



A qualitative thematic analysis of maternity adverse events reported 1 July 2018–30 June 2023

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Introduction

Te Tāhū Hauora Health Quality & Safety Commission (Te Tāhū Hauora) collects, analyses and reports on events of harm that meet criteria based on Severity Assessment Code (SAC) 1 and 2 events and those on the Always Report and Review list.

This report is an analysis of maternity-specific data from a 5-year period (1 July 2018–30 June 2023). Events in this timeframe were managed and reviewed by health care providers using the National Adverse Events Policy 2017 (the 2017 policy), which came into effect on 1 July 2017 and was replaced on 1 July 2023 by the Healing, learning and reporting from harm national adverse events policy 2023 (the 2023 policy).

Reporting adverse events in Aotearoa New Zealand

Providers initially notify Te Tāhū Hauora of a reportable event by submitting an adverse event brief (AEB) part A notification. The event is then reviewed locally, and the provider submits an AEB part B, which contains information about the findings and recommendations from that review process. Some providers voluntarily submit the full, anonymised review report, which provides additional context to the AEB part B; however, the 2023 policy requires all providers to now submit the full report with the part B notification.

Providers categorise the adverse event according to the 14 World Health Organization (WHO) codes (WHO Conceptual Framework for the International Classification for Patient Safety; apps.who.int/iris/handle/10665/70882). Te Tāhū Hauora then applies a sub-classification to WHO codes 1, 2 and 14 using one of eight clinical management report classes (Appendix 1). The numbers of adverse events by category are then released on the Te Tāhū Hauora public-facing dashboard.

<https://reports.hqsc.govt.nz/AdverseEventsQuarterly/>

Thematic analysis

Analysis method – adverse events

In this report, we focus on building a deeper understanding of maternal adverse events. We evaluate the qualitative information from the AEB part B notifications and the available full reports to identify overarching themes across multiple adverse events during the 5-year period.

We used the Systems Engineering Initiative for Patient Safety 2.0 (SEIPS) tool to help us understand and learn from the information. SEIPS is a validated tool based on Human Factors that examines the work system and how this shapes everyday work. The SEIPS tool has six dimensions, which we used to categorise the findings from the AEB part B forms (Holden et al 2013).

The six dimensions of SEIPS

1. Person factors
2. Technology and tools
3. Task factors (eg, distractions or interruptions)
4. Work environment
5. Organisation (processes/policies, etc)
6. External influencers (regulatory/national context)

The SEIPS tool allowed us to evaluate whether potential interactions within the system were recognised. These might include issues such as competing goals, adaptations, trade-offs and the way in which the system shapes individual actions (Holden and Carayon 2021). We also examined the recommendations for improvement arising from the local reviews using a similar process.

Data

Between 1 July 2018 and 30 June 2023, a total of 455 maternity events involving pregnant woman and birthing people¹ were reported. An AEB part B was received for 309 of the 455 total events. The 2017 policy allowed 70 working days after the event was identified to submit an AEB part B, so events from quarter four of 2022/23 were not complete at the time of data extraction.

Of the 309 AEB part Bs received, a random sample of 160 events were reviewed. Those included those where full reports were available to develop the themes across this report. Most of these 160 events contain more than one finding and a series of recommendations.

The maternity data was collated by financial year starting from 1 July 2018, using the date the provider became aware of the event (provider internal notification date).

¹ We have endeavoured to use gender-inclusive language in this report. We acknowledge that this report encompasses all those who are birthing, including women, transgender, non-binary, intersex and gender-diverse people. We realise that terminology is constantly evolving and our approach to gender-inclusive language may change in the future.

Table 1: Number (%) of maternity adverse events reported 2018/19–2022/23

Financial year	Events reported via an AEB part A	Events for which an AEB part B was received	Events reporting severe neonatal encephalopathy	Events resulting in stillbirth or fetal demise
2018/19	58	48 (83)	5 (8.6)	8 (14)
2019/20	88	68 (77)	16 (18)	14 (16)
2020/21	114	87 (76)	30 (26)	3 (2.6)
2021/22	99	62 (63)	19 (19)	20 (20)
2022/23	96	44 (46)	19 (20)	14 (15)
Total	455			

Note: Data was downloaded from the adverse events database and updated in July 2023. Data is reported as total numbers and percentages.

