Influenza vaccine coverage among health care workers in Victorian public hospitals

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ABSTRACT

Objective: To assess influenza vaccine uptake among health care workers in Victorian public hospitals in 2005.

Design, setting and participants: Infection control staff in all Victorian public hospitals were asked to collect standardised data on numbers of non-casual staff and vaccinations administered to these staff during the 2005 vaccination period.

Main outcome measures: Proportion of total non-casual staff vaccinated; proportion of non-casual staff vaccinated in various staff categories.

Results: Seventy-four of 122 hospitals or health services (85 individual campuses) submitted data for 63 330 non-casual staff. The overall proportion vaccinated in 2005 was 38%, ranging from 34% for non-clinical staff to 42% for laboratory staff.

Conclusion: Vaccine uptake among staff in Victorian hospitals is low, and increased uptake is desirable to improve staff health and reduce the occurrence of hospital-acquired influenza and the risk to patients.

MJA 2007; 186: 185–186

Influenza vaccination is recommended for health care workers (HCWs) by international authorities and committees, including the Centers for Disease Control and Prevention (CDC), the Healthcare Infection Control Practices Advisory Committee and the Advisory Committee on Immunization Practices.

The Victorian Department of Human Services recommends vaccination of "public hospital staff including physicians, nurses and other personnel in both outpatient and ward settings who provide direct care to patients", consistent with Australian national recommendations.[1] Free vaccine is provided for this purpose through the national vaccination program of the Australian Government Department of Health and Ageing.

Vaccination coverage among the elderly in Victoria has been reported to range between 70% and 82%.[2,3] There are no widely published data on HCW vaccination in Victorian public hospitals.

The CDC has recently published strategies aimed at increasing vaccination rates.[4]

METHODS

Setting

In 2005, the VICNISS Hospital Acquired Infection Surveillance Coordinating Centre database listed 122 hospitals in Victoria; including 27 with at least 100 beds and six major teaching hospitals. The remainder have fewer than 100 beds, with most in non-metropolitan areas. All 122 hospitals were invited to participate in our survey.

Non-casual staff were defined as staff employed in the acute sector who have ongoing expectation of work and engage in a regular roster or pattern of employment.

Vaccine is normally available in February or March. Most hospitals offer the vaccine during autumn. The vaccination campaign is usually coordinated by infection control departments, although exact methods of delivery may depend on hospital size and available resources.

In 2005, problems with the vaccine meant it was not available until late April.

Data collection

Infection control staff completed a form detailing the number of non-casual staff employed and vaccinated in the following categories: clinical staff, non-clinical staff, and laboratory staff. Clinical was further divided into medical, nursing, allied health, and other. The staff completed the forms during the vaccination period (after April) and were asked to return them by 31 August 2005.

Data analysis

Data were entered into a Microsoft SQL Server database (Microsoft, Redmond, Wash, USA). Analysis was carried out using Stata version 9 (StataCorp, College Station, Tex, USA).

RESULTS

Seventy-four hospitals or health services returned data. This represents a response rate of 70% (85/122) for individual hospital campuses. Four large health services returned data for the health service as a whole, which included data from community health centres and other health care settings. In total, data were obtained for 63 330 non-casual staff. Three hospitals were unable to provide data by category.

The overall proportion of staff reported as vaccinated was 38% (95% CI, 37%–38%). Proportions vaccinated in each staff category are reported in Box 1 and Box 2. The proportion of medical and nursing staff vaccinated was significantly lower compared with the other groups ($P < 0.01$).

Vaccine uptake was also calculated for hospitals with < 100 beds and ⩾ 100 beds. This showed a higher uptake in smaller hospitals (< 100 beds, 46% [95% CI, 45%–47%]; ⩾ 100 beds, 37% [95% CI, 36%–37%]; $P < 0.01$).

DISCUSSION

Our results suggest that influenza vaccine uptake in HCWs in Victorian public hospitals is low. This finding is consistent with reports from other parts of the world,[5-8] and highlights the need for ongoing campaigns to ensure HCWs are targeted.

