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Local Authority Response to the Influenza A (H1N1) Pandemic

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Influenza A (H1N1) came to prominence in March and April 2009 when Mexico experienced a high number of flu cases and associated deaths which were attributed to a new Influenza A virus subsequently designated Influenza A (H1N1). This novel H1N1 contains parts of viruses found in pigs, birds and humans which is adapted to spread in humans.

On 27 April 2009 the World Health Organisation (WHO) increased the pandemic influenza phase to 4, indicating that there were small clusters of the virus with limited human-to-human spread. On 29 April 2009, WHO increased the pandemic phase to 5 indicating that there were large clusters in many countries, but person to person spread was still localised. On 11 June 2009, WHO raised the level of pandemic influenza to phase 6 because there was an increased and sustained transmission in the general population in different countries. By 2 May 2010, WHO indicated that there is no change in the pandemic phase based on the current epidemiological evidence and other relevant information and that worldwide more than 214 countries and overseas territories or communities had reported laboratory confirmed cases of pandemic influenza H1N1, including at least 18,001 deaths.

This paper discusses the response to the influenza pandemic in Lanarkshire, with particular emphasis on the local authority involvement and actions, especially those of North Lanarkshire Council

Epidemiology

The symptoms of H1N1 are similar to the symptoms of human seasonal flu infection and includes fever, cough, sore throat, runny nose, lymph and joint pain and headache. In addition, some patients have also had vomiting and diarrhoea.

Infection appears to be mild affecting relatively few older people (older than 60 years) and it disproportionately affects younger people aged 20-40 years and children. The attack rate is higher than seasonal flu and children appear to spread it more readily.

Since the first two cases of H1N1 were identified in Monklands Hospital, Airdrie at the end of April 2009 and until 6 July 2009 the policy was of containment of H1N1. The strategy was to decrease the transmission rate by investigating and treating cases and giving prophylaxis to contacts of cases.

As case numbers continued to rise and outbreaks were reported indicating the spread of the pandemic virus, on 6 July a 'treatment-only' phase was initiated to manage the pandemic. This meant that antiviral treatment was offered to anyone who had an appropriate clinical illness, without the need for testing. Most people experienced a mild, typical influenza-like illness and the number of deaths in the first wave was far fewer, compared with a typical influenza season. However, severe

cases have occurred and the overall rate of hospitalisation ranged from 1.3% to 2.5%.

A total of 1,540 individuals with confirmed H1N1v infection were admitted to hospital in Scotland by 1 March 2010. A high proportion of patients admitted to hospital were known to have underlying diseases. Although there is a range of disease severity, including some deaths in people with existing illness or disease, illness was relatively mild in the majority of the people. The total number of reports received of deaths among those with confirmed Influenza A H1N1v in Scotland, as at 1 March was 68.

Since mid August 2009, an increasing trend was noted in most NHS boards in Scotland until mid to late November followed by a sharp decline in December and a rise to a further, smaller peak in late December.

By the end of February 2010, data showed that in Scotland GP consultation rates for influenza-like illnesses was 73.1 per 100,000 in the week ending 28 February 2010. The consultation rate remained highest among those aged 0-4 years. The daily average GP consultation rate for Scotland reduced to 51.0 per 100,000 in the week ending 10 May 2010.

There were no H1N1v positive swabs reported in week 18, that is up to 18 May 2010, among those consulting their GPs through the sentinel scheme (0.0%, 3 samples). This is consistent with swab positivity in week 16 (0.0%, 4 samples).

Lanarkshire Joint Health Protection Plan

The Public Health etc. (Scotland) Act 2008 requires NHS Boards, in consultation with Local Authorities, to produce a Joint Health Protection Plan which provides an overview of health protection (communicable disease and environmental health) priorities, provision and preparedness for the NHS Board area. The first Lanarkshire Joint Health Protection Plan has been produced covering the period from 1 April 2010 to 31 March 2012. Dr. Harpreet Kohli, Jim Stirling and myself have signed this plan off on behalf of NHS Lanarkshire, South Lanarkshire Council and North Lanarkshire Council. It is a public document and is available on the NHS Lanarkshire website at <http://www.nhs.uk/Services/PublicHealth/Pages/JointHealthProtectionPlan.aspx>

The Lanarkshire Joint Health Protection Plan explains that preparation for a potential pandemic of influenza is one of the national health protection priorities which is being addressed at local level. The plan also contains a chapter on key health protection plans, which includes the Lanarkshire Pandemic Influenza Plan. Lanarkshire NHS Board and the relevant Council committees have signed off the plan and the organisations have agreed to collaborate in providing mutual aid.

The annual report of the Director of Public Health for 2008/09 was published in December 2009. Section one of the report discusses the challenges posed in Lanarkshire by the influenza A (H1N1) pandemic. The report is a public document and is available on the NHS Lanarkshire website at <http://www.nhs.uk/Services/PublicHealth/Pages/DirectorPublicHealthAnnualReport.aspx>

NHS Lanarkshire Consultants in Public Health Medicine (CPHMs) and Environmental Health Officers (EHOs) from the two Lanarkshire local authorities have effective liaison and training arrangements in place in relation to public health matters. The

liaison arrangements include the Lanarkshire Public Health Liaison Group and the Health Protection Senior Officers Group. Dr Harpreet Kohli and myself provided presentations to the North Lanarkshire Council's senior managers briefing meeting on 21 April 2010 on the Annual Report of the Director of Public Health for 2008/09 and the Lanarkshire Joint Health Protection Plan respectively, during which we both mentioned the joint work done by our organisations in connection with pandemic influenza.

NHS Lanarkshire, North Lanarkshire Council and South Lanarkshire Council have appointed 8 CPHMs, 9 EHOs and 11 EHOs respectively as designated competent persons. These individuals were all involved in a joint training exercise in Cumbernauld on 7 May 2010 on parts 3, 4, 5 and 6 of the Public Health (Scotland) Act 2008.

Lanarkshire Pandemic Influenza Plan

The Lanarkshire Pandemic Influenza Plan was signed off in October 2008 by NHS Lanarkshire, North Lanarkshire Council and South Lanarkshire Council. The plan outlines national, regional and local management and co-ordination arrangements and the key roles and responsibilities of the NHS and Local Authorities. Appendix 1 lists the contents of the plan.

