

# Development and implementation of an audit tool for inpatient intravenous infusion charts

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## Aim

To develop an audit tool to assess compliance of inpatient intravenous (IV) infusion orders with the Australian Commission on Safety and Quality in Health Care (ACSQHC) recommendations for terminology, abbreviations and symbols used in medicines documentation.

## Method

The ACSQHC audit tool for the National Inpatient Medication Chart was reviewed to identify components relevant to IV infusion charts. An audit tool was developed with criteria including documentation of medicine name and units, fluid name and duration or rate of infusion.

A retrospective audit of all patients discharged on a single day across the multisite organisation was undertaken. Adult, paediatric and neonatal patients' electronic health records were accessed and IV infusion orders, including Intensive Care Unit (ICU) and cytotoxic charts were reviewed for compliance with ACSQHC recommendations. Patients without documented IV infusion orders were excluded.

## Results

A total of 182 patients with 448 IV infusion orders were audited using the audit tool. Of these, 4.7% (21/448) complied with ACSQHC recommendations. (Refer to Table 1.)

Monash Health Site	IV infusion orders compliant with ACSQHC recommendations	IV infusion orders prescribed with an approved fluid name
Casey	0.0% (0/66)	3.0% (2/66)
Clayton	8.5% (12/141)	7.8% (11/141)
Dandenong	3.4% (4/119)	5.0% (6/119)
Kingston	50.0% (2/4)	50.0% (2/4)
Monash Children's	0.0% (0/14)	0.0% (0/14)
Moorabbin	2.9% (3/104)	19.2% (20/104)
<b>Total</b>	<b>4.7% (21/448)</b>	<b>9.2% (41/448)</b>

Table 1. Total number of appropriate IV infusion orders

An infusion order was considered inappropriate if it contained at least one error-prone abbreviation, or unclear, ambiguous or incomplete fluid name or medicine name, or if the medicine was prescribed by proprietary (brand) name.

The majority of non-compliant orders were considered inappropriate due to the use of non-approved fluid names [90.8%, (407/448)] (e.g. "NaCl" for sodium chloride and "dextrose" for glucose.) (Refer to Chart 1 and Chart 2.)

Variations of Sodium Chloride nomenclature (n=305)

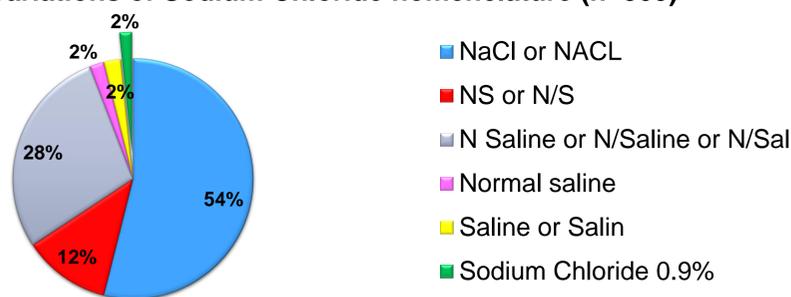


Chart 1. Variations of sodium chloride nomenclature prescribed

Variations of Glucose nomenclature (n=18)



Chart 2. Variations of glucose nomenclature prescribed

The rate or duration was documented in 95.5% (428/448) of orders however, only 57.6% (258/448) complied with ACSQHC recommendations. Fractions or inappropriate abbreviations (e.g. "8/24", "Q2mL/hr") were identified in 19.4% (87/448) of orders. As per procedure, denoted as "APP", was prescribed as the rate in 13.4% (60/448) of orders, however only 26.7% (16/60) had a relevant procedure or medication profile available on the organisation's document management system.

A total of 123 IV infusion orders with an additive medicine or electrolytes were identified. Of these, 61.8% (76/123) were prescribed using acceptable medicine names and 91.1% (112/123) were prescribed using acceptable dosing units. (Refer to Table 2.)

Type of infusion charts	Medicine or electrolyte prescribed with acceptable dose units	Medicine or electrolyte prescribed by acceptable name	Unacceptable medicine name	
			Medicine or electrolyte prescribed by abbreviated chemical name	Medicine prescribed by proprietary (brand) name
Adult IV Infusion Chart	93.0% (50/54)	37.0% (20/54)	37.0% (20/54)	26.0% (14/56)
Cytotoxic Prescription & Administration Form	92.0% (55/60)	82.0% (49/60)	16.0% (10/60)	2.0% (1/60)
ICU Infusion Chart	75.0% (6/8)	87.5% (7/8)	0.0% (0/8)	12.5% (1/8)
Paediatric IV Infusion Chart	100.0% (1/1)	0.0% (0/1)	100.0% (1/1)	0.0% (0/1)
<b>Total</b>	<b>91.1% (112/123)</b>	<b>61.8% (76/123)</b>	<b>25.2% (31/123)</b>	<b>13.0% (16/123)</b>

Table 2. IV infusion orders with a medicine or electrolyte

## Conclusion

An audit tool was successfully implemented with overall compliance to ACSQHC recommendations observed in 4.7% (21/448) of IV infusion orders audited. The suboptimal audit results identify improvement is required for the prescribing of IV infusion orders. Incorporation of this audit into the organisational audit schedule using the developed audit tool will facilitate consistent auditing of ACSQHC recommendations. The audit tool could also be used in particular areas or units to assess the impact of improvement strategies.

## References

1. Australian Commission on Safety and Quality in Health Care. Recommendations for terminology, abbreviations and symbols used in medicines documentation [Internet]. Sydney: Commonwealth of Australia; 2016 [cited 18 May 2017]. 16 p. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2017/01/Recommendations-for-terminology-abbreviations-and-symbols-used-in-medicines-December-2016.pdf>
2. Australian Commission on Safety and Quality in Health Care. National Inpatient Medication Chart Audit Form [Internet]. Sydney: Commonwealth of Australia; 2014 [cited 18 May 2017]. 4 p. Available from: <https://www.safetyandquality.gov.au/wp-content/uploads/2014/07/NIMC-Audit-Form-.pdf>

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