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New report highlights patient safety risks of naso-gastric tube never events

The latest report from HSIB focuses on the life-threatening risk posed by the accidental misplacement of tubes that deliver food or medication to critically ill patients.

Naso-gastric (NG) tubes placed incorrectly, going undetected and delivering food, liquid or medication into the lungs is a well-recognised never event in the NHS. Despite safety alerts and various safety initiatives, HSIB's investigation identified that this type of never event continues to happen and that there are not strong 'systemic' barriers to prevent NG tubes being accidentally placed into the lungs.

Data from national reporting systems shows that there were 14 incidents of misplaced NG tubes from April to September this year*. The report acknowledges that measures implemented to tackle COVID-19 have also added to the challenges of inserting and confirming placement of NG tubes.

HSIB's investigation was informed by the case of Fabian, a 26-year-old man who had an NG tube accidentally placed into his lungs whilst being treated in a critical care ward after a cycling accident in 2018. The report states that he received 1450ml of 'enteral' feed into his lungs before it was stopped. His condition deteriorated over two days before the error with the misplaced tube was identified. The feed in his lungs was removed and he spent a few days recovering in critical care and a ward before being discharged home.

Following analysis of the reference event, the investigation examined the placement and confirmation of NG tubes which is done either via pH testing or an x-ray. The investigation considered the two processes in context of the safety risks and found that misinterpretation in both contributed to placement errors. The overall national investigation also considered the perception of safety culture related to placing NG tubes, the timeline for new technological solutions as well as reporting, regulation and procurement.

The report concludes with five safety recommendations focusing on agreeing standards and specifications relating to procurement and design of devices, researching new technologies and standardising competency-based training for national implementation. The report also sets out eight safety observations and three safety actions taken by the Trust following Fabian's case.

Dr Stephen Drage, Director of Investigations at HSIB and ICU consultant said: *"NG tubes are used successfully every day to deliver vital fluids and food to patients in hospitals across the country. However, just one wrong placement has the potential to cause severe complications and harm. This can be*

devastating for all involved especially as NG tubes tend to be needed by critically ill and vulnerable patients.

"Our investigation offers an independent view on why this type of never event continues to happen and the key safety risks that are associated with the misplacement of NG tubes. We identified that there aren't strong barriers in place to prevent this and that there was potential for improvement in a number of areas - from procurement and design of devices to staff competency training and report of incidents. The investigation also highlights that more research is needed to understand future technological solutions that could provide an even stronger barrier to error.

"The report shared some examples of good practice within NHS trusts, and we also recognised that COVID-19 has introduced further challenge and complexity with the insertion of NG tubes. The report can provide some immediate insight for those working in a rapidly changing environment and our safety recommendations can help direct longer-term change that ensures consistency of care for all."

Some key findings (from 25 listed in the report)

- There is on-going research to find a reliable design solution to reduce the risk of misplaced NG tubes but a new technological solution is not imminent.
- There is significant variation in how existing safety standards are implemented and continually monitored.
- Reporting NG tube related incidents to the Medicines and Healthcare products Regulatory Agency (MHRA) via their 'yellow card scheme' is less frequently done in comparison to NG tube related incidents reported on the National Reporting and Learning System or Strategic Executive Information System (national systems for reporting patient safety incidents).
- The process of confirmation of correct NG tube placement using pH strips is potentially unreliable and its complexity underestimated. The investigation also identified concerns around the reliability and usability of pH strips.
- Research suggests X-ray confirmation of NG tube placement is thought to be the most accurate method if a standard process is consistently followed. However, incorrect x-ray confirmation and interpretation is the most common cause of NG tube incidents.
- There is no consistent process for assessing and recording competency in NG placement and confirmation using pH testing or x-rays.
- The introduction of measures to manage COVID-19 resulted in increased challenges for NG tube insertion and confirmation of tube placement.

ENDS

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Notes to editors

* The data is taken from NHSE/I reports as at 23 November 2020 and is continually updated - https://improvement.nhs.uk/resources/never-events-data/

- Nasogastric tubes are passed through the nose down the back of the throat and through the oesophagus to the stomach and are used to give medication, fluids or liquid feed to patients.
- Never events are defined by NHS Improvement as 'patient safety incidents that are considered preventable because there is national guidance or safety recommendations that provide strong systemic protective barriers which should have been implemented by healthcare providers.'
- Recommendations, safety observations and safety actions listed in Executive Summary

About HSIB

The formation of HSIB is a world-first and represents a landmark moment for the NHS in England. HSIB's purpose is to help improve safety in the healthcare system by developing recommendations and sharing lessons from investigations. HSIB will improve patient safety through effective and independent investigations that do not apportion blame or liability. More details can be found at www.hsib.org.uk