Influenza Sentinel Surveillance in Queensland General Practice

2005

Communicable Diseases Unit
Population Health Branch

Queensland Government
Queensland Health

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Executive summary

Influenza surveillance efforts are a key part of both pandemic surveillance planning and routine surveillance. This surveillance takes two forms: influenza-like illness (ILI) surveillance performed by Queensland participating doctors, and passive notification of positive influenza pathology by laboratories. This report focuses on both surveillance activities from 2005 in Queensland, with particular emphasis on ILI surveillance which was collected in sentinel general practices (GP).

Influenza-like illness surveillance provided additional and supporting information to the notification surveillance for the 2005 influenza season. Despite starting later than planned in 2005 (June), ILI surveillance showed a higher rate of community illness than the notification surveillance, with both surveillance programs showing peak activity in weeks 30-33, slightly earlier than the previous two years. No significant difference was found in influenza activity between north Queensland and central and southern Queensland. Specimen testing by ILI GPs contributed to the high proportion of specimens sent nationally for genotyping from Queensland. The prevailing strain was A/H3N2.

While the number of GPs recruited in 2005 increased, numbers failed to reach the overall target number. New strategies and efforts are needed to improve recruitment in subsequent years. Weekly participation rates over the season were strong at 75%.

Background

Influenza causes significant mortality and morbidity in Australia each year. Influenza and other acute viral respiratory viruses circulate between autumn and spring in temperate climates and all year in tropical climates (Kelly and Birch, 2004). Severe illness and death occur, more commonly in the elderly and those with underlying conditions. Of the three types of influenza virus, two (types A and B) are of public health concern. Type A infects humans and animals; Types B and C infect only humans (Kelly and Birch, 2004). The type B virus can cause epidemics, whereas the type A virus can cause both epidemics and pandemics (Wong SS, Yuen KY, 2006). Type C causes only mild disease, usually in children. Each year the world experiences two epidemic periods corresponding to the northern and southern hemisphere winters.

The influenza virus is impossible to eradicate as it has large natural reservoirs in wild aquatic birds (Cox, Tamblyn and Tam, 2003). New strains of either influenza A or influenza B appear routinely depending on the amount of genetic change in the virus (antigenic shift and antigenic drift). Epidemics may arise through antigenic drift where the circulating strain is significantly different from previously strains, thereby causing reduced levels of immunity to the new virus. These new strains often necessitate annual changes to the vaccine based on the previous season's circulating strains. Where major antigenic change occurs at unpredictable intervals, a completely new subtype of the virus can arise in an "immunologically naïve" population susceptible to infection. Severe and widespread disease (pandemic) may arise if the virus is able to be transmitted easily from person to person.

Influenza surveillance efforts have increased in recent years due to the increasing concern for an influenza pandemic and as a result of pandemic planning processes (Cox, Tamblyn and Tam, 2003). These efforts have occurred concurrently amidst a growing epidemic of highly pathogenic avian influenza (HPAI), transmitted from bird to human. To date, no person to person transmission has been proven conclusively (Clothier, Fielding and Kelly, 2005). Effective surveillance provides information about the ongoing incidence and impact of the disease in the community and the circulating virus types. This information may then be used for early intervention activities, monitoring of the current season vaccine effectiveness (especially in at-risk populations), and planning for the next seasons vaccine. As such, surveillance data must be able to be rapidly disseminated and the surveillance network. Finally, effective surveillance must be able to be upgraded in the event of an epidemic or pandemic.

There are two main forms of influenza surveillance in Australia: laboratory-confirmed and sentinel influenza-like illness from general practice. A nationally consistent approach to laboratory-confirmed surveillance has occurred since July 2001 and is based on a nationally agreed laboratory case definition[1] (see also Appendix A). Sentinel ILI surveillance commenced in Queensland in 2003 and is also based on a national case definition, but with additional laboratory confirmation support. As other respiratory viruses cause a similar clinical picture, (i.e. respiratory syncytial virus (RSV), picornavirus (including rhinoviruses, adenoviruses and parainfluenza), human metapneumovirus (hMPV) and coronavirus), laboratory testing is required to reliably distinguish between cases (Clothier, Fielding and Kelly, 2005).

Surveillance methodology

Sentinel ILI case definition

- Fever, cough and fatigue.

GP recruitment

Recruitment was made through direct approach to recruits from previous years by local Queensland Health Public Health physicians (2003-2005), a request for recruitment in Public Health Unit (PHU) newsletters to local GPs, and by letter to selected GPs who were vaccinators listed with Queensland Health's Vaccination Information and Vaccine Administration System[2] (VIVAS).

ILI surveillance resource pack

Recruited GPs were provided with resource packs (see below and Appendices C-F), including a decision flow chart aid (Appendix C), separately named weekly tally sheets (Appendix D), guidelines for taking swabs (Appendix E), an initial 1-2 boxes of swabs (Copan sterile single applicator virus transport polyester tipped swabs (CE 0344) including

[1] See http://www.health.gov.au/internet/wcms/publishing.nsf/Content/cda-phlncd-influenza.htm
[2] VIVAS – Vaccination Information and Vaccine Administration System managed by Queensland Health, Communicable Diseases Unit primarily for recording vaccines provided though the childhood free vaccination program, but also to distribute vaccine as part of the free vaccine program.

virus transport medium - green cap)[3], weekly pathology request forms (Appendix F) and patient consent forms (Appendix G).

Weekly tally sheets

Separately numbered weekly tally sheets (see Appendix D) were filled in by the GP each week and faxed to the Communicable Diseases Unit (CDU), Brisbane at the completion of each week. Age, sex, 2005 influenza vaccination status, and information on whether or not a swab was taken was recorded by the GP for each patient meeting the ILI case definition. No patient identifiers were recorded. The total number of patients seen by the GP was also recorded and used as the ILI rate denominator for each practice. The case definition (fever, cough and fatigue) was included on each form as a prompt.

Specimen collection and testing

GPs were asked to provide two nasal and one throat specimens from the first patient meeting the case definition each Monday, Tuesday and Wednesday of each week during the surveillance period. Patient consent was sought and retained at the practice (see Appendix G). A maximum of nine swabs per week could be expected from each doctor.

Collection, storage and transport instructions were provided (see Appendix E and F). Both Sullivan Nicolades Pathology and Queensland Medical Laboratory agreed to transport the swabs to a Queensland Health facility for free virological testing by Queensland Health Scientific Services (QHSS), Brisbane. Nucleic acid amplification (PCR) techniques were used. If influenza virus was detected, isolation testing was performed. Test results were returned to the submitting GP on completion of the test. De-identified summary results were forwarded to CDU weekly by QHSS. Genotyping was done[4] where virus isolation was successful.

