

Influenza Control in Israel

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Influenza control is a multi-faceted challenge. Annual flu outbreaks are large, "usual" or small. Whatever the size of the outbreak, morbidity among cases can be "normal" or severe, and hospital directors are well aware that a small outbreak can fill more hospital beds than a large one. No more than a third to a half of vaccine candidates will have received the updated vaccine containing the specific influenza antigens selected a few months ago by WHO experts for the current winter. Viruses found to be circulating in any one winter will usually closely resemble those isolated during the previous year or two, but from time to time something new will appear, raising the specter of large numbers of severe cases even among people duly immunized with the latest vaccine combo. Once in a rare while a bird or pig strain will be found to cause flu in a human [1,2], causing much concern and frantic bird-flu or pig-flu control measures in some faraway place [3], while anti-influenza agents are stockpiled at home, the big vaccine moguls warm up their incubators off season, and pandemic preparedness plans are dusted off and reviewed.

The backbone of influenza control is good information, and the article by Peled and her colleagues [4] in the current issue of *IMAJ* describes a project designed to provide the kind of information policy makers need to formulate appropriate influenza control strategies. Sentinel community clinics are designated, visits for influenza-like illness are recorded, age-specific illness rates are calculated and compared to previous winters. Specimens are collected, viral identification is carried out meticulously in the national reference laboratory, and timely feedback to participating clinicians is provided. The accrued analyzed information is then shared with the public health services, an ever-hungry press and responsible international agencies. In the winter reported on by Peled et al., a drift strain of the A(H3N2) virus originating in Sydney turned out to be the predominant isolate, and since it was not included in that winter's vaccine the morbidity was substantial, in Israel and elsewhere, even among those immunized [5]. But the particular findings of the study at hand are less important than the fact that this surveillance project is ongoing and well-oiled and can be expanded, refined or redirected as necessary.

Influenza outbreaks occur in Israel each winter, and depending on the novelty of the invading strain, 1–10% or more of the population may become ill. Even a 1% outbreak means 60,000

cases within 2 months, and the economic impact, simply in terms of absenteeism, is enormous.

Judicious use of vaccine in the autumn can ameliorate influenza's damage. Traditionally, persons at highest risk for the complications of influenza were the ones targeted for vaccination. These included persons of any age suffering from a chronic disease – such as heart disease, diabetes, renal failure – as well as all persons 65 and older, even without chronic illness. Since last year, Israel has followed the lead of the Centers for Disease Control and has lowered the blanket age criterion to 50, more than doubling the number of annual influenza vaccine candidates, to about 1,300,000. Another group newly targeted for immunization by the CDC is pregnant women who will be in the last half of their pregnancy during the flu season, as well as women who have given birth in the months of September through November as these pregnant and parturient women are at increased risk for pneumonia following a bout of the flu [6]. Health Canada has demurred at recommending that pregnant women be immunized routinely [7], and although Israel has adopted the CDC's stand, vaccine uptake in pregnant women in Israel is low.

Doctors and nurses should be vaccinated, since they are notorious for continuing to work while sick and thereby may spread influenza to their patients. Vaccine uptake is poorest in this group [8,9]. All agencies recommend that "essential personnel" of all ages be immunized against the flu each year, leaving it up to society to decide who is "essential." Finally, since flu vaccine is cheap, about \$7 in Israel, almost anyone who so desires can be immunized, even if he or she does not qualify for free or subsidized vaccine by virtue of belonging to a specific target group.

Those with the highest influenza incidence are school-children, and they are also the main spreaders of influenza since they are highly mobile, even when sick. This has been the case at least since the great pandemic of 1918 [10], and Peled et al. have shown it to be true in Israel in the late 1990s as well. We don't usually suggest that schoolchildren be immunized routinely against influenza, because flu in children is mild and uncomplicated, and immunizing children each year would have an unconvincing benefit-cost ratio. In the *pandemic* situation,

CDC = Centers for Disease Control

however, when public health authorities are fighting to halt the spread of a new virulent strain against which no one is protected, immunizing schoolchildren – if a vaccine is available – could be a smart option [11,12]. And if sufficient vaccine is not available for the immunization of schoolchildren, as will probably be the case, closing the schools will also need to be considered as an emergency means of halting pandemic influenza spread.

