Reminder sent by mail to increase adherence to influenza vaccination

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Abstract

Introduction

Different interventions have been proposed to improve influenza vaccine coverage. The use of reminders, through letters, phone calls, pamphlet or technological applications, among others, has stood out among the different alternatives to increase adherence to vaccination. However, its effectiveness is not clear. In this summary, the first of a series of evaluation of reminders will address the use of a reminder sent by mail.

Methods

we search in Epistemonikos, the largest database of systematic health reviews, which is maintained by screening multiple sources of information, including MEDLINE, EMBASE, Cochrane, among others. We extracted the data from the identified reviews, analyzed the data from the primary studies, performed a meta-analysis and prepared a summary table of the results using the GRADE method.

Results and conclusions

We identified eight systematic reviews that included 35 primary studies, of which 32 correspond to randomized trials. We concluded that a reminder sent by mail, probably increases adherence to influenza vaccination in all age groups (adult population, over 60 and under 18).

Problem

Influenza is an acute respiratory disease caused by the influenza virus that can be prevented with a seasonal vaccine. Despite this, it remains an important cause of morbidity and mortality [1] since it is estimated that annual influenza epidemics cause 3-5 million serious cases and 290,000 to 650,000 deaths[2]. Additionally, these are associated to school and work absenteeism, generating substantial productivity losses[2].

Various interventions have been proposed to increase the use of the influenza vaccine. Reminders can be provided through different communication channels: letters, phone calls, pamphlet or technological applications, among others. This article is part of a series

evaluating the use of reminders and will focus particularly on sending, via traditional mail, a letter, postcard or brochure type reminder.

Key messages

- A reminder sent by mail probably increases adherence to influenza vaccination in the general population of any age group.

About the body of evidence for this question

What is the evidence. See evidence matrix in Epistemonikos later	We found eight systematic reviews[3-10] which included 35 primary studies in 34 references[11-44] of which, 32 are randomized trials reported in 31 references[11-41]. Five trials were excluded[16,18,21,33,35] because they included co-interventions to increase influenza vaccination. Two trials were excluded[19,24] because the intervention consisted of two or more letters as a reminder. In addition, observational studies[42-44] did not increase the certainty of existing evidence, nor did they provide additional relevant information. Finally, this table and the summary in general are based on 25 trials reported in 24 references[11-15,17,20,22,23,25-32,34,36-41].
What types of patients were included*	The trials included a total of 589,144 participants of all ages, including children over six months to adults over 65 years. All included participants were targeted from population at risk, with the exception of two trials, targeted to the general population[23], and to the beneficiaries of a health insurance[28]. Five trials included children[19,22,24,25,41], 14 trials included older adults[11-13,17,20,27,29,32,31,34,37-39] (over 60 years old) and the rest of the trials included population of any age. In general, the trials excluded participants who had already received the vaccine prior to the start of the trial, with egg allergy or participants living in nursing homes.
What types of interventions were included*	All trials evaluated the use of mail reminders in the form of postcard[11-13,15,20,26,27,34,36], letter[14,17,22,23,25,28,29,31,37-41] or pamphlet[30,31]. All included trials compared against usual medical care.
What types of outcomes were measured	The systematic reviews identified only evaluated adherence to treatment (influenza vaccination rate). The average follow-up of the trials was five months and 12 days (range from two weeks to 12 months).

* The information about primary studies is extracted from the systematic reviews identified, unless otherwise specified.

Methods

We searched in Epistemonikos, the largest database of systematic reviews in health, which is maintained by screening multiple information sources, including MEDLINE, EMBASE, Cochrane, among others, to identify systematic reviews and their included primary studies. We extracted data from the identified reviews and reanalyzed data from primary studies included in those reviews. With this information, we generated a structured summary denominated FRISBEE (Friendly Summary of Body of Evidence using Epistemonikos) using a pre-established format, which includes key messages, a summary of the body of evidence (presented as an evidence matrix in Epistemonikos), meta-analysis of the total of studies when it is possible, a summary of findings table following the GRADE approach and a table of other considerations for decision-making.

