

# Influenza surveillance in the United Kingdom: October 2002 to May 2003

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## Summary

Low levels of influenza activity were observed in the United Kingdom (UK) in the 2002/2003 season. For the second consecutive season the general practitioner consultation rate for influenza-like illness (ILI) remained within the range of base line activity. Rates for ILI were highest in the 5 to 14 years age group, while adults aged over 65 years had the lowest rates. Rates for acute bronchitis were highest in the 0 to 4 years age group, followed by adults aged over 65 years.

Both influenza A and B viruses co-circulated during 2002/2003. Influenza B was the most common type in circulation during the early part of the season, and influenza A was the most common type detected over the later half of the season. Subtype A (H3N2) made up the majority of influenza A detections with influenza A (H1N1) and A (H1N2) subtypes detected in very low numbers. Most viruses characterised were antigenically similar to the vaccine strain in use during the winter.

Reports of influenza outbreaks were low, and mainly associated with influenza B infections in schools. Laboratory reports of respiratory syncytial viruses (RSV) followed the expected seasonal pattern peaking during week 49, and *Mycoplasma pneumoniae* reports remained low.

The 2002/2003 influenza season was characterised by the emergence from southern China of a novel coronavirus responsible for severe acute respiratory syndrome (SARS). At the end of February 2003 SARS spread along international routes of travel, causing epidemics in major cities in south east Asia and Canada. The World Health Organization (WHO) issued a global alert and co-ordinated a rapid response across the world. By early July 2003 it appeared that SARS had been contained. The clinical and laboratory findings from the surveillance in the UK for SARS cases during the epidemic period of SARS activity in 2003 will be reported in the 2003/2004 annual influenza report.

**Keywords:** *influenza, epidemiology, outbreak, surveillance*

## Introduction

Surveillance of influenza is carried out by the Health Protection Agency (HPA) throughout the year, but with a particular focus over the winter months October to May. The aims of influenza surveillance are to:

- Monitor circulating strains of influenza virus and to detect new subtypes and strains of epidemic potential.
- Use the information acquired during monitoring to contribute to the decision on the vaccine composition for the following season.
- Compare current strains with those seen in previous years.
- Provide timely and up-to-date information on influenza activity for healthcare professionals.
- Assess the impact of influenza activity on morbidity and mortality.
- Keep the mass media and public informed.

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## Methods (sources of data)

Influenza surveillance relies broadly on two main sources of data for monitoring influenza activity: clinical and virological. Previous reports have described in detail the format and type of data sources used for influenza surveillance in England, Wales, Scotland, and Northern Ireland (1). The use and principle of thresholds for describing levels of influenza activity based on consultation rates with general practitioners (GPs) in different sentinel schemes in England, Wales, and Scotland have also been described (2). A brief summary of the sources of data

used for influenza surveillance in the United Kingdom (UK) by the HPA is given below:

### Clinical

**Royal College of General Practitioners (RCGP) weekly returns service.** A weekly reporting service from sentinel GP practices distributed throughout England, from which morbidity data from each new consultation is recorded as the working diagnosis made by the general practitioner. Unpublished diagnostic guidelines for acute respiratory infections have been circulated to participants in the RCGP scheme. Rates for influenza-like illness (ILI), acute bronchitis, and total respiratory disease are of particular relevance. Similar schemes are run in Northern Ireland, Scotland, and Wales. All rates are reported per 100,000 of the general population.

**NHS Direct.** A telephone service throughout England and Wales run by nurses to provide medical advice to the public. Call rates are compiled for a number of diagnostic algorithms including the proportion of calls for cold/flu and fever by age group and by NHS Direct site. The potential of this information is being assessed for its contribution to the surveillance of influenza activity in the community

**Medical Officers of Schools Association (MOSA).** A boarding school surveillance scheme operated by the Medical Officers of Schools Association (MOSA) principally to detect early outbreaks. Weekly rates per 1000 boarding school pupils from sentinel schools are provided for influenza and influenza-like illness.

### Influenza vaccine uptake monitoring

In May 2000 the Department of Health (DH) announced a change to the existing policy for influenza vaccination and for the first time recommended that all patients aged 65 years and over, regardless of underlying disease risk, should be offered vaccine. Monitoring of uptake among this population group was also introduced and is undertaken by the HPA Communicable Disease Surveillance Centre (CDSC), Colindale, on behalf of DH. The data is collected monthly for the period October to December and an annual national uptake target was set at 70% for 2002/2003. Since 2002 the data has been collected from general practices through named flu immunisation coordinators in primary care trusts (PCTs).

