themselves before it can be considered accurate enough to use for research purposes.

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