Department of
Health, Social Services and Public Safety
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The 2009 pandemic - Learning from Experience

A report of the Northern Ireland response to the 2009 influenza pandemic

November 2010

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Foreword

The 24th April 2009 is a date which is firmly imprinted on the minds of many people in Northern Ireland and throughout the world. Many will remember watching TV and hearing about this new influenza virus which was causing respiratory illness and deaths in Mexico and the US and wondering if this was the 'big one' that would cause the pandemic that had been anticipated. Over a year later, many are saying in hindsight that we over-reacted, however for all who were involved in the response, we remember vividly the rollercoaster of emotions from disbelief, denial, fear, apprehension, exhaustion and eventually significant relief, as the situation unfolded over the next days, weeks and months.

People are at the heart of the response and people are the reason why we respond in the first place. The way in which all staff within and across organisations united against a common threat in the interest of the public was most impressive. People showed courage and leadership and were always ready to go the extra mile. There have been so many unsung heroes in the situation. You know who you are and we say thank you for what you did.

While there is never going to be a good time for a pandemic, April 2009 was possibly the worst time for a pandemic to hit Northern Ireland. Through the Review of Public Administration, one of the most major health and social services reorganisations in over 30 years had just taken place, with retirement of many long-standing experienced staff, loss of corporate memory and the uncertainty which surrounds any change in structure and relationships. The Public Health Agency, HSC Board and Business Services Organisation were only 23 days old when they collectively had to face this challenge. The Department was also under pressure with a reduced staff complement at the time. The way in which the H1N1 virus was handled in Northern Ireland is all the more notable when these factors are taken into consideration.

This overview describes some of the key areas of response to the pandemic in Northern Ireland and draws out the lessons which we can learn from the experience in order to better prepare us for the future. It highlights that although there is much that we can plan for, there will always be those things which will be the same next time round. For example, uncertainty is a fact of life in a pandemic, as is the delay in production of a pandemic specific vaccine.

Finally, I want to remember those people who contracted the H1N1 virus and were extremely ill or who died. Our sympathies go out to those bereaved families and relatives who today continue to live with the consequences of the H1N1 pandemic.

My thanks to everyone who has contributed their opinions and time to this overview. Through what we have learned, we will make every effort to plan for the future and ensure that the people of Northern Ireland can have confidence that we will be better prepared than ever before, should another pandemic come along. After all, the risk of another pandemic remains the same.

Michael McBride

TIMELINE

The timeline below details a factual account of the key milestones during the pandemic response and provides a record of the sequencing of events. This timeline describes the course of the outbreak, its impact on Northern Ireland and the steps taken to respond.

April 2009

23 April: Human cases of new swine influenza A (H1N1) virus were confirmed in Mexico and the USA.

24 April: The World Health Organisation (WHO) announced an outbreak of H1N1 virus in USA and Mexico.

26 April: In response to the pandemic threat, the Minister, Michael McGimpsey activated the Regional Health Command Centre in Belfast.

27 April: The Minister made a statement to the Northern Ireland Assembly updating Members on the emerging international situation; advising that plans were in place to manage the pandemic; and emphasising good hygiene messages.

The Department clarified roles and responsibilities at this stage. The new HSC organisations and lack of established structures meant that Departmental staff were required to assist with the operational response as well as focussing on strategic aspects.

The first confirmed UK cases of pandemic influenza were reported in Scotland, in a couple who had returned from a holiday in Mexico. The Minister participated in the first meeting of the UK Civil Contingencies Committee which was set up to oversee the pandemic response.

28 April: The Minister made a further statement to the NI Assembly advising that the World Health Organisation had raised its alert level to Phase 4 which signified sustained human-to-human transmission.

UK Ministers reaffirmed previous decisions not to close UK borders and agreed that facemasks should not be procured for the general population, based on expert scientific advice.

29 April: The Minister set up the swine flu helpline for Northern Ireland. This was very labour intensive for the staff involved. The Public Health Agency handed out information leaflets to returning travellers at airports and ports in Northern Ireland. This was an interim measure pending UK Border Agency posters/leaflets arriving. The Public Health Agency provided a good operational response despite an evolving organisational structure which had only been in place for 23 days, vacant posts and disruption to office accommodation.

On the evening of 29 April the World Health Organisation announced it was raising its alert level from 4 to 5. This signified "large cluster(s) but person-to-person spread still localised, suggesting that the virus is becoming increasingly better adapted to humans".

Department of Health, London, announced there were 5 cases in the UK. No cases had yet been reported in Northern Ireland.

30 April: Northern Ireland stepped up preparations following the WHO's announcement. The Department issued the first daily press update. This concentrated on providing information and reinforcing respiratory hygiene messages. The UK wide swine flu information campaign was rolled out on television/radio and in print media. The UK Swine Flu Information Line was put into operation.

May 2009

8 May: Over 800,000 leaflets giving the public important information about pandemic flu begin dropping through letter-boxes across Northern Ireland. The Department of Education issued guidance to schools in Northern Ireland.

14 May: The first case of swine flu was confirmed in Northern Ireland, in a person who had recently returned from Mexico. Patients in Northern Ireland who required antiviral treatment or prophylaxis were able to access antivirals by arranging for their prescription to be collected from their GP and taken to their local pharmacy. GP Out of Hours Centres were responsible for issuing antivirals out of hours. The antiviral strategy aimed to use established arrangements for as long as possible, rather than introduce the National Pandemic Flu Service.

26 May: The Department issued the Health and Social Care (HSC) Organisations in Northern Ireland with interim guidance on the Flu Service Framework and asked for detailed plans to be put in place by 1 July 2009 for the distribution of antivirals during the WHO Phase 6, in expectation of increased demand.

June 2009

11 June: WHO declared Phase 6 pandemic: 'increased and sustained transmission in the general population'.

12 June: Interim policy on patients who should be considered for possible testing for Influenza A (H1N1) issued by CMO. This ensured appropriate identification of H1N1 in existing hospital patients and in new admissions with suspected H1N1.

17 June: UK Health Ministers agreed to procure sufficient vaccine to cover 100% of the population, while seeking as much flexibility as possible in contracts with pharmaceutical producers.

18 June: The four UK Health Ministers held a telephone conference to discuss health-specific aspects of the pandemic response. This would later

become a regular a regular Four Nations Ministerial meeting where key decisions were taken.

25 June: First hospitalised case in Northern Ireland.

26 June: CMO issued guidelines on management of patients with flu-like illness. Community transmission was occurring in hot spots in the UK, but had not progressed to Northern Ireland. The uneven pattern of spread meant that national advice and guidance on outbreak management needed to be tailored to fit the stage of the outbreak in each region.

Contracts signed with GlaxoSmithKline and Baxter Healthcare to provide a total of 132m doses of H1N1 vaccine, sufficient for the whole UK population, based on a two dose schedule.

July 2009

1 July: The Swine Flu Preparedness Programme Board chaired by the CMO and comprising staff from the Department, HSC Board, PHA and BSO was established. This ensured that strategic decisions were appropriately implemented at an operational level within Northern Ireland.

2 July: Minister confirms move from containment to treatment phase. Pandemic flu would be diagnosed clinically, rather than on the results of laboratory testing. Antivirals were recommended for those in at risk groups and for any other individuals on the basis of clinical discretion of their GP or other clinician. This marked the end of contact tracing.

7 July: Change from daily to weekly reporting of pandemic flu data.

23 July: National Pandemic Flu Service activated in England. This was not activated in Northern Ireland at this time because existing services were coping with the increased demand.

31 July: Northern Ireland citizen dies in England from respiratory failure and pneumonia caused by the H1N1 virus.

August 2009

13 August: Minister announces priority groups for H1N1 vaccine, following recommendations from the Joint Committee on Vaccination and Immunisation.

21 August: First pandemic flu related death in Northern Ireland.

September 2009

14 September: Agreement announced with the British Medical Association's General Practice Committee on a deal for vaccinating at-risk groups.

October 2009

1 October: The four UK Health Ministers were informed that the GSK vaccine had been licensed by the European Medicines Agency for those over six months and for pregnant women.

7 October: It was announced that the Baxter Healthcare vaccine had been licensed by the European Medicines Agency.

14 October: The four UK Health Ministers agreed that the vaccination programme should start at the same time throughout the UK recognising that it would take a week for sufficient quantities to be distributed to all four countries. The arrival of the vaccine coincided with the peak of infection in Northern Ireland.

15 October: The Minister announced the starting date for the H1N1 vaccination programme.

21 October: The H1N1 vaccination programme gets underway. Children in special schools for severe learning disability are prioritised as a matter of urgency, following the deaths of vulnerable children with complex medical conditions.

22 October: Revised UK planning assumptions published. This reduced the assumed Clinical Attack Rate from 30% to 12%; and reduced the reasonable worst case for UK deaths from 19,000 to 1,000.

Vaccination of children in special schools for severe learning disability commenced.

23 October: Vaccination of children in special schools for severe learning disability almost completed.

26 October: Minister confirms vaccination for staff providing personal care in special schools for severe learning disabilities.

29 October: Commencement of CMO weekly media briefs to update journalists on the Northern Ireland pandemic response.

November 2009

3 November: Statement from Minister about weekly reporting of H1N1 related deaths. This policy aimed to respect the privacy of families who had recently lost a loved one.

19 November: Second phase of H1N1 vaccination programme announced. This extended the programme initially to children from six months to five years.

December 2009

23 December: Department of Health (London) wrote to Baxter Healthcare exercising the contractual break clause to cease supply of Celvapan from 28 February 2010.

January 2010

8 January: JCVI met and confirmed that there was no basis for recommending vaccination of further groups of people. The current programme of vaccinating those in priority groups, and of children aged between six months and five years, should however be completed.

14 January: The four Health Ministers agreed to suspend deliveries of Pandemrix from 16 January and to enter into negotiations to terminate the contract with GSK.

22 January: Swine Flu Programme Board meets for the final time. This signified the end of the formal response to pandemic flu.

March 2010

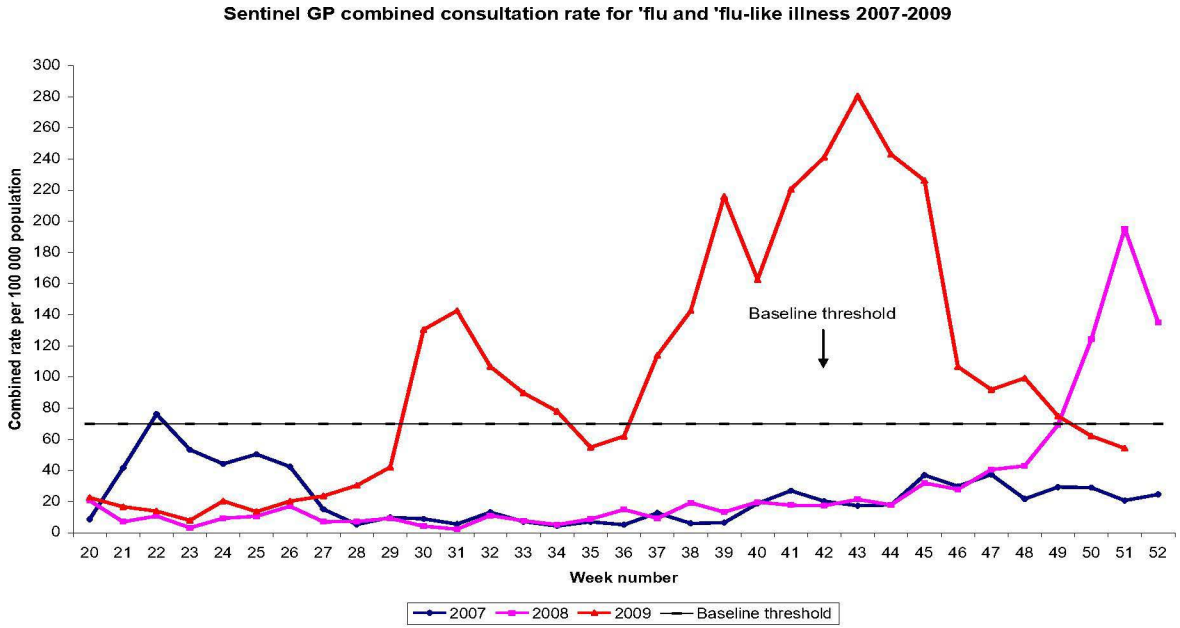
12 March: Due to low levels of flu activity the weekly flu bulletin issued by the Department ended.

