Be prepared for a major incident by careful planning

This article, by Ursula Collignon, covers changes that have brought emergency planning to the fore, practical guidance on where to start and lessons learnt in an acute hospital environment.

Introduction

Although the NHS regularly deals with emergencies from flooding to suspected serious acute respiratory syndrome (SARS) the systems in place have not been fully tested by large scale events such as the Madrid or Bali bombings or an outbreak of pandemic flu, although the bombings of 7 July 2005 did provide a challenge for the ambulance service and some key acute hospitals. As a response to the events in New York on 9/11 and with experience of other international events work on service resilience and emergency planning is being led by the Cabinet Office and Department of Health (DH).[1,2] This will ensure appropriate plans are in place that would be actioned effectively if needed. Within health care plans now encompass not just accident and emergency (A&E) departments but emergency preparedness across the whole organisation, and includes Primary Care Trusts, Ambulance Trusts and Health Authorities. In a national crisis or large scale incident (eg, the Cumbria train crash or a 'foot and mouth' outbreak) the Civil Contingencies Committee meets to manage the UK emergency response. This meeting is also referred to as COBR(A)[3] because it is held in the Cabinet Office briefing room A. Depending on the emergency the appropriate Government departments meet and co-ordinate the response — DH is represented by the Chief Medical Officer or his deputy. Recently COBR(A) has met to respond to avian flu outbreaks, alleged terrorist plots (eg. Glasgow Airport) and the poisoning of Alexander Litvinenko. In the UK a 'gold-silver-bronze' command system is used by all blue light services (police, fire and ambulance) and with modification this can be a useful structure to provide effective command and control during a major incident. (see Table 1).[1]

Pharmacists and pharmacies are uniquely positioned to support emergency planning and an emergency response. Routinely, pharmacy staff work across organisational or service boundaries alongside a wide range of health care professionals. This provides a good overview of patient care and medicine flows, which can be valuable for emergency response. It is essential that medicines are considered within emergency planning because they are an integral part of many emergency responses, but this may not be easy. Plans are often focused on a single organisation response and fail to take into account the need for integrated care, which is at the heart of modern service delivery. Continuity of medicines is just as important for patients who are discharged from an acute environment and those who need chronic treatment in primary care. Lack of supplies may hinder service recovery after an emergency event if not effectively anticipated.

Why plan? Why exercise?

Emergency planning within health care is a statutory duty under the requirements of the *Civil Contingency Act* (2004). Being prepared and exercised ensures emergency events are appropriately managed, impact is limited and health outcomes optimised. Accident and emergency staff are experts in managing emergencies and form the foundation of a hospital emergency response.

It is vital that staff are given the opportunity to practice situations, discover their responses to unusual situations, realise what works and what does not, and review potential systems of service delivery that are more responsive and agile.

UK emergency planning legislation

New civil contingencies legislation[4] came into force in 2004 to provide a single framework for civil protection. The legislation

Table 1. The UK framework for the command of incidents

Command position	Role		Hospital roles
Gold	Strategic	In overall charge of the organisation and its response	The most senior management person on site becomes the Gold Commander. The chief executive officer may choose to take command.
Silver	Operational	Formulates and manages the operational response for the whole or designated part of the organisation to achieve strategic aims set by Gold	Non-executive level directors and their deputies become the Silver Commander(s).
Bronze	Operational co-ordination	Controls and deploys resources 'on the ground'	In an acute Trust with an A&E it is the lead A&E Consultant who is likely to become the A&E Commander.

Being prepared and exercised ensures emergency events are appropriately managed, impact is limited and health outcomes optimised.

consists of three parts. These are:

- local arrangements for civil protection
- emergency powers
- general aspects.

The legislation defines an emergency as the following:

- an event or situation that threatens serious damage to human welfare
- an event or situation which threatens serious damage to the environment
- war, or terrorism that threatens serious damage to security'.

NHS Trusts are classified as category 1 responders and as such have a statutory responsibility to provide full civilian protection duties, ensure effective plans are in place for major emergencies and prepare staff for their role.

Major incident definition

Major incidents come in all shapes and sizes. They can be sudden, for example a train crash, or may be a series of smaller incidents that stretch an organisation's capacity over a short space of time. Sometimes an incident can occur more gradually, for example an outbreak of winter vomiting disease, limited product availability or a staffing crisis.