### Virological

**Respiratory Virus Unit (RVU), Enteric, Respiratory, and Neurological Laboratory (ERNVL), Specialist Microbiologist Reference Division (SRMD) Colindale.** This is the reference laboratory for subtyping, antigenic and genetic characterization of influenza, and other respiratory viruses. The laboratory receives specimens/isolates referred from the network of laboratories (both HPA and NHS) around the UK. ERNVL also participates in community surveillance schemes and collaborates with local health protection services and laboratories in investigating outbreaks.

**RCGP/ERNVL Virological Surveillance Scheme.** Community-based sampling for influenza by GPs from the RCGP spotter practice scheme.

**CDSC Virological Surveillance of Influenza Scheme.** Community based sampling for influenza by GPs outside the RCGP scheme and in collaboration with HPA and NHS laboratories.

**HPA/NHS laboratory reports.** A voluntary reporting system to CDSC from HPA and NHS laboratories in England and Wales of influenza A or B positive specimens. Clinical specimens that yield positive results for influenza either by single elevated serological titre, sero-conversion, antigen detection, culture, or genomic detection are reported.

### Deaths

**Office for National Statistics (ONS).** Weekly registration of deaths by age and cause. This is used for assessing the impact of influenza from year-to-year.

### Outbreaks

Information is collected on outbreaks of influenza and other respiratory illness in England and Wales reported to CDSC Colindale or the HPA's ERNVL.

### International

Influenza activity outside the UK is received using information from the following organisations:

- World Health Organization (WHO) <<http://oms2.b3e.jussieu.fr/flunet/news.html>>,
- Centers for Disease Control and Prevention (CDC Atlanta) in the United States <<http://www.cdc.gov/ncidod/diseases/flu/fluivirus.htm>>,
- European Influenza Surveillance Scheme (EISS) <<http://www.eiss.org>>.

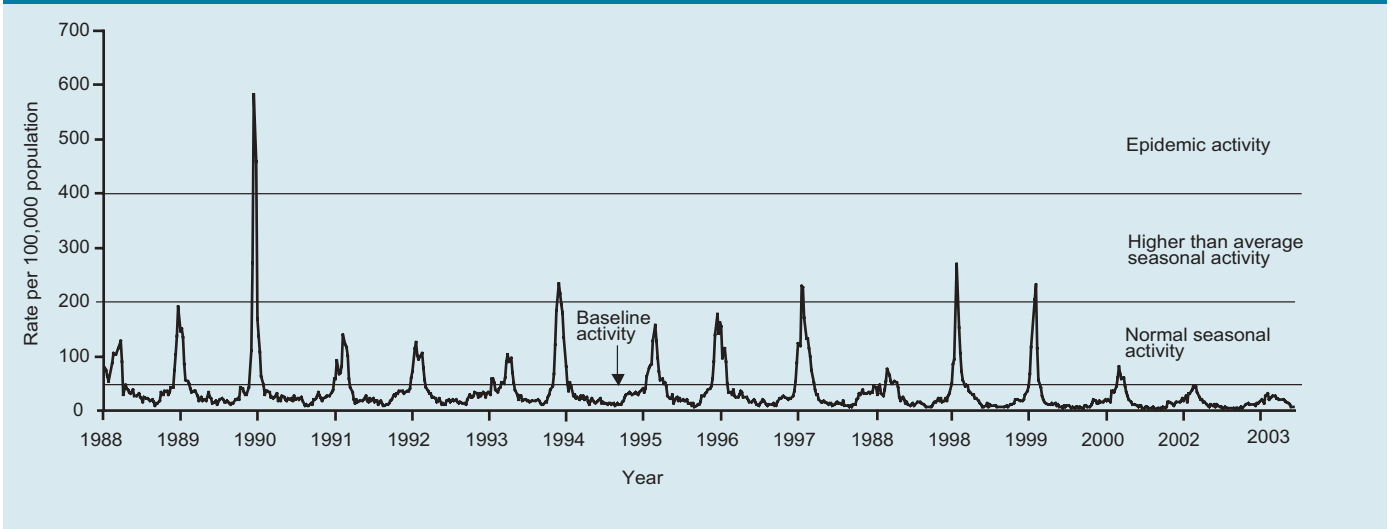
Unless otherwise stated the data in this report covers the period October 2002 to May 2003 (weeks 40/02 to 20/03), but does not include laboratory or clinical data specifically relating to the investigation of suspected SARS cases in the UK during which UK SARS surveillance was implemented (March 2003 to July 2003). This information will be documented in the annual influenza report for the 2003/2004 season.

