



# Using Picture Schedules in Medical Settings for Patients With an Autism Spectrum Disorder

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Autism is a neurobiological disorder that compromises ability to communicate and can be accompanied by anxiety, particularly for those in unfamiliar settings with unknown people. To improve communication, children with autism often relate well to pictures; however the literature describes no studies of picture schedules for patients with autism in medical settings. Our pilot project demonstrates how picture schedules for medical settings can relieve anxiety in children with autism and suggests that this approach should be employed as an innovative way to interact with patients with autism.

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HEALTHCARE PROVIDERS WORKING in pediatric settings are likely to encounter at least one child, if not several, with autism (Souders, DePaul, Freeman, & Levy, 2003). Autism is a complex, typically lifelong, neurobiological condition that includes a wide spectrum of related disorders: autistic disorder, Asperger's disorder, pervasive developmental disorder—not otherwise specified, Rett syndrome, and childhood disintegrative disorder (Table 1). Children with autism often have co-occurring medical issues that may require visits to medical clinics or hospitals more often than children who do not have autism. For example, up to 39% of those with autism also have co-occurring epilepsy (Armstrong, 2008); and although the evidence is conflicting on the prevalence of gastrointestinal complaints in those with autism, some reports estimate that up to 85% also complain of chronic constipation, reflux, or diarrhea (Myers, Johnson, & The Council of Children with Disabilities, 2007). Many

children with autism also have co-morbid conditions, such as attention deficit hyperactivity disorder (ADHD), depression, generalized anxiety, and obsessive-compulsive disorder (OCD), which may require medication (Kiln, McPartland, & Volkmar, 2005). Other potential co-morbid conditions include genetic conditions, feeding and oral problems, hyperkinesia, and sleep disturbances (Myers et al., 2007).

Medical visits can be difficult for a child with autism, his/her parents, as well as providers. Medical visits can be particularly challenging because they are not in the child's normal routine, and may entail encounters with many unfamiliar people and expectations. In addition, hospitals and medical clinics can be very busy and over stimulating for children (Reaven, 2009). Picture schedules are a set of pictures that depict or communicate a series of activities or steps of an activity. They are meant to help children with autism understand and manage the daily events in their lives or to help them understand what is expected of them in a particular setting. Since picture schedules have been used successfully to help decrease maladaptive behaviors in children with autism in schools and other community

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**Table 1** Autism Spectrum Disorders

Subtype	Characteristics
Asperger's syndrome	Develops language typically Cognition generally better than for autism Socially isolated Often viewed as odd or eccentric Clumsy Repetitive patterns of behavior, interests Atypical sensory responses Pragmatic deficits
Autism (autistic disorder)	Impaired communication skills Impaired social interaction Onset usually before age 3 Repetitive, stereotypical behavior Possibly some degree of cognitive disability Severe regression of acquired speech and sociability Onset at 18–24 months in ~25% of cases
Pervasive developmental disorder—not otherwise specified	Less severe than autism Does not meet criteria for any of the other subsets, yet includes a wide range of communication, social, behavioral, and cognitive deficits
Childhood disintegrative disorder	Two years of normal growth, then marked regression in at least two of the following: <ul style="list-style-type: none"> <li>• Social skills</li> <li>• Language</li> <li>• Bladder and bowel control</li> <li>• Motor skills</li> </ul> Eventually may become more severe than typical autism Other behaviors may mimic autism or childhood schizophrenia
Rett syndrome	Affects development after initial 6-month period of normal development Deceleration of head growth Severe intellectual disability Impaired social interaction Loss of speech and purposeful use of hands Seizures Ataxia Affects almost exclusively girls (caused by mutation in <i>MECP2</i> gene on Xq28)

Adapted from Sulkes (2009), Centers for Disease Control and Prevention (2009), and National Institute of Neurological Disorders and Stroke (2011).

settings, we decided to evaluate their use in medical settings (Reaven, 2009; Reaven, Blakeley-Smith, Nichols, Dasari, Flanigan, et al., 2008).

