Introducing SPARC: Structured Perinatal Analysis Report Coding

MNSI Maternity & Newborn Safety Investigations

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SPARC

WANT TO LEARN MORE ABOUT SPARC?

BACKGROUND

Learning from maternity and neonatal safety investigations requires robust methods for identifying recurring themes and understanding how contributory factors interact within complex healthcare systems.

Prior to this project, the Maternity and Newborn Safety Investigations (MNSI) programme analysed safety recommendations to find themes, limiting the depth and consistency of analysis. To address these limitations, MNSI developed the Structured Perinatal Analysis Report Coding framework (SPARC).

METHODS

SPARC was **developed through iterative piloting**, refinement and expert review to support the systematic analysis of MNSI investigation reports.

The framework comprises **over 600 unique codes** organised across 4 domains:

- Health Equity, Diversity and Inclusion (HEDI)
- clinical
- human factors
- location/services.

Codes are applied to the executive summary, findings, safety prompts and safety recommendations sections of investigation reports.

To promote accuracy, consistency and reproducibility, a **structured code selection process** was developed and tested during piloting.

Each code uses a **standardised 4-character format**, enabling data to be aggregated and analysed at multiple levels of granularity while supporting flexible reporting and trend identification.

CONCLUSION

SPARC provides a consistent, efficient and scalable approach to analysis in MNSI investigation reports. By identifying patterns of contributory factors, SPARC has the potential to strengthen trend analysis, support quality improvement and generate actionable intelligence to improve perinatal safety.

Results

Across our pilots, SPARC identified high-level themes and enabled deeper analysis, revealing relationships between factors that would not be apparent through analysis of recommendations alone.

DEEPER INSIGHTS FOR SAFER CARE

SPARC identified high-level themes

Across multiple pilots, frequent high-level themes included:

- Communication
- Delays in care
- Non-adherence to guidance
- Neonatal resuscitation

SPARC enables granular analysis

Revealing relationships between factors that would not be apparent through analysis and recommendations alone.

REVEALING HIDDEN CONNECTIONS

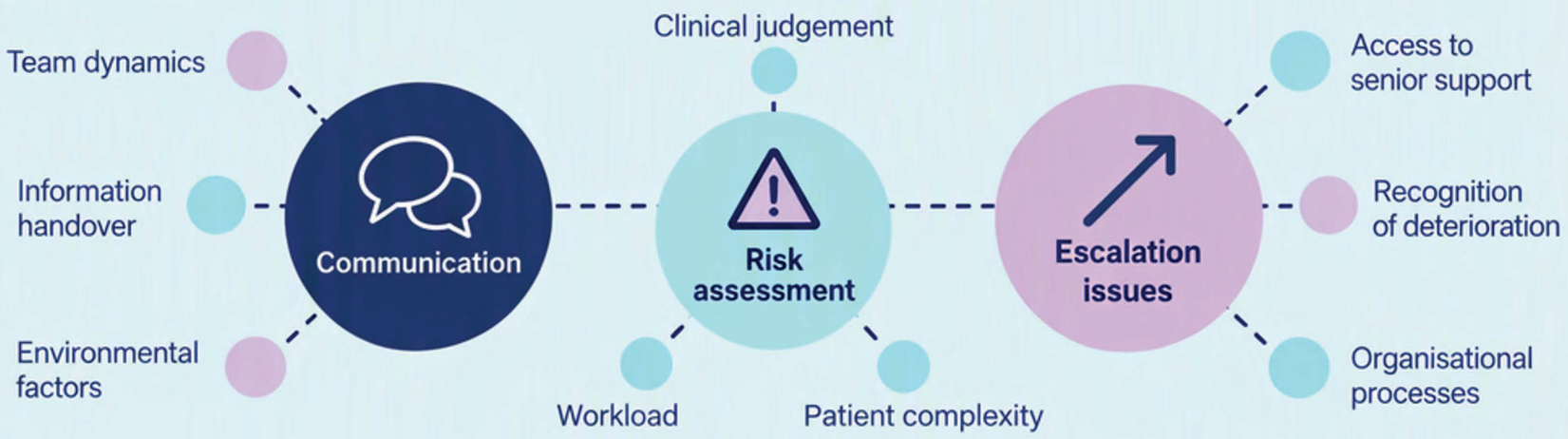
Linking codes shows the bigger picture

The ability to link codes enables a high-level understanding of the interaction between human factors and clinical scenarios.

LINKING FACTORS FOR A MORE COMPLETE UNDERSTANDING

Complex interactions

An example of complex interactions could look like the below:



UNDERSTANDING COMPLEXITY. SUPPORTING SAFER CARE.

A safer future for maternity and newborn care built on listening and learning through independent safety investigations

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