Editorials

The KIDs List: Medications That Are Potentially Inappropriate in Children

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In 1991, Beers and colleagues published the first list of medications that were potentially inappropriate for older adults, significantly advancing medication safety in this age group.[1] This list, which was updated most recently in 2019,[2] became known as the Beers Criteria. Although infants and children have many of the same characteristics that put older adults at increased risk of adverse drug reactions, no similar guideline existed for children. Therefore, the Pediatric Pharmacy Association commissioned a team, including the three of us, to create the Key Potentially Inappropriate Drugs in Pediatrics (KIDs) List, an open-access, evidence-based reference aimed at improving medication safety in children.[3]

The KIDs List has several potential uses in clinical practice, including incorporating it into electronic health record safety alerts and using it as a clinical reference or teaching tool. Relevant source material is cited to allow readers to assess the evidence and its application to specific clinical situations. We weighed the quality and strength of evidence to generate age-specific recommendations to guide clinical decisions. For many medications, the level of evidence in children is not strong enough to make a clear decision on safety; therefore, more research is needed.

Creation of the KIDs List required a thorough literature search for which the GRADE (grading of recommendations assessment, development, and evaluation) and PRISMA (preferred reporting items for systematic reviews and meta-analyses) strategies were used.[4,5] PubMed, the Lexi-Drugs Online and Pediatric and Neonatal Lexi-Drugs Online databases, U.S. Food and Drug Administration Pediatric Safety Communications, and medications recommended by the expert panel members were reviewed to identify potential target medications for primary literature on advanced drug reactions in children. This approach resulted in a list of 67 drugs or drug classes and 10 inactive ingredients that are potentially inappropriate for use in children.

A number of medications under critical review lacked sufficient evidence to be included on the list. The absence of a medication from the list, therefore, does not necessarily imply that it can be used safely in children. For example, our team found no evidence of an intrinsic, age-specific increase in toxicity outside of overdoses with cough and cold medications, and thus this class did not meet criteria for inclusion on the KIDs List. Nevertheless, use of these drugs in young children is not recommended because of the paucity of data supporting their effectiveness.[6] Similarly, fluoroquinolones were not included on the KIDs List because the risk of advanced drug reactions is not unique to children.

The KIDs List should be used as a guideline and not an absolute prohibition. Specific clinical situations may warrant use of a medication from the list. As with any therapeutic decision, risks and benefits must be considered in the context of the individual patient.

This will not be the final iteration of the KIDs List. Much remains to be determined to improve the characterization of safe medication use in children. For example, despite a class effect demonstrating increased suicidal ideation in children and adolescents taking selective serotonin reuptake inhibitors (SSRIs), a lack of safer and more effective options for antidepressant therapy and incomplete evidence showing a clearly elevated risk of harm from one or more of these agents led to SSRIs being left off the list. With more research, one or more SSRIs may be added to the KIDs List in the future.

As the Beers Criteria improved the safety of medication use in older adults, the KIDs List aims to raise awareness of potentially inappropriate medications for infants and children and to inspire future research on adverse drug reactions in these patients. As pediatric pharmacists, the authors of the KIDs List have focused our careers on the safe and effective use of medications in children. We hope that our publication serves as a useful tool to aid in this shared goal with our peers in other clinical disciplines.

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Author disclosure: No relevant financial affiliations.

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