Lanarkshire Pandemic Influenza Problem Assessment Group (PAG)

The Lanarkshire Pandemic Influenza Plan provides for the setting up of the Problem Assessment Group (PAG) as a multi-agency group convened by NHS Lanarkshire's Director of Public Health to deal with pandemic influenza. Following WHO raising the pandemic phase to 5 on 29 April 2009, the PAG met for the first time on 30 April. The PAG met on 23 occasions mostly on a weekly or fortnightly basis and the last meeting was held on 20 January 2010. The PAG co-ordinated the response to H1N1 at a strategic level and had an oversight of the availability, supply and use of antiviral drugs, impact on services, the vaccination programme, staff issues, vulnerable groups, mortuary facilities and communications.

The PAG ensured that there was high level commitment within its constituent organisations and that the Pandemic Influenza Plan was being implemented. Russell Ellerby, Assistant Chief Executive and myself represented North Lanarkshire Council at meetings of the PAG.

Guidance

The Health Protection Scotland (HPS) web site provides a useful source of guidance during the influenza A (H1N1) pandemic. The web site can be accessed at the following link: <http://www.hps.scot.nhs.uk/resp/swineinfluenza.aspx>

Other useful sources of information are the Scottish Government, NHS 24, Directgov, Department of Health, HPA and WHO. Links to the web sites for all of these organisations is available from the HPS web site link above. Locally influenza A (H1N1) information is provided on the NHS Lanarkshire website at the following address: <http://www.nhslanarkshire.org.uk/Pages/default.aspx>

North Lanarkshire Council and South Lanarkshire Council web sites provide links to this information.

National Planning Assumptions

The national planning assumptions (not predictions) to the end of May 2009 for the pandemic in the UK were as follows: clinical attack rate - 30% of population; peak clinical attack rate - nationally $\leq 6.5\%$ population per week and locally 4.5-8% population per week; case complication ratio $\leq 15\%$ of cases; case hospitalisation ratio $\leq 1\%$ of clinical cases (of whom 25% will require intensive care); case fatality ratio $\leq 0.1\%$ of clinical cases and peak absence rate $\leq 12\%$ of workforce.

However, the Chief Medical Officer issued revised planning assumptions for Scotland at the end of October 2009 advising that the worst clinical attack rate across the population was expected to be 12%, and 30% for the <16 years only and that the peak absence rate was expected to be around 5% of the workforce.

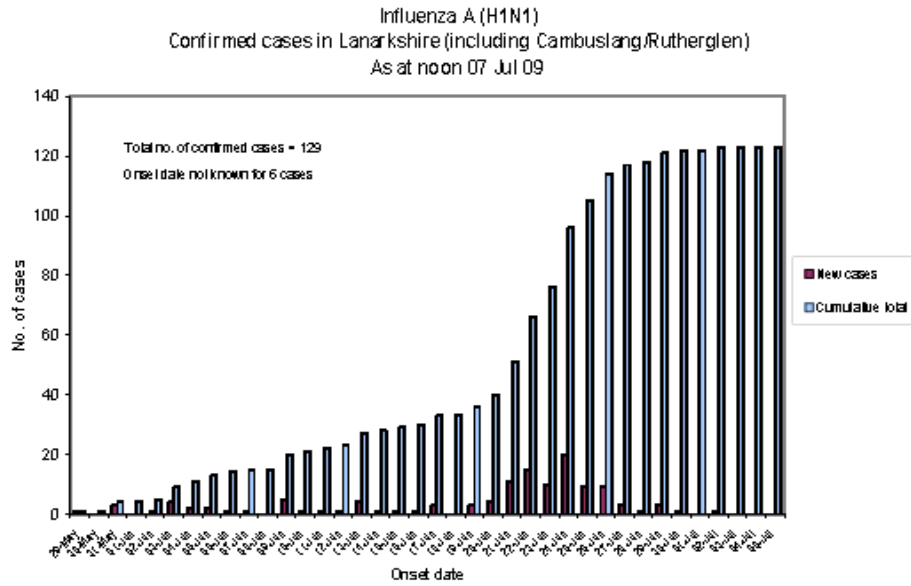
Lanarkshire Cases

Although there was an initial intense bout of activity at the end of April/early May 2009 when there were two cases from Forth Valley in Monklands Hospital, the first two Lanarkshire cases were not confirmed until 6 June 2009. Following these cases, there was a steady increase in number of cases and other associated work which included contact tracing, providing prophylaxis in schools and nurseries and closing schools or sending some school years home. The initial contact tracing involved workplace and air travel passengers. However, a review of evidence on transmission in these settings resulted in a change with contact tracing being discontinued.

The move on 6 July 2009 to the treatment phase throughout the UK meant that laboratory testing was no longer required to diagnose H1N1 and only cases would be treated, not close contacts (except in exceptional circumstances).

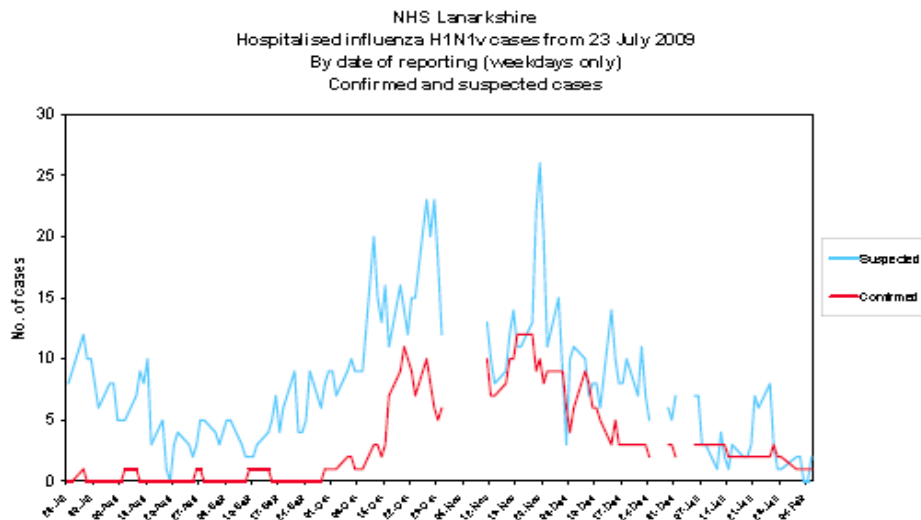
In Lanarkshire, during the containment phase, information was collected on 520 cases, 129 of which were confirmed and the rest were possible cases. Figure 1 provides details of the total number of confirmed H1N1 cases in Lanarkshire at the end of the containment phase.

