

**Communicable Disease Surveillance Centre (NI)
Dept. of General Practice, QUB, Data Retrieval Project
Regional Virus Laboratory**

**Enhanced Surveillance of Influenza
in Northern Ireland**

**Summary
Season 2002-2003**

This summary is circulated to Trust Chief Executives, Directors of Public Health, Consultants in Communicable Disease Control, participating practices and other interested parties. We would encourage you to disseminate it internally to any relevant personnel. For further information or any comments on the contents or presentation of this document, please contact Dr Hilary Kennedy at 028 9026 3765 or E-mail at <mailto:hilary.kennedy@hpa.org.uk>

Further copies may be downloaded from <http://www.cdscni.org.uk/>

- ◆ *Very low level of Influenza activity in Northern Ireland during the 2002/03 season*
- ◆ *Influenza B predominated*
- ◆ *Rates of 'flu-like illness highest in children*

Enhanced Surveillance of Influenza in Northern Ireland

Introduction

This bulletin is produced as part of the enhanced surveillance of influenza in Northern Ireland. The principal aim of the project is to provide an early warning scheme for influenza virus circulation in Northern Ireland. The scheme involves the weekly compilation of data from sentinel GP practices and out-of-hours Co-Operatives (Co-Ops).

Sentinel GP Practices

During last season (2001/02), consultation-based information regarding 'flu and 'flu-like illness was supplied by twenty spotter practices across the Province. Prior to the commencement of the current season, 2 practices withdrew from the scheme (due to other commitments) and a further 6 practices joined. This brought to 24 the number of practices taking part during 2002/03, representing 143 352 patients throughout Northern Ireland (approximately 8.5 % of the population). It is hoped that, once again, it will be possible to increase this number further for next winter.

Co-Operatives

Out-of-hours Co-Operatives were, once again, involved in provision of information for the enhanced influenza surveillance scheme. Six Co-Ops, covering approximately 1 349 000 people (79.5 % of the population), undertook to supply weekly data on numbers of calls received and the age/sex breakdown of those calls. It is hoped that, in due course, it will be possible to identify the proportion of calls each week attributable to 'flu-like illness or upper respiratory tract infection.

The purposes of the scheme are to supplement the surveillance data already available through routine laboratory testing. Many of those who suffer from influenza will self-medicate, or may visit or contact their GP (or nearest Co-Op) if their symptoms are more severe. It is unlikely that samples would be taken from such individuals for laboratory testing. Consequently, most samples which are tested by the laboratory originate from patients who have taken ill, become hospitalised due to an underlying condition such as

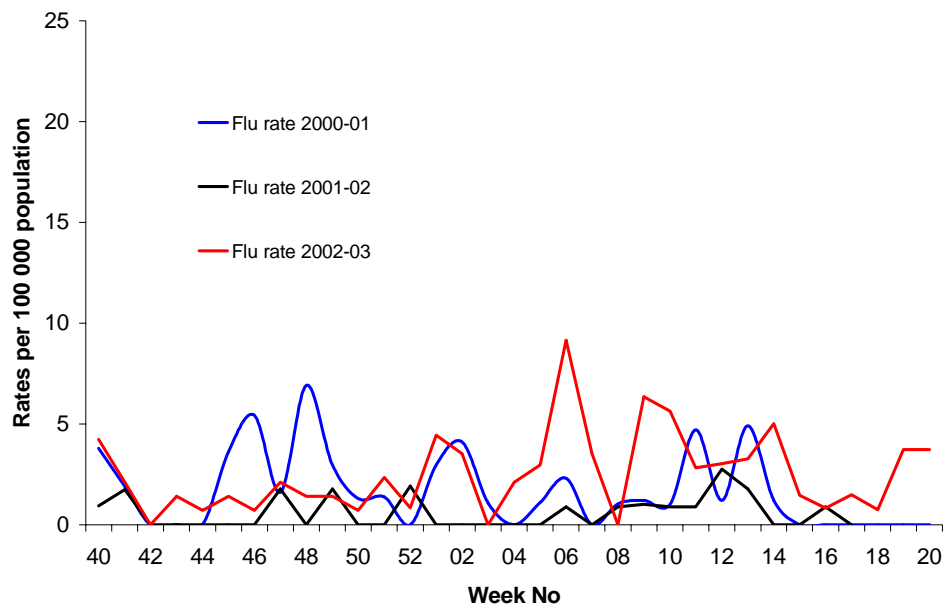
diabetes or cardiorespiratory disease, or who have developed complications. By the time samples have been taken from such patients for laboratory testing, virus will have been circulating in the community for several weeks. To increase the predictive value of surveillance, it is important that more timely and representative information is retrieved. Such data could be used in the planning of resources and personnel in primary and secondary healthcare, and in turn reduce the pressures on associated resources.