## Results

### Clinical

**Royal College of General Practitioners (RCGP), England.** In the RCGP sentinel scheme the rate for 'influenza-like illness' (ILI) remained below the baseline threshold of 50 consultations per 100,000 of population throughout the season (figure 1). Rates started to rise in week 52/02 reaching an overall peak of 31/100,000 in week 02/03 and then remained little changed until decreasing in week 10/03. The highest consultation rates were seen in children aged between 5 and 14 years (59/100,000 week 04/03) followed by children aged between 0 and 4 years (54/100,000 in week 07/03) (figure 2). Distribution of rates by RCGP region showed that the northern (43/100,000 in week 02/03) and central (42/100,000 in week 07/02) regions

**Figure 1** Weekly consultation rates for influenza like illness, RCGP Weekly Returns Service: 1988-2003



had the highest consultation rates, while the southern region had the lowest peak (23/100,000 in week 08/03).

RCGP consultation rates for acute bronchitis reached a maximum in week 01/03 of 198/100,000. As expected the highest rates were seen in children aged from 0 to 4 years age group (727/100,000 in week 49/02) and those aged over 65 years (422.9/100,000 in week 02/03) (figure 3). These rates were slightly higher than the previous years figures for the 0 to 4 years age group (643/100,000 in 2001/2002) and slightly lower than the rate of 573/100,000 in 2001/2002 for those aged 65 years and over. The consultation rate for the combined total of respiratory disease definitions 649/100,000 remained lower than the previous year peak of 788/100,000.

**Wales**

Consultation rates in the sentinel GP scheme co-ordinated by CDSC Wales remained within the range for 'baseline activity' of less than 25/100,000 population for the duration of the 2002/2003 season. Rates peaked at 8/100,000 in week 01/03.

**Scotland**

Consultation rates for influenza and flu like illness (ILI) in the sentinel GP scheme co-ordinated by the Scottish centre for Infection and Environmental Health (SCIEH), remained within the range for 'baseline activity' of less than 50/100,000 for the duration of the 2002/2003 season. Rates peaked at 42/100,000 in week 03/03.

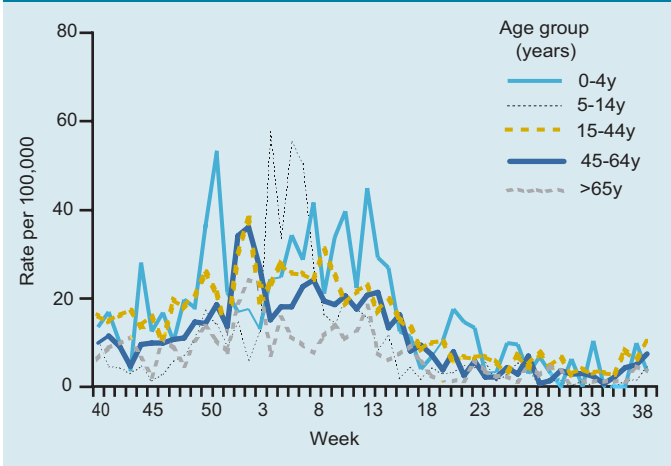
**Northern Ireland**

During the third year of enhanced surveillance, co-ordinated by CDSC Northern Ireland, consultation rates were higher than those of the previous year. The scheme has only been running for three years and so baseline values have not yet been determined. A peak rate of 9/100,000 (week 06/03) for flu and 70/100,000 (week 07/03) for flu-like illness, and a combined rate for flu and flu-like illness of 74/100,000 (week 07/03) were observed during 2002/2003.

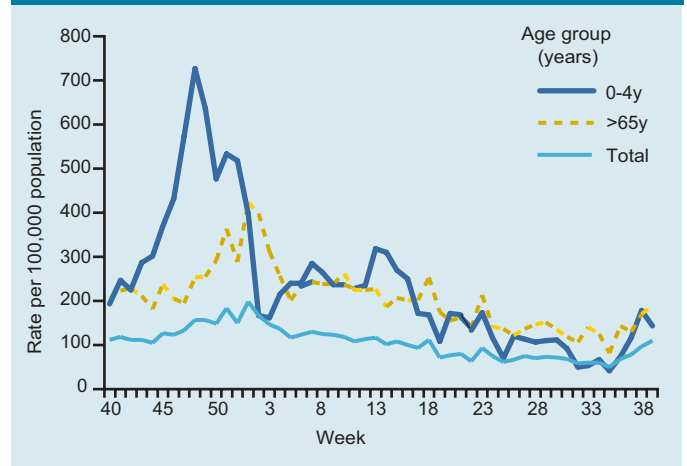
**NHS Direct**

During weeks 40-52/02 the total call rate followed a

**Figure 2** RCGP consultation rate for influenza and influenza-like illness by age, England: 2002-03



**Figure 3** Consultation rates in general practice for acute bronchitis by age (RCGP): 2002-03



**Table 1** Virological typing of positive specimens received by ERNVL/RVU during the 2002/2003 influenza season, PCR or virus isolation

