

Part 5: Case Studies

To help illustrate the benefits of business continuity planning and how the planning is implemented during a response, case studies have been put together from various incident debrief reports from organisations to provide examples of approaches to incident reports and also allow identification of learning across organisations. NHS England thanks those organisations who provided case studies to share their learning with others.

Case Study A: Homerton University Hospital NHS Foundation Trust
Telecoms Disruption

Case Study B: Kent Community Health NHS Foundation Trust
Premises Disruption (flood)

Case Study C: Kingston Hospital NHS Foundation Trust
Premises Disruption (flood)

Case Study D: Rotherham, Doncaster and South Humber NHS Foundation Trust
Telecoms Disruption

Case Study E: University College London Hospitals NHS Foundation Trust
Utility Disruption

Case Study F: Wirral University Teaching Hospital NHS Foundation Trust
Utility Disruption

Further case studies can be found online, all organisations are encouraged to share learning from incidents in order to reduce their impact elsewhere in the NHS and improve service resilience.

Case Study: A

Organisation: Homerton University Hospital NHS Foundation Trust

Incident: Bleep system failure

What happened

On a Tuesday evening, the Clinical Site Manager (CSM) began to receive calls informing him that the bleep system did not appear to be working properly. The contractor who manages the bleep system was contacted and attended the hospital but could not rectify the fault. It was agreed that the roof with the receivers needed to be accessed which would be too difficult and dangerous in the dark and thus the fault had to be fixed the next day.

Action taken

The On Call Manager and Director were informed.

The radios pre-identified to be used in such an incident were collected from Switchboard and distributed to key roles as agreed in the plan. The CSM visited the wards and gave out a mobile number so that the CSM could be contacted by areas without radios.

A communications system was put in place between the Emergency Teams, Switchboard and the wards and departments worked well. The allocation of radios was reviewed to ensure that distribution met current needs and excess radios were removed to keep radio traffic to a minimum. In addition, the CSM gave out a contact number which allowed for easy contact with the key player overnight.

The intranet was used as a communication tool to keep staff informed. Switchboard worked extremely hard to keep communications flowing. The surplus radios were fully charged overnight for continued use.

A plan for the next day (when the fault was due to be fixed) was decided in the early morning and disseminated to all areas. The fault was fixed on time and the service was restored.

Lessons identified

A number of lessons were identified:

1. Organisations need to understand the scope of the contracts for their sub-contracted services.
2. Radios set aside for use in an emergency need to be maintained appropriately and a checking regime should be in place.
3. The limits of back-up systems should be known and planned for.
4. Any back-up system supporting telephony also needs regular checking to ensure it is working should it be needed.
5. Staff using radios in emergency situations benefit from having an aide memoire for radio etiquette issued along with the radio.

Case Study: B

Organisation: Kent Community Health NHS Foundation Trust

Incident: Evacuation

What happened

A community hospital in response to a flooding incident implemented their business continuity planning arrangements and safely evacuated the patients in their care.

On a Monday morning, staff noticed a failure of IT and telecoms. The hospital has a small in-patient capacity, a minor injuries unit, an x-ray department, numerous outpatient clinics and other disciplines of health staff.

The facilities team investigated the situation and 0.5m depth of water was found in the basement of the hospital due to a burst pipe. The basement is the hub for IT, the panel board and telecoms. Assistance was requested from Kent Fire and Rescue who began to pump water out of the basement. Oil was found to be in the water and the Environment Agency were requested to attend to assess the situation. Later than afternoon a total power failure occurred.

The minor injuries unit remained closed for seven days and the hospital for nine days whilst an action plan was put in place to recover services. Staff confirmed no negative impact on patient care or the organisation's reputation. This was endorsed at a patient group meeting by a patient who spoke highly of the management of the incident.

Action taken

The organisation managed to continue to provide safe care for the 12 in-patients for a period of nine days while the hospital remained out of action.

A business continuity incident was declared and the hospital was declared closed. A command and control structure was invoked and an Incident Management Team (IMT) including the CCG was established utilising an office at the hospital as an Incident Control Centre (ICC).

Communications with partner organisations were opened and GPs, NHS England local acute trusts were advised of the situation.

The hospital sourced alternative in-patient beds from other local community hospitals for the patients affected, as was part of the service level business continuity plan. Transfers were arranged with the assistance of the local NHS ambulance service provider, with the last patient being transferred in the early evening.

During the recovery period, daily contact continued with the CCG and staff based at the hospital were transferred to the local community hospitals that patients had been evacuated to, allowing the patients a degree of continuity of care.

Lessons identified

A number of lessons were identified:

1. The decision to open an incident coordination centre (ICC) to provide strategic oversight of the emergency response worked well and benefitted the response.
2. Organisations need to understand the scope of the contracts for their sub-contracted services.
3. The use of 'standby' is a useful tool to alert partner organisations to potential incidents and this

should be included in plans and training.