Consultation rates

Sentinel GP Practices

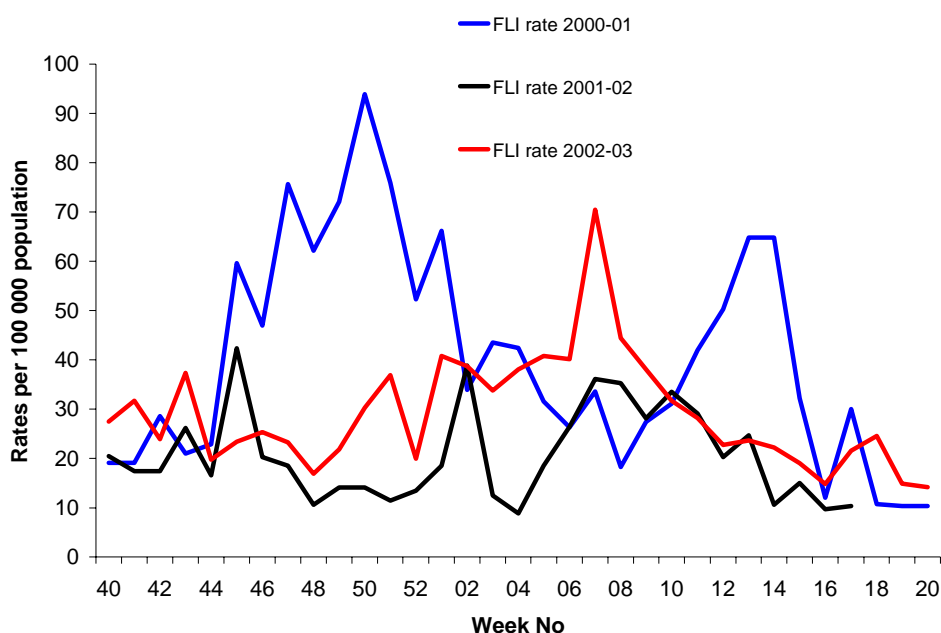
Sentinel GP consultation rates for influenza during the 2002/03 season were, overall, higher than those recorded during the two previous seasons (see Figure 1). However, consultation rates for influenza have remained consistently low throughout all three seasons since enhanced surveillance was introduced in Northern Ireland. This low level of activity during 2002/03 reflects that observed throughout the UK and Ireland and, indeed, throughout much of Europe. In Northern Ireland, a peak rate of 9.2 per 100 000 practice population was seen in week 07 and the average rate throughout the season was 4.2 per 100 000 practice population.