31 March: End of formal H1N1 vaccination programme due to high uptake of vaccine. Ongoing vaccination continues for those in at-risk groups and pregnant women.

August 2010

10 August: WHO formally advised the end of the phase 6 pandemic alert, and the commencement of the post-pandemic period.

The figure below shows the sentinel GP combined consultation rate for flu and flu-like illness during the pandemic period. This is set against the rates for 2007 and 2008 for comparison.



Executive Summary

Introduction

1. This overview relates to the Northern Ireland response to the 2009 influenza pandemic. This overview is the product of several months analysis of documentation and reported experience of those who were involved in the response. The Report should be read in conjunction with Dame Deirdre Hine's independent review of the UK response[1] and will supplement individual local organisation pandemic reviews.

2. The H1N1 virus has become known by a range of different terms since it emerged in April 2009. For the purposes of this document, the term H1N1 has been used throughout.

3. Several respondents have commended the Northern Ireland response. Planning has been proven as well developed, and the professional and dedicated response by all involved deserves credit.

4. The four UK governments have worked closely together in a cohesive fashion to ensure a robust response to the pandemic threat. The possibility remains that a further pandemic may arise in the future and we must use the lessons identified from this overview to refine and update our pandemic plans.

5. The key learning points identified in each of the chapters are summarised below.

Chapter 1: Overview

6. The Northern Ireland response was characterised by well organised plans and strategies, both in the Department, the PHA, the HSC Board, and the HSC Trusts. Good leadership and clearly defined roles contributed greatly to the success of the response.

7. The Programme Board that was established to oversee the implementation of pandemic flu strategies proved very successful. This focussed activity on aspects of planning and provided a formal structure for escalation of issues and a two way communication of information.

8. In Northern Ireland, and across the UK, pandemic planning had been taking place since 2003. This meant that we had good generic plans in place to begin responding to the pandemic. Achieving the right balance between keeping to the generic plan and amending it in light of experience and emerging epidemiology is a challenge.

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[1] 'The 2009 Influenza Pandemic: An Independent review of the UK response to the 2009 influenza pandemic' by Dame Deirdre Hine, DBE FFPH FRCP, available at http://www.cabinetoffice.gov.uk/ukresilience/ccs/news/100701-flu-pandemic-review.aspx

Lessons learned

- Clarify command and control structures early. These structures should be flexible and avoid duplication.
- Focus work in streams with clear roles and responsibilities
- Identify a core set of essential meetings and key membership of each group

Chapter 2: Data and Surveillance

9. Good surveillance proved invaluable during the pandemic response, both to anticipate what preparation needed to be made, and to provide information to professionals and the public. Considerable demands were placed on staff involved in data collection and challenges were experienced in collation of data more quickly than normal or data that was not routinely collected.

10. The volume of scientific advice which was rapidly changing posed challenges for local organisations in their response. Information is key to managing and responding to the pandemic and for longer term planning. Striking the appropriate balance in information provision proved difficult to obtain.

Lessons learned

- A robust process should be developed so hospital in-patients data can be made available from the Patient Administration System.
- The FluCon reporting system should be revisited to determine if it can be refined or made more useful in a pandemic situation.
- Data items should be classified into two categories: those which must be collated; and those which are of value but could be done without in a very pressurised situation.
- An agreed process should be adopted for reporting deaths during a pandemic.
- Apollo general practice flu surveillance system will be beneficial in a pandemic due to its range of applications and utility.
- Need for flexibility of the local response in the context of Northern Ireland, rather than responding to worst case scenarios.
- Short, concise summaries of new information must be available on a daily basis. These should be available from the intranet site along with other key information.
- Ensuring intranet access for all professionals in advance of a pandemic. Responsibility of all staff to access latest information and to keep up to date.

Laboratory Support

11. The Regional Virology Laboratory provided an excellent service throughout the response, and particularly in the crucial early days. This enabled an accurate early picture to be established of pandemic spread in Northern Ireland.

Lessons learned

- Improved transport arrangements will be necessary in future to ensure urgent samples are received quickly.

Chapter 3: Human Resources

12. The professionalism demonstrated by health protection and health service staff was exemplary during the pandemic and ensured that services continued to run smoothly even when faced with additional pressures.

13. Staff were under considerable pressure throughout the response period and it will be essential in future to fully manage the demands placed upon staff.

Lessons learned

- A separate HR workstream should be included in plans for a future pandemic.
- It will be essential in future to manage the pressure on staff and ensure there is adequate rest time to promote staff health and wellbeing.
- Employment checks should be activated on reserve lists at an early stage so no delays are experienced in redeployment.

Education and training

14. The extra demands created by the pandemic meant that staff were required to take on new roles or work in unfamiliar situations. A wide range of education and training was undertaken to prepare staff and has resulted in additional skills being learned. This knowledge will enhance the ability of the Health Service to respond to any future pandemic threat.

Lessons learned

- Training plans should be part of pandemic flu plans in the future with clear rationale regarding the purpose of training communicated to staff and managers.

- There is a need for more critical care education in the nursing curriculum with possible rotations to maintain skills. Some respondents suggested that critical care updates should form part of CPR training. Although it is unlikely that most staff will be required to work in a critical care setting at short notice, it was noted that critical care training resulted in greater staff confidence and improved recognition of the acutely ill patient. Now that this training has been given, it is important to ensure ongoing maintenance of these skills in a formalised way.

Chapter 4: Finance

15. The Independent Review, Chaired by Dame Deirdre Hine, has found the UK response to the 2009 influenza pandemic to be both proportionate and effective. Pandemic preparedness does cost money, however the Department put processes in place to ensure that funding was approved appropriately and that accountability was built into the system.

16. Many people found the business case process for financial approval to be onerous, however, this was necessary to ensure adequate scrutiny and proportionate financial expenditure.

Lessons learned

- Close liaison with finance professionals in the groups at both policy and operational level assisted in managing funding expectations and pressures.

- Business cases should be approved in principle prior to a pandemic where possible to minimise the amount of approvals required during the emergency.

- Increased flexibility should be built into any emergency approvals process in case a more severe pandemic is experienced in future.

- To assist future planning, it may be possible to identify certain common costs that may be forecasted prior to the event. The level of hospital resource utilisation, the number of sites and the costs will be dependent on:

  a) Severity and type of Incident
  b) Timescale
  c) Whether the event is localised

Chapter 5: Vaccination

17. Vaccination proved a key prevention component in the pandemic response. Development of a pandemic specific vaccine is only possible once the virus has been isolated. Despite this unavoidable delay, robust plans for vaccinating those in vulnerable groups were put in place so there was no time lost once the vaccine was received.

18. Good organisation by the vaccination implementation group combined with a dedicated approach by vaccination staff contributed to a very successful programme in Northern Ireland. High uptake rates were achieved along with increased uptake for seasonal flu vaccine.

Lessons learned

- More autonomy at Northern Ireland level in communication materials would have been appreciated, although this needs to be set against the need to maintain a common look and feel to the materials in what is a national programme. Nevertheless, a more efficient approval process could be developed to minimise delays in producing information materials.

- Vaccine was supplied in 10 dose vials with 24 hour expiry once reconstituted, which led to wastage of vaccine. Smaller pack sizes would have reduced the need to split packs under pharmaceutical supervision and reduced wastage.

- The possibility of having emergency or pandemic arrangements in contracts with GPs could potentially avoid time consuming negotiations during a pandemic, although this is not a straightforward process and requires detailed discussions with primary care officials. Sleeping contracts should be explored with GPC regarding future vaccination programmes during an emergency.

Primary Care

19. Primary Care staff were at the frontline in providing advice and care for patients with suspected or confirmed H1N1. Staff coped admirably with the additional pressures and demands created by the pandemic.

20. Many challenges became apparent during the response including coping with rapidly changing information and guidance; undertaking a

vaccination programme during a surge in cases; and provision of surveillance data.

21. Many benefits have been achieved as a result of forming new networks between practices and additional vaccination training.

Lessons learned

- The possibility of setting up a helpline to assist specifically with general practice queries should be explored
- Sleeping contract arrangements with GPC for future vaccination programme to be explored
- Provision of information and daily updates on a single intranet site would help address information overload.

Pharmacy

22. Community pharmacies played a vital role in maintaining normal arrangements during the pandemic. In addition to dispensing of antivirals and over the counter medicines, the high profile role involved provision of information about vaccination and infection control.

23. Delivery of the H1N1 vaccination programme was greatly assisted by the arrangements put in place for the splitting of bulk packs of vaccines and their onward transmission to GP practices.

24. The operational management of pandemic pharmaceutical stockpiles was very successful and ensured equitable access to antivirals and vaccines for patients across Northern Ireland.

Lessons learned

- Explore possibility of implementing a sleeping contract with community pharmacies to distribute antivirals during a pandemic
- Improved IT infrastructure should be a priority for community pharmacies to assist with communication and stock management

Chapter 6: Critical care and surge

25. The Critical Care Network (CCaNNI) had already substantially developed plans to increase critical care capacity in advance of a pandemic. This work was invaluable in responding quickly to the pandemic threat. Although the increased capacity was not required, it was reassuring that plans were available.

26. Additional equipment was procured and staff training undertaken. This legacy will ensure Northern Ireland is in a very strong position to respond to a future pandemic.

Lessons learned

- Front-line clinicians including paediatricians, adult ICU intensivists and Trust lead clinicians should be involved in future planning.
- The Swine Flu Critical Care Clinical Group report makes recommendations for further work on critical care and surge. Northern Ireland should participate in any national work in this area.
- Work should be completed on regionally agreed ethical guidance on clinical decision making in a flu pandemic.

Chapter 7: Stockpile

27. The Department and BSO worked closely with UK procurement agencies to ensure access was available to the wide range of countermeasures required to sustain the pandemic response.

28. BSO acquired suitable secure storage accommodation to take delivery, store and manage the pandemic stockpile. This action ensured adequate products in sufficient quantities were available when needed. There were significant challenges involved in managing the stockpile in dealing with issues such as short dated stock; local preferences for National stockpile items; and stock management.

29. Personal Protective Equipment proved to be one of the major challenges of the pandemic. Procurement, delivery, fit testing, training and disposal created considerable demands and required careful management.

Lessons learned

- The pandemic highlighted the importance of Trusts maintaining contingency stockpiles of PPE. Consideration should be given to the level at which future stocks are held.
- Stock management processes should now be set in place to ensure that rotation occurs to minimise wastage due to stock expiring. There should also be an ongoing annual review process of stockpiles regarding their use, recycling and disposal. This should be taken forward by DHSSPS, BSO and HSC Trusts.
- Trigger points should be identified to clarify the release of regional stock to supplement Trust stockpiles and earlier decisions should be made in future emergencies.
- In addition to PPE fit testing, background training should also be made available and incorporated into mandatory training to support ongoing infection prevention and control

Lessons learned (continued)

- Trusts should ensure an accurate profile of staff fit tests on FFP3 masks is maintained for the future
- The fit testing programme should be completed and also needs to include the testing for masks currently held in the National Stockpile to determine future Northern Ireland requirements.
- When replenishing the stockpile, more information is needed to ensure compatibility of items and products do not have short dated shelf life.

Chapter 8: Communications

30. The communications response to the pandemic was very successful . Key health messages and action was disseminated to the public, the media and elected representatives very quickly.

