Use of a State Regulation for Adult Vaccination

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Background: Influenza and pneumococcal disease are major causes of vaccine-preventable death among the elderly. In an effort to raise immunization rates, New Jersey in 1999 adopted a regulation requiring hospitals to offer pneumococcal and influenza vaccinations to all inpatients aged 65 and over. This study examined the effect of implementation strategies on immunization rates within hospitals in 2000 and 2001.

Methods: Hospital infection control directors were surveyed and random chart review was conducted from a stratified sample of hospitals. The infection control director's assessment of their institution's success was a major outcome measure.

Results: Relatively few respondents thought their hospital has been successful in implementing new immunization protocols. Approximately 67% responded that they did not think physicians agreed with the "scope and nature" of the regulation. Physician attitudes led the list of barriers to implementation cited by respondents. Chart review revealed moderate amounts of immunization assessment performed by nurses, but virtually no evidence of physicians' orders for immunization.

Conclusions: Thus far, there is little evidence that the New Jersey regulation has resulted in a meaningful change in pneumococcal or influenza vaccination practices.
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Introduction

Pneumococcal disease and influenza are major causes of death among the elderly, and top the list of vaccine-preventable diseases in the United States. During the 1990s, there were an estimated 36,000 influenza-related deaths annually.[1] Invasive pneumococcal disease is the cause of an estimated 6000 annual deaths, whereas noninvasive pneumonia, which is less well defined, accounts for varying estimates of additional deaths.[2] Additionally, these diseases result in hundreds of thousands of hospitalizations and attendant medical costs. The population aged 65 years and older is at high risk for both of these conditions.

Vaccination has been found to be both clinically and cost effective.[3–6] However, despite the existence of guidelines for immunizing high-risk groups and frequent encounters of at-risk individuals with the healthcare system, influenza and pneumococcal immunization rates remain relatively low, particularly among ethnic and racial minorities.[7–11] Hospitalization is thought to be an important "missed opportunity" for vaccination,[12–16] because hospitalized seniors have been shown to be at particularly high risk for vaccine-preventable diseases.

Effective November 1999, New Jersey adopted a regulation that required that hospitals assess every patient aged 65 years or older for influenza and pneumococcal vaccination status (N.J.A.C. 8:43G-14.6). After assessment, hospitals are required to offer the immunizations and document their receipt or patient refusal in medical charts. Effective with the passage of the regulation, it was required that the number of vaccinations given be reported annually to the New Jersey Department of Health and Senior Services (NJDHSS). New Jersey is the first state in the nation to pass such a regulation.

Methods

A mail survey of hospital infection control directors was pilot tested at several locations and administered in June 2001. Repeated telephone follow-up contributed to a relatively high response rate of 83%. The survey sought information about hospital implementation of the state regulation. Respondents were also asked whether they thought that doctors at their facility agreed with the regulation. They were also asked to assess how successfully their institution was following their own immunization protocol and to identify potential impediments to implementation.

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Results

Hospitals varied considerably in their approach to the implementation of the immunization regulation but were similar in that almost all made what appeared to be a significant organizational effort to comply. Almost all hospitals reported considerable use of staff in the development of new procedures, specifically for the purpose of complying with the state regulation. Most commonly, immunization information was placed on a separate form in the patient's chart. This is the protocol that had been recommended by the New Jersey Peer Review Organization. Many hospitals placed material about the immunization requirements in more than one location.

The survey asked how physician orders were obtained. The majority relied exclusively on preprinted orders, as opposed to individual verbal or written physician-initiated mechanisms. About 20% of hospitals used a mixture of mechanisms, whereas approximately a quarter relied exclusively on mechanisms requiring significant physician initiation. At the time of the survey, no New Jersey hospitals used standing orders, which are recommended by the Advisory Committee on Immunization Practices as the most effective mechanism for increasing vaccination rates in an inpatient setting.[15,16]

Approximately 66% of respondents reported that physicians in their institution did not agree with the "nature and scope" of the regulation. The significance of physician attitudes was further revealed in a set of questions about perceived barriers to implementation, as seen in Table 1. Respondents were also asked to evaluate how well their hospital was complying with its own immunization protocol. Forty-three percent reported that less than a quarter of patients affected by this regulation ". . .went through your hospital's immunization process appropriately," as seen in Table 2. Levels of self-assessed success were higher in hospitals in which physicians were reported to be in agreement with the regulation, as shown in Figure 1.