Interim reporting

A weekly surveillance report was provided to recruited GPs, relevant Population Health Unit (PHU) staff, and the Department of Health and Ageing, Canberra. Where possible, data were reported separately for northern area, and southern and central (combined) areas. This report included the average number of ILI cases reported across practices, the ILI rate (ILI cases / 1000 patients seen), the number of positive (laboratory-confirmed) specimens, delays in receiving specimens for testing and the numbers of ILI by age group. Numbers of notifications of laboratory-confirmed influenza from the recent four weeks was also provided.

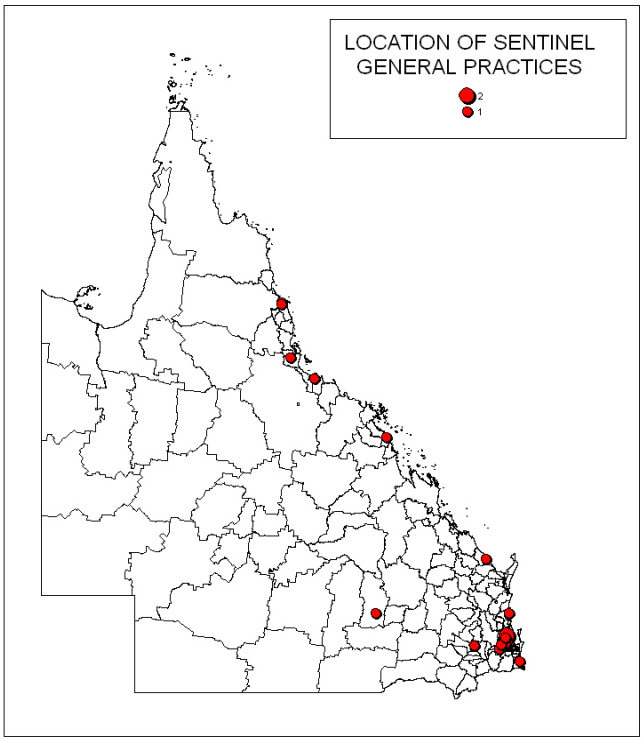
[3] See http://www.copanswabs.com/html/ciVirus.html or http://www.copanswabs.com/html/swabs.html
[4] Virus isolations were forwarded for genotyping to the Who Health Organisation (WHO) Collaborating Centre for Reference & Research on Influenza, Melbourne.

Results

Tally sheets

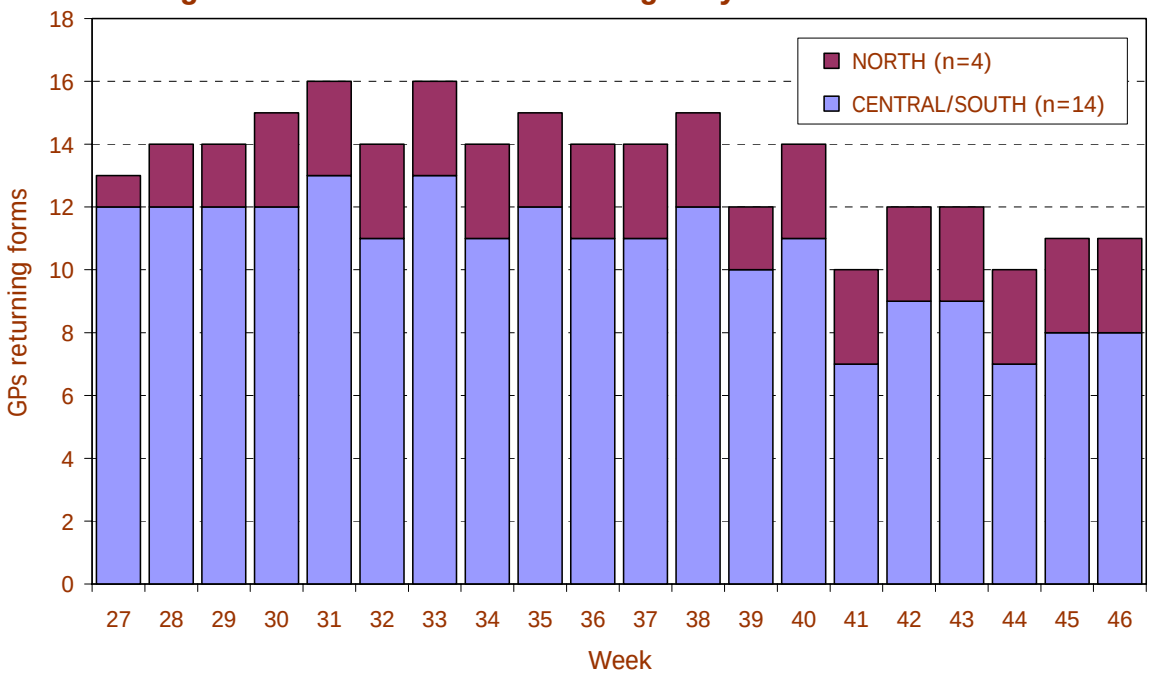
The surveillance season in 2005 began later than previous years in week 27, ending in week 46 (20 weeks duration). Sixteen of 18 recruited GPs provided data routinely, including three GPs from northern Queensland and 13 GPs from central and southern Queensland. Two GPs (one northern and one southern) failed to provide any tally sheets and were excluded from analysis. See Figure 1 for a map indicating the geographic distribution of GPs recruited.

Figure 1: Geographic distribution of recruited GPs



A total of 266 separate weekly tally sheets (74% from a total of 320 possible) were returned by GPs. Most of these sheets were returned promptly, although a small number were returned several weeks late. Figure 2 and Appendix B set out the number of Tally sheets returned by week. A decrease in returns was evident during the last weeks of the surveillance period. The percentage of Tally sheets provided over the period by GP ranged between 35% and 100% (12/16 GPs provided Tally sheets in 80% or more of weeks).

Figure 2: Number of GPs returning Tally Sheets each week



Completeness of data recorded on the Tally sheets for each ILI consultation was very good. Gender was recorded for all but two of the consultations; with a male to female ILI ratio of 1:1.3 (185 and 249 respectively). All but one of the consultation records indicated whether a swab specimen had been taken (182 indicated "Yes", 253 indicated "No"). All but two consultation records indicated whether the person had a received an influenza vaccination earlier in the season (59 were indicated as "Yes", 373 were indicated as "No" and 2 were indicated as "Unknown").