31. Printed material was distributed to every household in Northern Ireland providing information about pandemic flu and the appropriate actions to take. The Department, NI Direct and PHA all developed pandemic flu sections on their websites which provided key information quickly.

32. However, the vast quantity of information being distributed and short time frames for implementing guidance created difficulties for staff managing information.

33. The Minister established the Northern Ireland swine flu helpline at the beginning of the pandemic. This was staffed and run by the Public Health Agency and provided a useful source of information to the public.

34. The Department decided it was inappropriate to release information on H1N1 related deaths as they occurred due to the intrusive and upsetting impact on grieving families.

Lessons learned

- Further work should be undertaken to prepare the public for the possibility that the H1N1 virus will be the main flu virus circulating this winter. Key messages should encourage people to take up the vaccine, particularly those in at risk groups.
- Privacy should be respected for those families who have recently lost a loved one and wish to grieve without media focus.
- A single source of online information should be established for the use of staff. This should include daily updates and details of revised guidance.

Chapter 1: Overview

1.1 Northern Ireland had been preparing for an influenza pandemic for some years. The wide-ranging preparations included building stockpiles of clinical countermeasures and plans to purchase pandemic vaccine for the whole population.

1.2 This overview details the strategic decisions that were taken to mitigate the effects of the 2009 influenza pandemic. The value of pre-pandemic planning was reflected in the rapid, efficient response to the pandemic threat.

Methodology

1.3 The 2009 influenza pandemic affected all HSC organisations. Without exception, each organisation coped admirably with the challenges they faced.

1.4 The aim of this overview was to reflect on the overall HSC response to pandemic flu in Northern Ireland in order to identify and record:

- What worked well
- Work in progress that requires completion
- What worked less well and requires in depth assessment and further action
- Benefits that are long-term or last beyond the immediate response.

1.5 This summary report records the key elements of the health and social care response and sets the direction in updating and refining pandemic flu plans.

1.6 A structured questionnaire was sent to all HSC organisations, Programme Board workstream leads, and other key individuals. A wide variety of responses to inform this report were received and reflect each facet of the healthcare response in Northern Ireland. The focus in this overview is in learning the lessons from the healthcare response given the information and knowledge available at each stage, rather than delving into the operational issues.

1.7 This will ensure the lessons learned from the 2009 pandemic can be applied to future planning and necessary changes put into place in preparation for a future pandemic.

1.8 No two pandemics are going to follow the same course, therefore it is important that our plans are robust enough to respond to three different scenarios in future:

(a) If the virus had been more virulent, causing greater pressure on health services and levels of sickness absence across a range of organisations.

(b) If the virus had spread more rapidly, resulting in a very intense, concentrated period of activity.

(c) If the virus had been more virulent and had spread more rapidly.

1.9 This work is the responsibility of pandemic flu planning groups in the Department and HSC organisations. These groups will be taking forward the learning points in the coming months as they further develop pandemic plans. Updated and refined plans should be in place as soon as possible and by the end of March 2011 at the latest. Plans should be closely linked both within Northern Ireland and the UK to ensure co-ordinated future planning.

1.10 Dame Deirdre Hine has completed her independent review of the UK response to the 2009 influenza pandemic. The recommendations contained within her report will also be of use in developing future plans. Her report commends the UK response as proportionate and effective. She also highlights considerable good practice on which to build, improve systems and the way in which services are delivered.

Overview of initial cases

1.11 In response to the first few confirmed cases of pandemic flu in the UK, the Minister set up the Northern Ireland helpline on 29 April 2009. This provided advice to concerned members of the public. The first confirmed case of pandemic flu in Northern Ireland occurred on 14 May. Rates of infection in the early months of the pandemic were much lower in Northern Ireland than in hotspots in West Midlands, London or Scotland. By 30 June, only 33 laboratory confirmed cases and 1 hospitalised case had been reported.

Containment Phase

1.12 The containment phase characterised the period when the UK implemented a series of measures designed to slow the spread of the virus, and provide time to gather data to build a clearer understanding of the virus. This period lasted from 27 April 2009 when the first cases of H1N1 were reported in the UK, until 2 July 2009 when the UK moved to the treatment phase.

1.13 During the containment phase, the newly formed Public Health Agency led the response and followed up contacts of confirmed cases. This proved extremely resource intensive, however the Agency responded commendably. The containment approach put in place by the Public Health Agency had the following key components:

- Identifying and tracing close contacts of probable and confirmed cases, including those arriving from Mexico; gathering and recording epidemiological data; swabbing and laboratory testing

- Maintaining a presence at all ports and airports and providing public health advice to returning travellers

- Giving post-exposure prophylaxis to all close contacts of probable and confirmed cases of H1N1 pandemic influenza

- Providing public health advice to schools in the event of a probable or confirmed case in a school setting

- Putting in place enhanced surveillance measures

Schools

1.14 No schools here were advised to close on public health grounds, although one primary school which had a confirmed case decided to close two days earlier than planned for the summer holidays.

Surveillance

1.15 During the containment phase, surveillance information was based on collection and analysis of data from confirmed cases of H1N1 gathered through laboratory testing and contact tracing. The focus was on characterising the clinical, epidemiological and virological features of the new disease.

Move to treatment phase

1.16 Ministers decided on 2 July to move from containment to a treatment phase. This meant that cases would be identified through clinical diagnosis, not swabbing, and contacts would no longer be traced.

1.17 This decision was necessary as widespread contact tracing and prophylaxis was placing considerable strain on front-line health services, and this approach could not be continued indefinitely. This change in strategy ensured the long term resilience of the health service.

1.18 Antivirals were no longer used as a preventative measure but reserved for those with symptoms of H1N1. In addition, the routine testing of suspected cases and the tracing of close contacts of a symptomatic patient were discontinued. While England adopted a 'treat-all' approach for all people with influenza like symptoms, a more targeted strategy was pursued in Northern Ireland. Scotland and Wales took a similar approach to Northern Ireland. A step by step treatment approach was adopted, within guidelines, but giving clinicians discretion on how best to treat each patient with the H1N1 virus.

1.19 In Northern Ireland patients who thought they might have pandemic influenza were advised to contact their GP. If the clinician determined that they required antivirals, they followed the normal process and arranged for their prescription to be collected from their GP and taken to their local pharmacy to receive antivirals. Pressure on primary care was further decreased by effective public messaging and the public helpline.

National Pandemic Flu Service

1.20 The National Pandemic Flu Service (NPFS) was launched in England on 23 July 2009. This enabled rapid provision of antivirals to symptomatic patients, based on an algorithm. It bypassed primary care and relieved pressure on services. GPs in Northern Ireland continued to carry out

patient assessments and issue prescriptions for antivirals. Northern Ireland retained the option to activate the NPFS, if pressure on primary care services had required this intervention. However, this proved not to be necessary. Scotland and Wales took a similar approach to Northern Ireland regarding the NPFS.

Peak of the pandemic

1.21 The highest peak of H1N1 cases occurred during mid to late October 2009.The highest rate recorded for combined influenza and flu like illness was 280.6 per 100,000 population. Following a review of consultation data over the past 9 years, a provisional baseline threshold of 70/100,000 population was established to distinguish baseline from seasonal flu activity.

Post-peak phase

1.22 Consultation rates for flu and flu like illness consistently decreased from mid October and have been below the baseline threshold since December 2009. Scientists continue to predict a further resurgence of the virus may yet occur during winter 2010.

Organisational structures and arrangements

1.23 One of the strongest themes which emerged from the questionnaires was the absolute necessity of having a strong organisational structure with clear roles and responsibilities. This was particularly challenging in April 2009, as the PHA, HSC Board and BSO were only 23 days old when the outbreak, later to become the pandemic, began in Mexico. A number of senior experienced medical, nursing and executive staff had retired, taking with them the corporate memory based on many years of experience and considerable standing in Health and Social Care. Coupled with the inevitable changes in staff, office accommodation, secretarial support and ways of working, April 2009 was not the ideal time to face such a challenge. It is also worth noting that the Department had a reduced complement of staff at that time, with a number of senior staff in acting positions and a number of key posts which were vacant.

1.24 However, despite this considerable disruption, staff throughout the system rose to the challenge. One key success factor was the provision of clear leadership and support at the most senior level, by CMO in the Department, Chief Executives and Senior Teams within the new organisations and also in the Trusts. Not only is clear leadership needed within an organisation, it is essential that roles and responsibilities are clear at all levels of the organisation and between organisations, recognising the limited resource available particularly at senior level.

1.25 In Northern Ireland, and across the UK, pandemic planning had been taking place since 2003. This meant that we had good generic plans in place to begin responding to the pandemic. One key lesson which we learnt was that while these pandemic plans provide an essential basis for responding to the situation, there is a need to tailor the response to the characteristics and behaviour of the virus which has emerged. Achieving

the right balance between keeping to the generic plan and amending it in light of experience and emerging epidemiology is a challenge.

Regional Preparedness for Swine Flu Pandemic Programme Board

1.26 After the initial acute response to the outbreak, coupled with the realisation that a second wave was likely, we took stock of the situation to determine how best to manage the response in the longer term. So, at the beginning of July, at departmental level the Regional Preparedness for Swine Flu Pandemic Programme Board was established, with 13 work streams. This included membership from the Department, PHA, HSC Board and HSC Trusts. The Programme Board structure is attached at Appendix 1. This allowed focused activity on aspects of planning and a formal structure for escalation of issues and two way communication of information. This regional approach to managing the response resulted in robust plans, and a clear governance structure to account for expenditure and decisions which were made.

Ways of working

1.27 In any crisis situation, establishing a rhythm of regular meetings or teleconferences helps to deal with issues in 'batches'. This also ensures that gaps and duplication are minimised.

1.28 One striking feature was the cooperation shown between organisations and individuals, with everyone working together, sharing resources and expertise. The benefits of good communication and networking were evident.

1.29 However, it would not have been possible to sustain the schedule of meetings if the pandemic had been more severe or if larger numbers of staff had been ill and off work. Identifying a core set of essential meetings and essential attendees may be of benefit in preparation for a future pandemic.

1.30 The Public Health Agency acted as an excellent source of advice and guidance, working in close conjunction with staff from the HSC Board and Business Services Organisation. The Strategic Pandemic Response Group was quoted as an important forum for regional coordination of public health and service response.

1.31 From day to day, the Trust Liaison Group, chaired by a senior member of staff from the Public Health Agency provided a forum for addressing the operational issues with all relevant organisations represented round the table, or more often on the end of a phone!

1.32 The Emergency Operations Centre hosted by PHA was quoted by many respondents as a key part of the response and a central source of advice and guidance.

Collaborative working

1.33 Responding to the pandemic demonstrated the way in which the full range of HSC organisations worked together in collaboration. It also meant that staff gained a new understanding of the pressures facing each organisation and how actions by one organisation could have a knock-on effect on another organisation.

Lessons learned - Overview

- Clarify command and control structures early. These structures should be flexible and avoid duplication.
- Focus work in streams with clear roles and responsibilities
- Identify a core set of essential meetings and key membership of each group

Chapter 2: Surveillance

Context

2.1 Good surveillance information is essential at all times, but comes to the fore in a pandemic situation to monitor progress of the pandemic, to anticipate what preparation needs to be made and to provide information to professionals and the public.

2.2 One of the challenges in the pandemic was collation of information which was not routinely collected or was not collected in real time. The pressure placed upon colleagues in the Communicable Disease Surveillance Centre (later to become part of the Public Health Agency) was intense. Significant demands were also placed upon HSC Board and the Department's Information and Analysis Directorate's statistical staff to provide rapid, up-to-date information on a regular basis.

Implementation

2.3 Initially information was being collected from a number of sources but this became more organised and structured as time went on.

2.4 The Information hub that was set up by the PHA, HSC Board and IAD was developed quickly and worked well in providing regular information.

