



**Case Study Analysis Report on Preventable Harm in
Healthcare: A Systems and Leadership Evaluation of
the Infant Morphine Overdose Case**

MSc Public Health and Social Care in Practice

**Module: Health Care System Organisation and Leadership
(LCHS7002)**

Student: Mst. Rahima Arobe Akhi (2524399)

Lecturer: Shaila Hussain & Dr Tonia Babalola

Word Count: 5028 words

Table of Contents

1. Introduction	2
1.1 Background of the Case	3
1.2 Purpose of the Report	3
1.3 Leadership in Healthcare	3
1.4 Centralisation vs Decentralisation	4
1.5 Structure of the Report.....	4
2. Main Body and Analysis.....	4
2A. Identifying the Problem and System Context	5
2A.1 Description of the Problem	5
2A.2 Global Context (WHO Data)	5
2A.3 National Context (NHS Data).....	5
2A.4 Systemic Weaknesses	6
2A.5 Governance Level Analysis	7
2A.6 Underlying Challenges with Data	7
2A.7 Rich Picture	7
2B. Centralisation Vs. Decentralisation	8
2B.1 Centralised System in NHS	8
2B.2 Decentralised Elements	9
2B.3 Critical Analysis	9
2C. Leadership Theories and Application to the Case Study	10
2C.1 Critical Overview of Leadership Theories	10
2C.2 Application of Leadership Theories to the Case	11
2C.3 Evaluation Using Data and Evidence	11
2C.4 Critical Analysis and Leadership Effectiveness	12
2D. Improvement and Lessons Learned	12
2D.1 Problems Identified	12

2D.2 Evidence-Based Improvements	13
2D.3 Leadership and Governance Interaction	14
2D.4 Lessons for Healthcare System	14
3. Recommendation	15
4. Conclusion	17
4.1 Summary of Findings	18
4.2 Final Insight	18
References	18

1. Introduction

1.1 Background of the Case

The case study analyses a severe drug error that happened to a 4-week-old baby who had a significant Morphine overdose. The infant received a dose of about 20 times higher than the prescribed one because he was provided with a greater concentration of morphine sulphate oral solution (10mg/5ml, as opposed to 100 micrograms/ml) (NHS, 2023). This event was caused by a complex of errors in prescribing, breakdowns in communication, and system failures on different levels of care. The case is not a one-time error but reflects a broken system of healthcare with its issues in hospital discharge, primary care prescribing, and pharmacy dispensing. The severity of this problem is reflected in national data reporting of at least five of these incidents since 2018, one of which was fatal, showing that the problem of patient safety remains repetitive (NHS, 2023).

1.2 Purpose of the Report

This report critically analysed the case of infant morphine overdose through the lens of the interaction between the failure of leadership, lack of governance, and inefficiency of the system in the complex healthcare setting. It uses systems thinking and applicable theories of leadership to investigate how mistakes arise in interdependent healthcare processes. The report will be focused on revealing the main areas of improvement and giving evidence-based information that will help to improve patient safety, organisational accountability, and overall effectiveness of the healthcare system.

1.3 Leadership in Healthcare

Leadership in healthcare is defined as a process of social influence that maximizes the efforts of others toward the achievement of a shared goal (Sfantou et al. 2023). It is fundamental to maintaining patient safety—the state of minimizing and preventing adverse outcomes or injuries stemming from the processes of healthcare delivery (Emanuel et al. 2020). Effective leadership is a critical building block of a high-performing health system, as it ensures that clinical standards are translated into frontline practice (WHO 2023).

According to the progression of leadership thought, several theories are central to analyzing the failures observed in this case. **Trait and Behavioral theories** emphasize the balance between task-oriented structure and people-oriented consideration, while **Transactional Leadership** focuses on "command and control" through rules like the "RED drug" policy (NHS

2023). **Transformational Leadership** further extends this by fostering psychological safety and a vision for long-term safety culture (Zhao et al. 2024).

Modern perspectives, including **Situational and Functional Leadership**, argue that leaders must adapt their style to high-pressure clinical functions (Shin et al. 2026). Finally, **Distributed and Emotionally Intelligent Leadership** models highlight the need for shared responsibility and empathy across multidisciplinary teams to prevent the "siloed" working that led to this incident (WHO 2021).

1.4 Centralisation vs Decentralisation

Centralisation refers to the degree to which decision-making authority is concentrated at higher levels of an organization (Mahmood et al. 2024). In contrast, decentralisation involves the distribution of authority and functions to local levels to improve system responsiveness (Vignos et al. 2024). Within the NHS, the "RED drug" classification is a centralised safety standard. However, this case demonstrates that without effective decentralised monitoring and inter-professional communication at the local level (GPs and Pharmacies), centralised policies alone cannot guarantee safe outcomes (WHO 2022).

1.5 Structure of the Report

The report is structured into four main sections. Section 2A identifies the problem using systems thinking and a "Rich Picture" visualization. Section 2B critiques the balance of centralisation and decentralisation. Section 2C applies leadership theories to the failure of oversight. Finally, the report concludes with evidence-based recommendations for strengthening governance and systems integration.