Children with autism can experience heightened anxiety from seemingly insignificant sources, such as a change in routine, a social encounter with an acquaintance, misunderstanding what is expected of them, or being unable to communicate their thoughts and feelings (Bellini, 2004; Reaven et al., 2008; Russell & Sofronoff, 2005). For children with autism, anxiety and the resulting behaviors can interfere significantly at home, in school, and in the community (Reaven, 2009). In healthcare settings, anxiety in pediatric patients can pose an acute challenge because it might trigger various, exaggerated, negative responses, including crying, tantrums, withdrawal, noncompliance with requests, running away, and disruptive or aggressive behaviors (i.e., hitting, biting, head-banging, or destroying property; Reaven, 2009). Communication with these patients is crucial to reducing their anxiety; however, communication is often compromised in patients with autism, which exacerbates their anxiety (Cafiero, 1998; Reaven, 2009; Reaven et al., 2008). Anti-anxiety or anti-psychotic medications are used only infrequently in children with autism, and generally only as a last resort (Walkup, Labellarte, & Ginsburg, 2002). Healthcare providers should learn effective, alternative methods for interacting with children with autism.

Nurses can alleviate anxiety in patients with autism by ensuring that the child and parents feel comfortable and aware of the clinical procedures (Reaven et al., 2008). Helping the child to communicate and understand what is expected of him/her, as well as making him/her aware of what will happen during a medical visit, are keys to decreasing anxiety (Cafiero, 1998; Reaven, 2009; Reaven et al., 2008; Russell & Sofronoff, 2005). The studies described here examine the idea that when communicating with patients with autism, nurses need tools suited for the task. For example, if children with autism relate best to visual cues, then nurses might employ pictures as a way to explain to a non-verbal child what is going to happen during their clinical visit.

Picture schedules are widely used as an effective tool for educational and community settings (Anderson, Sherman, Sheldon, & McAdam, 1997; Bryan & Gast, 2000; Fisher & Haufe, 2009; Spriggs, Gast, & Ayers, 2007; Watanabe & Sturmey, 2003). In 2009, the National Autism Center rated educational and behavioral treatments for a National Standards Project, and identified picture schedules as established evidence-based practice for promoting self-regulation in children with autism, ages 3 to 14 (National Autism Center, 2009).

## Constructing Picture Schedules

School-aged children with autism use pictures throughout their day to guide them through transitions. Picture schedules are designed to improve communication with children who



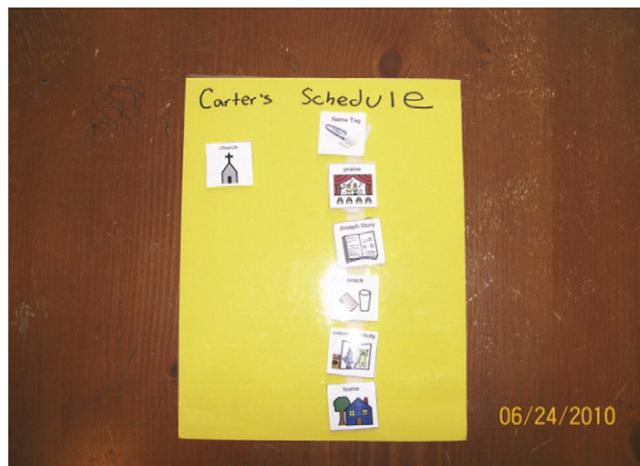
**Figure 1** This picture schedule is a sequence to teach purchasing at a store. The pictures include (from top to bottom): picking out an item, waiting in line at the check-out, placing the item on the table, handing the cashier the money, putting a hand out to receive change, and placing the change in a pocket. The picture schedule can be assembled either vertically or horizontally.

have autism, decrease anxiety-related, problem behaviors, and increase overall compliance (Anderson et al., 1997; Bryan & Gast, 2000; Cafiero, 1998; Dugan, 2007; Fittipaldi-Wert & Mowling, 2009; Spriggs et al., 2007). They contain several series of pictures that depict the elements of activities, chronologically and in detail. Schedules can be put together in a variety of ways, and assembled vertically or horizontally. They can be photographs, hand drawn, or computer generated; and the materials used to assemble them can be cardstock, plastic, or other sturdy, laminated products. Velcro can attach each picture to a schedule board. Typically, the schedule is assembled using four to six individual images depicting the steps or sequence of a task. For example, a picture schedule depicting the task of gathering vital signs may include pictures of a boy undergoing six procedures: getting his height measured, getting weighed, having a nurse

listen to his heart (heart rate and respirations), having his blood pressure measured, having his temperature taken, and finally, receiving a reward (see Figures 1–3 for examples of different types of picture schedules).