Source	Influenza type/subtype								
	A/H1	A/H1N1	A/H1N2	A/H3	A/H3N2	(A) total	B	Total	RSV
Hospital	3	11	5	14	153	186	176	362	139
Community	2	3	2	12	59	78	77	155	172
<b>Total</b>	<b>5</b>	<b>14</b>	<b>7</b>	<b>26</b>	<b>212</b>	<b>264</b>	<b>253</b>	<b>517</b>	<b>311</b>

similar pattern and level to the 2001/2002 season. From week 01/03, however, the overall call rate remained about 15% higher than for the previous year. Two main peaks occurred in the overall call rate between weeks 40/02 and 20/03; one at week 52/02 (289 calls/100,000) and a second slightly higher peak at week 16/03 (295 calls/100,000). The pattern for the percentage of calls which were cold/flu related peaked later in the season and at a lower level (1.4% in week 17/03) compared to the previous 2001/2002 season (1.9% in week 05/02) (figure 4).

**Vaccine uptake**

The number of people registered with GPs in England who are aged 65 years or over was calculated as 8,008,299, of whom 5,487,645 were reported to have been vaccinated during the winter of 2002/2003. Most of the vaccination programme took place in October and November. The overall national vaccine uptake rate was calculated to be 68.5%, with individual PCT rates varying from 49.2% to 77.5% with 154/304 (51%) of PCTs achieving uptake rates of 70% or more. The response rate by GPs ranged from 100% in 124 PCTs to 42.5% in one PCT in the West Midlands.

**Virological**

**Enteric, Respiratory, and Neurological Laboratory (ERNVL).** Between 28 September and 18 May 2003 ERNVL received 747 samples from community sources, and from hospital sources there were 362 positive influenza specimens (49% influenza B) including referred positive culture fluids, and 139 positive RSV specimens (table 1). Of the 747 community specimens received, 155 (20.7%) were positive for influenza viruses (50% influenza A positive and 50% influenza B positive), and 172 (23%) positive for RSV. In total, (community and hospital combined) of the 517 positive influenza detections or isolates, 253 were influenza B (49%), and 212 (41%) influenza A, (153 (30%) A (H3N2), 26 (5%) A (H3N untyped), 14 (5%) A (H1N1), 7 (1.4%) A (H1N2), and 5 (0.1%) A [H1N untyped]) (table 1). Community derived detections were predominantly

**Table 2** Estimated excess mortality due to influenza in England and Wales

Season	Number of excess deaths
1988/89	1627
1989/90	26,952
1990/91	6642
1991/92	4605
1992/93	942
1993/94	12,582
1994/95	1340
1995/96	14,516
1996/97	20,779
1997/98	–
1998/99	17,046
1999/00	20,842
2000/01	232
2001/02	5794
2002/03	4616
<b>Total</b>	<b>138,515</b>

NB Every year the model is revised to incorporate the current season's data. The fitted model then not only creates a figure for the most recent season, but also readjusts the previous years figures.

from those in the 5 to 14 years age group and 15 to 44 years age groups, while hospital detections were mainly from children aged less than 5 years (figure 5).

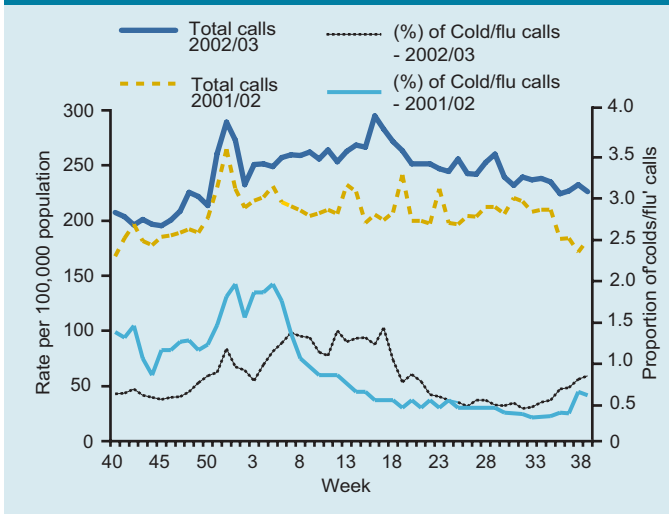
The majority of isolations were confirmed as similar to the current vaccine strains B/HongKong/330/01, A/Panama/2007/99 (H3N2), and A/New Caledonia/20/99 (H1N1) respectively. A small number of H3N2 viruses were isolated, which showed reduced reactivity to A/Panama/2007/99. These were characterized as A/Fujian/411/2002-like, a new antigenically drifted strain from the Panama like strains which have been circulating in recent years. During the enhanced surveillance that was initiated for possible SARS cases, detections of this new strain were also made during the late spring/early summer in returning travellers from the far east.