2. Main Body and Analysis

2A. Identifying the Problem and System Context

2A.1 Description of the Problem

The case involves a critical medication error where a 4-week-old child was given the wrong formulation of morphine sulphate oral solution. The infant was administered a much stronger dose of 10mg / 5ml instead of the recommended 100 micrograms/ml concentration (NHS 2023). Instead of receiving an overdose that was 10 times greater than the prescribed amount, the infant received one approximately 20 times stronger than it should have been. This resulted in the infant being given 3.8mg instead of 190 micrograms, as needed (Wende et al. 2025). The mistake could not be traced back to a single point of failure but rather a series of problems, such as the lack of a clear hospital discharge summary, improper GP prescription, insufficient checks during pharmacy dispensing, and parental misconceptions about the dosage instructions (NHS 2023).

2A.2 Global Context (WHO Data)

It has been acknowledged that medication errors are the leading cause of patient safety worldwide, especially in infants and children (WHO 2021). The World Health Organisation (WHO) indicates that unsafe medication practice and medication errors are a major cause of morbidity and mortality around the globe, with millions of patients being injured annually – a state that reflects significant systemic vulnerabilities in global healthcare delivery (WHO 2021). The WHO has declared medication safety as a universal concern and highlighted that errors are usually caused by system-level problems and not by negligence of a certain individual (Papanicolas et al. 2022). Weight-based dosing, complicated calculations, and formulation differences occur particularly in paediatric patients and put them at risk (Badgery-Parker, et al., 2024). Other cases of opioid overdoses and wrong dosing have been reported abroad, which is why the issue of medication safety is a problem across the board (Aung et al. 2020).

The case also portrays wider international issues about communication, ineffective safety measures, and the absence of standardisation in prescribing and dispensing in the healthcare systems. According to the statistics of national organisations like the Institute of Healthcare Improvement (IHI), medication errors cause a considerable percentage of preventable harm in the world, and research shows that up to 50% of the errors can be avoided, which confirms that the observed problems in the case are related to the global problem of patient safety (World, 2023).

2A.3 National Context (NHS Data)

In the UK, medication errors continue to be a major issue of patient safety within the NHS, especially in the high-risk units like paediatrics (Shin, et al., 2026). The nature of weight-based dosing and the specialised formulations used makes the chances of errors even more likely. National safety warnings have been issued several warnings regarding the dangers of morphine prescribing, particularly among infants (Murphy, et al., 2025). Identical incidents, at least five cases were reported since 2018, prove that there are still systemic problems (Murphy et al. 2025). These trends suggest that the gaps in implementation, communication, and monitoring still exist regardless of the guidelines and safety frameworks, and the use of a more integrated and stronger approach to medication safety in healthcare settings is needed (Vignos et al. 2024).

2A.4 Systemic Weaknesses

The infant morphine overdose demonstrates a vivid case of systemic failure rather than a single human error. Applying the **WHO Building Blocks Framework**, this incident reveals how weaknesses in one area can trigger a collapse across the entire care pathway (WHO 2021).

- **Information Systems and Communication Failure:** A primary factor was the failure of communication at various points of care, including hospital discharge, GP prescribing, and pharmacy dispensing (Zhao et al. 2024). The discharge summary contained vague information and dangerous abbreviations such as "mcg," which significantly increased the probability of misinterpretation (NHS 2023). This lack of standardized digital communication allowed the error to spread across the system; the GP prescribed the wrong formulation due to poor understanding, and the pharmacy issued the drug without providing a proper explanation to the parents (Murphy et al. 2025).
- **Governance and Stewardship Failures:** There were critical failures in governance, especially regarding the management of "RED drugs," which should be limited to specialist prescriptions in secondary care settings (Vignos et al. 2024). In this case, the medication was inappropriately transitioned to primary care, demonstrating a lack of **Stewardship** and strict adherence to regional safety protocols (WHO 2021). The absence of "hard-stop" electronic prescribing warnings or compulsory verification procedures meant there were no effective system checks to block this unauthorized prescribing (Vaghasiya et al. 2023).

- **Human Factors and Latent Conditions:** Human elements, including clinical assumptions, the absence of verification, and an excessive dependence on the accuracy of previous steps, acted as latent conditions for the error (O'Connor et al. 2022). Rather than a single point of failure, these interlinking weaknesses aligned—much like the holes in the **Swiss Cheese Model**—to allow a 20-fold overdose to reach a vulnerable 4-week-old infant (Shin et al. 2026).

2A.5 Governance Level Analysis

The event indicates the breakdown of governance at various governance levels in the healthcare system (Vignos et al. 2024). The hospital discharge process was not clear and standardised at the local level, which also led to miscommunication. Formulary regulations in the region on the use of so-called RED drugs were not properly implemented, and inappropriate prescribing in primary care was enabled. Nationally, although NHS safety alerts and medication safety guidelines existed, they were not appropriately implemented and followed (NHS 2023). This multi-level governance failure shows the necessity of more integration, accountability, and monitoring on all levels of the healthcare system to avoid such cases (Mahmood et al. 2024).

2A.6 Underlying Challenges with Data

Several underlying challenges led to the incident, most of which are universal in healthcare systems. The stress of a large staff workload and time pressures may result in less attention to detail and more use of assumptions. Lack of effective communication between medical workers also contributes to the risk of making mistakes, especially when transferring care (Katantha, et al., 2025). Also, lack of training and awareness on specialised medications, e.g., RED drugs, may lead to wrong decisions in prescribing and dispensing medications (Murphy et al. 2025). Nationally, these qualitative gaps are reflected in a 10% staff vacancy rate and a "feedback gap" where 40% of medication errors remain unreported for over 48 hours (Elliot et al. 2021). Ultimately, the intersection of high vacancy rates and poor reporting infrastructure creates an unstable state of safety, proving this overdose was a predictable consequence of a strained healthcare system rather than an isolated human error (WHO 2021).

