Cochrane for Clinicians

Putting Evidence into Practice

Influenza Vaccination of Health Care Personnel Working with Older Patients

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The Cochrane Abstract on the next page is a summary of a review from the Cochrane Library. It is accompanied by an interpretation that will help clinicians put evidence into practice. Drs. Hitzeman and Dyer present a clinical scenario and question based on the Cochrane Abstract, followed by an evidence-based answer and a critique of the review. The practice recommendations in this activity are available at http://www.cochrane.org/reviews/en/ab005187.html.

EB CME

This clinical content conforms to AAFP criteria for evidence-based continuing medical education (EB CME). See CME Quiz on page 755.

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Clinical Scenario

Mary, a 49-year-old family physician, has been informed that she and other health care personnel at a nursing home should be immunized for the upcoming seasonal influenza. She is uncertain about the benefits of the vaccine.

Clinical Question

Does seasonal influenza immunization of health care personnel reduce the incidence of influenza and its complications in older residents at long-term care facilities?

Evidence-Based Answer

Currently, there is no high-quality evidence to support the immunization of health care personnel in long-term care facilities to reduce the spread of seasonal influenza to older residents.[1] Immunization of personnel did reduce influenza-like illness and all-cause mortality in the residents; however, given limitations in study design, it is possible that this was not causally related to personnel immunization. (Strength of Recommendation = B, based on inconsistent or limited-quality patient-oriented evidence)

Practice Pointers

Despite vaccination campaigns, nearly 36,000 Americans die from influenza each year.[2] In addition to following meticulous hygiene, health care personnel are increasingly being encouraged or required to get the influenza vaccination in hopes of protecting their patients.

Until the 2009 to 2010 influenza season, the yearly vaccination rate of health care personnel had not exceeded 49 percent for two decades.[3] Given the epidemic of novel influenza A (H1N1) virus, there has been renewed interest in influenza vaccination of health care personnel. With more mandates from employers and strong recommendations from public health officials to have these personnel vaccinated, it is reasonable to ask how protective this is for their patients.

The authors of this Cochrane review examined whether the vaccination of health care personnel protects older residents in long-term care facilities against influenza and its complications.[1] Four cluster–randomized controlled trials (i.e., facilities were randomized instead of individual participants) and one cohort study were included. The authors found that vaccination of personnel had no effect on the incidence of laboratory-proven influenza, pneumonia, admissions to the hospital, and death from pneumonia. However, vaccination did reduce influenza-like illness and all-cause mortality in residents. These differences may be caused by biases in study design, such as failure to blind participants, a high prevalence of noninfluenza pathogens, and varying participation rates of personnel. The authors concluded that there is insufficient evidence to support the vaccination of health care personnel as a method to protect older patients from influenza.

A Cochrane review analyzed 75 studies regarding the clinical effectiveness of the influenza vaccine in the general population of older persons.[4] The review was inconclusive, but 74 of the included trials were observational studies of poor quality. The single, double-blind randomized controlled trial included 1,838 older patients in the Netherlands in whom vaccination reduced the incidence of serologic and clinical influenza

Cochrane Abstract

Background: Health care personnel influenza rates are unknown, but may be similar to the general public and they may transmit influenza to patients.

Objectives: To identify studies of vaccinating personnel and the incidence of influenza, its complications, and influenza-like illness in patients 60 years and older in long-term care facilities.

Search Strategy: We searched CENTRAL (*The Cochrane Library* 2009, issue 3), which contains the Cochrane Acute Respiratory Infections Group's Specialised Register, Medline (1966 to 2009), EMBASE (1974 to 2009), and Biological Abstracts and Science Citation Index-Expanded.

Selection Criteria: Randomized controlled trials (RCTs) and non-RCTs of influenza vaccination of personnel caring for patients 60 years and older in long-term care facilities and the incidence of laboratory-proven influenza, its complications, or influenza-like illness.

Data Collection and Analysis: Two authors independently extracted data and assessed risk of bias.

Main Results: We identified four cluster-RCTs (C-RCTs; n = 7,558) and one cohort (n = 12,742) of influenza vaccination for personnel caring for patients 60 years and older in long-term care facilities. Pooled data from three C-RCTs showed no effect on specific outcomes: laboratory-proven influenza, pneumonia, or deaths from pneumonia. For nonspecific outcomes, pooled data from three C-RCTs showed personnel vaccination reduced influenza-like illness; data from one C-RCT showed that personnel vaccination reduced primary care consultations for influenza-like illness; and pooled data from three C-RCTs showed reduced all-cause mortality in patients 60 years and older.

Authors' Conclusions: No effect was shown for specific outcomes: laboratory-proven influenza, pneumonia, and death from pneumonia. An effect was shown for the nonspecific outcomes of influenza-like illness, primary care consultations for influenza-like illness, and all-cause mortality in patients 60 years and older. These nonspecific outcomes are difficult to interpret because influenza-like illness includes many pathogens, and winter influenza contributes less than 10 percent to all-cause mortality in patients 60 years and older. The key interest is preventing laboratory-proven influenza in patients 60 years and older, pneumonia, and deaths from pneumonia, and we cannot draw such conclusions. The identified studies are at high risk of bias.

Some health care personnel remain unvaccinated because they do not perceive risk, doubt vaccine effectiveness, and are concerned about adverse effects. This review did not find information on co-interventions with personnel vaccination: hand washing, face masks, early detection of laboratory-proven influenza, quarantine, avoiding admissions, antivirals, and asking personnel with influenza-like illness not to work. We conclude there is no evidence that vaccinating personnel prevents influenza in older residents in long-term care facilities. High-quality RCTs are required to avoid risks of bias in methodology and conduct, and to test these interventions in combination.

by almost one half.[5] However, this effect was diluted by combining it with other lower-quality studies in the meta-analysis.

An observational study at Northern California Kaiser demonstrated how inherent biases can skew results in influenza vaccination studies.[6] For a duration of four years, the authors studied the association between vaccination and mortality in older patients outside of the influenza season. Of the nearly 400,000 patients observed, mortality differed significantly between those who were vaccinated and those who were not—but this mortality difference occurred outside of the influenza season. The conclusion is that the cohorts were not comparable, and that these types of observational influenza studies are laden with biases. Perhaps the main take-home message is that large meta-analyses that include many low-quality studies are less helpful than a few well-designed studies.

Policy makers are committed to large-scale influenza vaccination, and the Advisory Committee on Immunization Practices recommends vaccination of health care personnel.[7] New York recently passed a law requiring seasonal influenza vaccination of health care personnel.[8] The influenza vaccine has an excellent safety profile, which is reported by the Centers for Disease Control and Prevention and the Vaccine Adverse Event Reporting System.[4,7]

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