### Purpose

This paper describes a project pilot testing picture schedules for children with autism in a tertiary hospital.



**Figure 2** This picture schedule is made out of computer generated pictures. It is a schedule of what the child is expected to do during Vacation Bible School. The picture on the left side of the schedule (church) depicts where the child will be during this sequence.



**Figure 3** Here are other examples of picture schedules.

**Table 2** Literature Search Results

Author(s)	Title	Findings
Buckley and Newchok (2005)	Differential impact of response effort within a response chain on use of mands in a student with autism.	This study noted that pictures helped facilitate communication during a therapy session in which the facilitator taught the child to request an item (mand).
Bryan and Gast (2000)	Teaching on-task and on-schedule behaviors to high functioning children with autism, via picture activity schedules.	This study found when students with autism had access to picture activity schedules; they performed better throughout the teaching session. When the picture schedules were not available, student performance dropped.
Cafiero (2005)	Meaningful exchanges for people with autism: An introduction to augmentative & alternative communication.	This book provides an overview of augmentative and alternative communication strategies and tools for persons with autism. It specifically includes picture schedules as well as other devices, such as high-tech, voice-output communication aids.
Dalrymple (1992)	Helpful responses to some of the behaviors of individuals with autism.	This booklet offers strategies for alleviating problematic behaviors in individuals with autism. Among the strategies included are picture schedules for communication.
Dauphin, Kinney, Stromer, and Koegel (2004)	Using video-enhanced activity schedules and matrix training to teach sociodramatic play to a child with autism.	This journal article explains how the authors taught social skills to a child with autism by using visual aids, specifically video-enhanced picture schedules. The results were positive in that for every activity taught using the video-enhanced picture schedule; nearly two additional activities were spontaneously performed as well.
Dugan (2007)	Facilitating independent behaviors in children with autism employing picture activity schedules.	This study tested the use of picture activity schedules in preschoolers with autism. Qualitative evaluation indicated that picture activity schedules increased acquisition of classroom skills.
Dunlap and Fox (1999)	Teaching students with autism.	This digest, for teaching students with autism, explains effective strategies, including picture schedules, to ensure the flow of activities is understandable and predictable.
Fittipaldi-Wert and Mowling (2009)	Using visual supports for students with autism in physical education.	This journal article explains how using visual teaching strategies (e.g., picture exchange communication systems, picture activity schedules, task cards, visual warning devices and boundaries) helps children with autism participate in an unstructured setting, like PE.
Irvine, Singer, Erickson, and Stahlberg (1992)	A coordinated program to transfer self-management skills from school to home.	This article describes how students with autism were taught, with picture schedules, to perform a series of tasks upon arriving at school each day. When the student mastered these, he/she was taught to do a series of chores, at home, after school each day. The students were successful, even after summer break.
Kimball, Kinney, Taylor, and Stromer (2004)	Video-enhanced activity schedules for children with autism: A promising package for teaching social skills.	This article illustrates how using computers to combine picture schedules and video models can teach social skills to children with autism.
Martin, Elias-Burger, and Mithaug (1987)	Acquisition and maintenance of time-based task change sequence.	This article explains how high school students with mild–moderate mental retardation could complete instructions with the use of either a written or picture schedule. Picture cues prompted subjects to maintain performance.
McClannahan and Krantz (1997)	In search of solutions to prompt dependence: teaching children with autism to use photographic activity schedules.	This article explains how children with autism learn to use photographic cues that enable them to remain engaged in appropriate and relevant activities (e.g., changing tasks without prompts from others, or independently entering and leaving a variety of settings).
Miguel, Yang, Finn, and Ahearn (2009)	Establishing derived textual control in activity schedules with children with autism.	Explains how preschoolers with autism were taught to use picture schedules to facilitate their learning. The picture schedules were then faded to word schedules and the children learned how to read the printed words without explicit training.

