Recruitment methods for screening programmes: trial of an improved method within a regional osteoporosis study

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Non-attendance for health care is a common and expensive problem.[1-3] Ideally, a recruitment method should combine high compliance (the proportion of invited patients who attend) with a high attendance rate (the proportion of appointment slots used or slot coverage rate). We have suggested that a recruitment method combining open invitations with confirmable reminders achieves this.[3] We compared this suggestion with a standard appointment method[4] within a regional programme for osteoporosis.

Methods and results

Methods were similar to those of our first study.[3] Women were randomly recruited to screening by one of two methods.

Standard method—The initial letter offered a specific (fixed) appointment. The recipient was asked to contact the screening unit only if she wished to change or cancel her appointment. Reminder letters were open, asking non-respondents to contact the unit to make an appointment.

Improved method—The initial letter was open, asking the recipient to contact the screening unit to make an appointment. Reminder letters asked non-respondents to confirm a specified appointment or lose it.

The table shows the results. The difference in final compliance between methods (3%) was not significant (95% confidence interval for the difference −3% to 9%). However, the improved method achieved a slot coverage rate 18% higher than the standard method (12.7% to 21·7%).

Compliance and slot coverage rates by method of recruitment*

	Standard method	Improved method
	Before reminders	
No of women invited (slots available)	375	373
No (%) of slots allocated before reminders†	365 (97)	206 (55)
95% confidence interval (%)	95 to 99	50 to 60
Initial compliance:		
No (%) of women invited who attended	292 (78)	199 (53)
95% Confidence interval (%)	74 to 82	48 to 58
No (%) of wasted slots	73 (19)	7 (2)
Initial slot coverage rate (%)	80	97
95% Confidence interval (%)	76 to 84	93 to 99
	After reminders	
No (%) of slots available for reuse	10 (375−365) (3)	167 (373−206) (45)
No (%) of reminders issued‡	73 (365−292) (19)	167 (373−206) (45)
No (%) of slots allocated to reminders	10 (14)	89 (53)
No (%) scanned after reminders	7 (10)	87 (52)
95% Confidence interval	4 to 19	44 to 60
No (%) of wasted slots	3 (10−7) (1)	2 (89−87) (1)
	Results	
Final compliance:		
No (%) of women invited who attended	299 (80)	286 (77)
95% Confidence interval (%)	76 to 84	72 to 81
Final slot coverage rate (%)‖	80	98
95% Confidence interval (%)	76 to 84	93 to 99

*Number of slots used as a percentage of the number of slots available.
†For the standard method number of invitations issued minus number of cancelled appointments; for the improved method number of women contacting unit to confirm or make an appointment.
‡Reminders were sent only to women who did not respond; thus for the standard method women were sent reminders if they did not cancel and did not keep their appointment; for the improved method only women who did not make an appointment received reminders.
‖Total number of available slots minus total number of wasted slots as a percentage of the total number of available slots.

The opportunity cost of each method was calculated by multiplying the fixed slot cost (£19.50 and £19.90 for standard and improved methods respectively) by the annual number of slots left unused. The final slot coverage rate of the standard method was 80% (table); in a programme with 2250 screening slots available annually 456 slots (20%) would be wasted, costing £8890. But as the improved method has a slot coverage rate of 98% only 54 (2%) would be wasted each year at a cost of £1070. Thus the advantage of using the improved method is that 402 more women can have a screening test, equivalent to a financial benefit of £7820.

Three extra financial costs are incurred with the improved method. Firstly, more secretarial time is needed to answer the telephone, reflected in a fixed slot cost of £19.90 compared with £19.50 for the standard method; thus the improved method would result in additional annual secretarial costs of £900 (2250 × £0·40). Secondly, the improved method needs more reminders (45%, 167 out of 373 women) than the standard method (19%, 73 out of 375 women); this would result in an extra annual reminder cost of £164 (0·26 × 2250 × £0·28). Thirdly, more open invitations would need to be sent than the number of slots available because the improved method would otherwise leave 21% of slots unused (calculated by taking the number of slots allocated to reminders from the number of slots available for reuse) (table); 859 extra open invitations would have to be issued at an annual cost of £240 (2250 × 0·21/0·55 × £0·28). Thus there would be a net administrative cost of £1300 to offset the benefit of £7820.

Comment

Non-attendance has important resource implications for screening programmes. Response rates to breast screening can be as low as 50%, resulting in substantial wasting of resources.[5] However, our results show that a recruitment method combining an open invitation with a confirmable reminder achieves high compliance at lower cost. We also tested a recruitment method that combined an initial confirmable invitation followed by an open reminder. This combination, however, resulted in worse compliance and greater wasting of resources than occurred with the standard method.

By combining open invitations with confirmable reminders screening programmes could be offered to larger populations, thereby detecting more disease within current resources.

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