

MSc Public Health and Social Care in Practice
Health Care System Organization and Leadership
LCHS7002



Case study – 1
Morphine Overdose in Infant

Case Study Analysis Report

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INTRODUCTION (Case Study Report)

Healthcare systems in the United Kingdom are complex, adaptive, and highly interdependent, involving multiple professionals, organisations, and processes working together to deliver safe and effective patient care. Within such systems, patient safety is a fundamental priority due to the potential for harm when failures occur at any stage of care delivery. Medication safety is particularly critical, as errors in prescribing, dispensing, or administration can result in severe adverse outcomes, especially in vulnerable populations such as neonates. The World Health Organization identifies medication errors as one of the leading causes of preventable harm worldwide, emphasising the importance of strong systems, governance structures, and leadership in reducing such risks.

This report is based on a serious incident within the NHS England involving a neonatal morphine overdose. A 4-week-old infant was inadvertently administered a dose of morphine sulphate oral solution that was approximately twenty times higher than intended. The error occurred due to the prescribing of an incorrect formulation (10mg/5ml instead of 100 micrograms/ml), unclear communication during discharge from hospital to primary care, and insufficient verification at the pharmacy level. Although the infant survived following emergency treatment with naloxone, the incident highlights a significant failure in the healthcare delivery system. Importantly, similar incidents have been reported previously, indicating that this is not an isolated event but part of a recurring patient safety issue within the NHS.

Leadership plays a crucial role in shaping healthcare outcomes and ensuring patient safety. In healthcare contexts, leadership refers to the ability to influence individuals, teams, and organisations to achieve shared goals and improve service delivery. Effective leadership ensures coordination across different levels of care, promotes accountability, and fosters a culture of safety. Poor leadership, however, can contribute to fragmented communication, weak oversight, and increased risk of errors. According to Northouse (2022), leadership is not limited to positional authority but involves influencing behaviour and decision-making at all levels of an organisation. In healthcare systems such as the NHS, leadership is therefore essential in ensuring safe and coordinated patient care across complex organisational structures.

Several leadership theories are relevant to understanding healthcare performance and patient safety. Transformational leadership focuses on inspiring and motivating healthcare professionals to improve performance and adopt a shared vision of safety and quality care. Transactional leadership is based on structured processes, rules, and compliance with policies, which is particularly important in high-risk clinical environments. Situational leadership emphasises adaptability, allowing leaders to adjust their approach depending on the context and competence of staff. In addition, servant leadership prioritises the needs of patients and staff, promoting collaboration and ethical decision-making. These leadership approaches provide important frameworks for analysing how organisational behaviour influences patient outcomes and safety culture within healthcare systems.

Alongside leadership, governance structures and organisational design significantly influence healthcare delivery. The NHS operates within a semi-centralised system, where national policies are set centrally but implemented locally by trusts, general practitioners, and community services. This balance between centralisation and decentralisation can create both

strengths and weaknesses. While centralisation ensures consistency in standards and policy implementation, decentralisation allows flexibility in clinical decision-making. However, misalignment between these levels can lead to communication gaps and accountability issues, as demonstrated in medication safety incidents.

Systems thinking is also essential in understanding healthcare failures. Rather than attributing errors solely to individual performance, systems thinking examines how interactions between people, processes, and organisational structures contribute to outcomes. In medication safety incidents, failures often arise due to breakdowns in communication, poor information transfer between care settings, and inadequate system safeguards. The work of Senge (2006) emphasises that system behaviour is shaped by interrelated components and feedback loops, highlighting the need for integrated approaches to problem-solving in healthcare.

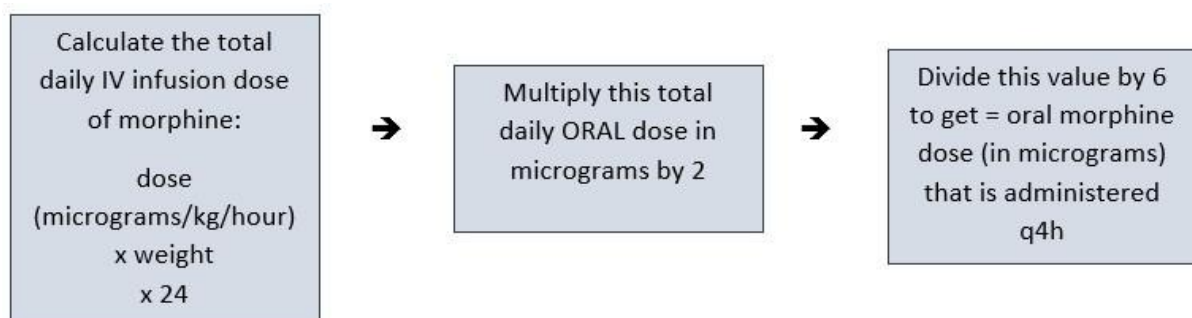
The aim of this assignment is to critically analyse the neonatal morphine overdose case using leadership theories, governance frameworks, and systems thinking approaches. It will examine how organisational structure, communication failures, and leadership practices contributed to the incident. The report will also evaluate the impact of centralisation and decentralisation within the NHS, assess the effectiveness of different leadership styles, and explore systemic weaknesses in patient safety processes. Finally, it will provide evidence-based recommendations to improve governance, strengthen leadership, and enhance patient safety across healthcare systems.