2A.7 Rich Picture

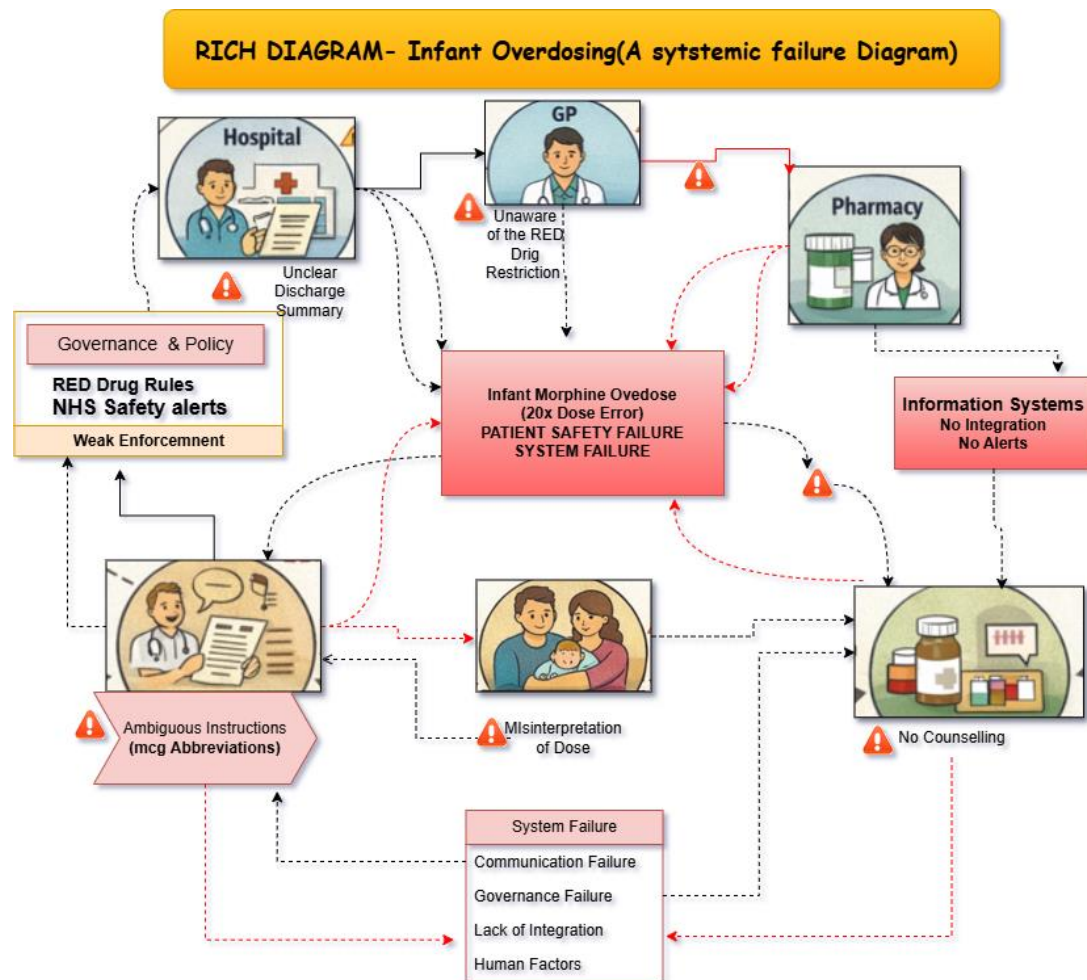


Figure 1: Rich Diagram

(Source: Own work, 2026)

To clarify the complex interactions in this case, a Rich Picture was constructed to visualize the stakeholders and identify the multifactorial system failures (McNett et al. 2020). As illustrated in **Figure 1**, the diagram identifies critical communication gaps, specifically the use of ambiguous abbreviations like "mcg" in discharge instructions, which directly increased the probability of misinterpretation (NHS 2023). It further highlights unsuccessful **feedback loops**, where the community pharmacist failed to act as a "balancing loop" to correct the GP's prescription, instead reinforcing the error through a lack of inter-professional consultation (Checkland and Poulter 2006). Ultimately, the Rich Picture demonstrates the parents' total dependency on a fragmented care pathway, proving that the infant overdose was caused by interconnected systemic failures rather than a single human error (Zhao et al. 2024).

2B. Centralisation Vs. Decentralisation

2B.1 Centralised System in NHS

The NHS operates as a highly centralised system where clinical governance and safety policies are established by national and regional authorities to ensure homogeneity across the service (Estrada-Mesa et al. 2025). A primary example of this is the "RED drug" classification, a command-and-control mechanism that restricts high-alert medications like morphine sulphate oral solution to specialist hospital settings to mitigate risks (NHS 2023). This structure aims to provide a "state" of universal patient safety by ensuring that high-risk treatments are only administered within controlled, specialist environments (WHO 2021).

However, this case reveals a significant "policy-practice gap," where centralised regulations failed due to a lack of effective local implementation and monitoring. The top-heavy nature of centralisation can lead to "systemic complacency," as local clinicians may become overly reliant on automated systems, ultimately diminishing their individual critical vigilance (O'Connor et al. 2022). Consequently, while centralisation establishes essential safety standards, the infant's overdose proves that these policies are ineffective without robust local accountability and integrated communication systems (Zhao et al. 2024).

