INFLUENZA IMMUNISATION FOR HEALTH CARE WORKERS

Health care workers may be immunised with influenza vaccine either because they are at high risk of complications of influenza A themselves or because they may transmit influenza A to high-risk patients in their environment. People at high risk of complications include those over 65 years of age, particularly if resident in chronic care facilities such as nursing homes; adults and children with chronic cardiac and pulmonary disease, including children with asthma; adults and children requiring regular medical follow-up or hospitalisation for chronic metabolic diseases, diabetes, renal dysfunction haemoglobinopathies or immunosuppression (including AIDS); and children and teenagers receiving long-term aspirin therapy (who risk Reye's syndrome with influenza B).

The incidence of respiratory complications after influenza (especially secondary bacterial pneumonia) rises progressively in people over the age of 55. Between 80 and 90 per cent of excess deaths due to pneumonia/influenza in epidemics occur in people over 65 years.

Influenza vaccine is made from split products of killed egg-grown virus. This year it consists of A/Texas (H1N1), A/Shanghai and B/Panama strains, designed to protect against the two currently circulating strains of influenza A (H3N2 and H1N1) and influenza B. As the vaccine is administered in the autumn before the winter peak of influenza A, its constitution depends on trying to forecast the strains of influenza A likely to circulate in the winter. Knowledge of the strains circulating in the preceding northern winter (facilitated by World Health Organisation networks) is very helpful. When the strains circulating in the community and the vaccine are well matched (the usual situation) efficacy is 60-80 per cent for one year and if clinical influenza occurs it is usually attenuated and complications are less severe. The change ("drift") in antigenicity of successive influenzae strains infecting a community is responsible for the major disadvantage of influenza immunisation: its short duration of efficacy. Whereas natural infection may lead to immunity lasting more than 10 years, immunisation of high-risk individuals must be repeated annually.

Partly for this reason compliance is low (about 40 per cent). Therefore many elderly patients entering hospital and chronic care facilities are unimmunised and susceptible to nosocomial epidemics within the institution. Obviously efforts should be made to improve immunisation compliance among those at risk. Immunisation levels of more than 70 per cent have been obtained where intense publicity campaigns have been conducted (e.g. Paris, Colorado).

Influenza is highly infectious by aerosol spread, and health care workers (HCWs) have been shown to initiate nosocomial epidemics. These HCWs include physicians, nurses and other personnel in hospital and outpatient settings and employees of nursing homes and chronic care facilities. Home-care nurses may also transmit infection to patients at high risk.

The Centers for Disease Control in the United States recommends that such HCWs be immunised on a yearly basis whereas the National Health and Medical Research Council in Australia recommends that "in the event of a pandemic or other major outbreak, advice should be given about vaccination of staff particularly liable to exposure". The latter recommendation does not clarify whether immunisation is for the benefit of HCWs, for patients with whom they are in contact or both. Protection of patients or staff is very difficult after an influenza A epidemic has begun as it spreads rapidly with a short incubation period (two-three days), is of short duration (often less than two months) and takes time to identify. Also, immunity takes two weeks to develop after vaccination. Influenza virus may cause only upper respiratory tract symptoms (or be subclinical). Hence laboratory diagnosis by viral isolation, immunofluorescence or serology is essential to confirm a clinical suspicion of influenza A.

The alternative strategy to contain nosocomial epidemics — *prophylactic* immunisation of HCWs — also has disadvantages as HCWs are probably even less likely than high-risk patients to maintain compliance with annual influenza immunisation.

A reasonable synthesis of these strategies would be to educate the staff of geriatric and respiratory wards, nursing homes and chronic care facilities to the risks of nosocomial influenza A epidemics in these settings (30 per cent mortality in patients in nursing homes), to maintain annual influenza immunisation of their patients and to offer immunisation to the staff.

FURTHER FACTS ABOUT INFLUENZA VACCINES

Timing of injection:	autumn
Side-effects:	– local soreness in <30%
	– fever/malaise <2% (6-48hrs after injection)
	– allergic manifestations: angioedema, asthma, especially in patients with egg allergy in which the vaccine is grown
Contraindications:	egg allergy

FURTHER READING

CDC — Prevention and Control of Influenza. Recommendations of the Immunisation Practices Advisory Committee (ACP). *MMWR* 1991; Vol. 40 No. 20 pp1-15.

NH&MRC — Immunisation Procedures, 4th edition, Australian Government Publishing Service, Canberra p82, 1991.

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Fry J. Influenza 1959. The story of an epidemic. *Br Med J* 1959; 2:135.

