

Pandemic influenza

Guidance on preparing maternity services



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Executive summary

Pandemic flu: A national framework for responding to an influenza pandemic (Department of Health, 2007) sets out guidance and describes plans for mitigating the impact of pandemic influenza cases on healthcare services. The guidance identifies pregnant women as one of the groups of patients for whom it is important that essential clinical services are maintained.

Those responsible for service provision during an influenza pandemic will need to plan and implement difficult decisions about service prioritisations, sometimes in a rapidly changing situation when it may be necessary temporarily to step outside the usual care pathways. This document is intended to provide guidance and a framework of support to enable such decision-making. It does not provide step-by-step instructions, but it should be used to identify where specific plans and actions can be made to support the particular needs of maternity services in different areas and regions. It covers those issues that should be considered by maternity services in planning for a pandemic. It identifies what is already known about pandemic influenza and pregnant women and indicates areas of uncertainty.

Where possible, the guidance relates to existing advice and information but it also provides specific maternity related advice where needed. It covers advice on the management of pregnant women with pandemic flu and the larger group of women pregnant during a pandemic, who will not have flu, but will still need maternity care and support during their pregnancy (either just for the pregnancy or for a coexisting condition). It moves progressively through the period from conception to shortly after birth, with specific focus on some areas and interventions. It is relevant to World Health Organization (WHO) pandemic alert phases 4 and 5, as well as WHO phase 6 when the pandemic is in progress and reaches the UK.

With approximately 635,000 live births in the UK every year, maternity services provide health care to a significant proportion of the population. At least half of women pregnant during an influenza pandemic are unlikely to experience symptoms of influenza and, of those who do, most will not be adversely affected because of being pregnant. It is important, however, to ensure that the optimum level of care is provided to women at all stages of pregnancy and childbirth throughout the pandemic.

1 Audience

This framework guidance is intended to be used by those responsible for providing maternity services to pregnant women and care for new mothers, as well as those involved in preparing the health service for a pandemic. This will include those in hospitals, general practice and community care.

This guidance was developed in collaboration with representatives from Scottish Government, Welsh Assembly Government and Northern Ireland Assembly to ensure that it is applicable to maternity services across the UK.

The aim of the guidance is to ensure care and support for pregnant women, new mothers, their neonates and their families, whatever their background. Special needs such as language barriers, access to health care, and coexisting mental or physical health issues will need to be considered in the light of local requirements. This advice is for planners and providers of health care. Separate advice will be made available for pregnant women, those considering pregnancy and new mothers during a pandemic.

2 Scope and purpose

This guidance describes a national approach, setting out the key planning assumptions and principles, roles and responsibilities that should support the development of local plans. It includes advice covering the period from conception to just after birth.

This guidance is designed to assist acute health trusts and maternity service providers in developing their plans for responding to an influenza pandemic. It emphasises a joined up response to pandemic influenza across the breadth of maternity services. The guidance should be used in the current WHO pandemic alert phase 3 to inform business continuity planning and preparedness ready for operational use in WHO phase 6 when the Department of Health declares UK alert level 1. It should not be treated as a step-by-step manual. Instead, it is a tool designed to support and enable local preparedness and business continuity planning during the current pre-pandemic period in order to maintain care during the pandemic.

The aims of this guidance are to:

- encourage a flexible and practical approach to maintaining safe maternal and neonatal care to support pregnant women, new mothers, their neonates and families during an influenza pandemic
- ensure that local maternity service response plans for pandemic influenza are resilient and relevant to the particular needs of the local population and services
- minimise the impact of pandemic influenza on maternity services and on pregnant women and their babies
- enable maternity services to cope with the additional burden pandemic influenza may place on service provision
- promote partnership working across the breadth of maternity service provision.

This guidance refers to existing sources of advice and is one of a series of guidance documents which follow on from *Pandemic flu: A national framework for responding to an influenza pandemic* produced by the Department of Health in 2007.¹ Specific documents include:

- *Pandemic influenza: Guidance for primary care trusts and primary care professionals on the provision of health care in a community setting in England*
- *Pandemic influenza: Guidance on preparing acute hospitals in England*
- *Pandemic influenza: Guidance on preparing hospitals in Wales*
- *Responding to pandemic influenza: The ethical framework for policy and planning*
- *Guidance for pandemic influenza: Infection control in hospitals and primary care settings*
- *Pandemic influenza: Surge capacity and prioritisation in health services (forthcoming)*
- *Pandemic influenza: Guidance on the management of death certification and cremation certification.*

These, and additional guidance documents, can all be found at www.dh.gov.uk/pandemicflu

Department of Health advice on maternity services can be found at www.dh.gov.uk/en/Healthcare/Maternity/index.htm

Other country-specific guidance is available at www.scotland.gov.uk/pandemicflu, www.wales.gov.uk/pandemicflu and www.dhsspsni.gov.uk/index/phealth/pandemicflu/pandemic-contingency.htm

¹ Or its country-specific equivalents: for Scotland, *Pandemic flu: A Scottish framework for responding to an influenza pandemic*; for Wales, *Pandemic influenza: Guidance for LHBs, NHS Trusts and primary care professionals on the provision of healthcare in a community setting in Wales* (under consultation); and for Northern Ireland, *Northern Ireland interim contingency plan for health response for an influenza pandemic*.

3 Background: introduction to pandemic influenza

An influenza pandemic occurs when a new influenza virus emerges and spreads rapidly across the world, causing epidemics in many countries. Pandemics are unpredictable – it is uncertain when they will happen, who will be most affected and what the impact might be in terms of morbidity and mortality. Previously, pandemics have occurred two to three times each century. In the last century, the 1918/19 ‘Spanish flu’ pandemic caused 20 to 40 million deaths worldwide, while the ‘Asian flu’ of 1957/58 and the ‘Hong Kong flu’ of 1968/69 were much less severe and each caused between 1 and 2 million deaths.

Clinical attack rates of previous pandemics in the UK have been in the order of 25% to 35%, compared with a range of 5% to 15% for seasonal influenza. The extent of illness will only become evident as human-to-human transmission develops. Plans therefore need to be flexible to deal with a range of possible attack rates, clinical impacts and mortality assumptions. The *National framework* considers three different scenarios – with clinical attack rates of 25%, 35% and 50% and case fatality rates of up to 2.5% in the overall population (Figure 1).

