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Pharmacy for the Future: A Student's Perspective on Pediatric Pharmacy

Madelyn Mays

Abstract: Children make up a special patient population which requires careful attention and precision. Healthcare professionals should be well equipped with the knowledge and tools to properly care for this delicate group. This article addresses a pharmacy student's perspective on pediatric concentration within the field. Pediatric pharmacists possess the power of specialized care and effective communication which can potentially save children's lives. Children are the future, and it is crucial that pharmacists help protect the destiny of that future.

When people hear the term "pharmaceutical consumer" they most likely think of geriatric and middle-aged patients. However, children suffer from a variety of illnesses, diseases, and medical conditions that require pharmaceutical care. Nearly ten million children in the United States take prescription medications regularly for a health condition.¹ Children are considered a special patient population because they generally require more intricate care than the average adult patient. Making up about 24 percent of the United States population, children represent the future of society.² To properly care for children is to properly care for the future, and a focus on pediatrics within the pharmaceutical industry is vital to ensure optimal care is received. Pediatric focus within pharmacy is essential to saving children's lives through specialized care and effective communication.

Children make up a special population within medicine. Pediatric caregivers require a particular set of skills and understanding to properly care for children. Pediatric patients can be challenging to treat because they are constantly changing and developing. Children of the same age can vary widely based on height, weight, or cognitive development. There are fewer studies and less published information available on the pediatric population, making it more difficult to determine optimal treatment for these patients. Additionally, pediatric dosing requires more intricate calculations and preparation which can lead to medication errors and adverse drug events. For instance, many pediatric drugs involve dilution of stock materials, making the dosing more susceptible to errors. It is also more difficult for children to buffer adverse effects due to limited development of organs and organ systems.³ In fact, pediatrics is the second most common medical specialty with legal action based on drug-related events.⁴ For these reasons, it can be more of a challenge for pharmacists who regularly treat adults to care for pediatric patients.

Similar to the utilization of specialized workers in a business to produce higher quality products or provide services at more efficient rates and costs, it is beneficial for pharmacists to specialize to yield higher quality care. A study conducted to assess the impact of pediatric clinical pharmacists in an intensive care unit found that having a pediatric pharmacist decreased medication errors, improved staffs' understanding of drug therapy, and even led to significant drug cost savings.⁵ Another

study found that medication errors were common among pediatric patients but that 94 percent of potential adverse drug events were avoided by including a pediatric pharmacist during rounds.³

Taking medications can be overwhelming for anyone, especially for a child. Furthermore, many young patients often lack the confidence or ability to communicate medication related adverse effects they may be experiencing. However, pediatric pharmacists possess the proper knowledge and skills which allow them to communicate effectively with children. They are able to answer their questions in a way children are able to understand, thus calming the child's anxieties about medications. A study was conducted to determine how pediatric patients felt during team-based rounds that included pharmacists, pharmacy residents, and pharmacy students.⁶ While some of the patients felt overwhelmed by such a large group, many did feel confident in knowing that so many professional healthcare providers were working together to help fix their problem. The young patients felt that more informed caretakers meant more safety, efficiency, and better care.⁶ By providing pediatric patients with confidence about their treatments, healthcare providers, including pharmacists, are progressing the patients toward better health.

To empower children and make them more knowledgeable about their care, it is important for pharmacists to counsel pediatric patients about their medications. Pharmacists can educate children and help them understand important drug concepts. Although pharmacists should relay important information to parents or caregivers, the conversation should be centered around the child since they are the patient.⁷ The pharmacist should evaluate a child's mental capacity for understanding basic medical concepts by asking open-ended questions and taking that into consideration when determining the extent of drug information that should be provided. Studies show that children are fully capable of comprehending medical information in a way that is respective of their cognitive development.⁷

There are four general stages of child cognitive development: sensorimotor, preoperational, concrete operations, and formal operations.⁷ Children are first able to learn about medications during the preoperational stage, from about two to

seven years old. Although these children have limited attention spans and capacities for information, they are capable of understanding basic medication concepts such as the importance of taking them and directions for use. During the concrete operations stage, from about seven to twelve years old, children can focus on more than one concept at a time and they maintain simple problem-solving skills. At this stage, pharmacists can include in their education such topics as medication safety, drugs' mechanism of action and distribution in the body. Finally, children in the formal operations stage, beginning at the age of thirteen, are capable of more logical and intellectual understanding. Pharmacists can teach these patients about prescription versus over-the-counter products, drug dependency, addiction, dosage forms, interactions, and brand versus generic. At this point, these patients can be given more autonomy and held responsible for knowing their medication schedule or even picking out their own over-the-counter products.⁷ From a very early age, children are able to understand simple instructions and medication concepts, so pediatric pharmacists can ensure medication safety among child patients.

When pharmacists include children in conversations about their medications, it provides them with a sense of autonomy. It also makes them feel more active in their treatment. By listening to the child's perspective and asking them questions about how the medications make them feel, pharmacists are able to consider their perspective when evaluating a treatment plan. This is especially important when a child is in the formal operations stage of development. At this stage, the patient should be assured that the pharmacist does not have to inform the parent of what the patient says or buys. This builds trust and enhances the patient-provider relationship.⁷ It is important for the pharmacist to build trust with the patient so they feel more comfortable with taking their medications. This trust provides patients with an opportunity to ask questions and obtain assurance about their treatment.

An important part to providing pharmacy care for pediatric patients is to consider more pediatric education within pharmacy schools. A study was conducted to determine the quantity and quality of pediatric pharmacy education for U.S. entry-level Doctor of Pharmacy programs. It was found that of the 37 accredited programs surveyed, an average of about 17 hours are devoted to pediatric topics within required courses.⁸ In retrospect, pharmacy programs require an average of about 200 credit hours to graduate. It was also found that only 68 percent of pharmacy programs require pediatric drug dosage and administration information in course content.⁸ Programs that provide minimal pediatric training can lead to a lack of comfort caring for young patients as new graduates enter pharmacy residencies or careers. This in turn can result in medication errors and adverse drug events. Therefore, the study investigators suggest that pharmacy students be given the opportunity to work directly with children and their caregivers before graduating from an accredited Doctor of Pharmacy program.⁸ This experience would benefit not only the pediatric patients but also pharmacists as they would be more confident in treating young patients.

In conclusion, children are susceptible to serious and even life-threatening complications if not treated properly with pharmaceuticals. Pharmacists equipped in pediatric care can have a significant impact on the overall health of young patients. Pediatric pharmacists can decrease the potential for adverse drug events, provide counseling to ensure proper medication use, and enhance the patient-provider relationship. Therefore, a pediatric emphasis within pharmacy can progress children toward more healthy, strong, and productive futures.

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