2.1 Problem Identification and System Context

2.1.1 Case Overview

The case under analysis involves a serious patient safety incident within the NHS England, where a 4-week-old infant was administered a significantly higher dose of morphine sulphate oral solution than intended. The infant received approximately twenty times the prescribed dose due to a medication error involving the incorrect formulation of morphine. Specifically, the infant was supplied with a 10mg/5ml solution instead of the intended 100 micrograms/ml preparation. This resulted in a potentially life-threatening overdose, requiring emergency treatment with naloxone.

The error originated from a handwritten hospital discharge summary, which lacked clarity in specifying the drug strength and dosage instructions. The discharge information was communicated to the general practitioner (GP), who prescribed the medication based on the information provided without recognising the discrepancy in formulation. The prescription was then dispensed by a community pharmacy, where the error was not identified. Finally, the parents administered the medication incorrectly due to unclear instructions and lack of proper counselling. This sequence of events highlights a multi-level failure across the healthcare system, rather than a single point of error.



Conversion of IV Morphine to Oral Morphine

The Royal Children's Hospital, Melbourne

◇ 2.1.2 Patient Safety Problem (UK Context)

Medication errors represent a significant challenge within the UK healthcare system, particularly in high-risk groups such as neonates. According to the World Health Organization, medication-related harm is one of the leading causes of avoidable injury globally, and similar concerns are reflected within NHS patient safety reports. In the UK, medication incidents are among the most frequently reported patient safety events, with thousands of cases recorded annually through national reporting systems.

Neonates are especially vulnerable to medication errors due to the need for weight-based dosing, small therapeutic margins, and reliance on caregivers for drug administration. In this case, the use of morphine, a high-risk opioid, further increased the potential for harm. National data indicate that errors involving opioids are associated with a higher likelihood of severe harm or fatality. The recurrence of similar incidents involving morphine overdoses in infants suggests systemic weaknesses in medication safety practices within the NHS, rather than isolated human errors.

NON CANCER CHRONIC PAIN IN ADULTS OPIOID EQUIVALENCE, RISKS AND RECOMMENDATIONS ¹⁻³					
OPIOID	Dose of stated opioid approximately equivalent in oral morphine equivalent dose/day (MED/d)				
	Oral morphine < 50 mg per day	Oral morphine 50 – <100 mg per day	Oral morphine 100mg per day	Oral morphine 120mg per day	Oral morphine 200 mg per day
Oxycodone	<12.5 mg bd = <50 mg	< 25 mg bd = <100 mg	25 mg bd = 100 mg	30 mg bd = 120 mg	50 mg bd = 200 mg
Fentanyl transdermal patch	12 mcg/hr = 45 mg	25 mcg/hr = 90 mg	25 mcg/hr = 90 mg	50 mcg/hr = 180 mg	75 mcg/hr = 270 mg 100 mcg/hr = 360 mg
Buprenorphine transdermal patch	20 mcg/hr = 48 mg 10 mcg/hr = 24 mg	35 mcg/hr = 84 mg	35 mcg/hr = 84 mg	52 mcg/hr = 126 mg	70 mcg = 168 mg
Tapentadol	50 mg bd = 40 mg	100 mg bd = 80 mg	100 mg bd = 80 mg	150 mg bd = 120 mg	250 mg bd = 200 mg
Tramadol	50 mg qds = 30 mg	100 mg qds = 60 mg			
Codeine	60 mg qds = 24 mg				
RISK OF HARM Patient factors: Pregnancy, age ≥65, anxiety or depression, overdose history, personal or family history of alcohol, substance/opioid misuse, renal & hepatic impairment, COPD or underlying respiratory conditions. Drug factors: Multiple opioids, multiple formulations of opioids, more potent opioids, concurrent prescriptions of benzodiazepines/CNS depressants. • Dosages ≥ 120 mg oral MED the risk of harm is substantially increased without increased benefit. • Opioid related overdose risk is dose-dependent. • Dosages of 50-<100 mg MED/d increases the risk for opioid overdose by factors of 1.9 to 4.6 compared with 1-<20 mg MED/d. • Dosages ≥ 100 mg MED/d increases the risk of overdose significantly: 2.0-8.9 compared with 1-<20 mg MED/d. DRIVING • Patients may be particularly vulnerable to impairment when first starting a pain medication, following dose adjustments (up or down), when another drug is added or opioid taken in conjunction with alcohol. • All opioid medicines have the potential to impair driving. A patient on high dose morphine (around 200-220 mg/ 24 hours) driving could be as impaired as someone with blood alcohol around the level above which it is illegal to drive. Alcohol and sedatives may impair driving at a lower morphine dose.					
RECOMMENDATIONS Undertake polypharmacy medication review, assess whether benefits outweigh risks & opioid trial goals still being met. Consider opioid tapering and discontinuation. There may be a role for medium term, low dose opioid therapy in carefully selected patients who can be monitored. Provide patient information leaflets. Further information: WSCCG Opioid Tapering Resource Pack.					
RESOURCE WSCCG Opioid Tapering Resource Pack References 1. Opioids Aware 2. CDC Guidelines for Prescribing Opioids for Chronic Pain United States 2016, 3 IASP Statement on Opioids 2018					
			Produced by the WSCCG Medicines Management Team and West Suffolk Integrated Pain Management Service. Version 1 March 2018. Review date: March 2020. Final 23.3.18		

MORPHINE PRESCRIBING GUIDELINE

Live Well With Pain

◇ 2.1.3 System Context and Contributing Factors

From a systems perspective, this incident can be understood as a failure of interconnected processes across multiple levels of care. The patient journey involved several transitions, including hospital discharge, GP prescribing, pharmacy dispensing, and home administration by parents. At each stage, there were opportunities to identify and correct the error; however, these opportunities were missed due to breakdowns in communication and verification processes.