NHS major incident levels

Three levels of major incident are identified by the DH.[2] These are:

Major. This is any event whose impact cannot be handled within routine service arrangements. It requires the implementation of special procedures by one or more of the emergency services, the NHS or a Local Authority to respond to it.

Mass. These are Level II Incidents — much larger scale events affecting potentially hundreds rather than tens of people, possibly also involving the closure or evacuation of a major facility (for example, because of fire or contamination) or persistent disruption over many days. These will require a collective response by several or many neighbouring Trusts/sectors.

Catastrophic. These are Level III incidents — events of potentially catastrophic proportions that severely disrupt health and social care and other functions (such as mass casualties, power, water disruptions) and that exceed even collective local capability within the NHS.

There are six main categories of major incident.[2] These are:

- Big bang — a sudden incident, such as a train crash or bomb
- Rising tide — a slow onset, such as an epidemic or winter bed crisis
- Cloud on the horizon — a protracted incident such as a war or catastrophic incident overseas
- Headline news — media-driven public alarm, such as scan scares/MMR scare
- Internal incidents — internal workings affected, such as power-cut, flooding, fire etc
- Deliberate release of chemical, biological or nuclear materials — such as happened with the release of Sarin on the Tokyo underground in 1995.

Stages of a major incident

Most major incidents can be divided into four stages[1] illustrated in Figure 1. It is important to remember the return to normality may take some time, particularly for the medicine supply chain.

Notification of incidents

For NHS organisations the local ambulance service is usually responsible for informing Trusts that there is a major incident in their vicinity. The ambulance service designates the nearest appropriate hospitals as receiving hospitals and the nearest hospital becomes the 'first receiving hospital'. NHS Trusts, usually the A&E departments, can also individually declare a major incident plan activation. Once hospitals are notified the major incident plan is activated and predetermined core staff are contacted in a tiered cascade. This should include a member of staff from pharmacy or the on-call pharmacist.

Where to start planning for a major incident

Start with your departmental emergency plan. If this does not exist obtain a copy of your organisation's plan. It may be essential to read other local or departmental plans but your plan must be individual and specific to your area. When writing or reviewing specific plans use local plans as a guide but ensure the scope of your plan is clear. Identify where it should be located, such as on the intranet and a master paper copy held in an identified, secure area. Be sure to address questions such as: have local factors been considered? Is there an airport

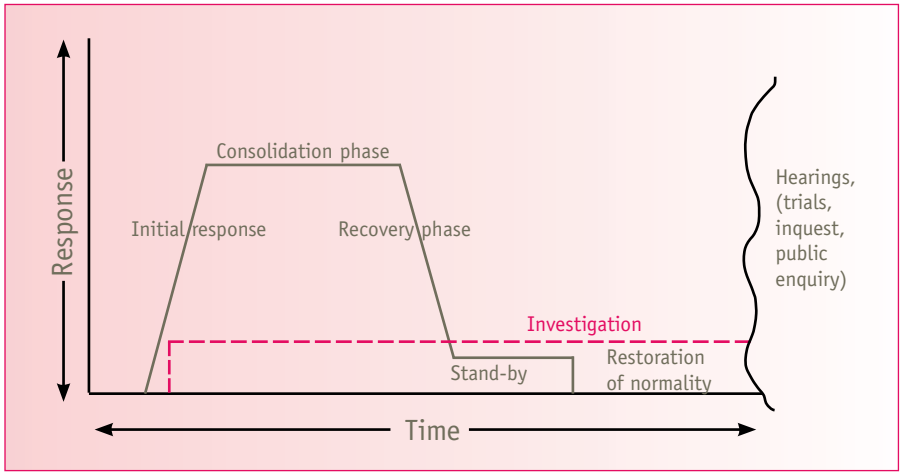

Figure 1. Stages of a major incident

nearby or are you at flood risk? Despite perceptions, London's highest ranked risk is flooding, not terrorism — and flu is ranked second.[5] A specific guide to service continuity planning for community pharmacists has been developed by the RPSGB.[6]

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It is essential to designate an identified staff member to lead emergency planning. This will encompass all aspects, including pandemic flu and response to internal and external incidents. One key responsibility for this individual is to ensure all staff are aware of their responsibility to familiarise themselves with organisational and local emergency plans and ensure they understand their role in the event of a major internal or external incident. This should be included the local induction process and followed by annual training sessions, and organisational and local exercises.