Figure 1: Total number of confirmed H1N1 cases in Lanarkshire at the end of the containment phase



In the treatment phase, case-specific information on suspected and confirmed hospitalised H1N1 cases was provided each weekday to the NHSL Health Protection Team (HPT) by Infection Control Nurses (ICNs) at the 3 acute hospitals. Figure 2 provides details of the number of confirmed and suspected cases of H1N1 in Lanarkshire (July, 2009 to February 2010).

Figure 2: Number of confirmed and suspected cases of H1N1 in Lanarkshire (July, 2009 to February 2010)



There were a total number of 138 confirmed cases hospitalised in Lanarkshire up to 6 February 2010.

During the containment phase, there were three primary schools and a nursery which had confirmed cases reported to the HPT. In addition, there were two incidents which involved teachers who worked across different schools and extensive contact tracing was undertaken in all of the above situations. During the treatment phase, when there were reports of suspected or confirmed cases in schools, letters were issued to all parents of the particular schools involved. The letter informed them of the situation, highlighted the symptoms of H1N1 asking them to seek clinical advice from their GP if required and the importance of curtailing spread through good hand and respiratory hygiene.

NHS Lanarkshire (NHSL) Operations Room

Following the admission of the two cases to Monklands Hospital on 25 April 2009, an Operations Room was set up in the Board Room at NHSL HQ, Beckford Street, Hamilton. This was discontinued after a few days, but reinstated in June when the number of cases locally rose rapidly. The Operations Room was necessary for the Department of Public Health to identify possible cases and manage them according to the HPS algorithms, the follow up of contacts, management of clusters in schools, distribution of updated guidance to staff, and maintaining links to HPS and other NHS Boards and the Scottish Government via daily teleconferences, and to be able to produce timely situation reports.

Training sessions were organised for staff who volunteered to provide support in the Operations Room. Availability of a brief but structured training session to cover key areas was found to be helpful.

The Operations Room was supported by staff in Beckford Street and by staff who were nominated from NHSL and from North Lanarkshire Council and South Lanarkshire Council. Although there were some teething problems in getting the Operations Room up and running these were overcome. It was possible to get a good calibre of staff who quickly assimilated the information on their training and were most professional in their dealings with GPs and other health care professionals requesting advice.

The two Lanarkshire Councils were asked to provide 6 Environmental Health Officers (EHOs) each to help to staff the operations room. The Councils both agreed to this appeal at a PAG meeting. The application for assistance came at short notice and a request in the morning to provide EHOs to be trained the same afternoon was met.

The call centre was stepped down on 6 July 2009 as the pandemic moved into the treatment phase. Later that week I received an e-mail message from the NHSL manager responsible for staffing the operations room, which contained the comment, "The input from North Lanarkshire Council Environmental Services staff exceeded all expectation and they were the stalwarts of the service in week 1."

NHSL Primary and Acute Care

In addition to coping with the immediate requirements of the pandemic, extensive work and planning was undertaken in NHSL Primary Care including surge capacity, business continuity, antivirals distribution and arrangements for vaccination. The gathering of epidemiological information during the containment phase placed particular pressure on general practice. In July 2009, Primary Care came under particular pressure especially in some hot spots.

There was also extensive work and planning done in the NHSL Acute Division. This included prioritisation of work, surge capacity planning, infection control and fit testing of FFP3 masks by staff that may need them.

Local Authorities

Both North Lanarkshire Council and South Lanarkshire Council were represented on the PAG. In addition, NHSL Executive Directors, Council leaders and Assistant Chief Executives met to ensure that everyone was clear about the implementation of the Lanarkshire Pandemic Influenza Plan. Issues were discussed at a strategic level in the PAG and operationally with the two Community Health Partnerships (CHPs) at locality level.

The next part of this paper discusses some of the more significant activities which were undertaken by North Lanarkshire Council in response to the pandemic. However, South Lanarkshire Council also undertook similar activities.

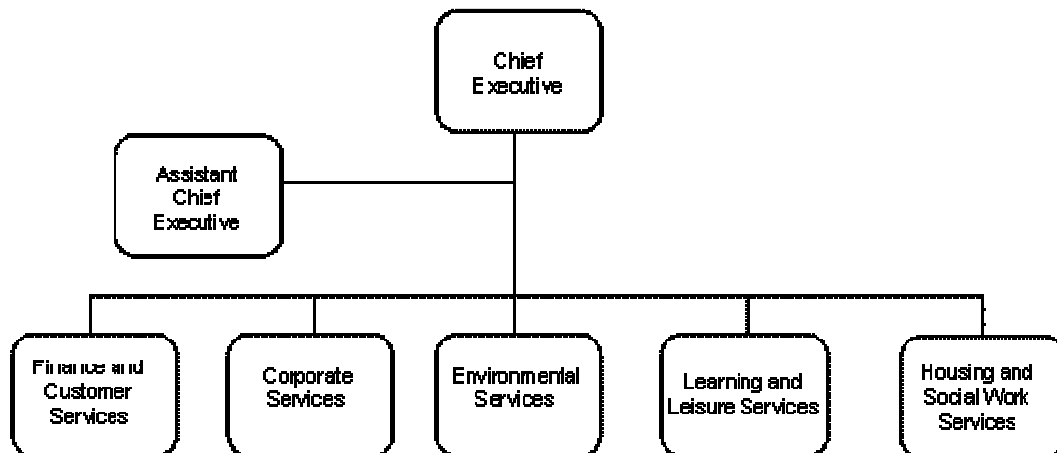
North Lanarkshire Council Contingency Planning Sub- Group

North Lanarkshire Council and South Lanarkshire Council both had internal planning arrangements for coordinating their activities in connection with the pandemic. North Lanarkshire Council established a subgroup of its Civil Contingencies Management Team (CCMT) to deal with the local authority response. The subgroup comprised representatives from relevant Council services including, protective services, social work, education, contingency planning, corporate human resources, corporate communications, regeneration services and transportation. The Assistant Chief Executive chaired the group.