Evidence that vaccination of HCWs is safe and effective, and prevents a significant number of influenza infections, hospitalisations and deaths among patients is compelling.[9-13] Vaccination of HCWs has been associated with decreased mortality in long-term care from 22.4% to 13.6%,[13] and reduced absences from work due to illness.[9,12]

The demonstrated benefits of vaccination have led to discussion in the United States regarding the introduction of mandatory annual influenza vaccines for HCWs unless there is a medical contraindication or religious objection, or an informed refusal is signed.[14] One of the US national health objectives for 2010 is to achieve 60% vaccination in HCWs.[4]

In this study, non-clinical staff had higher levels of vaccination than clinical staff. Previous studies have shown influenza vaccina-

1 Proportion of staff* vaccinated, by major category

Category	Number of non-casual staff	Percentage vaccinated (95% CI)
Clinical	52 296	37% (37%–38%)
Non-clinical	8 336	34% (33%–35%)
Laboratory	915	42% (39%–45%)

* Staff from 71 hospitals or health services that were able to provide data categorised at this level. ◆

tion among HCWs is affected by factors such as knowledge of influenza vaccine,[15] age and race,[7] and vaccination among physicians is higher than among nursing staff.[15-17]

Importantly, education regarding influenza vaccination has been shown to increase uptake in HCWs.[16] This is not surprising, given that, in one study, 31% of resident physicians at a teaching hospital believed that influenza vaccine could cause influenza.[18]

We also found higher uptake of influenza vaccine in hospitals with < 100 beds. The reasons for this are unclear, however, anecdotal evidence suggests there may be easier access to vaccination, more accurate data collection with smaller numbers, or older staff in these hospitals.

Limitations mainly concern difficulties collecting high quality, accurate data. Some hospitals could only supply categorical data at the health service level rather than hospital campus level. Exact methods of data collection may also have varied at different hospitals. Some staff, particularly medical staff, may work at more than one campus. The most likely effect of this is that they may be counted twice in the denominator and only once in the numerator (at the place where they were vaccinated). Other staff may be vaccinated privately. This would tend to underestimate vaccine uptake.

There is no guarantee that casual staff were completely excluded. In some facilities, casual staff also receive vaccinations.

To eliminate these problems, data for individuals would need to be collected and all staff accounted for. This would be resource-intensive. Difficulties with measuring HCW vaccinations have previously been recognised,[19] and there is no simple solution. We believe the method used here is sufficient to provide information for practical purposes.

Our data represent the first published data on HCW vaccination levels in Victorian public hospitals, and provide a baseline from which to work at increasing vaccination uptake in the future. In the light of all of the evidence for benefits of influenza vaccination for HCWs, we believe it is important to continue to collect and use these data. These data should be available to underpin ongoing efforts to improve vaccination uptake in HCWs and to ensure that Victorian hospitals aim to meet, if not exceed, international standards and recommendations.

2 Proportion of staff* vaccinated, by minor category

Category	Number of non-casual staff	Percentage vaccinated (95% CI)
Clinical		
Medical	5 411	29% (28%–31%)
Nursing	19 665	35% (34%–36%)
Allied health	4 577	45% (44%–47%)
Other	7 308	50% (49%–52%)
Non-clinical	5 542	37% (36%–38%)
Laboratory	740	41% (38%–45%)

* Staff from 67 hospitals or health services able to provide data categorised at this level. ◆

ACKNOWLEDGEMENTS

The VICNISS Coordinating Centre would like to thank all Infection Control Consultants and their teams at participating hospitals in collecting these data. Without the cooperation and commitment from this group, the VICNISS program would not be possible. The VICNISS program is fully funded by the Department of Human Services, Victoria. We wish to thank the Quality and Safety Branch, Department of Human Services, Victoria, and Melbourne Health. Thanks to Simon Burrell, Jane Motley and Kylie Berry at the VICNISS Coordinating Centre, and to Heath Kelly for comments on this manuscript.

COMPETING INTERESTS

None identified.

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(Received 23 Aug 2006, accepted 6 Nov 2006) ❑