The initial failure occurred at the hospital level, where a handwritten discharge summary was used instead of an electronic system. The lack of standardisation and clarity in the discharge documentation contributed to misinterpretation by the GP. The use of abbreviations such as “mcg” further increased the risk of confusion. At the primary care level, the GP was unaware of the availability of the lower-strength morphine formulation and prescribed a higher-strength product based on incomplete information. This highlights a gap in knowledge and system support for prescribing decisions.

At the pharmacy level, the error was not identified despite queries being raised. Communication between the pharmacy and GP occurred indirectly through non-clinical staff, which limited the effectiveness of the clarification process. Additionally, insufficient counselling was provided to the parents, who were not adequately informed about the correct dosage and administration method. As a result, the parents administered a significantly higher volume of the medication, leading to overdose.

◇ 2.1.4 Systems Thinking Analysis

Applying systems thinking to this case reveals that the error was not caused by a single individual but by the interaction of multiple system failures. Systems thinking emphasises that outcomes are shaped by relationships between different components, including people, processes, and organisational structures. In this case, the lack of integration between hospital, primary care, and pharmacy systems created gaps in communication and accountability.

One key issue is the absence of effective feedback loops within the system. For example, when the pharmacy identified a potential issue with the prescription, the communication pathway did not allow for direct and timely discussion with the prescribing clinician. This prevented effective resolution of the problem. Similarly, there was no mechanism to ensure that parents fully understood the medication instructions before administration.

Another important factor is the fragmentation of healthcare delivery across different settings. While the NHS operates under a unified framework, care is delivered by multiple independent organisations, including hospitals, GP practices, and community pharmacies. Without strong coordination and shared information systems, this fragmentation can lead to inconsistencies and errors. The lack of electronic prescribing and integrated patient records in this case contributed significantly to the failure.

◇ 2.1.5 Governance and Organisational Context

Governance structures play a critical role in ensuring patient safety by establishing clear policies, accountability, and oversight mechanisms. In this case, the failure to adhere to governance protocols related to “RED drugs” was a significant contributing factor. RED drugs are intended to be prescribed and managed within specialist settings, and their use in primary care should be restricted. However, this policy was not effectively enforced, allowing the error to occur.

The incident also highlights weaknesses in clinical governance, including inadequate risk management, lack of standardised procedures, and insufficient training of staff. According to the Care Quality Commission, strong governance systems are essential for maintaining safety and quality in healthcare services. The failure to implement robust governance measures in this case suggests gaps in organisational leadership and oversight.

◇ 2.1.6 Summary of Problem

In summary, the neonatal morphine overdose case represents a complex patient safety failure involving multiple interacting factors. The problem cannot be attributed to a single error but rather to a combination of communication breakdowns, system weaknesses, governance failures, and human factors. The case demonstrates how fragmented healthcare systems, inadequate leadership, and poor coordination can lead to serious adverse events. Understanding these interconnected issues is essential for developing effective strategies to improve patient safety and prevent similar incidents in the future.

2.2 Centralisation vs Decentralisation in the Case Study

2.2.1 Understanding System Structure in the NHS

The healthcare system in the United Kingdom operates under a hybrid structure that combines elements of both centralisation and decentralisation. The NHS England sets national policies, clinical guidelines, and safety standards, while local organisations such as NHS Trusts, General Practitioner (GP) practices, and community pharmacies are responsible for implementing these policies in practice. This structure aims to balance consistency in care delivery with flexibility in local decision-making.

Centralisation refers to a system where decision-making authority is concentrated at higher organisational levels, ensuring uniform standards and control. In contrast, decentralisation distributes authority across different levels, allowing local teams to make decisions based on specific patient and contextual needs. In the context of this case study, both elements were present; however, the interaction between them contributed to system failure rather than supporting safe care delivery.

2.2.2 Centralisation in the Case Study

Centralisation within the NHS is evident through national policies related to medication safety, prescribing guidelines, and classification of high-risk drugs such as “RED drugs.” These drugs are intended to be prescribed and managed within specialist (secondary care) settings only. The existence of such policies reflects a centralised approach aimed at reducing risk and ensuring patient safety.

In this case, the classification of morphine sulphate 100 micrograms/ml as a RED drug represents a centralised governance control designed to prevent inappropriate prescribing in primary care. However, despite this policy, the drug was indirectly prescribed through GP services, demonstrating a failure in policy enforcement. This highlights one of the key limitations of centralisation: policies alone are insufficient without effective implementation and monitoring.

Another example of centralisation is the reliance on standardised discharge procedures and prescribing frameworks. However, the use of a handwritten discharge summary instead of a standardised electronic system shows inconsistency in applying centralised protocols. The absence of digital systems reduced clarity, increased the risk of misinterpretation, and contributed directly to the prescribing error.

