



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

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Student Name: Pinalkumari Dhansukhbhai Patel

Student Numbers: 2529442

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Lecturer: Tonia Babalola

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1. Introduction

a. Background and purpose of the case

Patient safety is paramount in the healthcare industry. However, the healthcare industry faces persistent concerns regarding patient safety (Alrowily *et al.*, 2024). Shetty (2022) further argued that medical mistakes in the form of medication errors are common and result in mortality. As per the recent report analysed by World Health Organization (2024), it is further substantiated that 1 in 20 patients, which accounts for 5 per cent patients across the world face medication errors, leading to adverse health consequences. It is further elaborated that 7 per cent of the studies out of 30 asserted medication error harms is seen in low- and middle-income countries (World Health Organization, 2024). In addition, 4 per cent of the 70 investigations identified medication error harm in high income countries (World Health Organization, 2024). On the same grounds, the chosen case of Len identified medication error leading to death of the elderly patient. Len is elderly man, who is aged 89 years, and was suffering from Charcot-Marie-Tooth disease (CMT) (HSSIB, 2022). The case study highlighted that Len was administered wrong dose of morphine, leading to pneumonia and worsening CMT condition, and death. Thus, medication error is evident in the case, which led to death of Len. The purpose of the case is to evaluate the case of wrong dosage administration of morphine leading to death of Len.

b. Overview of leadership, centralisation and Decentralisation and role of appropriate leadership for success in the healthcare

Leadership is crucial in healthcare and social care. Restivo *et al.* (2022) asserted that for effective and efficient workflow in the healthcare, ensuring optimal utilisation of resources, effective leadership is necessity. Further, the review by Smith *et al.* (2018) outlined leadership as the ability to clearly communicate with other for navigating them towards a shared goal. Effective and appropriate leadership in care facilities, help in greater coordination among the teams, ensuring better health outcome. Various leadership theories, which contribute towards smooth workflow in healthcare includes shared, transformational, and situational leadership (Smith *et al.*, 2018; Terkamo-Moisio *et al.*, 2024). Leadership further helps in centralisation as well as decentralisation of power and decision-making abilities in the healthcare (Terkamo-Moisio *et al.*, 2024). Centralisation outlines concentrating of decision-making abilities at the higher levels whereas decentralisation empowers the lower-level people to make decisions (Krenyacz and Revesz, 2025). Centralisation increases structured approach whereas decentralisation ensures quick decisions. As asserted by Restivo *et al.* (2022) that effective leadership facilitates workflow in the healthcare. Hence it has dominant role in lowering medical errors and thus success of the care.

c. Aim and scope of the report

The aim of the report is to critically analyse the problem of medication error in healthcare in the case of Len, evaluating role of leadership, centralisation, decentralisation in the case. The report will start with identifying the problem, explaining through rich picture, followed by centralisation, decentralisation in the case. Subsequently, leadership theories will be applied to infer lessons learned and develop evidence-based recommendations.

2. Analysis of the Case: Len

a. Critically identifying the Problem and Setting the System Context

i. Central problem of the case

In the case study 2, the central problem is wrong dose of morphine being given to Len unintentionally, leading to health deterioration and death. From the case study, it is observed that Len is elderly man, aged 89 years, who was suffering from Charcot-Marie-Tooth disease (CMT) (HSSIB, 2022). However, the report also revealed that CMT disease is progressive condition, which subsequently impacts functioning of the nervous system. Len contacted general practitioner (GP) as he developed breathing troubles. Len was initially administered with ibuprofen and paracetamol. However, as Len was showing severe breathing troubles and pain, hence, further consultation was done. Lidocaine pain relief patches were given, which irritated skin of Len, and without informing the GP, Len stopped using relief patches. With worsening condition of Len over 2 weeks, GP now prescribed morphine sulphate oral solution at a concentration of 10mg in 5ml. Dose prescribed for Len was 5mg per dose, to be given every 4 hours (HSSIB, 2022). Len took 3 doses of 10mg morphine four times as prescribed. However, misunderstanding and overdose occurred as dose on manufacturer label of morphine was considered correct by Len and his wife. Overdosing resulted in pneumonia and aggravated CMT, and death after sometime. From the case study, it can be inferred that the main problem is medication administration error. Further, evaluation indicated lack of proper communication with patient, limited health literacy among patient (Len and wife) and labelling issue resulted in overall systemic failure.