The group met 13 times between 19 June 2009 and 4 December 2009. In addition there were several meetings of the full North Lanarkshire Council Civil Contingencies Management Team to specifically discuss the pandemic.

The management of North Lanarkshire Council is broken into 6 main service areas, the details of which are shown in Figure 3. With the exception of Finance and Customer Services all other service groups were represented on the subgroup by one or more officers.

Figure 3 North Lanarkshire Council Service Structure



Local Authority Actions at WHO Phase 6

On 11 June 2009, the WHO Director-General announced that the world was at the start of the 2009 influenza pandemic, and the level of influenza pandemic alert was raised from Phase 5 to Phase 6. Annex A of the Lanarkshire influenza pandemic plan (October 2008) describes the actions which the local authorities are required to take when the WHO raises the alert level to phase 6.

North Lanarkshire Council's CCMT Influenza A (H1N1) Sub-Group discussed the actions required by the plan and prepared comments on preparedness at a meeting on 26 June 2009. Details are contained in the table at appendix 2.

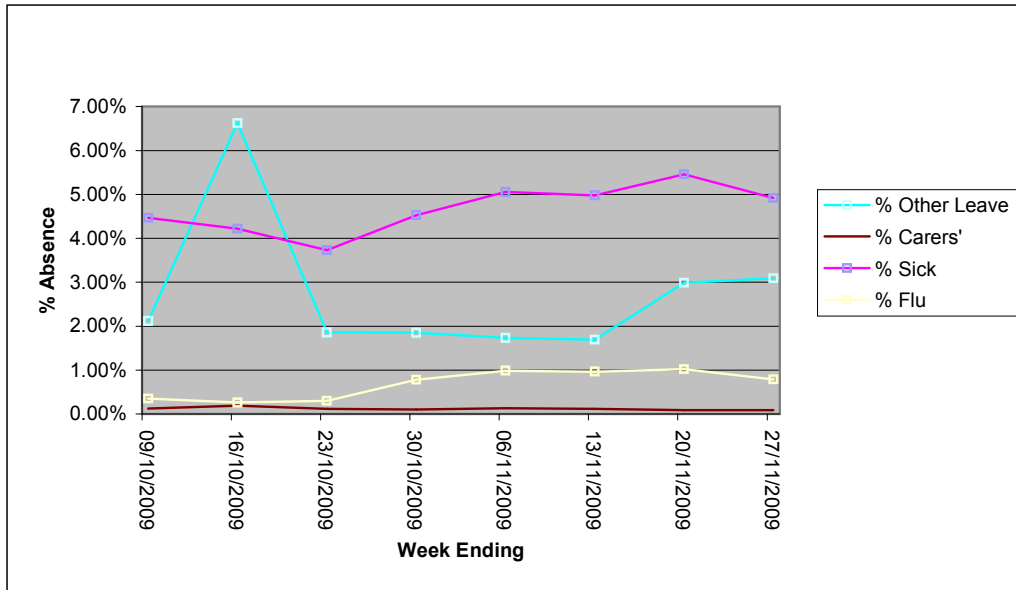
Human Resources Issues

The first challenge that came our way was that of providing consistent and clear advice to our managers and employees, as NHS advice was not always clear or consistent. For example, NHS advice as it related to pregnancy changed several times. There were different messages in terms of an increased risk, or not, to the mother and/or foetus. At times advice from NHS Lanarkshire seemed to conflict with the NHS advice at a national level.

The preparation work undertaken by the Council was considerable, with the direction to be taken being signposted by the level of staff absences that could potentially be experienced. This required the development of an absence reporting framework that could be implemented across all Services. This proved to be a challenge given the number of different absence recording systems in use across the Council. Having defined an agreeable indicator it was down to each Service to provide daily statistics on the absence rates being experienced to help the Council's Contingency Planning Sub-group take effective action.

An example of the absence recording management information available to the Sub-group is shown graphically in Figure 4, which indicates the weekly total percentages of employees absent during October and November 2009, subdivided by total sick leave, absence due to influenza, carers leave and other leave.

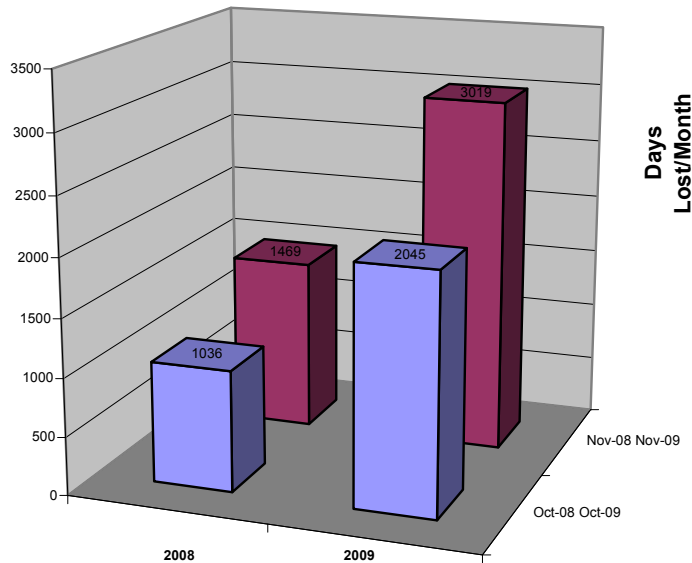
Figure 4 Weekly Total Percentages of Employees Absent at North Lanarkshire Council During October and November 2009



The graph shows that the Council's percentage sick leave rose from 3.73% during week ending 23 October 2009 to 5.05% during week ending 6 November 2009, assisted by an increase in the sick leave due to influenza rising from 0.30% to 0.99% during the same period. However, this only accounts for half of the increase during this period. In addition it can be seen that there are other factors which can lead to significantly greater increases in employee absence, such as absence due to other leave, including annual and flexi-leave of staff on holiday during week ending 16 October 2009, the October school holiday week. An interesting observation was that absence due to carers leave remained low throughout the pandemic and, for example, from week ending 23 October 2009 to 27 November 2009 remained between 0.09% and 0.13%.