Table 2 (continued)

Author(s)	Title	Findings
Miles, McCathren, Stichter, and Shinawi (2003)	Autism spectrum disorders.	This book explains the characteristics of autism, diagnostics and testing, and management. Picture schedules are routinely used to communicate with those with autism and teach them organizational skills and self-management.
Narayan, Chakravarti, David, and Kannappan (2005)	Analysis of educational support systems for children with mental retardation and autism spectrum disorders.	This article explains the educational system for children with autism in India. Picture schedules, discrete trail training, sensory integration and structured environment were all found to be effective in the education of children with autism spectrum disorders.
Sansosti and Powell-Smith (2006)	High-functioning autism and Asperger's syndrome.	This chapter explains successful strategies in teaching children with autism. Among those suggested include using a picture schedule to help the student understand when or where activities or tasks start, as well as what to do during and following those activities or tasks.
Spriggs et al. (2007)	Using picture activity schedule books to increase on-schedule and on-task behaviors.	Findings of this study indicate that when using picture activity schedules, children with autism became more on-schedule and stayed on-task. When the picture schedules were not available, their behavior became off task and off schedule. These on-task and on-schedule behaviors were generalized to novel activities and settings when using the picture schedules.
Stromer, Kimball, Kinney, and Taylor (2006)	Activity schedules, computer technology, and teaching children with autism spectrum disorders.	This article suggests integrating multimedia computer supports and picture schedules, to teach students to manage independently their work, play, and skill-building activities.

Specifically, this descriptive feasibility study sought to answer these questions:

1. Do the picture schedules decrease maladaptive behaviors and alleviate distress in individuals with autism in medical settings?
2. Do parents/caregivers feel less distress when picture schedules are available for their child in medical settings?
3. Is the use of picture schedules feasible within medical settings?

## Literature Search

A literature search was conducted using four databases: two medical databases, the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Medline (PubMed); an educational database, Education Resources Information Center (ERIC); and a psychological database, APA PsychNET. No limitations were put on the searches. The key terms autism+picture schedules yielded 23 articles. Eighteen articles were relevant to this project. These articles discussed using picture schedules with individuals with autism, to facilitate communication and help with transitions in school, home, and community settings. Overall, the reports were positive. The types of articles included investigative studies, case reviews, literature reviews, a book, and two book chapters. The case reviews and studies all concluded that pictures were very helpful for communicating to children with autism; they aided when transitioning and facilitated

independence in school, home, and community settings. Since these settings have been using picture schedules successfully for some time, the book and book chapters all outlined successful strategies for interacting with and teaching individuals with autism. All of these strategies included using pictures and visuals for support and communication (see Table 2 for a summary).

Since this project specifically targeted decreasing anxious behaviors, another search was conducted using the terms autism+picture schedules+anxiety. In all four of the databases, only one article was found. This article addressed the use of picture schedules with school-aged children with autism, as a way to decrease anxiety during physical education class (Fittipaldi-Wert & Mowling, 2009). The analysis addressed communicating expectations to children with autism and how to help them with transitions. The issue of anxiety was identified as a feeling the students experienced when faced with the often unstructured environment of physical education class. It explained different strategies, specifically picture schedules that physical education teachers could employ to help their students with autism succeed (Fittipaldi-Wert & Mowling, 2009). A search using the terms autism+picture schedules+medical settings, however, retrieved no articles.

## Description of Project and Evaluation

The staff at a major medical center identified the need for making medical visits more tolerable for children and adults

with autism. Working with autism experts, it was suggested that healthcare providers might best care for patients with autism by using pictures to inform them of what is expected, which, in turn, could alleviate anxiety. Picture schedules are used for this purpose in other settings, however very specific pictures of medical procedures were not found. Therefore, the first step in this pilot project—a descriptive feasibility study—was creating picture schedules of specific medical procedures. Next, these picture schedules were evaluated as to (a) whether parents and staff felt the picture schedules relieved maladaptive, autistic behaviors and; (b) if it seemed feasible to use picture schedules in medical settings.