ii. Global and national statistical evidence

Medication errors leading to adverse health outcomes and death is seen worldwide. The study by Govil *et al.* (2025) further substantiated that global burden of medication error is significantly high especially among the low- and middle-income countries. As per the report of World Health Organization (2024), almost 53 per cent of medication error is seen in the prescribing stage. Further, it is added that one quarter of the medication error related harms are life threatening. Um, Clough and Tan (2024) further substantiated that dispensing error is 1.6 per cent across

the pharmacies, healthcare and community setting globally. In addition, Govil *et al.* (2025) pointed out that around 9 per cent of healthcare costs is associated with medication related harms, which is 0.7 per cent of global health spending. Another report by World Health Organization (2026) asserted that unsafe medication administration and medication errors lead to avoidable harm, which is estimated to cost 42 billion USD worldwide every year. It is further elaborated that medication error can occur at several stages, owing to multiple factors. For example, factors such as poor environmental conditions, lack of proper administration and monitoring practices, fatigues, dispensing and shortage of staff lead to medication error. From the case of Len, it was apparent that medication error had occurred due to poor patient health literacy. It is further substantiated by Ghassab-Abdollahi *et al.* (2024) that literacy increases the chances of self-administration medication errors, especially among older people. Similar incident is seen in case of Len, who is 89 years old, who misunderstood labelling dose on morphine and took overdose of prescribed medication.

From the case study, it is clear that the incident of Len took place in the UK. Thus, national statistical evidence on medication error is explored in the UK. According to the study of Elliott *et al.* (2021), 237 million cases of medication errors is recorded annually in the UK. It is further expanded that 38.4 per cent cases of medication errors are reported in the primary care, 72 per cent cases with little to moderate harm; nonetheless, 66 million medication errors have potentially significant levels of harm to the patient. It resulted in death of 1708 individuals every year in the UK (Elliott *et al.*, 2021). In the UK, the estimated costs incurred by NHS associated with avoidable medication error is 98462582 pounds every year (Elliott *et al.*, 2021). In another study by Gogazeh (2020), it is pointed out that misreading the prescription and confusion with packaging of drugs are the major problems associated with dispensing errors in England. The research by Chand *et al.* (2022) corroborated that dispensing errors accounted for 17 per cent of all medication errors in England and Wales. Thus, from statistical evidence collated from national and global incidences reflect higher prevalence of medication errors and harms to the patients.