Summary of findings

The information on the effects of a single mail reminder is based on 25 randomized trials that included 589,144 participants[11-15,17,20,22,23,25-32,34,36-41].

The summary of findings is the following:

- A single mail reminder probably increases adherence to influenza vaccination in a population between 18 and 65 years.
- A single mail reminder probably increases adherence to influenza vaccination in people over 60.
- A single mail reminder probably increases adherence to influenza vaccination in a population under 18.

Single mail reminder for influenza vaccination

Patients Adult population, over 60 years old or under 18 years old.
Intervention Single mail reminder (any format).
Comparison No reminder(usual medical care).

Outcome	Absolute effect*		Relative effect (95% CI)	Certainty of evidence (GRADE)
	WITHOUT reminder	WITH reminder		
	Difference: patients per 1000			
Adherence to vaccination in population between 18 and 60 years.	170 per 1000	233 per 1000	RR 1.37 (1.24 to 1.50)	⨁⨁⨁◯[1] moderate
	Difference: 63 more (Margin of error: 41 to 85 more)			
Adherence to vaccination in people over 60 years.	540 per 1000	740 per 1000		⨁⨁⨁◯[1] moderate
	Difference: 200 more (Margin of error: 130 a 270 more)			
Adherence to vaccination in children under 18 years.	510 per 1000	699 per 1000		⨁⨁⨁◯[1] moderate
	Difference: 189 pore (Margin of error: 122 to 255 more)			

Margin of error: 95% confidence interval (CI).
RR: Risk ratio.
GRADE: Evidence grades of the GRADE Working Group (see later).

*Risks **WITHOUT remind**er for the population under 18 and over 65 were obtained from data collected by WHO for Europe [50] and Latin America [51]. The risk of vaccination in the adult population was estimated from a representative primary study [23]. The risk **WITH reminder** (and its margin of error) is calculated from the relative effect (and its margin of error).

[1] The certainty of the evidence was downgraded one level for inconsistency since different trials reached to different conclusions (I^2 = 98%).

Follow the link to access the interactive version of this table (*Interactive Summary of Findings* - iSoF)

About the certainty of the evidence GRADE)*

⊕⊕⊕⊕
High: This research provides a very good indication of the likely effect. The likelihood that the effect will be substantially different† is low.

⊕⊕⊕◯
Moderate: This research provides a good indication of the likely effect. The likelihood that the effect will be substantially different† is moderate.

⊕⊕◯◯
Low: This research provides some indication of the likely effect. However, the likelihood that it will be substantially different† is high.

⊕◯◯◯
Very low: This research does not provide a reliable indication of the likely effect. The likelihood that the effect will be substantially different† is very high.

* This concept is also called 'quality of the evidence' or 'confidence in effect estimates'.

† Substantially different = a large enough difference that it might affect a decision

Other considerations for decision-making

To whom this evidence does and does not apply

The conclusions of this summary apply to the general population, which includes children and older adults.
The evidence presented in this summary should not be extrapolated to participants allergic to influenza vaccine components.
These conclusions can be applied to any type of reminder via written mail, including letters, brochures and postcards.

About the outcomes included in this summary

The selected outcomes are those considered critical for decision making, according to the opinion of the authors of this summary. They also coincide with those evaluated by the systematic reviews identified.

Balance between benefits and risks, and certainty of the evidence

A reminder via mail (independent of its format) probably increases adherence to vaccination.

No differences in effectiveness were found in the different age ranges, in relative terms. So, the absolute effect of the intervention depends on the baseline probability of being vaccinated, where in older adults the benefit is greater (200 more), followed by children under 18 (186 more) and finally in population between 18 and 65 years (63 more).

However, there are certain limitations associated with the intervention evaluated, since the studies used pamphlet, letter or postcard reminders, varying both in the presentation of the information and in its content (not reported). This heterogeneity in the intervention could explain the inconsistency found in the results (I2 = 98%).

It should be noted that this is an intervention that should not pose any risk to the patient.

Resource considerations

The costs of this intervention are highly variable depending on the type of reminder and context in which they are used.

