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Case Report

Communication Strategies for Empowering and Protecting Children

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Communication with children and adolescents is an area that requires special attention. It is our job as health care professionals to ensure that the information being relayed is provided at a level that can be understood, to ensure patient safety as well as keep a child or adolescent engaged in their own medical care and decision making. This article discusses the importance of communication with children, adolescents, and their caregivers. It focuses on the overall importance of health literacy in communicating health care information to both caregivers and their children. Included are points to consider when communicating at different developmental stages, as well as strategies to help establish rapport. Lastly, the importance of technology and how it can help facilitate communication with this population is introduced.

INDEX TERMS: child, communication, health literacy, technology

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INTRODUCTION

Communication, both verbal and written, is a vital component of health care. It is well documented that poor communication can lead to compromised outcomes for the patient and family.[1] Children and adolescents represent a unique challenge to health care professionals and how the professionals communicate health information. Not only must information be delivered to multiple persons but it must also be done in a way that is understandable to all persons. Some children may have multiple caregivers involved, and it is important to ensure that each party receives and understands the appropriate health information. Communication with children should continually occur, preparing the child to assume responsibility for their own health information.

Teaching health information to children empowers them to actively participate in their health care and provides self-management skills that will assist them in keeping themselves well throughout their lives.[2] Because there are a growing number of pediatric patients with chronic medical conditions, it is important to engage the child in their medical care. By providing medical information that the child understands, it is possible to see increased adherence, fewer adverse effects, and increased knowledge.[2] This article reviews 1) health literacy considerations for children and caregivers, 2) developmental stages of pediatric patients and how this alters our communication strategies, 3) how to establish rapport with children and adolescents, 4) how communication affects adherence, and 5) use of technology to facilitate communication.

ROLE OF HEALTH LITERACY IN COMMUNICATION

Health literacy is an important and emerging aspect of health care.[3] Health literacy has been defined by the Institute of Medicine and National Library of Medicine in the United States as the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.[4] Historically the definition was focused primarily on a patient's inability to read and communicate their health information. More recently the definition is focused more on how providers and health care systems commu-

nicate information to the patient. Limited health literacy skills have been associated with poorer health knowledge, worse health behaviors, and increased health care costs.[4–6]

Miscommunication of health information is not just a problem for those who have low literacy skills. A national literacy assessment performed in adults (ages 16 and older) revealed rates of 29% for basic and 14% for below-basic literacy skills.[7] An additional 5% are nonliterate in English. Health literacy includes a variety of skills beyond reading and writing, including numeracy, listening, and speaking. For many Americans the context of health care is likely to be especially challenging because of its changing nature and complexity. The Joint Commission has recognized this topic as important and states that the safety of patients cannot be assured without mitigating the negative effects of low health literacy and ineffective communications on patient care.[8] In conjunction with other health organizations, the American Academy of Pediatrics (AAP) has begun to prioritize health literacy as a key quality and patient safety issue.

Health Literacy of Caregivers

For caregivers, health literacy skills are needed for the performance of everyday tasks required for taking care of their families, including the ability to obtain health insurance, interpret the label of a nonprescription medication, and decode a nutrition label to make informed decisions about food.[6] A study using data from the 2003 National Assessment of Adult Literacy assessed overall caregiver health-literacy and ability to perform specific child-related tasks and revealed that 1 in 4 caregivers (>21 million) have limited health literacy skills and that only 1 in 7 caregivers has proficient health literacy.[6]

Low caregiver literacy is an independent predictor for having an uninsured child in the household, as well as difficulty understanding nonprescription medication labels. Medication administration errors are quite common, with 50% or more of caregivers making errors when administering liquid medications.[9] Recent findings indicate that most preventable adverse drug events in pediatric patients in the community setting are attributable to errors in medication administration.[9] Administration of medicine to pediatric patients presents a unique challenge as most pediatric medications are in a liquid formulation. Caregivers must be able to interpret the written instructions and units of measurements and then implement these instructions with a dose instrument. A study in 2010 looked at caregivers' abilities to administer liquid medications and examined the degree to which caregivers' health literacy influenced dose accuracy.[9] Dose cups were specifically associated with large overdosing errors, with caregivers who had low health literacy most at risk. Dose cups are not "health literate" owing to their high degree of variability and complexity.