◇ **Advantages of Centralisation (in theory)**

- Ensures standardisation of clinical practices and safety protocols
- Provides clear guidelines for high-risk medications
- Enhances accountability through structured governance systems

◇ **Disadvantages observed in this case**

- Lack of flexibility in adapting policies at local level
- Weak enforcement of safety protocols (e.g., RED drug rules)
- Over-reliance on policy without system integration

Evidence from the Care Quality Commission suggests that while national standards improve consistency, gaps in implementation at local levels often lead to patient safety incidents.

◇ **2.2.3 Decentralisation in the Case Study**

Decentralisation is reflected in the autonomy given to healthcare professionals across different care settings. In this case, decision-making was distributed across hospital clinicians, GPs, pharmacists, and parents. Each stakeholder had a role in the medication process, including prescribing, dispensing, and administration.

The GP independently interpreted the discharge summary and issued a prescription based on available information. Similarly, the community pharmacists made dispensing decisions and communicated with the GP practice. This level of autonomy is a key feature of decentralised systems, allowing professionals to respond to patient needs efficiently.

However, decentralisation also introduces variability in knowledge, decision-making, and communication practices. In this case, the GP was unaware of the specific morphine formulation, and the pharmacists lacked familiarity with the “specials” product. This knowledge gap demonstrates a limitation of decentralisation, where inconsistent expertise can increase the risk of errors.

Additionally, the lack of direct communication between clinicians further weakened the system. Instead of direct GP-to-pharmacist interaction, communication occurred indirectly through administrative staff, reducing clarity and increasing the likelihood of misunderstanding.

◇ **Advantages of Decentralisation**

- Enables quicker decision-making at the local level
- Allows flexibility in responding to individual patient needs
- Encourages professional autonomy and responsibility

◇ Disadvantages observed in this case

- Variability in knowledge and clinical expertise
- Poor communication between different care providers
- Lack of coordinated accountability across system levels

The National Institute for Health and Care Excellence emphasises that decentralised systems require strong communication and coordination mechanisms to ensure patient safety.

◇ 2.2.4 Critical Comparison and Impact on the Incident

The interaction between centralisation and decentralisation in this case study reveals a misalignment that contributed significantly to the incident. While centralised policies existed to prevent such errors, decentralised implementation led to inconsistent application of these policies.

For example, although RED drug policies were designed to restrict prescribing to secondary care, the lack of system controls allowed the GP to prescribe the medication in primary care. This demonstrates a failure of integration between centralised governance and decentralised practice.

Furthermore, the absence of integrated electronic systems meant that information was not effectively shared across different levels of care. Data from NHS patient safety reports indicate that communication failures are a leading cause of medication errors in the UK. In this case, the lack of shared digital records and real-time verification systems allowed the error to pass through multiple stages without detection.

Numerical evidence from UK healthcare reports highlights that medication errors contribute to thousands of preventable incidents annually, with a significant proportion linked to prescribing and communication issues. These findings support the argument that both centralised and decentralised systems must be effectively aligned to ensure safe healthcare delivery.

◇ 2.2.5 Key Evaluation

Overall, the case demonstrates that neither centralisation nor decentralisation alone is sufficient to ensure patient safety. Instead, a well-integrated system that combines strong central governance with effective local implementation is required.

In this case:

- Centralised policies were present but poorly enforced
- Decentralised decision-making lacked coordination and communication
- System integration was weak, particularly in information sharing

The failure to balance these elements resulted in gaps in accountability, communication breakdowns, and ultimately a serious patient safety incident.

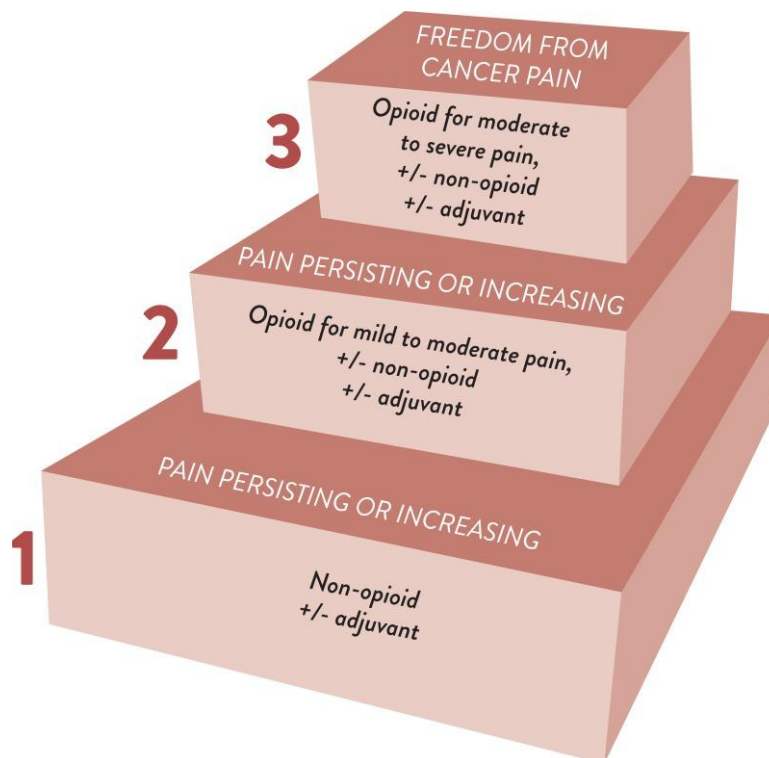
◇ 2.2.6 Link to System Performance

The effectiveness of any healthcare system depends on how well its structure supports safe and efficient care delivery. This case highlights that system design directly influences outcomes. Poor alignment between centralised governance and decentralised practice can lead to inefficiencies, increased risk, and reduced quality of care.

