

# EFFECTIVENESS

## *Matters*



### INFLUENZA VACCINATION AND OLDER PEOPLE

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- Most deaths related to influenza occur in people over 65, and those with underlying chronic medical conditions are at particularly high risk.
- Modern influenza vaccines are effective and free from serious side effects.
- Research evidence shows that annual influenza vaccination of all older people is a cost effective way of reducing influenza-related deaths and illness.
- All people over 65 should be considered for influenza vaccination.
- If supplies are insufficient to offer vaccine to all people over 65, priority should be given to people in high risk groups, hospitals, nursing homes and long stay facilities.
- People should be offered vaccination annually in October/early November to ensure maximum protection.
- Local policies are needed to promote high rates of influenza vaccination for older people and others at high risk.

*Effectiveness Matters* is an update on the effectiveness of important health interventions for practitioners and decision makers in the NHS. It is produced by researchers at the NHS Centre for Reviews and Dissemination at the University of York, based on high quality systematic reviews of the research evidence. *Effectiveness Matters* is extensively peer reviewed by subject area experts and practitioners.

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## FLU - THE FACTS

Influenza is a common respiratory illness that may affect up to 20% of the population annually,<sup>1</sup> although only a proportion consult a doctor for clinical symptoms. Individuals infected with the virus may develop sudden fever, chills, headache, myalgia, sore throat and a non-productive cough. Serious respiratory complications can develop, including pneumonia, to which older people and all those with certain chronic medical conditions are particularly susceptible. Significant hospitalisation and 3,000 to 4,000 deaths are attributed to influenza each year in the UK.<sup>2</sup> More than 85% of these deaths are people over 65 years. In epidemic years the death toll is even higher, and in 1989/90 may have caused up to 30,000 deaths in Britain.<sup>3</sup>

Influenza A viruses change through a process known as antigenic shift giving rise to new subtypes at irregular intervals (approximately every 10-20 years). This can result in pandemics because there is no immunity to the new subtype. Lesser changes known as antigenic drift occur in both influenza A and B and usually result in epidemics.

People with the following underlying chronic conditions are at particularly high risk of serious illness or death from influenza: chronic respiratory disease including asthma and bronchitis; chronic heart disease; kidney failure; diabetes mellitus; and immunosuppression due to disease or treatment.<sup>4</sup> A UK study found that only 40% of these high risk individuals received vaccination annually.<sup>5</sup>

## EFFECTIVENESS OF THE INFLUENZA VACCINE

The influenza vaccine has been shown to be effective in reducing infection, associated illness, hospitalisation and mortality in older people when the infectious and vaccine strains are closely related. A recent randomised placebo-controlled trial established that the vaccination of people over the age of 60 halved the risk of influenza infection confirmed by a blood test.<sup>6</sup>

A number of observational studies on influenza vaccination in older people, judged by strict selection criteria to be of high quality, have been systematically

reviewed.<sup>7,8</sup> These were predominantly based on institutionalised older people in the United States.

The most comprehensive review,<sup>7</sup> based on a comparison of 8,000 people vaccinated with 20,000 unvaccinated, indicates that the vaccine is highly effective. Cases of respiratory illness, pneumonia, hospitalisations (resulting from influenza related illness) and mortality were reduced by over 50% in institutionalised elderly people (see table below).

Recent observational studies, two from the UK, have shown that the vaccine is equally effective in reducing mortality in older people living in the community and those not classed as medically at high risk.<sup>9-16</sup>

Annual vaccination is important for continued protection. Older people who are vaccinated annually have a greater protection against death than those vaccinated for the first time prior to an influenza season.<sup>9</sup>

## ADVERSE EFFECTS AND CONTRAINDICATIONS

Modern influenza vaccines contain only inactivated viruses, which means that they cannot cause influenza.

There are few side effects which are reliably attributed to the vaccine. Randomised placebo-controlled trials have established that systemic side effects (such as fever and headaches) occur with the same frequency in those receiving a placebo as they do in vaccinated groups.<sup>17,18</sup> Local side effects (soreness or swelling at the injection site) do occur in up to 20% of people, but this discomfort is usually mild and normally subsides within 48 hours of vaccination.

Serious adverse effects are rare; the only contraindication to vaccination being hypersensitivity to hens' eggs.

### Summary of effectiveness\* of the influenza vaccine

Outcome measure	% of Cases Prevented	95% Confidence Interval
Respiratory illness	49%	27 to 64%
Pneumonia	59%	35 to 74%
Hospitalisation	56%	32 to 72%
Death	69%	54 to 79%

*\*Pooled estimate of % of cases prevented by influenza vaccination when the vaccine and virulent strain are the same.<sup>7</sup> Similar results are obtained when there are small differences between the virulent and vaccine strains.*

## COST EFFECTIVENESS

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Economic evaluations in the USA based on studies comparing vaccinated and non-vaccinated populations, have shown that influenza vaccination is a cost effective way of reducing morbidity and saving lives in people over 65.<sup>14, 15, 19</sup> Although the financial cost to the NHS of influenza-related illness may be lower than in the USA, and the cost of vaccine about twice as high, extending vaccination to all the over 65s is still likely to be a highly cost effective intervention in the UK. The cost of immunising all older people will at least be met partly by reductions in expenditure due to reduced treatment and hospitalisation for influenza-related illness. The efficacy of flu vaccination, therefore, will depend on a number of factors such as the attack rate, hospital bed occupancy rate and length of stay.<sup>20</sup>

## IMPROVING VACCINATION RATES

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For vaccination to be effective the vaccine must be administered prior to infection since it takes 1 - 2 weeks to raise protective levels of antibodies. Because supply of the vaccine is slow to adjust to increased demand, only by vaccinating early can a practitioner be sure that those who most need the vaccine will receive it.