The significant rise in maternity notifications from 2019 correlates with the release in 2018 of the Te Tāhū Hauora specific maternity² SAC guidance examples that were co-designed with the sector. The release of this guidance came with the expectation that reporting would rise. Based on the information received, we are unable to explain the spike in events in 2020/21, but it does correspond with the increased challenges within the system related to the COVID-19 pandemic.

The 455 events across the 5 years can be divided into two groups, depending on whether the outcome relates to the pregnant woman and birthing people or the neonate. A total of 241 events specifically reported adverse outcomes for the pregnant woman and birthing people. These included a series of complications and unexpected harm, including uterine rupture, sepsis, hysterectomy, post-partum haemorrhage, significant perineal tears and fetal demise. In total, 214 reports focused on adverse outcomes for the neonate following birth. These included neonatal encephalopathy, deterioration, sepsis and the need for transfer to higher levels of care.

We further analysed the data using Manatū Hauora Ministry of Health level 1 ethnicity codes (Table 2). More information on these codes can be found on the Health New Zealand – Te Whatu Ora website: www.tewhatauora.govt.nz/our-health-system/data-and-statistics/nz-health-statistics/data-references/code-tables/common-code-tables#ethnicity-code-tables

² Maternity adverse events include events involving the pregnant woman and birthing people and those where the baby’s condition following birth meets the SAC 1 or 2 criteria.

Table 2: Reported level 1 ethnicity of consumers harmed in adverse events 2018/19–2022/2, n (%)

Ethnicity	2018/19 n = 58	2019/20 n = 88	2020/21 n = 114	2021/22 n = 99	2022/23 n = 96
Māori	15 (26)	20 (23)	22 (19)	23 (23)	23 (24)
Pacific peoples	3 (5.2)	8 (9.1)	7 (6.1)	14 (14)	14 (15)
Asian	10 (17)	12 (14)	22 (19)	15 (15)	17 (18)
Middle Eastern/Latin American/African	3 (5.2)	2 (2.3)	5 (4.4)	4 (4.0)	1 (1.0)
European	26 (45)	42 (48)	51 (45)	43 (43)	39 (41)
Residual categories	1 (1.7)	2 (2.3)	0	0	1 (1.0)
Other ethnicities	0	2 (2.3)	7 (6.1)	0	1 (1.0)

The percentages of Māori and Asian peoples identified in these numbers were higher than expected based on the percentage of Māori and Asian people by overall general population. It is also notable that the proportion of Pacific consumers identified within adverse events increased over the last 2 years.

This echoes the findings of the *Fifteenth Annual Report of the Perinatal and Maternal Mortality Review Committee* (Health Quality & Safety Commission 2022), which showed that Indian (Asian under level 1 ethnicity) and Pacific peoples had higher rates of perinatal-related mortality than Europeans. This annual report also showed that rates of stillbirths were higher for babies of Pacific and Indian people than for those of New Zealand Europeans and rates of neonatal deaths were higher for babies of Māori and Pacific peoples than for those of New Zealand Europeans.

Review findings

The 160 reports reviewed generated 275 findings, which were categorised using the SEIPS dimensions (Table 3).

Table 3: Number of findings identified using the SEIPS framework

SEIPS elements	Findings
Person-focused factors	
Clinician-focused failures in care (active failures)	89
Policy/guideline not followed/met	35
Delay in recognition/provision of care	30
Communication-specific factors (verbal or written)	25
Pregnant woman and birthing people focused	7
Final review found no findings as care was delivered well or as per requirements	29

Technology and tools	
Availability/use of equipment/tools	6
Task factors	
Demand vs capacity (workload/workforce issues)	15
Complexity of task	3
Other task-related factors	8
Internal environment	
Distance disrupting care (layout)	3
Lack of available services	3
Environmental factors	2
Organisation	
Process issues (pathways and policies not available)	13
Other organisational factors	2
External influences	
Locality/availability of community services	3
National workforce-related issues	2
Overall total	275

Person-focused findings

Of the 275 findings, 215 (78 percent) were focused on the actions and behaviours of health care workers. This included 89 (32 percent) findings that described clinically focused failures in care by individuals at the time of the event. These included tasks that were not performed or not done to standard, decisions that were considered as wrong, failures to engage with the pregnant woman and birthing people, inadequate sharing of information with the pregnant woman and birthing people, missed opportunities and even one that just stated, 'human error'.