Figure 1: Predicted effect of a pandemic in the UK showing differing clinical attack rates (from: *Pandemic flu: A national framework for responding to an influenza pandemic* (2007))

	25% attack rate		35% attack rate		50% attack rate	
	Per 100,000	Per GP population	Per 100,000	Per GP population	Per 100,000	Per GP population
Clinical cases	25,000	1,500	35,000	2,100	50,000	2,900
GP consultations	7,130	480	9,880	680	14,250	930
Hospital admissions (rate of 3.72%)	1,000	67	1,400	90	2,000	120
Deaths (fatality rate of 2.5%)	625	40	875	60	1,250	80

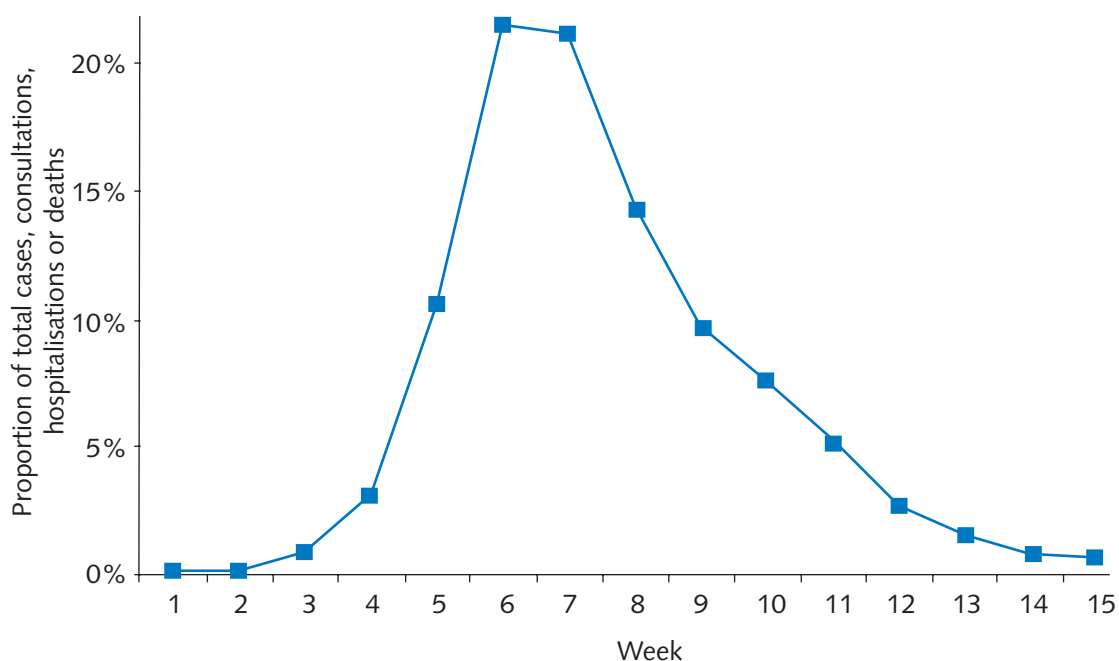
A pandemic may involve one or a series of waves. Where there are a number of waves, one wave (but not necessarily the first) will predominate. In the 1918/19 pandemic, it was the second wave which dominated. Waves could last approximately 15 weeks but pressures are likely to peak for around three to five weeks, during which time over 20% of all cases are likely to occur. Local epidemics

could be over more quickly (six to eight weeks), with a proportionally higher peak lasting for three to five weeks (Figure 2). This could involve high levels of illness and absence from work due to sickness or family demands, putting pressure on healthcare systems and healthcare workers, as well as on important infrastructures such as transport and retailing. Vulnerable people will be at high risk of severe or complicated influenza infection.

Although we think that a pandemic is highly likely to occur again, the unpredictability of timing and severity means that we cannot know how many people will be ill and what impact this will have. Planning is focused around a range of scenarios and is based on a 'defence in depth' policy, building upon layers of interventions. These interventions are both medical and non-medical, and will have different implications in different settings.

More information about pandemic influenza and the basis for UK planning is available in the *National framework*.

Figure 2: Single wave national profile showing proportion of new clinical cases by week (from: *Pandemic flu: A national framework for responding to an influenza pandemic* (2007))



3.1 Anticipated pressures on maternity and postnatal care

It is 40 years since the most recent influenza pandemic. Medical care and technology have progressed enormously since then, not least in the fields of maternity, obstetrics and neonatal care. Nowadays there are numerous targets and 'opportunity windows' for measuring parameters and performing screening tests to optimise pregnancy outcomes. Many treatment options are available to pregnant women and neonates, including those for the prevention and management of infectious conditions.

Maternity services will need to continue throughout a pandemic to provide care for pregnant women, new mothers and their babies including those with normal health, those with a complicated pregnancy and those who develop influenza. Plans should include provision for both outpatient and inpatient services.

Maternity services currently run at levels near to maximum capacity, with around 635,000 live births per year and around 452,000 to 465,000 women being pregnant in any month. Therefore, approximately 460,000 pregnant women would be at risk of exposure to pandemic influenza at any time during the pandemic. Of these, approximately one-third would be in each of the first, second or third trimesters. The highest number of first-trimester pregnancies are in December and January, the highest number of second-trimester pregnancies in March and April and third-trimester pregnancies in June and July, with 10% to 12% more births from July to October than the lowest numbers in February and November.

Pregnancies begin and end all the time, making mathematical extrapolation complicated; however, it can be estimated that a 50% clinical attack rate might lead to infection in around 280,000 pregnancies over a 15-week pandemic wave. Around 20% of these (56,000 infections) might occur during the height of the pandemic surge. There are between 49,000 and 56,000 births per month. During a pandemic wave of approximately 15 weeks, this translates to around 180,000 births. Although up to 50% of pregnant women might be infected at some stage during their pregnancies, not all will suffer from influenza near to delivery.

If pregnant women suffered no more complications than other women in the same age group and if no special arrangements such as the proposed National Pandemic Flu Line Service existed, around 0.7% of patients with pandemic influenza attending GP practices would be pregnant women. This would equate to around five to ten pregnant women with pandemic influenza, depending on the location of the practice. However, there is some evidence to indicate that pregnant women may experience more severe or complicated influenza than other women in the same age group and therefore have proportionally more healthcare contacts.

Seasonal influenza is usually predominantly a respiratory disease in which viruses do not circulate in the bloodstream and do not therefore invade or cross the placenta to infect the fetus. However, a pandemic virus may be more virulent and invasive. There is relatively little evidence-based information on the effect of previous influenza pandemics on pregnant women, their pregnancy and their babies. However, it is generally agreed that pregnant women are more susceptible to influenza than other women of reproductive age.

If the virus could infect the fetus, in the first trimester it might damage developing tissues or organs, possibly leading to intrauterine death or birth defects. Infection near the end of pregnancy would be more likely to cause infection in the baby, detectable at birth or soon afterwards. Retrospective epidemiological, observational and case studies, and some animal data are available, and strongly suggest that fever itself can slightly increase the risk of birth defects. However, figures for stillbirths over the last 80 years have not shown any changes which can be attributed to pandemic influenza activity.

Influenza infection can cause viral pneumonia or be complicated by secondary bacterial pneumonia. Reports in the literature do not give consistent information as to whether pneumonia is more severe or more likely to be fatal in pregnant women than in other women of their age group. In the last trimester of pregnancy, features such as altered immune function, increased body water and splinting of the diaphragm by the large uterus are likely to increase the respiratory dysfunction caused by pneumonia.

If a pregnant woman suffers severe illness with reduced blood pressure and impaired tissue oxygenation, the fetus may be deprived of oxygen which could lead to varying degrees of brain damage, or death of the unborn baby.

As well as effects related directly to the acute virus infection, its complications or its late and immunological effects, the stress of the pandemic, illness in general, bereavement and social disruption are likely to produce emotional, social and behavioural effects of varying duration in individuals of all ages.