## Participants and Setting

Staff members from units at the University of Iowa Hospitals and Clinics were trained to use the schedules. The participating clinical units included the Pediatric Specialty Clinic and the Center for Disabilities and Development. The staff trained to use the picture schedules included physicians, nurses, child-life specialists, medical assistants, and students. Six nurses, one child-life specialist, and one medical assistant from four clinical units, along with nine parents/caregivers, participated. This convenience sample of 17 participants was obtained over a 6-month time period.

## Intervention

The picture schedules used for this project were designed by the first, third and fourth authors specifically for medical settings, including medical clinics, dental clinics, and hospital units. Various sites, such as casting rooms, x-ray areas, and laboratories were depicted. Photographs were taken of two volunteer actors, performing the steps of each procedure. One volunteer acted as the patient while the other acted as the healthcare professional. Typically four to six photographs comprised the picture schedule for each procedure. Each step of the respective procedure was carefully staged, so a child with autism would not be distracted by other objects in the photos. The photographs were replicated, laminated, and labeled with the appropriate procedure. Velcro was attached to the back of each picture; and the sequence banded together with rubber bands. Each medical floor or unit received a box of procedures relevant to their medical specialty. For example, clinic settings received sequences such as performing vital signs, and physical exams but not casting or dental procedures. The actual boards were made out of sturdy plastic with a Velcro strip down the middle. [Figure 4](#) shows a nurse using a picture schedule created for this pilot project.

To use a picture schedule, the nurse assembles four to six pictures onto the board, in a left to right sequence. Then, for example, when the nurse explains that it is time to take vital signs, the picture schedule is shown to the child. The nurse points to the first picture and explains that it is time to have his weight taken. As soon as the child complies with being



**Figure 4** This image shows a nurse using a picture schedule with a patient.

weighed, the picture can be taken off the board and placed in the “done” box, which is usually attached to the end of the board ([Figures 4 and 5](#)). Then, it is on to the second picture, the third picture, and so on. When all of the tasks on the picture schedule are completed, the child receives a reward. The reward could be a simple high five, a sticker or other simple reward.

For this project, picture schedules were developed for several medical procedures, including obtaining vital signs, casting, inserting an IV, obtaining an x-ray, performing a head to toe physical examination, obtaining height and weight, performing an eye examination, and performing rectal and vaginal examinations. Also constructed were picture schedules of restraining, administering oxygen, performing an EEG, inserting an NG tube, giving an injection, suturing, performing a finger stick, and performing an EKG. Picture schedules also depicted dental procedures, including performing a dental examination and taking dental x-rays.

## Instruments

The institutional review board at the University of Iowa granted approval for this feasibility pilot study. To evaluate the use of picture schedules in the clinical setting, two parallel surveys were developed, one for parents and one for



**Figure 5** The first picture is a nurse showing the patient what is going to happen next. The second picture is of the provider performing the task and the third picture is of the child placing the picture in the “done” box.

healthcare staff. The surveys were developed by the first author, who drew from similar studies of picture schedules for use in schools and other community settings. Content validity of the surveys was evaluated by a panel of four experts: an autism consultant for the Department of Education; an advanced practice nurse, who routinely works with children with autism; a pediatric nurse researcher; and a school nurse and mother of a child with autism who daily employs picture schedules in various settings. The surveys were then presented to a support group of parents of children with autism; they felt the content of the surveys was appropriate.

The surveys asked the provider or parent to evaluate the child’s distress level, based on behaviors observed during the procedure or task. Each survey consisted of five or six questions, depending on whether the participant was staff or a parent, which assessed the child’s maladaptive behavior as well as the comfort level of the participant. The surveys also contained questions to assess the feasibility of using picture schedules in a medical setting. Each question was rated on a seven-point, Likert scale, ranging from “not at all/never/not willing” to “very effective/yes/frequently/very willing.” The surveys also included the setting/unit in which the data were gathered, the date, the age of the child using the picture schedule, the child’s gender, and for the staff surveys, the role of the staff (physician, RN, child life specialist, student, other).