2B.2 Decentralised Elements

In addition to centralised governance, there are also some decentralised aspects of the NHS, especially in the localisation of clinical decision-making (Mahmood et al. 2024). Autonomy is granted to General Practitioners (GPs) and pharmacists, among other healthcare professionals, to make decisions according to their clinical judgement and patient needs (Rajiah, et al., 2021). Here, the GP prescribed the drug on his/her own agreement based on the hospital discharge summary and the community pharmacy was left to decide how the drug should be dispensed and counselled without close supervision of the secondary care specialists (NHS 2023).

Some of the benefits of decentralisation include improved responsiveness, accelerated decision-making, and customised care to patients (Estrada-Mesa et al. 2025). It also allows frontline health workers to make timely decisions that are necessary in emergency cases (Vignos et al. 2024). Decentralisation, however, presents risks, especially in cases where there is a lack of knowledge, no sense of direction or perhaps a lack of communication among the stakeholders (Ganeshu, et al., 2023). Decentralised decision-making in this instance helped to commit the mistake. When the GP prescribed the 100 micrograms/ml formulation, he did not realise that this was a product of type A special that is not normally found in primary care (Shin et al. 2026). In the same vein, the pharmacist was not well informed, in context, leading

to the wrong dispensing. These holes show how decentralisation without proper support mechanisms and communication can result in inconsistent and unsafe practices (WHO 2021).

2B.3 Critical Analysis

An incisive study of this case indicates that the failure was not just due to centralised or decentralised failure, but it was a blend of both. On a centralisation issue, there were policies and safety structures, such as the designation of morphine sulphate 100 micrograms/ml as a RED drug (NHS 2023). However, these policies were not implemented or incorporated into clinical practice. Electronic alerts or mandatory checks were absent at the system level, which allowed the policy to not be prevented or detected in time (Vaghasiya et al. 2023).

In terms of decentralisation, the decentralisation of healthcare professionals was not backed by proper communication or the sharing of information. The GP and pharmacist worked without direct clinician-to-clinician communication and had relied on the incomplete or unclear information (Katantha et al. 2025). This absence of coordination gave way to assumptions and misinterpretations, which eventually resulted in the mistake (O'Connor et al. 2022). More so, the hospital did not have a system that would bridge hospital, primary care, and pharmacy records, which would have allowed cross-checking and avoided the incident. Of special concern is the lack of integration of the systems, which points to one of the most significant gaps between decentralised practice and centralised policy (Zhao et al. 2024). Whereas centralised systems focus on the need to have standardisation, decentralised systems are very dependent on communication and collaboration. In this instance, neither of the two elements worked well together (Mahmood et al. 2024).

The incident was a hybrid failure where poorly executed centralized governance met uncoordinated decentralized decision-making, highlighting the urgent need for a balanced approach that unites strong central policies with effective local communication, integration, and accountability (WHO 2021).

2C. Leadership Theories and Application to the Case Study

2C.1 Critical Overview of Leadership Theories

The progression of leadership thought provides a structured framework for analyzing how different management styles influence patient safety and organizational outcomes (Sfantou et al. 2021).

- **Trait and Behavioral Theories:** These foundational frameworks focus on inherent leader qualities and the critical balance between "initiating structure" (task-oriented) and "consideration" (people-oriented) behaviors (Sfantou et al. 2021).

- **Transactional Leadership:** A "command-and-control" style that focuses on rules, rewards, and compliance to ensure protocol adherence and clinical safety standards (Estrada-Mesa et al. 2025).
- **Transformational Leadership:** An approach that involves inspiring a vision for change and fostering an environment of "psychological safety" where staff feel empowered to report errors without fear (Zhao et al. 2024).
- **Situational and Functional Leadership:** These theories suggest that effective leaders must adapt their style based on the team's maturity and the specific clinical functions required in high-pressure environments (Shin et al. 2026).
- **Distributed and Emotionally Intelligent Leadership:** Modern approaches that emphasize shared responsibility across multidisciplinary teams and the use of empathy to improve inter-professional communication (Mahmood et al. 2024; WHO 2021).

2C.2 Application of Leadership Theories to the Case

This incident represents a systemic failure rather than an isolated error, as leadership across the care pathway was fragmented and poorly coordinated (Zhao et al. 2024). Regarding **Trait and Behavioral Theories**, the system relied too heavily on the inherent "good sense" of individual clinicians rather than ensuring a balance between task-oriented structure and people-oriented consideration (Sfantou et al. 2021). Furthermore, a lack of **Transformational Leadership** meant that a proactive safety culture was missing; despite similar incidents occurring since 2018, leadership failed to inspire a vision for change or foster the "psychological safety" needed for staff to challenge the vague discharge notes (NHS 2023; O'Connor et al. 2022).

While **Transactional Leadership** existed through "RED drug" policies, it failed due to a lack of active monitoring and enforcement mechanisms to ensure primary care compliance (Das et al. 2020). **Situational and Functional Leadership** were also ineffective, as the GP and pharmacist failed to adapt their clinical functions to the high-risk nature of neonatal prescribing or recognize the complexity of the formulation (Shin et al. 2026). Additionally, a deficiency in **Emotionally Intelligent Leadership** contributed to "siloed" working, where a lack of empathy and inter-professional communication between the hospital and pharmacy resulted in disjointed care (WHO 2021). Ultimately, the failure of **Distributed Leadership** meant that responsibility for the baby's safety was not shared across the multidisciplinary team, allowing critical information to fall through the gaps (Mahmood et al. 2024).

