LOCAL ERROR TO STATEWIDE CHANGE: TRANSFORMING CLONAZEPAM SAFETY

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KEYWORDS

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EXECUTIVE SUMMARY

A patient admitted to hospice care for elective respite experienced clonazepam dosing errors due to confusion between milligrams, millilitres and drops. Review of NSW Health's Incident Management System (ims+) identified similar errors across multiple NSW facilities, indicating a system-wide risk relevant to palliative care settings where clonazepam is commonly used. In response, targeted nursing education, clearer documentation, standardised pharmacy labelling, and electronic prescribing updates were implemented. Findings were published in *Australian Prescriber* and informed statewide safety communications. These changes have eliminated further incidents locally and improved safety for palliative care patients receiving clonazepam in hospital and community settings across NSW.

INTRODUCTION

A 21-year-old male with a neurodegenerative syndrome classified as ‘Leigh-like syndrome with complex 1 deficiency’ was admitted for elective respite. The patient’s medical history included seizures, severe scoliosis, chronic faecal loading, urinary retention, global developmental delay, and impaired vision. His seizure management plan included as-needed clonazepam (0.6 mg via PEG tube) and as-needed midazolam (10 mg intranasally).

On the electronic medication chart, clonazepam oral liquid 2.5 mg/mL was prescribed with the following directions: ‘6 drops PEG solution when required for seizures’. In the comments field, ‘1 drop = 0.1 mg’ was auto-populated. The patient was given 0.6 mL of the 2.5 mg/mL solution (that is, 1.5 mg clonazepam), drawn up in a syringe and diluted with water, instead of 0.6 mg (6 drops); this meant the patient received 2.5 times the prescribed dose. This occurred on 2 occasions, with 2 registered nurses checking the dose each time. There was no evidence of harm to the patient, with no respiratory or central nervous system depression noted. An open disclosure regarding the medication error was provided to the patient's family.

YEAR CASE STUDY WAS IMPLEMENTED

2024 to 2025

Clonazepam oral liquid is a high-risk medication increasingly used in both inpatient and community palliative care settings. Its dosing method creates a significant risk of medication error when doses are prescribed or administered using inconsistent units (milligrams, millilitres, or drops). This risk was highlighted by a local incident at the Adolescent and Young Adult Hospice (AYAH), where confusion between milligram and millilitre dosing resulted in a patient receiving a higher than intended dose on two occasions. Subsequent review of local health district incident data identified multiple similar errors across NSW facilities, demonstrating that this was not an isolated event but a broader system vulnerability.

Approach developed to address the issue

A key innovative approach is the escalation from a single clinical incident to broader learning through the development of a case report submitted to *Australian Prescriber*. Instead of treating the error as an isolated event, the AYAH team used this opportunity to influence practice beyond the 8-bed facility.

This project applied known medication safety principles in a practical way. Instead of relying solely on medical and nursing education, the initiative used targeted interventions. For example, prescribing dose in drops and milligrams on the Electronic Medication Management (eMEDS), standardising documentation practices, and developing consistent pharmacy labelling to reduce the risk of administration errors in inpatient and outpatient settings.

Summary of activities and implementation

Initial activities included a detailed review of the incident, identification of contributory factors, and targeted education for nursing staff at AYAH, with a focus on administering clonazepam using drops rather than millilitres. Documentation was updated to clearly specify dosing units, and drug register recording practices were standardised.

Recognising the broader implications, a case report was submitted to *Australian Prescriber*, which prompted further engagement with the Clinical Excellence Commission (CEC) and the Australian Commission on Safety and Quality in Health Care. The AYAH team provided clinical feedback to the CEC that informed the refinement of statewide safety communications.

At a system level, clonazepam oral liquid prescribing was updated within eMEDS across Northern Sydney Local Health District (NSLHD) and Central Coast Local Health District to display clearer dosing instructions consistent with safety guidance. Pharmacy labelling was standardised across NSLHD using the iPharmacy dispensing system, ensuring consistent messaging for inpatient and discharge supplies. Clonazepam oral liquid was also escalated to local Medication Safety Committees and added to High-Risk Medicines Registers at Hornsby and Mona Vale hospitals.

Summary of outcomes and measurable impacts

This project has led to measurable safety improvements. In the 12 months following implementation, there have been no clonazepam related dosing incidents recorded in ims+ across AYAH, Hornsby, Royal North Shore, Ryde, and Mona Vale, compared with ten incidents prior to intervention. Prescribing ambiguity has been reduced through eMR updates, and nursing documentation is now consistent and clearer.

Broader impacts include improved staff confidence and workflow efficiency. Importantly, the publication of safety information and statewide communications has extended these benefits to community prescribers and pharmacists, supporting safer use of clonazepam in home-based palliative care.

Scalability and ease of adoption

This activity is highly scalable and readily transferable to other services. Key intervention includes standardised prescribing, documentation, pharmacy labelling, and inclusion in High-Risk Medicines Registers. These are system embedded. The involvement of statewide bodies and national publication ensures consistent messaging across jurisdictions. Other health services can adopt the same prescribing and labelling standards with minimal resource burden, making replication feasible across both hospital and community settings.

Lessons learnt and critical success factors

A critical lesson was the importance of recognising when a local incident reflects a system-wide risk. Embedding safety into systems, rather than relying on education alone, proved key to sustainability. Engagement with external bodies, such as the CEC and national journals, amplified the impact. This project demonstrates how small clinical services can meaningfully influence statewide and national practice when supported by collaboration and a commitment to learning from error.