



Needs and challenges in pediatric pharmaceutical care: a mixed-methods survey of hospital pharmacists in Quebec, Canada

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A.P.E.S.

Association des pharmaciens
des établissements de santé du Québec

1 Introduction



Pediatric pharmaceutical care requires specific expertise. Recommendations on pharmaceutical care and services to pediatric patients in hospitals have been published¹⁻³, but they remain broad and are largely based on **presumed challenges**.

In Quebec, hospital pharmacists' exposure to pediatric practice varies considerably across settings. The challenges encountered in clinical practice, **their frequency, and their impact remain poorly documented**, and no survey has specifically examined the practical barriers faced by clinicians.

The *Association des pharmaciens des établissements de santé du Québec* (APES) is the professional organization representing hospital pharmacists in Quebec, Canada. Its expert pharmacist groups (EPGs) bring together clinicians with specialized expertise to support practice advancement through practice standards, clinical tools, and advisory activities. Following its establishment in 2023, the **Pediatric RPE sought to identify and prioritize practice-based challenges and educational needs** to guide its initial activities.

2 Aims



- Identify **practice-based challenges** encountered by hospital pharmacists providing pediatric pharmaceutical care and services in Quebec ;
- Quantify and characterize these challenges to **guide and prioritize** the activities of the EPG ;
- Identify **needs for clinical tools and education** to support improvements in pediatric pharmaceutical care practice.

3 Method



Survey

- 22 questions: multiple-choice, Likert scale, and open-ended questions
- Demographics, self-perceived competence, challenges, and clinical tool/education needs
- Sent to all APES members in November 2024

QUANT analysis

- Descriptive analysis
- Multiple-choice questions
- Likert scales

QUAL analysis

- Selective coding to structure themes (MAXQDA 24, free trial)
- Identification and quantification of code categories
 - Codes grouped by theme
 - Theme frequencies calculated

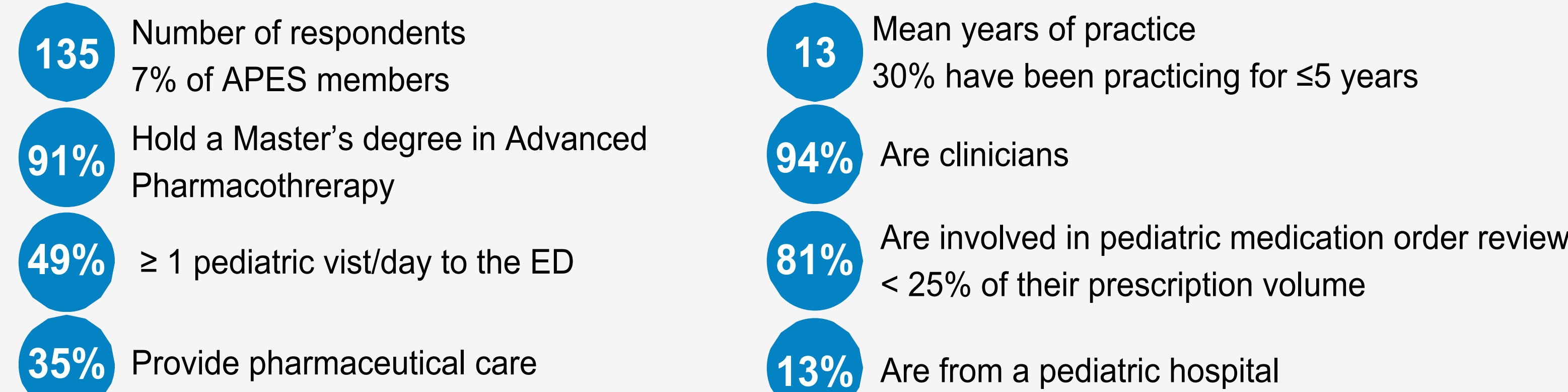
Mixed method

- Integration of QUANT and QUAL findings
- Convergence analysis of both datasets
 - Triangulation of findings across datasets
- Development of integrated interpretations of practice challenges

