How to Increase Influenza Vaccination Rates

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President British Global & Travel Health Association
Chairman RAISE Pan-European Committee on Influenza
National Immunisation Lead – Royal College of General Practitioners
The burden of circulating Influenza in England

- Approximately 10% of all Respiratory Hospital admissions and deaths can be attributed to circulating influenza.
- The highest admission rates are for both influenza A & B strains attributed to children under 5 years of age.
- The highest influenza-attributed death rates are seen in the group of elderly patients with chronic diseases.

Fig 3 Pathogens detected in patients with radiographic community acquired pneumonia from the Centers for Disease Control EPIC study.
## England: Major causes of death - 2015

<table>
<thead>
<tr>
<th>Males (% of all male deaths)</th>
<th>Females (% of all female deaths)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Heart disease</td>
<td>Dementia and Alzheimer’s disease</td>
</tr>
<tr>
<td>14.2%</td>
<td>15.3%</td>
</tr>
<tr>
<td>2 Dementia and Alzheimer’s disease</td>
<td>Heart disease</td>
</tr>
<tr>
<td>3 Lung cancer</td>
<td>Stroke</td>
</tr>
<tr>
<td>6.5%</td>
<td>7.5%</td>
</tr>
<tr>
<td>4 Chronic lower respiratory diseases</td>
<td>Influenza and pneumonia</td>
</tr>
<tr>
<td>5 Stroke</td>
<td>Chronic lower respiratory diseases</td>
</tr>
<tr>
<td>6 Influenza and pneumonia</td>
<td>Lung cancer</td>
</tr>
<tr>
<td>5.1%</td>
<td>5.1%</td>
</tr>
<tr>
<td>7 Prostate cancer</td>
<td>Breast cancer</td>
</tr>
<tr>
<td>4.2%</td>
<td>3.7%</td>
</tr>
<tr>
<td>8 Colorectal cancer</td>
<td>Colorectal cancer</td>
</tr>
<tr>
<td>3.0%</td>
<td>2.4%</td>
</tr>
<tr>
<td>9 Leukaemia and lymphomas</td>
<td>Kidney disease and other</td>
</tr>
<tr>
<td>2.6%</td>
<td>diseases of the urinary system</td>
</tr>
<tr>
<td>10 Cirrhosis and other liver disease</td>
<td>Leukaemia and lymphomas</td>
</tr>
</tbody>
</table>

Issued: July 2017
Influenza

• A highly infectious illness which spreads rapidly in closed communities
• Even people with mild or no symptoms can infect others

NICE: Vaccination is the most effective way of preventing illness from influenza

Antiviral drugs are not a substitute for vaccination

NICE. Oseltamivir, amantadine and zanamivir for the prophylaxis of influenza (including a review of existing Guidance no.67). 
Influenza 2015/16 VCR in 60/65+ in Europe

Published sources

Non published estimates

Belgium: 56.4%*

Croatia

Portugal: 67.9%

Colored countries: England: 71%

Published sources

Non published estimates

England: 71%

Slovenia: 10%

Kosovo: 4.8%

Hungary: 19%

Bosnia & Herzegovina: 8%

Belgium: 56.4%*

Croatia: 20%

Portugal: 67.9%

*2013 data; ** 2017 data

Country specific data. Last update: June 2017 Courtesy of Sanofi Pasteur
Outline

• Decisions are researched & debated by experts – not politicians
• The Government
• Vaccination Campaign
• Vaccine Supply
• Vaccination of the Population at risk
  • Primary Care
  • School Services
  • Hospitals
• Achievement
• Impact
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The Joint Committee on Vaccinations & Immunisations (JCVI)

- Recommendations to ministers

- Presentation of surveillance data

- Investigation of policy options

- Economic analyses

- Licensing regulations

- Vaccine quality

- Academia/scientific literature

- JCVI

- Clinical Trials

- Vaccine Coverage

- Monitoring safety & efficacy

- Disease surveillance

- Mathematical modeling

- Serological surveillance

- PHE
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The Government
Department of Health (DH)

• Carries out JCVI *Recommendation* - Considers JCVI *Advice*

• *Updates regularly The Green Book according to advice it receives from the JCVI*

• Publishes e-Letters to HCPs from the Chief Medical Officer

• Publishes regular surveillance data
Department of Health.

