

Case story

Missed opportunities to prevent a cardiac arrest and subsequent severe hypoxic brain injury in an intensive care patient

This case story is based on real events and NHS Resolution is sharing the experience of those involved to help prevent a similar occurrence happening to patients, families and staff. Although this incident may have happened sometime in the past, as you read about it, please ask yourself:

- Could this happen in my organisation?
- Who could I share this with?
- What can we learn from this?

Topic: Care of an acutely unwell patient in an intensive care unit

Key points:

- If the patient had been more closely observed it is likely cardio-respiratory arrest and subsequent hypoxic brain injury could have been avoided.
- Effective procedures for nurse communication, effective handover and observation of critically unwell patients in intensive care and high dependency units are very important to safe patient care.
- Bedside and remote monitoring equipment provide vital information to staff and should be properly maintained and replaced where necessary.

Robert's story

Robert, a young man in his early thirties, had a history of acute pancreatitis and was admitted to an intensive care bed in his local hospital.

He was seriously unwell during his stay, as the complications of the condition affected all his vital organs. He needed help to breathe, haemofiltration (replacing the work usually done by the kidneys), and received multiple blood transfusions. Robert also developed thrombocytopenia (low platelets in the blood resulting in bruising and bleeding) as a side-effect of treatment with the drug heparin, and had to have several emergency abdominal surgeries.

Around four weeks into his stay in hospital, Robert's condition was improving. He was breathing spontaneously with support and his blood pressure was stable. It was agreed Robert was well enough to be moved to a high dependency bed within the department.

At the start of the night shift, nursing staff asked the registrar to review the patient, as he appeared more drowsy than expected. A full examination was undertaken which did not reveal any concerning signs of deterioration.

Staffing was in line with the national guidelines for the provision of intensive care. In the intensive care beds, one nurse looked after one patient and in the high dependency beds, one nurse looked after two patients.

The nurse looking after Robert went for a short break and handed over to the nurse in the next bed space, noting that his observations were stable and the patient was settled. After approximately five minutes, this second nurse was called to assist urgently with another patient in a side room.

After 15 minutes Robert's nurse returned from her break and discovered that the patient's heart rate was low. Resuscitation was started immediately and within one cycle of cardiopulmonary resuscitation, a return of spontaneous circulation was achieved. Staff then prepared to transfer the patient back to an intensive care bed where he received ventilator support. This was complicated by a further gastrointestinal bleed.

As a result of the cardio-respiratory arrest (not breathing and having no pulse), the patient suffered a severe hypoxic brain injury (his brain did not get the oxygen it needed). The cardio-respiratory arrest is thought to have been caused by a lack of oxygen.

Data from the patient's bedside monitor was reviewed, but the point at which the patient's oxygen levels fell was difficult to establish. It is likely that Robert was not getting enough oxygen for 10 minutes, and that this was not recognised or acted upon. If he had been more closely observed, the reduction in oxygen would have been noticed, and appropriate action taken which could have prevented the cardio-respiratory arrest and subsequent brain injury.

Robert remained in critical care for 12 weeks until he died, but his death was not as a result of the hypoxic brain injury.

The claim

The patient's family brought a complaint but having felt their concerns were not properly addressed they went on to seek legal advice. A letter of claim was served and the trust admitted liability.

The trust fully accepted that on the night described there was a failure to detect that Robert was suffering a respiratory deterioration and that the delay in recognising this resulted in an unwitnessed cardio-respiratory arrest, followed by brain injury.

Lessons learned

The trust undertook a full investigation to identify what had happened, concluding that the incident was a result of systemic rather than individual failings. The bedside monitors in use at the time of the incident were old. The remote monitoring function was not operational on the majority of monitors and staff had lost confidence in this function. In particular it was noted:

- Nursing communication, patient observation, and handover when nurses leave a patient's bedside are very important to safe patient care.

- If nurses feel that they are unable to safely observe patients at all times, it is important that they escalate the issue.
- Functioning bedside and remote monitoring equipment provides vital information to staff and should be properly maintained and replaced where necessary.

What has changed as a result?

Significant operational and management changes have since been made by the trust regarding the way that critically ill patients are managed. In particular:

- Intensive care and high dependency beds are now situated across both sides of the unit. This has improved safety, patient observation, and the skill mix of staff. There is no longer the requirement to move a patient when their levels of dependency change. Instead nursing staff are moved as required and are allocated by the senior nurse to ensure appropriate skill mix and support of junior staff.
- The bedside monitoring system was replaced including the facility for remote monitoring across bed spaces, and education relating to bedside monitors is now covered in staff induction programmes.
- The importance of nurse communication, effective handover and observation of patients has been reinforced in training workshops. This message has continued as a focus, and is delivered in all induction programmes, safety briefings, and education programmes.

Conclusion

This case demonstrates that although adequate staffing levels are an important element in ensuring safe care they are not in themselves sufficient to prevent an untoward event. In this instance 'human factors' were at play. Staff had lost confidence in the monitoring equipment, but the need to replace the equipment had not been acted on. Prioritising such safety issues requires a change in culture across the organisation, so that staff feel able to highlight and escalate potential issues and know that they will be taken seriously.

It is also clear that making very simple changes, such as the position of beds in a unit (so that patients do not need to move as their needs change) can lead to a profound improvement in safety.

Finally the importance of appropriate communication between staff cannot be over-emphasised, and will always need to be reinforced proactively, not just as a response to an adverse outcome.

(Published September 2017)