3.2 Potential impact of an influenza pandemic on maternity services

It is difficult to predict the exact impact that the next influenza pandemic will have on the UK population. The effects of a pandemic would depend on a number of factors, including the characteristics of the virus, the severity of the illness it causes

and its clinical attack rate. However, the impact of an influenza pandemic is likely to be intense and sustained, affecting the whole country. Services may become quickly overwhelmed due to:

- the increased workload caused by patients with influenza and its complications
- the particular needs for infection control facilities and equipment
- depletion of the workforce due to the direct or indirect effects of influenza on themselves and/or their families
- pressures on informal networks of care that usually provide support to pregnant women and new mothers
- delays or difficulties in dealing with medical conditions related and unrelated to influenza, and strain on critical care in hospitals
- pressures to maintain the current programme of maternal, fetal and neonatal healthcare screening
- logistical problems caused by the possible disruption to supplies, utilities and transport
- the additional burden on people's health caused by distress, anxiety and bereavement
- the longer-term effects of an influenza pandemic on the national and global economy.

It is crucial that those involved in providing maternity services plan with other local and regional stakeholders so that they can respond in a coordinated, effective and ethically appropriate manner depending on the stage of the influenza pandemic.

Many of the issues addressed through usual contingency planning for other emergencies will be relevant for pandemic influenza. Different planning responses will be required at different stages as an influenza pandemic will have a sustained 'rising tide' impact on demand that affects most areas simultaneously rather than the more common short-term impact. Additionally, a pandemic may occur over more than one wave, and response plans must cover this possibility. The recovery period after a wave should be used to restock and prepare for possible subsequent waves.

Key planning principles are summarised below. The *National framework*² contains more detailed background information and is a useful guidance document for planning leads. The forthcoming guidance, *Pandemic influenza: Surge capacity and prioritisation in health services*, will provide specific guidance on coping with the pandemic surge and about prioritisation of services, and covers the wider context in which this guidance is placed.

3.3 Key planning principles

It is important that maternity service response plans for pandemic influenza are consistent with national planning assumptions and are made using the same principles, including:

- joint working and integrated planning between all key agencies
- flexible planning to deal with a range of possible scenarios and clinical attack rates
- flexible thinking in bolstering local staff capacity
- building on normal service models (as far as possible)
- advising and enabling symptomatic influenza patients to remain at home, whenever possible
- facilitating rapid access to antiviral medicines
- reducing routine activity, where possible, but continuing to make essential care available.

Local response plans for maternity services must be made with the knowledge that staff will face difficult choices and decisions that may affect the care provided for pregnant women and their families. This will be especially true where capacity limitations coupled with staff and supply shortages may result in reduced levels of available care. Response plans and arrangements should adopt measures that maintain public confidence and balance individual care with the priority to reduce illness and save the most lives in a way that is fair. People are more likely to accept the need for and the consequences of difficult decisions if they have been made in an open, transparent and inclusive manner. *Responding to pandemic influenza: The ethical framework for policy and planning* can help staff with considering ethical aspects at all levels.

2 Or country-specific guidance: for Scotland, *Pandemic flu: A Scottish framework for responding to an influenza pandemic*; for Wales, *Pandemic influenza: Guidance for LHBs, NHS Trusts and primary care professionals on the provision of healthcare in a community setting in Wales* (under consultation); and for Northern Ireland, *Northern Ireland contingency plan for response for an influenza pandemic*.

4 The impact of pandemic influenza on maternity services

4.1 Recommended actions at different stages during the pandemic

WHO has identified six pandemic phases across the inter-pandemic period, the pandemic alert period and the pandemic period (Figure 3). Action can be taken at all these stages to ensure that maternity services are best prepared to provide care for pregnant women during a pandemic. The current pandemic phase will be announced by both WHO and the Department of Health (or devolved departments) in the UK. Any change in the pandemic phase will be widely communicated. Up to date information on the pandemic influenza situation is available at www.dh.gov.uk/pandemic-flu

Figure 3: WHO pandemic alert phases incorporating UK alert levels (from the *WHO global influenza preparedness plan (2005)* and *Pandemic flu: A national framework for responding to an influenza pandemic (2007)*)

WHO pandemic alert phases	Overarching public health goals
Interpandemic period	
Phase 1. No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human infection or disease is considered to be low.	Strengthen influenza pandemic preparedness at the global, regional, national and sub-national levels.
Phase 2. No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.	Minimise the risk of transmission to humans; detect and report such transmission rapidly if it occurs.
Pandemic alert period	
Phase 3. Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact.	Ensure rapid characterisation of the new virus subtype and early detection, notification and response to additional cases.
Phase 4. Small cluster(s) with limited human-to-human transmission but spread is highly localised, suggesting that the virus is not well adapted to humans.	Contain the new virus within limited foci or delay spread to gain time to implement preparedness measures, including vaccine development.
Phase 5. Larger cluster(s) but human-to-human spread still localised, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk).	Maximise efforts to contain or delay spread, to possibly avert a pandemic, and to gain time to implement pandemic response measures.

Pandemic period

Phase 6. Pandemic: increased and sustained transmission in general population.

Minimise the impact of the pandemic.

UK alert levels

- 1 Virus/cases only outside the UK.
 - 2 Virus isolated in the UK.
 - 3 Outbreak(s) in the UK.
 - 4 Widespread activity across the UK.
-

4.1.1 WHO phase 3

WHO alert phase 3 offers the best opportunity for planning and preparing for a pandemic. There is time for developing, testing and refining plans; for forming networks to support maternity services during the pandemic; and for identifying what will and will not work.

4.1.2 WHO phases 4 and 5

In WHO alert phases 4 and 5, trusts should be preparing for action to take during a pandemic by ensuring that plans are in place and regularly tested and exercised. All relevant stakeholders should be identified and good working relationships established to ensure that there is no delay to the implementation of plans when needed. Maternity services staff should ensure that they are aware of the developing global situation and especially that they are familiar with developing guidance. Additionally, staff could be offered training to expand their skills, for example, ensuring that all midwives can take blood samples.

During WHO phase 5, maternity staff should discuss the implications of a pandemic with pregnant women in their care (and their partners or supporters). For example, the pros, cons and availability of home birth during a pandemic, issues around antivirals, potential changes to anticipated testing and care schedules, and means of staying in touch with their maternity care point of contact. They should ensure that women are aware of public advice and information, including advice for pregnant women and their families, and inform women of how to access advice, for instance through the Pandemic Flu Information Line. This will provide up to date information about the pandemic and general advice about measures for flu prevention and management at home.

4.1.3 WHO phase 6

WHO phase 6 represents the pandemic period when there is increased and sustained transmission of the influenza virus across the globe. There may be some warning from overseas that the pandemic has started before the UK is affected,

but this is not anticipated to be more than a few weeks at best. Previous pandemics have occurred in multiple waves, therefore the period after a surge should be used to restock and prepare for future waves.

The guidance within this framework discusses actions that maternity services should consider implementing to mitigate the effects of the pandemic on care provided to pregnant women, new mothers and their families. During the pandemic, such actions will vary depending on the severity of the pandemic in each locality and with changes over time as the pandemic peaks locally and nationally. The details of actions that may be needed at different times during the pandemic waves are described over the following pages.

4.2 Managing the surge

Managing the surge in maternity services will be part of managing the surge across NHS trusts³ and health authorities⁴. The forthcoming guidance, *Pandemic influenza: Surge capacity and prioritisation in health services*, will be the key document for this.

Key measures to help manage service provision throughout the pandemic, and in particular during the surge, include:

- early discharge from hospital where possible
- suspending hospital outpatients activities
- scaling back routine antenatal care where appropriate
- providing phone lines for patients with problems at home (or their GPs)
- discontinuing non-urgent gynaecology waiting lists and day case activity to release staff
- planning for cohorting and isolation of patients with flu
- planning for emergency surgery (including sharing operating facilities with other specialties if necessary)
- redeployment and multi-tasking of staff
- collaborating with a central group in the trust for prioritising beds and services on a daily basis.

