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Mandatory influenza immunisation of health-care workers

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Seasonal influenza imposes an enormous but poorly defined burden of excess deaths, hospital admissions, and health-care costs, and often spreads within health-care facilities. Hospital patients with influenza are a potential source of infection for health-care workers that are not immunised, with attack rates among health-care workers of 18–24%.1 Unfortunately, health-care workers infected with influenza often continue to work, despite symptoms, with potentially devastating consequences for high-risk patients, including those who are very young, elderly, or immunocompromised—for example, patients receiving bone-marrow transplants have a high risk of pneumonia and death from influenza.2

Trivalent subunit influenza vaccines are 70–90% effective3 and safe, with mild side-effects in less than 10% of recipients.4 Immunisation of health-care workers can reduce exposure to, and illness and death from, influenza among patients in long-term care facilities5 even with modest uptake rates6 (at an estimated cost of £51–405 per life-year saved), as well as reducing infection and absenteeism among health-care workers that have been immunised (with estimated savings of £12 per vaccinee).5 In a bone-marrow-transplant unit in the USA, increasing immunisation uptake from 12% to 58% among health-care workers, was associated with a reduction in nosocomial influenza infections from 14 to 4 cases per 10 000 patients days.7

Despite this evidence and recommendations by major health authorities for yearly immunisation of health-care workers,8 uptake is often poor (less than 30%). Immunisation uptake rarely exceeds 60%, even when vaccine is free and easily accessible,5 and 9 which is inadequate to protect the most vulnerable patients, many of whom are unimmunised because of immunosuppression or comorbidities. Uptake can be increased by various interventions, including staff education, active promotion, incentives, declination forms, clinical leadership, and provision of free vaccine at convenient locations, such as mobile carts,8 and 10 but increases are often modest and difficult to sustain over successive seasons.11

The limited success of these interventions suggests a need for stronger action.12 At Virginia Mason Medical Centre, WA, USA, a programme of mandatory immunisation of health-care workers achieved 98·5% uptake. Nurses that were members of a union were exempted, following successful legal challenge by the Washington State Nurses Association; nevertheless, 90% of them accepted immunisation, voluntarily, in support of colleagues that were not members of a union, for whom it remained mandatory.13

The reasons for health-care workers not being immunised against influenza include fear of side-effects, a belief that influenza is not serious or that vaccine causes illness, and insufficient time.10 and 14 When health-care workers accept immunisation, self-protection, rather than protection of patients, is often the dominant motivation;9 and 14 health-care workers report they would be more willing to be immunised against pandemic influenza, which is perceived to be more dangerous than seasonal influenza.15 Whether health-care workers are aware of the risks to patients of nosocomial influenza or factor this into their decisions is unclear.

Mandatory immunisation of health-care workers raises complex professional and ethical issues. Arguments in favour are clear: influenza is serious and potentially fatal in vulnerable patients; the risks to patients can be reduced by a safe vaccine for health-care workers, who also benefit; and traditional strategies to improve uptake by health-care workers consistently fail. These facts suggest that mandatory immunisation is ethically justified and, if implemented appropriately, will be acceptable.13 But rational arguments are not enough. To be acceptable, a mandatory programme of immunisation of health-care workers needs leadership by senior clinicians and administrators; consultation with health-care worker and professional organisations; appropriate education; free, easily accessible vaccine, and adequate resources to deliver the programme efficiently; provision for exemptions on reasonable medical grounds; and appropriate sanctions for those who refuse immunisation. For example, health-care workers that are not immunised should be barred from contact with patients during the influenza season.

Health-care workers accept a range of moral and other professional responsibilities, including a duty to protect patients in their care from unnecessary harm and to accept reasonable, but not unnecessary, occupational risk such as exposure to infectious diseases. They also accept some restriction of liberty, in the form of workplace rules, as a condition of employment such as bans on smoking and alcohol consumption or a uniform or dress code. While immunisation is often seen as something that people have a right to accept or refuse, freedom to choose also depends on the extent to which the choice affects others. In the health-care context, the autonomy of health-care workers must be balanced against patients' rights to protection from avoidable harm and the moral obligation of health-care workers not to place others at risk. It has been claimed that mandatory immunisation could damage staff morale and infringe bodily integrity, civil liberty, and, potentially, freedom to work.16 However, these claims are often made without evidence or reference to the clinical or professional context and without appreciation of policy implementation strategies to minimise adverse effects. Any hypothetical damage to staff morale from a mandatory immunisation policy must be balanced against damage from an avoidable death from influenza, of a patient who has survived a bone-marrow transplant or major surgery. Staff morale and professional autonomy can be protected through consultation and sensitive implementation of a mandatory immunisation programme.