Figure 1: GP consultation rates for influenza 2000/01 – 2002/03



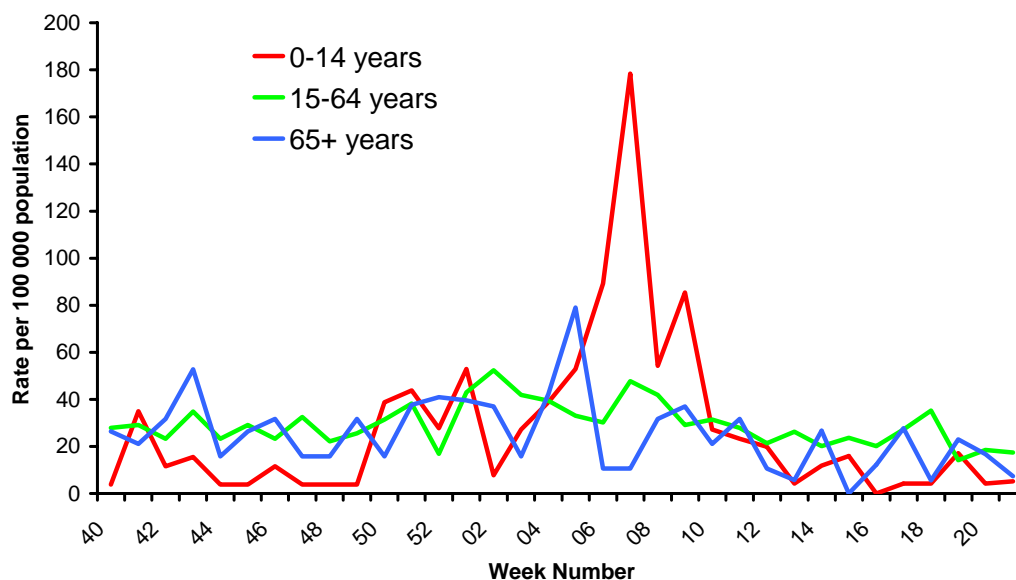
As in previous years, consultation rates for 'flu-like illness (FLI) remained much higher and more variable than those for influenza. In addition, FLI rates in 2002/03 also varied considerably from those recorded during the two previous seasons (Figure 2). During 2002/03, FLI rates ranged from 14.8 to 70.4 per 100 000 population. There were a number of peaks and troughs in consultation rates between the commencement of the season (Week 40) and the end of the 2002 calendar year (Week 52). However, from the beginning of 2003, consultation rates increased steadily and peaked in Week 07 at 70.4 per 100 000 population. Thereafter, the rate fell each week until the end of the season (with the exception of one further small peak in Weeks 17/18).

Figure 2: GP consultation rates for FLI 2000/01 – 2002/03



In the absence of significant influenza virus circulation, peaks in FLI consultation rates throughout the winter may often reflect activity of other respiratory viruses within the community. For this reason, the age-specific rate of FLI in the 0-14, 15-64 and 65+ age groups was also monitored during 2002/03 (Figure 3).

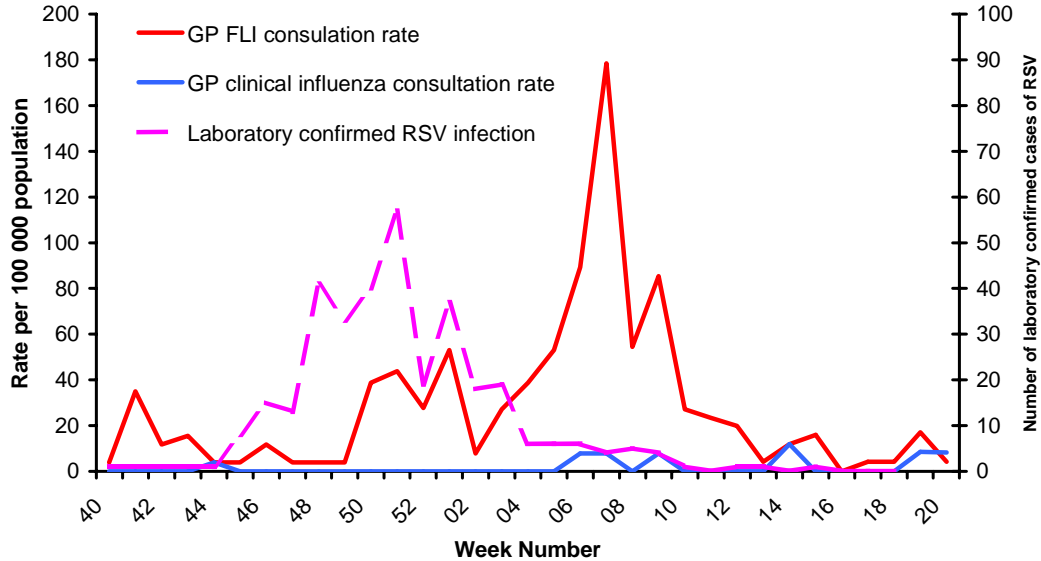
Figure 3: Age-specific rates of FLI 2002/03



Rates of FLI in the 15-64 and 65+ age groups were similar throughout 2002/03, with the exception of one peak in the 65+ age group during Week 05 (rate of 79 per 100 000). However, a very sharp rise in the 0-14 age group rate commenced during Week 06 and peaked at 179 per 100 000 during Week 07.