2.5 The FluCon report was used for reporting service pressures in primary and secondary care across the UK. Service providers in Northern Ireland were very accommodating in providing data to inform the report. However, the utility of FluCon was of limited value as the situation did not progress beyond level 0 within Northern Ireland throughout the response. As FluCon is a UK reporting mechanism any changes must be agreed across the four countries. It will also be essential in future that FluCon guidance is interpreted in a similar fashion in each nation.

2.6 The weekly flu bulletin proved to be one of the most essential documents during the pandemic. It ensured that there was "a single version of the truth"; it introduced a routine and regularity to reporting which was reassuring and predictable at a time when there was much uncertainty. It provided a visual indicator of the progress of the pandemic which greatly assisted in communication with the media and public.

2.7 A common recognised information picture (CRIP) was also established and this provided an accurate reflection of the Northern Ireland position on a daily basis for the Minister.

2.8 One issue with the weekly flu report was that it was reporting information for the position one week before. However, due to the volume and detail of the information it was not possible to produce quicker. Perhaps this may be resolved if more information could be extracted electronically and not manually.

Challenges

2.9 Some of the challenges which were identified included the labour intensive data collection methods, for example the line listing of hospitalised patients; and the need for agreed data definitions and better links with the Patient Administration System (PAS).

2.10 Another issue was deaths due to H1N1, which was being reported by a number of different sources. To ensure the consistency and the timeliness of information being reported, an agreed process should be agreed in future to report deaths due to any pandemic.

Outcomes

2.11 We now have a much clearer understanding of information that might be required in a future pandemic. Work should be completed in ensuring that as much of this information can be extracted automatically or collected electronically to minimise labour intensive manual data collection.

2.12 Improved links between organisations were developed and these should be maintained.

2.13 The GP Out of Hours consultation system developed by the Department's Project Support and Analysis Branch proved very beneficial and was used on a daily basis by the Information Hub. The out-of-hours module has now been fully integrated into the Apollo flu surveillance system and provides daily data in terms of the number and rate of flu/FLI consultations, the number of total calls to the Out of Hours service. Data is automatically extracted from all Out of Hours providers and the auto-generated reports are available at Northern Ireland level and HSC Trust level. Integration of the Out of Hours module into the flu surveillance system has removed all manual intervention by the Department.

2.14 Apollo is a fully automated system which could be sustained during a pandemic. As it is impossible to determine the timing of the next pandemic or the level of activity, consideration should be given to continuing the Apollo system. Its functionality and usefulness is not just linked to pandemics. It can also satisfy surveillance purposes in normal seasonal flu and meet vaccination uptake rate monitoring purposes.

Lessons learned

- A robust process should be developed so hospital in-patients data can be made available from the Patient Administration System.
- The FluCon reporting system should be revisited to determine if it can be refined or made more useful in a pandemic situation.
- Data items should be classified into two categories: those which must be collated; and those which are of value but could be done without in a very pressurised situation.
- An agreed process should be adopted for reporting deaths during a pandemic.
- Apollo general practice flu surveillance system will be beneficial in a pandemic due to its range of applications and utility.

Scientific advice, guidance and information for professionals

Context

2.15 Managing and responding to a pandemic poses challenges because of the lack of epidemiological information and the uncertainty of what we are responding to. Many respondents expressed frustration at the volume of advice that was being issued in the early stages of the pandemic and the fact that this was rapidly changing. Multiple sources of advice also added to the confusion especially at times when the advice was inconsistent.

2.16 In the early stages of the pandemic, the Health Protection Agency was the main source of health protection advice, with guidance and protocols being adapted for use in Northern Ireland as required. The Public Health Agency provided expertise and advice in Northern Ireland.

2.17 The Scientific Advisory Group on Emergencies (SAGE) provides scientific advice to the UK governments. This includes advice for longer term planning as well as the immediate management of the response.

2.18 One key lesson from the influenza pandemic is the need for flexibility of the local response in the context of Northern Ireland, rather than responding to worst case scenarios. This translates into the need for a clear division between short-term response and longer term planning for expected future impact. Both are necessary but should be applied appropriately.

2.19 The Joint Committee on Vaccination and Immunisation provided advice to the UK Health Ministers during the pandemic response. Their advice was routed through the SAGE group for endorsement. This advice was key to the successful implementation of the pandemic vaccination programme.

2.20 The Department's Emergency Operations Centre provided a key focus for information flows from the HSC to the Minister and senior officials. This ensured crucial information updates were relayed on a daily basis and that current positions were accurately reported in the media.

Implementation

Information overload

2.21 Information is key to managing and responding to the pandemic and for longer-term planning. There will always be a balance between too much and too little information and information needs and wants will vary from individual preference and interest to different roles. The challenge is to provide information in varying levels of complexity ranging from key points to executive summary to background papers and references.

2.22 The rapidity with which protocols and advice changed in the initial stages of the pandemic was a direct result of the emerging epidemiology. Generic plans and guidelines had to be tailored to fit the behaviour and characteristics of the virus as they became known. This is something which is going to be the same in another pandemic – a fact of life that we just have to accept. However, something that we can plan for is how we communicate the information at this stage.

2.23 Producing and disseminating information and guidance would be even more challenging in a more severe pandemic, with professionals having even less time to read lengthy documents.

Conflicting advice

2.24 Some respondents described the difficulty of conflicting advice, with the example of early guidance around the use of PPE. Once again, as more becomes known about the virus, the guidance has to be tailored to fit the emerging findings.

2.25 Although efforts were made to ensure that advice was consistent across the four countries, differences in the organisational structure of services meant that some local amendments were required.

2.26 Clearly identifying roles and responsibilities in the future is key to ensuring this consistency of guidance. As the pandemic progressed, changes occurred less frequently and this became less of an issue.

Outcomes

2.27 Respondents suggested that rather than constantly producing new guidance that updates to guidance should be made available. This could be done through a daily update report. Use of a dedicated intranet site which is accessible to all staff would be more effective than paper based information cascade. Preparing these updates and maintaining the intranet sites require dedicated staff with the necessary skills. All organisations should share the one set of information to avoid inconsistencies.

2.28 Timeliness of the information is also key and if the focus of issuing information and guidance moved to online publication then this would assist timeliness.

Information systems and information needs

2.29 Experience of the pandemic has enabled us to become clearer about the information which is needed and which is useful to monitor both the course of the pandemic and the system's response in dealing with it. Any outstanding work should be completed on IT systems for data collection, in order to avoid relying on manual information systems during a pandemic. A menu of core information needs should be clarified at an early stage.

Communication methods

2.30 Responses about communication confirm that a variety of communication methods are required. Within organisations, face to face meetings were beneficial as well as providing written and online information. Each organisation used whichever means of communication worked for them e.g. Intranet, bulletins, briefings, video linked briefing session for all staff. Respondents noted that good staff briefing sessions by key senior staff demonstrated leadership and provided reassurance and direction as well as information.

Information cascade

2.31 Some respondents commented on the difficulty of onward cascade of new advice if issued at end of the day or end of week. However, information was cascaded at the earliest possible stage to ensure key messages were passed on in a timely fashion. As such, the timing of this was outside our control. One possible means of managing this issue is the provision of 'alerts' on the intranet or daily update which would advise readers of imminent new guidance or imminent changes to existing guidance.

2.32 The Department will connect to the Cabinet Office endorsed National Resilience Extranet (NRE) from September 2010. This facility will provide a secure emergency planning and response network which is capable of processing restricted information over the internet. The Department along with over 1000 other organisations across the UK, who have subscribed to the NRE, will evaluate the resource and

critically, its improvement to communications. Cabinet Office has already informed that the NRE will be its primary conduit for the future distribution of the UK Common Recognised Information Picture (CRIP).

2.33 As well as cascading information to organisations, the need for rapid cascade within organisations was recognised. This poses a particular problem for staff who are working part-time and those who do not have ready access to online information. Access to computers for online information is an important matter to address, and this applies to all sorts of information transfer, not just in a pandemic situation.

Lessons learned

- Need for flexibility of the local response in the context of Northern Ireland, rather than responding to worst case scenarios.
- Short, concise summaries of new information must be available on a daily basis. These should be available from the intranet site along with other key information.
- Intranet access is important for all professionals in advance of a pandemic. Responsibility on all staff to access latest information and to keep up to date.
- Where possible, information for cascade should be issued as early in the day or week as possible to allow time for onward cascade to all relevant staff

Laboratory support

Context

2.34 In the early stages of the pandemic, laboratory testing for H1N1 was only provided in the Centre for Infections at Colindale. The need for transport of samples to England led to a delay in when the results of tests could be obtained. Once the testing facility was rolled out to the Regional Virology Laboratory in Belfast, this greatly speeded up the process.

2.35 The importance of a rapid result following swabbing cannot be emphasised enough. Once a person was known to be positive or negative for the H1N1 virus this set in train their clinical management and had major implications for PPE and isolation.

Implementation

Virology laboratory

2.36 The Regional Virology Laboratory quickly established a routine for testing and provision of results. This added structure to the process. Colleagues from the laboratory also provided essential liaison with the Department and PHA in planning and issue of guidance.

Outcomes

2.37 The Regional Virology Laboratory provided an excellent service throughout the response, and particularly in the crucial early days. Tests were completed quickly and efficiently and established an accurate early picture of pandemic spread within Northern Ireland.

2.38 Pre-pandemic planning was based on small numbers of laboratory tests being required for a short period of time. Given the relatively mild nature of the pandemic however, continued testing occurred over a considerable time period leading to additional pressures on laboratory staff.

2.39 Some of the difficulties identified by laboratory staff included the need to make up testing kits; the pressure of expectations from wards/GPs re rapidity of testing; the need for transport to get samples to the lab promptly; and staff pressures due to a relatively small team.

2.40 Regional transport arrangements did not always work well for community based samples and delays were experienced on occasions.

Lessons learned

- Improved transport arrangements will be necessary in future to ensure urgent samples are received quickly.

Chapter 3: Human resources

Context

3.1 The response to the pandemic would not have been possible without the commitment and dedication of staff. People worked long hours, and were willing to go above and beyond normal duties during the response. The professionalism demonstrated by HSC and primary care staff was exemplary and ensured that services continued to run smoothly even when faced with additional pressures.

3.2 Staff are the most essential resource in a pandemic and it is essential that staff resilience is maximised; that additional training is undertaken where required and that 'housekeeping' issues are addressed to smooth the way. Considerable time was spent on addressing issues of equipment and consumables and a separate workstream was identified for this. However, human resources issues were deemed to be cross cutting and part of the work of all groups and there was no separate workstream.

Implementation

3.3 A number of respondents stressed the importance of HR professionals in managing staffing issues and in keeping staff informed. A dedicated human resources workstream with representatives from all organisations could contribute to issues such as:

- overtime and time in lieu
- provision of necessary catering services during out of hours
- management of staff absence
- training and education
- redeployment of staff
- arrangements for increasing the number of staff available during periods of busy intakes
- indemnity and professional regulation
- updating staff directly involved in the pandemic response and also those who were indirectly affected by the response.

3.4 Some Trusts developed and implemented a central electronic staff absence management system which was effective in monitoring absence during the pandemic.

Outcomes

3.5 Clear communication and close working relationships were evident throughout. Excellent networks of contacts have been developed and should be maintained in the future.

3.6 Some respondents also commented that although collaboration between organisations was good, at times there was the assumption that other trusts or staff groups would help out in a surge, not acknowledging that

these Trust or staff groups would be under pressure themselves. It is important to acknowledge that there is a finite limit to the number of staff available and this may reduce the feasibility of some plans.

3.7 It was noted that some Trusts experienced difficulty in completing employment checks to facilitate the redeployment of staff to priority areas.

3.8 Cross sector HR guidance is now available and can be updated to ensure currency.

Lessons learned

- A separate HR workstream should be included in plans for a future pandemic
- It will be essential in future to manage the pressure on staff and ensure there is adequate rest time to promote staff health and wellbeing
- Employment checks should be activated on reserve lists at an early stage so no delays are experienced in redeployment

Education and training

Context

3.9 Education and training of a wide range of staff was undertaken to prepare staff to respond to the pandemic. The extra demands created by the pandemic meant that staff were required to take on new roles or work in unfamiliar situations. This flexible approach assisted in managing the pandemic while ensuring that patients' needs remained paramount.