Strengthening this alignment requires:

- Better integration of digital health systems
- Clearer communication pathways between healthcare providers
- Stronger enforcement of national safety policies

These factors are essential for improving system performance and preventing similar incidents in the future.



ANALGESIC LADDER

2.3 Leadership Theories and Application to the Case

2.3.1 Role of Leadership in Healthcare Systems

Leadership is a central factor in determining the safety, quality, and effectiveness of healthcare systems. In complex organisations such as the NHS England, leadership is not limited to senior management but is distributed across multiple levels, including clinicians, pharmacists, and administrative staff. Effective leadership ensures coordination, accountability, and a culture that prioritises patient safety. In contrast, weak or ineffective leadership can contribute to communication failures, lack of oversight, and increased risk of adverse events.

In the neonatal morphine overdose case, leadership failures were evident across multiple levels of the system. There was a lack of clear direction, inadequate communication between professionals, and insufficient emphasis on safety protocols. These issues indicate not only operational weaknesses but also deeper leadership challenges within the system.

2.3.2 Transformational Leadership

Transformational leadership focuses on inspiring and motivating staff to achieve a shared vision, particularly in improving quality and patient safety. Leaders adopting this style encourage innovation, promote teamwork, and create a strong safety culture. According to Northouse (2022), transformational leaders influence organisational change by aligning individual goals with organisational objectives.

In this case, the absence of transformational leadership is evident. There was no clear emphasis on patient safety culture across the system. For example, the lack of awareness among healthcare professionals regarding high-risk “RED drugs” suggests insufficient training and engagement. A transformational leader would have prioritised staff education, encouraged open communication, and ensured that all team members understood the risks associated with such medications.

Data from the Care Quality Commission indicates that organisations with strong safety cultures and leadership engagement report fewer patient safety incidents. This suggests that a more transformational approach could have reduced the likelihood of this error by promoting vigilance and shared responsibility.

◇ 2.3.3 Transactional Leadership

Transactional leadership is based on structure, rules, and compliance. It emphasises clear roles, accountability, and adherence to established procedures. In healthcare, this style is particularly important for ensuring compliance with clinical guidelines, especially in high-risk situations involving medications.

In this case, transactional leadership mechanisms were present but poorly implemented. Policies regarding RED drugs existed, but there was inadequate enforcement and monitoring. The failure to follow standard procedures, such as specifying drug strength clearly and ensuring proper verification, indicates a breakdown in transactional leadership.

For example:

- The discharge summary did not follow standard documentation protocols
- The GP prescribed medication without verifying formulation details
- The pharmacy did not ensure accurate labelling and counselling

These failures suggest that although rules were in place, leadership did not ensure compliance. According to the National Institute for Health and Care Excellence, adherence to structured medication safety protocols is essential to reduce errors. Strong transactional leadership could have ensured stricter compliance and reduced variability in practice.

◇ 2.3.4 Situational Leadership

Situational leadership emphasises flexibility, where leaders adapt their style based on the context and the competence of their team. In healthcare settings, this is particularly important due to the dynamic and unpredictable nature of clinical environments.

In this case, leadership responses were largely reactive rather than adaptive. There was no evidence of proactive decision-making or adjustment of leadership approaches based on the complexity of the situation. For instance, prescribing a high-risk medication for a neonate requires heightened awareness and careful verification. However, the GP and pharmacy teams did not adjust their approach to reflect the high-risk nature of the case.

Situational leadership would have required:

- Increased supervision and verification for high-risk prescriptions
- Direct communication between clinicians instead of indirect messaging
- Greater attention to patient-specific factors, such as age and weight

The absence of such adaptive behaviour indicates a limitation in leadership effectiveness within the system.

◇ 2.3.5 Servant and Distributed Leadership

Servant leadership focuses on prioritising the needs of patients and supporting staff to deliver high-quality care. It promotes empathy, communication, and collaboration. Similarly, distributed leadership recognises that leadership responsibilities are shared across teams rather than concentrated in one individual.

In this case, both servant and distributed leadership were weak. The system failed to prioritise the patient's safety at multiple levels. For example, insufficient counselling of the parents reflects a lack of patient-centred care. Additionally, poor collaboration between healthcare professionals indicates a failure in distributed leadership.

Effective distributed leadership would have ensured:

- Clear communication between hospital, GP, and pharmacy
- Shared accountability for patient safety
- Collaborative problem-solving when concerns were raised

The Institute for Healthcare Improvement highlights that collaborative leadership and teamwork are critical for reducing medical errors. The lack of coordination in this case demonstrates the consequences of weak distributed leadership.

◇ 2.3.6 Leadership Effectiveness: Data and Evidence

Evaluating leadership effectiveness requires examining outcomes such as patient safety incidents, staff engagement, and organisational performance. In the UK, medication errors remain a significant concern, with national reports indicating thousands of incidents annually. Studies show that poor communication and weak leadership are among the leading contributing factors.