In the early weeks of each new calendar year there is often a significant rise in the number of young children with laboratory confirmed RSV infection. During 2002/03 the peak in laboratory confirmed RSV infection occurred in Weeks 50 & 51, two to three weeks earlier than would normally have been expected (Figure 4). This phenomenon was also noted in the Republic of Ireland. The large peak in GP consultation rates for FLI in the 0-14 age group during February 2003 therefore cannot be explained by RSV infection. However, during 2002/03, three of the four laboratory confirmed influenza B infections (see also section on Virus Activity below) occurred in hospitalised children. All were detected between Week 04 and Week 09, which spanned the period of peak GP consultation rates in the 0-14 age group for both FLI and clinical influenza. In addition, three-quarters of the 34 laboratory confirmed rhinovirus infections during 2002/03 occurred in the 0-14 age group, the majority of which were detected between Weeks 52 and Week 10. All affected children were hospital patients and all but one was less than 2 years of age.

Figure 4: Age-specific rates of FLI and clinical influenza in 0-14 age group versus RSV infection, 2002/03

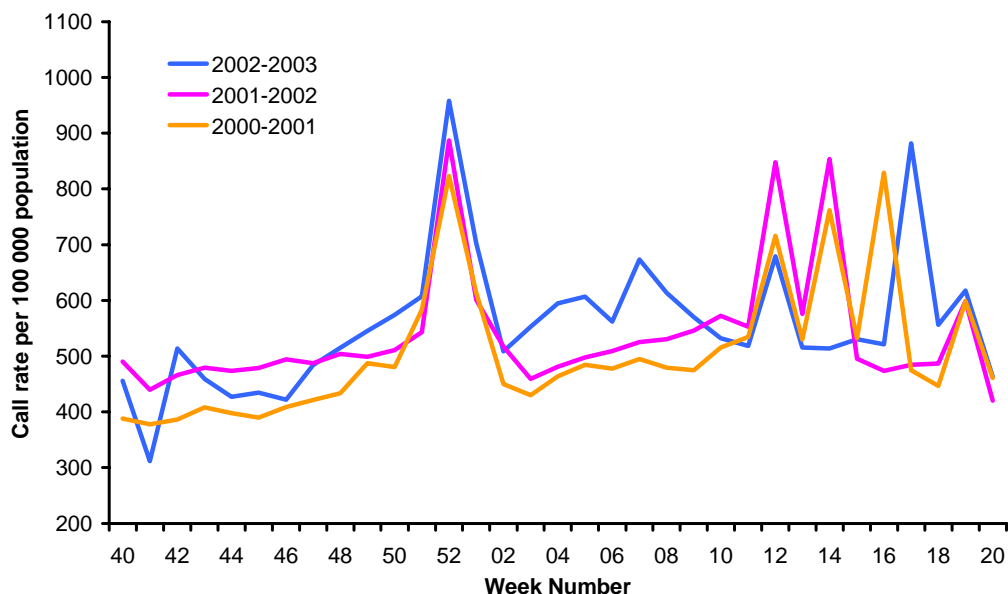


2002/03 is the third season during which influenza surveillance has been carried out in Northern Ireland. Consultation rates for FLI have varied considerably over the past three seasons and, as a consequence, no baseline level of activity has yet been established. This baseline level will be calculated once further data becomes available.

Co-Operatives

As in previous years, Co-Op call rate data for 2002/03 followed a very well-defined pattern throughout the normal period of surveillance, with peaks in call rates occurring during the holiday periods of Christmas/New Year, St Patrick’s Day and Easter (Figure 5). The main exception to this yearly pattern occurred during the current season. Call rates recorded during the period from Week 03 to Week 09 of 2002/03 were higher than historical data would have predicted. Examination of the raw data from Week 03 to Week 09 also indicates that a higher than normal proportion of calls recorded by Co-Ops during this time related to children aged 0-14. In the absence of coding, the increased rates recorded during this period cannot be attributed solely to an increase in respiratory disease. However, the Co-Op data does correlate well with the increase in GP consultation rates for clinical ‘flu and FLI in those aged 0-14 during the same period.