iii. Reflection of systemic weakness

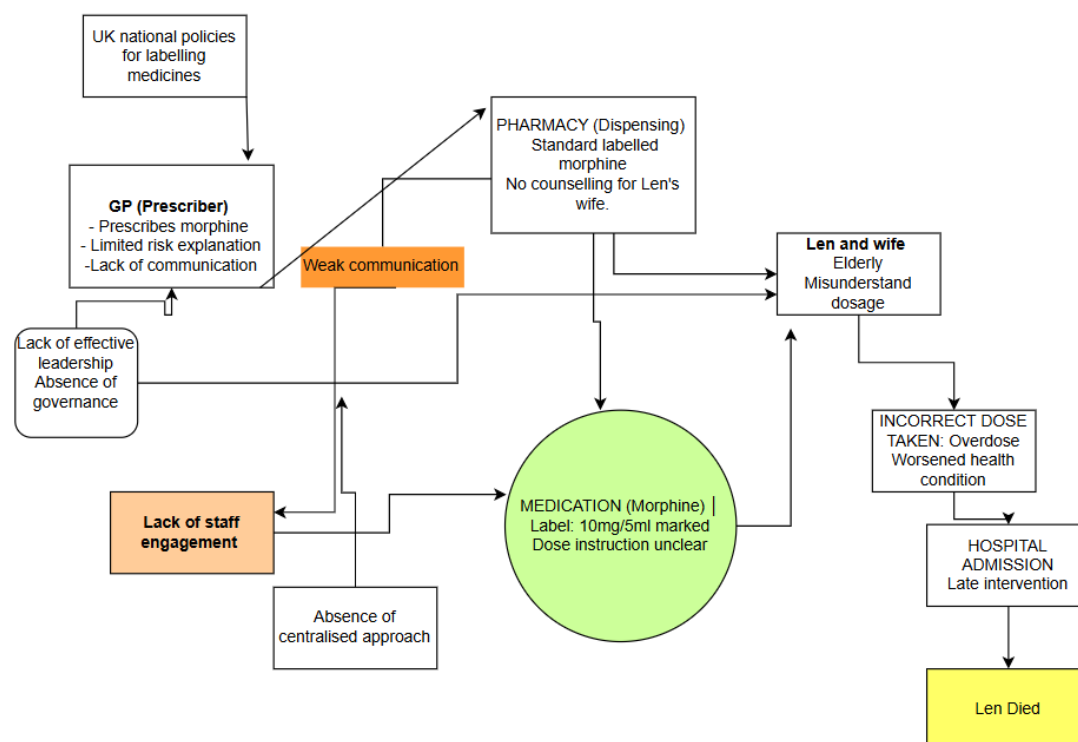
The Institute for Healthcare Improvement (IHI) reflects on systemic weakness seen in the healthcare system leading to medication errors. It is asserted that IHI focusses on tracking errors and addressing them, quantifying degree and severity of harm to patients (Institute for Healthcare Improvement, 2000; Valkonen *et al.*, 2024). Further, in this connected, system thinking approach can be applied, which is asserted as the integrated and interconnected components of healthcare, to produce health outcome (Borghi and Brown, 2022). Thus, people in this case study included Len, who is the elderly patient died due to overdose of morphine medicine, his wife, GP and pharmacist, who is the dispenser. In case, process

included prescribing low dosage of morphine by GP, dispensing of medicine with external dosage labelling and self-administration without medical supervision. Lack of communication is evident from GP to patient and his wife, and from pharmacist to guide aged wife of Len about dosage prescribed and difference with labelled medicine. Home setting without clinical supervision, added to miscommunication and lack of governance, resulted in overdose due to dispensing error leading to death. Hence, lack of accountability, absence of communication, labelling issues and failure of clinical governance combined to result in medication error.

iv. Identification of level of governance influencing the problem

In the case study, it is local level clinical governance failure that resulted in medication dispensing error. Though, data revealed by Elliott *et al.* (2021) substantiated previously that medication error is prevalent nationally in the UK; however, in this case, Len contacted the local GP and systemic failure depicts local governance limitations. One of the factors contributing to systemic failure is ageing population. World Health Organization (2022) asserted that elderly population is at highest risk of medication harms. Shemtob *et al.* (2023) further identified that in the UK, shortage of healthcare staff is major concern, which is worsening medication errors. It is further reflected that there are more than 250,000 vacancies presently in the healthcare in the NHS, which is leading to staff burnout and medication errors. Similarly, in case of Len, staff involved in handing prescriptions may be overburdened with load and routine activities, leading lack of follow-up, communication and accountability.

v. Rich picture



system resulted in lack of local responsive communication between pharmacist to Len's wife, leading to misinterpretation of dosage and adverse consequences.

iii. Distribution of authority in decentralised systems

Decentralisation helps in delegating functions. Tavares, Vale and Costa (2024) outlined that decentralisation is the process which allows delegating authority to lower levels in the hierarchy. Unlike, centralisation, decentralisation is not associated with retention of control to top tiers. In the case study, decentralisation is largely seen at various points. It is seen that the GP autonomously prescribed medication to Len, whereas pharmacist dispensed the medication. Len showed autonomy and decentralised authority by self-administration of morphine, without clinical supervision. Though, better and effective approach would have resulted in personalised counselling about medication dose to wife by pharmacist or clinical supervision while administering morphine, however, that would have followed centralised approach without personal autonomy and lack of authority.