Health literacy involves not only an individual's literacy skills when a task is performed but also how navigable and clearly the task is presented.[4] Inclusion of pictographic information, such as pictograms or simple diagrams, as part of medication instructions is a potential strategy for decreasing dosing errors made by adult caregivers. Use of picture-enhanced written materials improves comprehension and adherence, particularly for those with low literacy skills.[10] Subsequent pediatric publications have shown a reduction in medication errors with the use of pictographic dose instructions. Use of a pictographic dose diagram as part of written medication instructions for infant acetaminophen liquid was found to improve the accuracy of dose administration, especially for caregivers with low health literacy.[10] Historically there has been more focus on and concern around errors resulting in overdosing. However, most errors in this study involved underdosing. It is important to recognize that underdosing errors can also have clinical implications, including inadequate pain relief, child discomfort from inadequate treatment of fever, antimicrobial resistance, and potential for increased resource use associated with unnecessary clinic or emergency department visits.[10] Pharmacists are on the front line of communication with caregivers; we must ensure that the use of these devices is explained in simple and plain language. Adequate communication about children's medication, whether to adults or children themselves, is critical to patient safety and adherence.[11]

Health Literacy of Children and Adolescents

Pediatric health literacy represents a difficult and complex dilemma. The health care provider must account not only for the literacy of the adult caregiver but also for the child's health literacy,

which is ever-changing as the child develops. All children begin life lacking literacy, with their caregivers' health literacy acting as their surrogate interface with the health system.[12] If we expect children and young adolescents to be more involved and take an active role in their own health, it is imperative that we as health care providers ensure that health literacy skills develop at an early age. Many times the selection of medications and medical or surgical procedures may occur without the child or adolescent being present and included in the conversation.[13] When children take more control of their own health, it is possible that they might adopt and build on health-promoting lifestyles.[13]

There are many factors involved in promoting childrens' active participation in their health. As health providers, it is essential for us to be more aware of the learner's world. We must ensure that our interactions with children and adolescents promote active listening and display a greater interactivity so that they are engaged with the information that is being delivered. Age-related developmental stages must be considered when creating health materials and programs for pediatric patients. Even young children can recognize icons and images that convey health information.[13] Despite being unfamiliar with letters, numbers, or graphic representations, a child may be able to react to specific hazards that compromise their health. In an effort to improve health literacy among children, the AAP has published recommendations for action and propose that the following practice-related interventions be implemented: use of plain language communication principles (Table 1), teach-back, reader friendly print materials, and creation of a "shame-free" care environment through programs like *Ask Me 3* (Table 2).[14–16] Children and adolescents, especially those with chronic conditions or special needs, must understand the importance of these tools so they can develop the ability to become their own health care advocates.

CONSIDERATIONS WHEN COMMUNICATING WITH CHILDREN AND ADOLESCENTS

When communicating with children, it is important to know their developmental stage determines appropriate communication strategies. Generally, children can begin to participate in communication about their health care and medicines at 3 years of age.[13] As the child ages, more involvement in and ability to comprehend information can be expected, reaching the abilities of an adult around 12 years of age.[17] Determinants of successful communication include not only catering to the child's developmental stage but also establishing rapport with the child and asking questions in a way they can understand.

Piaget's classification of cognitive development is 1 method of identifying the type of information a child can receive. In this model, 4 stages of cognitive development are described: sensory motor (0-2 years of age), preoperational (2-7 years of age), concrete operational (7-11 years of age), and formal operational (≥12 years of age).[18,19] Table 3 illustrates teaching a child about taking amoxicillin for an ear infection at various stages of development. Although not every child will fall into these developmental stages at the ages indicated, these stages serve as general age groups to consider. Additionally, a child's ability to comprehend a message depends on what they have been exposed to in the past.[13] For example, if a child has never been involved during a health care encounter, they will not be as experienced and familiar with answering questions or receiving information in this setting. As recommended by the US Pharmacopeia Convention, children generally want to know the following information about their medicines[20]: 1) How does the medicine taste? 2) When do I take the medicine? 3) How will it make me feel better? 4) How long will I take it? 5) What are the adverse effects? 6) Why am I taking the medicine?

