

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

**Enhanced Surveillance of Influenza
in Northern Ireland**

Activity Report

**Summary
Season 2001-2002**

**** Influenza activity in Northern Ireland remained low during the 2001/02 season***

**** Low levels of influenza activity throughout the Northern Hemisphere***

****New influenza A virus (H1N2) isolated in January 2002***

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 the 2000/01 season, consultation-based information regarding 'flu and 'flu-like illness was supplied by sixteen spotter practices across the Province. Prior to the commencement of the current season, 1 practice withdrew from the scheme (retirement) and a further 5 practices joined. This brings to 20 the number of practices taking part during 2001/02, representing 125 200 patients throughout Northern Ireland (approximately 7.4% of the population). It is hoped that this number can, again, be increased further for next winter.

Co-Operatives

Out-of-hours Co-Operatives have, for the first time, also been involved in provision of information for the enhanced influenza surveillance scheme. Five Co-Ops, covering approximately 1 343 000 people (79% of the population), supplied weekly data on numbers of calls received and the age/sex breakdown of those calls. Co-ops have also been supplying retrospective data for the 2000/01 season. 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

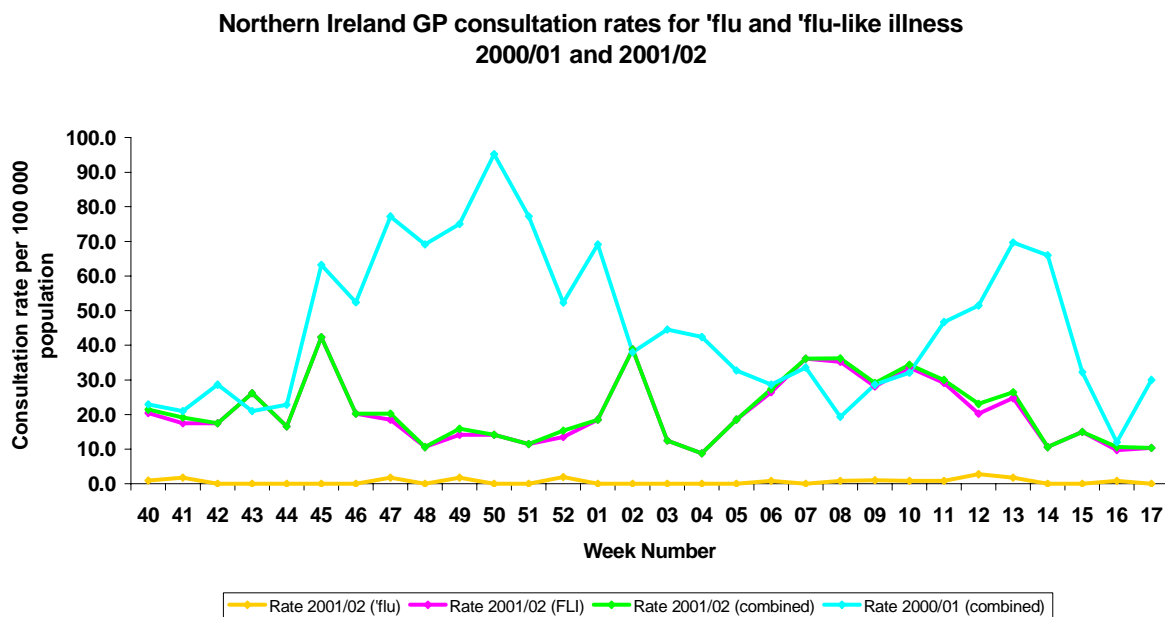
surveillance, it is important that more timely and representative information is retrieved. Such data could be used in the planning of resources and personnel in primary and secondary healthcare, and in turn reduce the pressures on associated resources.

Consultation rates

Sentinel GP Practices

Sentinel GP consultation rates for influenza remained at very low levels during the 2001/02 season (see Figure 1). This lack of activity is in accordance with that observed throughout the UK and Ireland. A peak rate of 2.8 per 100 000 practice population was seen in week 12, and the average rate was 1.1 per 100 000 practice population.