Results from the required reporting by New Jersey hospitals support the generally negative assessment of the survey respondents. For New Jersey as a whole, approximately 2% of eligible patients received influenza vaccinations in 2001. Numbers for pneumococcal vaccine were somewhat lower (New Jersey Department of Health and Senior Services, unpublished data,). These figures are somewhat higher than those reported in 2000 and are generally consistent with national estimates. A recent review of the medical records of more than 100,000 hospitalized Medicare patients found that immunizations for pneumonia were administered in approximately 0.4% of cases, and influenza immunizations were administered to 1.7% of inpatients who were admitted between October and December.[13]

Table 1. Potential barriers to implementation

Potential barrier	Strongly agree (%)	Agree (%)
Difficult to verify whether patient has already received immunization(s)	52	38
Physicians not devoting sufficient resources to completing assessment	51	29
Physicians have dismissive attitude toward compliance	46	22
Physicians' orders difficult to obtain	38	25
Physicians believe that acute setting is not appropriate location for immunization	65	17
Physicians believe that immunizations are not a priority in acute setting	61	22
Physicians believe that immunizations are currently medically contraindicated	15	25
Consent from patient or patient representative difficult to obtain	10	32
Reimbursement difficult to obtain	2	3

Source: New Jersey Hospital Immunization Survey, 2001

Discussion

A significant proportion of hospitalized patients need to be immunized for hospital immunization to affect the population immunization rate. Many immunizations are "wasted" on those who would have otherwise been immunized in an outpatient setting and on those who die or are transferred to a nursing home. However, the missed-opportunity argument is predicated on the finding that hospitalized seniors are disproportionately at risk for contracting pneumococcal disease and influenza. Hence, these immunizations may have a higher than average likelihood of preventing disease.

Table 2. Self-assessed success: "What percent of patients aged 65 years or older went through your hospital's immunization process appropriately?" (N = 66)

Category by response	%	*n*
Don't know	21.2	14
0%–25%	43.9	29
26%–50%	13.6	9
51%–75%	12.1	8
76%–100%	9.1	6

Source: New Jersey Hospital Immunization Survey, 2001

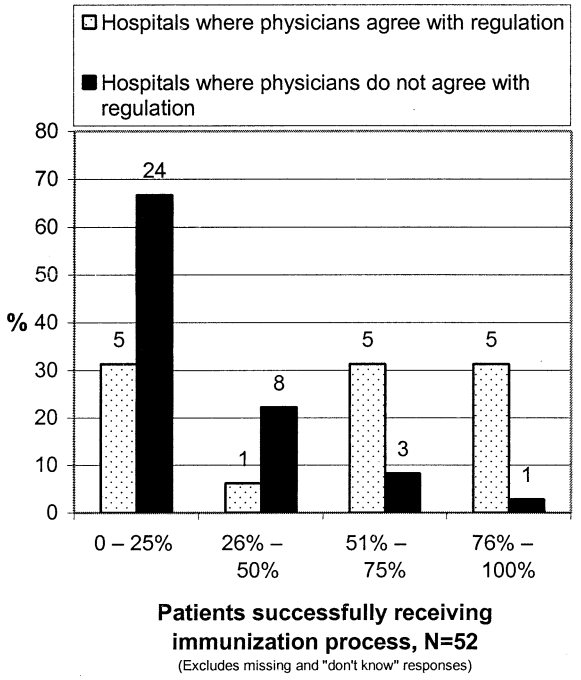

Figure 1. Reported physician agreement with the regulation and self-assessed success. Source: New Jersey Hospital Immunization Survey, 2001.

The findings in the literature on the potential use of hospitals for adult vaccination have been positive. This evaluation of a state regulation has illustrated some of the potential problems. The survey provided valuable information about perceived impediments at the hospital level. There was a fairly widespread perception among respondents that adult immunization rates in their facility were low and that physicians did not support the regulation. Required reporting also suggests that hospital immunization is relatively rare.

Standing orders are widely considered to be a necessary component of a successful hospital immunization program.[17–26] The Centers for Medicare and Medicaid Services recently issued new regulations to facilitate the implementation of standing orders.[17] Currently, several hospitals in the state plan to adopt standing orders, yet it remains to be seen whether physicians will participate.

Currently, there is nothing that obligates physicians to cooperate with the regulation. Largely because of objections by hospitals, the reporting requirements were reduced to a minimum in the final adopted regulation. Previous outreach education has not been viewed as successful. One potential way to increase physician cooperation would be to tighten the reporting requirements. Another approach would be to emphasize immunization as a quality measurement issue that will ultimately affect performance ratings. This message could be targeted to chiefs of medicine, who could potentially influence other doctors. New Jersey hospitals have been concerned about quality ratings since the 2000 Jencks report,[27] in which the state ranked 41st in quality of care for Medicare beneficiaries. In the most recent Jencks report,[28] New Jersey's overall ranking dropped to 43rd, but its ranking for influenza and pneumonia screening in hospitals improved considerably (to 35% and 33%, respectively) and is in fact above the median.[28]

As these results suggest, strategies that are successful in hospital-initiated programs do not necessarily work in a context in which hospitals are being directed by a regulation yet there is no strong enforcement mechanism. What remains to be seen is what implications this has for the overall viability of hospital-based immunization. Adherence to a regulation may take longer than cooperation with a voluntary hospital program. Reported immunizations and assessments increased between 2000 and 2001; perhaps over a period of years, further improvements will be made. In the meantime, there are several options for state policymakers, all of which revolve around increasing physician cooperation. If that does not ultimately occur, the "missed opportunity" may remain just that.

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