3 Trusts in England, health boards in Scotland.

4 Strategic health authorities in England, local health boards in Wales, health boards in Scotland and social service boards in Northern Ireland.

4.2.1 Managing staff shortages

Staff shortages will compound any increased demands on maternity services and it is anticipated that up to 50% of the workforce may require time off at some stage over the course of the pandemic. Individuals are likely to be absent for at least seven days due to personal illness, but may also need to take time off work owing to other illnesses (including stress), caring for family members, coping with family bereavement, practical difficulties in getting to work and caring for children whose schools or playgroups have been closed. Absences are likely to follow the pandemic profile, with an expectation that they will build to a peak that lasts for two to three weeks – when between 15% and 20% of staff may be absent from the workforce – and then decline. *Pandemic influenza: Human resources guidance for the NHS*⁵ provides advice on managing the impact of staff shortages.

It may be possible to support remaining staff by asking 'bank' staff to work more frequently, recruiting senior medical trainees (if they have completed their obstetrics and gynaecology placement) or employing recently retired staff. These could assist the permanent staff in providing clinical care, provided that they were appropriately supervised and supported by a consultant, specialist registrar or senior midwife. They might also be able to perform duties, such as blood pressure recording, urine tests and facilitating telephone contact between patients and midwives. Senior midwifery trainees could also assist. Supplementary staff such as these should be used to care for women who have uncomplicated pregnancies in the first instance, allowing fully trained permanent staff to care for those women with complications.

Recently retired staff may be able to support maternity service provision, (provided that they have been in regular practice sufficiently recently to retain a certain level of experience and up to date knowledge, or have recently undertaken skills update training). Trusts should consider maintaining a register of recently retired midwives and other staff involved in maternal and neonatal care who would be willing to assist in a pandemic. This should be compiled during WHO phases 3 and 4, and staff contacted during WHO phase 5 to determine if they are still able to assist. Issues of staff indemnity should be considered by trusts, taking account of any available regional, national and Royal Colleges' advice during the pandemic.

As the pandemic progresses, it will become possible to use staff who have recovered from influenza to care for infected patients. Additionally, healthcare workers may be prioritised for pandemic influenza vaccine should it become available within a suitable timeframe.

5 In Scotland, *Pandemic Flu: Scottish Guidance on Health Workforce*, available at www.scotland.gov.uk/Publications/2008/08/22145657/0

4.2.2 Maintenance of essential maternity services

During the pandemic, particularly during the peak weeks when the majority of cases occur, it may not be possible to provide the usual complete service to all pregnant women. Priority should be given to responding to urgent and emergency cases, and care should be taken to ensure equitable use of facilities for those most able to benefit.

Check-ups of healthy pregnant women may need to be by telephone rather than as face-to-face visits. Some screening tests may need to be delayed or combined, or intervals may need to be increased between some tests, based on the advice of the Royal College of Obstetricians and Gynaecologists (RCOG). Further information on such decisions can be found in *Pandemic influenza: Surge capacity and prioritisation in health services*.

The situation may change on a weekly, daily or even hourly basis as the pandemic evolves. Decisions taken early on may need to be revised as the situation changes and additional advice is provided nationally or regionally. Decisions may also vary between and within trusts, depending on the local level of pandemic activity and how effectively the trust is able to respond to pandemic cases as well as maintaining daily business. This is anticipated and it is accepted that even the best efforts may not completely mitigate all problems.

It may be useful for maternity care units to have brief daily meetings to coordinate care and share information. This need not be face-to-face but can happen through teleconferences. Regular updates between maternity services and SHAs in England, or the Department for Health and Social Services in Wales, will help to ensure that available services are equitably provided across regions.

Some systems already exist to aid in prioritisation decisions and could be adapted for use in local maternity and neonatal service plans. Prioritisations will need to be tailored to local service provision, not just for admission to services but also for discharge. This may mean joining up with other care providers within a trust or locality in order to be able to care for infected and non-infected pregnant women.

Private care facilities and/or staff may be available to support this, as they will also have reduced or discontinued elective activities: an early dialogue with local private health providers is highly advisable. In England, SHA leads should be involved in developing these plans using information from pandemic flu preparedness audits.

4.2.3 Cancellation of elective work

Non-urgent outpatient services and elective procedures in fertility and gynaecology services should be postponed where this does not impact on the health of the pregnant woman or her fetus. Some non-urgent aspects of maternity care may be cancelled, postponed, altered or combined, for example contacting patients routinely by phone call instead of face-to-face, or altering the programme of screening tests. Local plans should consider what staff, beds and consumables could be released if elective work, including general surgery, is cancelled. This would allow prioritisation of staff for the care of patients with pandemic influenza as well as those, such as pregnant women, requiring non-influenza-related care. Such arrangements could also reduce the need for pregnant women without immediate needs to attend clinics where they could come into contact with pandemic influenza.

If warning of the pandemic came from overseas, it may be possible to fast-track patients in some areas of medical care in order to release facilities before the pandemic surge commences in the UK. While it is unlikely that maternity care could be fast-tracked, fast-tracking in other areas may free up staff and services for pregnant women.

4.2.4 Maintaining the ability to respond to anticipated obstetric and other emergencies

It is important to maintain the ability as far as possible to respond to maternity care and gynaecological emergencies during a pandemic. Issues unrelated to influenza will continue to occur during the pandemic, such as the need to care for women with pregnancy complications, pre-existing conditions or co-infections, and to care for premature or sick babies.

The Department of Health is producing guidance on surge management and prioritisation. *Pandemic influenza: Surge capacity and prioritisation in health services* addresses this issue and should be considered when planning for maternity services during a pandemic.

4.3 Activities relating to different stages of pregnancy

Different activities are relevant for the care of pregnant women, depending on the stage of pregnancy, from antenatal through to postnatal care. This section identifies some of the key aspects to consider.

4.3.1 Conception

If there is sufficient warning of a pandemic affecting the UK, it may be sensible to advise normally healthy women trying for children to consider delaying conception.

For women who are part way through a fertility programme, possible difficulties (in continuing to support specialist care pathways) should be balanced against the urgency to complete the programme and the safety of the pregnancy and newborn during a pandemic. If fertility treatments are deferred, women should not be disadvantaged later if they fall outside the usual age range for treatment due to pandemic-related delays. These issues should be discussed with the woman, her partner and their fertility expert.

Women who conceive during WHO phase 4 – 6 should be made aware of the possible effects of a pandemic on the management of their pregnancy, childbirth and choice of birth location. They should also be given up to date information about the possible effects of influenza on the pregnancy and developing fetus.

For normal healthy women, it may be possible to conduct routine well woman check-ups earlier than planned during WHO phase 5 to reduce the number falling due during WHO phase 6. This would also allow the provision of prescriptions for contraceptives before pharmacy services come under pressure (though too many early prescriptions could overtake the rate of supply of medicines). Primary care trusts (PCTs) or other primary care organisations (PCOs) could assist by liaising with local pharmacy services.