Figure 1



Consultation rates for 'flu-like illness (FLI) remained much higher and more variable than those for influenza. As can be seen, FLI rates also vary considerably from year to year. During the 2001/02 season, FLI rates ranged from 8.8 to 42.3 per 100 000 population. Rates increased from the beginning of the surveillance period and reached an initial peak in week 45, before decreasing to 10.6 per 100 000 in week 48. Two further peaks were observed in week 02 and weeks 07/08, with rates of 38.8 and 36.2 per 100 000 population respectively. Rates continued to drop steadily thereafter until the end of the surveillance period in week 17.

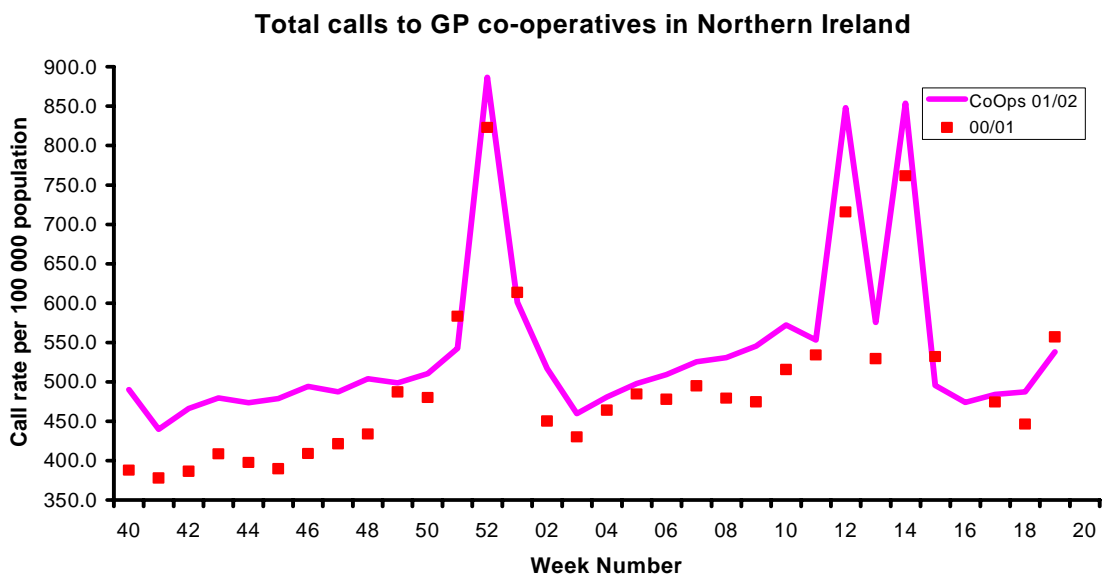
The peaks in FLI consultation rates throughout the winter may well reflect activity of several respiratory viruses, other than influenza, circulating within the community.

As this is only the second year of surveillance, no baseline level of activity is yet available. This baseline level will be calculated once data becomes available for several seasons.

Co-Operatives

Call rates to Co-operatives showed three major peaks during the 2001/02 season (Figure 2). These corresponded to the Christmas/New Year period, the St Patrick's Day weekend and Easter. Retrospective call rates for the 2000/01 season were also very similar to those observed during the current period of surveillance.