4 Results

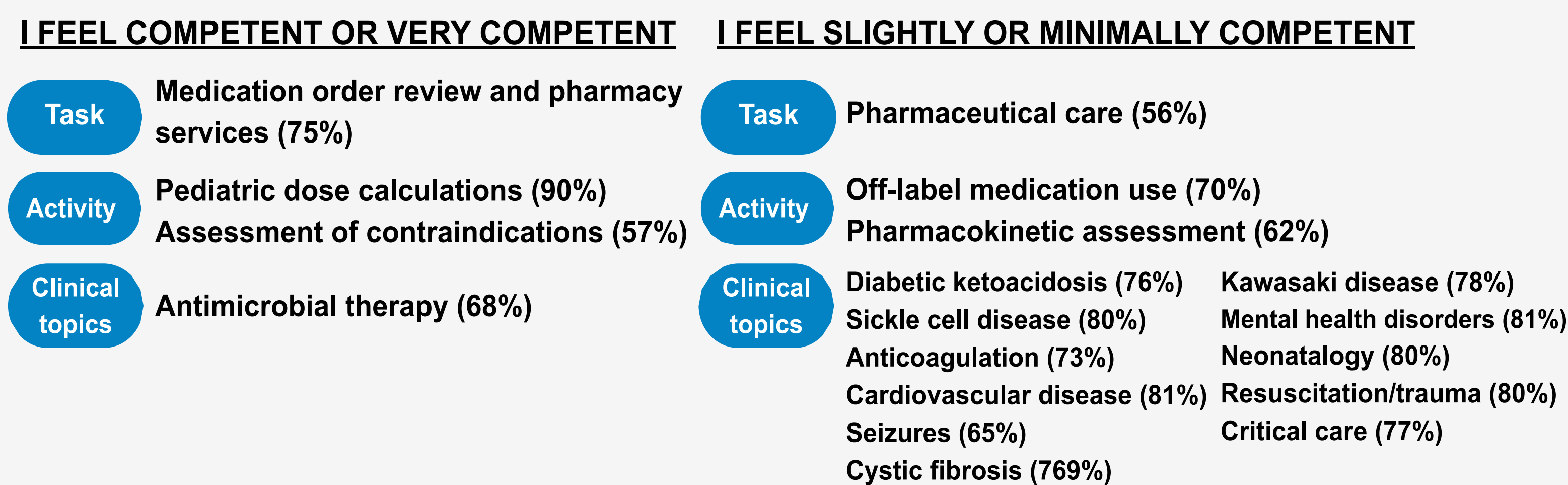


Respondent characteristics



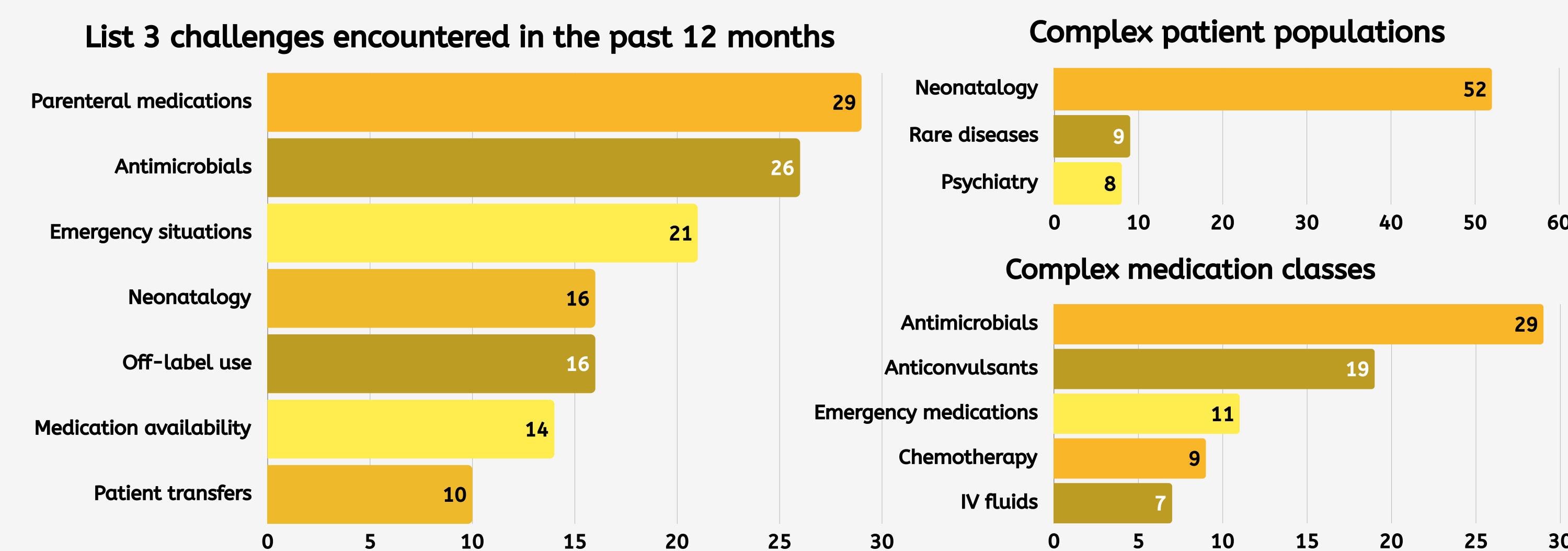
All administrative regions are represented