4.3.2 Antenatal care

Women who have had a previous pregnancy are more familiar with their own health during pregnancy than first-time mothers and are more likely to be able to identify problems during their pregnancy. They may be able to participate in some aspects of self-monitoring, such as taking their blood pressure and possibly urine testing. Test kits and training could be provided by a midwife, or through a clinic or maternity support group. They might also be able to participate in self-monitoring groups, perhaps in liaison with maternity (and paternity) support services and doulas (personal pregnancy and birth supporters) and advisory associations such as local groups of the National Childbirth Trust. Early dialogue with local or regional representatives of maternity support groups may help to define the possibilities.

In order to reduce the pressure on community maternity services, contact with well-supported women may be predominantly through the telephone rather than face-to-face. This will enable midwives and other care providers to concentrate on first-time mothers or those with problems (due to either pandemic influenza or other reasons). It is important that any women who are cared for in this arm's length manner are provided with adequate advice and rapid access to maternity care should they require it.

4.3.2.1 Antenatal screening tests

Non-urgent outpatient and inpatient services may have to be deferred or modified until after the pandemic. This could include deferring some antenatal screening tests to be performed at alternative visits, modified or – at the peak of the pandemic – not carried out and an alternative approach adopted later. The Department of Health is working with RCOG to advise on prioritising screening tests to indicate which could be postponed, replaced by alternatives or omitted with least loss of effectiveness. Such a consensus will support the local decision-makers who must be responsible for providing a reduced service. It will also help in informing mothers and maternity support groups about the changing profile of services which may be available during the pandemic.

4.3.3 Managing births

Managing deliveries during staff shortages may include midwives caring for more women in labour than is usual practice. Use of appropriately experienced medical or midwifery students or recently retired staff to support midwives may be helpful but will depend on local availability and levels of training (see section 4.2.1). Mothers could be redirected to alternative obstetric or birthing services in areas less affected. However, local plans should not assume that it will always be possible to rely on alternative facilities elsewhere, as it is likely that other services will be experiencing similar difficulties. Where it does not put the health of mother or baby at risk, planned labours may be advanced or postponed for a day, or a few days, to ensure the availability of adequate services.

4.3.3.1 Infection control issues

General guidance on infection control measures during the pandemic is available in *Guidance for pandemic influenza: Infection control in hospitals and primary care settings*.⁶ Considerations for infection control in maternity care include the following issues.

6 In Scotland, *Infection control guidance – hospitals and primary care settings*, available at www.scotland.gov.uk/Topics/Health/health/AvianInfluenza/PandemicFlu/planning/infection-control; in Northern Ireland, *Guidance for Pandemic Influenza: Infection control in hospitals, community and primary care settings*, available at www.dhsspsni.gov.uk/ic-guidelines-jan06.pdf.

Each patient has their own delivery room; therefore, women with influenza will not expose other pregnant women to the infection during delivery. However, any staff caring for more than one woman during delivery must follow strict infection control procedures, especially hand hygiene and cleaning of equipment and surfaces. Wherever possible, midwives responsible for women during delivery should care for women of the same flu status (either all flu-free or all symptomatic). Depending on the severity of symptoms, it may be necessary for symptomatic women to have one to one care during delivery. General infection control measures remain important in protecting mothers and babies from all healthcare acquired infections, eg staphylococcal and streptococcal infections.

If a mother is symptomatic when she gives birth, it may be appropriate to manage her separately from her baby until she ceases to be infectious. This may mean sending a baby home to be cared for by another family member until the mother recovers.

Even during an influenza pandemic, bacteraemic disease in mothers and their infants will remain an important health threat. If a mother is bacteraemic at the time of delivery, there is a risk of neonatal bacteraemia or later meningitis in the infant. Care must be taken to arrange close follow-up and/or rapid access to neonatal care in the event of fever in the neonate if the mother and baby are discharged from hospital.

A woman should be limited to having one partner or supporter present during delivery. This person should be free of flu symptoms and must comply with all infection control protocols. If a woman has requested the services of a doula, special consideration should be given to infection control issues, particularly if the doula is currently supporting more than one woman. Children should not normally be permitted to visit as they can be infectious for a few days longer than adults are, after an influenza illness; they are also less able to comply reliably with infection control requirements.

Birthing pools should not be used during a pandemic owing to the time and staff needed to clean and refill them. Standard infection control procedures, following local policies, can be used to clean birthing balls and birthing mats.

4.3.3.2 Premature babies

The respiratory system of premature babies is not as robust as that of full-term babies. As well as the normal risks faced by premature babies, they are more likely than full-term babies to suffer complications if they catch pandemic influenza. In addition, for approximately the first two months of life, babies cannot benefit from oseltamivir treatment because they cannot convert the medicine into its active

chemical form. To minimise the risk of transmitting pandemic influenza to the baby, healthcare staff, parents, supporters and visitors must use effective infection control measures, particularly hand cleaning.

Babies in incubators are protected from droplet transmission and are also unlikely to transmit respiratory infections provided that carers use good hand hygiene measures. Cohorting of babies in cots is advisable to separate symptomatic from asymptomatic individuals. Rooming in with their mother may be an appropriate way of caring for symptomatic babies.

4.3.3.3 Caesarean section delivery

Caesarean section deliveries require more medical staff than normal deliveries but prevent prolonged labour and thus reduce the duration of staff contact. However, all staff – and the woman's partner or supporter if present – should observe strict respiratory and hand hygiene throughout the procedure.

Following Caesarean delivery, women often remain on postnatal wards for two or three days longer than after a complication-free delivery. This may help to reduce the rate of readmission due to complications with mother or baby, but the risk of longer stay versus early discharge must be balanced against the influenza risk at home versus the risk in hospital and the need for postnatal supervision.

4.3.4 Discharge from hospital

Discharge from hospital of a healthy mother and baby following complication-free delivery in the non-pandemic period can take place within six hours of birth. Similarly, early discharge from hospital of both uninfected and infected mothers may help minimise contact between them, reducing the need to isolate or cohort infected women apart from uninfected women. It may also be advisable to discharge a healthy baby separately from an infected mother if it is safe to do so and adequate care is available for the baby.

Pregnancy and childbirth support for a new mother, including breastfeeding support, may be available through a National Childbirth Trust local group, a family member or a doula. Fathers may play a vital part in caring for other children, engaging with supporters and in helping to maintain contact with formal maternity services.

Mothers and babies who go home early must have easy access to advice or medical care, if they should suffer from illness or complications of delivery while at home. Mothers should be provided with contact details for the National Pandemic Flu Line Service and for their midwifery team contact when sent home.

4.3.5 Postnatal care

Following uncomplicated pregnancies, many women should be encouraged to care for their baby at home with appropriate support. Contact details should be easily available so that mothers or family members can access the appropriate midwife or health visitor should there be any concerns about pandemic influenza infection or any other postnatal illness in the mother or baby.

Regular telephone contact between new mothers and midwives can be used to supplement a reduced face-to-face visit schedule. If this option is chosen, it would be advisable to develop a formal telephone consultation tool or checklist, copies of which could be kept by the woman and retained in her maternity record. The six week postnatal review could be deferred if the mother reports no postnatal problems. Alternatively, recently retired midwives or final year midwifery students could carry out postnatal visits to women who have had uncomplicated pregnancies.

Once born, babies will need to undergo scheduled screening tests and medical procedures. Mothers may have greater concern about the health of their babies during a pandemic than normally. This may lead to more requests for healthcare checks than usual.

4.3.5.1 Breastfeeding

Breastfeeding is recommended for all women who are able to manage it and have no medical contraindications to the practice. There is no indication that oseltamivir can harm infants through breastfeeding (see section 5.1.3).