No system findings

Of the reviews analysed, despite harm occurring, 29 (18 percent) of the total 160 events had no specific findings, as they concluded that the care and interventions were provided well by individuals or to expected standards as per policies and guidelines. As a result in all these cases, no recommendations for improvement were developed.

Policy and guidelines

Poor compliance with policy and guidelines by health care workers was directly or indirectly mentioned in 52 (19 percent) findings, but no further context was provided. An additional 13 findings (4.8 percent) indicated problems where policies and pathways were unclear or did not exist. Policies and pathways not being followed was identified as a factor delaying the

transition of care from primary to hospital services. The use of the maternity early warning system (MEWS) was raised in reviews following its national introduction at the end of 2020. Nine findings identified outcomes where either the MEWS was not fully implemented or individual MEWS scores were not calculated.

Communication

Communication problems relating to both written and verbal communication appeared in 25 findings (9 percent). Inadequate written documentation was discussed at point of handover, transitions of care (specifically between primary birthing and hospitals) or between providers. Verbal communication problems were identified between lead maternity carers (LMCs), hospital midwives and doctors. However, exactly what is meant by communication problems was rarely explored. Examples included not using telehealth where available, no early discussion to facilitate timely transfer to a higher level of care, poor handover communication, poor transfer of relevant clinical information or ineffective communication between practitioners.

Delays in escalation

A total of 26 (9.5 percent) findings specifically mentioned delayed recognition of risk factors, deterioration or inadequate communication as a reason for delayed escalation of care. The delays in escalation to more specialist or senior care were not further analysed to identify other influencing factors.

Cardiotocography

Reported events involving cardiotocography (CTG)³ usually focused on the actions of people even though CTG is a technology. The 29 (10.5 percent) findings related to CTG included active failures in CTG interpretation or inappropriate decisions regarding the use of fetal heart rate monitoring versus intermittent auscultation. The misinterpretation of CTG traces during the intrapartum period was described as leading to subsequent poor management decisions. Two findings mentioned the availability and appropriateness of equipment used for continuous CTG monitoring.

Fetal surveillance

In total, 11 findings (4 percent) identified problems with clinicians' assessments of fetal growth. Ultrasound scanning for fetal surveillance featured in 13 findings (5 percent) relating to either scans not being done or communication challenges associated with requests for or reporting of scans. One finding mentioned an inability to obtain a community scan.

Person focused

Seven findings identified the pregnant woman and birthing people as contributing to the adverse outcome. These related to the pregnant woman and birthing peoples' decisions and actions surrounding late booking, lack of engagement with the service or maternal physique.

³ CTG is a technical means of recording fetal heart rate (cardio) and uterine activity (toco) during pregnancy and labour and is used as a tool to assess fetal wellbeing.

However, the findings did not identify the underlying reasons, such as lack of access to care or consumers feeling culturally or spiritually unsafe with the care available. Without this wider analysis, we do not yet fully understand the reasons why pregnant woman and birthing people did not access care.

Neonatal events

In events where the outcome resulted in neonatal encephalopathy, reports solely focused on the period during labour and delivery, so the findings emphasised the clinical care given to the pregnant woman and birthing people at that time. Examples included problems with recognising maternal risk factors, CTG interpretation and escalation of care. In some of these reviews, the findings described care as good and/or meeting the required standards, regardless of the neonatal outcome.

In events where reports focused on other neonatal outcomes, two findings highlighted difficulties in coordination of care and communication during the transfer from a primary unit to a neonatal unit. Four findings covered delays in appropriate administration of glucose for low blood sugars or a lack of close monitoring or completion of vital signs. The lack of a transitional care unit for higher-risk babies was mentioned twice.

Workforce

In total, 18 (6 percent) findings mentioned the lack of adequate midwifery workforce, and two of those focused on national workforce pressures. Four findings related to medical staffing, but none related to other professional workforce groups. Examples included a mismatch between case acuity and available resourcing as well as the presence of multiple demands or staff shortages. One finding mentioned the border closure due to the COVID-19 pandemic as responsible for the lack of recruitment capability.

External and environmental factors

Only a few reports discussed how the care environment or external factors influenced events. These included factors such as how the physical layout of organisations led to fragmented care and caused delays due to transport distances to and from operating theatre. Three findings discussed challenges around the availability of emergency transfer methods to hospital (one was due to weather). Two findings discussed problems with internal paging and phone systems. Three mentioned availability of services: one relating to community ultrasound and two to the availability of operating theatres after hours.