At one of the PAG meetings the Council was asked if it could provide a comparison of absence levels due to influenza between 2008 and 2009. Figure 5 shows a comparison between October and November 2008 with October and November 2009. It can be seen from this figure that the number of days lost in October 2008 was 1,036, rising to 2,045 in the same month in 2009. The number of days lost in November 2008 was 1,469, rising to 3,019 in the same month in 2009. Absence levels due to reported influenza approximately doubled between October and November 2008 compared with October and November 2009.

Figure 5 Comparison of Influenza Absence at North Lanarkshire Council Between October and November 2008 and October and November 2009



Additional work was undertaken to ensure systems were available for managers and employees to work safely during the pandemic. Online training resources were developed to address good hand hygiene, and risk assessment systems/guidance were also developed, to include an online training course for risk assessors on the specific issues associated with pandemic flu. A series of documents were produced to assist managers deal with the operational issues that the pandemic might bring, e.g. guidance notes, Q&A sheets and website materials.

Trade Unions also had their part to play in the planning and preparation associated with the pandemic. Senior Management met with trade union representatives to discuss the implications for their members.

Business Continuity Planning

North Lanarkshire Council undertook an exercise to identify essential services and key personnel, which was phase 1 of updating our business continuity plans in response to the influenza pandemic. This work was co-ordinated by the Council's Chief Executive's Office and was completed on 8 May 2009.

Phase 2 of this exercise was to rank critical services in priority order and to compile pandemic preparedness action plans in order to explain how we proposed to deliver these critical services during the influenza pandemic. Templates were completed and returned to the Chief Executive's Office on 22 July 2009.

The pandemic preparedness action plans prioritise services into four timelines, that is, those which require to be available 24/7, those for which the response time can be 1-3 days, those for which the response time can be 4-7 days and those for which the response time can be more than 7 days.

This was a fairly time-consuming exercise but it has been worthwhile, since it now means that the Council has more up-to-date business continuity plans than ever before.

Education Services

Initially during the containment phase North Lanarkshire Council's Education Service issued advice and information to all establishments with regard to hand hygiene and guidance on action to be taken should an outbreak occur. Emergency procedures were drafted and consultation with the unions began.

On 6 July 2009 there was a move from the containment to the treatment phase. At this stage critical groups were identified and a list of frequently asked questions and answers were drawn up for staff and parents/guardians. Practical advice on good hygiene practice was drafted, with posters and hand washing illustrations. A letter was issued to parents/carers on behalf of Cabinet Secretaries from Health & Wellbeing and Education & Lifelong Learning to reassure them, as well as imparting information on the importance of good health and hygiene and the best protection for children and young people. Action plans were put into place to deal with staff absences and ensure continuity of an education provision.

Close partnership working was set up with NHSL Public Health on situations with schools and pupils diagnosed. During this phase North Lanarkshire Council had a number of schools with high levels of absences, however we only had one school requiring to be closed as a result. When decisions had to be made about closing classes or schools this was done in consultation between NHSL Public Health and the Councils Education Service, who arranged contact with parents and on occasion opened up schools for distribution of prophylaxis out of hours.

The management of clusters in schools, especially special schools, was challenging in many ways, however a good partnership and working relationship, and good lines of communication between schools, education authorities and NHS Lanarkshire and provision of information for parents were crucial factors for successful management.

Throughout the period from April to December 2009 the partnership working with external authorities proved to be very beneficial for the Council. Some concerns arose regarding the volume of staff resources which could be required should the pandemic escalate and the significant strain this would put on Education Services resources, albeit emergency procedures were in place.

It was important that all steps were taken to minimize the numbers of employees and pupils contracting the virus. For the country as a whole it was essential that there was business/service continuity; if schools required to be closed due to lack of staffing then it created problems for parents and carers attending their workplace as their child would require childcare. There was a need to initially contain then slow down the spread of infection as far as possible in the school environment where infection was easily and rapidly spread.

Social Work Services

The influenza pandemic required the provision of health care and social support services to the community. The mechanism for the provision of these services was based on the day-to-day provision of the services.

The Council's contingency plans consider the need to re-prioritise services to ensure that essential services are maintained, dependent upon the level of staff absence and demand on services. Non-essential services were identified and the potential for redeployment of staff from non-essential areas to essential areas was considered.

Measures to cope with staff shortages have been planned for the various different community care settings including residential care and older people, home support, day care and child care services.

The contingency measures include prioritisation to "life and limb services", reducing or ceasing non-essential services, redeployment of staff to frontline work and cancellation of staff leave.

Some concerns arose regarding the volume of staff resources which could be required should the pandemic escalate and the significant strain this would put on Social Work Service resources, albeit contingency plans were in place. North and South Lanarkshire Councils' Social Work Services and NHS Lanarkshire worked in partnership to assess needs that allowed the delivery of social care and welfare services during the influenza pandemic. Fortunately, our detailed contingency arrangements were not put to the test.

The importance of health, safety and welfare of employees was recognised and the necessary instruction, training and information was provided to support and safeguard essential workers during the pandemic period. Appropriate infection control advice and guidance was issued to front-line staff.

Both the health and local authorities are dependent on a range of third party service providers to support the delivery of services to the community. The third party service providers were included in the development of arrangements for the response to the pandemic.

North Lanarkshire Council officers met with the independent sector home care providers and supported living providers to discuss their response. The council alerted these providers to the need to develop or refresh their contingency plans and arrangements to deal with the influenza pandemic. Communication with independent providers was well timed and proportionate. Liaison and partnership working was undertaken with NHS Lanarkshire, including mutual attendance and input at meetings. One success factor was obtaining a state of preparedness survey from providers at an early stage.

