Electronic patient records and intrapartum safety: Learning from national maternity and neonatal safety investigations in England

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BACKGROUND

Electronic Patient Record (EPR) systems are increasingly used across maternity and neonatal services in England. They support information sharing, clinical decision-making and patient engagement. They can improve record-keeping and the availability of records, in line with the NHS long term plan for increased digitalisation[1].

METHOD

A thematic review was undertaken of 108 HSIB/MNSI investigation reports completed between February 2020 and March 2025 across England.

Qualitative inductive thematic analysis was used to analyse EPR-related findings or recommendations for recurring themes relating to EPR systems and safety during intrapartum care.

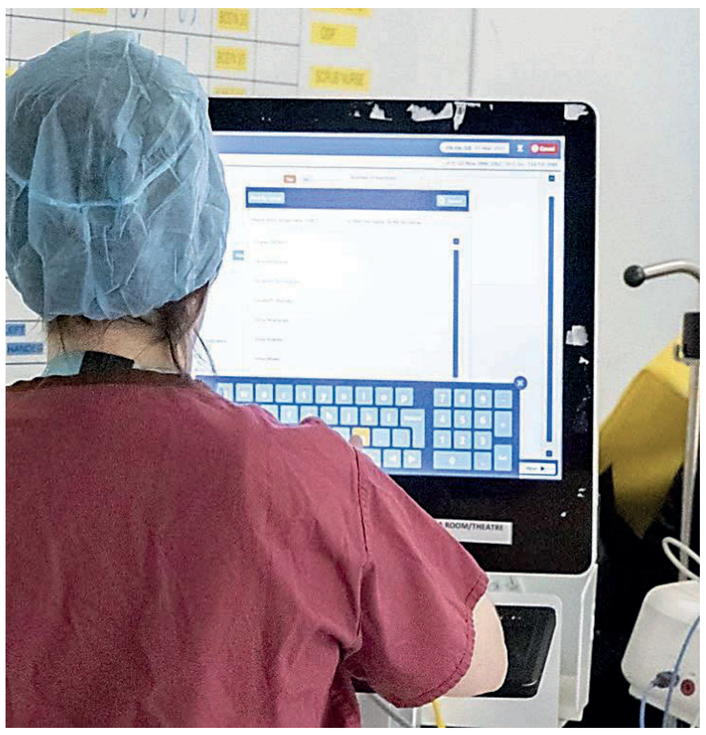



Figure 1. Six themes identified in this review

- Decision-support tools within the EPR did not align with current clinical guidance
- Key information could not be viewed simultaneously, such as writing notes at the same time as viewing cardiotocographs
- Workload pressures limited effective EPR use, with reliance on verbal communication and retrospective documentation
- Connectivity and hardware problems, including lack of equipment, limited effective EPR use
- Limited interoperability between EPR systems restricted information sharing across trusts, specialities and community services
- Variable training contributed to variation in practice and reduced staff confidence in system use

Figure 2. Examples of impact of challenges in using EPR systems

RESULTS

Six themes were identified: functionality, usability, organisational factors affecting utilisation, accessibility, implementation, and benefits of EPR systems (Figure 1).

Intrapartum safety concerns with EPR systems were related to several factors:

- The recognition of cumulative risk factors during labour was reduced.
- There were fragmented care plans, located in different areas of the EPR that required extensive navigation to locate. This reduced situation awareness during labour.
- There was limited integration of antenatal and intrapartum information, to inform decision-making in labour.
- EPR decision-support tools were not always adapted or suitable for intrapartum use.

Investigations noted the impacts of the challenges relating to these themes (Figure 2). Some examples are included below:

Clinicians were not aware of a positive group B Streptococcus result as there was no electronic alert for this. This contributed to the woman not receiving antibiotics in labour.

The use of a paper-based fluid balance record alongside the EPR record meant that the woman's fluid balance was not recorded accurately during labour. As a result, low urine output was not recognised as a sign of an acute kidney injury.

Within the labour module, information was spread across multiple tabs, and individual sections were not visible at the same time. As a result, important observations, such as fetal heart rate, were not always documented in real time during labour, limiting trend monitoring and prompt recognition of risk.

CONCLUSION

This review builds on the Health Services Safety Investigations Body's (HSSIB) recently published report on EPR and patient safety[2], with a specific focus on intrapartum care. While EPR systems can improve safety and efficiency, recurrent patient safety concerns linked to their design, implementation, and use continue to emerge.

EPR systems need to be specifically designed around maternity and neonatal workflows and integrate essential information from multiple sources, to enable safe intrapartum care. The digital governance infrastructure is an essential safety component of EPR systems.

The findings indicate that optimising EPR systems, particularly their implementation, usability and clinical decision support functions, has the potential to improve safety and outcomes across maternity and neonatal services.

References

Department of Health and Social Care. (2025) Fit for the future: 10 Year Health Plan for England - Executive Summary [Online]. GOV.UK. Available at https://www.gov.uk/government/publications/10-year-health-plan-for-england-fit-for-the-future/fit-for-the-future-10-year-health-plan-for-england-executive-summary (Accessed 17 July 2026).

HSSIB (2025). Patient safety issues associated with electronic patient record (EPR) systems – a thematic review [Online]. HSSIB. Available at https://www.hssib.org.uk/patient-safety-investigations/electronic-patient-record-epr-systems-thematic-review/investigation-report/ (Accessed 17 July 2026).

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