Notifications – Influenza-like illness and laboratory-confirmed influenza

Figure 3 depicts ILI cases reported and laboratory-confirmed influenza notified in 2005. The late start to the ILI surveillance season missed the start of the increase in confirmed influenza cases evident from week 23 in laboratory-confirmed notifications (Figure 3). ILI cases peaked in week 35 and decreased steadily until reaching normal seasonal activity in week 39.

Figure 3: Laboratory confirmed and ILI cases by week, 2005

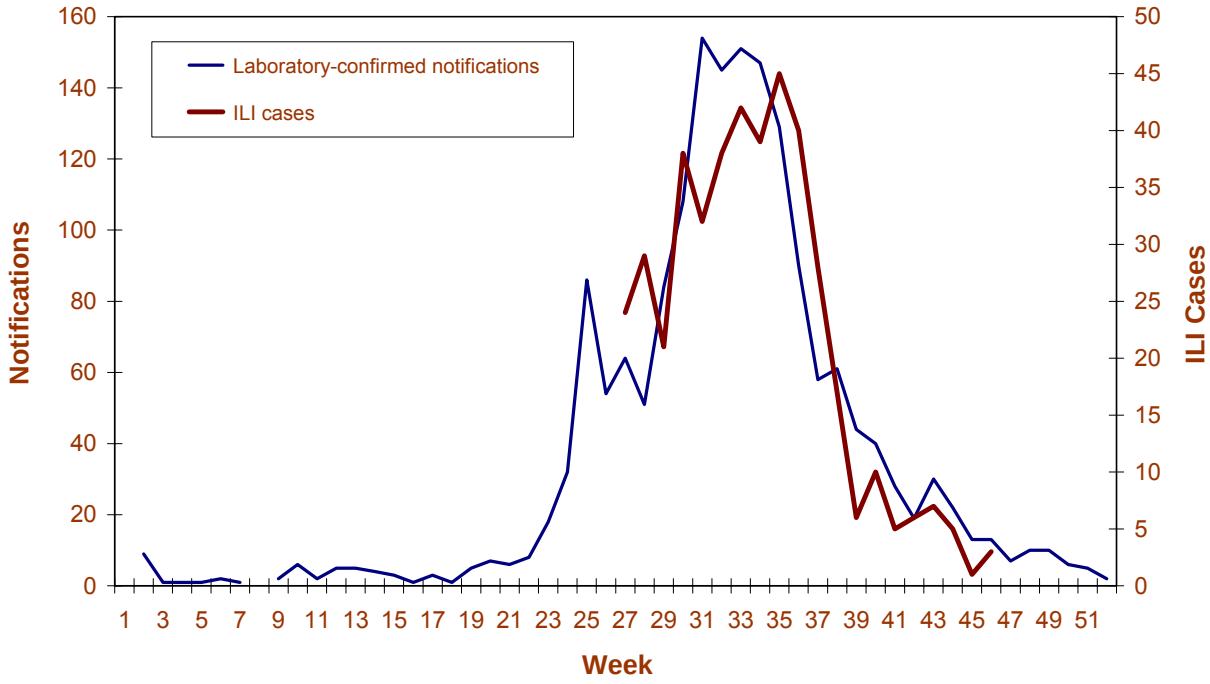


Figure 4 depicts the State-wide ILI rate (ILI cases / 1000 consultations) and the number of ILI consultations by week during the surveillance period (see also Appendix H for weekly returns by GP). The State-wide ILI rate across the season was 11.3/1000 (436/38,620 patients). There was no significant difference (p=0.08) in rates reported between northern Queensland (9.5/1000; 73/7713 patients) and central and southern Queensland (11.7/1000; 363/30907 patients).

In weeks 30 – 37, rates were generally greater than 15/1000 consultations, peaking in week 35. During weeks 39 – 46 the rate dropped to less than 5/1000 consultations. The annual notification rate in 2005 was 0.45/1000 persons, slightly higher in northern Queensland (0.60/1000 persons) compared to central and southern Queensland (0.43/1000 persons) (see also Appendix B).

Figure 4: Number of ILI Consultations by Age Group and ILI Consultation Rate, by week

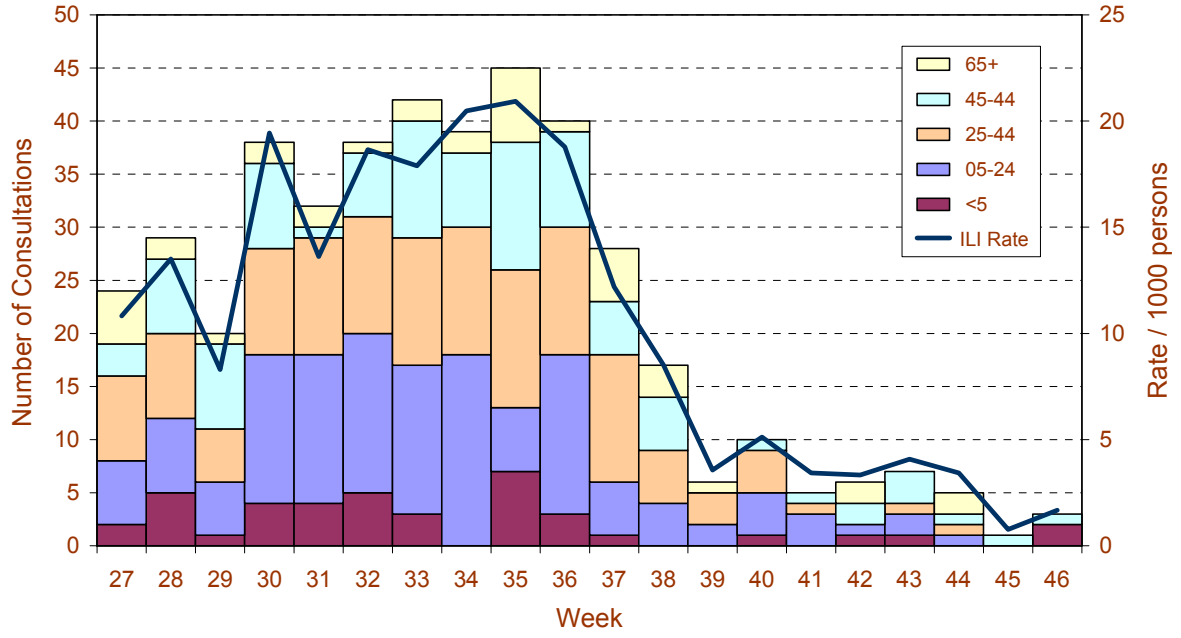


Table 1 shows ILI cases, laboratory influenza notifications, and Estimated Resident Population (ERP)[5] by age group. Children under five were disproportionately over-represented in both ILI cases and influenza notifications, compared to their proportion in Queensland's population (Table 1). Persons over 65 constituted a lower proportion of persons with either ILI or influenza notification than would be expected given their QLD population.