iv. Advantages and disadvantages of decentralised systems in relation to case

Decentralised systems in the healthcare comprises of benefits and limitations. As identified by Sapkota *et al.* (2023), decentralisation helps in improving and increasing responsive local decision-making process. It is further acknowledged to strengthen community engagement with local communities, thus, helps in co-designing of healthcare interventions. As in the case, Len was initially given ibuprofen and paracetamol on identification of pain. However, involving Len in decision-making process helped in changing medication to morphine sulphate at later stage on worsening condition of respiratory health. Noory, Hassanain and Kassak (2024) argued that decentralisation is largely affected by social dynamics and hence unpredictable results are seen in the healthcare. Besides, fragmented approach impacts interconnected building blocks of healthcare system. Noory, Hassanain and Kassak (2024) further debated that decline in quality of health services has been reported in Nigeria and Sudan with decentralisation. Decentralisation increases inconsistencies in communication and practice. As seen in the case study, Len and pharmacist adopted decentralised approach and did not consult to GP prior to dispensing or self-administration of morphine, leading to overdose.

v. Critical analysis of crisis management

The hybrid system adopted in the case study failed to provide positive health outcome to Len while managing crisis. Incorrect dosage self-administered to Len is systemic failure owing to decentralised approach seen while Len did not consult GP prior to taking medication. Centralised practices, ensured safe initial prescribing of morphine 10 mg, showing policy compliance (HSSIB, 2022). However, decentralised approach, resulted in lack of accountability of the pharmacy to communicate about labelled dosage to Len's wife. In

addition, decentralised approach resulted provided authority to Len to self-administer medicine, leading to wrong dosage. It can be further corroborated that in the NHS more 237 million cases of medication errors are reported yearly indicating systemic failure (Elliott *et al.*, 2021). Thus, lack of accountability seen in the NHS adopting decentralised elements in certain points hindered crisis management.

c. Leadership Theories and Application to the Case Study

i. Application and connection of various leadership theories with the case

With the growing volatility and dynamic challenges in the healthcare sector, effective leadership is essential for facilitating operations. As per the study of Fukami (2025), leadership is the ability to channelise the subordinates towards a common goal. In the case of Len, medication error exhibits not only systemic issues however, lack of proper leadership and governance to integrate the entire healthcare system. Transformational leadership theory elucidated that leaders stress on inspiring and involving the team for change management and innovation (Ystaas *et al.*, 2023). Transformational leaders are empathetic and engage staff in the process of continuous learning for improvement, thus, contributing to greater patient safety and positive health outcome. Supporting statistical findings by Janes *et al.* (2021) asserted that staff engagement is strongly linked with enhanced patient health and safety implications. Positive correlation with $r = 0.22$ is seen between staff engagement and safety outcome among patients (Janes *et al.*, 2021). Applying the transformational leadership in the case, it can be seen that the practices are largely missing. No proactive leadership practices showed redesigning of healthcare system for patient education, communication and clarification on medication. Lack of staff engagement to follow up Len's case was observed, indicating failure as transformational leader to engage in patient-centric care strategies.

Situational leadership focusses on flexibility and adaptability of the leaders to different situations as per need. Situational leaders exhibit range of practices from directive to supportive way as per the need of the team and situation (Del Pino-Marchito, Galán-García and Plaza-Mejía, 2025). Supporting evidence from the study of Dirik, Theiakouli and Efstathiou (2026) substantiated that situational leadership showed gradual positive changes in self-reporting and lowered medication errors with $r = .206$, $p = .007$. Evaluating the case of Len, again lack of situational leadership is found. No leadership either directive or supportive is seen that would guide GP and staff handing prescription of Len to his wife about counselling of medication dose properly. Neither, follow-up was taken and lack of clinical leadership guiding the staff for follow-up is observed (HSSIB, 2022). Thus, without proper follow-up and absence of communication increased risks of misreading or misinterpretation of prescription by the elderly patients.

ii. Appropriateness of leadership style in the case

In the case study, no dominant style of leadership is visible. In fact, reviewing the case study, no form of clinical leadership is found, hence appropriateness of existing leadership style cannot be asserted.

