Review: recall or reminder systems improve the rate of childhood and adult immunisation

Szilagyi PG, Bordley C, Vann JC, et al. *Effect of patient reminder/recall interventions on immunization rates: a review.* JAMA 2000 Oct 11;284:1820-7.

QUESTION: Can postal or telephone systems designed to remind patients that they are due or overdue for immunisation improve the rate of completed immunisation?

Data sources

Studies were identified by searching Medline, EMBASE/Excerpta Medica, PsycINFO, Sociological Abstracts, and CAB Health Abstracts from their inception through 1998. Bibliographies of studies and review articles and conference proceedings were scanned and personal files were searched.

Study selection

English language randomised controlled trials (RCTs), controlled before after studies, and interrupted times series studies were included if a patient recall system was evaluated and reported as primary research, the studies used common national or international childhood or adult approved vaccinations, and rates of completed immunisations were given.

Data extraction

Data were extracted on study quality, patient characteristics (age, practice setting, date of study, and type of vaccination), type of reminder or recall intervention (postcard, letter, telephone, autodialer, or combination), frequency of intervention (single or multiple), and rate of immunisation. Data were reported as odds ratios (ORs) for being up to date or having received vaccinations as recommended if one received a reminder.

Main results

Of the 41 studies that met the inclusion criteria, 33 (80%) showed that recall or reminder systems improved the rate of immunisation. Recall or reminder systems were effective for routine childhood vaccinations (universal), childhood influenza vaccination (targeted at high risk children), adult pneumococcal and tetanus vaccinations, and adult influenza vaccination (table). All formats were effective, with telephone being the most effective (8 RCTs, OR 5.52, 95% CI 3.90 to 7.79) and autodialers being the least (4 RCTs, OR 1.51, CI 1.18 to 1.93). Multiple reminders (9 RCTs, OR 2.82, CI 1.57 to 5.06) were somewhat more effective than single reminders (31 RCTs, OR 2.18, CI 1.75 to 2.71), but were more expensive. 15 studies provided data on costs. Costs varied but were often in the range of US\$1 per participant. Cost effectiveness data showed that the range of costs for each additional appropriately vaccinated participant ranged from <\$10 to >\$316.

Conclusions

Reminder or recall systems improve both childhood and adult immunisation rates. Telephone reminders and

multiple reminder systems are most effective. Costs vary, but data show that the systems can be cost effective.

Reminder or recall systems to improve the rate of immunisation

Vaccination type	Number of RCTs	Odds ratio (95% CI)*
Routine childhood (universal)	14	2.02 (1.49 to 2.72)
Childhood influenza (targeted high risk)	2	4.25 (2.10 to 8.60)
Adult pneumococcal or tetanus	5	5.14 (1.21 to 21.8)
Adult influenza	18	2.29 (1.69 to 3.10)

*Odds ratio for being up to date or having received vaccinations.

COMMENTARY

Immunisation coverage levels are not yet optimal for children and are even lower for adults and disadvantaged populations. As a result, vaccine preventable diseases still occur. Because many patients cannot remember the recommended immunisation schedule, it falls on primary care practitioners to ensure that their patients receive immunisations on a timely basis. This systematic review by Szilagyi *et al* summarises the current research on the effect of patient reminder systems in improving immunisation rates.

The high quality of this systematic review is evident in its comprehensive search for studies, evaluation of studies for quality, separate meta-analyses of results for type of reminder or recall intervention, adult and child age groups, and type of vaccination. The findings support the recommendation that patient reminder or recall systems should be considered to improve immunisation coverage rates. The review found that reminders or recall were effective for both children and adults, in all types of healthcare settings, and for both universal and targeted vaccinations. Although telephone reminders were most effective, they were also most costly and had not been studied extensively in children.

The review suggests many options in which the process of reminders can be used in conjunction with other health promotion opportunities. For example, the use of reminders in the elderly and those with chronic problems such as asthma would be particularly beneficial because of their special needs and the large potential benefits. The immunisation visit might provide an opportunity to deliver other preventive care. Also, patients may appreciate being reminded, and this may enhance the patient caregiver relationship. The authors suggest that the next step is for those who work in primary healthcare settings to consider the practical issues relevant to choices of reminder and recall systems such as characteristics of computer support, staffing, accuracy of patient telephone numbers or addresses, availability of computer programmers, and estimated patient responsiveness to different types of reminders.

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