"Influenza pandemic preparedness" is a banner held high by the big international health agencies, and all countries are urged to formulate their own unique pandemic preparedness plans [13]. Committees and subcommittees will work months developing the components of the plan, which will invariably include morbidity surveillance, laboratory capability, increasing the available hospital beds, stockpiling anti-influenza agents, and vaccine delivery programs. But let us not fool ourselves: vaccination is the name of the game in pandemic influenza control. A country that can obtain enough vaccine containing the pandemic strain to vaccinate half of its population (the traditional high risk groups plus schoolchildren) is pandemic-prepared. The country that can't is not, period. If a country does not produce influenza vaccine, its essential "pandemic preparedness" activity will be to do whatever is necessary to procure sufficient vaccine to immunize ever-widening circles of its population before massive influenza morbidity takes its terrible toll. Israel does not produce its own influenza vaccine and we will be scrambling with everyone else to get vaccine should a pandemic develop.

When will the next pandemic occur? Your guess is as good as ours. After the pandemics of 1918, 1957, 1968 and 1977, we were taught to expect a new one every 10 years – don't ask why. Twenty-four years have elapsed since the last pandemic, and the next one may still be years off or may be cooking up at this very moment somewhere in the Far East. From the standpoint of surveillance and laboratory capability, Israel is well prepared, as is nicely demonstrated in the Peled article. Hospital beds are always in short supply in winter, but could be expanded in an emergency. Some of the anti-influenza medications are locally produced, and production could be stepped up if necessary. Vaccines are the sticking point: we will never have as many doses as we need in a pandemic situation unless we decide to take up vaccine production ourselves, and even that is no guarantee the final product will be ready in time.

Meanwhile, in times of "normal" influenza activity, which is bad enough, let's be sure that designated high risk groups are immunized each year, recalling that there is no better

inducement to vaccine compliance than the encouragement of the personal physician. Hundreds of lives can be saved every year. And last but not least – physician, immunize thyself.

References

1. Claas EC, Osterhaus AD, Van Beek R, De Jong JC, Rimmelzwaan GF, Senne DA, Krauss S, Shortridge KF, Webster RG. Human influenza A(H5N1) related to a highly pathogenic avian influenza virus. *Lancet* 1998;351:472–7.
2. De Jong JC, Claas EC, Osterhaus AD, Webster RG, Lim WL. Pandemic warning? [Letter]. *Nature* 1997;389:554.
3. Larson E. Flu hunters. *TIME* 1998(March 16):44–52.
4. Peled T, Weingarten M, Varsano N, Matalon A, Fuchs A, Hoffman RD, Zeltzer C, Kahan E, Mendelson E, Swartz TA. Influenza surveillance during winter 1997-1998 in Israel. *IMAJ* 2001;3:911–14.
5. De Jong JC, Beyer WE, Palache AM, Rimmelzwaan GF, Osterhaus AD. Mismatch between the 1997/1998 influenza vaccine and the major epidemic A(H3N2) virus strain as the cause of an inadequate vaccine-induced antibody response to the strain in the elderly. *J Med Virol* 2000;61:94–9.
6. Centers for Disease Control and Prevention. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices. *MMWR* 2001;50(RR-4)8–10.
7. National Advisory Committee on Immunization. Statement on influenza vaccination for the 2001-2002 season. *Can Commun Dis Rep* 2001;27(ACS-4):8.
8. Slater PE, Weidberg-Shmerler B, Morag A. Underutilization of influenza vaccine in Jerusalem. *Pub Health Rev* 1995;23:357–66.
9. Habib S, Rishpon S, Rubin L. Influenza vaccination among healthcare workers. *IMAJ* 2000;2:899–901.
10. Frost WH. Epidemiology of influenza. *JAMA* 1919;73:313–18.
11. Monto AS. Prospects for pandemic influenza control with currently available vaccines and antivirals. *J Infect Dis* 1997;176(Suppl 1): S32–7.
12. Reichert TA, Sugaya N, Fedson D, Glezen P, Simonsen L, Tashiro M. Japanese experience with vaccinating schoolchildren against influenza. *N Engl J Med* 2001;344:889–96.
13. World Health Organization. Influenza pandemic preparedness plan: the role of WHO and guidelines for national and regional planning.WHO/CDS/CSR/EDC/99.1. Geneva: World Health Organization, 1999.

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In one era and out the other

Anonymous