In this case:

- Multiple professionals failed to identify the error
- Communication between teams was ineffective
- Safety protocols were not followed

These outcomes suggest that leadership was neither proactive nor effective in managing risk. Instead, the system relied on individuals to identify errors without providing adequate support or oversight.

◇ 2.3.7 Critical Evaluation

Overall, the leadership approach in this case can be characterised as fragmented and reactive. While elements of transactional leadership existed in the form of policies and guidelines, their

implementation was weak. Transformational leadership was lacking, resulting in poor safety culture and limited staff engagement. Situational leadership was not effectively applied, and distributed leadership failed due to poor coordination between teams.

A more effective leadership approach would have included:

- Transformational leadership to promote safety culture
- Strong transactional leadership to ensure compliance with protocols
- Situational leadership to adapt to high-risk scenarios
- Distributed leadership to improve communication and teamwork

◇ 2.3.8 Link to Patient Safety

Leadership directly influences patient safety outcomes. This case clearly demonstrates that ineffective leadership can lead to system failures, communication breakdowns, and serious harm to patients. Strengthening leadership at all levels is therefore essential for improving healthcare quality and preventing similar incidents.

2.4 Improvement and Lessons Learned

2.4.1 Overview of Failures and Need for Improvement

The neonatal morphine overdose case highlights significant failures in leadership, governance, and system design within the NHS England. The incident was not the result of a single mistake but rather a combination of interconnected failures across multiple stages of care. These included poor communication during patient discharge, lack of adherence to medication safety protocols, insufficient verification processes, and inadequate patient counselling.

Such failures demonstrate the need for systemic improvement rather than isolated corrective actions. According to the World Health Organization, improving patient safety requires strengthening health systems through better leadership, governance, and continuous learning mechanisms. Therefore, it is essential to critically evaluate the problems identified in this case and propose evidence-based improvements.

2.4.2 Problem 1: Communication Breakdown Across Care Settings

Issue

One of the most significant failures in this case was the breakdown in communication between secondary care (hospital), primary care (GP), and community pharmacy. The use of a handwritten discharge summary, unclear dosage instructions, and indirect communication pathways contributed to misinterpretation and error.

Supporting Data

Evidence from UK patient safety reports indicates that communication failures are a leading cause of medication errors. Studies suggest that a large proportion of prescribing errors occur during transitions of care, particularly at discharge.

Improvement

A key improvement is the implementation of **electronic discharge summaries and integrated digital health systems**. Electronic systems ensure clarity, standardisation, and accessibility of patient information across all care settings. In addition, direct clinician-to-clinician communication should be encouraged, especially for high-risk medications.

The National Institute for Health and Care Excellence recommends structured communication tools and shared records to reduce errors during care transitions.

◇ 2.4.3 Problem 2: Weak Governance and Policy Implementation

◇ Issue

Although governance policies regarding RED drugs existed, they were not effectively implemented. The morphine preparation involved in this case should have been restricted to specialist settings, yet it was prescribed in primary care. This indicates a gap between policy and practice.

◇ Supporting Data

The Care Quality Commission reports that weak governance systems are associated with increased patient safety risks, particularly when policies are not consistently enforced.

◇ Improvement

Strengthening governance requires:

- Clear enforcement of prescribing restrictions for high-risk medications
- Improved monitoring and auditing systems
- Integration of alerts within electronic prescribing systems to flag RED drugs

Additionally, organisations should establish accountability frameworks to ensure that policies are followed consistently. Governance should not only focus on rule creation but also on implementation, monitoring, and continuous evaluation.

◇ 2.4.4 Problem 3: Lack of Staff Knowledge and Training

◇ Issue

The case revealed that healthcare professionals, including the GP and pharmacists, were unaware of the specific morphine formulation and its associated risks. This lack of knowledge contributed directly to the prescribing and dispensing error.

◇ Supporting Data

Research shows that inadequate training and lack of awareness are common contributors to medication errors. Staff education is particularly important for high-risk drugs and paediatric dosing.

◇ Improvement

Regular **training and education programmes** should be implemented to improve staff knowledge of medication safety. These programmes should focus on:

- High-risk medications (e.g., opioids)
- Paediatric and neonatal dosing
- Safe prescribing and dispensing practices

The Institute for Healthcare Improvement emphasises that continuous staff education is essential for building a culture of safety and reducing preventable harm.

◇ 2.4.5 Problem 4: Inadequate Patient and Caregiver Involvement

◇ Issue

The parents were not provided with clear instructions or proper counselling on how to administer the medication. As a result, they continued administering the same volume, leading to overdose.

◇ Supporting Data

Patient involvement is recognised as a key factor in improving safety outcomes. Studies show that when patients and caregivers understand their treatment, the risk of medication errors decreases significantly.

◇ Improvement

Healthcare providers should adopt a **patient-centred approach**, ensuring that:

- Clear and simple instructions are provided
- Demonstrations are given for medication administration
- Patients or caregivers are asked to repeat instructions to confirm understanding

This approach aligns with guidance from NHS England on improving patient engagement and safety.

◇ 2.4.6 Integration of Leadership, Governance, and Systems

This case demonstrates that leadership, governance, and system design are closely interconnected. Failures in one area can negatively impact the others. For example:

- Weak leadership resulted in poor enforcement of governance policies
- Poor governance allowed unsafe practices to continue
- System weaknesses (e.g., lack of digital integration) amplified communication failures

Effective improvement requires a **systems-based approach**, where all components work together to enhance patient safety. Leaders must ensure that governance structures are strong, systems are well-integrated, and staff are supported through training and resources.