Organisational major incident plans

Generally these provide overall strategic response, outline key responsibilities and designate the organisational command and control system. Individual departments or areas must have a local plan with supporting action cards that outline the specific tasks that must be undertaken in the specific area to support the overall organisational response if a major incident is declared.

Departmental plans and action cards

Truly effective plans need to provide an effective framework within which staff roles are clarified. Tasks should be allocated by role not named individual. All staff should be engaged in the process. The final local plan and action cards must be user-friendly, easy to find and accessible to all. Everyone who could potentially be involved in an incident needs to familiarise themselves with their roles and responsibilities and know where to locate the action cards.

The departmental plan must be brief. It should start with the department's role and follow with relevant sections, such as immediate response in hours/out of hours; mass casualty response and, if appropriate, support to a mobile medical team. It must include what staff should be alerted, how this is to be done and give an action plan. When drawing up this plan consider setting up a call-in number where staff can leave availability. This line could also contain a brief message for staff informing them of the outline of the incident and of any travel restrictions, for example. This system avoids the risk of key operational staff being inundated with requests for information while they are dealing with an emergency. In a flu pandemic such a number could also be used for sick and off-duty staff to call on a daily basis to assist with management of staffing levels.

Action cards

When a major incident happens these are the key documents for staff, particularly if the event is out of hours. The cards should provide all the essential information and instructions, and prevent important tasks from being forgotten or delayed. They must be role specific — focussing people on their roles and giving useful guidance on key tasks. Each card should stand alone and should not require referral to larger or more complex plans. If possible, it is useful for key staff to carry a wallet-sized copy with them at all times.

Figure 2. Prepacked MERIT medical supplies

Medical emergency response incident team

Hospitals may be asked to provide a medical emergency response incident team (MERIT) to the scene of a major incident. It is important to consider the medical supplies including drugs that the team will need (as illustrated in Table 1). These should be stored as prepared packs ready for immediate issue (Figure 2). Over the last few years there has been a significant increase in the number and type of health care staff who work at the scene of a major incident. Given this increase it is unlikely that an acute hospital would be requested to provide a team for an external incident. However, several recent major incidents have occurred in urban environments with hospitals located close by. On each occasion Trust staff have responded and worked at the incident scene.

Major incident drug stocks

A holding set of reserved, pre-issued stocks for use in a major incident will ensure timely supply and an effective immediate response. The quantity and nature of stock held should reflect potential casualty numbers and injury types. A suggested list is shown in Table 2. Clear protocols must be in place to replenish or substitute essential

Table 1. Suggested MERIT medicine supplies

Antimuscarinics: Atropine
Muscle relaxants: Atracurium, Suxamethonium
Anaesthetic agents: Etomidate, Propofol, Midazolam
Analgesics: Alfentanyl, Ketamine, Morphine
Tetanus vaccines: Revaxis (Diptheria, Tetanus and Polio)
Immunoglobulins: Tetanus immunoglobulin
Vasopressors: Adrenaline (epinephrine)
Antiemetics: Cyclizine
Other: Flumazenil, Glucose 20%, Hydrocortisone, Lidocaine, Naloxone, Sodium bicarbonate, Sodium chloride 0.9% (10ml) and Water for injection (10ml)

Stock List for Major Incidents

ALL medication and intravenous fluids for a major incident (including agreed quantities of antidotes for deliberate release) are held in the pharmacy department and are ready for immediate delivery. The following items are held:

Product description	Pack	Number	Location	First expiry date
Atropine 600mcg ampoules	10 X 2ML	80	Pharmacy Major Incident Cabinet	
Ciprofloxacin 500mg tablets	10 Tabs	10	Pharmacy Major Incident Cabinet	
Diazepam (Diazemuls) 10mg/5ml	10 X 5ml	10	Pharmacy Major Incident Cabinet	
Dicobalt edetate injection 300mg	6 X 20ml	4	Pharmacy Major Incident Cabinet	
Diptheria, tetanus and Polio Vaccine (Revaxis®)	1	65	Clinical Trials Fridge - Pharmacy	
Fentanyl citrate 50micrograms/ml	10 X 2ML	5 (Resus)	Pharmacy Major Incident Cabinet	
Glucose 20% 500mls Infusion	500mls	20	Pharmacy Major Incident Cabinet	
Hydroxocobalamin Injection 2.5g	2 X 2.5g	6	Pharmacy Major Incident Cabinet	
Ketamine HCl 200mg in 20ml Injection	1	4 (Resus)	Pharmacy Major Incident Cabinet	
Morphine Sulphate Injection 10mg	10 X 1ml	5 (Resus)	Pharmacy Major Incident Cabinet	
Morphine Sulphate Injection 10mg	10 X 1ml	5 (Majors)	Pharmacy Major Incident Cabinet	
Potassium Iodate 170mg capsules	100 Caps	3	Pharmacy Major Incident Cabinet	
Salbutamol Nebules 5mg/2.5ml	20 Nebules	10	Pharmacy Major Incident Cabinet	
Sodium Nitrite Injection 300mg in 10ml	10 X 10ml	2	Pharmacy Major Incident Cabinet	
Sodium thiosulphate Injection 50%	10 X 20ml	2	Pharmacy Major Incident Cabinet	
Tetanus Immunoglobulin	1	65	Clinical Trials Fridge - Pharmacy	
Yellow Bags (for Medical Emergency Response Team - MERIT) NB: also called 'Tommies Packs'	1	3	Pharmacy Major Incident Cabinet	
A&E fluids available for immediate dispatch (In separate sealed cage in North Wing Fluids Store)				
SODIUM CHLORIDE 0.9% 1L	12 X 1L	8	IV Stores	Pharmacy stores responsibility to check expiry
HARTMANN'S SOLUTION 1L	12 X 1L	6	IV Stores	
GELOFUSINE 500ml	12 X 500ML	8	IV Stores	
Dextrose 5% / Sodium Chloride 0.45% 500ml	12 X 500ML	1 (Paed A&E)	IV Stores	
Dextrose 5% / Sodium Chloride 0.9% 500ml	12 X 500ML	1 (Paed A&E)	IV Stores	
Theatres fluids available for immediate dispatch (In separate sealed cage in North Wing Fluids Store)				
SODIUM CHLORIDE 0.9% 1L	12 X 1L	5	IV Stores	Pharmacy stores responsibility to check expiry
HARTMANN'S SOLUTION 1L	12 X 1L	5	IV Stores	
GELOFUSINE 500ml	12 X 500ML	5	IV Stores	
SODIUM BICARBONATE 1.26%	12 X 500ML	5	IV Stores	
SODIUM BICARBONATE 8.4%	12 X 200ML	5	IV Stores	

Cupboard prepared and checked by :_____ (Signature) _____ (Date)

Table 2. Stock for major incidents

drugs and equipment. It is worth holding a quantity of specialist items in reserve.

Chemical, biological, radiological and nuclear (CBRN) incidents

Major incidents may have a chemical, biological, radiological or nuclear aspect, which changes incident management. An incident scene will be assessed by the emergency services and information communicated to receiving hospitals. The current DH policy is that patients are decontaminated at the incident scene and transported to the hospital clean. However, there are circumstances where casualties might arrive at hospital in a contaminated state. In that case the provided decontamination equipment must be used to decontaminate patients before entering A&E. Staff working in all environments should be familiar with the signs and symptoms of key poisons, such as carbon monoxide, nerve gas and cyanide. Specialist poisons advice is available from the National Poisons Information Service (NPIS) or on-line from Toxbase®. The Chemical Hazards and Poisons Service Division (CHAPSD), which is part of the Health Protection Agency (HPA) will also be involved.

Antidotes

Medicines needed as antidotes or to treat poisoned patients have recently been reviewed by the College of Emergency Medicine and the NPIS.[7] In a hospital setting, where these may be needed urgently in large quantities — such as, atropine and diazepam — a clearly identified stock for 'chemical incident use only' should be held in the A&E resuscitation area. Appropriate minimum antidote stock levels must be fixed and expiry dates checked regularly because many of these items are rarely used. The London, Eastern and South East Specialist Pharmacy Services Procurement team co-ordinate a NHS web database for rarely used medicines. Organisations can list their stock held, facilitating efficient location and use.