Table 1: Number and percent of ILI cases, influenza notifications, and representative Queensland population, by age group

Age Group (years)	ILI Cases		Influenza notifications during ILI period		Queensland Population[6]	
	n	%	n	%	n	%
0-4	40	9.2	320	21.4	120,159	3.1
5-24	136	31.3	417	27.9	1,098,698	28.3
25-4	129	29.7	307	20.5	1,126,320	29.0
45-64	92	21.1	302	20.2	941,635	24.3
65 +	38	8.7	149	10.0	641,629	16.5
All Ages	**435**	**100**	**1,495**	**100**	**3,882,037**	**100**

The mean and median age of all ILI cases was 33.5 and 31 years respectively (range 0-87 years), and was similar for males and females. 56% of all ILI consultations were female (245/436).

[5] 2004 Estimated Resident Population (ERP) by SLA, Australian Bureau of Statistics catalogue no. 3235.3.55.001

Influenza testing results

There were 173 person specimens provided from persons with an ILI for testing during the surveillance period. Seventy-two (42%) patients tested positive for influenza. This represented 4.8% of all positive influenza notifications in the surveillance period. Applying these testing results to the entire ILI population (n=435) would suggest there were 183 true influenzas in that population. The influenza rate in the community, as represented by the patients seen by participating GP practices, can thus be estimated at 183/38,620, or 4.7 per 1,000 persons. The laboratory-confirmed influenza notification rate, representing all positive influenzas notified by pathology laboratories in Queensland during the period was 0.38 per 1,000 (1,495/3,882,037), more than ten times lower than the GP practice influenza rate.

Influenza subtyping/genotyping

Thirty-nine (54%) of positive results were A/H3, five (7%) were A/H1, and 28 (39%) were B. Twenty of the 72 positive patient specimens were successful with virus isolation, of which 17 (85%) were A/H3N2, two2 (10%) were A/H1N1 and 1 (5%) was B. Genotyping[6] determined nine that were A/California/7/2004-like, six that were A/Wellington/1/2004-like, two that were A/New/Caledonia/20/99-like and one B/Hong Kong/330/2001-like.

Specimen delays

Delays in receiving specimens for testing ranged between 0 and 8 days after collection. Sixty-three (88%) of all positive specimens were received within two days of collection. The average delay for positive specimens was 1.6 days; negative specimens (on average) were delayed by greater than 2.2 days on average.

Differences in testing and positive predictive value (PPV) by practice

The number of persons who test positive divided by the total number of persons tested is the positive predictive value (PPV). Of the sixteen participating GPs, the total number of swabs collected over the surveillance period ranged from 2 to 27. The percent of all suspected ILIs swabbed that tested positive for influenza ranged from 0% (of 11 swabs) to 86% (of 7 swabs), (Appendix H).

Vaccination status

Of those swabbed for laboratory testing (n=180), 149 had reported not having been vaccinated for influenza earlier in the season (83%). Amongst ILI cases not swabbed (n=252), 224 reported no 2005 vaccination history (89%).

[6] WHO Australia Influenza Reference Centre, Melbourne.

Discussion

Influenza-like illness (ILI) is term that describes a clinical syndrome that may cause influenza or other respiratory viruses (Kelly and Birch, 2004). ILI surveillance through sentinel GPs is a timely and effective method of monitoring influenza burden in the community, and monitoring circulating influenza strains (Morgan, 2005). Effective GP sentinel ILI surveillance must:

- Contribute to early detection of the start to the season,
- Provide routine monitoring of the size, duration and distribution of seasonal activity (with attention to characteristics of groups most severely affected), and
- Contribute to knowledge of the prevailing strains/genotypes (particularly comparison with the types present in the current vaccine).

Difficulties recruiting GPs is an ongoing and critical issue for the project. Surveillance would benefit from greater geographical coverage and representation, including representation in high risk communities. Additionally, throughout the 2005 surveillance season, there was spare laboratory capacity to do more testing.

One incentive for GP participation is Continuing Medical Education (CME) points. These points are claimed over three years. Involvement of GPs may be more difficult to gain where the CME cycle is in the first year. However, many GPs who volunteer their time for data collection are usually very committed to public health issues. While GP participation has increased each year since inception, new strategies are needed to encourage greater GPs participation.

The 2005 ILI surveillance program occurred within the context of an increase in laboratory-confirmed notifications. The laboratory-confirmed annual total of influenza notifications (1,745) in 2005 was the highest since it first became notifiable in July 2001. This increase must be understood in the context of a likely increase in testing State-wide. Numbers of ILI consultations showed a strong seasonal effect, peaking and waning at a similar time as the peak in notifications. While the ILI rate reported in 2004 was similar to 2005 (26 / 1000 and 20.5 / 1000 consultations respectively), no seasonal effect was identified (Morgan, 2005).

The positive predictive value (PPV) of ILI symptoms as an indicator of influenza disease increased in 2005. Forty-two per cent of all persons with ILI that were tested positive for influenza. In 2004, the PPV for influenza as a percent of ILI was only 6%. The change in PPV may be explained by the apparent increased prevalence (Kelly and Birch, 2004) in 2005, as indicated by notification numbers and rates. Furthermore, the receipt of routine weekly reports and results from specimens may help to improve the positive predictive value over the season. Delays in receiving some specimens for testing may have affected the positive predictive value.

The community influenza rate (4.7 per 1,000) was more than ten times higher than the passive notification system influenza rate (0.38 per 1,000). Interpretation of these comparative rates is difficult in that the population visiting GPs is inherently different than the Queensland population at large. However, it is likely that the higher rate reported with ILI surveillance indicates a higher community prevalence than is captured by passive surveillance alone and this rate may be underestimated further due to ill cases failing to present to GPs for treatment (MMWR Report, 1990). Notification surveillance is limited by the GP's and patient's willingness to test for influenza. Unfortunately, the delay in the start of the surveillance season made it impossible to evaluate ILI surveillance as an early warning system heralding the start of the influenza season.

There were 173 person specimens received for testing during the surveillance period, more than double the number provided the previous year. It is unknown if this was due to increased ILI or improved sampling on behalf of the GPs.