4. Risk assessments of incidents should be undertaken by host organisations as well as partner organisations.
5. A loggist is a valuable member of the team and should be included in the activation every time an ICC is set-up. This needs to be included in plans and training.
6. Hard copies of business continuity plans need to be available and need to have considered the moving of equipment.

Case Study: C
Organisation: Kingston Hospital NHS Foundation Trust
Incident: Flooding

What happened

One Friday afternoon, a hot water pipe in the ceiling of the ITU burst, causing a severe leak and activating the fire alarms at approximately 1210hrs. The ITU staff responded by moving the 9 patients within the unit out of the side rooms affected, and into a place of safety where their treatment could be maintained. The unit was able to return to the normal operating level of 10 beds, despite the unit's side rooms being unavailable for use as they required long-term drying out and checking of safety equipment. The drying out and checking of safety equipment was completed by the following Thursday. During the incident all patients and staff remained safe and no injuries were sustained.

Action taken

Overall the response to this business continuity incident was effective and staff across the Trust responded calmly, quickly and effectively to ensure that patient safety was maintained, whilst services across the Trust continued. The recovery was established quickly, with a return to normal operating levels achieved within 4 hours, reducing the impact to the local health economy.

During the incident, command and control was implemented.

- ITU patients who needed to remain on ITU were horizontally evacuated into a separate unaffected bay and theatre recovery areas, deemed to be places of safety where care could be maintained with the HDU doors closed
- All admitted patients were assessed, including those in theatre to ascertain if any may require admission to ITU within the next 24-48 hours. Those patients identified were either moved appropriately internally or transferred to a neighbouring trust.
- Estates and Facilities teams isolated the broken joint in the pipework which had caused the flood, stemming the flow of water. Flooded areas were cleared of water and cleaned, with electrics checked for safety. De-humidifiers were hired to undertake longer term recovery of the affected ITU side rooms.
- No ambulance divers were required, and ambulance services were informed of the short term reduction in ITU capacity. Regular reporting of bed states and patients likely to require treatment in Resus or ITU was implemented.
- Staffing levels were assessed to ensure the ability to undertake medical transfer of a patient requiring ITU treatment to another hospital, whilst maintaining ITU and Resus capability. Patient records at risk of water damaged were moved, plastic sheeting was placed over computers to protect them from water, rubbish bins were used to collect water, and prevent damage to desks and floors.

Lessons identified

A number of lessons were identified:

1. Matrons and Senior Leads, likely to be making initial decisions in response to an incident should be provided with Loggist training to ensure they understand the importance of and method for making contemporaneous notes as soon as practicable after the initial response.
2. Internal business continuity plans need to dovetail with Incident Response Plans and training needs to reflect this dovetailing.

3. Alerting arrangements need to be clear and rehearsed and understood by all participants and recipients and the tools (bleeps, pagers, blackberries, phone numbers etc.) need to be in place, have been checked/tested and working.
4. During an incident on-going communications arrangements need to ensure that those with roles and responsibilities during a business continuity incident are kept informed and that reports about the impacts of incidents are received by those in command and control.
5. There needs to be a planned incident Communications Plan in place; Email may not be the best method of communication during an incident and other methods of communicating should be considered within this plan.
6. Expert advice (likely to be Estates and Facilities) needs to be available to support staff should they for example, need to unplug electrical items in a watery environment
7. Fire doors should be checked during fire alarm drills to ensure they function as expected when the fire alarm is activated.
8. Those managing the incident need to be relieved of other duties so they can focus on the task in hand and appropriately supported in the Incident Control Centre (ICC) by administrative support. There needs to be sufficient equipment within an ICC to support all the roles that need to be carried out from that location including communications.

Case Study: D

Organisation: Rotherham, Doncaster and South Humber NHS Foundation Trust

Incident: Telephony loss, community mental health trust

What happened

A Community Mental Health Team suffered a loss of VOIP (voice over internet protocols) landline telecommunications to their building that lasted for several days. The effect of the outage was that members of the public and referrers of patients were unable to contact the team. The outage also affected access to IT including email and patient records.

The Business Continuity Plan identified the maximum tolerable period of disruption for the team for the loss of telecoms and IT. This ensured that contractors performing repairs were aware of the urgency of the work. Maintenance took place to rectify the situation within the target time set in the plan.

Whilst the loss of the landline was a major inconvenience to the team the contingencies identified in the business continuity plan ensured that the team affected could still deliver their services.

Action taken

The Team Manager use the Team Business Continuity Plan in order to ensure that services could be maintained by:

- Deploying staff to backup accommodation nearby where they could access IT (including patient records)
- Informing all partner agencies
- Putting in place a new temporary contact telephone number while maintenance took place on the defective equipment
- Proactively contacting higher risk patients to inform them of the situation and of the new temporary contact details.