◇ 2.4.7 Lessons Learned

Several key lessons can be drawn from this case:

1. **Patient safety is a system responsibility**
Errors are rarely caused by individuals alone; they result from system failures.
2. **Communication is critical in healthcare delivery**
Clear and direct communication between professionals is essential, especially during care transitions.
3. **Policies must be supported by implementation**
Governance frameworks are only effective if they are actively enforced and monitored.
4. **Leadership influences safety culture**
Strong leadership promotes accountability, learning, and continuous improvement.
5. **Patients and caregivers are part of the safety system**
Engaging them effectively can prevent errors and improve outcomes.

◇ 2.4.8 Continuous Improvement and Feedback

To ensure long-term improvement, healthcare organisations must adopt continuous learning approaches. This includes:

- **Regular audits of medication safety practices**
- **Reporting and analysing patient safety incidents**
- **Implementing feedback loops to learn from errors**

The World Health Organization emphasises that learning from incidents is essential for building resilient healthcare systems. By using data and evidence to inform decision-making, organisations can continuously improve and reduce the risk of future harm.

3. Recommendations

3.1 Strengthening Leadership for Sustainable Improvement

To prevent similar incidents and improve patient safety, the organisation must adopt a combination of leadership approaches rather than relying on a single style. A **transformational leadership** approach should be prioritised to create a strong culture of safety, where all healthcare professionals are motivated to prioritise patient wellbeing and actively engage in preventing errors. Leaders should promote open communication, encourage reporting of near-misses, and support continuous learning.

At the same time, **transactional leadership** must be strengthened to ensure strict compliance with policies and clinical guidelines, particularly for high-risk medications such as opioids. Clear accountability structures should be established so that all staff understand their responsibilities in prescribing, dispensing, and administering medications.

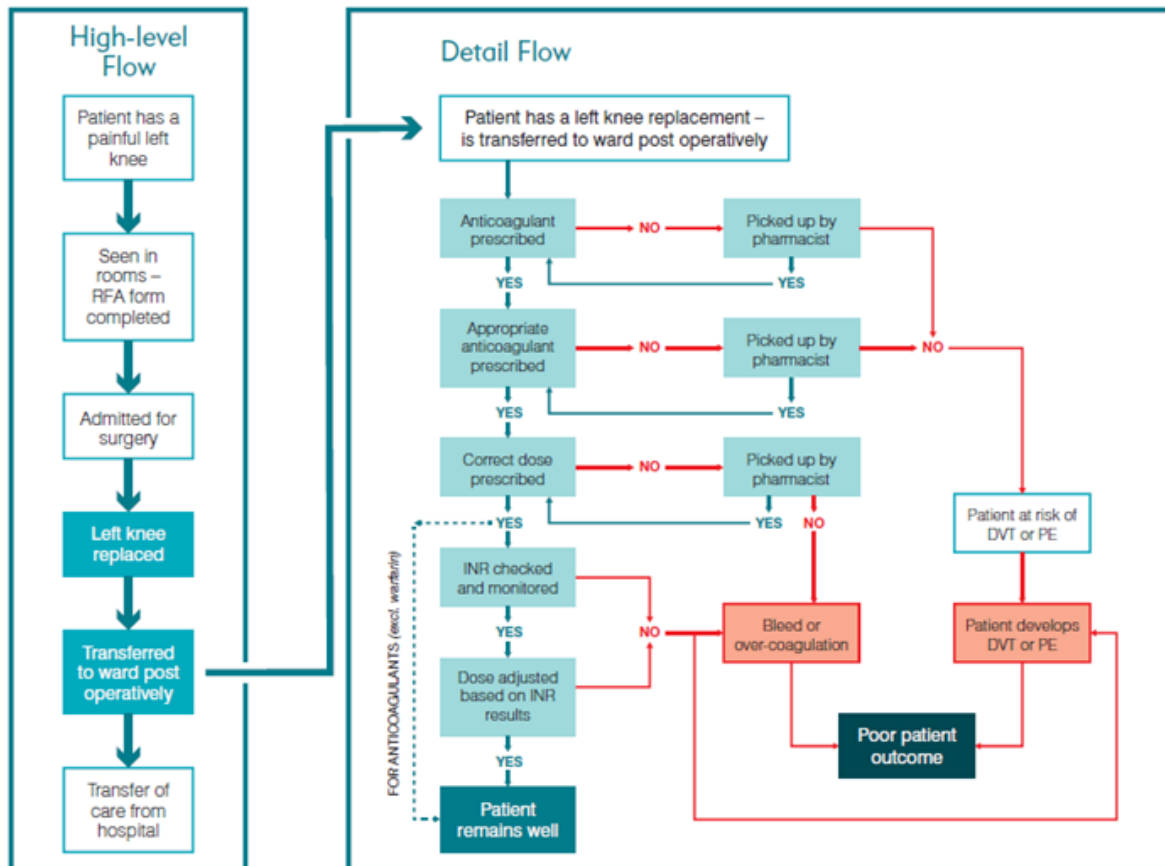
Additionally, adopting a **distributed leadership model** would improve coordination across healthcare settings. Leadership responsibilities should be shared among clinicians, pharmacists, and managers to ensure that decision-making is collaborative and patient-centred. This approach aligns with guidance from Institute for Healthcare Improvement, which highlights the importance of teamwork and shared responsibility in improving patient safety.