Figure 5: Call rates to Co-Operatives in Northern Ireland 2000/01 – 2002/03



Virus activity in Northern Ireland

Influenza virus activity was very low in Northern Ireland during 2002/03, there being only 7 laboratory confirmed infections throughout the season. The majority (57 %) of infections were caused by influenza B and occurred in children. This predominance of influenza B was noted across the UK, ROI and throughout Europe from the beginning of the season until approximately Week 06 of 2003, when influenza A began to dominate. Throughout Europe, almost 16, 000 influenza virus isolates were typed during the 2002/03 season and 99 % of these were found to be closely related to the 2002/03 Northern Hemisphere vaccine strains.

In Northern Ireland, fifteen GP surgeries agreed to be involved in an enhanced study which entailed nasal and throat swabbing of patients presenting with clinical influenza. A total of 9 swabs were submitted by sentinel GPs during the season 2002/03. Two of the swabs submitted by sentinel GPs were positive by PCR for influenza A (both subtyped as influenza A H3) and another was found positive for influenza B. Three further swabs, submitted by sentinel GPs, were positive by PCR for rhinovirus.

Between 28th September 2002 (week 40) and 16th May 2003 (week 20), a total of 3 samples were found positive for influenza B, through routine laboratory testing and a further sample was found positive for influenza A H3. All samples originated from hospitalised children.

Influenza B infection tends to affect children and causes less severe disease than influenza A infection. The predominance of influenza B infection in Northern Ireland during the 2002/03 season, coupled with the high rate of 'flu-like illness in the 0-14 age group, underlines the usefulness of combining consultation data and virological surveillance within the community in providing an early warning of increased influenza activity.

In total, only 3 blood samples submitted to RVL during the 2002/03 season were serologically positive for influenza viruses; 2 were positive for antibody to influenza A and 1 for antibody to influenza B. However, since serological titres to the virus may be due to previous infection or vaccination, they cannot be relied upon as an indicator of current infection.

With the exception of RSV and rhinovirus (341 and 34 laboratory confirmed infections respectively), the incidence of other common respiratory pathogens during the 2002/03 season was very low. The laboratory confirmed infections were: adenovirus (8); *Mycoplasma pneumoniae* (11) and parainfluenza 3 virus (4).

