

# Improving the content, wording, structure & formatting of the NHS Injectable Medicines Guide (“Medusa”) with user testing

Matthew D Jones<sup>1</sup>, Bryony Dean Franklin<sup>2</sup>, DK Theo Raynor<sup>3,4</sup>, Margaret Watson<sup>1,5</sup>

<sup>1</sup>University of Bath. <sup>2</sup>UCL School of Pharmacy. <sup>3</sup>University of Leeds.

<sup>4</sup>Luto Research, Leeds. <sup>5</sup>Watson Research & Training Limited.

M.D.Jones@bath.ac.uk

 @MatthewJonesUoB

## Background & aim

- The NHS Injectable Medicines Guide (IMG) is used by nurses in >100 hospitals to guide the preparation & administration of IV medicines.
- Surveys suggest users find it too detailed & confusing<sup>1</sup>.
- This may make it difficult to find relevant, unambiguous information & could lead to serious medication errors.
- We aimed to identify & resolve problems in two typical IMG guides via user testing<sup>2</sup>.

## User testing methods

- We recruited 30 nurses from three hospitals who regularly administer IV medicines.
- These nurses tested existing IMG guides for voriconazole & aminophylline (renamed bathicillin & unimycin) via 3 iterative rounds of 10 interviews, each followed by guide revision.
- Each interview included direct questions that we scored to determine whether each participant could find & understand 17 key points of information (KPIs, Table 1).
- Open questions then explored views on guide content & format (analysed thematically).
- The study was approved by the University of Bath Research Ethics Approval Committee for Health (EP 17/18 126) & the Health Research Authority (IRAS 235214).

## Results

- The number of participants able to find & understand KPIs increased following revisions made between successive rounds of user testing (Figure 1 & Table 1).
- These improvements were the result of multiple changes to the content, wording, structure & formatting of the guides (Figure 2)

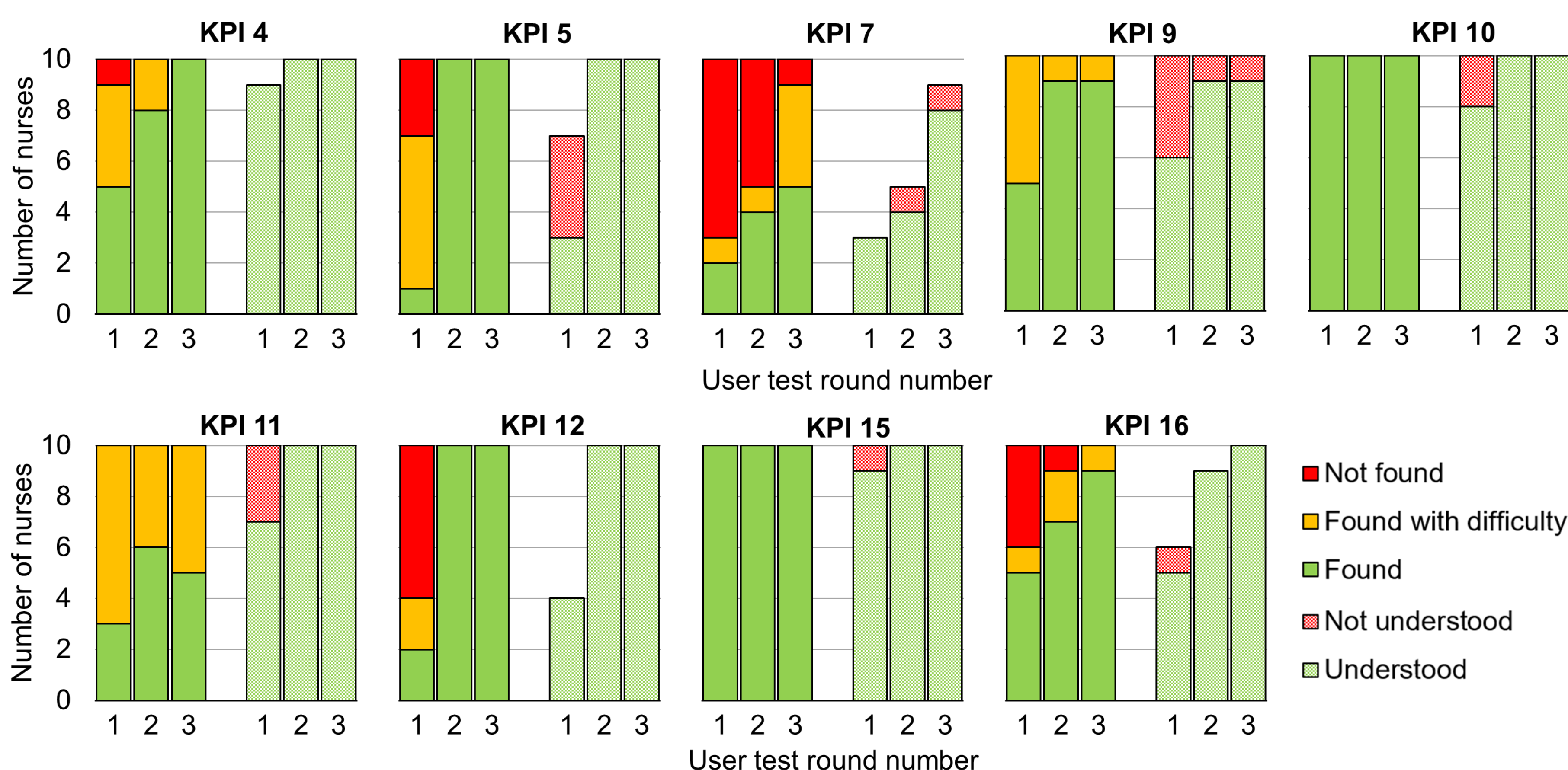


Figure 1: Number of nurses in each round of user testing able to find & understand KPIs. All nurses found & understood the KPIs that are not displayed (1-3, 6, 8, 13, 14 & 17)

