

## **ABSTRACT**

**Background:** Parents especially rely on pharmacists to provide advice on over-the-counter medications most suited for their child's needs. The abrupt closure of hundreds of pharmacies across the United States has led many consumers to rely on internet-based advice for their medication needs, increasingly the use of AI software.

**Objective:** This study aims to quantitatively assess the accuracy and relevance of AI-generated responses to a range of pediatric drug-related inquiries, focusing on over the counter medication topics. By evaluating ChatGPT's performance in this domain, assessors seek to understand its strengths and limitations in providing clinical guidance and determine its suitability as a supplementary tool for healthcare decision making.

**Methods:** This study utilized a structured approach to assess AI-generated responses using a predefined grading rubric. Questions were posed to ChatGPT in simple terms, and responses were independently evaluated by a licensed pharmacist and a fourth-year pharmacy student.

**Results:** ChatGPT demonstrated impressive performance in relevance and language choice, with responses scoring higher than expected in these categories. However, the software struggled with accuracy, clarity, and the ability to escalate cases requiring medical attention. Additionally, it demonstrated limitations in providing empathy and personalized recommendations.

**Conclusions:** While ChatGPT provides useful responses for pediatric over-the-counter medication questions, it has notable limitations. AI lacks the ability to provide truly personalized drug therapy advice, struggles with proper source citation, and does not always recognize when medical escalation is needed. As reliance on AI for healthcare guidance grows, further research is needed to refine AI models and improve their reliability in clinical decision making.