Gill PW, Murphy AM, Cunningham AL. Influenza A (H1N1): A widening spectrum. *Med J Aust* 1991; 155:362-367.

Pachucki CT, Lentino JR, Jackson GG. Attitudes and behavior of health care personnel regarding the use and efficacy of influenza vaccine (letter). *J Infect Dis* 1985; 151:1170-1171.

Gill PW, Cunningham AL, Murphy AM. Should healthy children be vaccinated against influenza? *Lancet* 1987; 1:1440-41.

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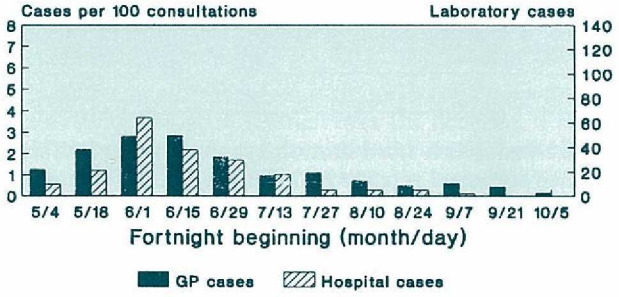
VACCINATION STATUS OF NURSING HOME STAFF AND RESIDENTS

Each year the Commonwealth Government makes influenza vaccine available to groups at risk in the community. The vaccine is prepared as a conjugate of the expected strains anticipated in the coming year. The goal is to reduce influenza-related morbidity and mortality in the community. In NSW during 1991 the rates of reported infection reached a peak in June of 12.75 cases/100 general practice consultations. Lower rates were observed in Victoria – 3/100 general practice consultations. The peak rates occurred in June in both States[1]. The Victorian figures are reproduced in Figure 1.

FIGURE 1

INFLUENZA SURVEILLANCE
CLINICAL AND LABORATORY CASES, VICTORIA, 1992



GP cases based on GP surveillance, laboratory cases from Fairfield & Royal Children's Hospital.

The National Health and Medical Research Council (NH&MRC) states that "annual vaccination is recommended for individuals ... (who are) ... residents of nursing homes and other chronic care facilities"[2]. The Public Health Unit of Central and South Sydney thought it worthwhile to examine the vaccinated status of this risk group in our Area.

TABLE 1

SIZE OF NURSING HOMES

	Number	(%)
0-39 residents	10	(20)
40-49 residents	8	(16)
50-59 residents	10	(20)
60-69 residents	6	(12)
70-79 residents	6	(12)
80+ residents	9	(18)
Missing data	1	(02)
Total	50	(100)

These people are at increased risk because of their age, often debilitating medical condition and residence in an institution where rapid spread is possible.

SURVEY METHOD

A list of registered nursing homes was obtained from the National Association of Nursing Homes and Private Hospitals Inc. We sent a questionnaire to the directors of each nursing home on August 6, 1992 inquiring about the vaccination status of their staff and residents.

RESULTS

There were 120 nursing homes on the list provided. Four questionnaires were returned unopened. A total of 53 (45 per cent) survey forms was returned. Three were excluded because significant information appeared to be wrong or was missing. The remainder, some with missing data, were used in the analysis.

The homes varied considerably in size (Table 1). The smallest had 14 and the largest 300 residents. The average is not meaningful given this distribution.

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Influenza immunisation

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EDITORIAL COMMENT

Influenza immunisation poses several unique problems for public health:

- Influenza vaccine is the only vaccine in routine use that varies in composition from year to year. It is the only vaccine which, because of limited supply, has achieved 'commodity' status.
- The terms flu, cold and common cold are interchanged in day-to-day language, making it difficult to communicate reasonable health messages to the general public. Influenza, with its graphic history of pandemics, has the ability to generate florid and exaggerated media reports.
- Risk groups for complications of influenza have been identified by the National Health and Medical Research Council. In general terms they are the aged and those people with serious cardiac, pulmonary problems or immunosuppressed individuals. Recommendations for the carers of these people, and for others at risk of infection, are less clear.

Influenza is usually a mild illness in otherwise healthy children and young adults. Data from overseas studies indicate that the best protection from the fatal complications of influenza later in life is prior lifetime exposure to influenza.

These are strong arguments against immunisation of otherwise healthy individuals. Immunisation protects against specific virus strains for one year. Natural exposure generates a broader antibody response which is longer lasting, possibly lifelong.

In addition, as supplies of vaccine are not sufficient to immunise all high-risk individuals, it is appropriate to discourage healthy people from influenza immunisation.