Implementation

Critical care

3.10 Critical care education of nurses (adults and childrens) was well received and the skills set developed by the Critical Care Network Northern Ireland (CCaNNI) was described as very useful. Ensuring staff education on the care of the critically ill child reduced anxiety in staff from other specialties who might be asked to work in this area.

Infection Control

3.11 Good infection control practice is essential at all times in healthcare. The pandemic resulted in improved awareness of infection control by staff, visitors and the general public. Enhanced infection control practice and awareness has been described as a positive legacy from the response and experience of the pandemic.

Outcomes

3.12 The ability of education providers and staff to provide training and education at short notice demonstrated commitment and professionalism.

3.13 Improved awareness of the benefits of training has resulted from the pandemic and relationships have been built up to facilitate this in future. Overall there was a good response of Trust staff to being upskilled and possibly redeployed. Several respondents noted there was increased confidence among staff following upskilling.

3.14 Understandably there were challenges in providing education and training for large numbers of staff at short notice. These challenges ranged from training being delivered in unsuitable venues with insufficient equipment to difficulties in staff being released to attend sessions. Respondents noted that there was poor attendance at some sessions and on occasion a lack of clarity about why staff were being asked to attend. There should be clear communication to staff of the benefits of training and why this is important during a pandemic. The time taken for completion of employment checks necessary before staff could be diverted to priority areas also created difficulties.

3.15 Tight timeframes were successfully met for implementing education and training during the pandemic. Partnership working was greatly improved and excellent networks developed. The education and training system has been proven to work well under pressure. Cross sector human resources guidance was also made available at the outset of the pandemic.

3.16 Several respondents referred to good flexibility of learning opportunities. One excellent example of this is the Personal Protection Equipment e-learning resource that was made available.

Lessons learned

- Training plans should be part of pandemic flu plans in the future with clear rationale regarding the purpose of training communicated to staff and managers.

- There is a need for more critical care education in the nursing curriculum with possible rotations to maintain skills. Some respondents suggested that critical care updates should form part of CPR training. Although it is unlikely that most staff will be required to work in a critical care setting at short notice, it was noted that critical care training resulted in greater staff confidence and improved recognition of the acutely ill patient. Now that this training has been given, it is important to ensure ongoing maintenance of these skills in a formalised way.

Chapter 4: Finance

Context

4.1 Pandemic preparedness is always going to cost money. Many people look at plans or arrangements which are not required and query the validity of spending money on preparedness in a difficult economic climate. The Programme Board process was established to provide assurance that funding was being approved appropriately and that accountability was built into the system.

4.2 In the early stages there was lack of clarity about funding, as staff in all HSC organisations focused on providing the initial response. The uncertainty surrounding the emerging epidemiology meant that decisions had to be made based on the information available at that time. In hindsight, the response may have seemed excessive, however, had the pandemic been as severe as initially feared, even the arrangements that we had in place would have been unable to cope.

4.3 The Department based its estimations of the cost of pandemic preparedness on planning assumptions and other expert scientific advice being provided by JVCI and SAGE. It became clear very quickly that Northern Ireland could not meet the forecasted costs without additional financial support.

4.4 Based on the early scientific advice and guidance that was being produced it was envisaged that in a worst case scenario costs could reach in the region of £100m.

4.5 Devolved Administrations attempted to secure additional financial support from HM Treasury to meet emerging costs. However, failure to receive support pushed immediate pressures onto local budgets.

4.6 In the end, £41m was spent locally on the pandemic response and the majority of this was our share of the overall UK cost of the preparedness programme.

Implementation of Financial Approval Process

Authorisation Process

4.7 For revenue expenditure, individual work streams had a delegated authority of up to £50k, although there was still a requirement to ensure that the need for expenditure was proportionate and that there were justifications for all costs. Above this limit, a paper/business case was needed to be approved by the relevant workstream and also sent to the financial workstream for consideration and to make recommendations to the Programme Board,

4.8 A similar, but separate process was devised to deal with the authorisation of capital funds.

4.9 Given the gravity of the situation a process was devised to allow decisions to be expedited should there be a particularly urgent need. In exceptional circumstances, the Senior Reporting Officer (SRO) of the relevant work stream and the SRO of the financial work stream could consider the expenditure proposal and provide advice to the SRO of the Programme Board. However, all work streams were expected to plan appropriately to ensure that the use of "exceptional circumstances" was kept to a minimum.

Monitoring Process

4.10 HSC organisations and workstreams produced fortnightly returns detailing historic expenditure on pandemic flu and forecast expenditure up to the end of the financial year (March 2010). These figures were then used to update Programme Board and for forecasting the budgetary requirements of the pandemic for updates to Minister and DFP/Executive.

Issues

4.11 The Swine Flu Programme Board was set up to ensure that expenditure was appropriately approved and that funds were committed to ensure readiness across the HSC. It is worth noting however, that the Board process involved a large number of business cases being prepared to enable spend to be approved. In the event of a more virulent pandemic, this would have greatly increased the demands placed upon the Programme Board and workstreams and could have hampered the Northern Ireland response. Increased flexibility should be built into any emergency expenditure approvals process in future. This will ensure there is capability to respond effectively to all emergency situations.

4.12 At the beginning of the pandemic there was a lack of financial information on potential costs and this impacted upon budget forecasting. However, the low level of virus spread allowed work to be undertaken to model potential costs. Whilst this work was essential to ensuring that there was an adequate budget cover to meet health needs, it should be recognised that in an emergency scenario professionals, based at hospital sites, will respond as patients present whether funds have been secured or not. The impact of a lack of funds in an emergency scenario may not therefore be on handling the actual crisis; rather it may be a knock on to other services across the system after or during the event – much in the way that waiting lists were impacted upon until clarity on funding emerged regarding the pandemic.

Outcomes

4.13 The independent review of the UK response to the 2009 influenza pandemic chaired by Dame Deirdre Hine has found the response to be proportionate and effective.

4.14 Organisations were asked to submit business cases relating to proposals for managing the pandemic which included full costing. This process was necessary to ensure adequate scrutiny and proportionate financial expenditure. However, there were some frustrations with the business case process with some respondents commenting on having to produce business cases with no prospect of funding being obtained.

4.15 However, development of the regional business case proforma helped to reduce duplication and facilitated equitable distribution of resources. In planning for the future, the business cases and planning documents which have previously been prepared can be called upon again if necessary.

4.16 Considerable skill and knowledge has been built up during the response and will ensure the system can respond again quickly if required.

Lessons Learned

- Close liaison with finance professionals in the work stream groups at both policy and operational level assisted in managing funding expectations and pressures.

- Business cases should be approved in principle prior to a pandemic where possible to minimise the amount of approvals required during the emergency.

- Increased flexibility should be built into any emergency approvals process in case a more severe pandemic is experienced in future.

- To assist future planning, it may be possible to identify certain common costs that may be forecasted prior to the event. The level of hospital resource utilisation, the number of sites and the costs will be dependent on:

  a) Severity and type of Incident
  b) Timescale
  c) Whether the event is localised

Chapter 5: Vaccination

Context

5.1 Vaccination is true primary prevention and is one of the key components in the response to a pandemic. Development of a pandemic specific vaccine is only possible once the virus has been isolated and vaccination programmes can therefore only begin once vaccine development is complete. Despite this inevitable delay, plans can be put in place for the campaign, so that there is no time lost once vaccine is received.

5.2 Many of the issues which occurred with the vaccination programme will recur in a future pandemic. For example, the uncertainty that surrounds development and production of a vaccine and the time delay before it becomes available. Vaccines are biological products and as such may be subject to delays in production. Secondly, in a pandemic situation, the priority is to begin vaccinating people as soon as the vaccine is available. This means that there will always be a limited supply in the early stages of the vaccination programme, in contrast to planned programmes when sufficient stocks can be built up before commencing the programme. Thirdly, the identification of priority groups for vaccination. This will depend very much on the pattern of clinical attack of the virus. As with seasonal influenza, those in at risk groups appeared more vulnerable to the H1N1 virus, however pregnant women and young children were also more vulnerable to complications and hospitalisation, findings that had not been predicted in advance.

Implementation

Organisational and planning arrangements

5.3 The initial structures established to plan the vaccination programme consisted of a small policy group in the Department and a large regional implementation group, chaired by a Consultant in Communicable Disease Control from the PHA. The implementation group became one of the workstreams once the Programme Board was established, with the policy group still meeting as required to address issues crossing different directorates within the Department.

5.4 The regional group proved to be an excellent forum which fulfilled many different roles. It provided a forum for decision making and sharing of good practice. It enabled members to manage uncertainty generated by changes to the programme. The group spirit enhanced the sense of teamworking and mutual support and brought some order and control into a very fluid situation. Although members found the schedule of weekly meeting demanding and time consuming, the general sense was that this was time well spent.

5.5 Three main groups of staff were involved in implementing the vaccination programme: trust staff, including school nursing and midwifery; primary care staff; and occupational health staff. This three stranded approach ensured that we maximised the number of vaccinators and ensured that vaccine was administered as rapidly as possible.

Outcomes

Uptake

5.6 The vaccination programme in Northern Ireland proved to be extremely successful with a high uptake of vaccine. Increased vaccination uptake for seasonal flu was also noted. Uptake rates at the end of the formal H1N1 vaccination programme in March 2010 are shown in table 1

Table 1: H1N1 vaccine uptake for Northern Ireland

Vaccinated Group	Numbers vaccinated	% uptake
Under 65 years 'at risk'	163,343	86.5%
65 years and over 'at risk'	102,220	74.9%
Pregnant women	9,476	57.1%
Healthy children > 6 months < 5 years	39,275	38.3%
Trust frontline staff	19,794	47.7%

5.7 In addition to the above, 670 Northern Ireland Prison Service staff and prisoners in at-risk groups were vaccinated.

Key success factors

5.8 There were a number of key success factors identified from the programme. Perhaps the most important one was the Northern Ireland policy of splitting the bulk packs of vaccine on a pro rata basis to trusts and GPs to ensure that all vaccinators were able to move forward at the same time, maximise the use of vaccine and minimise wastage. In contrast, this was not done in England, where some GPs did not receive vaccine for their practice until three weeks into the programme.

5.9 Considerable planning took place in the early stages of the pandemic. This enabled a very rapid response to unexpected situations like the need to vaccinate pupils in the special schools for children with severe learning difficulties. These vulnerable children were at increased risk from the H1N1 virus and the programme that was put in place at 48 hours notice was very successful and viewed positively by parents and the public.

5.10 Local distribution and supply arrangements for both the vaccine and associated consumables appeared to be simple and responsive and where possible stayed in line with arrangements for the annual seasonal flu programme.

5.11 Resources devoted to staff training ensured that staff were capable, confident and knowledgeable when undertaking the programme. This was of particular benefit in the vaccination of pregnant women, where midwives were able to counsel the women before receiving vaccine. This resulted in high uptake rates among this group, although some respondents highlighted the demands that this put on such a scarce resource as midwives.

5.12 The Child Health System provided effective IT support and a lasting record of vaccines given to children.

Staffing

5.13 The response of primary care, trusts, the Public Health Agency, HSC Board, Regional Pharmaceutical Procurement Services and the Business Services Organisation was outstanding in delivering the vaccination programme. The efficient delivery of the vaccination programme is all the more notable given the significant pressures on staffing. Some respondents also noted that the same staffing groups were targeted to support the vaccination programme and deliver critical care expansion.

5.14 The pressure staff were under to deliver the programme led to fatigue and burnout after Christmas. This was not helped by the loss of momentum during December when the initial phase of the vaccination programme was largely completed, and the second phase was yet to commence.

