Written evidence submitted by Prof Carl Macrae (MSE0073)

Summary

1) This submission focuses on issues, challenges and opportunities associated with learning from maternity safety investigations and the activities of the Healthcare Safety Investigation Branch (HSIB). This is in response to the item in the Committee's call for evidence on "the role and work of the Healthcare Safety Investigation Branch in improving the safety of maternity services, and the adequacy and appropriateness of the collection and analysis of data on maternity safety".

2) HSIB's maternity safety investigation programme is an important and ambitious safety programme. Safety investigations in healthcare are of variable—and sometimes very poor—quality. HSIB's maternity investigation programme provides a major opportunity to identify and understand key safety issues in maternity care, and to develop and embed learning-focused, systems-based safety investigation across maternity services.

3) A range of issues need to be addressed to maximise the learning from and impact of HSIB's maternity investigation programme. These include:

    a) develop better systems to share and publish insights, recommendations and lessons from maternity investigations;

    b) develop and apply more sophisticated analysis methods to produce system-wide learning from investigations;

    c) develop and share maternity-focused investigation methods and tools that can be embedded across maternity services;

    d) develop local and national improvement capacity to translate maternity investigations into systemic improvement activities;

    e) ensure that nationally-coordinated maternity investigations are appropriately designed to improve system-wide maternity safety; and

    f) conduct a rigorous and independent evaluation of the investigation programme to provide insights for future maternity and safety investigation policy.

Background to this submission

4. I am Professor of Organisational Behaviour and Psychology at University of Nottingham, based in Nottingham University Business School's Centre for Health Innovation, Leadership and Learning. My research focuses on investigating, analysing and learning from safety incidents in healthcare and other industries[1] [2]; and on the organisational and

[1] Macrae, C. (2014). *Close Calls: Managing Risk and Resilience in Airline Flight Safety*. Basingstoke:

regulatory processes that support safety, resilience and high-reliability, including in maternity care.[3]

5. I have had extensive involvement with the development of HSIB over the past six years.

    a) I was lead author on the research paper that initially proposed the establishment of HSIB in 2014, which prompted the Public Administration Select Committee inquiry into the issue.[4]

    b) I acted as Specialist Advisor to the Public Administration Select Committee inquiry that recommended HSIB be created in 2015.

    c) I served on the Department of Health's HSIB Expert Advisory Group (2015-2016).

    d) I was called as a witness to the Joint Committee on the Draft Health Service Safety Investigations Bill (2018).

    e) I acted as an advisor to and worked for HSIB during its establishment and its first two years of operation (Sep 2016-Jan 2019).

The need to build collective knowledge of risk and safety

6. Relatively little information has been made public about HSIB's maternity investigation programme and investigation reports and the insights, recommendations and actions that they generate are not regularly disclosed.

7. One immediate consequence of this is that, in relation to the specific question posed by this inquiry regarding the adequacy and appropriateness of data collection and analysis, it is not possible to evaluate the overall adequacy of data collection and analysis in the maternity investigation programme because little of it is available.

8. A more fundamental consequence of this is to significantly inhibit the potential for system-wide learning from these maternity investigations. One of the main purposes of safety investigation is to build a repository of shared knowledge on the specific sources of risk and safety, and to widely share the rich and practical insights that are generated through in-depth safety investigations.

9. A key weakness in current NHS serious incident investigation processes is that it is very hard for learning to 'travel' between organisations and across the healthcare system. Trusts can find it hard to systematically share, or access, the insights and lessons

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Palgrave Macmillan.
[2] Macrae, C. and Stewart, K. (2019). Can we import improvements from industry to healthcare? *British Medical Journal*, 364:l1039.
[3] Macrae, C. and Draycott, T. (2019). Delivering High Reliability in Maternity Care: In Situ Simulation as a Source of Organisational Resilience. *Safety Science*, 117, 490-500.
[4] Macrae, C. and Vincent, C. (2014). Learning from Failure: The Need for Independent Safety Investigation in Healthcare. *Journal of the Royal Society of Medicine*, 107(11), 439-443.

generated by other organisations. The HSIB maternity programme has an opportunity to build a truly learning-oriented investigation system for maternity safety, but currently it replicates the existing closed structure that prevents local lessons and investigations from being widely shared.

10. It would be enormously valuable to develop a system and processes that allowed HSIB maternity investigations, or relevant and detailed summaries of each investigation, to be made accessible across maternity services and the wider healthcare system. Such a system could act as a model for sharing lessons from investigation processes in other areas of healthcare.

The need for aggregate analysis to address systemic risks

11. HSIB's national programme of maternity investigations offers enormous potential to learn about and address the systemic risks that contribute to common maternity safety issues and which underly similar types of adverse event. To fully realise this potential, and to maximising the learning from the investigation programme, will require a systematic approach to analysing and aggregating findings across different incidents.

12. The current approach to producing occasional brief thematic reports exploring specific issues based on retrospective re-analysis of completed investigations would appear to be a suboptimal approach to understanding systemic risk and generating system-wide learning. To date, two short reports have been produced in 18 months.

13. In an investigation programme that aims to conduct around 1,000 investigations each year, a significant proportion of these investigations will necessarily be examining similar types of common adverse event. Each incident of the same type that is investigated is likely to be the result of a similar set of contributory factors, and will likely involve a similar pattern of unexpected events and mishaps.

14. One of the most valuable outputs of the maternity investigation programme, in terms of system-wide learning, would therefore be an analysis and a 'model' of the range of safety factors and problems that can combine to produce each common type of adverse event. This would allow a detailed and evidence-based 'map' of risk to be produced for maternity services, identifying the key factors that contribute to the most common causes of harm, allowing systemic improvement efforts to be targeted on the underlying factors and problems of greatest concern.