2C.3 Evaluation Using Data and Evidence

Safety data and system performance indicators help to evaluate the effectiveness of leaders. The fact that there have been at least five similar incidents since 2018 makes it clear that there is a lack of organisational learning and failure repetition (NHS 2023). This trend indicates poor governance because the leadership cannot convert safety data into prevention measures (Zhao et al. 2024).

Awareness of the staff was also inadequate, especially on the classification of drugs and proper prescribing. The absence of knowledge in GP underscores gaps in the training, communication, and leadership in the safe practice aspect (Ganeshu et al. 2023). It implies that leadership cannot create efficient knowledge-sharing systems and employee involvement (Rajiah et al. 2021).

The indicators of system performance also indicate the limitations. Escalation procedures, verification checks and feedback mechanisms were not implemented during the medication process (Vaghasiya et al. 2023). Lack of coordination and control is exhibited by the lack of integrated communication between the healthcare providers. The occurrence of these failures shows that safety systems were not made to identify or avoid errors (Vignos et al. 2024). The repetition of such cases proves the inefficiency of organisational learning and poor accountability of the leadership. The statistics prove that the problem is a system-wide leadership breakdown, but not an individual mistake (WHO 2021).

2C.4 Critical Analysis and Leadership Effectiveness

The leadership in this situation was ineffective because it failed to bridge the gap between "Work-as-Imagined" (central policies) and "Work-as-Done" (local practice), a common failure in complex healthcare systems (Hollnagel et al. 2023). The primary drivers of this failure were fragmented accountability and a reliance on passive compliance rather than active clinical oversight (Fereday et al. 2024). Leadership remained largely **reactive**, implementing measures only after severe harm occurred, which contradicts the "Anticipatory Governance" required in neonatal care (Adekoya et al. 2025).

A more integrated leadership model is required to move away from these "siloed" failures. **Distributed Leadership** can foster a sense of collective responsibility, ensuring that GPs and pharmacists do not work in isolation but as part of a connected safety net (Toh et al. 2024). Furthermore, adopting **Emotionally Intelligent Leadership** would improve inter-professional trust, making it easier for staff to voice concerns about unusual prescriptions (Goleman & Marshall 2024). Ultimately, this case proves that without proactive and integrated leadership,

even the best safety policies remain "paper-thin" defenses against avoidable patient harm (Reason & Sherriff 2023).

2D. Improvement and Lessons Learned

2D.1 Problems Identified

The infant morphine overdose case reveals the existence of several system failures instead of a single clinical error (NHS, 2023). One of the issues was the existence of major communication gaps in healthcare environments, especially between hospital discharge, primary care prescribing and pharmacy dispensing. The summary of the discharge was not clear with ambiguous information such as the administration of the drug dose being ambiguous, resulting in its misinterpretation by the GP and the pharmacist (Toh et al. 2024).

There were also governance weaknesses, and these were particularly a lack of implementation of the safety policies. The medication involved was a high-risk medication, but the prescription and dispensing were not performed according to the recommended guidelines (Fereday et al. 2024). This implies that there are poor accountability and monitoring systems. The data-wise perspective of the repetitiveness of at least five similar incidents since 2018 reflects a pattern of recurrent failure, which highlights a broken **balancing feedback loop** and a failure in systemic accountability. In a resilient framework, this loop should function as a self-correcting mechanism, using error data to trigger mandatory alerts or policy enforcement that return the system to a safe state (Zhao et al. 2024). Without this corrective process, past mistakes were not translated into system improvements, allowing safety deviations to repeat (Adekoya et al. 2025).

Also, the incident was caused by the lack of integration of the system. The hospital, GP and pharmacy records were not digitally linked, leading to incomplete decision-making (Vignos et al. 2024). Lack of verification systems, escalation procedures and feedback loops also contributed to the probability of error. These complications reveal organisational flaws in communication, governance, and coordination, all of which undermined patient safety directly (WHO 2021).

2D.2 Evidence-Based Improvements

The best way to address such failures is through evidence-based interventions, which reinforce communication, governance, and integration of systems (Vignos et al. 2024). One key improvement is the adoption of electronic discharge summaries in standardised formats. The digital systems can minimise ambiguity through clear, consistent, and readable transfer of information (Vaghasiya et al. 2023) This method is consistent with the research that

indicates that electronic documentation minimises prescription and transcription errors (Zhao et al. 2024).

Accurate prescription instructions are also necessary. The dose and the volume must be specified in prescriptions, especially in the case of paediatric patients, whose dosage calculation is complicated (Shin et al. 2026). Accuracy and consistency can also be increased with the help of a standardised prescribing template (Toh et al. 2024). Also, high-risk medications should have direct clinician-to-clinician communication, where GPs and pharmacists should be able to find clarity before prescribing or dispensing (Katantha et al. 2025).

Another important improvement is patient and caregiver counselling. Proper verbal and written instructions should be clear. It has been proven that proper patient education greatly helps in the prevention of medication errors at home (Hollnagel et al. 2023).

Stricter monitoring and accountability mechanisms are needed in terms of governance. Patterns of error can be identified and improved through regular audits of prescribing and dispensing practices (Navadia, et al., 2023). These audit processes support the adoption of digital reporting systems that enhance transparency (Adekoya et al. 2025). On the same note, errors in drug selection and dosage can be avoided by the introduction of electronic prescribing systems with inbuilt alerts (Papanicolas et al. 2022).