- Publishes the Annual Flu Plan
- Publishes regularly Vaccine Update
- Annual Contract for GPs
Department of Health

• Funds research through Public Health England (PHE)
• Funds the influenza vaccines free for all in the ‘at risk’
• PHE publishes practical & helpful information¹:
  • Videos, slide presentations, eLearning for HCPs
  • Posters, Leaflets
  • Letters of invitation to populate & send to patients
  • Letters to Head teachers, Parents
  • Information on vaccines characteristics & Disease Surveillance

¹ https://www.gov.uk/government/collections/annual-flu-programme
2017 to 2018 flu season

**Flu vaccination: invitation letter template for children aged 2 and 3 years**
12 July 2017 Guidance

**Flu vaccination: invitation letter template for at risk patients and their carers**
12 July 2017 Guidance

**Flu vaccination: easy read invitation letter template**
12 July 2017 Guidance

**Flu vaccines for children**
15 June 2017 Guidance

**Flu vaccination: who should have it this winter and why**
12 June 2017 Guidance

**Flu vaccination in schools**
11 May 2017 Guidance

**Flu vaccination: leaflets and posters**
11 May 2017 Promotional material

**Flu vaccination: easy read childhood nasal flu leaflet**
19 September 2016 Guidance

**Flu vaccination: easy read flu leaflet**
22 June 2016 Guidance

**National flu immunisation programme plan**
20 March 2017 Guidance

Leaflets and letters for patients

https://www.gov.uk/government/collections/annual-flu-programme
https://www.gov.uk/government/publications/flu-vaccination-leaflet-for-pregnant-women
Leaflets and letters for patients, teachers and parents¹⁻⁵

https://www.gov.uk/government/collections/annual-flu-programme
The School Programme

https://www.gov.uk/government/collections/annual-flu-programme
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Influenza Vaccination

• All children aged 2, 3 (GPs) & 4 to 8 years (schools)
• All patients aged ≥ 65 y
• All pregnant women – at any stage of pregnancy
• Groups at risk – age 6 m to 64 y
• Children in former primary school pilot areas

• In long-stay Residential Homes (not prisons, young offenders institutions, university halls)
• Carers (on carer’s allowance, main carer of elderly, child or disabled)
• Health & Social Care Staff (in direct contact with patients – Employers finance vaccination)
• Locum GPs (own GP)
• Any other ➔ at GP’s discretion
Influenza Vaccination
Groups at risk aged 6m to 64 y

• **Chr. Respiratory Disease** (Asthma requiring frequently inhaled/oral steroids, COPD, Interstitial lung dis, cystic fibrosis, Pneumocon., bronchopulmonary dysplasia, children previously admitted with LRT disease)

• **Chr. Heart Disease** (congenital, HF, CHD, HTN with cardiac complications)

• **Chr. Liver Disease** (fatty liver, cirrhosis, biliary atresia, chronic hepatitis)

• **Morbidly Obese** BMI ≥40

• **Chr. Kidney Dis.** (stage 3,4,5, nephrotic syndrome, transplant)

• **Chr. Neurological Dis.** (stroke, TIA, Polio, MS, cerebral palsy, learning dis., Parkinson’s, motor neurone disease)

• **Diabetes**

• **Asplenia, Splenic Dysfunction** (homozygous sickle cell dis., coeliac dis. that may lead to hyposplenism)

• **Immunosuppression** active disease or treatment, oral prednisolone ≥20mg for >1m Child <20kg => ≥1mg per kg b.w. per day)
Promotion of Vaccine Uptake