**Laboratory reports.** Laboratory reports with a week of specimen between week 40/02 and week 20/03 yielded 339 confirmed influenza A infections (peak of 37 detections in week 14/03) infections, 278 confirmed influenza B (peak of 31 detections in week 8) and 6996 confirmed RSV infections (peak of 760 detections in week 49/03) reported from HPA and NHS laboratories in England and Wales (figure 6).

**Community Surveillance schemes**

**RCGP/ERNVL.** Between weeks 40/02 and 20/03, 475 samples from the RCGP community based surveillance scheme were tested for influenza. Of these, 101 (21%) were positive for influenza and 127 (27%) positive for RSV. Of the influenza positive specimens, 55 (54%) were influenza B, 34 (34%) influenza A (H3N2), 10 (10%) A (H3N untyped), 1 (1%) A (H1N1), and 1 (1%) A (H1). The 5 to 14 years age group had the highest positivity rate

**Figure 4** NHS Direct total call rate and proportion of 'colds/flu' calls: 2002-03 and 2001-02



for influenza B (41%), while children aged 0 to 4 years had the highest positivity rate for influenza A (16%). Those aged 65 and over had the lowest influenza positivity rate followed by the 15 to 44 years age group.

**CDSC surveillance scheme.** Sixteen laboratories contributed to the scheme receiving 280 specimens from 29 GPs. Forty specimens (14%) were positive for influenza (20 A, 20 B, and 18 were positive for other viruses, including RSV). The percentage of positive specimens for influenza by age group were: 17% (0 to 4 years), 8% (5 to 14 years), and 8% (15 to 44 years). No specimens positive for influenza were detected among people aged 65 years and over. The 5 to 14 years age group had the highest number of specimens detected for influenza B (29%).

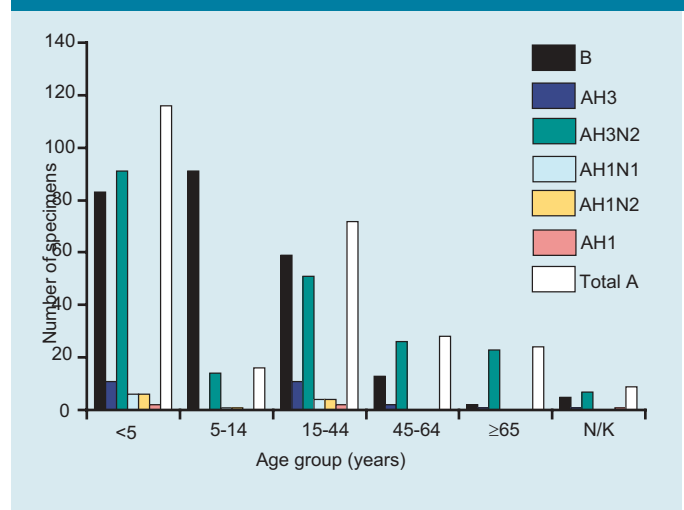
**Mortality**

The total number of deaths due to all causes by week of registration peaked at 18,303 in week 02/03. The number of deaths registered during the previous week was only 7072 indicating that the unusually high peak was due to a backlog of unprocessed reports over the Christmas period. In comparison with the previous number of 358,543 deaths registered (provisional data) during the 2001/2002 season, the total number of deaths registered between week 40/02 and 20/03 showed little difference at 357,279. Fifteen deaths were registered with influenza as the cause of death during the 2002/2003 season compared to 32 in the previous season. The combined number of deaths attributed to acute bronchitis, pneumonia, and influenza was 24,226 between weeks 40/02 and 20/03 compared with 24,851 for the previous 2001/2002 season. The total estimated number of excess deaths (calculated using a time series model based on the method of Serfling) (3) attributable to influenza between week 40/02 and week 20/03 was 4616 compared to 5794 for the previous season (table 2).

**Outbreaks**

During the 2002/2003 influenza season there were nine outbreaks reported to CDSC. These occurred from the