Self-perceived competence



Identification of challenges

Challenges spontaneously reported by respondents



In the context of pediatric pharmaceutical care

Frequency of challenges

- Lack of knowledge in pharmacotherapy - **89%**
- Uncertainty regarding treatment selection - **86%**
- Limited exposure to pediatric patients - **85%**
- Off-label medication use - **81%**
- Uncertainty regarding dosing/dose adjustment - **78%**

(% of respondents reporting encountering these challenges sometimes or often)

Impact of challenges

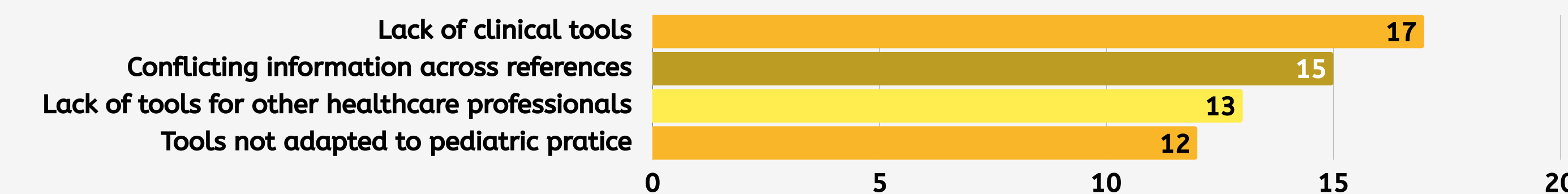
- Difficulty accessing the prescribed medication - **41%**
- Uncertainty regarding off-label medication use - **36%**
- Difficulty preparing the appropriate dosage form - **35%**
- Difficulty accessing a commercially available dosage form - **34%**
- Uncertainty regarding treatment selection - **31%**

(% of respondents reporting that these challenges have a major negative impact on pharmacists' practice)

Needs for clinical tools and continuing education

Challenges spontaneously reported by respondents

Challenges related to pediatric references encountered in the past 12 months



Priority areas to be addressed by the pediatric EPG

Guiding principles (most frequently suggested themes)

Pediatrics 101

- Guide to the preparation and administration of IV medications
- Principles of medication order review

Dissemination and harmonization of best practices

- Resource library
- Access to tools from specialized pediatric centres

Clinical topics (most frequently suggested themes)

Emergency situations and medications

Off-label medication use

Pharmacokinetics

Treatment selection

5 Conclusion



Discussion

Our survey highlights **low self-perceived competence associated with limited exposure to and experience in pediatric practice**, a real but difficult-to-modify challenge. Four themes consistently emerged: **neonatology, antimicrobial therapy, emergency medications, and off-label medication use**. These were identified across measures of frequency and uncertainty, as well as among priority topics for the Pediatric EPG.

The qualitative analysis identified needs related to fundamental concepts, including **medication order review and administration**, grouped under the theme "**Pediatrics 101**." A resource addressing these core principles could address several identified gaps.

Centralized and harmonized access to reliable pediatric references was a recurring need and could facilitate the management of complex or infrequent clinical situations.

Conclusion

Respondents were **representative of hospital pharmacists exposed to pediatric practice in Quebec**. The Pediatric EPG will first develop a resource on **fundamental principles of medication order review and administration**, followed by a **centralized library of pediatric references**. Specific clinical topics will then be addressed through **continuing education or concise clinical practice resources**.

6 References

- Bhatt-Mehta et al. Pharmacotherapy. 2013;
- Boucher et al. J Pediatr Pharmacol Ther. 2021;
- Eiland et al. J Pediatr Pharmacol Ther. 2018

7 Acknowledgements and contact details

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