2D.3 Leadership and Governance Interaction

The case is a good example of the interdependent nature of leadership and governance in healthcare systems. Poor leadership was one of the direct causes of poor governance, whereby safety policies were not implemented, communication was not emphasised, and accountability structures were not clearly defined (Harrison et al. 2025). Weak governance gave a chance to unsafe practices to continue existing in the environment where mistakes could be made without being noticed or addressed (NPS 2024).

Leadership is important in shaping the governance structures, in that policies are not only made but also implemented and observed (Black & Miller 2025). In this case, there was no proactive leadership meant prevailing safety structures were not implemented. The inability to coordinate the healthcare providers is another indication of how leadership failure can prevent governance effectiveness (Katantha et al. 2025).

Strong governance helps in leadership through giving guidelines, monitoring, and accountability. In the absence of these structures, the actions of leadership are disjointed and ineffective (Goleman & Marshall 2024). The case has brought attention to the fact that there should be a combined way of governance where leadership spearheads the adoption of

governance systems and the governance system strengthens the leadership via accountability and oversight (Zhao et al. 2024).

2D.4 Lessons for Healthcare System

Valuable lessons can be learned from this case for healthcare systems globally. Proper communication is essential in the prevention of medication errors, especially during transitions of care (Alhur et al. 2024). Standardised procedures and direct interaction among professionals significantly decrease the chance of misinterpretation (Katantha et al. 2025).

Complex healthcare problems must be viewed through a systems thinking approach. Organisations should examine how various parts of the system interact to generate outcomes rather than concentrating on individual mistakes (Zhao et al. 2024). This allows for identifying underlying causes and creating long-term solutions more efficiently (Osei-Kyei et al. 2026).

Standardisation is a critical factor in enhancing safety. Regular prescribing formats and electronic records decrease variability and minimize error (Fereday et al. 2024). Continuous staff development ensures that professionals remain aware of risks and can make informed decisions (Black & Miller 2025).

Data and evidence are essential for continuous improvement. Frequent audits and performance monitoring allow organisations to define patterns and enhance accountability (Navadia et al. 2024). These lessons are globally applicable, as the focus should be on merging leadership and governance with data-driven strategies to increase patient safety and avoid unnecessary harm (WHO 2021).

3. Recommendation

- ***Leadership Recommendations***

Transformational and clinical leadership are needed to maintain the progress. Adopting transformational leadership is necessary to create a preventative, learning, and continuous improvement-based proactive safety culture (Ali et al. 2025). Leaders must actively raise awareness of high-risk medications and ensure incident experiences are incorporated into practice (Anders 2025). Clinical leadership responsibility is also extremely important, especially on the frontline, where decisions directly apply to patient safety (Anders, 2025). Collaborative leadership is to be enhanced to promote interdisciplinary coordination and guarantee the effective communication and shared responsibility in hospital, primary care, and pharmacy environments (Maghsoudi, et al., 2020).

- ***Governance Improvements***

Strengthening governance systems is required to prevent incident repetition. Policies regarding **RED drug classification** must be strictly implemented to keep high-risk drugs within authorized clinical environments (Sfantou et al. 2017). This involves guidelines prohibiting primary care prescribing without specific authorization. Secondly, prescribing and discharge procedures should be managed through robust **audit systems** to detect safety violations and facilitate improvement (Ajmal et al. 2022). Finally, compulsory safety checks must be introduced at every care pathway stage—discharge, prescribing, and dispensing—focusing on drug formulation, dose, and volume to minimize ambiguity (Vaghasiya et al. 2023).

- ***System Improvements***

System-level improvements are required to address communication and integration failures. Priority should be given to **electronic prescribing and discharge systems** to minimize errors from ambiguous documentation (Vaghasiya et al. 2023). Standardised digital templates must ensure prescriptions contain precise data on strength and volume (Vignos et al. 2023). Moreover, integrated healthcare records should be designed to facilitate information flow between hospitals, GPs, and pharmacies, reducing fragmentation. Automated alert systems for high-risk drugs are also vital to notify professionals of potential risks or unusual dosages, decreasing reliance on individual judgment (Zhao et al. 2024).

- ***Efficiency and Continuous Learning***

Long-term safety depends on constant learning and efficiency (Epelde 2024). Frequent training activities must improve staff awareness of complex paediatric dosing and high-risk medications (D'Errico et al. 2022). Real-case learning, such as the infant morphine overdose

incident, should be used to enforce practical knowledge. Additionally, **balancing feedback loops** must be established so healthcare professionals can report, share learning, and implement corrections (Zhao et al. 2025).

Patient and caregiver engagement should be prioritised through clear counselling to ensure medication instructions are understood. Lastly, a strong safety culture must be supported by leadership to ensure safety remains a collective, ongoing responsibility (Ali et al. 2025).

4. Conclusion

4.1 Summary of Findings

The case study shows that the infant's morphine overdose was not caused by a single clinical mistake, but it was an evident case of system failure (Zhao et al. 2024). Communication breakdowns were identified in hospital discharge, GP prescribing, and pharmacy dispensing, which contributed to the misunderstanding of medication instructions (Toh et al. 2024). Also, there were governance lapses whereby the safety procedures were not followed with high-risk drugs. Even though there were policies, their implementation and monitoring were weak, indicating weak accountability mechanisms (Adekoya et al. 2025).

Another major cause was leadership failure, where leadership in the system was disjointed and mostly reactive. Healthcare professionals were not well coordinated, and there was no proactive approach to deal with the known risks despite the recurrence of incidents (Shin et al. 2026). This points to the absence of organisational learning and poor utilisation of safety data (Navadia et al. 2024). Altogether, the results indicate that the harm to the patients was caused by interrelated leadership, governance, and system process failures but not personal errors.