**Figure 5** Age distribution and subtyping for influenza specimens detected by ERNVL: 2002-03

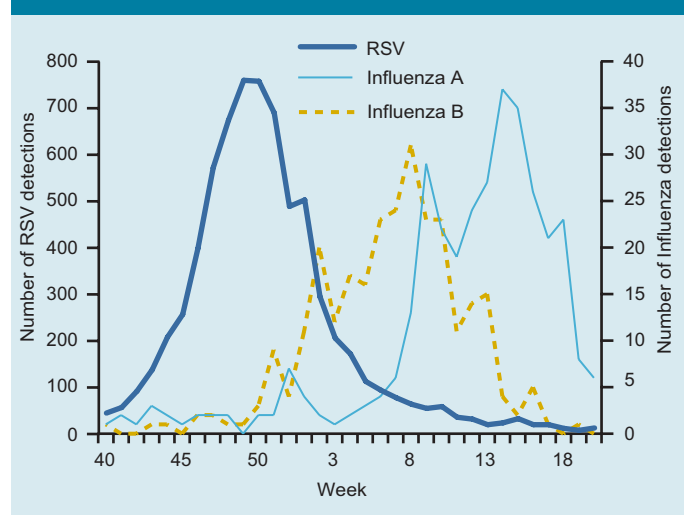


end of January 2002 to mid-March 2003. Seven of the reported outbreaks occurred in schools, with attack rates ranging from 7% to 58%. Influenza virus was isolated in eight out of the nine outbreaks, with five outbreaks attributed to flu B, one with mixed infections of influenza B and A (H3N2), and two outbreaks associated with A (H3N2).

**Influenza activity elsewhere**

Influenza activity across Europe remained low during the 2002/2003 season and was marked by influenza B activity predominating in western Europe until week 06/03, particularly in Spain and Portugal. This was followed by a rise in influenza A (H3N2) activity in central and eastern Europe which then moved into western Europe. More than 99% of the viruses detected through the European Influenza Surveillance Scheme (EISS) network were closely related to the northern hemisphere 2002/2003 vaccine strains. A very small number of H3N2 viruses showing reduced reactivity

**Figure 6** Laboratory reports (all methods) by week of specimen for influenza A, B, and RSV



to A/Panama/2007/99 antiserum were detected in Norway and England at the end of January. These were characterised as A/Fujian/411/2002-like. They were not associated with any unusually severe disease (4).

The 2002/2003 influenza season was mild in the US. Influenza morbidity peaked during early to mid-February 2003, and pneumonia and influenza mortality peaked during late February. The predominant virus varied by region and time of season. The season was characterised by influenza B as the most common virus type detected early in the season, particularly in the states of Texas and Missouri, followed by influenza A viruses making up the majority of detections later in the season. Fifty-six per cent of detections were influenza B and of the influenza A detections 70.3% were subtyped as A(H1) viruses. The majority of influenza B isolates characterised were of the B/Victoria lineage and were antigenically similar to the vaccine strain (5).

In Hong Kong, outbreaks of avian influenza A (H5N1) in poultry populations were reported on a number of occasions in both domestic poultry and wildfowl populations during the Christmas and new year period of 2002/2003. Two human cases infected with A (H5N1) were reported in Hong Kong in February 2003. These occurred among members of a family who had travelled to southern China. No further cases were detected (6).

In the Netherlands there was a major outbreak of highly pathogenic avian influenza (HPAI) A (H7N7) virus on chicken farms between February and May 2003 which spread to Belgium and Germany. Over 30 million chickens were culled in attempts to control the outbreak. Human cases of conjunctivitis and influenza-like illness, with confirmed laboratory detection of H7N7 virus were reported among those involved in controlling the outbreak (7). There was one death reported from which A (H7N7) virus was detected (8).

**Southern hemisphere.** During the southern hemisphere winter (May to August 2003) the Fujian strain of influenza A H3N2 made up the majority of isolations reported to the World Health Organization (WHO) collaborating centre in Melbourne, Australia. According to the collaborating centre, Australia experienced one of its biggest influenza seasons since 1998. During the peak period of influenza activity in August 2003, all regions in Australia (except the Northern Territory) reported large outbreaks of influenza. New Zealand also recorded the highest levels of influenza consultations for the last three years during the winter of 2003 with the peak period occurring during June and July. The Fujian strain also circulated in New Zealand.

**Africa.** A number of influenza A(H3N2) outbreaks occurred in African countries with populations weakened by humanitarian and economic situations during the 2002/2003 season. A notable epidemic of respiratory illness attributable to H3N2 occurred in Madagascar with 22, 646 cases reported and a 3% case mortality. A further outbreak of H3N2 occurred in The Democratic Republic of Congo with a case fatality of between 3% and 3.5% according to age. In both

countries the strain of A (H3N2) was Panama-like and related to the vaccine strain (9).

### Vaccine match

In the UK, the majority of circulating strains isolated in 2002/2003 showed a good match with the influenza vaccine components and the vaccine is likely to have conferred substantial protection.

### Discussion

Influenza activity was very low during the 2002/2003 season. In England, the clinical levels remained within the base line range of 0 to 50 consultations per 100,000 population. A similar situation was seen in Scotland and Wales where rates for influenza-like illness in the respective surveillance schemes also remained within base line levels throughout the season. In Northern Ireland, rates were also low but, to date, no base lines have been agreed. RCGP rates were highest in the 0 to 4 years and the 5 to 14 years age groups, and lowest in the over 65 years age group.

