Patients die after multiple warnings about the national 999 IT system were dismissed

Patients have died after the Government over-ruled multiple safety concerns raised about an IT system used to triage 16 million NHS patients a year.

An investigation has uncovered at least three instances where patients triaged by the NHS Pathways software died months, sometimes years, after central agencies were alerted to safety concerns by ambulance trusts – but declined to make changes requested.

NHS Digital – the organisation that oversees NHS Pathways – says it had assessed the complaints but made changes only where “clinically necessary”.*It has repeatedly asked coroners to “strike from the record” concerns raised about the safety of NHS Pathways’ advice.*

Since 2015, coroners investigating 11 patient deaths have called for changes to the NHS Pathways software, used by NHS 111 and 999 services to triage patient calls, to prevent future deaths.

Coroners have raised these concerns with health and social care secretary Matt Hancock, his predecessor Jeremy Hunt, NHS England, NHS Digital, the Care Quality Commission and service providers. Although NHS Pathways is run by NHS Digital, overall responsibility rests with NHS England.

Agonal breathing

Among the cases uncovered by *HSJ*, two women – Caragh Melling, 37 and Barbara Patterson, 67 – with agonal breathing died on 27 December 2014 and 2 January 2015 respectively after NHS Pathways was used to triage their calls. Agonal breathing is sudden, irregular gasps of breath, requiring immediate CPR.

Two separate Coroners’ investigations following their deaths, raised concerns about how agonal breathing [which requires immediate CPR], was handled by NHS Pathways and recommended changes to prevent future deaths. However, between 2010 and 2014, at least three different Ambulance Trusts raised concerns with the national NHS Pathways team on four occasions, about the software failing to advise call handlers to identify life-threatening agonal breathing.

In both the women’s cases, Ambulance Trusts told the Coroner no changes were made to address their concerns about NHS Pathways before the deaths.

In a report sent to NHS Pathways’ Clinical Director in April 2016, the Coroner stated: “NHS Pathways were contacted in 2014 to raise the absence of the breathing analysis tool as being a cause for concern. No action appears to have been taken. I also understand that the medical director of the ambulance trust has again raised concerns at the national level, but it is unclear whether any action is being taken.”

NHS Digital said some changes were made to the early assessment of patient breathing in 2014, ahead of the two deaths.

Both the Department of Health and Social Care and NHS Digital claimed that, despite concerns raised by Ambulance Trusts, there had been no faults in the system for treating agonal breathing, and any fault lay with call handlers, not the software.   NHS Digital confirmed it declined to make changes to agonal breathing requested by a provider in 2014, over concerns it would delay CPR.

It is not clear whether Ambulance Trusts’ concerns about NHS Pathway’s handling of agonal breathing have been resolved. NHS Digital said further amendments were made in June 2015, 2016 and 2017.

However, one Ambulance Trust source said several ambulance providers have continued to log concerns about agonal breathing.

Lone callers

In a separate case, another Coroner raised concerns with NHSE in July 2017 after the death the previous year. Among other recommendations, the Coroner said changes were needed to see how NHS Pathways prompted call handlers to ask whether a patient was alone to prevent future deaths.

NHS England responded to the coroner in August 2017 saying it had raised these concerns with NHS Digital’s lead clinical author for NHS Pathways, Darren Worwood, who *declined to make any changes and had said responsibility for assessing whether a patient is alone was with 999 and 111 providers.*

In September 2018, another man died, and a separate Coroner again raised concerns, this time directly with Mr Worwood, about the way NHS Pathways advised call handlers to deal with patients alone when calling.

In its response to the Coroner, NHS Digital again said determining whether a patient was alone was the responsibility of 999/111 providers, not the NHS Pathways software.

Software updates

The NHS Pathways software is updated twice a year, but it is unclear whether these updates directly address concerns raised by Coroners and NHS providers about the treatment of patients that are alone, and those exhibiting agonal breathing.

When approached by *HSJ* to respond to these deaths, NHS Digital said there had been no faults in the NHS Pathways system in agonal breathing and ‘patients alone’ cases and blamed any failures on local 999 and 111 providers not using the system correctly. In some of the other deaths raised by Coroners, NHS Digital agreed to make changes to the software.

NHS Digital said: “We take any Coroner’s report we receive very seriously and work with our partner organisations across the NHS to ensure that we respond appropriately and make the necessary changes to the system if required. It is categorically untrue that there are any cases where concerns have been raised and changes have not been made to the system, where they have been deemed clinically necessary.”

However, the organisation would not share the NHS Pathways incident log, which would provide a full record of users’ concerns raised with NHS Digital. It said it would take too long for staff to extract the information requested.

Responding specifically to concerns raised about agonal breathing, NHS Digital said it “strongly refuted there was a problem with the system” and said, in the case of Mrs Patterson’s death, ambulance call handlers “were not probing adequately in assessing the breathing pattern”.

What is NHS Pathways?



NHS Pathways is a piece of clinical software, run by NHS Digital, that is used to assist non-clinically trained call handlers to elicit information, offer advice and dispatch medical assistance based on a patient’s call.

It is used to triage all NHS 111 calls in England and many, but not all, 999 calls. Overall, it is used to assess and triage more than 16 million calls a year.

It also powers NHS 111 Online, a website and app that allows patients to enter symptoms directly into the software and receive triage advice without human involvement. Launched in 2017, NHS 111 Online has been used a million times and, as of February this year, accounted for one in 10 uses of NHS Pathways.

NHS 111 and 999 providers are expected to strictly adhere to prompts and scripts in the software, or risk losing their licence to use it. However, in some instances, providers have created local workarounds where they feel there are gaps in the advice offered.

The software covers more than 800 symptom pathways and its content is overseen by a national clinical governance group, hosted by the Royal College of GPs, which regularly reviews and updates the content twice a year.

NHS Digital says when potential issues are raised about the software, a clinical assessment is made within 24 hours. When changes are needed to NHS Pathways, these changes are independently clinically assessed and tested before going live.

The current senior responsible officer for NHS Pathways is NHS England’s digital development director, Sam Shah, who has recently shifted to the new central tech unit NHSX.