Incident documentation and record-keeping[8]

An 'incident log book' — a bound book with numbered pages — should be used to keep a contemporaneous, chronological record of events. In addition, a 'decision log' should be kept and completed as soon as possible for any decision made by commanders that could have significant impact on events, for example, substitution of a medicine or deployment of staff. This is particularly useful for contentious or 'difficult' decisions, such as a request for drug stocks from another receiving hospital — and it may be appropriate to discuss these with senior management outside pharmacy. Decisions that may require liaison with external organisations, other than those routinely contacted, should usually be discussed with a senior manager. For hospitals this would be the Silver Commander. The incident log and decision log will become part of the definitive, legal record of individuals' and organisational responses. After the event they must be kept securely for the designated time period. All other records, emails (which must be printed out), notes, post-it notes, other papers or recordings should also be kept as part of the legal record.

Training and preparation

For new staff it is important to ensure induction covers major incidents. For hospitals with an out-of-hours residency service additional training on poisons, antidotes and other locally identified risks should be considered. Staff must be reminded to take ID/access badges home and always carry them because it may be necessary to cross police cordons and negotiate travel restrictions. Core emergency numbers can be printed onto stickers for staff to place on the reverse of badges.

Emergency preparedness training

Table top exercises run internally and

EMERGO-type exercises can be used to prepare staff for a major incident. One benefit of this type of exercise is that staff often enjoy participating much more than they think they will — even if you put your chief pharmacist out of action! It is good to include a variety of training including simulation tests, such as live role play, table top and communication call-out cascades.

Table top

With a little guidance table top exercises are easy to write and run. They start with a clear aim, a sensible and realistic scene setting followed by a series of 'injects' that provide further information or problems. Participants work through the injects, usually 6 to 8, which can be in real or compressed time. An example scenario and injects is shown in Table 3. Exercises can be run over a half or whole day but those involved must be freed from other duties to avoid interruptions. An exercise controller should oversee the session, provide support, take notes and summarise at close. It is useful to get specialist emergency planning support to run these exercises to ensure correct procedures are followed.

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Emergo training exercises

A series of training courses are available.[9] Emergo exercises are run by the HPA for hospitals who can apply to be tested with the system. Pharmacy must be involved in these trust-wide exercises because local experience has highlighted medicine-related aspects are usually overlooked.

When an incident occurs

If staff members are called in to respond to a major incident recognise this will be a stressful time. Staff will have been called in unexpectedly and may be working in unfamiliar environments or for extended periods. It is advisable that they do not work for longer than eight hours without a break but do consider moving to a 12-h rostered shift pattern.[8] Also consider the potential incident duration. Some staff may need to be sent home to ensure sufficient staff rotation. Ensure regular breaks are built in and make arrangements for food early on.

Before responding to a call to assist in an emergency staff should:[8]

- ☐ Notify a family member or significant other that they are involved in the emergency response and should leave a contact number. If direct communication is not possible they should be left a note.

Table 3. An example of a table-top exercise

Setting the scene

Date: 24th February 2008
Time: 08:30

During the last 24-hours 89 medical flu patients were admitted to your acute trust. The daily admitting average is running at >100 flu patients/day. The trust admission, discharge and bed management policy is in place. Patients present predominantly with flu type symptoms and are being cohorted in four wards in two areas of the hospital. The average length of stay for these patients is 7–10 days.

When flu admissions were running at 14–15/day all non-urgent elective work was stopped. At flu admissions >25/day all elective surgery was stopped. All local trusts are in a similar staffing and patient situation.

Inject 1

Date: 24th February 2008
Time: 09:10

The dispensary lead pharmacist has just taken a phone call from a consultant virologist. They want to know when the Trust will receive its allocation of Tamiflu® from the national stockpile — he has asked to be called back as soon as possible.

Comments:

You know that the Strategic Health Authority is coordinating distribution through the local PCTs.

Expected action for inject 1 (in exercise controller version only) is:

1. Check available stock at trust
2. Phone local PCT prescribing advisor
3. Phone Strategic Health Authority pharmacy lead
4. Report back to consultant virologist.

Inject 2

Date: 24th February 2008
Time: 10:15

The ICU has 8 confirmed flu cases and is trying to cohort these patients into one bay. Staffing levels in pharmacy (and across the trust) have been reduced by 25% by staff sickness with flu and novovirus. The patient canteens have shut. The main canteen is only available to cater for staff. The Trust Gold Commander asks for an update on the pharmacy situation.