Review recommendations

The 160 event reviews analysed contained 562 recommendations. As mentioned, 29 reviews had no recommendations because the findings stated that, despite harm occurring, all care was provided by individuals well or as per policies and guidelines. The remaining 131 events each had multiple recommendations, with the majority focused on correcting behaviour. See Table 4 for the type and focus of recommendations. For specific transcribed examples of recommendations see Appendix 2.

Table 4: Type and number of recommendations

Recommendation focus	Number
Person focused	
Education and training	81
Policy/guideline or form	78
CTG/fetal wellbeing assessment	56
Alert/remind people to do things, socialise (share information)	51
Recommendations that state specific actions clinicians are required to complete (no plan of how included)	37
Discuss/share findings at forums	21
Targeted individual performance actions	15
Person focused (consumer)	13
Communication focused	11
Provide feedback to other services	4
Task/process focused	
Develop, review, update or implement a process or pathway	43
Auditing	17
Tools/technology focused	
IT electronic record specific	4
Improve IT availability	8
Equipment upgrade/availability	21
Develop cognitive aids	12
Organisation focused	
Workforce	23
Risk register workforce	2
Facilities/infrastructure	4
Additional services required	3
Wider system focused	
Community-focused recommendations	3
National/regional actions	4
Discussion with regional/national groups	1
Overall total recommendations	562

Note: No recommendations were created for 29 reported events.

Person-focused recommendations

Most recommendations (427; 76 percent) reviewed for this analysis focused on person-centred actions. These included education, policy/guideline review and alerting health care workers to actions they should take, policies or guidelines they should follow and the sharing of findings at closed forums. Task-focused recommendations highlighted the need to review, update or develop a new pathway or process for health care workers to follow.

Education

The need for individuals to attend education courses was mentioned in 81 recommendations, as well as an additional 18 recommendations specific to CTG and fetal surveillance education. Five recommendations discussed the need to audit practitioner compliance with attending required education. Education included directing individuals to complete nationally recognised programmes such as neonatal resuscitation or fetal surveillance education programmes. Most of the education or professional development recommendations involved sessions at a local level on a wide variety of aspects involved in maternity care. Some mentioned creating standardised orientation education packages for new staff or the need to increase knowledge or confidence in performing tasks. Many education recommendations stated that education was required on specific topics but did not explore how this would be achieved. Five recommendations mentioned using simulation as an education tool.

Reminders

Notably, 88 recommendations involved alerting people to their responsibilities, the actions they should take and the need to socialise policies and guidelines. An additional 21 discussed sharing the findings at forums. A few recommendations highlighted that support was needed for junior medical staff and LMCs providing care for pregnant woman and birthing people with higher acuity needs but without specific actions to achieve this.

Policies, guidelines and pathways

A total of 78 recommendations required a policy, form or guideline to be updated. Additionally, 43 recommendations required people to develop, update or implement pathways or processes such as transfer-of-care pathways, models of care, implementation of MEWS and referral processes. There were 12 recommendations that suggested the development of simple cognitive aids that would support practitioners when providing care or provide cues on actions to take during high-stress situations. The need to audit compliance with policy was mentioned within 17 recommendations.

Communication

Despite the large number of communication-related findings, only 11 recommendations focused specifically on communication methods. The implementation of the communication tool 'ISBAR'⁴ was suggested to improve communication across transitions of care and enable escalation and handover processes. Written communication through documentation

⁴ ISBAR is a tool designed to streamline communication across and within clinical settings by creating structured organisation of handover information. It stands for introduction, situation, background, assessment and recommendation.

was mentioned, with recommendations focused on the effectiveness of current record-keeping systems and the need for a consistent and accessible approach that communicates across the transitions of care, minimising the duplication of documentation in several places.

CTG

The 56 CTG-related recommendations included the need to attend approved training courses (eg, fetal electronic surveillance programme) and education days within organisations. Several mentioned the requirement to introduce or remind health care workers of the need for ‘fresh eyes’ across CTGs, record keeping for education and policies related to fetal surveillance and choice of fetal monitoring. One recommendation suggested the need for electronic centralised monitoring of CTGs and another two requested updated and transportable CTG equipment.

