

CIRCUS, a tool for pediatrics drug-use process quality

Validation with a Delphi technique

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Background

- Patient safety is a key priority in healthcare.
- To our knowledge, there is no standardized tool to evaluate and compare drug-use process in pediatric hospitals.

Objective

The aim of this study was to develop a tool for pediatrics drug-use process quality (CIRCUS - CIRcuit of Child drug Use) with a Delphi technique.

Methods

Identification of the safety practice domains and development of compliance criteria

- A literature search in order to identify the different safety practice domains for the pediatric medications circuit was conducted.
- **Twenty-six safety practice domains** were identified and **48 compliance criteria** were formulated.

Rounds

- Each survey participant was asked to score each proposed criterion on a 1 to 9 Likert scale in order to show their level of agreement (i.e. 1 reflects strong disagreement and 9 reflects strong agreement).

⇒ First round

- Between March and May 2013.
- A safety practice compliance criterion was deemed to be relevant by all of the panelists in the first consultation round if it obtained a median score of at least 7 with over 60% of panelists having allocated it a score of 7 or more.

⇒ Second round

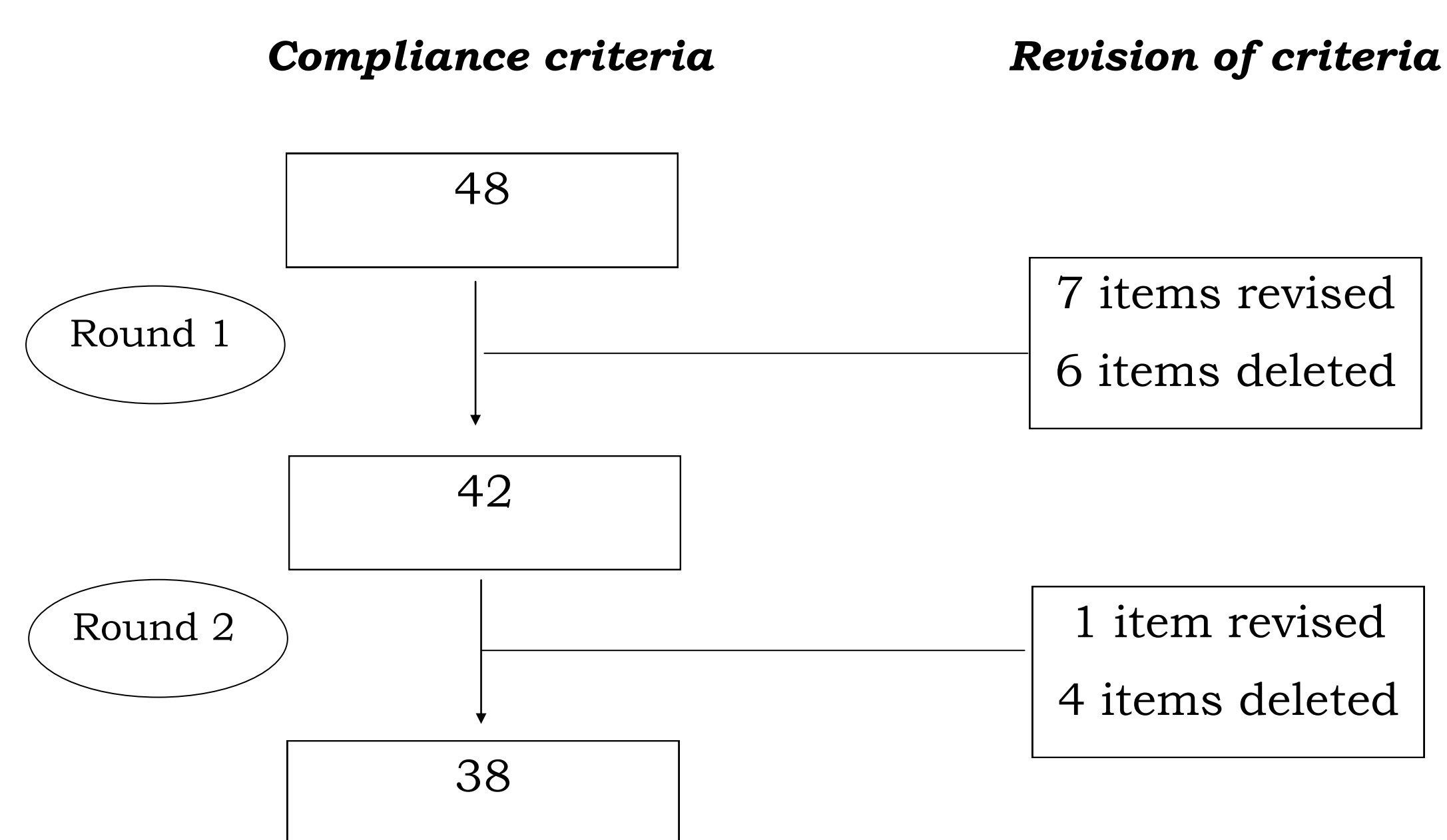
- Between May and July 2013, each panelist was sent a personalized questionnaire containing his/her personal score and the median score allocated by the panel of professionals in the first round for each safety practice compliance criterion.
- In order to be included in the CIRCUS tool a safety practice compliance criterion was required to achieve a median score of 7, with more than 75% of panelists allocating a score of 7 or over.

Professional panel

- The CIRCUS tool was validated by a panel of professionals drawn from a suitable sample and was made up of **pediatricians, pharmacists and nurses**.
- The professionals were selected from eight university hospitals in four French speaking countries (**Belgium, France, Quebec and Switzerland**).



Delphi process



CIRCUS TOOL

Domains

- Patient age
- Patient weight
- Allergies and intolerances
- Use of the decimal point
- Recommended medication dose
- Concentration of a medication solution
- Concentration of an oral solution/suspension
- Medication infusion
- Off-label use/use outside of guidelines
- Selection of the most appropriate pharmaceutical form
- Identification of excipients
- Drug formulary
- Relevant information sources
- Validation of medication treatment protocols
- Pre-written prescription sheet for intensive care
- Validation of medication prescriptions
- Use of correct oral syringes
- Specific preparation by pharmacy
- Double checking by care staff
- High risk medications
- Use of bar code readers
- Local pharmacists in departments
- Training in the risks of the medication circuit

Examples of safety practice compliance criteria

- Lack of a patient date of birth is a blocking criterion for DISPENSING a prescription.
- The reference to allergies and intolerances is always consulted by the PHARMACIST before DISPENSING a prescription
- A document stating the dose rate/mg/ml equivalences for oral proprietary products is available for all health professionals.
- The PRESCRIBER can consult all of the available pharmaceutical forms in the drug formulary in real time for a given medication in order to select the most appropriate form.
- A procedure describes the recognised information sources to support pediatric pharmacotherapy practice.
- The electronic pharmacological record displays alerts when the dose prescribed is above or below the recommended interval taking account of weight.
- High risk medications are identified in order to increase awareness of the different stages of the medication circuit

Discussion

⇒ An innovative tool

- The first self-assessment tool for safety criteria for the pediatric medications circuit.

⇒ A relevant tool

- The safety practice domains making up the tool were identified from a literature review.
- The compliance criteria produced are based on the expertise and experience of the research team.

Conclusion

- This descriptive study presents the development of a self-assessment tool for safety practices in the pediatric medication circuit using a Delphi method.
- The tool contains 38 criteria divided into 23 domains.
- This tool may be used in order to record and compare the prevalence of best safety practices in the pediatric medication circuit.