

Influenza vaccination for one third of the population of the European Union (EU) 25 Member States by 2010

Annual vaccination of one third of the EU population against epidemic influenza is medically justified and will greatly improve availability of pandemic influenza vaccine in Europe.

Annually occurring influenza is an important public health problem in Europe. It is associated with increased general practice consultation rates, hospital admissions¹, and excess deaths^{1, 2}. It also leads to increased days lost to absence from work and school, decreased productivity, and extra pressure on health care services during the winter season.

Next to epidemic influenza, the threat of an influenza pandemic looms like a sword of Damocles over the world population. The cornerstone of combating both epidemic and pandemic influenza is the use of vaccines. Antivirals constitute a useful adjunct to vaccines in this respect.

According to WHO's Global Agenda on Influenza Surveillance and Control, enhanced utilization of influenza vaccines and antivirals in the inter-pandemic period will contribute to pandemic preparedness. At the start of an influenza pandemic, a pandemic vaccine will probably not be available and it will take considerable time to produce sufficient amounts of the vaccine once it has been developed. To bridge this period, stockpiling of antivirals, like the neuraminidase inhibitors, covering a substantial percentage of the population, should be seriously considered by EU member states. With the current production technology and capacity of trivalent vaccines for inter-pandemic use, it may be expected that if one third of the EU-25 population is vaccinated annually with a trivalent vaccine sufficient monovalent pandemic vaccine could be produced to vaccinate the entire EU-25 population at least once. Although more research is needed to solve several other problems before an effective and safe prototype pandemic vaccine can be produced, annual vaccination of one third of the EU-25 population within 5 years will contribute significantly to the availability of a pandemic vaccine when it will be really needed.

JUSTIFICATION FOR EPIDEMIC VACCINE USE

During influenza epidemics in developed countries, attack rates of 1% to 5% are most commonly observed, but the attack rate may be significantly increased among high-risk groups, with an annual mortality rate of 7.5-23 per 100,000³. Vaccination may significantly reduce respiratory illness and sick leave among healthy adults, and reduce severe disease and premature death in the elderly, and in persons with

underlying ailments or disease, during influenza outbreaks. Appropriate influenza vaccines will achieve protection rates against clinical disease of about 50%-80% in healthy adults, and in 70%-85% of the elderly against the risk of serious complications or death. Successful vaccination campaigns in the EU have targeted the elderly and other risk groups over the past decades, providing protection to an increasing number of susceptible individuals. Despite this, during the influenza season this high-risk group can still place additional pressure on health care services⁴.

The ESWI recommendation that by the year 2010, one third of the total population of the European Union 25 Member States (EU-25) should be vaccinated against epidemic influenza annually, equates to about 150 million of the 455 million population of EU-25. Current epidemic vaccination rates vary between countries due to differences in compliance rates, population size, the number of elderly per country, those with chronic medical conditions, and the number of health care workers in each country.

Current epidemic vaccine use

Although vaccines have proven to be safe and efficacious, and influenza vaccination is the primary means of preventing and reducing transmission of influenza, influenza vaccination is usually restricted to people in high-risk groups. These typically include the elderly (>65 years), and people with chronic medical conditions such as diabetes, heart, lung, or kidney disease.

Health authorities restrict reimbursement of influenza vaccination to those in high-risk groups. The current risk groups represent about 28% of the EU population. Of these, it is estimated that less than 62% are being vaccinated with the current vaccine supply, the equivalent of 17% of the EU-25 population. This shows that a large proportion of those traditionally assumed to be at most risk from influenza are not being vaccinated.

ACIP RECOMMENDATIONS FOR EPIDEMIC INFLUENZA VACCINATION IN THE USA

ACIP (Advisory Committee on Immunisation Practices)⁵ in the USA has published recommendations for the prevention and control of influenza. In addition to the high-risk groups that are currently vaccinated in Europe, ACIP also recommends (1) vaccinating young children between the ages of 6 and 23 months, making the USA one of few industrialised countries recommending universal influenza vaccination for young children⁶; (2) vaccinating all adults in the 50-64 age group because this group

has an elevated prevalence of certain chronic medical conditions; (3) persons who live with or care for persons at high risk (e.g., health-care workers and household contacts who have frequent contact with persons at high risk and who can transmit influenza to persons at high risk); (4) all women who will be pregnant during the influenza season; (5) children aged 2-18 years on chronic aspirin therapy; and (6) any other person ≥ 6 months of age wishing to reduce the likelihood of becoming ill with influenza, depending on vaccine availability.

Estimating the population in the EU-25 who could benefit most from epidemic influenza vaccination

Recent evaluations have estimated the population across EU-25 who could benefit most from influenza vaccination. In line with the ACIP recommendations, these groups include all persons aged 50 and above, health care related workers and the remaining population who are in the current high-risk groups like those who have respiratory disease, cardiovascular disease or diabetes. A substantial amount of recent data indicate that vaccination of young children would also be beneficial, but (because of differences in the health care systems between the US and Europe) more research is needed on the vaccination of healthy children in Europe.

Across the EU-25, these groups were found to represent 44%, the equivalent of 200 million of the EU-25 population. The 50 to 64 age group and the over 65 age group represent 18% and 17% respectively. In addition to these two age groups there are a further 3.6% with respiratory disease, 2.9% with cardiovascular disease, 1.4% with diabetes, and 1.0% who are in a health care related profession.

Since it is well known that in reality a maximum of 75% of the recommended groups are vaccinated, ESWI has adopted an annual vaccination target of one third of the European population within five years.

EPIDEMIC VACCINE UPTAKE AND AVAILABILITY

Although there are several justifications for vaccinating one third of the EU-25 population by the year 2010, current limitations and restrictions may have an impact on the actual percentage of the population being vaccinated.

The implication of ESWI's recommendation would be an annual vaccine usage of 150 million doses, compared to the current 79 million doses⁷ vaccine usage in Europe. Thus, today, no more than 40% of ESWI's recommended target population is being vaccinated in the EU-25. This not only leads to more influenza cases, but also

to more influenza related morbidity and mortality, resulting in a substantial extra social and economic burden that could be avoided.

SOCIAL AND ECONOMIC IMPACT OF EPIDEMIC INFLUENZA

An influenza epidemic is associated with a social and economic impact that places huge demands on health care systems, long-term illness, and mortality, as well as hospitalisation, sickness absence and associated work disruption including lost productivity⁸.

Epidemiological records on the influenza morbidity and mortality statistics in the US show that the mean annual estimate of influenza-associated deaths (underlying pneumonia and influenza; underlying respiratory and circulatory, and all-cause deaths) in the winters from 1990 to 1998 in the USA was 51,203 (or 19.49 per 100,000 population).⁹ The most significant cost of influenza to society is the indirect cost of lost productivity and absenteeism. In Europe, influenza accounts for around 10% of sickness absence from work, while the cost of lost productivity in France and Germany have shown that estimates range from £5.6 billion to £8.5 billion per year.¹⁰

The role of governments and vaccine manufacturers

Based on the research recently undertaken, ESWI recommended risk groups account for over 44% of the current EU-25 population. With current vaccine production capacity, only 17% of the EU-25 population are being vaccinated, the equivalent of a coverage of 40% in the ESWI recommended risk group. To vaccinate this group would require an additional 70 million vaccines per annum.

There is therefore an immediate need for EU-25 member states to make plans to increase vaccination coverage in the next five years. Public-private partnerships between health authorities, industry and target groups should be established to reach this goal within this period.

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