- Speak to Patient Groups
- Speak to Local Newspapers
- Local Radio
- Local TV
Parliament - Westminster Flu Day:
Jane Ellison MP
the Public Health Minister
MPs & Lords receive the Flu Vaccine Photograph in their local newspaper
Getting an annual influenza vaccination: a professional responsibility

27 Whether or not you have vulnerable adults or children and young people as patients, you should consider their needs and welfare and offer them help if you think their rights have been abused or denied.13, 14

28 If you know or suspect that you have a serious condition that you could pass on to patients, or if your judgement or performance could be affected by a condition or its treatment, you must consult a suitably qualified colleague. You must follow their advice about any changes to your practice they consider necessary. You must not rely on your own assessment of the risk to patients.

29 You should be immunised against common serious communicable diseases (unless otherwise contraindicated).

30 You should be registered with a general practitioner outside your family.
Other HCPs

• Nurses, Midwives & Health Visitors => NMC Code requires registrants to “take all reasonable personal precautions necessary to avoid any potential health risks to colleagues, people receiving care and the public”¹

• Others such as Physiotherapists, Radiographers, Paramedics registered with the Health & Care Professionals Council: “You must take all reasonable steps to reduce the risk of harm to service users, carers and colleagues as far as possible”²

². www.hcpc-uk.org/assets/documents/10004EDFStandardsofconductorformanceandethics.pdf
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Flu Vaccines provided by the Department of Health for the defined groups of patients at risk

- Children’s intranasal influenza vaccine supplied to GPs and Schools centrally by the Government

- GPs purchase flu vaccine from manufacturers
  - vaccine list price cost reimbursed to GPs by the Government
  - obtained discount (20% - 40%) from manufacturers → GPs’ profit
  - GPs maintain *vaccine cold chain*

- Pharmacists dispense flu vaccine and make a profit
At-risk Patients

If the Government thinks it is important and provides the flu vaccine free then it must be worth having it
All influenza vaccines are available to GPs

- Quadrivalent Live Attenuated Influenza Vaccine – intranasal LAIV (2 to 17 years)

- Trivalent Influenza Inactivated Vaccine (any age from 6 months)

- Quadrivalent Influenza Inactivated Vaccine (any age from 4 years – >36 months)
Influenza B virus evolution

Influenza B serotype
- split into two lineages
Vaccine mismatch in the UK

*Vaccine mismatch (>60% mismatch); †Partial vaccine mismatch (<80% matched)
Limited seasonal influenza circulation in 2009–10 during the H1N1 pandemic

VIC, Victoria lineage; YM, Yamagata lineage
Influenza vaccine recommendation

Trivalent influenza vaccine
- an A/Michigan/45/2015 (H1N1)pdm09-like virus
- an A/Hong Kong/4801/2014 (H3N2)-like virus
- a B/Brisbane/60/2008-like virus (Victoria lineage)

Quadrivalent influenza vaccine
- contains the above three viruses
- plus a B/Phuket/3073/2013-like virus (Yamagata lineage)
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Who vaccinates free the ‘at risk’ patients

• Primary Care
  • GP Practices
  • Pharmacists (from 2015)
• School Services
• Hospitals

Paediatricians in the UK
Based mainly in hospitals
→ minimal/no involvement in vaccinating children

Private influenza vaccinations of non-eligible patients carried out by Pharmacists & Private Clinics
Patients pay
Primary Care
General Practice

- A Lead member of staff responsible for the influenza campaign
- Team to organise & oversee campaign – all staff involved – regular meetings – audit – identify target patients
- Ensure vaccine supply and cold chain
- Display advertising influenza vaccination material – posters, leaflets, website, waiting room TV screen, consulting rooms
- Photograph HCPs been vaccinated are displayed in Practice premises, TV screen, Website
Flu Immunisation

We’ve had our flu vaccine.