5.15 Some respondents advised the inpatients programme was challenging to deliver and that more support from clinicians would have been of assistance

Planning

5.16 The pressure and complexity of developing plans when information kept changing was noted, although the advantages of having plans in place were obvious when action was required at short notice, such as vaccination in the special schools. Some respondents felt that planning had brought all other work to a standstill.

5.17 The need for clarity about responsibility was also mentioned, although this should be less of an issue as the new organisations became established and ways of working become clear.

Communication

5.18 The communication campaign for the vaccination programme was led by Department of Health in London on a four nation basis. At times this created tension between maintaining a four nation approach and the need for local materials. Part of the difficulty was caused by the uncertainty surrounding fundamental information like the number of doses of vaccine required and the priority groups for vaccination. Until that information became available it was not possible to produce a final draft of the leaflet for consideration. Nevertheless, there did appear to be a convoluted process of approval which led to short timescales for producing leaflets. Although many of these factors are outside our control, a more efficient process could be developed to minimise delays in producing information materials. These are not only required once immunisation starts, but are also required for training purposes in advance of the campaign starting.

Priority groups

5.19 JCVI advise the UK governments on matters related to vaccination and immunisation. Frontline HSC workers were identified as one of the initial priority groups, however interpretation of the definition created difficulties for trusts in identifying such workers. Making clear that other HSC workers would receive vaccine as it became available may have alleviated some of the initial difficulties caused by some staff feeling excluded. In the early stages, when vaccine is in short supply, there will be a need to prioritise staff and some thought should be given to this. Agreeing to vaccinate all HSC staff eventually, makes it easier to communicate the rationale for prioritising certain staff groups

5.20 There was some criticism of the handling of the announcement about vaccinating healthy children under 5 years of age. This phase of the vaccination programme did not commence until just before Christmas when the H1N1 virus was circulating at a much lower level.

5.21 The majority of Northern Ireland GPs participated in delivering the vaccination programme for under 5s. This was achieved through local arrangements, as a national agreement could not be struck with GPC. The possibility of implementing vaccination sleeping contracts with GPC to avoid negotiations during an emergency should be explored in future.

Patient Group Directive

5.22 Vaccination of large numbers of people by nursing staff requires a Patient Group Directive. This only became available at a late stage in the process, once information was confirmed on the number of doses required and the priority groups requiring vaccination. This made training difficult and caused some anxiety among staff.

Legacy

5.23 The vaccination programme was one of the most high profile aspects of the pandemic flu response and generated many direct and indirect effects. For example, the sense of good will between all staff and the sense of achievement and a 'job well done' in all who were involved.

5.24 The vaccination programme provided an opportunity to redeploy some staff who had been on long term sick leave to the vaccinator workforce, thus encouraging their return to work.

5.25 There is now an improved awareness of the public health benefits of vaccine programmes among staff who would not normally be involved in this type of programme.

5.26 The vaccination programme resulted in personal development opportunities as people had to take on new roles and learning. New working relationships were established between organisations and individuals which is having an ongoing benefit on working with the established vaccination programmes.

Lessons learned
Some clear lessons emerged which should be considered when planning a future pandemic vaccination programme.

- More autonomy at Northern Ireland level in communication materials would have been appreciated, although this needs to be set against the need to maintain a common look and feel to the materials in what is a national programme. Nevertheless, a more efficient approval process could be developed to minimise delays in producing information materials.

- Vaccine was supplied in 10 dose vials with 24 hour expiry once reconstituted, which led to wastage of vaccine. Smaller pack sizes would have reduced the need to split packs under pharmaceutical supervision and reduced wastage.

- The possibility of having emergency or pandemic arrangements in contracts with GPs could potentially avoid time consuming negotiations during a pandemic, although this is not a straightforward process and requires detailed discussions with primary care officials. Sleeping contracts should be explored with GPC regarding future vaccination programmes during an emergency.

Primary Care

Context

General Medical Services

5.27 Staff in primary care were in the frontline of providing advice and care for patients with suspected or confirmed H1N1. This was a very important role in alleviating pressure on secondary care services. Practices collaborated in new ways.

Implementation

Vaccination programme

5.28 Undertaking a vaccination programme during a surge in consultations was a challenge for the practices, however a high uptake of vaccinations was achieved and this contributed to managing the second wave of the pandemic.

5.29 The additional workload was managed by general practice with minimal down turning of service. In addition, excellent team spirit and co-operation developed during the response.

Helpline

5.30 The Northern Ireland Swine Flu Helpline was established by Minister on 30th April 2009. The freephone number provided help and guidance to concerned members of the public who thought they or a friend or relative may have contracted the H1N1 virus. It also assisted in relieving pressure on GPs.

Outcomes

5.31 In common with staff from other sectors, primary care colleagues mentioned the difficulties of information overload and the need to streamline this in future. They felt that the media had hyped the situation in an unhelpful way, leaving them to deal with the resulting worried members of the public.

5.32 Requests for data also added to the pressures and there is a need to balance these requests for information against the need for the HSC Board, PHA and the Department for assurance. The Apollo system now provides an opportunity for collation of data electronically, although GPs raised the need to increase the robustness and comparability of this data. This work is being taken forward by Information and Analysis Directorate in the Department in collaboration with PHA and HSC Board.

5.33 As with other staff groups there were many benefits which emerged from the pandemic response. These included the formation of new networks between practices and additional training in vaccination delivery, both of which have benefits for work outside the immediate pandemic response.

5.34 Some GPs felt that they should have been more involved in developing plans and that plans need to be shorter with more time devoted to maintaining services and less on planning.

5.35 Some respondents suggested a helpline could be set up in future to deal with specific practice queries. Some health professionals expressed difficulty during the emergency in obtaining a rapid answer from the appropriate contact.

GP out of hours

5.36 The GP out of hours service responded well to the surge in consultations. There was good communication using email, teleconferences and intranet site for documents and good support during the containment phase. Once again this staff group highlighted information overload and the need for version control of documentation and a coordinated cascade policy.

5.37 In terms of the benefits gained through the response, the GPs flagged up that the infrastructure was now in place to support a future pandemic or other unexpected pressure on the service.

Learning

- The possibility of setting up a helpline to assist specifically with general practice queries should be explored
- Sleeping contract arrangements with GPC for future vaccination programme to be explored
- Provision of information and daily updates on a single intranet site would help address information overload.

Pharmacy

Context

5.38 Community pharmacies played a vital role in maintaining normal arrangements during the pandemic. In doing this, they were able to build on work already done in the pre-pandemic phase. Community pharmacists run private businesses, so there were some challenges around collaborative working.

5.39 In addition to dispensing of antivirals and over the counter medicines, some of the key roles included provision of advice about vaccination and infection control.

5.40 For the purposes of the pandemic, pharmacists were regarded as front-line staff and were offered the H1N1 vaccine at the same time as other frontline HSC staff.

5.41 Planning arrangements for pharmacy were well coordinated by the Department's Pharmaceutical and Advice Services Branch and these then evolved into workstream 1b of the Programme Board. These arrangements worked well.

Implementation

Antivirals and vaccines

5.42 Maintaining normal pathways of care within primary care for the assessment of patients and issue of antivirals provided a response which could be scaled up or down and was proportionate to the risk experienced for this pandemic.

5.43 One particular achievement of the pharmacy sector was the operational management of the pandemic pharmaceutical stockpiles by the Department through the Regional Pharmaceutical Procurement Service and the HSC Board which ensured equitable access to antivirals and vaccines for patients across NI. There was also notable co-operation, expertise and efficiency by the storage and distribution company involved.

5.44 Delivery of the H1N1 vaccination programme was assisted by the arrangements put in place for the splitting of bulk packs of vaccines and their onward distribution to GP practices.

5.45 There were no public perceptions of general medicines shortages and this was due to the work to ensure the supply chain was managed effectively.

Ongoing work required

5.46 As with all aspects of the pandemic response there is some work to be completed. HR arrangements require further work and this is a recurring theme among other professions. It is essential that this work takes place

in a considered manner and is completed in preparation for any future pandemic.

5.47 Before the pandemic, the internet connectivity of community pharmacies varied greatly. Connection of the remaining pharmacies is likely to be linked to contractual arrangements. Although the NPFS was never activated for use in NI, the associated work must be completed to ensure that pharmacies can act as antiviral collection points, should this be required in a future pandemic.

Outcomes

5.48 Pharmacists felt that their role was now more clearly recognised and has achieved a higher profile. Business continuity planning has been improved and the process of linking community pharmacies to the HSC network is underway. Improved infection control knowledge and practice has been a key legacy of the pandemic response.

5.49 Pharmacy colleagues identified some particular difficulties regarding the response. Although plans were in place, these turned out not to be robust enough to cope with the pressure.

5.50 The need to negotiate with pharmacies in the middle of a pandemic was time consuming and is a risk that needs to be addressed for the future. It may be possible to implement a sleeping contract with community pharmacies to distribute antivirals during a pandemic. A common UK contractual model and fee structure could be proposed.

5.51 The lack of IT infrastructure within community pharmacies led to delays in providing information to the pharmacies and the need for a manual stock management system.

5.52 Some of the antibiotics held in the central stockpile are not compatible with trust policies on antibiotic use. This is being addressed through work done at national level for future pandemic preparedness.

5.53 In preparation for a future pandemic, robust contingency plans should be developed in advance for vaccination programmes and distribution of pharmaceutical countermeasures.

5.54 Emergency planning arrangements should be included in contracts and business continuity plans should be tested.

5.55 Email access should be available for all community pharmacies to facilitate communication, stock management and validation of antivirals prescribed through NPFS.

5.56 With regard to the workstream process, business cases should be more streamlined. The provision of financial expertise proved a useful component of all workstreams.

5.57 Medicines legislation is now in place should it be required for a future pandemic.

Lessons Learned

- Explore possibility of implementing a sleeping contract with community pharmacies to distribute antivirals during a pandemic
- Improved IT infrastructure should be a priority for community pharmacies to assist with communication and stock management

Prison service

Context

5.58 The pandemic situation poses a particular challenge for the Northern Ireland Prison Service, as there is limited opportunity for transfer of prisoners within the system, or for accessing additional staff from another area.

Implementation

5.59 Staff from the NIPS highlighted the good support and collaboration which they had received from the HSC organisations. The prison service had completed a full contingency plan and this was used as an exemplar for other organisations. At UK level, there was good four country communication and good working relationships.

5.60 The establishment of a separate workstream for NIPS was valued, as this gave recognition that NIPS was of equal importance to the rest of the HSC.

5.61 Some difficulties were recognised during the pandemic response. Vaccine uptake was limited and there were some delays in supplies of consumables.

5.62 In a future pandemic there are some things which could be done differently. Respondents recognised that a more severe pandemic would have posed challenges for the Prison Service. In particular the limited pool of staff who would have been available to backfill in emergencies.

Outcomes

5.63 The legacy of the pandemic response means that plans are now in place for a future pandemic and that training has been undertaken. Closer working relationships with HSC staff will benefit ongoing work and there are now improved operational arrangements. The command structure during the emergency within Northern Ireland Prison Service and the HSC was found to be effective.

Chapter 6: Critical care and surge

Context

6.1 Influenza viruses affect the respiratory system and can result in patients requiring respiratory support. The need for enhanced critical care capacity during a pandemic is recognised and the estimated need for this is an ability to at least double capacity.

6.2 In Northern Ireland, the Critical Care network (CCaNNI) had already undertaken considerable planning in relation to increasing the capacity in critical care in advance of the pandemic. This work was invaluable and formed not only the basis for our Northern Ireland response, but led the way in the response across the UK.

Implementation

Adult critical care

6.3 Plans were put in place to increase capacity for adult critical care from 57 beds to 158. Although physical space and equipment was identified for these additional spaces it was recognised that to expand capacity to this level would mean training additional nurses to staff these beds and lead ultimately to an inevitable reduction in the staff to patient ratios. However, it is important to note that in a pandemic situation the main need is for ventilation rather than the full range of intensive care nursing skills. To maximise the staff to patient ratios considerable additional training was undertaken to upskill staff to work alongside critical care nursing staff to provide the best possible care.