Figure 2



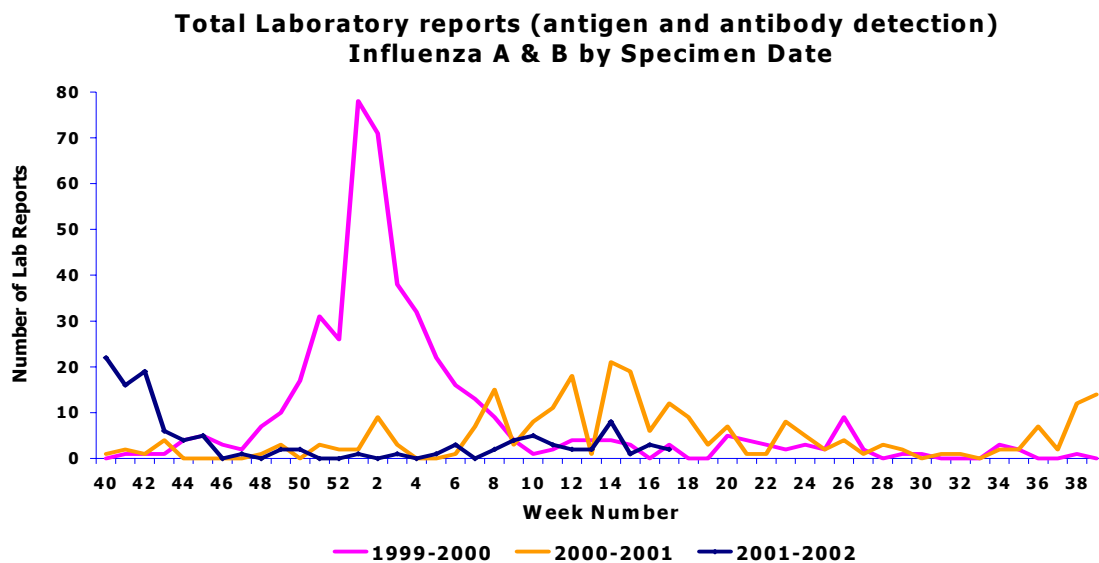
Virus activity in Northern Ireland

Eleven GP surgeries were involved in an enhanced study which entailed nasal and throat swabbing of patients presenting with clinical influenza. A total of 17 swabs were submitted by sentinel GPs during the season 2001/02. Five of the swabs submitted by sentinel GPs were positive by PCR for influenza A. Three of the five were subtyped as influenza A H3 and the remaining two were subtyped as influenza A H1. Three further swabs, submitted by sentinel GPs, were positive by PCR for adenovirus.

Between 29th September 2001 (week 40) and 18th May 2002 (week 20), a total of 17 samples were found positive for influenza A, by antigen detection and PCR, through routine laboratory testing. Of these, thirteen were subtyped as influenza A H3 and three as influenza A H1. There were no detections of influenza B virus in Northern Ireland during the current surveillance period.

A total of 99 blood samples submitted to RVL during the 2001/02 season were serologically positive for influenza viruses; 80 were positive for antibody to influenza A and 19 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.

Figure 3



As can be seen from the Figure 3, the total number of laboratory reports for influenza during the 2001/02 season was very much lower than either of the previous two seasons. This was also the case for rates in the rest of the UK. The reduced level of influenza activity that was observed has therefore been reflected in the low numbers of influenza consultations observed in general practice, and the lack of virus detection in samples taken from general practice.

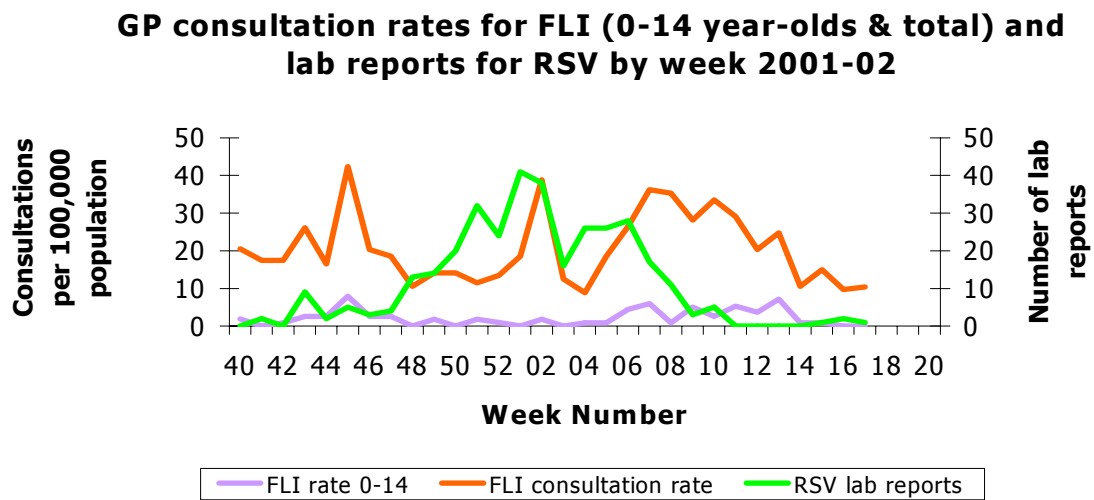
As noted above, the variation and increases in consultation rates in general practice for FLI may be explained by the circulation of other respiratory viruses in the community. Figure 4 shows consultation rates for FLI (total and 0-14 year olds) and laboratory reports for respiratory syncytial virus (RSV) by specimen date. As can be seen from the graph, rises in consultation rates for FLI follow a similar pattern to increases in the number of RSV lab reports, particularly between weeks 48 and 07. However, during the 2001/02 season, numbers of laboratory reports for RSV infection have been substantially lower than that observed for the same period last year.