Influenza B virus was the main influenza type detected in circulation for the majority of the season, while influenza A detections became the major type detected in the later half of the season (end of February). Influenza B traditionally causes milder symptoms than influenza A, and commonly affects the younger age groups (10). This was observed in England where clinical indicators for influenza like illness were highest among the younger age groups. The majority of circulating influenza A and B viruses were a good match to those of the vaccine components so it is likely that the vaccine would have conferred good protection. It is also likely that the older age group population would have developed reasonable levels of immunity as the influenza A H3N2 strain has been circulating for a number of years. Very few detections of the new H1N2 subtype (first detected in circulation during the 2001/2002 season) were made during the 2002/2003 season. The number of outbreaks reported were lower than the previous year and the majority occurred in schools and were caused by influenza B.

General practitioner consultation rates for acute bronchitis followed the expected seasonal pattern and peaked during week 01/03. The highest rates were seen in young children aged between 0 and 4 years (week 48/02) and adults aged over 65 years (week 01/03). Laboratory reports for RSV peaked in week 49/02. Over 90% of RSV infections reported were among children aged between 0 and 4 years. It is likely that RSV made a significant contribution to levels of acute bronchitis and influenza like illness in children aged between 0 and 4 years and bronchitis rates in adults aged 65 years and over. Testing for RSV in adults is less common compared with young children so may account, in part, for the uneven age distribution of reports received. Mycoplasma infections for 2002/03 remained at low levels

### Vaccine uptake

This is the third year of very low influenza activity in England, and across the UK generally, thus the effectiveness of the high vaccine uptake among the

elderly is difficult to interpret. Consultation rates of acute respiratory infection and acute bronchitis have been lower in this age group than in earlier years of low influenza activity, suggesting that morbidity has been reduced by vaccination

### **Influenza A (H3N2)**

A recent genetic drift variant of A(H3N2), A/Fujian/411/2002, was detected at very low levels in Europe (including England) during the winter 2002/2003. Further detections of this strain were made in the UK during the spring and early summer in travellers returning from the eastern Asia. These were detected during the surveillance for potential SARS cases in the UK at the time of the global epidemic in 2003 (The 2003/2004 annual influenza report will document the period of SARS surveillance in 2003 and the results of the laboratory work from this period). Given the low levels of the new variant, detected circulating during the winter 2002/2003, the H3N2 component (a Moscow-like strain) of the vaccine recommended by the WHO for the 2003/2004 season in the northern hemisphere remained unchanged from that recommended for the 2002/2003 season (11). The Fujian strain was then reported commonly during the southern hemisphere winter (May to Sept 2003) with both Australia and New Zealand reporting their highest influenza rates in recent years. As a result, the vaccine recommendations for the 2004 winter season in the southern hemisphere announced by WHO include an AH3N2 A/Fujian/411/2002-like strain (12).

### **Avian influenza**

Outbreaks of avian influenza are monitored closely around the world not only because of their threat to the poultry industry, but also because of the possibility of a pandemic threat posed by avian influenza to the human population. Two serious incidents of transmission of avian influenza to human populations have been documented in the last ten years. In 1997 an outbreak in Hong Kong of subtype A (H5N1) caused six fatalities, while transmission of A (H9N2) also in Hong Kong caused only a mild illness (in two young children).

In February 2003 two cases of A (H5N1) were reported by the Hong Kong authorities, one of whom died. These occurred in a family that had recently travelled to southern China (6). The close relationship between the human populations in southern China (including Hong Kong) and domestic animal populations in which influenza viruses circulate makes this area of the world a likely site for the emergence of novel influenza viruses of pandemic potential (13), and for this reason this geographic region is under enhanced influenza virus surveillance.

In the Netherlands, an outbreak of highly pathogenic avian influenza (HPAI) A (H7N7) virus on chicken farms resulted in over 30 million chickens being culled. The outbreak also affected the poultry industry in Belgium and Germany. Although transmission to humans in Holland was documented, the majority of symptoms were reported as mild with conjunctivitis the major symptom. Influenza A (H7N7) virus was detected in a

veterinarian, aged 57 years, who had visited an infected farm and who subsequently died of pneumonia. WHO concluded that the death was an isolated occurrence, as no efficient human-to-human transmission of the avian H7N7 influenza virus strain was detected (8). Further reports of human infections of H7N7 declined with the introduction of stringent safety measures. As well as comprehensive physical protection, workers were also vaccinated against human influenza strains to prevent potential mixing of human and avian influenza virus and also given prophylaxis with the antiviral drug Oseltamivir. In the UK, imports of live poultry and hatching eggs from the affected countries were banned. The Department for Environment, Food, and Rural Affairs (DEFRA) considered the threat of avian influenza to flocks in the UK to be low, but as a precaution DEFRA prepared a bio-security code for poultry owners to minimise the introduction of disease into their birds. The influenza reference laboratory, ERNVL, has also made arrangements to provide routine testing for avian influenza virus infection should the need arise.