In 2005, Queensland provided the largest proportion of isolates to WHO for genotyping (531/1312; 40), of which 70 were A/H3, seven were A/H1 and 23 were B. The ILI isolates from Queensland were predominantly type A (95%) which was mostly A/H3N2 (85% overall) with two A/H1N1 and one B. The surveillance programs' contribution of isolates for typing/genotyping is another positive aspect of the surveillance program. Interestingly, 22 of specimens provided for typing were provided by a doctor other than the recruited doctor. There may be several reasons for this high figure: either locum GPs or practice nurses may have filled in at times when the recruited doctor was away, or GPs at the same practice as the recruited doctor may also have been providing specimens.

As there was no linkage between report of previous influenza vaccination and a positive influenza, no analysis of effectiveness of previous vaccine could be made. Future surveillance programs could consider record linkage.

The proportions of both ILI presentations and notifications in those aged 65 and older were approximately half the population (estimated resident population - ERP) proportion. It is unknown if this might be due to the targeted vaccination campaign in the age group.

Although testing in this program was for influenza only, some State surveillance programs report on the numbers and types of other respiratory virus detected through testing (Broom & Smith, 2006). This comes at considerable financial costs to the laboratory. Broadening the testing may help with GP recruitment if GPs found this aspect conducive to patient management.

Despite the difficulties in recruiting GPs, the 74% return rate from the weekly tally sheets is a positive feature, particularly given the usual distractions in GPs busy weekly schedule, and holiday and sabbatical breaks. Nevertheless, there was a trend for declining numbers of tally sheets towards the end of the surveillance season.

No feedback was actively sought from GPs regarding their opinion of the program. Such an assessment may be beneficial in subsequent years to seek feedback on:

- overall favourability of the surveillance program, most compelling aspects of involvement in the program,

- suitability of the manual and other printed material,
- usefulness of the weekly surveillance reports,
- likelihood of being recruited in subsequent years,
- perceived benefits of testing as a factor in recruitment,
- willingness to give a favourable review to colleagues, and
- willingness to help recruit other GPs in subsequent years.

The recent experiences with Sudden Acute Respiratory Syndrome (SARS) and avian influenza, in areas close to Australia, should be sufficient reinforcement of the importance of developing a sustainable and effective surveillance system in Queensland. General Practice based systems have clearly been demonstrated to be effective (Morgan 2005) and should, therefore, be developed and supported appropriately.

Recommendations

- Subsequent ILI surveillance should begin earlier in the season (from week 16) to evaluate ILI surveillance as an early warning system. Year-round surveillance should be considered in all or a subset of GP practices.

- New strategies and/or greater efforts need to be put into recruiting GPs to the sentinel surveillance program. Strategies should be multi-pronged to include recruitment of past GPs, GPs recommending colleagues, good use of the VIVAS distribution database, and involvement of RACGP and Divisions of General Practice (in partnership) where possible.

- To target likely entry points for a new influenza strain, consider utilising new technologies for more accurate selection of appropriate general practice sentinel sites (including mapping techniques based on population density with over sampling of locations with an international/national airport).

- Consider extending the project to include surveillance in aged care facilities, given that 65+ age group is a major risk group and there is spare laboratory capacity for virological testing.

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Appendix A

Laboratory Case Definition

- Isolation of influenza virus by culture from appropriate respiratory tract specimen

  OR

- Detection of influenza virus by nucleic acid testing appropriate respiratory tract specimen

  OR

- Detection of influenza virus antigen from appropriate respiratory tract specimen

  OR

- IgG seroconversion or a significant increase in antibody level or a fourfold or greater rise in titre to influenza virus

  OR

- Single high titre to influenza virus.

Appendix B

Summary of key surveillance statistics

WEEK	Practices Returning Data	ILI Consultations	ILI / Practice ^	Number (Percentage) Positive Swabs	ILI / 1000 Consultations
27	13 (72%)	21	1.6	2 (17%)	10.8
28	14 (78%)	29	2.1	3 (18%)	13.5
29	13 (72%)	16	1.2	5 (63%)	8.3
30	15 (83%)	38	2.5	6 (33%)	19.4
31	16 (89%)	32	2.0	11 (65%)	13.6
32	14 (78%)	38	2.7	8 (53%)	18.7
33	16 (89%)	42	2.6	8 (42%)	17.9
34	14 (78%)	39	2.8	8 (47%)	20.5
35	15 (83%)	46	3.1	7 (47%)	20.9
36	14 (78%)	40	2.9	3 (30%)	18.8
37	14 (78%)	28	2.0	5 (71%)	12.2
38	15 (83%)	18	1.2	2 (33%)	8.5
39	12 (67%)	6	0.5	1 (50%)	3.6
40	14 (78%)	10	0.7	1 (50%)	5.1
41	10 (56%)	5	0.5	1 (50%)	3.4
42	12 (67%)	6	0.5	0	3.3
43	12 (67%)	7	0.6	1 (50%)	4.1
44	10 (56%)	5	0.5	0	3.4
45	11 (61%)	1	0.1	0	0.8
46	11 (61%)	3	0.3	0	1.7
Total		**430**		**72**	**11.2**

^ Includes only practices returning tally sheets in a given week.