Establishing rapport can be accomplished quickly and typically opens the door for a more successful encounter with a child (Table 4). Two key techniques for establishing rapport include keeping eye contact with the child or adolescent and beginning the conversation with a topic that they may find interesting. Simple questions for school-aged children such as "how old are you" or "what do you like to do at school" will help increase their comfort in interacting with someone they do not know. Each of these may increase the child's level of engagement and increase the likelihood they will ask and answer further questions.[17] Children and adolescents should be treated with respect and spoken to in the same tone of voice used for adults. They should also be involved in the decision making

Table 1. "Simply Put" Guidelines for creating easy-to-understand materials[15]

Message content

• Give the most important information first
• Limit the number of messages by taking out the "nice to know" and keeping the "need to know" information
• Tell your audience what they need to do and what they will gain from understanding and using the material
• Choose your words carefully
  • Use common 1-2 syllable words
  • Define unfamiliar words
  • Avoid or explain acronyms, jargon, and idioms
  • Use symbols sparingly

Text appearance
• Use font sizes between 12 and 14 points • Heading font size should be at least 2 points larger than the main text size • Leave at least ½ to 1 inch of white space around the margins of the page • Do not use all CAPS • Limit the use of light text on a dark background • Use bold type to emphasize words or phrases • Limit the use of italics or underlining
Visuals
• Use simple drawings and avoid unnecessary details • Use visuals to communicate your messages • Make visuals culturally relevant and sensitive • Place your visuals near the related text and include captions
Layout and Design
• Design an effective cover • Organize ideas in the order that your audience will understand • Make text easy to follow by using bullet points
Consider Culture
• Use terms that your audience uses and is comfortable with • Target messages to each cultural or ethnic group or subgroup
Translation
• Design material for minority populations based on subgroups and geographic locations • Choose a qualified translator who is familiar with your intended audience • Avoid literal translations • Use the back-translation method • Field test draft materials with members of your intended audience
Understandability

• Reduce reading level before using formulas
• Test your document's readability level
  • Fry Readability graph
  • Simple Measure of Gobbledygook Readability Formula (SMOG)
  • Flesch-Kincaid Readability Test

process whenever possible.

Adolescents should be the primary persons receiving and giving information during an encounter. Although they may be reluctant to speak, adolescents will appreciate the opportunity to speak and be treated as adults. It is important to recognize that a counseling encounter that includes considerations related to alcohol or contraception may be uncomfortable for the adolescent and should be discussed in the absence of the caregiver whenever possible to ensure more open dialog.[21] The pharmacist can discuss with the caregiver that it is important for adolescents to take an active role in their health care and that this is done more successfully if the adolescent is given privacy and autonomy to speak with the pharmacist alone. If the caregiver refuses to allow for this type of autonomy, the pharmacist

Table 2. "Ask Me 3"[15]

- What is my main problem?
- What do I need to do?
- Why is it important for me to do this?

should speak in general terms about the effects of the medicine when taken with alcohol or when pregnant.

Open-ended questions are generally recommended for children and adolescents. However, school-age children may have more difficulty understanding the questions being asked. In this case, closed-ended questions may be useful for gathering specific information.[17,22] For example, you may have more success asking a child "were you coughing at school yesterday?" as opposed to "when did you start coughing?" Similarly, "when do you have trouble with your asthma?" will be more difficult for a child to answer than "do you have trouble breathing when you try to run?" When getting information from a child, they often take more time to communicate than adults and should be given ample time to respond to questions. This delay in responding often prompts caregivers to answer the question for them, further decreasing the likelihood the child or adolescent will continue to engage in the conversation. If the goal is for the child to answer questions, the caregivers should be informed of this at the beginning of the session so they are aware of that expectation. Caregivers can also be told that they will be asked to clarify and share their perspectives after the child has had a chance to communicate with the interviewer. The goal of teaching children to take responsibility for their health by communicating with health care professionals should be communicated to the caregivers and children.