Paediatric critical care

6.4 In Northern Ireland there are currently 8 paediatric critical care beds located in the Royal Belfast Hospital for Sick Children. Intensive care of children is not routinely provided in any other hospitals. The plan to expand critical care capacity to 29 beds was based on expansion into the District General Hospitals with upskilling of staff working closely with staff in the regional unit. Additional ventilators, associated equipment and consumables were purchased to enable this expansion to take place if required. Concerns were expressed about the lack of a paediatric retrieval service, should increased capacity be required. This is an ongoing issue which is wider than this pandemic and is being addressed through other channels.

Neonatal critical care

6.5 Work was also undertaken to expand the intensive care (level 1) capacity for neonates of 21 cots. Additional ventilators and equipment were purchased to provide 42 cots. The need for additional intensive care capacity for neonates related more to the possibility of premature labour in mothers who had contracted the H1N1 virus, rather than the development of the virus in the babies themselves, although this was always possible.

Actual challenge

6.6 Although the plans were in place, increased capacity was not required during this pandemic. In total there were 50 patients who required critical care out of 580 hospitalised patients with the H1N1 virus. Of this 50, eight were pregnant and 12 were children. It is important to note however, that if the pandemic had been as severe as initially expected, even the level of expansion which was planned may have been insufficient to cope with the demand. For this reason it is important that work is completed on regionally agreed ethical guidance on clinical decision making in a flu pandemic.

ECMO

6.7 Extra Corporeal Membrane Oxygenation (ECMO) is a highly specialised treatment best delivered by experts in this area with at least months, and usually years, of training. Prior to the outbreak of H1N1 there were only five dedicated adult Extracorporeal Membrane Oxygenation (ECMO) beds in the UK, located at Glenfield Hospital in Leicester. This capacity was increased during the pandemic response to cope with additional demand.

6.8 ECMO facilities for children are located at the Freeman Hospital, Newcastle, the Royal Hospital for Sick Children, Glasgow; and Great Ormond Street Hospital, London.

6.9 At UK level, the Swine Flu Critical Care Clinical Group was established to provide expert clinical advice to government on matters relating to critical care. The group did not support the expansion of respiratory ECMO at hospital units that are not currently providing it.

6.10 ECMO is not provided in Northern Ireland due to its highly specialised nature and is accessed through normal arrangements with Glenfield Hospital in Leicester or other UK units providing ECMO on a short-term basis.

<u>Outcomes</u>

6.11 Additional equipment and staff training has left us in a much stronger position to respond to a future pandemic or other cause of increased demand on critical care services. Putting plans in place, purchasing additional equipment and providing additional staff training was a major challenge. CCaNNI provided an excellent lead for this work and contributed to the development of work at a national level, with representation on the Swine Flu Critical Care Clinical group.

6.12 Additional staff training was received very positively and contributed to increased confidence of staff and improved recognition of the acutely ill patient.

6.13 Some respondents to the questionnaire expressed anxiety about paediatric critical care in DGHs and the need for good support in the event of this being required.

6.14 Regional escalation plans and the production of action cards were also cited as good examples of work which will have lasting benefits.

6.15 Some respondents noted that relationships have been strengthened between maternity services and Intensive Care Units in caring for ill pregnant women.

6.16 UK wide guidelines on target increases for neonatal capacity should be agreed in the near future to inform pandemic planning. Furthermore national guidance on critical care triage should be reviewed and circulated for future use.

Ongoing work required

6.17 Although the pressure has now eased, there are still some aspects of work which need to be completed. These include the completion of guidance on triage of patients in the event of demand severely outstripping supply.

6.18 Clarity is still required about standing down services and on nursing ratios in critical care.

6.19 In keeping with most aspects of the response, good relationships were developed with primary care and nursing homes and it is important that these are maintained and built on. A programme to ensure that upskilling is maintained would also be useful.

6.20 Following the recent procurement, accurate records must now be maintained of the critical care equipment that is held at Trust level.

Lessons learned

- Front-line clinicians including paediatricians, adult ICU intensivists and trust lead clinicians should be involved in future planning.
- The Swine Flu Critical Care Clinical Group report makes recommendations for further work on critical care and surge. Northern Ireland should participate in any national work in this area.
- Work should be completed on regionally agreed ethical guidance on clinical decision making in a flu pandemic.

Infectious Disease management

Context

Detection of disease

6.21 Patients with the H1N1 virus presented with a combination of non-specific flu-like symptoms making it difficult to distinguish pandemic flu from flu-like illnesses caused by other viruses. Management of symptomatic patients was on the basis of assumed positivity until proven otherwise. Early definitive diagnosis was essential, particularly in

hospitalised patients to properly manage the pressures on isolation facilities and reduce the unnecessary use of PPE.

Implementation

Swabbing

6.22 In the early stage of the pandemic swabbing of all patients was important to identify patients with the H1N1 virus and therefore if their household contacts required prophylaxis. Much of this testing was done in primary care. However, routine testing in primary care was stopped in the move from containment to treatment (2 July 2009). This affected secondary care's ability to appropriately place patients, either in isolation wards or in cohorts with other similarly infected patients. Although testing was no longer required to determine prophylaxis, the knock-on effects on secondary care of stopping primary care testing was considerable.

6.23 The ability to rapidly test patients would have a major impact on maintaining patient flows and would reduce the numbers who were isolated unnecessarily. In particular, the difficulty in distinguishing between Respiratory Syncytial Virus and H1N1 virus in young children has major implications for cohorting and a rapid test would be of benefit.

Prophylaxis

6.24 In the early stages of the pandemic, prophylaxis of the close contacts of cases was being carried out. This was an extremely labour intensive activity which was managed by the Public Health Agency staff. The ability to sustain this for a long period of time has staffing implications for the PHA and also associated opportunity costs.

6.25 As identified in the Hine report, the purpose of containment and a plan for all outbreaks is required.

Outcomes

6.26 Improved infection control knowledge and practice has resulted from management of pandemic flu cases. Staff now have increased knowledge and skills to maintain good practice in future and this should be of general benefit in infection prevention control.

Management of confirmed and suspected cases

6.27 Trusts reported difficulty with managing confirmed and suspected cases and the availability of isolation wards for use at short notice. Arrangements for cohorting patients should already be in place as part of contingency plans. Some of the initial advice on isolation of patients in the community was also described as impractical.

Impact of managing increased numbers of patients

6.28 As the number of patients in hospital increased, there were a number of associated challenges. During periods of busy intake, arrangements may be required for increasing the number of doctors available. This work links with the Human Resources chapter.

6.29 The physical structure of many A&E departments was unsuitable for cohorting of patients presenting with flu-like symptoms. Decontamination was also raised as an issue when numbers of patients increased in hospitals.

6.30 Mandatory swabbing of staff was proposed as a measure to reduce unnecessary absence. While this would put additional pressure on the laboratories, it might be cost effective if only those who actually had confirmed infection were absent from work.

Small area variation

6.31 Variation in disease rates across different hospitals was highlighted. For example, Altnagelvin had a higher peak which occurred earlier than the east of the province. In addition to geographical variation, pressure hit different parts of the trust at different stages in the pandemic. Community nursing and transport were under pressure in the containment phase with swabbing demands; acute hospitals came under pressure as numbers of acutely ill patients increased; while pressure moved to staff undertaking the vaccination programme when this started.

Independent sector

Context

6.32 In the event of a pandemic causing increased demand for hospital services, the threshold for admission to hospital may have to be increased. In that situation, ensuring that as many patients as possible can be cared for in the community or primary care is essential. Nursing and residential homes have an important role to play in keeping patients out of hospital and reducing pressure on secondary care services.

6.33 The Regulation and Quality Improvement Authority (RQIA) is the umbrella body responsible for regulating this sector. RQIA is responsible for monitoring and inspecting the availability and quality of health and social care services in Northern Ireland, and encouraging improvements in the quality of those services.

6.34 Liaison between trusts and the independent sector providers was a key part of the response and formed the basis of a Programme Board workstream. The success of these links was an important part of ensuring a whole system response and has established valuable relationships which can be built on for the future.

Implementation

RQIA

6.35 The RQIA webpage provided relevant advice to independent sector providers and circulated weekly updates on the Northern Ireland situation, including the flu bulletin. This ensured staff were also aware of emerging guidance.

6.36 Central co-ordination arrangements were quickly established. The flu vaccination programme included staff in the nursing and residential homes. Contingency plans were put in place for these homes at an early stage.

6.37 RQIA's regular programme of inspection and review was continued, however plans were in place to suspend this, had the situation required.

6.38 Arrangements for contacting providers by email and also for off site working by staff has enhanced future resilience.

Outcomes

6.39 There have been many positives from the response to the pandemic. These include increased infection control awareness and knowledge of pandemic flu and how to respond. In particular, communication systems have improved and there is a new understanding and greater clarity about the roles of different organisations in a pandemic situation.

6.40 At local level trusts are working more closely with the nursing and residential homes in their area. This work should be linked with regional work and communication.

6.41 The pandemic has brought clarity to the respective roles of different HSC organisations during an emergency situation.

6.42 There is now improved business continuity planning across independent sector organisations.

Chapter 7: Stockpile

Context

7.1 Procurement of the wide range of items needed to sustain the pandemic response was of prime importance. Colleagues in the Department worked closely with the newly formed Business Services Organisation and liaised with UK wide procurement agencies to ensure access to all available equipment and supplies.

Implementation

7.2 Good coordination and teamwork ensured a smooth response to the requirements at trust and primary care level for delivery of consumables including personal protective equipment (PPE).

7.3 Additional short term and medium term storage was secured to support the management and deployment of National Stockpile products.

Departmental stockpile

7.4 A wide range of additional community equipment was procured, including respiratory equipment, to enable additional service provision within a community setting. The purpose of this additional equipment was to help avoid hospital admissions, to facilitate earlier discharge from hospitals and to provide end-of-life care in the community.

7.5 An escalation plan for the provision of additional critical care capacity was established and agreed with the Minister. This outlined the measures and authorisation arrangements for the expansion of critical care. Additional critical care equipment, including 14 neonatal ventilators, 38 paediatric ventilators, 47 adult ventilators and other acute equipment was procured to enable this expansion.

Process

7.6 BSO acquired suitable secure storage accommodation to enable the Department and HSC to take delivery of, store and manage the distribution of stocks allocated to Northern Ireland from the centrally procured National Stockpile. This action ensured adequate products in sufficient quantities were available when needed.

PPE

7.7 PPE was one of the major challenges during the pandemic. From procurement through delivery, fit testing, and training to disposal, discussions about PPE dominated many meetings and teleconferences.

7.8 In the initial days of the pandemic the supply of PPE varied greatly across trusts, with some being well prepared and others having no stocks above their normal usage. Collaboration between trusts, brokered by the PHA, HSC Board and BSO, ensured that existing PPE stocks were shared across all trusts with loans being paid back when additional stocks were received. Although some respondents suggested that the

Department should release PPE from the national stockpile earlier to reduce trust expenditure on PPE, the uncertainty surrounding the behaviour and characteristics of the virus meant that central stocks had to be conserved, at least in the early stages. The Department commenced releasing PPE from its stockpiles at the beginning of August 2009. Decisions were made very promptly, many on the same day that the request was received.

7.9 A regional PPE planning group was established at the outset of the pandemic. This group addressed PPE planning across all HSC sectors including monitoring fit testing progress and reviewing practice across Northern Ireland. This assisted in sharing best practice and networking. The Group became part of the Swine Flu Programme Board structure.

Outcomes

Stock Items

7.10 It is essential that future procurement is informed by the experience of responding to the 2009 pandemic. In particular the need to take into account local preferences to ensure that the stockpile accurately reflects the needs of HSC in Northern Ireland.

7.11 Good communication and teamwork was evident throughout the stockpiling and distribution of countermeasures. Valuable networks have been established with primary care and residential/nursing home sector.