iii. Type of leadership

Reviewing the case of Len, it can be seen that reactive leadership approach is seen instead of proactive approach. Proactive leadership focusses on anticipating the risks and challenges, and taking mitigating steps to address before occurrence of the problem (Zhang and Cui, 2022; Lai, Wee and Frimpong, 2024). Proactive leadership is purpose-driven, advocating the steps and practices for patient safety. On the other hand, reactive leadership is command driven. In the case study, absence of leadership is seen in the NHS wherein GP or the staff handling Len responded proactively to condition of Len. Absence of real time monitoring, lack of follow up and inadequate communication with Len or his family reflects lack of staff engagement with patient. It depicts absence of proactive leadership. However, reactive approach is seen as morphine was administered after Len's condition deteriorated and further clinical investigation was undertaken after Len was hospitalised with morphine overdose. Systematic review conducted by Janes *et al.* (2021) substantiated that increased healthcare staff engagement has strong positive association with patient safety implications with $r = 0.22$ at 95 per cent confidence interval. Thus, proactive leadership aids in increasing staff engagement, which would have improved safety outcome for Len.

iv. Substantiated of leadership's effectiveness

Various studies have offered statistical evidence substantiating effectiveness of leadership in improving staff engagement, in order to increase patient safety outcomes. The research by Janes *et al.* (2021) found statistically significant association between engagement of staff with patient safety and patient safety culture. It is added that patient safe culture is practiced with engaged staff with $r = 0.22$; 95 per cent confidence interval found in 7 studies. However, Campbell (2025) debated that recent and extensive shortage of staff in the NHS results in increased fatigue among the medical workers, threatening patient safety. The study by Restivo *et al.* (2022) substantiated effectiveness of leaders in ensuring patient safety, pointing out that private healthcare showed greater patient safety with improved and effective leadership with $\beta = 0.60$; 95 per cent confidence interval. The findings strongly reflect need for effective leadership for lowering medication errors in healthcare in the UK.

v. Different approach to leadership

Based on the above identified gaps and statistical evidence, transformational clinical leadership should have been introduced. Notarnicola *et al.* (2024) asserted that

transformational leaders are empathetic and hence, this form of leadership would have understood staff limitations such as burnout and fatigue. Further, transformational leaders would have successfully planned staff engagement with patients, such as Len to guide and counsel them about medication dosage. Emotional intelligence would have assisted in understanding limitations of the patients, such as in this case, elderly Len and thereby assist during self-medication process to avoid errors.

d. Improvement, and Lessons Learned

i. Critically evaluating interaction of leadership and governance in the case

Leadership and governance are interconnected concepts in the healthcare. Phillips *et al.* (2022) asserted that leadership and governance are the building blocks, which ensured accountability and stewardship in healthcare. Governance in healthcare is associated with rules and processes that assist in directing and controlling the activities for patient safety and equitability. Khodayari-Zarnaq *et al.* (2024) substantiated that leadership ensures that clinical governance is followed to enhance patient safety. Evaluating the case of Len, not only there was absence of effective leadership that resulted in systemic failure and medication error; however, failure in clinical governance is strongly evident. Centralised policies helped in initial standardised prescribing of correct dose of morphine to Len. However, lack of governance, leading to absence of stewardship and accountability failed to communicate and monitor correct self-administration of morphine. On the one hand, staff was not guided to communicate and interact with Len as patient, indicating failure as leader. On the other hand, absence of stewardship from pharmacists or GP leading to misreading of labelled morphine by Len and his wife, showed failure of clinical governance.

ii. Identification of missed opportunities and solutions

Problem 1: Lack of effective communication and misinterpretation by Len

- *Problem:* The main failure that is observed in the case study is absence of proper communication about medication dosage and labelling guidelines to Len or his wife by GP or pharmacist.
- *Supporting data:* The research by Brabcová *et al.* (2023) asserted that lack of communication increases risks associated with medication error harms among patients. Frequent changes in the instructions, illegibility and unclear medication records increases risks associated with medication errors (HSSIB, 2022). Similar to the case of Len, where medicines have been changed several times from ibuprofen, paracetamol to morphine, considering age of Len and his wife, resulted in misreading of dosage on label.