The earliest peak in consultation rates occurred in week 45 and this predated laboratory-confirmed RSV infection by several weeks. The only other laboratory-confirmed

respiratory infections at that time were adenovirus and *Mycoplasma pneumoniae*. However, neither was present in the community at significant levels during the 2001/02 season; adenovirus detections peaked at 12 in week 48 and *Mycoplasma pneumoniae* detections peaked at 6 in week 46 (data not shown).

The second peak in consultation rates, observed in week 02, also predated the first influenza virus detection in the Province by one week. Therefore, despite very low influenza activity this winter, information obtained from general practice relating to FLI may serve as an early indicator of other respiratory infections circulating amongst the general population. It should be noted that this timely access to information from general practice would not be collected through any other means. As a consequence, such monitoring may well also provide early warning of an increase in workload and pressure on resources in the healthcare sector.

Figure 4

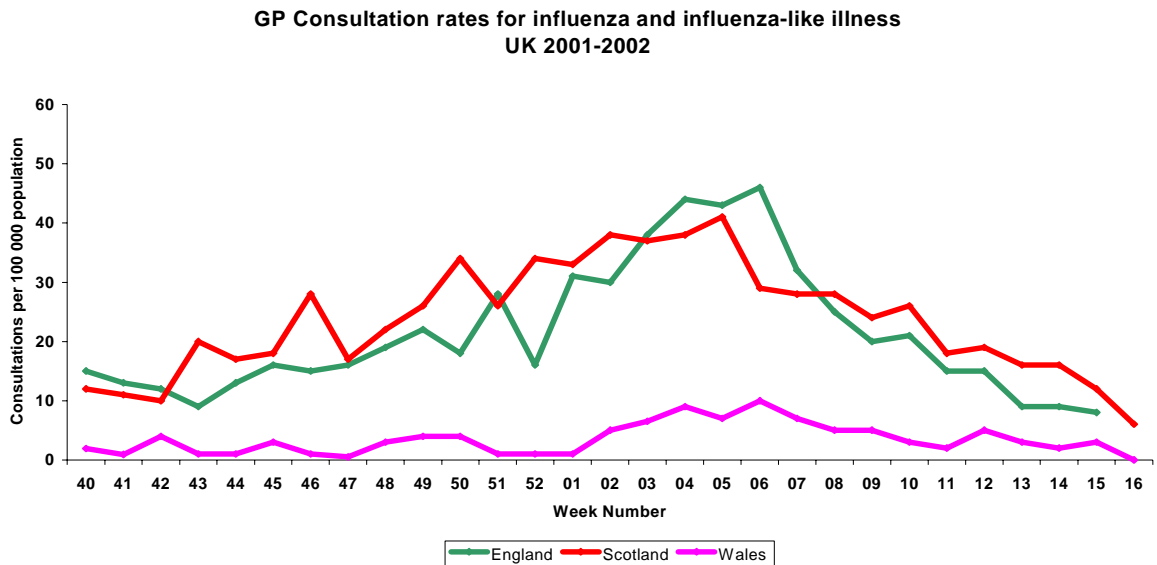


Flu surveillance elsewhere

England, Scotland and Wales

RCGP and sentinel scheme consultation figures followed a similar pattern to that seen in 1997/98 and 2000/01 seasons. Consultation rates in England remained below the baseline level of 50 consultations per 100 000 population throughout the winter. A peak of 45 per 100 000 occurred in week 06 and thereafter declined rapidly. Consultation rates in Scotland also remained below the baseline level of 50 consultations per 100 000 population throughout the winter, peaking at 41 per 100,000 in week 05. Consultation rates in Wales remained below the lower threshold of baseline activity (25 consultations per 100 000 population) for the duration of the 2001/02 season. The peak rate was 10 per 100 000 in week 06 (see Figure 5).

Figure 5



NHS Direct

During the winter of 2001/02, the peak in the NHS Direct total call rate for England and Wales was 265 per 100 000 population. This occurred in week 52. A smaller peak was also observed in week 05 (232 per 100 000). These data show a similar pattern to 2000/01.

Daily counts of callers with 'colds/flu' or 'fever' were collected from 22 NHS Direct sites, covering over 90% of the population. 'Cold/flu' calls, as a proportion of total calls, peaked in week 05 at 1.9% (981 calls). 'Fever' calls also peaked in week 05, at 8.3% (3989 calls).

Virological Data

