

# Individual and system-level contributors to maternal mortality: A systematic review of maternity safety reports in the UK

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## Abstract

### Background:

The UK has the second-highest maternal mortality rate among the eight European countries with enhanced surveillance systems. Recent statistics indicate that maternal mortality rates in the UK have risen to levels not seen since 2003–2005. Despite recommendations from confidential enquiries into maternal deaths, there have been no major improvements in outcomes. The contribution of identified contributory factors to overall maternal deaths, and whether these vary by maternal condition and other factors remains unclear.

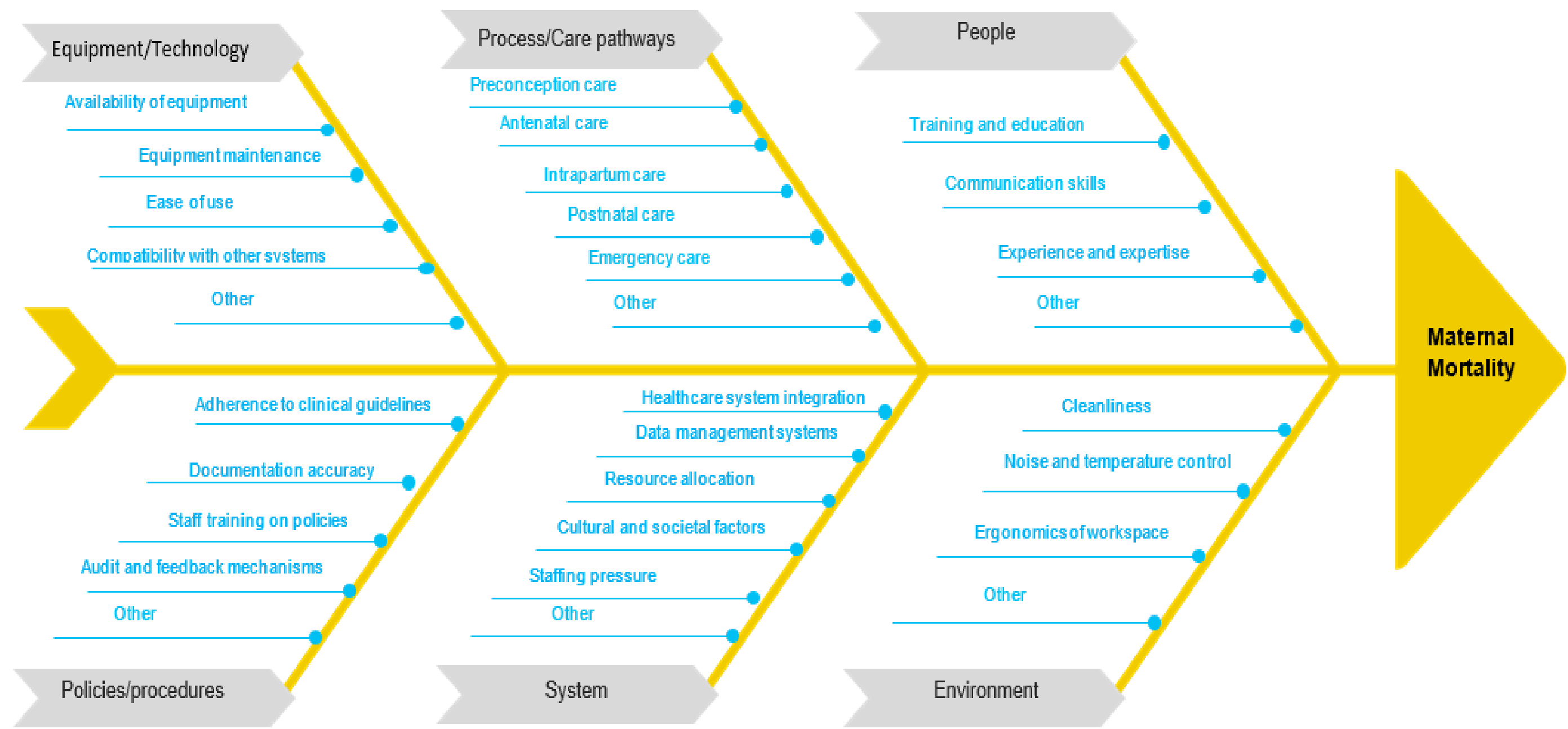
### Objectives:

To thematically map factors contributing to maternal deaths as identified in UK maternal death enquiry reports, stratified by condition and timing in pregnancy to identify priority areas to improve poor maternal outcomes.

