This article describes the construction of a simulated hemiplegic arm and its use for an occupational therapy promotional booth during Hospital Week. A simulated hemiplegic arm can be an excellent tool because it can be used to teach people by having them participate rather than only observe. Detailed in this article are ways to reinforce the public's education about cerebral vascular accidents (CVAs) and the profession of occupational therapy.

When they stopped at our booth, able-bodied onlookers became "disabled patients" seeking daily living skills treatment. The "disability," a nonfunctional right arm, was created by tying a participant's normal right arm behind his or her back and attaching in its place a simulated hemiplegic arm. The arm simulated the typical hemiplegic arm both in size and weight; it also lacked sensation, exhibited an elbow contracture and a flaccid hand.

Once the hemiplegic arm was secured in place, the participant was handed an upper extremity garment and told, "dress yourself." With exasperated cries the participants complained about the dead weight of the arm and their inability to use it as an assist: "This arm weighs a ton! I never realized how hard it would be to dress!" or "It's impossible to do this, and this is something I normally never even think about!" Most participants were able, through trial and error, to dress themselves when given simple verbal cues. Those who tried to stand when they dressed were reminded that if they had had a stroke, the right leg would also be nonfunctional.

When the participant had successfully completed the task, the therapist ceremoniously placed a pink 3-in. sticker on his or her shirt with the printed words "Patient functional in self-dressing." Bystanders were encouraged to ask questions and make comments. One commented, "I never knew this is what my grandmother went through." From this crowd new volunteers emerged and attempted to dress themselves; some tried to don T-shirts, others, front-opening, long- or short-sleeved shirts for variety and challenge. Some participants returned later with friends who had asked them what the pink sticker on their shirts meant.

Figure 1
Partially Covered Glasses Used for Simulating Homonymous Hemianopsia
Once the onlookers had acknowledged the difficulty of dressing with one functional arm, the therapist mentioned that patients with hemiplegia typically have visual deficits and described the results using simple, nonmedical terms. A pair of sunglasses partially covered with masking tape was used to simulate the experience of homonymous hemianopsia (see Figure 1). Bystanders tried on and passed around the sunglasses while the therapist asked, “With only one strong arm and poor eyesight, how well do you think you could eat from a hospital tray of food? How would you cut your meat with one hand? How could you see everything on your tray?” By discussing the thoughts these questions generated, the bystanders began to realize how difficult daily tasks could become. “I’d feel like a big baby waiting for someone to cut my food,” said one onlooker. The occupational therapist then explained the purpose of some of the displayed splints and adaptive feeding utensils that would allow a person to regain functional independence. “With these devices, I’d get back some of my self-respect,” said the same onlooker after listening to the therapist. Thus, the onlookers gained a basic understanding of hemiplegia. They also observed how an occupational therapist works with a patient to help him or her regain self-esteem through functional independence.

Splints, adaptive equipment, occupational therapy promotional buttons, and literature were prominently displayed in the booth. Onlookers usually like to leave a booth with a tangible object. We awarded “Patient functional in self-dressing” stickers only to those who donned the hemiplegic arm and put on and took off shirts. We encouraged other passersby to take the promotional material displayed (pamphlets and large plastic paper clips obtained from the American Occupational Therapy Association). Those who took the button saying “Occupational Therapy—A Vital Link To Productive Living,” were asked to pin it on before they left the booth.
The other promotional button, "ask me about OT," was not displayed but was worn by the therapist. By quizzing intrigued onlookers, the therapist quickly discerned when someone grasped the meaning of occupational therapy well enough to explain it to others in basic terms. When this happened, the person was awarded the "ask me about OT" button. Because the people who received the button had earned it, they walked away from the booth with a sense of accomplishment and learning.

The use of a simulated hemiplegic arm need not be limited to an occupational therapy promotional booth. It may also be used to educate new CVA patients, to help family members empathize with the situation of such a patient, and to help students understand what a hemiplegic arm is and what difficulties the patient encounters when using it for self-care.

### Constructing an Arm

**Materials:** The following materials are used. One closely woven glove (loosely knit gloves are not recommended because their stuffing will leak out), one coat hanger, tubular stockinette (3 x 17 in.), strap webbing (2 x 6 in. and 2 x 44 in.), three KWIK rivets (size 3), one D-ring (2 in.), Velcro (2 x 10½ in. pile and 2 x 5 in. hook), three 10-gallon plastic trash bags (size 15 x 9 x 24 in.), six size 32 rubber bands, sand or beans (approximately 6 lb), and masking tape.