Have you?
Walk in clinics & bookable appointments are available. Please ask at reception today.

**FLU FACTS VS FLU FICTION**

**FICTION**
The flu jab gives you flu.

**FACT**
The flu jab cannot give you flu as it doesn’t contain any live viruses.

**FICTION**
A healthy diet and vitamin C will prevent flu.

**FACT**
Flu is a virus and can affect anyone, no matter how good your immune system is.

**FICTION**
The vaccine does not work, I still got flu.

**FACT**
Over the last ten years, the vaccine has provided good coverage against flu and it is still the best way to fight flu this winter.

**FICTION**
I’ve never had flu so I’m not likely to get it.

**FACT**
The flu virus mutates so you need to be vaccinated yearly for protection.

**FICTION**
The vaccine is not safe.

**FACT**
The vaccine is well-tested and has an excellent safety record.

**FICTION**
I’m not in an at-risk group.

**FACT**
Anyone can get flu and pass it on to vulnerable groups – even with no symptoms.

Protect yourself, your family, colleagues and patients – be a flu fighter, get your flu jab.
In the GPs’ Consulting Room

I had my flu vaccine
Have You?

If the HCP advocates, supports & promotes flu vaccination, patients do accept the vaccine
GP Practice Interventions to Increase Vaccine Uptake Rates

**Flu vaccinations – Autumn / Winter**

- Inform eligible patients - call in by *Letter or Email*
- by *telephone* or *text message*
- Patients make an *appointment* by phone or online (website) or by visiting the Reception
- Convenient times/days for vaccination (open days on weekends, evenings)
- Audit ➔ Act ➔ Re-audit ➔ Act    Check Vaccination Rate

**Opportunistic:**
- Vaccines on clinicians’ desks, renewed every half an hour
- During any nurse or doctor routine consultation
- While they are waiting at the clinic for an appointment
- While attending midwife, cervical cytology, family planning
- While they pick up their prescriptions
- While they bring a relative to the Clinic, Carers

**Monthly prize to highest opportunistic vaccinator**

- House-bound patients
Opportunistic: Prompts => Yellow Flags
ImmForm England

- Website established in 2004 to collect data on the uptake of flu vaccine administered by GPs
- Weekly benchmarking comparing individual providers’ performance and providing National Data

Has accurate data
National IT system for GPs
GP Practices’ vaccination rates extracted weekly electronically

Ordering of government free vaccines online via ImmForm

www.immform.dh.gov.uk
In-Hospital vaccination

• Healthcare Workers employed by the hospital

• Pregnant Mothers attending Ante-Natal Clinics

School Services

School Nurses
INCENTIVES for Vaccinators

Fee for GPs: £9.80 (€11) per dose

Influenza vaccination – 1/9/2017 to 31/3/2018

- Age $\geq 65$ y on 31 March 2018
- Pregnant women (Maternity Unit too)
- Children aged 2 & 3 y
- Patients in the ‘at risk’ groups aged 6 m to 64 years
- Locums (own GP)

Proactive call & Recall

### Additional incentive for GPs:
**Quality & Outcomes Framework (QOF)**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Points</th>
<th>Payment stages</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHD: % of patients with CHD who have a record of flu vaccination in the preceding 1 September – 31 March</td>
<td>7</td>
<td>56-96%</td>
</tr>
<tr>
<td>STROKE: % of patients with TIA or STROKE who have had flu vaccination in the preceding 1 September – 31 March</td>
<td>2</td>
<td>55-95%</td>
</tr>
<tr>
<td>COPD: % of patients with COPD who have a record of flu vaccination in the preceding 1 September – 31 March</td>
<td>6</td>
<td>57-97%</td>
</tr>
<tr>
<td>Diabetes Mellitus: % of patients with DM who have had influenza vaccination in preceding 1 September to 31 March</td>
<td>3</td>
<td>55-95%</td>
</tr>
</tbody>
</table>