### Procedure

The clinical units participating in this pilot project included the Medical Specialty Clinic, Pediatric Dental Clinic, Pediatric Specialty-Clinic Lab, Ambulatory Surgery

Clinic, Psychiatric Units, and Center for Disabilities and Development. Staff members on each of these units were trained on autism and how to use the picture schedules. During these training sessions, staff were informed about this feasibility study and instructed on their role in obtaining the data. Each unit was given boxes of picture sequences relevant to the specific areas and boards on which to affix the picture sequences. In addition, packets of evaluation surveys were left with the picture schedule supplies. The staff was instructed to use the picture schedule throughout the visit if the parent/caregiver agreed.

At the time of the medical appointment, parents/caregivers of the children with autism were made aware that a picture schedule was available. If the parent desired to use the picture schedule, the staff member explained the study and asked if they would agree to fill out a simple survey at the conclusion of the appointment. After the medical visit, the staff caring for the child asked the parent/caregiver to fill out the evaluation survey and also completed their own survey. The completed surveys were sent to the principal investigator.

### Results

Our results were encouraging, in that 87.5% of staff and 77.8% of parents/caregivers felt picture schedules decreased anxious behaviors of the child. Only one staff member felt that the picture schedules were not effective. In addition, 87.5% of staff and 88.9% of parents/caregivers thought the patient exhibited less distress. One staff member did not find that using picture schedules decreased child distress

behaviors and one parent was unsure. Most parents/caregivers (77.8%) thought that the intervention helped make the overall experience more tolerable for their child.

Parents/caregivers also indicated that their own anxiety was reduced by the availability of the picture schedules. Of the parents/caregivers responding, 77.8% felt less distress by having the picture schedules available for their child; and 50% indicated that their anxiety about returning for follow-up appointments was alleviated by knowing that picture schedules are used. All of the parents/caregivers reported that the child had used picture schedules in other settings.

Healthcare staff indicated that the use of picture schedules in their respective settings is very feasible. Of the staff, 75% thought that using the picture schedules made it easier to complete the task or procedure; and 100% of the staff members surveyed were very willing to use picture schedules. Moreover, the training received on autism and working with patients with autism was very helpful for 100% of the staff surveyed.

The only comments written on the surveys were from parents. These also indicated that picture schedules are used frequently outside of medical settings. One parent wrote:

We use picture symbols daily in activities.

Another parent wrote:

We have been bringing our own for years, plus using social stories for doctors' visits.

Other comments written include:

"Great idea!" and "The pictures were very effective for positive results. Need to add pictures for dental and private parts."

## Discussion

Overall, our pilot study revealed that healthcare providers and parents/caregivers found picture schedules reduced maladaptive behaviors in children with autism visiting a clinic. Children with autism and their parents routinely use picture schedules in educational and community settings, and are generally very familiar with them. Indeed, two parents commented that, in other settings, their children have been using picture schedules for some time and are used to having them available and all parents reported at least some exposure to picture schedules.

To see whether the staff and parent/caregivers perceived changes in the child's behavior differently, the first two questions on both the staff and parent/caregiver surveys, impact on anxiety and distress behaviors, were deliberately written identically. Both groups answered the questions favorably. Decreasing the child's anxiety and distress behaviors through use of a picture schedule may help just enough to allow a procedure to be completed.

Although it might have been expected that parents/caregivers who had experience with picture schedules would perceive a benefit from using them in this new, stressful setting, the perceptions of staff were also favorable. Many of the staff surveyed had cared for children with autism in the past; therefore, they were familiar with some of the struggles and behaviors they may face in the medical setting. It is interesting to note, however, that none of these clinical units had previously made use of picture schedules. In various settings, the reasons for using a picture schedule with a child with autism are the same—communicate what is expected of them and prepare them for transitions in their activity.

The main limitation of this project is that only a small number of surveys were returned. In follow-up discussions with staff, it came to light that some parents/caregivers and staff used the picture schedules but did not fill out the surveys. Although we had requested they keep track of how many families were approached to participate and how many declined, this information was not consistently obtained, and therefore not available to report. Thus, we do not know exactly how many surveys were distributed to parents.