7.12 Training large numbers of staff on the correct use and disposal of PPE was challenging, however respondents felt that the training video and DVD were more accessible than rigid training sessions.

Fit testing for respiratory masks

7.13 Large scale fit testing of staff was undertaken for the first time. Considerable experience has been gained through this process and databases of fit tested staff are now in place in a number of Trusts. This work should be completed and built into occupational health programmes of work, well in advance of a pandemic situation. This would minimise the need for staff to be released for testing at a time of increased workload.

7.14 Experience has demonstrated that failure rates are associated with the type of mask used as opposed to tester technique.

Continuity of PPE supply

7.15 Given the advice that PPE should be used for staff in close contact with symptomatic patients, there were concerns about the continuity of supply. National procurement and distribution resulted in a range of masks being available, some of which were not routinely in use in Northern Ireland. This highlighted the need for a regional or national policy on PPE and an agreed holding stock of all PPE items.

7.16 At the start of the pandemic, Trusts had varying levels of PPE in stock, which created a reliance on the Departmental stockpile. Clear authorisation procedures should be in place for the release of PPE.

7.17 Patient management guidelines during the pandemic highlighted that full PPE should be used until a suspected diagnosis was confirmed. This created additional demand for PPE across Trusts. This could be reduced in future if earlier testing is available. BSO provided appropriate short term storage facilities for stocks being transferred from the UK as part of arrangements for transfer of the national stockpile. BSO also modelled the projected PPE needs of HSC secondary, primary and independent sectors to inform decision making.

7.18 In November 2009 the Department authorised the release of items from the stockpile to BSO to control. A Regional Stockpile Management Group was established to monitor usage and authorised further supplies to be pushed to HSC staff. Once established, this process generally worked well.

Lessons learned

- The pandemic highlighted the importance of trusts maintaining contingency stockpiles of PPE. Consideration should be given to the level at which future stocks are held.

- Stock management processes should now be set in place to ensure that rotation occurs to minimise wastage due to stock expiring. There should also be an ongoing annual review process of stockpiles regarding their use, recycling and disposal. This should be taken forward by DHSSPS, BSO and HSC trusts.

- Trigger points should be identified to clarify the release of regional stock to supplement trust stockpiles and earlier decisions should be made in future emergencies.

Lessons learned (continued)

- In addition to PPE fit testing, background training should also be made available and incorporated into mandatory training to support ongoing infection prevention and control

- Trusts should ensure an accurate profile of staff fit tests on FFP3 masks is maintained for the future

- The fit testing programme should be completed and also needs to include the testing for the masks currently held in the national stockpile to determine future Northern Ireland requirements.

- When replenishing the stockpile, more information is needed to ensure compatibility of items.

Chapter 8: Communications

Context

8.1 News travels fast, especially bad news. Faced with the prospect of an emerging pandemic, good clear educational communication with the public was required. Colleagues from the four UK health departments worked hard to develop simple consistent messages which were coordinated in a way which helped build public confidence. The Minister made regular statements to the Northern Ireland Assembly and updated Executive Committee colleagues to ensure the current position and strategy was conveyed.

Provision of information to the public

8.2 Feedback sessions have shown the pandemic communications response was generally very successful. A considerable amount of information on key health messages and action was disseminated to the public, the media and elected representatives very quickly.

8.3 The response ensured that new organisations formed strong relationships with the Department which will be invaluable for the future.

Provision of information to professionals

8.4 Rapid provision of the latest surveillance information, guidance and policy circulars was vital in ensuring an appropriate response to the pandemic. This was particularly important given the level of uncertainty in the early stages of the pandemic. Information was cascaded through existing electronic systems and made available online.

Printed material

8.5 Printed material was circulated to every household in Northern Ireland providing information about pandemic flu and the appropriate actions to take.

8.6 Because of the ease of accessing information online and through national television, it was important to ensure that the 'look and feel' of the official information was consistent across the four UK countries. Although on the whole this worked well, there were some frustrations around delays in approving communications materials at national level. This was particularly pertinent with the specific information being produced for the vaccination programme.

8.7 Posters were visible in a wide range of Health Service, GP practices, public and business settings. Public health advice could be seen on billboards and bus shelters and this proved very effective in conveying the public health message.

Website

8.8 To facilitate communication with the public, the Department, NI Direct and PHA websites developed a pandemic flu site. This provided the

public and health professionals with current information on the pandemic response. The websites provided public health messages, specific guidance on key areas, and communications from the Chief Medical Officer.

Helpline

8.9 The Northern Ireland helpline was established by the Minister at very short notice within days of the outbreak beginning. This provided information to the public and professionals. The benefits were that a large number of calls were processed and information provided. However, it was extremely labour intensive and required the support of a wide range of staff from a number of organisations.

Interaction with journalists and weekly media briefing

8.10 Considerable interest was generated in the local print and broadcast media and with the journalists working in these fields. Anecdotally the level of media attention received by health related stories is greater in Northern Ireland than other parts of the UK.

8.11 As the pandemic reached its peak in mid to late October, the demand on senior staff in many of the organisations to respond to requests for interviews and to counteract misinformation became unsustainable. Introduction, on 29 October of the weekly media briefing sessions fronted by the Chief Medical Officer and a panel of experts from across Health and Social Care proved most effective in 'batching' the media issues and also provided a forum for updating and educating journalists and the public.

8.12 There was excessive media attention around H1N1-related deaths and problems liaising with family members to receive permission to release information about a deceased relative. Furthermore, several families found it distressing to be approached in this way and many did not wish for any information to be released at all.

8.13 As a consequence, the Department decided it was inappropriate to release information on H1N1 related deaths as they occurred.

Outcomes

8.14 At the commencement of the response guidance on the management and treatment of suspected cases was updated and circulated frequently. Trusts advised that regional circulars were often received at the end of the week, creating challenges in cascading essential information to front-line staff. However, the priority was to cascade information as soon as possible, even if the timing was not ideal.

8.15 The quantity of information distributed and short time frames for implementing guidance created challenges for staff in managing information.

8.16 Many regional groups used teleconferencing facilities to reduce travel time for representatives and this greatly assisted communication.

8.17 The requirement for consistent UK Health Departments advertising materials created some difficulties at local level. Local agencies on occasion produced interim communication materials, rather than wait for UK wide materials to become available.

Lessons learned

- Further work should be undertaken to prepare the public for the possibility that the H1N1 virus will be the main flu virus circulating this winter. Key messages should encourage people to take up the vaccine, particularly those in at risk groups.

- Privacy should be respected for those families who have lost a loved one to a pandemic and wish to grieve without media focus.

- A single source of online information should be established for the use of staff. This should include daily updates and details of revised guidance. This relates to the final learning point in the primary care chapter.

Chapter 9: Pandemic realities – things that we need to accept will be no different no matter how much planning takes place

9.1 This overview of the pandemic response in Northern Ireland, along with the UK pandemic flu review and other related pieces of work can contribute much to enhancing the preparedness for another influenza pandemic. However, one recurring theme has been that although we can plan for much of our work and have arrangements in place ready to be activated, we have to accept that there will be some things which we can't plan for. These are the realities of pandemic planning and we need to acknowledge and accept them. Some of the more major practicalities are considered below:

Uncertainty

9.2 We now have much more robust plans in place, appropriate for managing and responding to a pandemic in the 21st century, with antivirals, vaccines and PPE. However, if a new pandemic virus emerges, there will still be an initial period of uncertainty, as we gather data on the behaviour and characteristics of the virus and observe closely for any signs of mutation. At that stage, we will need to plan for the worst and hope for the best, although we may be able to tailor the response with greater flexibility once the initial phase has passed.

9.3 Because of that initial uncertainty, it is inevitable that there will be some degree of nugatory work in planning for what might happen. Also, time to procure vaccine or equipment and time to establish training programmes or communication materials mean that we have to start responding on the basis of incomplete information. The other alternative is that we 'wait and see' what happens and lose valuable time in the race to beat the virus.

Information and guidance

9.4 Rapidly changing advice in the early days of the pandemic, along with information overload was a common complaint, yet in an evolving situation we must provide up-to-date advice, yet somehow minimise information overload. Once again it is important to identify the necessary information and the most effective ways of communicating this to staff and the public.

Patient specific issues

9.5 When a new pandemic virus emerges, it is not possible to predict the patient group which will be most affected and the way in which they will be affected. For example, with the H1N1 virus, older children required high frequency ventilation and children with comorbidities and younger children were over represented in the hospital population. Many of these were extremely ill. As a consequence, plans for critical care will need to be adapted to fit the clinical profile of disease.

Information needs

9.6 At the initial stages of a pandemic it is not always clear what information is required. For example, increased information was required about pregnant women for the H1N1 virus, although they were not a previously identified at risk group for influenza. Because of this, there may be some initial data collection undertaken which proves to be unnecessary. Identification of core data items should help to resolve this issue and a recognition that some items could be discontinued if they provided no added value.

Time pressures

9.7 Some respondents commented on what they felt were unrealistic timeframes which were set in responding to the pandemic. In a pandemic situation, we are trying to get ahead of the virus, so speed of response is vital. We need to accept that it might not be possible to change timescales, however it would be useful to identify core elements of a pandemic response which will always be required, along with some desirable elements which could be undertaken if time permitted. We need to undertake this analysis to prepare for a more virulent virus or a more rapidly spreading pandemic.

Maintaining normal arrangements

9.8 In the pandemic we tried to maintain normal arrangements for as long as possible. We need to guard against the pandemic becoming the only illness being treated, so this results in a tension between maintaining elective activity and managing increased emergency pressures.

National versus local response

9.9 In the pandemic, tension occurred between maintaining 4 country consistency and yet local flexibility. This can also be a tension between different areas within the one country, with respondents commenting that pressures can be different from one hospital to another.

Pandemic Specific Vaccine

9.10 Avian influenza, H5N1, is the only potentially pandemic virus for which we already have a pre-pandemic vaccine. Producing a vaccine against any other new pandemic virus will take time to produce and licence. This time is estimated at 14 weeks, based on experience with the H1N1virus, meaning that vaccine is only going to be of benefit in the second or subsequent wave of infection.

Planning

9.11 Pandemic preparedness planning is essential in advance of a pandemic and yet there are many unknowns. The challenge is how to develop comprehensive plans that remain flexible in the face of unexpected events and yet are user friendly to be read and used in a pressurised situation when there is no time to read lengthy documents. The use of

summary information, flow charts, action cards and executive summaries will greatly enhance the usefulness of these plans.

Lessons learned

- Pandemic flu plans should be flexible enough to adapt to different pandemic scenarios

Chapter 10: Next steps

10.1 Following the response to the pandemic, the UK is in the process of returning to the preparedness phase. The risk remains that another pandemic may occur in the future and we therefore must plan for this possibility. Each of the lessons learned that have been identified in the overview must be built into our future preparedness planning. However, it must be recognised that even the most comprehensive plans can only be generic and will need to be tailored to the new pandemic virus as its behaviour and characteristics become known.

10.2 Some respondents have suggested the need for broad planning principles to guide planning rather than detailed plans. Once again the tension required between too much information and too little is very subjective and difficult to handle.

10.3 The delay in publication of the revised planning assumptions led to difficulties in continuing to base work on planning assumptions for a worst case scenario which were increasingly at odds with how the pandemic was unfolding. This issue has arisen at national level and the possibility of more flexibility in plans is being considered.

10.4 In order to link national policy developments with implementation in Northern Ireland a new Regional Pandemic Flu Steering Group is being set up. This will provide a forum for the Department to communicate national strategies and policy developments to local planners, as well as co-ordinate planning for the health and social care response to an influenza pandemic across Northern Ireland. Implementation of pandemic influenza strategies will be taken forward by the HSC.

10.5 This steering group will ensure consistency in planning and that Northern Ireland is afforded a similar level of pandemic preparedness to the rest of the UK.

Appendix 1 – Programme Board Structure