Mothers who have been infected by pandemic influenza but are no longer feverish should be encouraged to express breast milk for their baby's use if possible, though milk expressed while a mother is feverish should be discarded. Mothers who are able to breastfeed, but who have residual respiratory symptoms, should be advised to wear a surgical face mask and use strict hand and respiratory hygiene while feeding their baby. Until a mother's symptoms resolve she should, where possible, delegate bottle feeding and other childcare procedures to a helper who is not ill with influenza.

It is unlikely that a mother will be able to pass immunity from natural pandemic influenza infection to her baby through breastfeeding, as viral immunity does not cross into breast milk as well as bacterial immunity.

4.4 Care of pregnant women with pandemic flu

Pregnant women with pandemic flu will need care for their pregnancy as well as the infection. They should primarily be cared for at home as much as possible, with support from community midwifery and other services. Where inpatient maternity care is needed, it should be provided by maternity services staff, with support from appropriate acute medical or infectious disease specialists. This may mean that cohorted wards and separate staffing are needed for women with influenza and those without.

If a mother becomes ill after giving birth, it would be better – when possible – to care for her at home in order to minimise pressure on hospital services.

Pregnant women or new mothers requiring hospital treatment for influenza or its complications may be cared for in acute medical facilities with input from maternity specialists. Pregnant women with influenza should be transferred to maternity services for birth (see section 4.3.3). If management in the maternity department is not feasible because of special treatment requirements, an obstetrician or experienced midwife should attend the woman to supervise the birth, and appropriate neonatal expertise should also be available.

Babies who become ill with pandemic influenza may be considered and assessed for neonatal high dependency care. Local circumstances will dictate which available options can offer the best care to mothers and babies.

4.4.1 Emergency and intensive care for mother and baby at or near birth

Facilities for responding to urgent and emergency cases may be severely limited at the peak of the pandemic surge. Prioritisation of admission to acute and emergency services will then be required to ensure equitable use of facilities for those most able to benefit. Prioritisation for discharge from specialist care will also be required. Some systems already exist to aid in prioritisation decisions and could be adapted for use in maternity and antenatal services.

Intensive care facilities for adults and neonates may be under intense pressure or temporarily unavailable during the peak of the pandemic surge. Agreement with intensivists will be necessary as to the level of care available and the prioritisation of mothers and/or babies to high-dependency care facilities. Alternatively, if intensive care facilities are unavailable, pregnant women or new mothers may need to be cared for on maternity wards with input from intensive care outreach teams. Agreement on appropriate supportive or palliative measures should be sought from neonatologists for those infants not admitted to high dependency

care. The forthcoming guidance, *Pandemic influenza: Surge capacity and prioritisation in health services*, will provide advice on prioritisation for admission to, and discharge from, specialist services.

*Guidance for pandemic influenza: Infection control in hospitals and primary care settings – specific guidance for critical care units*⁷ provides detailed advice on infection control in critical care.

4.5 Following up affected children after the pandemic

Because of the possible longer-term effects of illness and bereavement in the family, and possible late effects of influenza on physical, emotional and psychiatric health, the birth cohort affected by influenza during a mother's pregnancy may be of interest in the future. Maternity and child health services should flag or identify patient records, either centrally or within patients' notes, if a pregnancy was affected by pandemic influenza.

4.6 Terminations

The need for pregnancy terminations will probably not diminish significantly during a pandemic, and termination of pregnancy is a procedure that should not normally be delayed. In the event that pandemic flu infection in the mother might be able to cause developmental defects in the baby, there may be an increase in requests for terminations. Rumours or suspicions of such effects may also increase demand. Lack of staff and facilities may reduce the amount of additional screening, support and advice (eg for sexual health matters) available at termination. Alternative ways of providing advice (eg through websites, leaflets etc) should be identified.

It may be possible, if elective commitments have been reduced, to divert some effort to ensuring the timely provision of terminations.

When, because of personal or family illness or other contingencies, medical personnel are not available to make decisions and/or perform terminations, it may be necessary to make temporary arrangements. Such arrangements may include the use of telephone consultations, involving specialists from other areas through fax or email contact or by other urgent arrangements. Whatever arrangement is made, it should be set up in liaison with the relevant trust's clinical ethics system and the process should be fully and accurately recorded in the woman's maternity record.

⁷ In Scotland, *Pandemic Influenza: Guidance on infection control for critical care and non-invasive ventilation provision*, available at www.scotland.gov.uk/Topics/Health/health/AvianInfluenza/PandemicFlu/planning/infection-control

5 General principles applicable throughout pregnancy and throughout the pandemic

5.1 Clinical countermeasures available for prevention or treatment of pandemic influenza in pregnant women and neonates

Only a minority of medicines are proven to be unsuitable for pregnant women, breastfeeding mothers or their babies. Indeed many women and babies are safely treated with powerful drugs for acute and long-term illnesses, including HIV, pneumonia, raised blood pressure, epilepsy etc. Selected vaccines are also routinely given during pregnancy. It may be necessary to treat pregnant women more promptly or more vigorously than non-pregnant women because of altered immunity associated with pregnancy.

These treatments greatly improve the safety of pregnancy and the health of the baby. Pregnant women, new mothers and their babies should therefore not be denied medicines simply because of pregnancy or young age. However, a few medicines are unsuitable or damaging to pregnant women or their babies. Issues specific to pregnancy and babies are discussed below.

5.1.1 Availability of medicines and consumables

As part of the general provision for supplies of healthcare consumables during a pandemic, hospitals and PCTs, other PCOs and, in England, SHAs will work together to ensure effective maintenance of local supplies. Arrangements will also be made for the provision of blood and blood products for use in pregnancy and delivery.

5.1.2 Over-the-counter medicines

Paracetamol should always be used to control fever as this reduces the effects of the illness on both the woman and her fetus, and reduces the slight risk of developmental defects in the infant, attributable to fever in the mother. Paracetamol is well tolerated and is licensed for women during pregnancy and for small children. It is also widely used for neonates, particularly in hospital and specialist care, although not specifically licensed for this group.

Over-the-counter influenza treatments may contain decongestants and/or sedatives in addition to paracetamol and are not recommended for pregnant women. They are only marginally effective and there is also a risk that safe paracetamol dosage could be exceeded if over-the-counter remedies are used while paracetamol is also being taken.

Cough medicines containing decongestants or sedatives such as phenylephrine, pseudoephedrine or phenothiazines can cause severe side-effects in young babies and should not be used in this age group. Simple syrups containing lemon or honey are usually safe and could be recommended to mothers to give to their small children.

Pregnant women should not take non-steroidal anti-inflammatory drugs for the treatment of flu symptoms, because they may interfere with the baby's pulmonary blood flow.

5.1.3 Antivirals

Two antivirals are currently available for reducing the severity and duration of influenza symptoms. Oseltamivir is available in adult and child capsule form and there is a liquid suspension for small children or those unable to take capsules. Zanamivir is available as an inhaled drug, which is effective in inhibiting viral replication in the respiratory tract: it does not reach high levels in the bloodstream. The UK government currently has a stockpile of oseltamivir sufficient to treat 25% of the population. Expansion of the stockpile, including both antiviral drugs, is being considered.