Compelling arguments for mandatory yearly immunisation of health-care workers have been made repeatedly 12, 17 and 18 without compelling rebuttals. The ethical discourse has run its course—it is time to act, to introduce policies with appropriate precautions, and to monitor their effect to ensure optimum benefits and minimum adverse effects.

We declare that we do not have any conflicts of interest.

References

1 A Apisarnthanarak, P Puthavathana, R Kitphati, et al. Outbreaks of influenza A among nonvaccinated healthcare workers: implications for resource-limited settings Infect Control Hosp Epidemiol, 29 (2008), pp. 777–780

2 WG Nichols, KA Guthrie, L Corey, et al. Influenza infections after hematopoietic stem cell transplantation: risk factors, mortality, and the effect of antiviral therapy Clin Infect Dis, 39 (2004), pp. 1300–1306

3 KL Nichol, SJ D'Heilly, ME Greenberg, et al. Burden of influenza-like illness and effectiveness of influenza vaccination among working adults aged 50–64 years Clin Infect Dis, 48 (2009), pp. 292–298

4 KL Margolis, GA Poland, KL Nichol, JD MacPherson, JE Korn, RP Lofgren Frequency of adverse reactions after influenza vaccination Am J Med, 88 (1990), pp. 27–30

5 A Burls, R Jordan, P Barton, et al. Vaccinating healthcare workers against influenza to protect the vulnerable—is it a good use of healthcare resources? A systematic review of the evidence and an economic evaluation Vaccine, 24 (2006), pp. 4212–4221

6 AC Hayward, R Harling, S Wetten, et al. Effectiveness of an influenza vaccine programme for care home staff to prevent death, morbidity, and health service use among residents: cluster randomised controlled trial BMJ, 333 (2006), pp. 1241–1246

7 DM Weinstock, J Eagan, SA Malak, et al. Control of influenza A on a bone marrow transplant unit Infect Control Hosp Epidemiol, 21 (2000), pp. 730–732

8 ML Pearson, CB Bridges, SA Harper, Healthcare Infection Control Practices Advisory Committee (HICPAC); Advisory Committee on Immunization Practices (ACIP) Influenza vaccination of health-care personnel: recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP) MMWR Recomm Rep, 55 (2006), pp. 1–16

9 AB Christini, KA Shutt, KE Byers Influenza vaccination rates and motivators among healthcare worker groups Infect Control Hosp Epidemiol, 28 (2007), pp. 171–177

10 JY Song, CW Park, HW Jeong, HJ Cheong, WJ Kim, SR Kim Effect of a hospital campaign for influenza vaccination of healthcare workers Infect Control Hosp Epidemiol, 27 (2006), pp. 612–617

11 PM Polgreen, EJ Septimus, MF Parry, et al. Relationship of influenza vaccination declination statements and influenza vaccination rates for healthcare workers in 22 US hospitals Infect Control Hosp Epidemiol, 29 (2008), pp. 675–677

12 GA Poland, RM Jacobson Protecting patients from harm: legislating vaccinations for healthcare workers Amer J Prevent Med, 32 (2007), pp. 544–546

13 GA Poland, CL Ofstead, SJ Tucker, TJ Beebe Receptivity to mandatory influenza vaccination policies for healthcare workers among registered nurses working on inpatient units Infect Control Hosp Epidemiol, 29 (2008), pp. 170–173

14 C Van den Dool, AM Van Strien, IL den Akker, et al. Attitude of Dutch hospital personnel towards influenza vaccination Vaccine, 26 (2008), pp. 1297–1302

15 KS Yang, YT Fong, D Koh, MK Lim High coverage of influenza vaccination among healthcare workers can be achieved during heightened awareness of impending threat Ann Acad Med Singapore, 36 (2007), pp. 384–387

16 D Isaacs, J Leask Should influenza immunisation be mandatory for healthcare workers? No BMJ, 337 (2008), p. a2140

17 CM Helms, PM Polgreen Should influenza immunisation be mandatory for healthcare workers? Yes BMJ, 337 (2008), p. a2142

18 JC Tilburt, PS Mueller, AL Ottenberg, et al. Facing the challenges of influenza in healthcare settings: the ethical rationale for mandatory seasonal influenza vaccination and its implications for future pandemics Vaccine, 26 (suppl 4) (2008), pp. D27–D30