During the current season, influenza activity in the UK was associated with both influenza A (H3N2) and a new subtype of influenza A, H1N2. Influenza A H3N2 was detected in persons of all ages. However, this new subtype mainly affected children less than 5 years of age, and was also responsible for a number of school outbreaks. Influenza A H1N2 is thought to have arisen by reassortment of the two human viruses (H1N1 and H3N2) and would, therefore, be covered by the current vaccine. Indeed, the H1N1 and H3N2 components of the 'flu vaccine for the 2002/03 season will remain unchanged from that administered for the 2001/02 season.

A total of 448 influenza viruses were isolated during the 2001/02 season. Of these, 445 were influenza A viruses, and 3 were influenza B viruses. Two hundred and three of the influenza A isolates were typed as influenza A H3N2, and 242 as influenza A H1. To date, 155 of the 242 influenza A H1 isolates have been further antigenically characterised as the new subtype H1N2.

The highest positivity rate for community derived influenza detections by PCR and/or isolation was during week 05. A total of 40 specimens were submitted by sentinel GPs and, of these, 55% of specimens were positive for the presence of either influenza A H3N2 or influenza A H1.

Republic of Ireland

There was low influenza activity in the Republic of Ireland during the 2001/02 season. Consultation rates for influenza-like illness peaked at 29 per 100 000 population in week 12 and declined thereafter. Between week 40 and week 19, the National Disease Surveillance Centre (NDSC) reported 67 laboratory detections of influenza by PCR and/or culture. Of these, 43 were subtyped as influenza A H3N2, 9 as influenza A H1N2, 2 as influenza A H1N1 and 1 as influenza B.

Europe

Northern Ireland was admitted to the European Influenza Surveillance Scheme (EISS) as an Associate Member in April 2002.

In Europe, influenza A H3N2 was the predominant circulating virus during the 2001/02 season. Levels of influenza activity ranged from 'none' to 'widespread' among countries participating in EISS. Belgium, France, Germany, Italy, Norway, Romania, Spain and Switzerland all reported 'widespread' activity. However, in each of these countries, 'medium' intensity of activity was reported. Medium intensity, as defined by EISS, is 'Level of influenza activity usually seen when 'flu virus is circulating in the country based on historical data'.

USA and Canada

Between week 40 and week 18 of the 2001/02 season, a total of 93 826 specimens were tested in the USA and 14 897 (15.9%) were found positive for the presence of influenza virus. Of those found positive, 90% were identified as influenza A and 10% as influenza B. Thirty percent of the influenza A isolates were further subtyped and 98% of these were found to be influenza A H3.

In Canada, a total of 54 059 specimens were tested during the same time period and 7 936 (14.7%) were found positive for the presence of influenza virus. Of these, 7 034 (88.6%) were identified as influenza A (unsubtyped) and the remainder as influenza B.