Department of **Pharmacy & Pharmacology**

UNIVERSITY OF BATH

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

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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[1].
- 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[2].

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)

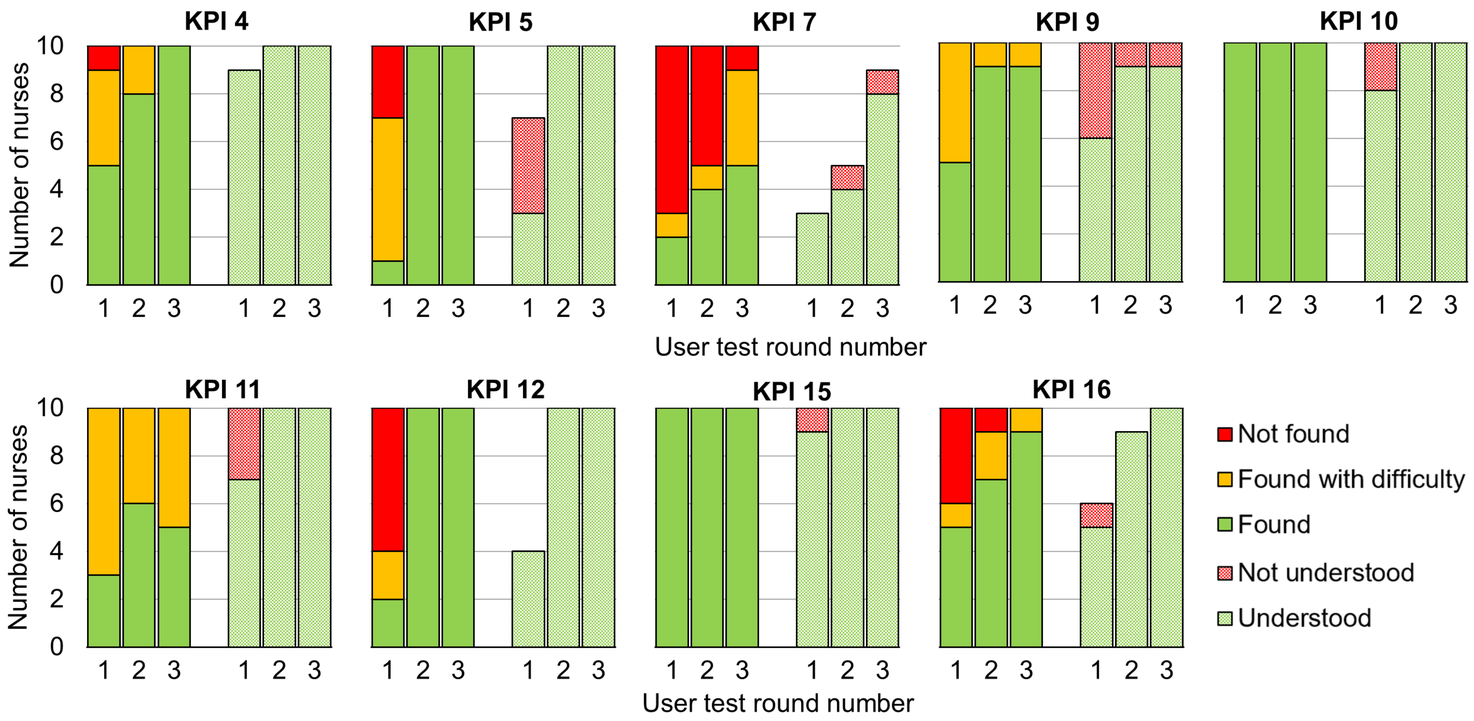

Figure 1: Number of nurses in each round of user testing able to find & understand KPIs. All nurses found & understood the KPIs that are not displayed (1-3, 6, 8, 13, 14 & 17)

*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		Infusion rate
10		Methods of administration
11	Aminophylline	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.

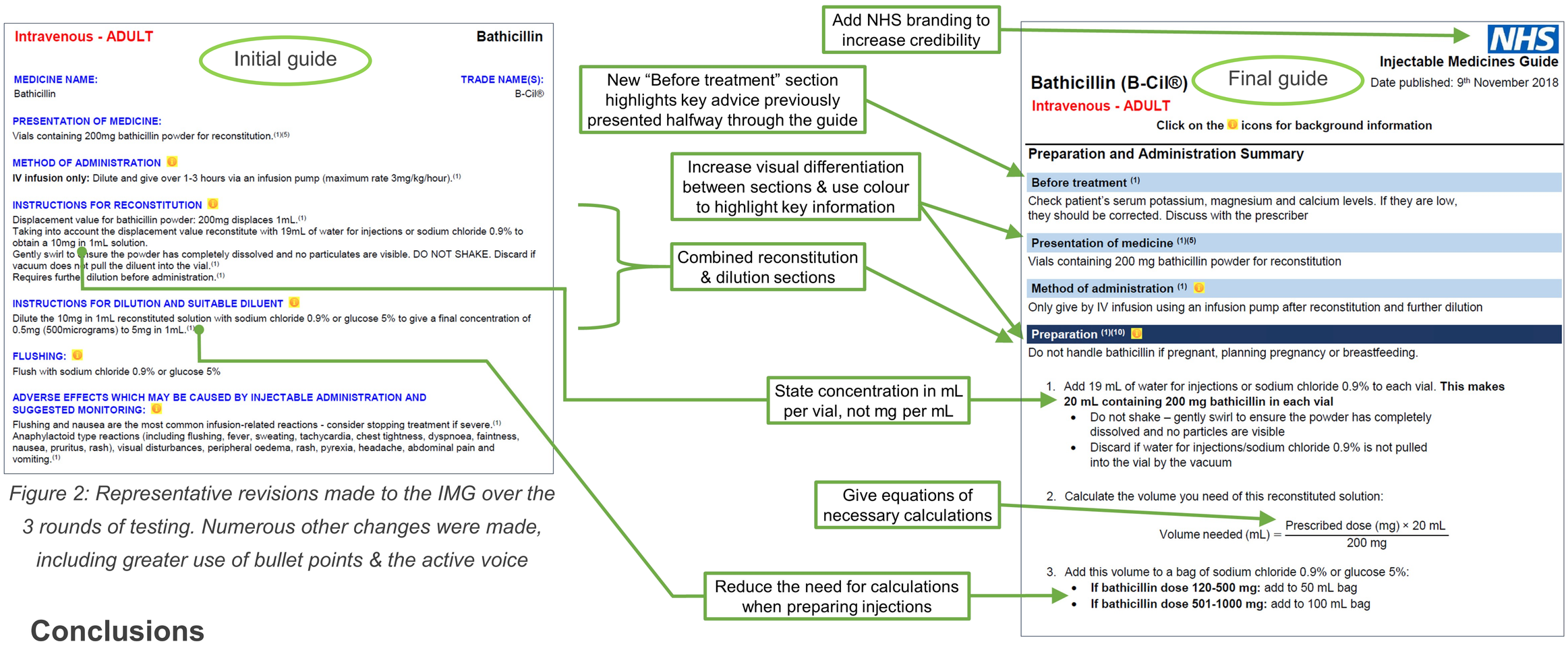

Figure 2: Representative revisions made to the IMG over the 3 rounds of testing. Numerous other changes were made, including greater use of bullet points & the active voice

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

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

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