Equipment

Equipment required to support health care workers in providing good care was mentioned in 21 recommendations. These included purchasing a variety of updated equipment and increasing the supply of equipment (eg, electronic blood pressure monitor, neonatal resuscitation trolleys, CTG machines, premade intravenous infusions, accessible neonatal resuscitation equipment and towel warmers).

The neonate

Where the neonatal outcome was the reason for the review, the number of recommendations was small. These included three that suggested the need for the implementation of newborn early warning scores in maternity wards as well as a variety of educational interventions, including the need for team simulation sessions. Other recommendations included the review of policies and guidelines and the use of the maternity quality and safety programme to monitor neonatal encephalopathy rates.

Wider recommendations

A small group of recommendations focused on wider system drivers that influenced the adverse events. The need for improved information technology (IT) to support communication and good care was mentioned several times. Recommendations included the updating of the maternity-specific electronic record⁵ (BadgerNet) so it would be fit for purpose in the Aotearoa New Zealand context, cover the entire journey of pregnancy and be implemented nationally across the maternity sector.

⁵ A specific software programme designed as an electronic record for maternity and neonatal care used by some organisations in Aotearoa New Zealand. Referred to as the Aotearoa BadgerNet Perinatal Spine. A secure information-sharing system that will enable a single point-of-care clinical record for each pregnancy in Aotearoa New Zealand, even where multiple health professionals using different IT platforms are involved in providing maternity care (www.tewhaturora.govt.nz/for-health-professionals/health-workforce-development/maternity/aotearoa-badgernet-perinatal-spine/).

There were 23 recommendations that related to workforce. These suggested the development of additional local positions, recruitment of more midwives and using a national approach to address the wider maternity workforce shortage.

Six recommendations discussed the need for additional local services: two for community ultrasound resource and four covering topics such as the need for a neonatal transitional care unit, additional antenatal services and support for bereaved whānau. Five recommendations focused on improving regional and national processes across the maternity sector, along with an additional three recommendations that discussed reviewing the model of care within organisations.

Themes arising from the findings and recommendations for this analysis

This analysis identified a series of themes for ongoing discussion across the maternity sector. These were tabled at the national maternity quality forum on 6 December 2023 as part of the discussion to evaluate potential projects for improvement across the wider maternity sector.

1. Challenges within escalation of care processes and practices, eg, between primary maternity care and hospitals. Since then, there are new referral guidelines.
2. Ongoing issues with the application and interpretation of, and response to, CTG findings.
3. Lack of a centralised electronic record that spans the pregnancy journey across primary and hospital maternity care. Currently an e-maternity record is in play.
4. Ongoing communication challenges between professions as above and across boundaries of care.
5. Challenges regarding the development, accessibility, quantity, quality and implementation of policies, pathways and guidelines in maternity care.
6. An ongoing gap between the actions of health care workers and the procedural work as done verses work as imagined descriptions of their work.

Subthemes:

7. A need for workforce development and changing models of care.
8. Challenges surrounding the provision of additional low acuity clinical care for high-risk babies (need for neonatal transitional care units).
9. Lack of visible voice from the pregnant woman and birthing people or whānau.

Discussion

Analysing the system: what we see

This analysis was undertaken to better understand what was learned from maternity adverse events across a 5-year period using the tools and model of safety that underpinned reviews during this time. It is important to note that organisations most commonly used root cause analysis⁶ as the review method during the time period covered in this analysis (Paradies and

⁶ Root cause analysis (TapRoot[®]): a review method that looks at cause and effect, designed to uncover mistakes or failures that, if corrected, could have prevented the incident from occurring or would have significantly reduced its consequence.

Unger 2000). This method looks for specific causal factors and is often influenced by hindsight and outcome bias (Robbins et al 2021).

Bringing together these reports improves our understanding of how the tools and underpinning safety models of the time have shaped both the findings and the recommendations. This allows us to move beyond aggregation of reports to analysis of the reporting systems.

Person-centred focus

The review methods used during this time commonly emphasised the actions and decisions of health care workers closest to the event, often in isolation from the wider system factors that influenced these. A lack of information about the work context makes it difficult to determine the conditions that need adapting and strengthening (Read et al 2021). This is also consistent with the ‘fundamental attribution error’, which is the tendency to over-emphasise personnel characteristics or actions and under-emphasise situational or environmental factors when judging others’ behaviours. This can lead to a focus on individual actions or decisions rather than seeking to understand the context that influences them.