**Total 18 points x €190 = €3,420**  [for 7,460 patients - England]

Fee for Pharmacists: £9.14 (€10) per dose

Influenza vaccination - September 2017 to March 2018

- Age ≥65 y
- Pregnant women
- Patients ‘at risk’ aged 18 to <65 years
- Inform patient’s GP by close of business on the working day following the vaccination

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England: National Uptake of free influenza vaccine in eligible population

<table>
<thead>
<tr>
<th>Flu season</th>
<th>≥65s</th>
<th>&lt;65 in ‘groups at risk’</th>
<th>Pregnant women</th>
<th>HCWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014/15</td>
<td>73%</td>
<td>50%</td>
<td>44%</td>
<td>55%</td>
</tr>
<tr>
<td>2015/16</td>
<td>75%</td>
<td>48%</td>
<td>51%</td>
<td>51%</td>
</tr>
<tr>
<td>2016/17</td>
<td>73%</td>
<td>45%</td>
<td>50%</td>
<td>63%</td>
</tr>
</tbody>
</table>

JCVI June 2015 meeting:
https://app.box.com/s/iddfb4ppwkmtjusir2tc/1/2199012147/33352264435/1
2015-2016
The Ringmead Medical Practice [15,600 patients] 2016-2017

<table>
<thead>
<tr>
<th>≥ 65s</th>
<th>&lt;65 in ‘groups at risk’</th>
<th>Pregnant women</th>
<th>HCWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>76%</td>
<td>64%</td>
<td>58%</td>
<td>94%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHD</th>
<th>COPD</th>
<th>Diabetes</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>98%</td>
<td>99%</td>
<td>96%</td>
<td>98%</td>
</tr>
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**Impact of the programme: season 2014–2015**

Reduction in surveillance indicators in primary school pilot areas compared with non-pilot areas

<table>
<thead>
<tr>
<th>Age group</th>
<th>Pilot</th>
<th>Non-pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school (5–10 y)</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>&lt;5 y</td>
<td>400</td>
<td>300</td>
</tr>
<tr>
<td>≥17 y</td>
<td>200</td>
<td>100</td>
</tr>
</tbody>
</table>

**Sentinel nasal swab positivity**

<table>
<thead>
<tr>
<th>Age group</th>
<th>Pilot</th>
<th>Non-pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school (5–10 y)</td>
<td>75%</td>
<td>0%</td>
</tr>
<tr>
<td>&lt;5 y</td>
<td>70%</td>
<td>0%</td>
</tr>
<tr>
<td>≥17 y</td>
<td>5%</td>
<td>32%</td>
</tr>
</tbody>
</table>

**Influenza swab positivity in hospitals**

<table>
<thead>
<tr>
<th>Age group</th>
<th>Pilot</th>
<th>Non-pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school (5–10 y)</td>
<td>42%</td>
<td>24%</td>
</tr>
<tr>
<td>&lt;5 y</td>
<td>35%</td>
<td>27%</td>
</tr>
<tr>
<td>≥17 y</td>
<td>20%</td>
<td>9%</td>
</tr>
</tbody>
</table>

**Reduction in surveillance indicators in primary school pilot areas compared with non-pilot areas**

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<th>Pilot</th>
<th>Non-pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school (5–10 y)</td>
<td>94%</td>
<td>92%</td>
</tr>
<tr>
<td>&lt;5 y</td>
<td>90%</td>
<td>70%</td>
</tr>
<tr>
<td>≥17 y</td>
<td>59%</td>
<td>55%</td>
</tr>
</tbody>
</table>

**Relative Risk Reduction**

\[ \text{Relative Risk Reduction} \rightarrow p=0.018 \]


\[ ≥17 \text{ y} \rightarrow \text{age 17 and over (includes the over 65s)} \]

\[ \text{– does not differentiate between <65 and >65 years} \]
Impact of the programme: season 2014–2015
Reduction in surveillance indictors in primary school pilot areas compared with non-pilot areas