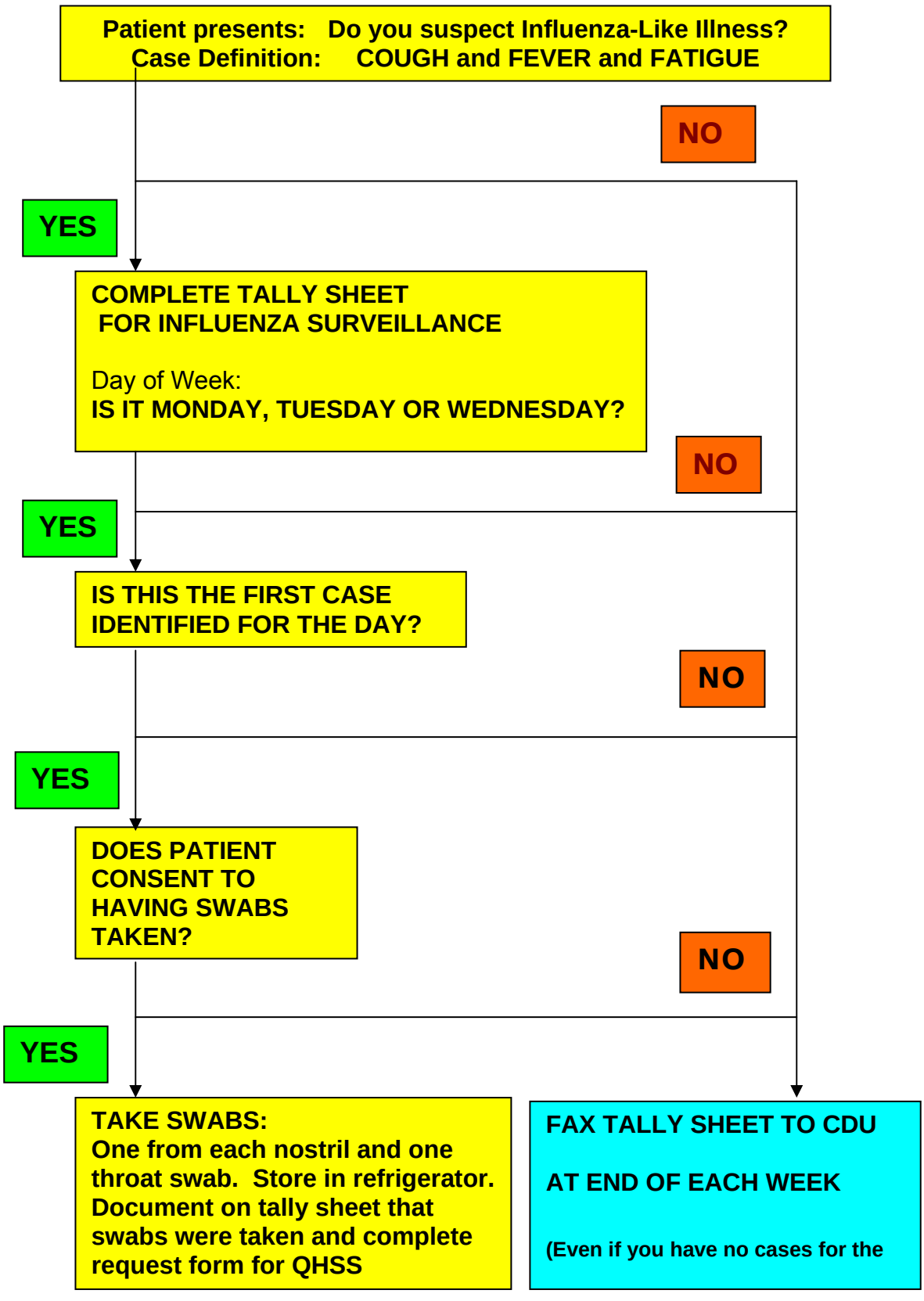
Queensland laboratory-confirmed Influenza notifications by statistical division and year, 2002-2005

Statistical Division	2002		2003		2004		2005	
	n	rate^	n	rate^	n	rate^	n	rate^
Brisbane	663	0.39	467	0.27	325	0.18	948	0.53
Moreton	128	0.17	143	0.18	51	0.06	172	0.22
Darling Downs	118	0.55	72	0.33	67	0.31	162	0.74
South West	6	0.22	3	0.11		0	19	0.7
Wide Bay-Burnett	52	0.22	51	0.21	29	0.12	56	0.22
Fitzroy	60	0.33	45	0.24	26	0.14	87	0.46
Central West	7	0.56		0	2	0.16	6	0.49
Mackay	7	0.06	13	0.1	3	0.02	15	0.11
Central / Southern	**1041**	**0.32**	**794**	**0.24**	**503**	**0.15**	**1465**	**0.43**
North West	19	0.56	10	0.29	4	0.12	15	0.44
Northern	63	0.3	50	0.24	88	0.41	233	1.1
Far North	22	0.1	41	0.18	17	0.07	40	0.17
Northern	**104**	**0.22**	**101**	**0.21**	**109**	**0.23**	**288**	**0.6**
Queensland	**1145**	**0.31**	**895**	**0.24**	**615**	**0.16**	**1754**	**0.45**

^ Rate / 1000 people (population drawn from Australian Bureau of Statistics, Estimated Resident Population figures

Appendix C

GP Influenza Sentinel Surveillance
FLOW CHART



Appendix D

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QUEENSLAND INFLUENZA SURVEILLANCE 2005

Week commencing ……/……/ 2005

GP Name …….…… Postcode ……

Total number of all consultations (including flu) per week ……..……...

Criteria for influenza: "Cough and fever and fatigue"

Patient No.	Age	Sex (M/F)	Flu vaccine in 2005 (Y/N)	Swab for PCR (Y/N)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

- Please use a new sheet for the start of each week
- Please return by **fax (3234 0057)**
  or email (craig_davis@health.qld.gov.au) every Friday afternoon.

Thank you for your co-operation.

Appendix E

GUIDELINES FOR TAKING NASAL AND THROAT SWABS

If influenza is suspected and the case definition for ILI is fulfilled

- fever/feverishness,
- cough
- fatigue/malaise.

Please take a nasal swab (from each nostril) and a throat swab for diagnostic testing.

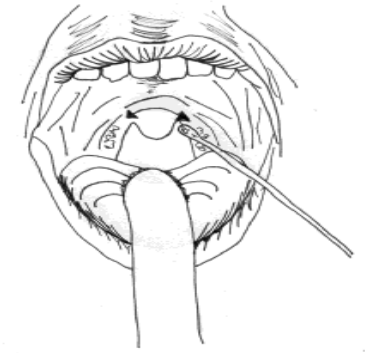
Note: if you suspect a patient has influenza, but does not satisfy all 3 criteria of the case definition, please indicate on the request form which of the symptoms are present and the degree of certainty of your diagnosis.

Method

Please ensure that the patient does not blow his/her nose prior to taking the nasal swabs.

To perform the nasal swabs, tilt the patient's head back gently, with one hand, and steady the patient's chin. With the other hand, insert the cotton bud end of the new dry sterile swab into the patient's right nostril. The swab should be rubbed firmly against the turbinate in the nostril to ensure the swab contains cells as well as mucus from the nostril. Withdraw the swab from the nostril. Remove the cap from the tube of transport medium. Break off the end of the swab's plastic shaft, ensuring that the entire swab can be sealed within the tube. Loosely recap the tube. Discard the remaining end of the swab. Repeat the procedure with a new dry sterile swab on the patient's left nostril.

To perform the throat swab, remove the swab from the packaging and ask the patient to open his/her mouth and stick out their tongue. Use a wooden tongue spatula to press the tongue downward to the floor of the mouth. This will avoid contamination of the swab with saliva.



Firmly swab both of the tonsillar arches and the posterior nasopharynx, without touching the sides of the mouth. Remove the swab, which should be thoroughly wet with the throat secretions.

Wrap label ***around all three*** specimens. Place the tubes back into the refrigerator.

Store specimens in the refrigerator until collection.

Appendix F

Queensland Government
Queensland Health

Viral ID-Influenza PCR Surveillance-NO CHARGE

Week Commencing: 9/05/2005 **Week 20**

Practice Code:

Doctor Name:

Patient ID: ....