This emphasis on person-centred actions is also reinforced by investigative methods based on a ‘human error’ model of safety. In this model, errors and failures by individuals are seen as adequate explanations for harm occurring in complex systems. The risk is that ‘what you look for is what you find’. Once ‘human error’ is identified, this is seen as an adequate explanation, and we stop looking at the wider context (Lundberg et al 2009).

Recommendations

Unsurprisingly, recommendations follow a similar pattern, emphasising the need for person-centred solutions or remediation to correct what have been interpreted as errors by health care workers. A significant number of recommendations focus on standardisation and compliance, involving updating policies, processes and guidelines. This demonstrates a focus on forcing individuals to ‘fit within the system’, regardless of its usability (Woodward 2019). Improvement actions need to be balanced between person-centred and system-centred actions to create more effective sustainable change (Robbins et al 2021).

Our analysis of these events highlighted some instances where recommendations demonstrated a lack of connection with the findings, indicating that ‘what you find, is not always what you fix’ (Hollnagel and Amalberti 2001). We also noted that recommendations often focused on things that the writers had direct control over, leaving underpinning system issues unaddressed.

Policies and guidelines

Findings in this report showed how health care workers were judged by whether they followed large volumes of policies and guidelines, with little focus on the practicalities of doing this in the context of the competing priorities of normal work. Although policies and guidelines have a place, there is minimal evidence evaluating their usability and accessibility in the midst of busy challenging environments (Smith and Plunkett 2019). The tools used in these reviews make work more standardised through the implementation of updated policies, protocols and guidelines with the aim of covering every conceivable scenario. Reviewing and updating policies and guidelines does demonstrate a measurable fix. However, as health is

constantly changing and evolving, the ability of health care workers to perform by imposing additional bureaucracy is limited, so updated policies are less likely to achieve safer care (Braithwaite et al 2020).

Task complexity

A focus on CTGs is evident across events but lacks recognition that the interpretation of CTG is a complex task. CTG analysis requires evaluation of all the interdependent influencing factors rather than a simple approach focused only on policy, equipment or an individual's competency in interpretation (Lamé et al 2023).

For example, the concept of 'fresh eyes' was raised across reports in relation to the review of CTGs. However, this did not demonstrate consideration of factors such as whether clinicians were available to provide 'fresh eyes' or whether the culture supported staff to seek advice with CTG interpretation or escalation of concerns. Lamé et al (2023) identified many factors that influence CTG analysis, including equipment availability and functionality, the complexity of the task, a consensus on the criteria for escalation, availability of electronic systems to support changes in practice, organisational and team culture, communication processes, workload and workforce issues. Therefore, what may initially appear as clinician error in fact relates to the complexity of the task. This may indicate that a different approach is needed to consider the technical, contextual and social issues around CTG interpretation.

Education

Reviews frequently recommended education or training for health care workers, implying a knowledge gap was central to the event. However, the reports analysed did not demonstrate either a knowledge gap analysis or an assessment of the effectiveness of previous education. Kirkpatrick and Kirkpatrick (2016) discussed the importance of understanding the barriers within the system, the culture and the everyday realities of work for those who need to apply education in their workplace. Changing behaviour through education is only effective if a knowledge gap has been identified and if the education is fit for purpose and demonstrates value over time (Kirkpatrick and Kirkpatrick 2016).

Sharing learning

Recommendations to share learning focused on passively transmitting information. Health care workers were not routinely engaged in sensemaking or thinking about ways to integrate any learning from events into their work. Open discussions at maternal morbidity and mortality meetings may be helpful only if the culture of the environment is psychologically safe and the discussion focuses on system issues (Sujan 2015). If the conversation is focused on individual practice, it could lead to defensive responses, compounded harm and a lack of system learning.

Analysing the system: what is missing

The invisible context of work

The information provided to Te Tāhū Hauora, analysed across this time period contained minimal context that could identify wider factors that influenced adverse events. Issues such as competing goals, time pressures, availability of services, task complexity, staffing

capacity, the physical environment and culture of the organisation were absent (Carayon et al 2014). Focusing on individual components or people means the wider system influences remain invisible. Consistent with the paucity of system-focused findings, there was a corresponding lack of strong, system-focused recommendations.