- *Solution:* Improved communication between nurses and patients would address medication errors arising due to communication gaps. Brabcová *et al.* (2023) substantiated that timely, accurate and comprehensible information both in written and oral given by practitioners and nurses help in significantly minimising risks of medication error related harms.

Problem 2: Decentralised system and fragmented approach leading to lack of accountability

- *Problem:* In the case study, it is seen that greater authority is given to patient and pharmacists, without any follow-up or counselling about medication dosage to Len.
- *Supporting data:* The study by Fanda *et al.* (2024) strongly connected discrepancies occurring between national health policies and local practices owing to decentralised approach. Further, the study by Naseralallah *et al.* (2025) asserted that medication error leaders to approximately 9000 fatalities every year owing lack of integration between practitioners, and patients. Further, owing to decentralised approach neither the staff giving prescription nor the pharmacists took stewardship or accountability to explain about strength and dosage difference to Len (HSSIB, 2022).
- *Solution:* Naseralallah *et al.* (2025) revealed that the pharmacists could potentially and significantly decrease medication error through proper training and expertise. Pharmacists-led interventions in perioperative setting are found to be effective. Out of 16 studies, 4 studies asserted that patient counselling can be effectively offered by pharmacists (Naseralallah *et al.*, 2025). Thus, in order to ensure that decentralised system in the NHS is effective and ensure greater patient safety, pharmacists should be trained and accountable for patient education and counselling while dispensing medicines.

iii. Summarisation of findings

The case study and evidence from secondary sources strongly reflected gaps in the healthcare system, which contributed to medication errors, leading to death of Len. It can be seen that the system processes, leadership style, governance and components interacted with each other following system thinking approach (Borghi and Brown, 2022). As can be seen that lack of effective leadership resulted in absence of proper clinical governance components, such as stewardship and accountability among the people associated. Pharmacists, nurses, medical staff and GP did not take stewardship to communicate about dosage strength and level to Len, leading to misinterpretation. Further, in the case study, centralised system was observed only at dosage marked, however, decentralisation was observed at other levels, leading to gap in communication with the patients. Lack of proactive leadership further resulted in actions after Len's condition worsened. Absence of feedback system and real time data and

follow up increased risks of medication especially at the older age. World Health Organization (2022) corroborated that older population faces highest risk of medication harms. They need proper counselling and effective and comprehensive communication to avoid medication errors. However, in the case, comprehensive communication was missing from GP, nurses and pharmacists. From this case, other health and social care entities can learn the need for continuous evaluation of the existing system and improve staff engagement and communication. There is need for patient-centric care, especially for older generations (Schofield, Shaw and Pascoe, 2019). Hence, other entities need to introduce staff engagement and communication training for comprehensively explaining the older patients about medication dosage and strength. Patient safety data should be collated and analysed to identify the gaps in leadership, communication and governance. Further, appropriate training must be provided based on gaps identified from patient safety data. Continuous monitoring needs to be implemented with performance metrics such as medication error rates, fatalities and reported cases for minimising the gaps.

3. Recommendation

i. Summarising improvements to be done

In order to lower chances of self-medication errors and eliminate the medication errors, the healthcare organisation must introduce strategic changes. Strong clinical governance framework shall be integrated with the organisation. The clinical governance framework developed by the NHS advocates about the practices which ensure greater accountability for patient safety (NHS, n.d.). In addition, continuous auditing and monitoring of the departments, staff and patient experience is conducted to ensure safety and higher satisfaction among the patients. Alongside, medication and dispensing system should be strategically revised. As evidenced by Naserallah *et al.* (2025), pharmacist-led interventions should be introduced in the UK. Thus, training must be provided to pharmacist's and they should be accountable for communicating and counselling patients about medication, their strengths and dosage. Shortage of staff is one major issues in the UK, which is leading to fatigue, burnout and medication errors (Deakin, 2022). Hence, strategic action must focus on addressing this gap by recruiting nurses from underdeveloped nations to maintain staff to patient ratio, ensuring patient safety. Though, Sapkota *et al.* (2023) reflected that decentralisation in the healthcare ensures quick and responsive decisions; however, greater authority to patients in taking medication have resulted in errors. Hence, centralisation approach should be extended for medication dispensing and administration.