The Social Work Service was well prepared and provided an appropriate and proportionate response to the pandemic.

Body Holding

The "worst case" pandemic influenza planning assumption, published by Government in 2005, estimated a 50% attack rate with a 2.5% mortality rate. For Lanarkshire this assumption translates to approximately 7,000 excess deaths over a pandemic wave of an estimated 15 weeks. It was agreed to plan for the "worst case" scenario, even although this was not likely to materialise.

Allowing for enhanced operation this figure of excess deaths still exceeded the maximum combined burial and cremation capacity of North and South Lanarkshire Councils over the 15 week period and presented the need to create an additional

body storage capacity, peaking around 700, until such time as burial and cremation demands normalise.

Lanarkshire Funeral Directors estimated the body storage capacity they could collectively provide but this fell short of anticipated demand and, in some cases, the need to store bodies in a refrigerated environment. For these reasons the use of Funeral Directors for prolonged storage of bodies was discounted. Similarly, the body storage capacity in the existing NHS mortuaries fell well short of the anticipated demand and was, therefore, discounted.

A Lanarkshire mass fatalities group, comprising representatives of North and South Lanarkshire Councils and NHS Lanarkshire, met to consider options available to bridge the gap in capacity. This group recommend that the three organisations agree a single body storage facility for Lanarkshire. Following research into options available from external companies a site meeting took place to determine the suitability of the North Lanarkshire Council facility at Bellshill Depot, Old Edinburgh Road, Bellshill as the location for the holding facility. The site was considered favourable as the location of cooled tented structures and detailed drawings were prepared to allow full consideration of this solution, which was costed. A modular approach was developed using tented structures which allowed the body holding facility to be scaled to the demand. The facility would be self contained with separate administration, staffing, toilets and be protected with a security fence. The indicative cost for such a facility to accommodate 700 bodies is around £200k.

It was proposed that once established the facility would be managed by NHS Lanarkshire's Senior Pathologist. It was recognised that there is a need for body handling and management and those staff with the appropriate skills are the mortuary technicians presently employed by NHS Lanarkshire. It is recognised that there is a finite complement of mortuary technicians and careful consideration of the allocation of these staff to service a temporary body holding facility would be necessary.

It was recognised that at some point in the 15 week infection cycle that the current arrangements concerning the route a body would take from point of death to disposal would change to include the body holding facility. It is not possible to identify this point until an event was underway. Issues such as body viewing would become problematic and would require very careful management.

Infection Control

Infection Control issues were discussed at the PAG and advice was given by the Health Protection Team in Public Health, the Infectious Diseases Unit at Monklands, and by the HAI Team in NHS Lanarkshire. In addition the Councils corporate and service health & safety advisers provided guidance and advice on infection control issues to Council officers.

Antiviral Distribution

Antiviral distribution was extensively discussed at PAG meetings and detailed plans put in place in three stages to cope with increasing antiviral distribution as required. The three hospital pharmacies were involved initially in the containment phase and as the need increased for antivirals, Antiviral Collection Points (ACPs) based in health centres were organised and six locality based ACPs were in operation during the treatment phase. The decision to operate a limited number of ACPs ensured smooth operation.

Plans included arrangements for mass distribution of antivirals through sites such as Council buildings and sport centres. The option to activate these arrangements was discussed between NHS Lanarkshire, Local Authorities and Leisure Trusts, however, there was no requirement to activate these arrangements.

Plans were also drawn up for home delivery of antiviral medication. The local authorities agreed to provide vehicles and staff to assist in home delivery of antivirals, however, NHS Lanarkshire did not require to call upon the local authorities to provide these additional resources.

Vaccination

The H1N1 vaccination programme was carried out in two phases beginning mid-October 2009 with small quantities of H1N1 vaccine and increasing in pace as more vaccine became available:

Phase 1 was delivered between mid-October and 31 December 2009, with ongoing vaccination until 31 March 2010. This included a range of groups:

- Health and Social Care employees (direct patient/client care);
- 'At Risk' patients, including people with existing conditions;
- Pregnant women;
- Children in Additional Needs Schools; and
- Homeless people

Phase 1 was primarily delivered by GP practices and the NHS Lanarkshire Occupational Health service (SALUS). With the exception of children in additional needs schools, housebound patients and the homeless, all vaccinations of 'at risk' patients were delivered by their registered GP practice.

Phase 2 was delivered to all children aged between 6 months and 5 years between 1 January 2010 and 31 January 2010 again with availability of vaccination until 31 March 2010. Phase 2 was delivered by a combination of GP practices (~35%) and public health nurses vaccinating children in centralised clinics (~65%).

NHS Boards were required to prioritise Health and Social Care staff for H1N1 vaccine by distinguishing between those with and without direct patient or client care. Only those employees with direct patient or client care were eligible for H1N1 vaccine.

NHS Lanarkshire's occupational health provider (SALUS) provided a vaccination programme, which was initially targeted at priority healthcare staff, including A&E and ITU clinicians, from 16 October 2009. The main roll out of the programme was via scheduled clinics on 7 sites, available to all NHS Lanarkshire employees identified as eligible under national guidelines.

In addition, these scheduled clinics were open to a range of external health and social care providers, including local authority employees and voluntary and private sector. Each of these organisations was specifically agreed with SALUS and a list of eligible employees was drawn up for validation at the clinics.

The second wave of occupational health vaccination clinics started on 16 November 2009, when more vaccine became available.

The staff uptake rates (excluding any staff vaccinated by their GP) are shown in table 1.

Table 1 Proportion of Eligible NHS and Social Care Staff Who Were Vaccinated

Workforce	Number Eligible For H1N1 Vaccine	Total number received one dose of H1N1	Proportion of eligible staff vaccinated
NHS staff	10,334	5,163	50.0%
Social care staff	9,836	3,325	33.8%

On the matter of the Council staff vaccination programme, there was some uncertainty on, not only who, initially, might be considered for vaccination, but latterly when this might be carried out. Eventually agreement was reached with NHS Lanarkshire to co-ordinate the provision of such vaccines, although initial indications had suggested we would need to use the Council's occupational health service provider, Health Management Limited, for this work.