Implementation

Recommendations rarely expanded on how they would be implemented and what resources they required. For example, ISBAR was suggested as a tool to improve communication, but there was no detail about how this would be implemented or the current challenges in applying it.

Person voice

The National Adverse Event Policy 2017⁷ and the maternal morbidity review toolkit (Health Quality & Safety Commission 2018) both provided guidance on the importance of hearing the voice of the consumer. The analysed full reports included few examples of the consumer experience of an adverse event. It remains unclear what consumer engagement was being undertaken to understand their perspective and ensure their needs were met.

Cross-boundary issues

Many of the reports highlighted the challenges of providing care across system boundaries, for example, care transitions between primary and secondary maternity care or escalating concerns across professional groups. Shorrock (2016) suggested that the best opportunities for system improvements occur across boundaries (between services, transitions of care), but this requires bringing together the differing perspectives of all those involved. However, most reviews in this cohort were hospital-based and did not involve primary care or ambulance practitioners.

Culture and power

The reports contained no discussion about how work culture or power dynamics influenced an adverse event. These are recognised as important for the ability of different professional groups to work collaboratively and escalate concerns (Smith and Plunkett 2019). This highlights the importance of seeking multiple perspectives to understand how the culture of an organisation contributes to adverse events.

Workforce

Aotearoa New Zealand health workforce shortages, particularly in midwifery, are well documented by various national organisations. Consequently, we anticipated that workforce problems would be increasingly represented in the reports. However, although a few reports

⁷ The 2023 policy further strengthens the need for consumers and whānau to have the opportunity to share their stories about the care they have (or have not) received as part of the review process and aligns with the code of expectations for health entities' engagement with consumers and whānau (Te Tāhū Hauora Health Quality & Safety Commission 2023).

mentioned local recruitment and the creation of additional positions, there was little discussion of the systemic workforce problems and the need for a national solution.

Next steps

This report clearly indicates the need to move from a focus on individual components or people to evaluation of the interconnections and interactions across the wider system that influence adverse events. The release of the Healing, learning and reporting from harm national adverse events policy in July 2023, and the associated socialisation across the sector, aims to support a learning approach to safety and review practices, as raised in this analysis. The policy recommends use of the learning review principles and restorative responses (5-year transition period), and we will assess how these are being implemented and their impact on the sector in future analyses.

A national approach and resourcing are needed to address the themes and potential opportunities to improve identified in this analysis. These were tabled for discussion at the maternity quality forum to develop potential quality improvement activities.

Conclusion

Our findings highlight how the underpinning safety model and tools used in the past have led to a focus on individual actions with a relative absence of the wider system influences. As a result, this has limited our learning about the wider system and how best to improve the conditions in which care is provided. Our hope is that, by changing the underpinning safety model and tools, as described in the learning from harm policy, we can better understand the context and influences that shape care. This will mean bringing together multiple perspectives from within and across all layers of the system to develop sustainable system-focused improvements.

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Appendix 1: Clinical management report class

Te Tāhū Hauora combines WHO codes 01, 02 and 14 into clinical management events as shown below.

Clinical management report classification	Description example (hypothetical)
Adverse outcome	Unexpected consumer death or outcome
Assessment and diagnosis	Initial assessment did not find the key clinical issue
Clinical process	Incomplete process during care (eg, consent, coordination of care)
Complication	Complication of treatment or procedure (eg, stroke following surgery)
Delayed diagnosis or treatment	Issue in referral process results in delay seeing specialist or receiving treatment
Deterioration	Consumer deterioration not recognised or managed in expected timeframe
Other	Security issue
Pressure injury	Pressure injury from insufficient position change/nutrition, etc
Resources/organisation/management	Insufficient clinic, equipment, staff or appointments to meet demand
Retained item	Item left inside the body beyond expected time
Wrong consumer/site/side	Wrong consumer in procedure room/theatre