3.2 Improving Governance and Policy Enforcement

Governance systems must be strengthened to ensure that existing policies are effectively implemented. In this case, the failure to enforce restrictions on “RED drugs” indicates a gap between policy and practice. The organisation should introduce stricter monitoring and auditing processes to ensure compliance with prescribing guidelines.

Electronic prescribing systems should include **automatic alerts and restrictions** for high-risk medications, preventing inappropriate prescribing in primary care. Clear protocols must also be established for handling such medications, ensuring that they remain within specialist settings unless explicitly authorised.

The Care Quality Commission emphasises that strong governance frameworks are essential for maintaining safety and quality. Therefore, regular audits, performance reviews, and accountability mechanisms should be implemented to ensure continuous improvement.



CLINICAL FLOWCHART

NSW Ministry of Health

◇ 3.3 Enhancing Communication and System Integration

One of the most critical recommendations is the improvement of communication across different levels of care. The organisation should implement **fully integrated electronic health record (EHR) systems** to ensure that accurate and complete patient information is accessible to all healthcare providers.

Electronic discharge summaries should replace handwritten documentation to reduce ambiguity and standardise communication. These summaries must include:

- Full drug name and formulation
- Clear dosage instructions (both mg/micrograms and ml)
- Maximum dosage limits

Direct communication between clinicians should be encouraged, particularly in complex or high-risk cases. For example, pharmacists should communicate directly with prescribers rather than relying on administrative intermediaries.

Guidelines from National Institute for Health and Care Excellence support the use of structured communication and shared information systems to reduce medication errors.

◇ 3.4 Investing in Staff Training and Education

Continuous professional development is essential to ensure that healthcare staff are competent in managing high-risk medications. The organisation should implement regular training programmes focusing on:

- Safe prescribing and dispensing practices
- Awareness of high-risk drugs (e.g., opioids)
- Paediatric and neonatal dosing
- Use of electronic prescribing systems

Simulation-based training and case-based learning can be particularly effective in improving clinical decision-making. Staff should also be encouraged to participate in reflective practice and learning from previous incidents.

The NHS England highlights that education and training are key components of patient safety improvement strategies.

◇ 3.5 Promoting Patient and Caregiver Engagement

Patients and caregivers should be actively involved in the medication process to reduce the risk of errors. Healthcare providers must ensure that clear and simple instructions are given when medications are prescribed or dispensed.

Practical steps include:

- Demonstrating how to measure and administer medication
- Providing appropriate tools (e.g., 1ml oral syringes)
- Asking patients or caregivers to repeat instructions to confirm understanding

This approach improves safety and aligns with patient-centred care principles. Engaging patients as partners in care can significantly reduce medication-related harm.

◇ 3.6 Improving Efficiency and System Performance

To enhance both technical and allocative efficiency, resources should be allocated towards digital systems, staff training, and safety initiatives. Investing in technology, such as electronic prescribing and automated alerts, can reduce errors and improve workflow efficiency.

Additionally, implementing **continuous monitoring systems**—such as safety dashboards and incident reporting tools—can help organisations track performance and identify areas for improvement. Data-driven decision-making should be encouraged to ensure that resources are used effectively.

◇ 3.7 Continuous Learning and Stakeholder Engagement

Finally, the organisation should adopt a culture of continuous learning by regularly reviewing patient safety incidents and implementing lessons learned. Stakeholder engagement, including collaboration between healthcare professionals, patients, and policymakers, is essential for sustainable improvement.

Co-production approaches, where patients and healthcare providers work together to design services, can further enhance system effectiveness and patient safety outcomes.

● 4. Conclusion

The neonatal morphine overdose case highlights the critical importance of leadership, governance, and systems thinking in ensuring patient safety within the NHS England. This analysis has demonstrated that the incident was not the result of a single individual error but rather a complex failure involving multiple interconnected factors, including poor communication, weak governance, insufficient staff knowledge, and lack of system integration. These issues collectively contributed to a breakdown in safe medication practices across different levels of care.

The report has shown that leadership plays a central role in shaping healthcare outcomes. The absence of effective transformational and distributed leadership resulted in a weak safety culture, while inadequate transactional leadership led to poor compliance with established protocols. Additionally, the misalignment between centralised policies and decentralised

implementation created gaps in accountability and decision-making, further increasing the risk of error.

By applying systems thinking, it becomes clear that healthcare outcomes are influenced by the interaction between people, processes, and organisational structures. The lack of integrated digital systems, ineffective communication pathways, and absence of feedback mechanisms significantly contributed to the failure in this case. These findings reinforce the need for a holistic, system-wide approach to improving patient safety rather than focusing solely on individual performance.

The recommendations provided emphasise the importance of strengthening leadership, improving governance frameworks, enhancing communication through digital integration, and investing in staff training and patient engagement. These measures are essential for creating a resilient healthcare system capable of preventing similar incidents in the future.

In conclusion, this case study demonstrates that effective leadership, strong governance, and well-integrated systems are fundamental to delivering safe and high-quality healthcare. By learning from such incidents and implementing evidence-based improvements, healthcare organisations can enhance patient safety, reduce preventable harm, and ensure better outcomes for patients.

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