Date of Onset: .... **Date of Collection:** ....

Patient Vaccinated (please tick one)	ILI Symptoms (please tick one)	Clinical Impression (please tick one)
☐ Yes	☐ Fever	☐ Almost certain
☐ No	☐ Cough	☐ Probable
☐ Unknown	☐ Fatigue	☐ Less likely

Queensland Government
Queensland Health

Viral ID-Influenza PCR Surveillance-NO CHARGE

Week Commencing: 9/05/2005 **Week 20**

Practice Code:

Doctor Name:

Patient ID: ....

Date of Onset: .... **Date of Collection:** ....

Patient Vaccinated (please tick one)	ILI Symptoms (please tick one)	Clinical Impression (please tick one)
☐ Yes	☐ Fever	☐ Almost certain
☐ No	☐ Cough	☐ Probable
☐ Unknown	☐ Fatigue	☐ Less likely

Queensland Government
Queensland Health

Viral ID-Influenza PCR Surveillance-NO CHARGE

Week Commencing: 9/05/2005 **Week 20**

Practice Code:

Doctor Name:

Patient ID: ....

Date of Onset: .... **Date of Collection:** ....

Patient Vaccinated (please tick one)	ILI Symptoms (please tick one)	Clinical Impression (please tick one)
☐ Yes	☐ Fever	☐ Almost certain
☐ No	☐ Cough	☐ Probable
☐ Unknown	☐ Fatigue	☐ Less likely

Appendix G

Queensland Government Queensland Health	**PATIENT INFORMATION AND CONSENT FORM** **2005 INFLUENZA-LIKE ILLNESS SURVEILALNCE PROGRAM**

Your General Practitioner is currently taking part in The Queensland Health Influenza Sentinel Surveillance Project. This project serves to act as an early warning system for increased influenza activity and to assist government health authorities to take timely and appropriate action in the event of a "Flu epidemic". This will result in reducing the spread of the disease and the number of people who become sick or die from it.

Your GP feels that you may have Influenza (the flu) and would like to perform some tests in order to determine if this is the correct diagnosis.

The test involves taking a swab (using a cotton-bud) from inside both nostrils and the back of your throat (a separate swab is used for each site). It only takes a few seconds and there may be some mild discomfort. To protect your privacy, the swabs and request forms will be coded. Only your GP will have the identifying information and will only pass it onto the Queensland Health in the case where the test comes back as positive for influenza (Influenza is a notifiable disease and so all positive cases are required by law to be reported to the health department). The swabs are sent to the main Queensland Health Laboratory for testing. Your GP will be informed of the results as soon as possible and will be able to pass them onto you. If influenza virus (the virus that causes the flu) is found the swabs are then sent to the World Health Organisation Laboratory in Melbourne for further testing. Participation in the project is purely voluntary and will not affect the care you receive.

Yours Sincerely

Dr Linda Selvey

Manager

Communicable Disease Control

Queensland Health

I give my permission for Dr…….. or the practice nurse…….. to take swabs from me for the purpose of the Queensland Health Influenza Sentinel Surveillance Project.

Signed: _____ Date: _____/ 2005

I understand that no identifying patient information will be released to any of the parties specified above without my permission.

Appendix H

NUMBER OF ILI CASES (FROM WEEKLY PRESENTATIONS) AND NUMBER POSITIVE TESTS (FROM SWABS TAKEN) BY DOCTOR AND WEEK THROUGHOUT THE 2005 ILI SURVEILLANCE SEASON

DOCTOR	WK 27		WK 28		WK 29		WK 30		WK 31		WK 32		WK 33		WK 34	
	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^
DOCTOR A	2/155	0/1	0/126	0/0	1/128	2/1	1/134	1/1	1/127	0/1	3/130	2/3	0/143	0/0	3/44	3/3
DOCTOR B	0/0	0/0	0/0	0/0	0/0	0/0	3/85	0/2	4/98	1/1	5/121	1/2	5/127	0/3	0/0	1/0
DOCTOR C	2/70	0/2	2/78	0/2	2/61	0/1	2/30	0/1	3/75	1/2	1/74	0/0	3/73	1/2	2/78	0/1
DOCTOR D	1/131	0/0	0/128	0/0	0/117	0/0	0/134	0/0	2/97	1/1	0/0	0/0	3/184	0/2	5/126	1/2
DOCTOR E	0/0	0/0	0/0	0/0	0/0	0/0	1/41	0/1	0/160	0/1	1/137	0/1	3/155	0/1	1/119	0/1
DOCTOR F	0/179	0/0	0/184	0/0	0/178	0/0	6/182	1/3	5/175	3/3	5/210	0/0	3/145	1/2	3/195	0/0
DOCTOR G	0/110	0/0	4/169	1/4	1/131	1/1	0/0	0/0	0/149	0/0	0/132	0/0	1/87	1/1	0/136	0/0
DOCTOR H	2/146	0/1	4/111	0/0	1/138	0/0	6/94	0/1	6/155	0/1	6/109	0/1	4/152	0/0	1/66	0/0
DOCTOR I	3/236	0/2	4/226	1/3	0/0	1/3	2/180	0/1	2/201	1/2	3/220	1/1	5/150	2/2	12/225	1/2
DOCTOR J	0/153	0/0	1/154	0/0	2/167	0/0	2/161	0/0	0/170	0/0	0/0	0/0	0/171	0/0	1/168	0/1
DOCTOR K	5/126	1/2	5/142	0/3	0/126	0/0	5/134	0/2	2/154	1/1	0/156	0/0	1/192	0/1	0/0	0/0
DOCTOR L	2/165	0/1	2/170	0/1	0/175	0/0	1/195	1/1	2/160	0/1	3/135	1/2	6/160	1/2	2/190	0/0
DOCTOR M	2/128	0/1	0/109	0/0	5/212	0/2	1/100	0/0	0/98	0/0	1/107	0/0	0/103	0/0	0/119	0/0
DOCTOR N	0/0	0/2	4/250	0/2	2/250	0/0	5/200	0/1	4/250	1/1	3/200	0/2	4/250	0/1	4/200	1/3
DOCTOR O	2/197	1/2	2/153	0/2	1/131	1/1	1/121	2/1	1/172	1/1	2/162	1/2	1/147	1/1	1/121	0/0
DOCTOR P	0/145	0/0	1/147	0/1	1/115	0/0	2/164	1/1	0/108	0/0	5/144	2/2	3/108	1/1	4/118	1/1
ALL DOCTORS	21 / 1941	2 / 14	29 / 2147	2 / 18	16 / 1929	5 / 9	38 / 1955	6 / 16	32 / 2349	10 / 16	38 / 2037	8 / 16	42 / 2347	8 / 19	39 / 1905	8 / 14