For practitioners working with adolescents with chronic illnesses, motivational interviewing is a communication technique that can be effective in developing a partnership between patient and health care provider.[23,24] This technique is most useful for helping the adolescent who has difficulty with adherence to medications or life-

Table 3. Applying Piaget's Cognitive Developmental Stages to Patient Counseling[18,19]

Approximate Age (yrs)	Developmental Stage	General Considerations	Counseling Example
0-2	Sensory Motor	Not able to process medication information given	No counseling recommended
2-7	Preoperational	• Cannot comprehend cause and effect or implications of the future • Unable to understand how their actions can affect their health • Visual displays are effective	• This medicine will make you feel better. • Your mom or dad will give it to you when you wake up and before you go to sleep. • It tastes pretty good and I think you will like it. • Do you have any questions for me?
7-11	Concrete operations	• Begin to be able to understand diseases and different aspects of a situation • Better understand concrete examples than hypothetical situations	• This medicine will help get rid of the pain and infection in your ear. • You will take it when you get up in the morning and before you go to bed. • It's important to take it every day for 10 days so your infection doesn't come back. • Do you have any questions for me?
≥ 12	Formal operations	• Understand illness, how it occurs and how they can control it • Capable of logical reasoning • Typically able to receive a message at the same level as an adult	• This amoxicillin will decrease the bacteria in your ear to get rid of your ear infection. • You will take it twice a day, in the morning and evening for 10 days. • You should start feeling better in 2 days, but it is important to keep taking it even if you start feeling better so the infection doesn't come back. • Be sure to talk to your parents if you still feel bad after 2 days or if you get a rash. • You can take amoxicillin with food to help decrease upset stomach. • What questions do you have for me?

Table 4. Tips for Establishing Rapport with Kids[17]

Be at the child's eye level. Do not tower over them.
Look for things that might interest the child such as a book they are reading, a toy they are playing with, or characters on T-shirts or shoes. Use these items to ask them about and start a conversation.
Share some thoughts to make them feel validated, but avoid going into elaborate detail or shifting the focus to yourself. For example, I don't like taking medicine that tastes bad either or a lot of kids are afraid of shots, but…
Avoid making comments that can make children self-conscious. For example, you are so tall, I like your red hair, or you seem shy.
Use a normal tone of voice and adjust your vocabulary, taking care not to "talk down" to the child.
Maintain a calm, gentle, unhurried, and open demeanor rather than a forceful, energetic one.
Link information to activities of daily living rather than to abstract concepts. For example, "you will take this medicine with breakfast and at bedtime" rather than "you will take this medicine every 12 hours".
Respect and be open to an adolescent's perspective of a concern; even if you don't agree, it's important to allow them to express their opinions.
Be an attentive listener, especially when adolescents are trying to communicate with you. Keep eye contact and do not be distracted or write while they are talking.
Do not allow parents to speak unfavorably about their children in your presence. This may embarrass the children and undermine their trust in you.

style interventions. It aims to explore a person's motivations toward a behavior and help guide them toward self-motivation for making a change by listening with empathy, active listening, and asking open-ended questions.

USE OF TECHNOLOGY TO FACILITATE COMMUNICATION

Historically face-to-face or telephone communications have been the primary means for patients to communicate their health information with their providers. With numerous technological advances and use of the Internet over the last 20 years, there are new demands for information to be delivered in an alternative fashion. In the United States, 80% of adult internet users have used the Web for online health topics.[25] In 2001, the Institute of Medicine (IOM) report *Crossing the Quality Chasm: A New Health System for the 21st Century* called for care that is based on continuous healing relationships.[26] The first rule the report states is "Patients should receive care whenever they need it and in many forms, not just face-to-face visits. This implies that the health care system must be responsive at all times, and access to care should be provided over the Internet, by telephone, and by other means in addition to in-person visits."[26] There are many advantages to patients having electronic access to their health care information. Health information on the Web makes patients better informed, which leads to better health outcomes and more appropriate use of health service resources.[25]