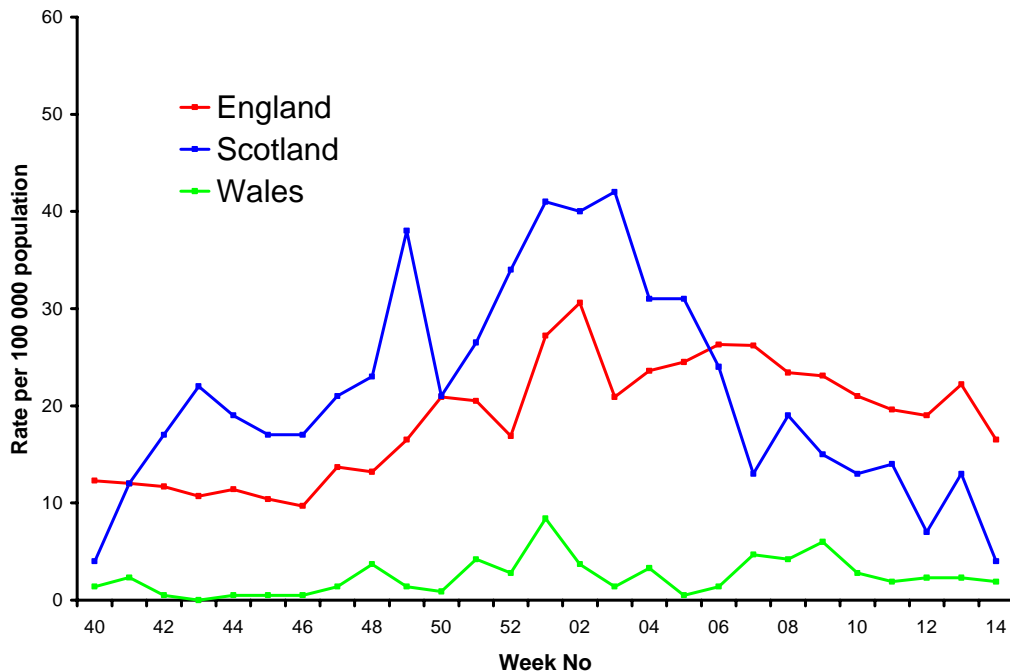
Flu surveillance elsewhere

England, Scotland and Wales

RCGP and sentinel scheme consultation figures followed a similar pattern to that seen in 2001/02 season. Consultation rates in England remained below the baseline level of 50 consultations per 100 000 population throughout the winter. A peak of 30.6 per 100 000 occurred in week 02 and thereafter declined. Age-specific analysis of the data for England (available at http://www.phls.org.uk/topics_az/influenza/graphmenu0203.htm) indicates that consultation rates for influenza and FLI were highest in children during 2002/03 and that, as observed in Northern Ireland, the period of greatest activity was recorded around Week 04 to Week 08.

Consultation rates in Scotland remained below the baseline level of 50 consultations per 100 000 population throughout the winter, peaking at 42 per 100,000 in week 03. Consultation rates in Wales also remained below the lower threshold of baseline activity (25 consultations per 100 000 population) for the duration of the 2002/03 season. The peak rate, in week 01, was 8.4 per 100 000 (see Figure 6).

Figure 6: GP consultation rates for influenza and 'flu-like illness UK 2002/03



NHS Direct

During the winter of 2002/03, two peaks occurred in the NHS Direct total call rate for England and Wales. The first was in week 52 (268 per 100 000 population) and the second was in Week 16 (274 per 100 000 population). 'Cold/flu' calls, as a proportion of total calls, peaked in Weeks 07, 08 and 17 at 1.4 %. Among different age groups, the highest proportion of 'cold/flu' calls was recorded in those aged 5-14 years, at 2.4% in Week 06.

Virological Data

During the current season, there were a total of 506 positive detections for influenza made from specimens referred to the ERNVL Influenza Reference Laboratory. This season, activity in the UK has been associated mainly with influenza B and influenza A (H3N2). The majority of viruses typed by ERNVL were confirmed as being similar to the 2002/03 influenza B and influenza A H3N2 vaccine strains. A further 317 influenza A and B viruses were also detected by other NHS and PHLS Microbiology Laboratories throughout England & Wales during the 2002/03 season.

Republic of Ireland

Data for the 2002/03 season is, currently, only available from Week 40 to Week 14. Influenza activity in the Republic of Ireland was low during the 2002/03 season and consultation rates for FLI were, for the most part, similar to those recorded during 2001/02. However, as observed in Northern Ireland, a peak in consultation rate (49.6 per 100 000 population) occurred during the period Week 06 to Week 09. As elsewhere, the majority of these FLI cases were in the 0-14 age group. Between week 40 and week 14, a total of 222 sentinel GP swabs were tested for the presence of influenza virus. Of these, 74 (33 %) were found positive; 18 for influenza A and 56 for influenza B.

Europe

Northern Ireland was admitted to the European Influenza Surveillance Scheme (EISS) as an Associate Member in April 2002. Throughout the 2002/03 season, clinical and virological data from Northern Ireland was submitted to EISS, together with retrospective data for the 2001/02 season.

In Europe, influenza activity remained low during 2002/03. As stated earlier, influenza B was the predominant circulating virus during the early part of the season in Western Europe. Influenza A activity commenced in Central and Eastern Europe and spread westward, becoming the major type in Europe after Week 06.

USA

Overall, influenza activity remained low in the USA during the 2002/03 season. As in Europe, influenza B was the predominating virus in circulation during the early part of the season, which was later replaced by influenza A. Between Week 40 and Week 18, approximately 91 300 specimens were tested for the presence of influenza virus and 10 686 (11.7 %) were found positive. Fifty-seven percent of the positive samples were identified as influenza A and forty-three percent as influenza B. Of the influenza A viruses which were subtyped, 75 % were influenza A H1 and 25 % were influenza A H3. A summary report will be available shortly at:

<http://www.cdc.gov/ncidod/diseases/flu/weeklyarchives2002-2003/previousreports.htm>