As with many drugs, oseltamivir and zanamivir have not been specifically tested in pregnancy and breastfeeding and therefore are not licensed for this use. However, no harm has been described among some hundreds of cases where one or other drug was accidentally taken, and no harm has been shown in pregnant animals treated with oseltamivir. In normal times, these drugs are not recommended for use in pregnancy unless the benefit to the mother justifies the theoretical risk to the fetus. However, during an influenza pandemic, the balance of benefit to risk will support their use and they will be provided for pregnant women. Indeed appropriate treatment of pregnant women with oseltamivir or zanamivir will help to reduce symptoms such as fever and so will benefit the developing fetus.

Oseltamivir is licensed for children aged one year and over. Although it has not been formally studied in infants aged less than one year, it might be offered to infants from two months of age if a risk–benefit assessment supported its use. The advice of a general practitioner, paediatrician or nurse practitioner should be sought in deriving the correct dose, based on knowledge of infants' special physiology and drug metabolism, and on the individual infant's health. For approximately the first two months of life babies will not benefit from oseltamivir treatment, because they cannot convert the medicine into its active chemical form.

These antiviral drugs are not currently recommended for prophylactic use in a pandemic situation. However, there may be some benefit in offering a single course of the drug prophylactically to recently delivered mothers if others in their household develop pandemic influenza. This may provide some degree of protection to her and, therefore, her baby.

As oseltamivir enters the bloodstream and reaches the placenta, the inhaled drug zanamivir will be recommended and will be available from the UK pandemic antiviral stockpile. Specific arrangements for providing pregnant women with the appropriate antiviral drug are currently under development. Additionally, while pregnant women will be offered the inhaled drug, which produces only low blood levels, they would need to be able to use the Diskhaler® powder inhaler system, which might require some additional training and support from maternity care staff.

It will be advisable to flag or otherwise identify the case record of any woman supplied with an antiviral drug.

5.1.4 Antibiotics

Antibiotics should be available to pregnant women or babies who need them for treatment of the complications of pandemic influenza, in the same manner that they are used in non-pandemic settings. The antibiotic stockpile which the Government is planning includes antibiotics suitable for pregnant women and infants.

5.1.5 Other interventions

It may be possible to modify the course of influenza in infants by using immunotherapy based on convalescent plasma donations from any close family members who have recovered from pandemic influenza. This will need to be a local decision based on facilities and staff availability.

5.1.6 Vaccination

Vaccination against the pandemic influenza virus is unlikely to be available at the start of the pandemic. It will take at least four to six months from the identification of the pandemic virus for a vaccine to be developed and available in sufficient quantities for a widespread vaccination programme. It is likely to take between ten and 14 days for an immune response to a pandemic vaccine to develop in vaccinated individuals. Additionally, because a pandemic virus differs from previously circulating strains or subtypes, it is likely that two doses of vaccine, separated by at least three weeks, will be needed to elicit a full immune response. The interval should certainly not be less than two weeks.

The UK Joint Committee on Vaccination and Immunisation (JCVI) recommends immunisation against seasonal influenza for pregnant women with any condition known to cause increased risk from influenza, regardless of trimester. This group of women should still be vaccinated against seasonal influenza regardless of whether a pandemic is in progress. The JCVI recommends that seasonal influenza vaccines given to pregnant women should not contain thiomersal and should have a low risk of producing fever. It is anticipated that these criteria will be met in a pandemic influenza vaccine. During WHO pandemic phases 4 and 5 clinicians should discuss the benefits of seasonal influenza vaccination with pregnant women. Influenza immunisation before or shortly after giving birth may protect mothers from flu and offer some protection to their baby through breast milk. Pregnant women should be advised to take paracetamol following influenza vaccination in order to reduce the risk of feverish reactions.

A vaccine against pandemic influenza might be offered to pregnant women if sufficient quantities are available and the Government identifies them as a priority group for vaccination. Immunisation against pandemic influenza, or boosting, during late pregnancy might provide some protection to the neonate through antibodies in breast milk.

Healthcare staff are likely to be one of the priority groups identified by the Government for pandemic influenza vaccination, as this protects the staff and also prevents transmission of influenza from staff to vulnerable patients. Staff working in intensive care units (adult and paediatric) as well as general maternity staff (midwives, obstetricians etc) should be encouraged to receive the vaccine if it is offered to them. In the pre-pandemic period, staff should be encouraged to receive the seasonal influenza vaccine when it is offered on an annual basis.

A vaccine would not be beneficial for babies under six months because the infant immune system is not fully developed at that age. Older babies/children may need a stronger dose than adults, again due to not having been exposed to any influenza virus before.

5.1.7 Adverse events

As is usual with increased use of medicines, any adverse events associated with the use of antivirals, antibiotics and vaccines in pregnant women during a pandemic should be reported through the existing 'Yellow Card' system.

5.2 Managing maternity and obstetric services during an influenza pandemic wave

5.2.1 Infection control and related considerations

It is generally accepted that people are infectious while they are symptomatic with influenza. However, the virus can be detected at low levels from the respiratory tract of infected people a short while (typically up to 12 hours, occasionally up to 24 hours) before they develop symptoms. Small children may be infectious for a few days longer than adults.

It is well established that seasonal influenza can be transmitted through close contact with an infected coughing or sneezing person and it is assumed that a future pandemic influenza virus will have similar transmission features. The most important and likely routes of transmission are through droplets and direct/indirect contact. Droplets propelled by coughing and sneezing, because of their relatively large size, travel short distances (typically less than one metre) before falling to the ground. Direct transmission of infection occurs when the virus is transferred from an infected person to a susceptible person (eg via a sneeze), whereas indirect contact occurs when the virus is transferred via a contaminated intermediate object (eg a used tissue) or person (eg touching with contaminated hands).

Aerosol transmission, where very small particles remain suspended in the air and travel over long distances, may occur during certain healthcare procedures such as intubation, manual ventilation and suctioning, cardiopulmonary resuscitation, bronchoscopy, surgery and post-mortem investigations. Specific precautions used in healthcare settings are designed to prevent this type of transmission.

The most important methods of infection control are respiratory and hand hygiene, and surface cleaning. Staff may use personal protective equipment as recommended by the Department of Health; however, they should be trained in its proper use and in how to don and remove it safely. It is probably not feasible to put a mask on an infected woman during childbirth. Therefore, it may be necessary to allow the midwife to wear a mask should she wish to do so, although there may then be subsequent communication problems.

Normal spillage control and terminal cleaning of delivery rooms and ward areas, according to local policy, will be sufficient to ensure good infection control during an influenza pandemic.

*Guidance for pandemic influenza: Infection control in hospitals and primary care settings*⁸ provides further information on this issue.

5.2.2 Cohorting

It will be important to keep women infected with pandemic influenza apart from those who are still susceptible to the disease. This may require local decisions and collaborations, as well as loss of ward specialties or adoption of other areas to care for pregnant or recently delivered women. It may be necessary to care for pregnant women on a ward with other non-pregnant patients, or in ward areas not originally intended for maternity care.

It will be equally important to remain vigilant for pregnant or recently delivered women who develop symptoms during a hospital stay, so that they can be moved away from susceptible women without delay.

Most maternity services aim to provide home births, when available and safe, for women who make this choice. Home birth may help to protect a woman and her baby from contact with others who have influenza. However, staff shortages may mean that a planned home birth is no longer possible. Other factors which will influence this may include the family situation, particularly whether or not a father, other partner, supporter, or other children at home are currently suffering from pandemic influenza. Individual decisions about the ability to go ahead with a home birth will need to be made at, or near to, the time of delivery.