Appendix 2: Recommendations

Type of recommendations with specific transcribed examples

Recommendation focus	Number	Transcribed examples
Person focused		
Education and training	81	<ul style="list-style-type: none"> • Most recommended a variety of pre-existing training activities to be undertaken by health care workers • Topics to be included in training were listed • Some involved simulation sessions
Policy/guideline or form	78	<ul style="list-style-type: none"> • Recommendations that require the development, review or update of policies, forms and guidelines for health care workers to follow
CTG/fetal wellbeing assessment	56	<ul style="list-style-type: none"> • Implementing 'fresh eyes' process across CTGs • CTG and fetal surveillance education • Monitor compliance with training • Reinforce the policy and process around escalation of abnormal CTGs
Alert/remind people to do things, socialise (share information)	51	<ul style="list-style-type: none"> • Socialise a policy, chart or process • Refresh awareness of various guidelines and processes • Remind staff to follow policy/procedure • Circulate a pathway • Circulate the maternity quality and safety report • Communicate information to staff via email, newsletter or verbally
Actions required of clinicians Recommendations that state actions required of clinicians (no plan included around these)	37	<ul style="list-style-type: none"> • Independent midwives (LMCs) to always call the registrar before transfer into the hospital • All midwives to have the knowledge and confidence to escalate their concerns up to senior medical officer (SMO) level • Alarm checks daily • SMO to be notified when there are resource constraints • Achieve a culture in maternity where MEWS is used routinely
Discuss/share findings at forums	21	Most mention maternal mortality and morbidity or case review meetings

Targeted individual performance actions	15	<ul style="list-style-type: none"> • Provide feedback to a specific health care worker on performance • Notification to midwifery council • Individual supported to undertake a reflection
Person focused (consumer)	13	<ul style="list-style-type: none"> • Create/update information resources • Reminders at antenatal classes • Tool to aid communication with families • Support women to access maternity care
Communication focused	11	<ul style="list-style-type: none"> • Use the ISBAR communication tool • Develop a documentation tool for phone conversations • Clarify communication process
Provide feedback to other services	4	Provide feedback to radiology providers
Task/process focused		
Develop, review, update or implement a process or pathway	43	<ul style="list-style-type: none"> • Implement or review MEWS or newborn observation chart/newborn early warning system • Develop a pathway for escalation • Review emergency response process and process for SMO escalation • Review a neonatal transfer process with Hato Hone St John • Review the model of care • Review of practice around umbilical line care bundle • Better pathways for high-risk rural women
Auditing	17	Undertake auditing of practice against expectations from policies and guidelines
Tools/technology focused		
IT electronic record specific	4	<ul style="list-style-type: none"> • Introduction of national electronic maternity record (referred to as BadgerNet) • New partogram for BadgerNet
Improve IT availability	8	<ul style="list-style-type: none"> • Communication to chief executive for interlinking IT system • Centralised CTG monitoring • Data dashboard

Equipment upgrade/ availability	21	<ul style="list-style-type: none"> • Portable transport CTG monitor • Resuscitation equipment availability • Pre-made MgSO₄ infusions • Purchase a towel warmer
Develop cognitive aids	12	Specific easily accessible cognitive resources
Organisation focused		
Workforce	23	<ul style="list-style-type: none"> • Continue with recruitment and retention • Address the maternity staffing shortages • When staffing is critical, SMO and duty nurse manager to assist in triage of work • Recruitment of an equity lead • Explore afterhours midwifery coordinators • Allocate a perinatal mental health position to support obstetrics • Increase minimum staffing
Risk register workforce	2	Add to risk register
Facilities/infrastructure	4	<ul style="list-style-type: none"> • Increase operating theatre availability • Open beds when additional capacity required • Explore installation of impact-reducing flooring
Additional services required	3	<ul style="list-style-type: none"> • A proposal for the piloting of a transitional baby care unit • Midwife-led antenatal assessment unit for high-risk women, with direct access to SMO • Accelerating the development of midwifery-led and evidence-based 'vaginal birth after caesarean' clinics with provision of woman-customised information and advice
Wider system focused		
Community-focused recommendations	3	<ul style="list-style-type: none"> • Need improved access to free ultrasound for rural women • Raise the concern about the lack of support services for bereaved whānau • Advocate for better support to access community ultrasound

National/regional actions	4	<ul style="list-style-type: none"> • Participate in regional neonatal retrieval project to review current service and make recommendations • Participate in Accident Compensation Corporation (ACC) fetal assessment education programme pilot • Complete the development of the 'place of birth tool' that is under way under the maternity quality and safety workplan
Discussion with regional/national groups	1	Explore a national system/process to remind practitioners to formally hand over/transfer care of women when they change district
Overall total recommendations	562	

Note: No recommendations were created for 29 events.