NHS Lanarkshire's approach to the mass public vaccination programme resulted in a number of building inspections being undertaken by health and safety professionals. Whilst the risks associated with the public use of the vaccination centres could be adequately managed, ultimately NHS Lanarkshire utilised GP's to administer the public programme. Whilst this was not a problem for the Council, there was a large amount of time and effort put into the planning of such a vaccination programme from a number of Council Services which ultimately proved not to have been necessary.

Once mobilised the vaccination for Council priority group employees worked well with NHS Lanarkshire (SALUS) providing ample clinics spread over the authority at various dates and times to suit operational needs. These were extended when the need was identified and have since been re-established until September 2010 to allow employees who have either newly commenced the service, or changed their minds, to receive the vaccination.

Lanarkshire Action Plan

A pandemic influenza A (H1N1) action plan was prepared on 10 November 2009 for discussion by the PAG. The plan was prepared in tabular form and identifies required actions. For each action current arrangements, proposed further actions, lead individuals (or organisations) and timescales are described. Following discussion a final draft of the plan was prepared on 16 December 2009.

The action plan identifies the following actions: coordination (influenza leads, organisational structure, HPS teleconferences, membership of PAG, updating pandemic plan); public health (guidance, infection control, surveillance, preparedness and capacity, mutual aid arrangements); primary care (management arrangements, preparedness and capacity); secondary care (management arrangements, preparedness and capacity, cross boundary flow, access to swab results, FFP3 masks fit testing); procurement; antivirals (planning stocks and supply, guidance, use); vaccination programme; board control centre operation; communications

(situation reports, NHSL website); business continuity planning; and other issues (workforce issues, contact information, planning).

Communications

Communications about H1N1 were directed by the Scottish Government Health Directorate. A key feature of communications in Lanarkshire was to ensure that staff were adequately informed. Information to staff in NHSL and the Councils was co-ordinated by their Communications Teams. The organisations represented on the PAG worked together to ensure a consistency in approach and message.

The flow of information from the Scottish Government to NHS Lanarkshire, then to employers such as North Lanarkshire Council was cumbersome. Given the aim was to raise basic hygiene awareness and counter mis-information amongst employees and service users this could have happened more quickly.

A degree of frustration arose within some services from the fact that a great deal of complex and changing information was being circulated around the organisation within a short space of time.

Internal Audit Report

North Lanarkshire Council's internal audit service produced a review report on 8 December 2009. The purpose of the report was to review the existence, adequacy and effectiveness of the Council's contingency planning arrangements in respect of pandemic flu preparedness and to assess the Council's arrangements against recognised good practice and relevant guidance issued by the Scottish and UK governments.

The internal audit service found that: "the Council's contingency planning arrangements for pandemic flu were well-established, that plans were clearly documented and that the management arrangements in place were found to be consistent with best practice and Scottish and UK Government guidance. A working group of senior officers has been set up to co-ordinate the Council's response to the threat posed by a flu pandemic and this group continues to meet regularly to monitor, review and amend the Council's plans as necessary." No significant recommendations were made by the internal audit service.

Conclusions

An emergency exercise - Cauld Crow – had been due to start on 27 April 2009 and was to have been the government's main civil contingencies exercise for 2009. The four-week exercise was to have involved a range of agencies across the country to test resilience and improve knowledge and understanding of how to handle the issues Scotland would face in the event of a pandemic influenza outbreak. The exercise was cancelled a few days before it was due to start, as Scotland was seeing the start of an actual pandemic.

The first two cases of H1N1 in the UK were identified in Monklands Hospital, Airdrie at the end of April 2009. WHO increased the pandemic influenza phase to 5 on 29 April 2009. The initial policy was of containment to decrease the transmission rate. However, as case numbers continued to rise and outbreaks were reported, a 'treatment-only' phase was initiated to manage the pandemic.

A workshop to look at the response to the pandemic was organised for PAG members in October 2009 to discuss key learning points and an Action Plan was drawn up to address any gaps and ensure better preparedness for subsequent waves.

An increasing trend was noted until mid to late November followed by a sharp decline in December and a rise to a further, smaller peak in late December. Since then, influenza A (H1N1) levels have continued to decrease across Scotland including Lanarkshire, indicating that H1N1v illness remains low.

H1N1 posed unique problems for NHS Lanarkshire and its local authority and other partners. It did not behave as the pandemic influenza planning suggested, e.g. the prolonged containment phase and relatively mild nature. However, many of these challenges were met in the first wave of the pandemic including by NHS primary care, secondary care and public health. At times, these services were stretched, but ultimately, coped. Planning for the second and subsequent waves of the pandemic meant considerable resources were devoted to, for example, antiviral collection points, vaccination plans (subsequently not needed because of the U.K. wide GP agreement), increasing critical care capacity, training staff and prioritising services.

The national Pandemic Flu Framework was helpful in assisting the preparation of the local plan. However, the planning assumptions were based on a severe pandemic with higher levels of mortality and morbidity and repeated reductions in these assumptions during the pandemic were undertaken. Modification of targets at a national level could have been considered in light of these reductions.

Guidance on excluding staff from work, with a particular focus on vulnerable staff groups, e.g. pregnant staff, should be developed to ensure a consistent approach.

Regular Problem Assessment Group (PAG) meetings ensured good communication within NHS Lanarkshire, North Lanarkshire Council and South Lanarkshire Council, which contributed significantly to the management of the pandemic. There was evidence of the benefits of partnership working in both preparing the plan and in response across and between both Councils and the NHS.

Colleagues from both Councils and NHS Lanarkshire demonstrated focus, determination and support in dealing with the pandemic. There was a requirement to react nimbly to a changing scenario and an evolving national strategy.

A good example of partnership working and support was the establishment of the NHS Lanarkshire Operations Room, which was supported by staff who were nominated from NHSL and from North and South Lanarkshire Councils. The Councils provided 12 EHOs at short notice to help staff the operations room. On 8 July 2009 the NHSL manager responsible for staffing the operations room commented that "the input from North Lanarkshire Council Environmental Services staff exceeded all expectation and they were the stalwarts of the service in week 1".