Lessons identified

A number of lessons were identified:

1. All teams to test capability of VOIP systems currently in situ, to ensure staff can log into numbers from backup premises, access voicemail etc.
2. Business Continuity Leads should be sighted on relevant information from Service Level Agreements to ensure that business continuity plans correspond with service assumptions.
3. Key team member to be identified to liaise with contractors during an incident, to ease workload on others and maintain the 'single point of contact' principle with contractor.
4. Consideration to be given to back-up printers/multi-functional units that are independent of VOIP systems to enable "offline" printing.
5. Paper diaries to be maintained in tandem with electronic diaries.
6. Analogue lines to be considered as a backup in some circumstances.

Case Study: E

Organisation: University College London Hospitals NHS Foundation Trust

Incident: Interruption to hot water and heating

What happened

Problems were reported with the heating and hot water on a weekday morning in January. It transpired that the problems had been caused by two boiler failures that occurred in the early hours of that morning.

The first boiler failure was due to a low gas pressure. Following discussions with the specialist contractor, it was suspected that there was debris in the gas system. The contractor was called to the site to rectify the problem immediately. The second boiler failed due to a high gas pressure; this issue was also dealt with immediately.

Due to the low external overnight temperatures, coupled with the faults described above, the boilers went into a thermal protection mode. This could not be overridden and requires a staged return, which further delayed the return to normal operating temperatures in the morning.

The effects of these faults on the building were low temperatures due to poor heating and cold water. The impacts on the services included delayed care to patients (including theatre starts and discharges), an uncomfortable environment for patients and staff to be in (including poor heating and cold water for hygiene purposes), risk of pre-operative and post-operative hypothermia, infection control issues for staff caring for patients.

Action taken

Several actions were taken to mitigate against the risk identified as a result of the boiler faults.

- Extra blankets were ordered to keep patients warm
- Blinds were closed to retain heat that was there.
- Delayed start of the operating theatres, considered as environmental risk for post-op patients

Lessons identified

A number of lessons were identified:

1. Increase communications between all services involved during an incident.
2. Ensure information from contractors is fully understood, including caveats, prior to passing this onto staff and patients.
3. Ensure that internal escalation procedures are robust to that issues are escalated up via appropriate routes.
4. Ensure that routine maintenance checks of equipment and estate take place.

Case Study: F

Organisation: Wirral University Teaching Hospital NHS Foundation Trust

Incident: Electricity failure

What happened

On a Thursday morning the hospital suffered a mains power failure in its internal electrical supply. Emergency power, supplied by generators, remained but the hospital was unable to accept elective or emergency patients. Engineers were called and attended the site and the supply was rectified. The power was stabilised in early evening the same day.

Action taken

The on-call structure was alerted. Command and control was put in place and an initial meeting held. The battle rhythm for the briefing meetings was set for hourly.

The High Voltage (HV) engineers (contractors) had been called to assist the internal HV Authorised Engineers and it was anticipated that a 4 hour downtime was required to locate the fault.

All outpatient appointments were cancelled for the day. Patients scheduled for Theatre were cancelled. 2 patients had been anaesthetised in theatres and had to be woken up without having had their procedure. Theatre and endoscopy procedures that were in progress were to be completed, but no new cases were to begin. No harm came to any of the patients.

A full ambulance divert was put in place with patients being diverted to the other local hospitals. The Emergency Department (ED) was also closed to walk-ins. All relevant partners were contacted and informed.

Lessons identified

A number of lessons were identified:

1. All staff need to be aware which equipment and areas are connected to emergency power supplies. There should be a process for confirming that equipment is appropriately connected and which equipment is connected to the non-essential electrical supply.
2. All staff need an awareness of IT downtime processes and paper-based procedures to be implemented should a power outage occur. Ownership and maintenance of paper-based downtime packs needs to be clear.
3. Regular communication to staff (including contractors) is very important and should be maintained as part of the communications strategy, even without electricity. This should include when the end to an incident is declared and business as usual is resumed.
4. Entering data back onto an IT system following downtime needs to be included in the downtime plan.
5. Communication with external partners is important so that they understand the implications of the incident on the organisation's ability to deliver services.
6. Grab pack are useful on wards with items such as torches and batteries in, but ownership and maintenance needs to be clear.

7. A review of what is plugged in and working when only emergency power is available, can have the benefit of freeing up plug sockets if some equipment is not needed at any particular point in time.
8. Support from the ambulance service provider was important in managing the flow into and from the hospital.
9. Doors which are usually locked fail-safe (ie open) without electricity. Some of these required manned checkpoints to be established at them.
10. Those managing the incident need to be relieved of other duties so they can focus on the task in hand. They also need to be appropriately supported in the Incident Control Centre (ICC).