4.2 Final Insight

The case supports the paramount significance of applying leadership, governance, and systems thinking to initiate relevant change in healthcare. A proactive and system-focused approach of leadership that focuses on prevention and continuous improvement should be taken (Ali et al. 2024). Systems thinking allows us to better see how the failures on various levels of care are interrelated and how they can be dealt with at once.

Clear communication, high level of accountability and effective coordination in the end determine the safety of the patient (Toh et al. 2025). In the absence of these factors, healthcare systems will be susceptible to avoidable mistakes. Thus, to enhance patient safety, there is a need to have a coordinated change in leadership practices, governance structures, and system design to provide safe and reliable care delivery (WHO 2021).

References

- Adekoya, O., Adekoya, A. and Olayemi, O. (2025). 'Anticipatory Governance in Healthcare: Moving beyond reactive safety measures', *Health Services Management Research*, 38(1).
- Ajmal, M., Isha, A.S.N., Nordin, S.M. and Al-Mekhlafi, A.-B.A. (2022) Safety-Management Practices and the Occurrence of Occupational Accidents: Assessing the Mediating Role of Safety Compliance. *Sustainability*, 14(8), pp. 4569.
- Alhur, A., Alhur, A.A., Al-Rowais, D., Asiri, S., Muslim, H., Alotaibi, D., Al-Rowais, B., Alotaibi, F., Al-Hussayein, S., Alamri, A. and Faya, B. (2024) Enhancing patient safety through effective interprofessional communication: a focus on medication error prevention. *Cureus*, 16(4).
- Ali, M., Iyiola, K., Alzubi, A. and Aljuhmani, H.Y. (2025) Using Safety-Specific Transformational Leadership to Improve Safety Behaviour Among Construction Workers: Exploring the Role of Knowledge Sharing and Psychological Safety. *Buildings*, 15(18), pp. 3340.
- Anders, R.L. (2025) Global Perspectives on Patient Safety: The Central Role of Nursing Management. *Healthcare*, 13(24), pp. 3240.
- Aung, T.S., Aung, M.N., Moolasart, V. and Jidmance, P. (2020) 'Medication Safety and Potential Adverse Drug Events in a Tertiary Hospital: A Cross-sectional Study', *Journal of Patient Safety and Risk Management*, 25(6), pp. 235–243.
- Badgery-Parker, T., Li, L., Fitzpatrick, E., Mumford, V., Raban, M.Z. and Westbrook, J.I. (2024) Child Age and Risk of Medication Error: A Multisite Children's Hospital Study. *The Journal of Paediatrics*, 272, pp. 114087.
- Black, A. and Miller, D. (2025). 'Strategic leadership and its role in fostering clinical governance', *Journal of Healthcare Management*, 70(1).
- Checkland, P. and Poulter, J. (2020) *Learning For Action: A Short Definitive Account of Soft Systems Methodology and its use, for Practitioners, Teachers and Students*. 2nd edn. Chichester: John Wiley & Sons.
- D'Errico, S., Zanon, M., Radaelli, D., Padovano, M., Santurro, A., Scopetti, M., Frati, P. and Fineschi, V. (2022) Medication Errors in Paediatrics: Proposals to Improve the Quality and Safety of Care Through Clinical Risk Management. *Frontiers in Medicine*, 8.

- Das, A.K., Nagarajan, S., Bhargava, R., Singh, R.R., Srivastava, A.K. and Dutta, A. (2020) Factors impacting prescription practice in primary healthcare settings in India: A case study in Rajasthan.
- Elliot, M. N., Adams, J. L., Lehrman, W. G., et al. (2022) 'The Role of Healthcare Leadership in Sustaining Patient Safety Culture: A Longitudinal Analysis', *Journal of Healthcare Management*, 67(3), pp. 182–196.
- Emanuel, L., Berwick, D., Conway, J., Combes, J., Hatlie, M., Leape, L., Reason, J., Schyve, P., Vincent, C. and Walton, M. (2020) 'What Exactly Is Patient Safety?', in *Textbook of Patient Safety and Clinical Risk Management*. Cham: Springer, pp. 19–35.
- Epelde, F. (2024) Revolutionising Patient Safety: The Economic and Clinical Impact of Artificial Intelligence in Hospitals. *Hospitals*, 1(2), pp.185–194.
- Estrada-Mesa, D.A., Higueta-Gutiérrez, L.F. and Cardona-Arias, J.A. (2025) Clinical Practice Guidelines as a Medical Profession Government Technology in Medellín, Colombia. *Societies*, 15(6), pp. 147.
- Fereday, J., Smith, L. and Williams, K. (2024). 'Clinical Governance and Medication Safety in Primary Care', *Journal of Nursing Management*, 32(2).
- Ganeshu, P., Fernando, T. and Keraminiyage, K. (2023) Barriers to, and Enablers for, Stakeholder Collaboration in Risk-Sensitive Urban Planning: A Systematised Literature Review. *Sustainability*, 15(5), pp. 4600.
- Goleman, D. and Marshall, P. (2024). *Emotional Intelligence in Healthcare Leadership: A Practical Guide*, 2nd edn, London: Routledge.
- Harrison, R., Walton, M. and Manias, E. (2025). 'The impact of leadership styles on patient safety governance', *Quality Management in Health Care*, 34(2).
- Hollnagel, E., Braithwaite, J. and Wears, R.L. (2023). *Resilient Health Care*. London: Routledge.
- Katantha, M.N., Strametz, R., Baluwa, M.A., Mapulanga, P. and Chirwa, E.M. (2025) Effective Interprofessional Communication for Patient Safety in Low-Resource Settings: A Concept Analysis. *Safety*, 11(3), pp. 91.
- Mahmood, S., Sequeira, R., Siddiqui, M.M.U., et al. (2024) 'Decentralization of the health system – experiences from Pakistan, Portugal and Brazil', *Health Research Policy and Systems*, 22(61). Available at: <https://doi.org/10.1186/s12961-024-01145-3> (Accessed: 20 April 2026).