15. A range of methods exist to support systems-level analysis of safety incidents. One example of this sort of approach to aggregate system-level analysis of the factors underlying certain types of adverse event is the work done by the Civil Aviation Authority, to map the factors associated with key types of risk event in aviation safety. This has produced a rich, detailed and publicly available knowledge base that is practical

and can be used by organisations to help identify and address risks locally, as well as help direct national policy and improvement efforts.[5]

16. A further benefit of adopting such a systematic approach to analysis is that it would support future investigations and also increase efficiency. A new investigation into a common type of incident could refer to the existing 'map' of contributory factors to help understand the specific incident under investigation—such as whether contributory factors fit already known patterns or whether new patterns of mishap have occurred. Each new investigation would therefore both draw on, and contribute to, the evolving understanding of risk and safety in maternity care.

The need to develop and share investigation methods and evaluate the programme

17. Investigation methods and processes employed across the NHS are of variable quality. The HSIB maternity investigation programme represents a major opportunity to develop and widely share new investigation methods and safety analysis tools that can be used within maternity services and the NHS more widely. Indeed, "developing investigation standards" was one of the core objectives of the programme, as defined in "Safer Maternity Care: The National Maternity Safety Strategy - Progress and Next Steps" (DH, November 2017).

18. To date relatively little information has been made public on the precise methods, tools and analytical approaches that are being using by the HSIB maternity investigation programme or that Trusts might use in future. A national investigation programme of this size and scale presents a unique opportunity to test, adapt and refine a range of different investigation and analysis methods that are informed by cutting-edge safety science and that can be embedded in wider practice across maternity services. Developing a robust investigation methodology and a broader tool-kit for safety investigation would produce a set of outputs that would provide long-term benefit to maternity services across England. It would be valuable to prioritise such work in future.

19. More broadly, HSIB's maternity investigation programme is an innovative national programme of significant scale and ambition, and represents a multimillion pound investment in maternity safety. A healthcare programme of this scale should be rigorously and independently evaluated through both formative and summative evaluation activities. This would enhance learning and improvement throughout the programme, and would also allow the impacts and outcomes of the programme to be properly understood to support future policy decisions.

The need to build an integrated learning and improvement infrastructure

[5] https://www.caa.co.uk/Safety-initiatives-and-resources/Working-with-industry/Bowtie/Bowtie-templates/Access-the-bowtie-templates/

20. The ultimate purpose of safety investigation is improvement. Learning and improvement are not achieved by publishing a report but involve the active redesign of work systems and practices, and the careful implementation of new processes and technologies. However, in the past the NHS has often focused on building technical and information processing infrastructures that collect, analyse and disseminate information, rather than the social and collaborative systems that allow people to engage in active learning and change.[6]

21. There is a risk that this imbalance may be replicated in maternity services. One of the reasons why safety investigation in aviation is so effective is because the capacity for investigation is matched by the capacity for improvement, and recommendations from investigations are able to directly trigger and guide practical activities of improvement and change.

22. To ensure that maternity investigations are translated into safety improvements it will be important to further develop the improvement infrastructure in maternity services, both at national and local levels. Developing a cadre of 'maternity safety investigators' is an important piece of work, but these professionals need to be supported by and work alongside a cadre of 'maternity safety improvers'. Maternity safety investigations should be the trigger for practical and broad-ranging improvement activities that address the systemic factors.

Strategies to ensure investigations support improvement and learning

23. In my prior work I have proposed a set of strategies that are central to ensuring that nationally-coordinated safety investigations support system-wide safety improvement.[7] This framework is intended to help guide the strategy of national investigation bodies such as HSIB, and is also useful as a framework against which to assess the maternity safety investigation programme.

24. To summarise and apply this framework to maternity services, the five key strategies to maximise system-wide learning from maternity safety investigations would be:

    a) *Untangle systemic risks*. Maternity investigations should identify and focus investigative resources on the most serious, system-spanning risks that pose the greatest threat to the safety of women and babies in maternity care. Analytical efforts should be focused on revealing and explaining these networks of factors that recur across different maternity services.

    b) *Reconfigure systems*. Maternity investigations should develop evidence-based recommendations that seek to improve and re-engineering key maternity

[6] Macrae, C. (2016). The Problem with Incident Reporting. *BMJ Quality and Safety*, 25(2), 71-75.
[7] Macrae, C. (2019). Investigating for improvement? Five strategies to ensure national patient safety investigations improve patient safety. *Journal of the Royal Society of Medicine,* 112(9), 365-369.

systems and practices. Recommendations should seek to bring together a range of stakeholders across maternity care in new ways that span traditional boundaries, and that provide ambitious shared goals for safety improvement.

c) *Show your working*. Maternity investigations should lead the development of safety investigation and analysis methods tailored for the particular challenges of maternity safety. These methods should be shared widely by creating a public catalogue of methods and an investigation 'toolkit' along with practical commentary on application and use. Regular formative evaluations should be published that capture the practical lessons being learnt from conducting learning-focused systems-based maternity safety investigations.

d) *Narrative and voice*. Maternity investigations should explore and explain the experiences of women, families and staff who are involved in maternity safety events and reveal the hidden complexities and challenges of practice in maternity care. The impacts, experiences and hopes for learning of women, families and staff should be explored and used to directly shape safety recommendations and improvement objectives.

e) *Make risks visible*. Maternity investigations should generate new shared knowledge and insights on sources of risk and safety in maternity services, focusing attention on the most serious risks to safety in maternity care and providing a public record of safety recommendations, actions and commentary on improvement to widely share the lessons and the activities that underpin learning.

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