Table 1: KPI topics that were not found or understood by some nurses\*

KPI	Drug	Topic
4	Voriconazole	Pre-treatment monitoring
5		Volume of dilution solutions
7		Volume of drug solution containing dose
9	Aminophylline	Infusion rate
10		Methods of administration
11		Infusion rate
12		Responding to adverse effects
15		Extravasation
16		NPSA safety alert

\*KPI topics found & understood by all nurses included presentation of the medicine, reconstitution, dilution solutions, sodium content, latex content, compatibility, expiry time & fluid restriction.

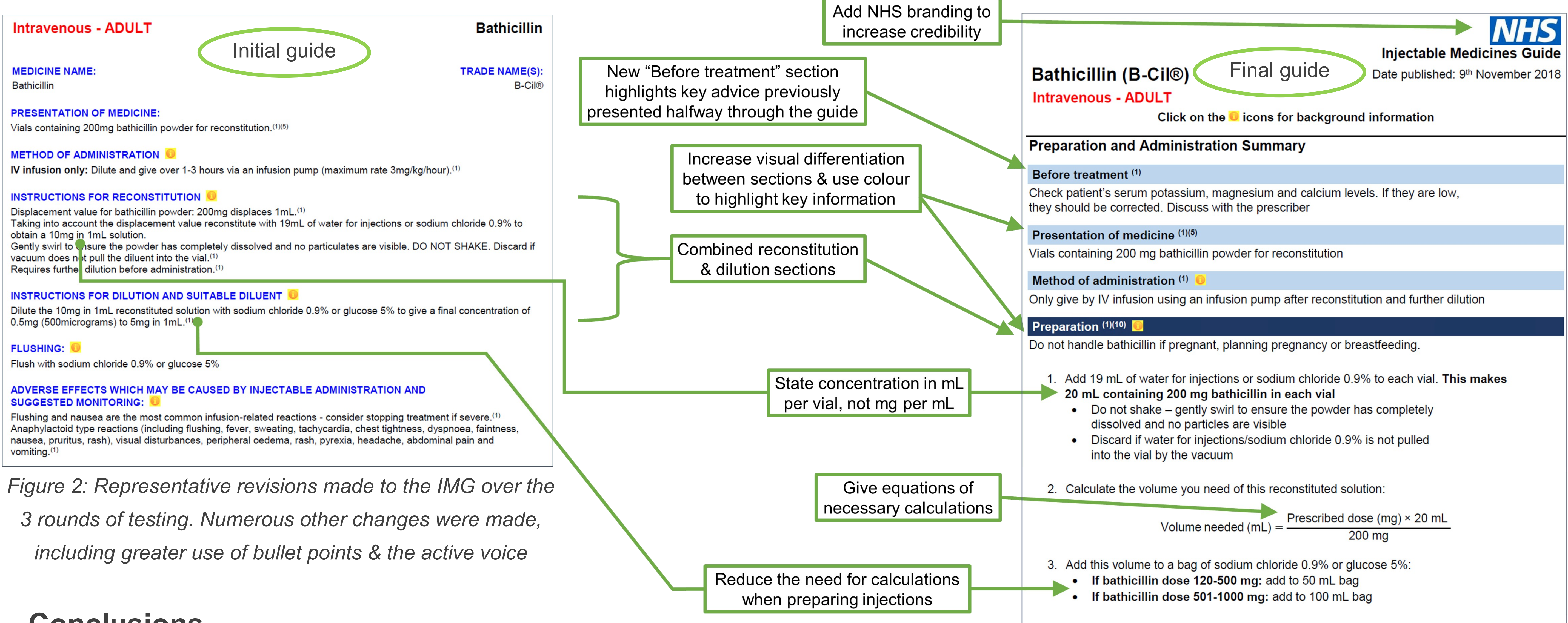


Figure 2: Representative revisions made to the IMG over the 3 rounds of testing. Numerous other changes were made, including greater use of bullet points & the active voice

## Conclusions

- The original guides performed poorly for several important KPIs.
- The user testing process improved guide performance in the interview context.
- An on-going randomised *in situ* simulation study will determine whether the user tested guide results in fewer preparation & administration errors in a ward environment.

## References

- Erskine *et al.* An assessment of the information provided to support healthcare staff to administer injectable medicines. UK Medicines Information Practice Development Seminar 2012.
- Raynor *et al.* *Ther Innov Regul Sci.* 2013 48(2):255-65.

Matthew Jones is funded by a National Institute for Health Research (NIHR) Transitional Research Fellowship for this research project.

This poster presents independent research funded by the National Institute for Health Research (NIHR). The views expressed are those of the authors & not necessarily those of the NHS, the NIHR or the Department of Health & Social Care.

Margaret Watson was funded by a Health Foundation Improvement Science Fellowship.

FUNDED BY

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