5.2.3 Visitors – before, during and after birth

Healthcare contact with pregnant women should be minimised to essential contact only. Community healthcare staff, including midwives, may have contact with other patients who are ill with pandemic influenza. These staff should follow appropriate infection control procedures to prevent the spread of influenza between patients.

Visitors to maternity wards before and during birth should be restricted to one person who does not have symptoms of influenza. The same person should be the only visitor allowed on the postnatal ward before discharge. Personal birth companions, if permitted, should be asked to show that they are experienced in hygiene and infection control.

8 In Scotland, *Infection control guidance – hospitals and primary care settings*, available at www.scotland.gov.uk/Topics/Health/health/AvianInfluenza/PandemicFlu/planning/infection-control; in Northern Ireland, *Infection control in hospitals, community and primary care settings*, available at www.dhsspsni.gov.uk/ic-guidelines-jan06.pdf

The only people with influenza symptoms allowed on to maternity wards should be pregnant women, and they should be cared for in an area separate from pregnant women without symptoms.

Mothers should be advised to limit visitors to new babies for the first few weeks of life in order to reduce the risk of exposure to pandemic influenza. Visitors should be discouraged if they are symptomatic for pandemic influenza or have recently recovered from it. All visitors should be requested to follow strict respiratory and hand hygiene when in contact with the new baby, as should all family members living with the new baby.

5.3 Information and communications

Communication will be essential during a pandemic, not just with patients but also with healthcare colleagues within and between specialties. Pregnant women and new mothers will need information about their pregnancy and pandemic influenza. Consideration should be given to the fact that recent immigrants are overrepresented among pregnant women, and that they may not have English as their chosen language. This may be particularly relevant if healthcare staff need to wear masks when attending to a symptomatic pregnant woman. These women may need help in understanding how to comply with infection control procedures.

Every effort should be made to provide information to women whose access to it may be limited by social circumstances or language barriers. Providing information, including on how to use the National Pandemic Flu Line Service, will be part of the communications commitment of both the Government and local health services. This may include engagement with local religious groups, local radio stations and community centres, and the provision of written information and internet-based advice in appropriate languages. Such information should be made accessible to traditional birth supporters where possible. Fathers may be able to obtain information – through religious and community groups – if pregnant women's access is limited by family or domestic circumstances.

Staff caring for pregnant women will need regular and easy access to information about the developing pandemic to ensure that they are able to provide an informed service to their patients. This includes staff from primary care and services involved in maternity and neonatal care. Ready access to information and advice, particularly on immunisation and antiviral treatments which may be available and on possible effects and complications of influenza, must be accessible to all staff. It may be useful for maternity services to have brief daily meetings to coordinate care and share information. This need not be face-to-face but can happen through teleconferences.

Trusts should ensure women have easy access to midwives through telephone contact, as well as an alternative point of contact should their midwife develop pandemic influenza. Pregnant women will need up to date information about the local impact of influenza: eg where to obtain help and advice, what immunisation and treatments are available, where to go for their antenatal care or delivery, what to do if they develop influenza at the time of their delivery, and how to recognise influenza in themselves or their baby. Trusts should make sure that information provided by the Government is made available to pregnant women and new mothers.

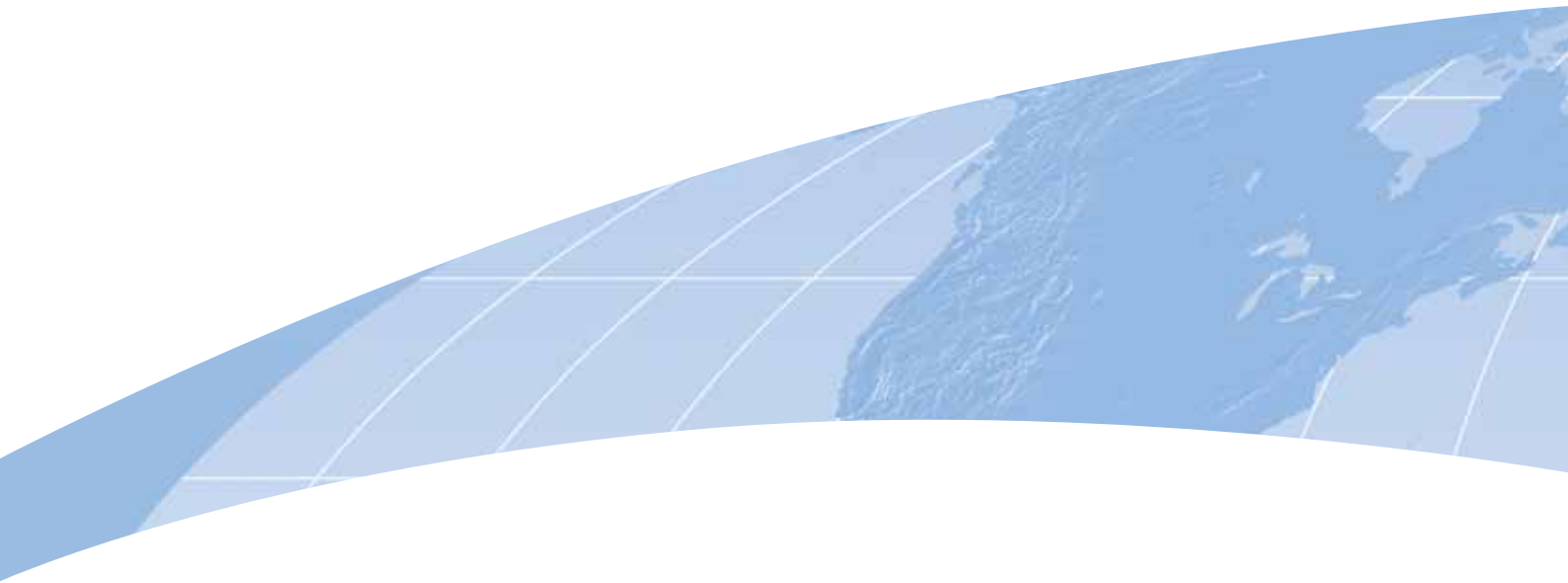
The National Pandemic Flu Line Service and NHS Direct will be able to provide some advice to pregnant women following algorithms agreed with clinical experts. This will be available from WHO phase 5 onwards and healthcare staff should promote these services to their patients.

5.4 Legal issues

Until a baby acquires its own identity and NHS number,⁹ it shares its mother's number. If a mother and baby are cared for separately, stringent measures are necessary to ensure that the baby's identity is assiduously maintained and that the baby does not lose its identity tags. It is advisable to ensure that the baby has its own set of notes, cross-referenced to the mother's name and identifier. Those caring for pregnant women during pregnancy should emphasise the need for women to know their individual NHS number so that it can be used to identify herself and her baby at any time. The woman should be advised to keep a note of it in case she needs to apply for antivirals. The maternity services team should have access to women's NHS numbers through the obstetric booking system. In the event of failure of electronic systems, it may be important to prepare a manual system of numbering or identifying babies.

Special care will be needed for those mothers who either do not have or know their NHS number, particularly those with non-Anglo-Saxon style names. Use of mobile phone numbers on the tags of neonates may be an alternative means to ensure that clear identification is maintained, and uniquely links a baby with its mother.

9 In Scotland, Community Health Index number; in Northern Ireland, Health and Care number.



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