DOCTOR	WK 35		WK 36		WK 37		WK 38		WK 39		WK 40		WK 41		WK 42	
	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^
DOCTOR A	1/164	0/0	1/148	0/1	0/123	0/0	1/163	0/1	0/171	0/0	0/0	0/1	0/0	0/0	0/0	0/0
DOCTOR B	0/0	0/0	0/0	0/0	5/135	0/2	4/122	0/1	2/122	0/0	0/0	0/0	0/131	0/0	0/111	0/0
DOCTOR C	2/72	1/1	1/80	1/1	0/84	0/0	1/84	0/0	0/85	0/0	1/83	0/1	1/82	0/1	0/86	0/0
DOCTOR D	1/128	0/0	3/154	0/1	7/192	0/0	2/177	0/1	0/184	0/0	0/165	0/0	0/158	0/0	0/158	0/0
DOCTOR E	2/138	0/2	2/140	0/1	0/147	0/0	0/138	0/0	0/138	0/0	0/129	0/0	0/121	0/0	1/147	0/1
DOCTOR F	2/193	0/1	2/206	1/1	0/188	0/0	1/173	0/1	0/0	0/0	0/43	0/0	0/212	0/0	0/169	0/0
DOCTOR G	0/32	0/0	0/0	0/0	0/137	0/0	0/106	0/0	0/104	0/0	0/125	0/0	0/0	0/0	0/0	0/0
DOCTOR H	8/160	1/2	1/112	0/0	0/0	0/0	0/141	0/0	0/74	0/0	1/88	0/0	0/0	0/0	1/142	0/0
DOCTOR I	13/254	2/3	8/226	1/1	9/236	1/1	5/215	1/1	1/236	0/0	3/217	1/1	3/175	1/1	1/195	0/1
DOCTOR J	1/167	0/1	0/152	0/0	0/201	0/0	0/0	0/0	0/0	0/0	0/164	0/0	1/144	0/0	0/142	0/0
DOCTOR K	0/154	0/0	1/148	0/1	0/0	0/0	0/154	0/0	0/168	0/0	0/98	0/0	0/0	0/0	0/0	0/0
DOCTOR L	10/160	2/3	8/175	0/3	3/170	1/1	3/155	1/1	3/155	1/0	2/160	0/0	0/0	0/0	2/170	0/1
DOCTOR M	1/136	0/1	5/138	0/5	2/132	0/0	1/122	0/0	0/111	0/0	1/113	0/0	0/93	0/0	0/101	0/0
DOCTOR N	3/250	0/1	3/200	0/1	1/250	1/1	0/100	0/0	0/0	0/0	2/250	0/1	0/200	0/0	1/250	0/0
DOCTOR O	0/80	0/0	2/140	0/2	1/176	1/1	0/154	0/0	0/0	0/0	0/180	0/0	0/144	0/0	0/126	0/0
DOCTOR P	2/110	1/1	3/110	0/0	0/124	0/0	0/109	0/0	0/136	0/0	0/140	0/0	0/0	0/0	0/0	0/0
ALL DOCTORS	46 / 2198	7 / 16	40 / 2129	3 / 18	28 / 2295	4 / 6	18 / 2113	2 / 6	6 / 1684	1 / 0	10 / 1955	1 / 4	5 / 1460	1 / 2	6 / 1797	0 / 3

DOCTOR	WK 43		WK 44		45		WK 46		ALL WEEKS	
	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^	ILI#	TEST^
DOCTOR A	3/165	0/0	0/0	0/0	0/0	0/0	0/0	0/0	17/1921 (8.9 / 1000)	8/13 (50%)
DOCTOR B	0/75	0/0	0/135	0/0	0/140	0/0	0/0	0/0	28/1402 (20 / 1000)	3/11 (50%)
DOCTOR C	0/119	0/0	0/149	0/0	0/94	0/0	0/111	0/0	24/2706 (8.9 / 1000)	2/7 (50%)
DOCTOR D	0/76	0/0	0/68	0/0	1/44	0/0	0/71	0/0	24/1454 (16.5 / 1000)	4/15 (50%)
DOCTOR E	0/138	0/0	2/130	0/2	0/122	0/0	0/159	0/0	13/2259 (5.8 / 1000)	0/11 (0%)
DOCTOR F	0/188	0/0	0/0	0/0	0/172	0/0	0/168	0/0	27/3160 (8.5 / 1000)	6/11 (50%)
DOCTOR G	0/0	0/0	0/0	0/0	0/124	0/0	0/0	0/0	6/1542 (3.9 / 1000)	3/6 (50%)
DOCTOR H	0/124	0/0	0/0	0/0	0/125	0/0	2/151	0/0	43/2088 (20.6 / 1000)	1/6 (50%)
DOCTOR I	4/186	1/2	2/187	0/0	0/196	0/0	0/336	0/0	80/4097 (19.5 / 1000)	15/27 (50%)
DOCTOR J	0/193	0/0	0/158	0/0	0/0	0/0	1/170	0/0	9/2635 (3.4 / 1000)	0/2 (0%)
DOCTOR K	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	19/1752 (10.8 / 1000)	2/10 (67%)
DOCTOR L	0/0	0/1	1/130	0/0	0/0	0/0	0/170	0/0	50/2795 (17.9 / 1000)	8/18 (50%)
DOCTOR M	0/119	0/0	0/90	0/0	0/81	0/0	0/97	0/0	19/2309 8.2 / 1000)	0/9 (0%)
DOCTOR N	0/200	0/0	0/250	0/0	0/200	0/0	0/250	0/0	36/4000 (9] / 1000)	3/16 (50%)
DOCTOR O	0/133	0/0	0/160	0/0	0/0	0/0	0/114	0/0	14/2611 (5.4 / 1000)	8/13 (33%)
DOCTOR P	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	21/1778 (11.8 / 1000)	6/7 (50%)
ALL DOCTORS	7 / 1716	1 / 3	5 / 1457	0 / 2	1 / 1298	0 / 0	3 / 1797	0 / 0	430/38509 (3.89 / 1000)	69/182 (51%)

THE NUMBER (AND RATE / 1000 CONSULTATIONS) OF CASES OF INFLUENZA-LIKE ILLNESS / THE TOTAL NUMBER OF CONSULTATIONS

^ THE NUMBER (AND PERCENTAGE) OF POSITIVE INFLUENZA RESULTS / THE NUMBER OF SPECIMENS REPORTED AS TAKEN