In addition, in some instances the staff forgot to use the available picture schedules. This may be because picture schedules have not been routinely used in these medical setting and the use of picture schedules requires time and patience. Staff in a busy medical clinic might find it frustrating to incorporate the new method while, at the same time, keeping the appointment moving along. Although this is a realistic concern, taking the time to use a picture schedule may in fact make the visit easier for both the patient and the healthcare provider.

The study also uncovered gaps in the clinical approach to providing healthcare to children with autism; this should inform future research on interventions for interacting with autistic children in medical settings. Many of the healthcare providers who underwent our training on the use of picture schedules admitted they knew little about autism and even less about how to interact with children with autism. Yet the incidence of autism is on the rise, so we should be training healthcare professionals—especially those in pediatrics—how best to interact with these individuals. Although this project specifically focused on picture schedules, many alternative interventions (i.e., social stories and transition activity boxes) can be used with children with autism in the educational, home, community, and *healthcare* settings.

Picture schedules have been used successfully in several community settings. This pilot project indicates that it is feasible to successfully use picture schedules in healthcare settings. Additional research is needed to clarify the impact of picture schedules on the child's anxiety and distress behaviors, to evaluate the cost effectiveness of incorporating picture schedules into this setting and to identify appropriate implementation strategies for translating the use of picture schedules into healthcare settings.

**Table 3** Tips for Nurses

- The website *Do 2 Learn*: [www.dotolearn.com/picturecards/howtouse/schedule.htm](http://www.dotolearn.com/picturecards/howtouse/schedule.htm) (n.d.) explains very simplistically what a picture schedule is and how to use one. This is an educational website and they also offer free tools to make some computer generated picture sequences.
- *Boardmaker* (2010) is another popular tool. This is a very common program found in educational settings. Most children will be familiar with Boardmaker pictures. There are hundreds of pictures to choose from and it is very easy to use. Boardmaker can be accessed at [www.mayer-johnson.com/products/boardmaker/](http://www.mayer-johnson.com/products/boardmaker/).
- Look for local experts. Local schools or Area Education Agencies have been using picture schedules for many years. These agencies would be excellent places to begin research.
- Look for community agencies who serve individuals with autism. Several of these agencies are using picture schedules as well. Community Case Managers or local autism professionals would also be excellent resources.
- Let's not forget parents. Parents may already have a picture schedule in place and by reaching out and asking a parent about this will bring high regard to the nurse in the perspective of the parent. Parents of children with autism often feel as if no one knows how to interact with their child and this brings on a lot of stress, especially within medical settings. If a nurse can relay to the parent that they care about their child, want to interact positively with them, and ask the parents' opinion of how to do so, this will bring success and positive outcomes for any medical visit.

#### Need to Make a Picture Schedule in a Pinch?

Follow these pointers for creating your own effective picture schedule:

- Choose the one most relevant concept that helps the patient be aware of the upcoming event.
- The picture should model positive behavior (example: eyes facing eye chart, hand and arm outstretched for IV insertion, legs still/not kicking).
- Look at the procedure from the patient's point of view.
- Illustrate what you want them to be doing in the picture.
- Decrease the use of color.
- Emphasize what a calm person looks like during the procedure.
- Hand drawn visuals should carry the message without needing verbal input or descriptions from the staff.

## Nursing Implications

Nurses are held responsible for following through with medical and nursing care plans, which can be very difficult with a child with autism who is scared, unsure of spoken language, and suffering from multiple developmental and cognitive disabilities. By adopting a simple picture schedule as a communication tool, nurses can explain to patients with autism what is expected of them, and help decrease patients' anxiety and fear (Table 3). Although this pilot study was small, the results are important and suggest picture schedules

may be an effective intervention for children with autism in medical settings. Picture schedules can be adopted for use in any setting, for any task, and can be broken down into as many steps as needed. They can be as basic as a sequence of simple hand drawings on a piece of paper. Taking into account that picture schedules are used routinely in schools and other community settings, it would be prudent for nurses taking care of children with autism to educate themselves on picture schedules and how to use them.

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