### **NHS Direct virological sampling**

The number of sites that collected call data during the 2002/2003 season remained at 22, the same as for the previous year. The overall call rate remained higher than during 2001/2002, but this was not a significant increase and there are signs that the system may be settling down, although a few more years data are still needed in order to determine baselines. A pilot study, which has been developed for the 2003/2004 season (subject to ethical approval), will examine the feasibility of collecting diagnostic samples from callers, using influenza as a test study organism. This collaborative work involves NHS Direct, the Regional Surveillance Unit (HPA West Midlands), and the HPA CDSC and Respiratory Virus Unit, Colindale.

### **Respiratory mortality**

The figures for both all cause mortality and respiratory deaths (acute bronchitis, pneumonia and influenza) between weeks 40/02 and 20/03 were similar to that of the 2001/2002 season. The total estimated number of excess deaths attributable to influenza was approximately 1000 deaths lower compared with the previous season (table 1). This supports the clinical data, which indicates that the last two influenza seasons have been mild with low levels of influenza activity. The influenza B activity which predominated during 2002/2003 may account for the reduction in excess deaths since this strain is known to affect younger age groups and cause a milder illness than influenza A.

### **Thresholds**

In England, thresholds based on the RCGP rates of influenza like illness have been used since 1997 to inform health professionals and the general public of the levels of influenza activity and indicate when it is most appropriate to consider prescribing antiviral drugs. The currently used threshold values (consultations per 100,000) are: <50 (baseline), between

50 and 200 (normal seasonal activity), between 200 and 400 (higher than average seasonal activity), and >400 (epidemic activity). There has been a secular decline in the levels of consultations for influenza illness over the last 20 years. A recent analysis of integrated clinical and laboratory historical data for England now suggests that the alternative threshold values of 0 to 30 (baseline), between 30 and 200 (normal seasonal activity), and >200 (epidemic activity) would be more appropriate for describing levels of influenza activity in England (14). Further discussions are planned with the Department of Health and RCGP to take this proposal forward.

### NICE guidance and Oseltamivir

In July 2003, the National Institute of Clinical Excellence (NICE) published final guidance (subject to appeal) on the use of oseltamivir and amantadine for the prophylaxis of influenza (15). Oseltamivir is recommended for the post-exposure prophylaxis of influenza in at-risk individuals aged 13 years or over who are not effectively protected by vaccination, and have been exposed to someone with influenza-like illness (ILI) in the same household. In addition, oseltamivir is recommended for the post-exposure prophylaxis of influenza in at-risk individuals aged 13 years or over, who are able to begin prophylaxis within 48 hours of exposure, whether or not they have been vaccinated, if they live in residential care establishments where a resident or staff member has influenza-like illness. Oseltamivir is not recommended for post-exposure prophylaxis in healthy people aged under 65 years, or for seasonal prophylaxis, while amantadine is not recommended for either post-exposure or seasonal prophylaxis.

### Vaccine recommendations

In March 2003 the WHO announced the recommended vaccine components for the 2003/2004 winter season in the northern hemisphere. The recommended components for the 2003/2004 vaccine for the northern hemisphere are (10):

- an A/New Caledonia/20/99(H1N1)-like virus
- an A/Moscow/10/99(H3N2)-like virus (The widely used vaccine strain is A/Panama/2007/99)
- A B/Hong Kong/330/2001-like virus a B victoria like virus.

As a result of insufficient data, the decision on the A (H3N2) component was deferred until March 2003. Haemagglutination-inhibition (HI) tests identified an increasing proportion of virus isolates distinguishable from A/Panama/2007/99 and similar to A/Fujian/411/2002. Since no A/Fujian/411/2002-like virus, isolated in embryonated eggs, was suitable for use as a vaccine candidate at the time, and since many isolates were antigenically related to A/Panama/2007/99, it was recommended an A/Moscow/10/99 (H3N2)-like virus be used for the A (H3N2) component of vaccines to be used in the 2003-2004 season.

In October 2003 the WHO announced the recommended vaccine components for the southern

hemisphere winter 2004. The A (H3N2) component will be replaced with an A/Fujian/411/2002 like strain to take account of the new data from virus isolations during the 2003 southern hemisphere winter. Suitable egg grown vaccine candidates which are A/Fujian/411/2002-like are: A/Kumamoto/102/2002 and A/Wyoming/3/2003.

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