

Integration of Clinical Practice, Publicity, and Policy: A Shot in the Arm for Influenza Control

Kevin P. Cain, MD; and Susan G. Blitz, MD, MPH

This winter, influenza has once again grabbed the attention of the American public and healthcare decision makers. As this year's epidemic takes hold, we are regularly reminded of the staggering clinical and economic impact of influenza. An estimated 36 000 Americans die of the disease and its complications each year.¹ The cost to the United States of a future influenza pandemic has been estimated at between \$71 and \$166 billion (in 1995 US dollars), excluding disruptions to commerce and society.² The fear and economic disruption experienced last winter during the SARS outbreak is a paltry foreshadowing of what will occur whenever the next influenza pandemic happens. The current influenza season brings unique circumstances that impact our preparedness for a significant outbreak. Heightened concern because of widely publicized pediatric deaths early in the influenza season, an announcement from the Centers for Disease Control and Prevention (CDC) that the current vaccine may not have the most prevalent strain circulating in the community, the availability of a new intranasal vaccine, and renewed concerns about inadequate vaccine supply have returned the "flu" to the headlines.

When examining the impact of vaccination on the burden of disease, we must consider both the direct costs of medical care and the indirect costs of lost productivity of sick individuals as well as their caregivers. Vaccination of those at highest risk of morbidity and mortality, including adults over the age of 65 and anyone with chronic medical conditions, is necessary to control the clinical and direct cost burden. The estimated cost savings for every 10 000 vaccines administered to adults aged 65 to 74 ranges from \$349 708 to \$463 308 depending on cost of vaccine.³ More recently, studies have demonstrated the potential for cost savings in other populations, including healthy adults, adolescents, and younger children.^{4,5} Some of the benefits accrue from reducing the transmission of infection to household contacts, thereby reducing lost productivity.⁶

Predictors of influenza vaccination among adults aged 65 and older include insurance coverage, perception of benefit, perception of risk of influenza and its complications, and perception of vaccine safety.⁷ Thus, barriers that diminish the uptake of vaccination include cost and

insurance coverage, vaccine supply and acceptability, and education about benefits and side effects.

Insurance coverage and out-of-pocket costs are major predictors of influenza vaccination. A Medicare Influenza Demonstration Project that offered free vaccines led to a 219% increase in vaccination rates, prompting Medicare to add influenza vaccination as a covered benefit in 1993.⁸ Insurance coverage has a significant impact not only on vaccine uptake but also on vaccine supply. Currently only 2 companies manufacture inactivated influenza vaccine in the United States, and the amount of vaccine produced is determined by anticipated demand, which is influenced by perceived benefit and cost. This year, the inactivated vaccine has been in short supply because demand has been significantly higher than predicted. This increase in demand likely resulted from increased public perception of risk because of widely publicized pediatric deaths early in the season. Most health plans cover the vaccine for low-risk as well as high-risk patients; so early mobilization of high-risk populations is necessary to use the supply in the most appropriate fashion. The uptake of the new, more costly intranasal vaccine is likely to be influenced more by the lack of injectable vaccine this year than by the intranasal version's ease of administration. Thus, this season is unlikely to be an accurate predictor of the public's willingness to pay for the convenience of influenza protection without a shot.

The next important issue is that of vaccine accessibility. Accessibility can be increased by offering vaccines at nonstandard sites, including the workplace, day-care centers, clinics focused on women's and children's health, and places frequented by the community, including retail establishments and pharmacies.⁹⁻¹¹ Standing orders can be used to increase vaccine uptake particularly in hospital inpatient units and chronic care facilities.^{12,13} Moreover, acceptance can be increased within

From the University of Michigan Hospitals & Health Centers, Ann Arbor, Mich.

Address correspondence to: Susan G. Blitz, MD, MPH, University of Michigan Hospitals & Health Centers, 0838 Med Inn, Ann Arbor, MI 48109-0838.

a clinic setting by improving efficiency and offering flexible hours of administration.^{6,10}

Finally, there is the issue of education, reminders, and feedback. Reminders to both patients and providers have been shown to increase vaccination uptake,^{14,15} but these interventions are unfortunately underused in primary care.¹⁶ Likewise, feedback to providers about their vaccination rates can be useful.¹⁰ Nowalk et al report in this issue of the *Journal* that patient understanding of the risks and benefits of both influenza and the vaccine was an important predictor of vaccination rates.¹⁷

One of the findings in the Nowalk study was that physician advice is a factor in improving vaccination rates. However, although education of patients has been shown to be effective, the specific method of educating patients has not been well elucidated. Demonstrating the relative effectiveness of advice from a physician versus commentary from a celebrity or the popular media on increasing vaccination uptake would be very instructive, if difficult to study. As an example, information regarding cancer screening by celebrities has a major impact on the extent to which the community embraces various preventive measures, but advice from such sources is often directed more broadly than the official recommendations.¹⁸

To avoid these problems, we first must make a policy decision as to which groups we should target. If the goal is to decrease morbidity and mortality, then we should clearly target the elderly and those with chronic medical conditions. If we wish to decrease lost productivity during the influenza season, then we must target the workforce and their children. If the goal is to decrease the burden of influenza in the US as greatly as possible, then a universal vaccination strategy may be the best option. **Whichever goal is chosen, however, policy and practice must converge and influence public opinion so the desired outcome is achieved.** Managed care organizations, the pharmaceutical industry, employers, and patient advocacy groups could then work together to promote the health benefits of influenza vaccination and provide financial incentives by decreasing the out-of-pocket cost for the target populations. Reminder systems and education campaigns could be designed to focus on these groups. Most importantly, a firm policy on whom to vaccinate, along with collaboration between the CDC and other policy makers, the pharmaceutical industry, and insurers, would allow for better prediction of demand and adequate supply.

This newsworthy influenza season has highlighted the impact of providers, insurers, and policy makers on efficient use of resources to achieve both individual and public health goals. It has demonstrated many of the limitations of the current system, giving us a better understanding of improvements that can ensue from a

rational policy, cooperation of all the stakeholders, and concerted efforts to design a vaccination strategy that will truly protect our nation from this devastating disease.

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