### Methodology:

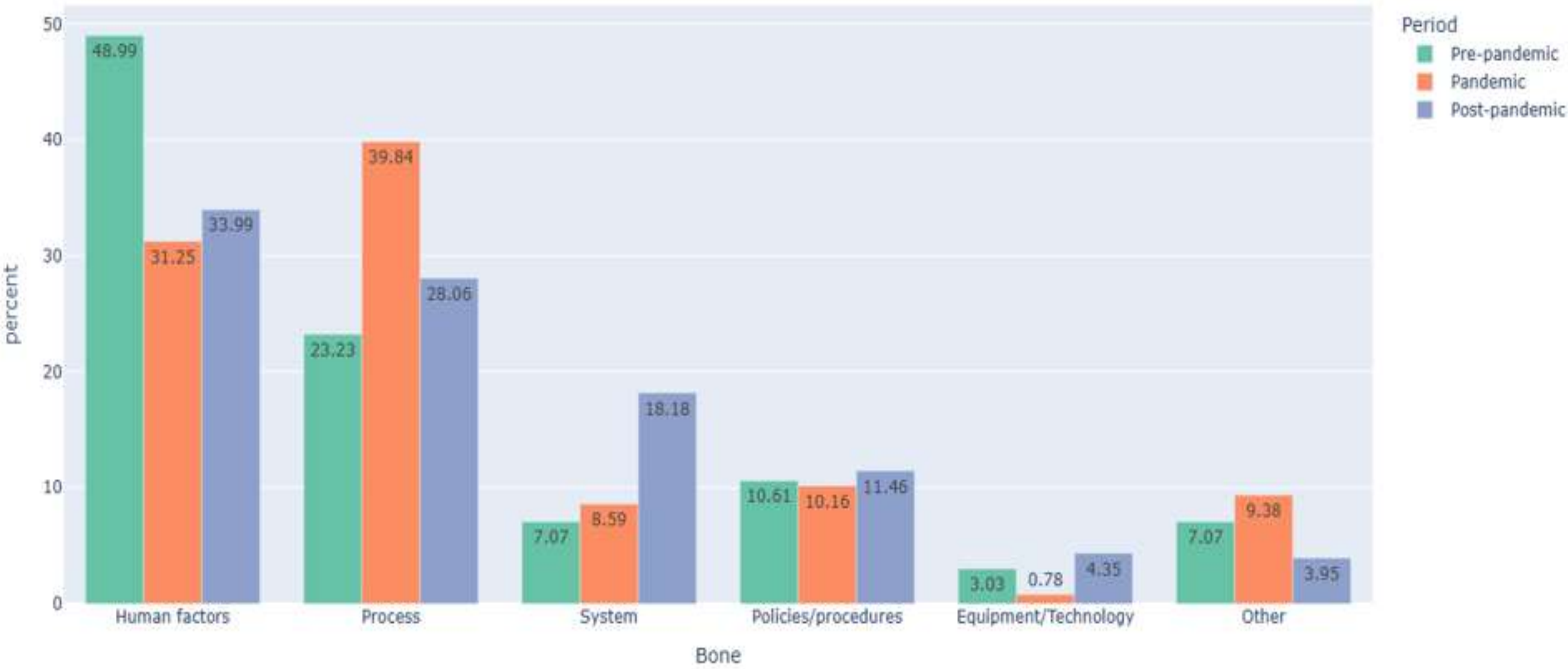
We searched MEDLINE, EMBASE, and Google Scholar for UK national and regional maternity safety audits and confidential enquiry reports into maternal deaths occurring during pregnancy and up to one year postpartum, published between January 2010 and January 2025. Grey literature was included. Two independent reviewers screened reports using predefined eligibility criteria. Contributing factors were categorised using an adapted Ishikawa (fishbone) framework with six main categories: human factors, process/care pathway, equipment/technology, policies/procedures, environment, and system-level issues, with further subcategorisation. Sankey diagrams were used to visualise findings and quantify the proportion of contributing factors for each maternal condition category (pregnancy-related, labour and birth-related, and medical conditions). Temporal trends were also analysed.

### The Ishikawa (fishbone) Framework



## Results:

### 1 Changes in the attribution of care deficits by categories over the pandemic period



Most frequently cited contributors to maternal deaths:

- ❖ Human factors – 38.5%
- ❖ Process/Care pathway – 29.0%
- ❖ System-level issues – 12.3%
- ❖ Policies and procedures – 10.9%

Within human factors:

- ❖ Lack of training and experience – 79.8%
- ❖ Poor communication – 16.1%

Additional contributing factors:

- ❖ Deficits in antenatal and intrapartum care
- ❖ Poor adherence to clinical guidelines

## Conclusion:

Addressing systemic and structural challenges is crucial for improving maternal care and reducing mortality. Equally, understanding the difficulties faced by healthcare professionals is vital to improving care delivery. The themes identified in this review should inform future priorities for maternity service improvement in the UK

### Implications for Clinical Practice:

- ❖Prioritise targeted training and skills development for maternity care providers to address gaps in knowledge and experience.
- ❖Implement structured communication protocols across the maternity care pathway to reduce errors and delays.
- ❖Strengthen adherence to evidence-based antenatal and intrapartum care guidelines through regular audits and feedback.