

Review: Patient reminder or recall systems improve immunization rates

Szilagyi P, Vann J, Bordley C, et al. **Interventions aimed at improving immunization rates.** *Cochrane Database Syst Rev.* 2002;(4):CD003941 (latest version 23 Aug 2002).

QUESTION

Are patient reminder or recall systems effective in improving immunization rates?

DATA SOURCES

Studies were identified by searching MEDLINE, EMBASE/Excerpta Medica, PsycINFO, Sociological Abstracts, CAB Health Abstracts, and the EPOC register; scanning reference lists of relevant studies and reviews; reviewing abstracts and proceedings from scientific meetings; and contacting study collaborators.

STUDY SELECTION

Studies were selected if they were randomized controlled trials (RCTs), controlled before-and-after studies, or interrupted time series studies published in English that evaluated reminder or recall interventions aimed at reminding patients of immunization visits that were due (reminder) or overdue (recall).

DATA EXTRACTION

Data were extracted on patient age (newborn to adult); setting (academic, public health, or private); intervention delivery (letter, postcard, telephone, autodialer, or in person), specificity (generic or personal reminders), and number (1-time or multiple reminders);

and vaccination schedule. Study quality was assessed (allocation concealment, blinding, follow-up, reliable primary outcome measure, and protection against contamination). Outcomes were immunization rates or the proportion of the target population that was up to date on recommended immunizations.

MAIN RESULTS

41 studies met the selection criteria. The interventions included letters (21 studies), postcards (8 studies), telephone calls (7 studies), autodialer (4 studies), postcard plus phone call (1 study), and tracking and outreach (2 studies). 7 studies also evaluated provider and patient reminders combined. 37 RCTs (38 comparisons: 15 in children and 23 in adults) were included in a meta-analysis. Patients who received the reminder or recall intervention were more likely to be immunized or up-to-date with immunizations than were patients who did not receive the intervention (Table). The greatest

improvement in immunization rates was seen with person-to-person telephone reminders (odds ratio [OR] 5.52, 95% CI 3.90 to 7.79). Reminder or recall systems were similarly effective in increasing immunization rates in children and adults and were effective for most types of vaccine (general [OR 2.49, CI 1.83 to 3.38], childhood influenza [OR 4.25, CI 2.1 to 8.6], and adult [age \geq 65 y] influenza [OR 2.25, CI 1.45 to 3.50]). Single and multiple reminders were similarly effective.

CONCLUSION

Patient reminder or recall systems are effective in improving immunization rates.

Source of funding: Centers for Disease Control and Prevention.

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Immunization rates for reminder or recall intervention vs no intervention (38 comparisons)*

| Weighted event rates | | RBI (95% CI) | NNT (CI) |
|----------------------|-----------------|-----------------|-------------|
| Intervention | No intervention | | |
| 42% | 27% | 79% (57 to 104) | 7 (6 to 10) |

*Abbreviations defined in Glossary; RBI, NNT, and CI calculated from data in article using a random-effects model. Follow-up ranged from 1 week to 2 years.

COMMENTARY

Vaccines revolutionized the prevention of infectious disease in the 20th century. Among the greatest remaining challenges in dealing with vaccine-preventable disease is developing effective strategies for implementing vaccine programs.

The systematic review by Szilagyi and colleagues emphasizes the value of communicating with patients and indicates that practice-based strategies can increase immunization rates. This evidence is consistent with the recommendation of the National Immunization Program of the Centers for Disease Control and Prevention for using reminder systems to increase immunization rates (1).

Effectively using recall or reminder systems relies on the ability to monitor patients' immunization status and activate the system when an immunization is due. Immunization registries, which are confidential, computerized databases allowing records linkage and interactive tracking of vaccine delivery and receipt, are efficient means of monitoring immunization status (1). However, only about one quarter of children in the United States were included in active immunization registries in 2001 (2), which probably diminishes the optimal implementation and effectiveness of immunization recall or reminder systems.

The results of this meta-analysis should be interpreted cautiously. Cumulative immunization rates were only 27% in nonintervention

groups and 42% in those receiving recalls or reminders. 42% is disappointing. Despite analysis by baseline immunization rate, it remains unclear if recall or reminder systems are effective at optimizing coverage in populations with lower rates of immunization.

Overall immunization rates and use of immunization registries in the United States fall short of the Healthy People 2010 goals (3). Additional information on the effectiveness of immunization recall and reminder systems stratified by personal disease risk, use and type of immunization registry enrollment, and other patient and provider factors would be welcome in order to use these systems in the best way.

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3. U.S. Department of Health and Human Services. *Healthy People 2010*. 2d ed. Washington, DC: U.S. Government Printing Office, November 2000. www.healthypeople.gov/Document/tableofcontents.htm#volume1.