Strategies for increasing immunisation coverage should aim at improving:

- Public awareness of the need for, safety of, and methods of obtaining influenza vaccination.
- Systematic delivery of the vaccine by practitioners.

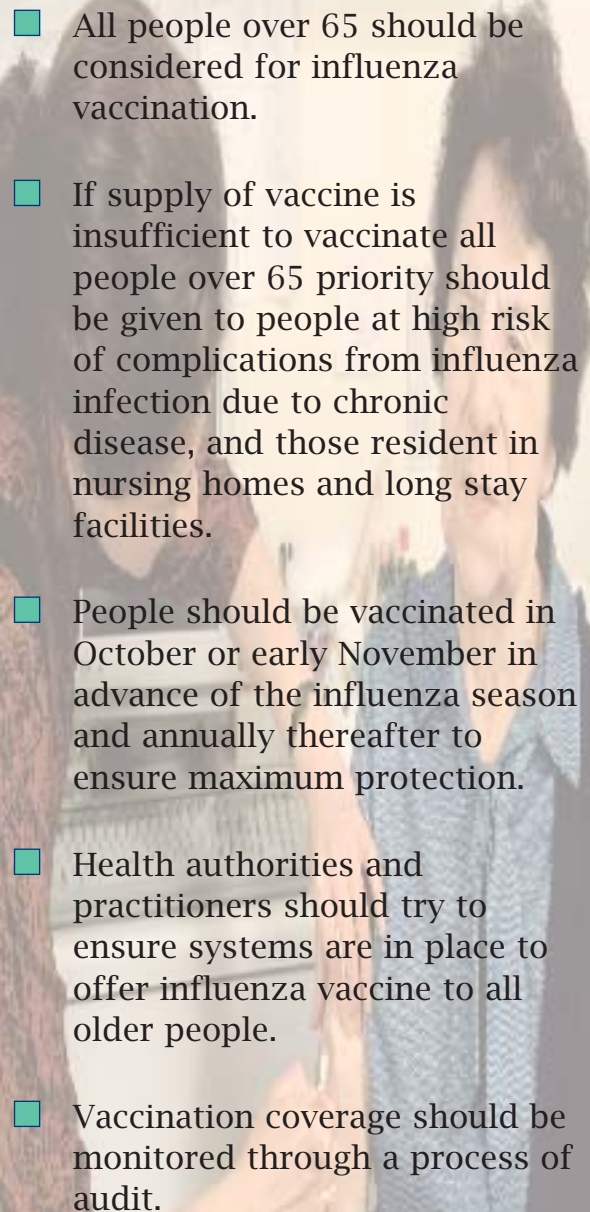
Immunisation rates can be improved by using a patient notification or reminder system.<sup>21</sup> In 1991 less than 13% of elderly people were offered influenza vaccine in this way.<sup>5</sup>

Most general practices have policies for influenza immunisation, but these are frequently only oral agreements and targets are rarely defined.<sup>22</sup> The introduction of formal policies and the use of implementation strategies such as reminders attached to the records of older patients could improve vaccination coverage rates.<sup>23, 24</sup>

The sharing of responsibility for vaccination with other members of the primary care team, such as nurses and practice managers, is also important.

# Recommendations

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- All people over 65 should be considered for influenza vaccination.
  - If supply of vaccine is insufficient to vaccinate all people over 65 priority should be given to people at high risk of complications from influenza infection due to chronic disease, and those resident in nursing homes and long stay facilities.
  - People should be vaccinated in October or early November in advance of the influenza season and annually thereafter to ensure maximum protection.
  - Health authorities and practitioners should try to ensure systems are in place to offer influenza vaccine to all older people.
  - Vaccination coverage should be monitored through a process of audit.

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## POLICY ISSUES

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Research evidence supports a policy of influenza vaccination for all older people. The vaccination of all older people has also been recommended in research reviews undertaken by the US and the Canadian Preventive Task Forces.<sup>25, 26</sup> Unlike the USA, Canada, and many other European countries, who now have an age-related policy, the Departments of Health promote vaccination of individuals at high medical risk.<sup>4</sup>

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General Enquiries: 01904 433634

Information Service

(including databases): 01904 433707

Publications: 01904 433648

Fax: 01904 433661

Email: [revdis@york.ac.uk](mailto:revdis@york.ac.uk)

University of York, Heslington, York, YO1 5DD.

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