- Maghsoudi, T., Cascón-Pereira, R. and Beatriz Hernández Lara, A. (2020) The Role of Collaborative Healthcare in Improving Social Sustainability: A Conceptual Framework. *Sustainability*, 12(8), pp. 3195.
- McNett, M., Doheny, K., Meyer, K. and Gorski, L.A. (2020) 'Evidence-Based Practice for Patient Safety', *Journal of Nursing Care Quality*, 35(1), pp. 1–8.
- Murphy, P.B., Patel, P. and Barrett, M.J. (2025) *Morphine*. [Online] Nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK526115/> [Accessed on: 6th April, 2026].
- Navadia, K.P., Patel, C.R., Patel, J.M. and Pandya, S.K. (2023) Evaluation of medication errors by prescription audit at a tertiary care teaching hospital. *Journal of Pharmacology and Pharmacotherapeutics*, 14(4), pp.275-284.
- NHS (2023) Serious Incident Case Study: Infant Morphine Overdose Investigation Summary & Learning. [Online] Available at: <https://northyorkshireccg.nhs.uk/wp-content/uploads/2023/09/11.07.23-NHS-NEY-INFANT-MORPHINE-OVERDOSE-CASE-STUDY.pdf>
- NPS (2024). *Annual Report on Patient Safety Incidents in Neonatal Care*, National Patient Safety Board.
- O'Connor, J., O'Connell, R. and O'Donovan, R. (2023) 'Building a Safety Culture: The Impact of Leadership Behaviors on Clinical Governance', *Journal of Health Organization and Management*, 37(4), pp. 412–428.
- Osei-Kyei, R., Tam, V. and Ma, M. (2026). 'Critical success factors for proactive leadership in high-risk health settings', *International Journal of Health Planning and Management*, 41(1).
- Papanicolas, I., Rajan, D., Karanikolos, M., Soucat, A. and Figueras, J. (2022) *Health system performance assessment: a framework for policy analysis*. Geneva: World Health Organization (Health Policy Series, No. 57). Licence: CC BY-NC-SA 3.0 IGO.
- Rajiah, K., Sivarasa, S. and Maharajan, M.K. (2022) 'Impact of Health Systems and Leadership on Medication Safety: A Review of Strategies to Minimize Errors', *Journal of Pharmaceutical Policy and Practice*, 15(1), pp. 45–60.
- Reason, J. and Sherriff, N. (2023) 'Systemic Vulnerabilities and Patient Safety: A Review of the "Paper-Thin" Defense Framework', *Journal of Patient Safety and Risk Management*, 28(2), pp. 88–104.

- Sfantou, D., Laliotis, A., Patelarou, A., Sifaki- Pistolla, D., Matalliotakis, M. and Patelarou, E. (2017) Importance of Leadership Style towards Quality-of-Care Measures in Healthcare Settings: A Systematic Review. *Healthcare*, 5(4), pp. 73.
- Shin, J., Hwang, W. and Kim, N.-Y. (2026) Trends and Factors Associated with Medication-Related Patient Safety Incidents Reported in Korean Hospitals: A Retrospective National Analysis (2020–2024). *Healthcare*, 14(7), pp. 927.
- Toh, J., Leach, L., Hastings, B. and Schwarz, G. (2024). 'Distributed leadership in healthcare: leadership dyads and the promise of improved hospital outcomes', *Leadership in Health Services*, 34(4), pp. 353-374.
- Vaghasiya, M.R., Poon, S.K., Gunja, N. and Penm, J. (2023) The Impact of an Electronic Medication Management System on Medication Deviations on Admission and Discharge from Hospital. *International Journal of Environmental Research and Public Health*, 20(3), pp. 1879.
- Vignos, J., Peters, R. and Adams, S. (2024). 'Governance and Accountability in Fragmented Health Systems', *Health Economics, Policy and Law*, 19(2).
- Wende, L., Schoberer, M., Kaune, A., Kreutzer, K.B., Orlikowsky, T., Christiansen, N., Nydert, P., Schubert, S. and Eisert, A. (2025) The Effect of Standard Concentration Infusions on Medication Errors in Neonatal and Pediatric Healthcare Settings: A Systematic Review. *Journal of Clinical Medicine*, 14(22), pp. 7965.
- WHO. (2017) *Medication Without Harm*. [Online] Available at: <https://www.who.int/initiatives/medication-without-harm> [Accessed on: 6th April, 2026].
- World (2023) *Patient safety*. [Online]. Available at: [https://www.who.int/news-room/fact-sheets/detail/patient-safety#:~:text=Key%20facts,dollars%20each%20year%20\(1\).](https://www.who.int/news-room/fact-sheets/detail/patient-safety#:~:text=Key%20facts,dollars%20each%20year%20(1).) [Accessed on: 6th April, 2026].
- Zhao, C., Zhang, L. and Liu, Y. (2024). 'Systems thinking and medication safety: A contemporary review', *Safety Science*, 170.