Relative Risk Reduction

<table>
<thead>
<tr>
<th>Influenza confirmed admission</th>
<th>93%</th>
<th>62%</th>
<th>34%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED, emergency department; HDU, high dependency unit; ICU, intensive care unit</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Influenza confirmed ICU/HDU admission</th>
<th>76%</th>
<th>61%</th>
<th>46%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Age group</th>
<th>Admission rate per 100,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school (5–10 y)</td>
<td>&lt;5 y</td>
</tr>
<tr>
<td>比例</td>
<td>0</td>
</tr>
<tr>
<td>p=0.011</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proportion of respiratory attendances (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school (5–10 y)</td>
</tr>
<tr>
<td>≥17 y ➔ age 17 and over (includes the over 65s) ➔ does not differentiate between &lt;65 and &gt;65 years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ED respiratory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school (5–10 y)</td>
</tr>
<tr>
<td>74%</td>
</tr>
</tbody>
</table>

| p=0.035 |

Impact of vaccinating primary school-age children in England

Significant impact among the target group 5–10 years\(^1\) (average vaccine uptake 56.8%) – by reducing (RRR%)

- GP consultations: 94% \((p=0.018)\)
- ED respiratory attendances: 74%. \((p=0.035)\)
- Hospitalisations due to confirmed influenza infection: 93% \((p=0.012)\)

Non-significant reductions in\(^1\)

- GP swabbing positivity: 75% \((p=0.213)\)
- Confirmed influenza ICU admissions: 76% \((p=0.271)\)
- Hospital nasal swab influenza positivity: 42% \((p=0.187)\)

The indirect impact of vaccinating primary school-age children on under 5-year-olds was shown to be over and above any direct impact that might have been due to pre-school LAIV programme itself operated across the country (GPs vaccinated 2- to 4-year-olds – average uptake 37.6%)\(^2\)

ICU; intensive care unit; RRR, relative risk reduction
Impact of vaccinating primary school-age children in England

In individuals age 17 years and over (RRR%)

- Significant INDIRECT reduction in GP ILI consultations: 59% (p=0.018)
- Nonsignificant reductions in
  - GP nasal swabbing: 32% (p=0.206)
  - ED respiratory attendances: 21% (p=0.518)
  - Influenza-confirmed hospital admissions: 34% (p=0.434)
  - Influenza-confirmed ICU/HDU admissions: 46% (p=0.115)
  - Hospital influenza swab positivity: 9% (p=0.327)

HDU, high dependency unit; RRR, relative risk reduction.
GP consultations for ILI 2014-2015 in patients aged 50–70 years

80% lower in areas where school children are vaccinated

Visited GP with ILI

- **17.4** per 100,000 in areas with no school-based vaccination
- **9.4** per 100,000 in areas with primary school flu vaccinations (age 4–10 years)
- **3.4** per 100,000 in areas with primary and secondary school flu vaccinations (secondary school age 11–13 years only)

Annual Report of the Chief Medical Officer 2015.
Conclusion

In order to increase flu vaccination rate you need

• A committed to prevention by vaccination Government
• Decisions on disease prevention by vaccination are best taken by experts – not politicians
• An annual influenza vaccination campaign
  • supported fully by the Government
  • carried out by committed HCPs
  • with free to patients vaccine
  • realistic incentives to vaccinators
• Clearly defined & Comprehensive list of groups at risk
• A national GP patient notes IT System
“When meditating over a disease, I never think of finding a remedy for it, but instead a means of preventing it”

*Louis Pasteur 1822–95*
Additional slide

If needed
Influenza vaccination: key facts for general practitioners in Europe—a synthesis by European experts based on national guidelines and best practices in the United Kingdom and the Netherlands

Flu Plan for any country