There was a very large amount of guidance issued by the Westminster Government which more often than not passed through Scottish Government for regionalisation, which was sometimes a lengthy process. Responding to Scottish Government information needs sometimes proved onerous.

Maintaining a clear picture of national impact was more difficult when we moved from containment to treatment strategy, as statistics were less readily available.

The local authorities responded quickly and effectively to support the PAG and established internal support arrangements. For example North Lanarkshire Council's support group met 13 times between June and December 2009 and all of the local authority actions described in the Lanarkshire pandemic influenza plan were implemented.

North Lanarkshire Council's absence reporting framework was improved to provide daily statistics to assist the Council's contingency planning sub-group to take effective action. Additional systems, guidance documents and training resources were produced to assist managers and employees to work safely during the pandemic. The Council's business continuity planning arrangements were significantly improved as a consequence of dealing with the incident.

There was a significant impact on education delivery in consequence of the containment strategy. During the containment phase, there were three primary schools and a nursery which had confirmed cases. In addition, there were two incidents which involved teachers who worked across different schools and extensive contact tracing was undertaken. Close partnership working was set up with NHSL Public Health on situations with schools and pupils diagnosed. The management of special schools was challenging.

It was important that all steps were taken to minimize the numbers of employees and pupils contracting the virus. It was essential that there was business/service continuity; if schools required to be closed due to lack of staffing then it created problems for parents and carers attending their workplace as their child would require childcare.

Social Work Services had concerns regarding the volume of staff resources which could be required should the pandemic escalate and the significant strain this would put on resources, albeit contingency plans were in place. Fortunately, our detailed contingency arrangements were not put to the test.

Both the health and local authorities are dependent on a range of third party service providers, who were included in the development of arrangements for the response to the pandemic. One success factor was obtaining a state of preparedness survey from providers at an early stage.

Planning of body holding arrangements was carried out based on a worst-case scenario and a site for a single Lanarkshire body storage facility was identified. Fortunately these arrangements did not have to be implemented.

The decision to operate a limited number of antiviral collection points based in health centres was seen as effective and avoided the use of Council buildings and support centres.

NHS Lanarkshire required significant support from the Councils regarding the vaccination programme. The NHS approach to the mass public vaccination programme resulted in a number of building inspections being undertaken by Council staff. Ultimately NHS Lanarkshire utilised GP's to administer the public programme. However, there was a large amount of time and effort put into the planning of the vaccination programme by a number of Council Services which ultimately proved not to have been necessary. This did not prove especially onerous but could have been had whole population vaccination been necessary in considering requests for people, vehicles, storage space and premises.

For Council staff there was some uncertainty regarding who might be considered for vaccination and when this might be carried out. Eventually agreement was reached with NHS Lanarkshire to co-ordinate the provision of such vaccines.

A Lanarkshire pandemic influenza action plan was prepared and agreed by the PAG in November 2009 and has been implemented.

The Scottish Government Health Directorate directed communications, however the flow of information from the Scottish Government to NHS Lanarkshire then to employers such as North Lanarkshire Council was at times cumbersome and slow.

It is pleasing that North Lanarkshire Council's internal audit service found that the Council's contingency planning arrangements for pandemic influenza were well-established, that plans were clearly documented and that the management arrangements in place were found to be consistent with best practice and Scottish and UK Government guidance and that no significant recommendations were made for improvements.

A wide range of NHS, Council and other agencies resources were used to help prepare and deal with the consequences of the influenza pandemic. Whilst the pandemic did not reach the levels that were initially expected it was useful in helping us all to prepare for any future events of this type. The actions taken as a consequence of dealing with this pandemic have meant that the preparedness levels for dealing with any future pandemic have been enhanced beyond that which would have occurred had plans merely been exercised.

A Lanarkshire influenza PAG debriefing meeting has been arranged for 1 June 2010 and a PAG paper reviewing the pandemic will be produced by the end of September 2010.

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**Appendix 2: Extract from Annex A of Lanarkshire Influenza Pandemic Plan
Local Authority Actions at WHO Phase 6 (Declared on 11 June 2009)**

No	Action Required by Plan	Comments
	EMERGENCY PLANNING TEAMS	
1	Implement Pandemic Influenza Plan; Corporate Emergency Procedures Plan and ad-hoc National Guidance as required	All being used
2	Continue multi-agency liaison at local level – Contingency Planning, Corporate Communications and EHO representation at Lanarkshire Pandemic Influenza Incident Management Team meetings.	All up and running
3	Activate and maintain Emergency Management Team (Declared alert level).	Activated at full and sub-group levels
4	Activate and maintain Emergency Control Centre.	On hold pending escalation
5	Liaise with Scottish Govt. and others at national level.	Through PAG, SCG, and teleconferences.
6	Attend and support multi-agency groups and meetings (SECG).	Actioned
7	Maintain organisational awareness via ongoing briefings / sit-reps.	Briefings and sitreps being promulgated daily to all appropriate parties.
	EMERGENCY MANAGEMENT TEAMS	
8	Monitor impact of absence on council services	Being carried out at service and central HR level and monitored by CMT.
9	Monitor priority groups of employees for anti-viral medication	In progress
10	Prepare vaccination centres for activation when vaccine available	In progress, in collaboration with NHS Lanarkshire and North Lanarkshire Leisure
11	Monitor cremation and burial capacity	Thorough preparation work at an advanced stage
12	Maintain media liaison	Ongoing
13	Provide information to the public	Mostly through NHS and PAG though provided through NLC media and communications outlets
14	Maintain procedures to inform and support staff.	In progress
15	Maintain support to the community	In progress
	SERVICE MANAGERS	
16	Monitor employee absence levels	Ongoing
17	Monitor and prioritise delivery of essential / core services	Work due for completion 22 July
18	Implement business continuity plans as required	Work due for completion 22 July
19	Revise priority vaccination groups (Key Workers).	Completed but being further refined
20	Prepare employee information on vaccination	On hold till appropriate time.
21	Prepare for activation of vaccination centres.	At an advanced state of readiness
22	Prepare public information on vaccination.	Through NHS and PAG