Notwithstanding the intervention presents a favorable risk/benefit ratio, the cost-effectiveness may vary depending on the format and channel of delivery of the reminder.

What would patients and their doctors think about this intervention

In general, the use of reminders to prevent disease and promote health are well received by the population, especially when there are no direct associated costs for the patient.

From the point of view of health workers or providers, the use of reminders would allow to implement an effective preventive measure in the general population or in high-risk populations[8].

However, there may be some concerns regarding the use of vaccines in certain sectors of the population with particular values and preferences (lifestyle, religion, perceived lack of effectiveness or adverse effects, among others). This could influence decision making when assessing applicability and effectiveness of the intervention.

Differences between this summary and other sources

The conclusions of this summary are consistent with those found by the systematic reviews identified[3-10]. In general, the evidence supports the use of mail reminders.

The Task Force on Community Preventive Services[45] and Standards for immunization practices[46] guidelines recommend the use of reminders to increase adherence, but without specifying the type or format of the reminder. The American Academy of Pediatrics[47] suggests that efforts should be devoted to the scope and infrastructure necessary to achieve optimal distribution of vaccines, so that more people are immunized.

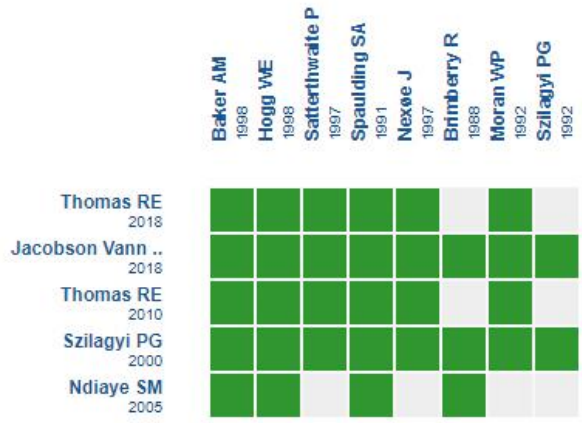
Could this evidence change in the future?

The probability that the conclusions of this summary change if new research appears in the future are low, because of the certainty of the existing evidence.

We identified one ongoing systematic review in PROSPERO database[48] and one trial in the International Clinical Trials Registry Platform[49] of the World Health Organization. They could provide additional relevant information regarding the effectiveness of the use of mail reminders.

How we conducted this summary

Using automated and collaborative means, we compiled all the relevant evidence for the question of interest and we present it as a matrix of evidence.



An evidence matrix is a table that compares systematic reviews that answer the same question.
Rows represent systematic reviews, and columns show primary studies.
The boxes in green correspond to studies included in the respective revisions.
The system automatically detects new systematic reviews including any of the primary studies in the matrix, which will be added if they actually answer the same question.

Follow the link to access the **interactive version:** Recordatorios mediante cartas paraaumentar la adherencia a la vacunación contra la influenza en población general.

Notes

The upper portion of the matrix of evidence will display a warning of "new evidence" if new systematic reviews are published after the publication of this summary. Even though the project considers the periodical update of these summaries, users are invited to comment in *Medwave* or to contact the authors through email if they find new evidence and the summary should be updated earlier.

After creating an account in Epistemonikos, users will be able to save the matrixes and to receive automated notifications any time new evidence potentially relevant for the question appears.

This article is part of the Epistemonikos Evidence Synthesis project. It is elaborated with a pre-established methodology, following rigorous methodological standards and internal peer review process. Each of these articles corresponds to a summary, denominated FRISBEE (Friendly Summary of Body of Evidence using Epistemonikos), whose main objective is to synthesize the body of evidence for a specific question, with a friendly format to clinical professionals. Its main resources are based on the evidence matrix of Epistemonikos and analysis of results using GRADE methodology. Further details of the methods for developing this FRISBEE are described here (http://dx.doi.org/10.5867/medwave.2014.06.5997)

Epistemonikos foundation is a non-for-profit organization aiming to bring information closer to health decision-makers with technology. Its main development is Epistemonikos database

www.epistemonikos.org.

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