Health information technology is increasingly being used and studied for its role in information transfer and health care delivery for pediatric patients in community and home care settings, often with involvement of caregivers. This communication method is especially important in situations where children with health care needs require mediation. It is estimated that by the time they reach adolescence, 10% to 15% of all children will be living with a chronic disease.[27] Asthma and type 1 diabetes are 2 of the most common chronic diseases in children and adolescents. A number of health information technology interventions have been suggested to help improve communication to these patient groups. There are 2 types of interventions commonly featured in these studies, synchronous (immediate) transfer of data and asynchronous (store-and-forward) transfer. Electronic monitoring and recording is a common method to help caregivers reduce the

Table 5. Helpful guidelines for patient-provider email[31]

Email is not to be used for an emergency or time-sensitive situation
Email communications should be concise
Emails may be forwarded to other members of the health care team involved with the child's care
Email correspondence will become part of the child's medical chart
Email response will be within a 72-hour time frame
Private health care information sent over the Internet may be intercepted by hackers

burden of using a paper diary and increase the reliability of data. Computer kiosks for initial assessments of asthma patients have been found to help increase time efficiency and comprehensiveness of information transfer to health care providers for decision support purposes.[28] In patients with type 1 diabetes, data from portable insulin pumps can be monitored asynchronously and uploaded and communicated to a health care provider so that it can serve as a decision support function.[28] The use of a personal robot to help engage children with type 1 diabetes to improve their health knowledge in an enjoyable way increases diabetes knowledge.[29] This is also a fun and motivating manner to improve health knowledge with hopes to help children better cope with their illness.

Internet Tools

Email communication has been highlighted by the IOM as an emerging viable avenue to enhance patient-provider communication. Email has the unique capability to provide rapid message transfer and asynchronous communication. Providers who choose to utilize email for patient and medical practice communication are required to follow the guidelines set forth by the American Medical Association.[30] When sending protected health information over the internet, the Health Insurance Portability and Accountability Act requires the following criteria: 1) encryption of messages, 2) outline of privacy practices for the patients or patient's families, and 3) appropriate protection (firewalls and physical security) to prevent unauthorized individuals gaining access.[31] Generally, most physicians have been reluctant to communicate via email, in part because of reimbursement and medical liability. Pediatricians have done better than most physicians in the adoption of patient-physician email; however the technology is used by only 30% of pediatricians.[32]

There is some concern that email communication may increase physician workload. However, compared to a telephone call, email response took the physician 57% less time on average to complete.[32] Not only does email save the physician time, but also the office staff by avoiding fielding telephone calls that would eventually have to be routed to the physician. It is important to have families sign consent to establish boundaries for the use of patient-provider email (Table 5). Reimbursement for email communication is not completely widespread but many insurers, with the notable exceptions of Medicare and Medicaid, cover online consultations. There is some controversy about email communication being too impersonal and thereby allowing for misinterpretation which can diminish the quality of care and open the possibility of increased medical liability.[33] Regardless, electronic communication is the direction our health care system is heading. Access to healthcare providers at the patient's convenience is being increasingly emphasized in medical reimbursement models, such as the Patient Centered Medical Home, emphasizing the need for medical practices to adapt functionalities that will increase access to the provider.[34]

CONCLUSIONS

Communication with children and adolescents is an area that requires special attention. It is our job as health care professionals to ensure that the information being relayed to these age groups is at a level that can be understood to ensure patient safety. Communication must be done directly with the child so that the child can become engaged in their own medical care and decision making. Making children and adolescents accountable at a young age will help improve their overall health and safety over the long-term. With

the advent of more electronic formats for health information we must find ways to improve our methods of communication so that families have more convenient ways to contact their providers and access their information. Additionally, we need to consider the health literacy of caregivers and children so that we can provide effective verbal and nonverbal communication tools.

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Abbreviations AAP, American Academy of Pediatrics; IOM, Institute of Medicine

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