ii. Recommending the most effective leadership styles for sustained improvement

In order to sustain improvement within the healthcare organisation, transformational leadership is recommended. Notarnicola *et al.* (2024) asserted that transformational leaders are active listeners and empathetic, who engage with the staff during change. Hence, transformational leaders have positive influence on job satisfaction. It is accorded that with transformational leadership higher inspirational motivation on nurse with $r = 0.650$, $p < 0.01$ and greater intellectual stimulation with $r = 0.378$, $p < 0.05$, thus engaging the nurses and improving job satisfaction (Notarnicola *et al.*, 2024). Thereby, implementation of transformational leaders would help the healthcare organisation to increase staff engagement with patients, reducing chances of fragmented communication and medication errors.

iii. Proposing actions to enhance technical and allocative efficiency and strengthen governance, communication, and systems integration

Clear accountability framework by the NHS should be implemented for stronger governance, which stresses on patient safety, accountability, stewardship and monitoring (NHS, n.d). In addition, patient and staff surveys must be conducted every month to identify the gaps in the system affecting medication dispensing and counselling. Based on feedback, training should be provided to eliminate gaps in the communication and system integration approach. Communication should be further strengthened by introducing patient-centric care approach within the organisation (Naughton, 2018). Feedback loops must be introduced to understand the system integration gaps. Digital platforms and technology should be introduced for facilitating real time information flow. It is substantiated by Colin *et al.* (2025) that electronic health systems have decreased medication errors by 15 per cent with $RR = 0.85$; 95% CI: 0.77–0.94. Hence, technical efficiency would further be strengthened, which can further assist in evidence-based clinical decisions. Introducing technological approaches for medication dispensing would further reduce manual resource and labour, thus, staff can be employed for comprehensive communication. Hence, resource utilisation would be optimised with integration of technological developments in medication dispensing. Therefore, actions to enhance technical and resource efficiency include investment in introducing, integrating and training staff to use technological platforms.

iv. Methods for continuous learning, stakeholder engagement, and co-production

Several methods can be employed for continuous learning for development and delivering quality care. Mannan *et al.* (2024) identified that digital platforms, microlearning and Just-in-time approaches are effective techniques for lifelong and continuous learning in medical field. Further, Pellegrini and Lovati (2025) asserted that engaging the stakeholders of the healthcare significantly improves health outcome. Co-designing is effective technique where various

stakeholders, such as patients, practitioners and nurses are involved for intervention planning, which extensively engages the stakeholders. This technique, further helps in customising intervention plans leading collaborative co-production that is better aligned with patient needs. Co-designing and co-production of intervention plan would ensure better and positive health outcomes with greater adherence to medical treatment process.

4. Conclusion

The report analysed the case of Len, who was an elderly patient suffering from CMT and died due to overdose of morphine. The case study evaluation further identified that medication error was interconnect set of failure points, wherein, there was lack of effective leadership, absence of governance, lack of communication and accountability. Further, decentralised approach resulted in greater authority with Len, who was aged, and misinterpreted dosage and strength of morphine. Global and national data evaluation revealed that medication error leading deaths is one of the growing concerns. Lack of proactive leadership in the healthcare contributes towards systemic failure.

From the final findings, it is further found that transformational leadership would ensure greater staff engagement with the patients, which would improve communication and lower medication errors. Besides, stronger clinical governance is required for increased accountability and stewardship between the stakeholders, pharmacists, practitioners and nurses, to lower medication errors. In addition, as all components and processes in the healthcare are interconnected as per system thinking approach. Hence, to minimise and avoid medication error leading to patient harm, strategic actions should focus on effective transformational leadership and governance, embedded in continuous learning environment.

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