**Procedure:** Fill the glove with sand, filling each finger fully and leaving ½ in. free at the top (wrist). The filled glove should resemble a three-dimensional flaccid hand. The more sand is added, the more edematous the hand becomes. Stitch glove tightly three times across at the ½-in. space near the wrist. Keep in mind that eventually this arm will take quite a beating; thus, careful, sturdy construction is crucial.

Unwind the coat hanger and cut a straight 15-in. piece of wire. Wrap masking tape around the tips of the wire so that the ends are blunt and will not poke through the stockinette. Slip this wire into the stockinette, pushing the wire against one side. Leave 1 in. of stockinette above and below the wire. Sew a tight seam to hold the wire in place along the side edge. Sew the bottom edge of the stockinette so that it is closed tightly, leaving ½ in. free. Overlap this bottom edge with the ½-in. edge at the top of the wrist of the sewn hand. Stitch the closed end of the stockinette three times (see Figure 2).

Fill the plastic trash bag with sand and knot the top. (We determined a weight of 6 lb by asking a stroke patient to judge when the arm we fabricated felt as heavy as her own.) Roll the trash bag lengthwise so that it will resemble an arm. This part becomes the core of the arm. Secure one rubber band...
Attaching and Fitting the Arm to the Patient

1. Webbing strap over top of right shoulder
2. Strap diagonally across the back and left scapula
3. Order the left axilla
4. Across the front chest
5. Through the D ring
6. Secured with velcro

one third the length of the arm and another band two thirds the length of the arm. The rubber bands will keep the sand in place. Insert this core into another plastic trash bag and again roll it lengthwise. Secure the rubber bands between the spaces of the previous layer of rubber bands. Repeat once again so that the core becomes thicker and also more firm. Each trash bag prevents sand from spilling out (see Figure 3).

Insert this core into the stockinette to form the three-dimensional arm. If the core does not fit snugly in the stockinette, roll it in more trash bags to add bulk. With three lines of stitching, sew the remaining open end shut; leave 1 in. at the top (see Figure 4). Attach the 6-in. piece of webbing to the top of the arm (shoulder) by doubling the webbing back onto itself and sandwiching the 1-in. edge at the top of the shoulder between the folded webbing. Securely sew it shut (see Figure 5). You may now shape the upper extremity into a typical synergy pattern of contracture by bending the wire.

The rest of the materials are used to attach the arm to the patient. Sew the 5-in. piece of Velcro hook to one end of the webbing. Leave a 3-in. space to the right, and sew onto the webbing the other piece of 10½-in. Velcro pile. This strap attachment makes an adjustable one-size-fits-all hemiplegic arm (see Figure 6). Place Velcro pile side face down. At the other end of the webbing, secure the D ring by passing the webbing through the D ring and folding the webbing back onto itself 1½ inches. Sew the D ring into place. Three inches from the D ring end, fold the webbing on the bias so that the webbing changes its direction and becomes a diagonal fold. (See the arrow on Figure 7.) To clarify, the webbing direction previously went from east to west; now, with the webbing folded on the bias, the webbing direction is from south to north. Place three rivets on the diagonal of the fold, securing the fold to the shoulder portion (top of the webbing of the hemiplegic arm) as shown in Figure 7.

The arm is now ready to be attached and fitted to a participant. First, tie the participant's normal right arm behind his or her back. (Hint: We secured it tightly with a walking belt.) Place the shoulder portion (top of the webbing) of the arm on top of the participant's normal right shoulder. Have the participant hold it in place with his or her normal left hand. The therapist then places the webbing strap over the top of the participant's right shoulder, diagonally across the back and left scapula, under the left axilla, across the front chest, and through the D ring near the right shoulder, secured and fitted tightly with the Velcro (see Figure 8).

Summary

When creating a promotional booth to increase awareness about occupational therapy remember that (a) people learn by participating and (b) positive reinforcement encourages a greater sense of learning. In addition, follow these rules: (a) keep the task simple, (b) eliminate jargon and use nonmedical terms, (c) encourage interaction and reward thoughtful reflections, and (d) make sure that participants leave with some promotional materials in hand.

As described here participants acquired a hemiplegic arm and tried to dress. They were immediately rewarded with an occupational therapy sticker. Acting as patients, they experienced visual deficits with a special pair of glasses. The occupational therapist encouraged people to ask questions about dressing and visual deficits and about the display of splints and adaptive equipment. People helped themselves to occupational therapy promotional buttons and literature. They left with a basic understanding of hemiplegia. They also understood how an occupational therapist works with a patient to help the patient regain functional independence.

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