Comments:

All public areas in the Trust have been closed and no member of the public is allowed on site. Only one visitor is allowed per patient. There have already been two flu fatalities among the pharmacy staff — the lead surgical pharmacist and one of the senior dispensary technicians.

Expected action for inject 2 (in exercise controller version only) is:

1. Decide which staff are off sick (1 in 4) and reallocate duties. Assume period of absence from work is 1 week for novovirus and 2 weeks for flu. Staff can return to work 48hrs after resolution of diarrhoea. Those with flu must complete a return to work statement with their line manager.
2. Update Gold Commander with staffing numbers, stock availability, opening hours, and current level of service.
3. Identify which staff will work in designated areas ie. flu contact/non-flu contact. Does pharmacy need to separate these staff at base?
4. Ensure infection control measures within pharmacy and for contact with out-patients/ward staff are adhered to.
5. Because it is difficult to get patients own medicines into hospital the dispensing and post-take ward round workload increases will need estimating.
6. Response of pharmacy staff to fatalities — estimate the availability of counselling from Trust occupational health team. Estimate staff that do not come to work because of a 'fear factor'. Death in service benefits need to be arranged for dependants.
7. Assess impact of fatalities to service. Do other staff act up? Who?

Specialist poisons advice is available from the National Poisons Information Service or on-line from Toxbase®.

- ☐ Reassure family/others they will call and then call regularly to provide an update.
- ☐ Take essential items including ID, money, cards, car and house keys, mobile phone, pager/bleep, torch, medicines/dietary foods and coat.
- ☐ Consider taking toiletries and a change of clothes.
- ☐ Remember that most employers advise staff not to speak directly to the media.

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Actions after an incident

Debriefing staff[8]

Debriefing helps departments and organisations review how well they managed the incident. Immediately after an incident a 'hot debrief' should be held to allow staff to express immediate concerns and help managers identify staff who may be in need of support or counselling. It is important that debriefs are not allowed to become over-emotional, individualised or confrontational. Use them to thank staff and provide food and drink especially if the incident has been protracted. All staff should be given the opportunity to contribute — making perhaps a maximum of two points. Staff should be encouraged to feed back more fully and anonymously if they wish. Ask a member of staff to take notes because these will be a useful source of reference. The debrief process should be seen as a positive, transparent and open effort to learn lessons together in a constructive way.

Support and care[8]

Post-traumatic stress is common after any major trauma. Patients, their relatives and staff may all require support to help them cope. A variety of symptoms may be experienced, many of which will be a normal response to their experience. Patients and relatives should be provided with support information as part of the discharge process. Debriefing and signposting staff to support sessions should be undertaken as soon as possible.

Summary checklist:

This is a short list of crucial questions to be considered to assist you in making your preparations for emergency incidents.

- ☐ Do you have an emergency plan and can you locate a copy of it?
- ☐ Is the plan accessible to all staff and do they know it exists?
- ☐ Are your emergency plans reviewed and revised on an annual basis?
- ☐ Have specific local risks been identified and included?
- ☐ Is the pharmacy plan part of an integrated local response with other areas within your organisation and partner agencies across the local community?
- ☐ What systems and procedures are required to maintain delivery of normal services?
- ☐ What are the critical functions during a major incident — what would have to be stopped?
- ☐ What training and staff preparation have you done? ✣

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Declarations of interest

The author has no interests to declare.

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Useful websites

Resilience planning	UK	http://www.ukresilience.gov.uk/
	London	http://www.londonprepared.gov.uk/
Emergency Preparedness	UK Government	http://www.preparingforemergencies.gov.uk/
	American Society of Health Systems Pharmacists	http://www.ashp.org/Import/PRACTICEANDPOLICY/PublicHealthResourceCenters/EmergencyPreparedness.aspx
Pandemic Flu	UK Department of Health	http://www.dh.gov.uk/en/Publichealth/Flu/PandemicFlu/index.htm
	UK Health Protection Agency	http://www.hpa.org.uk/web/HPAweb&Page&HPAwebAutoListName/Page/1191942171181
Stockpiles	US Government	http://www.bt.cdc.gov/stockpile

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