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Evolution of a Game Changer

HIGH TECH, LOW TECH — Appropriate Tech, the Right Solution for the Patient

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June 2014 - oandp.com/edge
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Cutting-edge information for the prosthetics, orthotics, pedorthics, and allied healthcare professions.
A few years ago, Phil Stevens, MEd, CPO, FAAOP, a clinician with Hanger Clinic, Salt Lake City, Utah, was confused by a patient’s prosthetic preference. The patient, a 46-year-old woman, had bilateral transfemoral amputations and a right transhumeral amputation. Through the years, she had worked hard and could ambulate “reasonably well” with both stubby and Ottobock C-Leg prostheses and had a system designed so her sockets could attach to either option, he says. “She could effectively make the choice every day, ‘What do I want to use today?’” Stevens says. Using the C-Legs, she was taller, could walk faster, and could negotiate both uneven terrain and inclines. Yet more often than not, she chose the stubby prostheses and had a hard time explaining her choice. “So the question became ‘why?’” Stevens says.

Stevens’ colleague, Randy Carson, DPT, decided to get to the root of the matter and run prosthetic tests to determine the reason. Carson and Stevens found there were measurable differences that favored the stubbies over the C-Legs: The patient had greater balance confidence and functionality when using stubbies. “Despite the fact that she walked quicker with the C-Legs, her physiologic cost index was lower with the stubbies,” Stevens says. “In other words, the physiologic cost to walking with the C-Legs exceeded the gains in speed.”

The testing process helped the patient as well, he says. After going through the process, she could better articulate why she preferred the stubbies. “The [testing] sort of validated the daily decisions she’d been making all along,” he says. “She [has] focused on her function in the stubbies ever since and maintains an active lifestyle with them.”

This case demonstrates how O&P professionals sometimes have to look beyond the textbook and what technology can physically work for their patients, and instead search for what does work based on other factors, including personality, lifestyle, psychology, and comfort with change. Finding that balance can be difficult, especially when payers are scrutinizing every expenditure, and patients often don’t know what will work best.
“There are some really cool emerging technologies that have incredible potential, but if you put them on the wrong patient it can lead to frustration, non-use, or even anger,” says John Miguelez, CP, FAAOP, president and senior clinical director of Advanced Arm Dynamics, Redondo Beach, California. “Our job is to walk that tightrope carefully.”

**Getting It Right from the Start**

With third-party payers continuing to restrict what they will and won’t reimburse, O&P professionals say that it’s imperative to find the right solution from the outset, or they risk the patient being fitted with a device that isn’t appropriate and a payer unwilling to pay for another.

“What happens a lot is that you will fit someone with a lesser technology and they…change the goals,” says Curt Kowalczyk, CO, clinical specialist for Ottobock, Minneapolis, Minnesota. The patient may then want the practitioner to make the device that he or she already has meet this new goal. “Then I have to say ‘I’m sorry, I can’t, and now you need a whole new [device] that your insurance might not cover.’” The solution, many O&P professionals say, is extensive upfront testing.

Jonathan Naft, CPO, LPO, founder of Geauga Rehabilitation Engineering (G.R.E.), headquartered in Chardon, Ohio, says it’s becoming more commonplace for O&P professionals to conduct mobility prediction tests with patients. By the time a patient’s balance, strength, walking speed, hobbies, and lifestyle are all taken into account, the process of finding the right device becomes more scientific, he says. “It’s not necessarily left to the judgment call of a practitioner with regard to what a patient gets, instead...
Finding Creative Solutions

Striking the right balance for the individual patient can sometimes go beyond testing and require a more creative solution, says Joseph Brenner, CP, FAAOP, director of clinical prosthetics at the Michigan Institute for Electronic Limb Development, Livonia. In his career, he’s designed and constructed mechanical and electronic prosthetic arms as well as activity-specific prostheses for playing guitar, rock climbing, and swimming. In many cases, there isn’t just one prosthetic solution, he says.

He recalls one of his patients who is both a farmer and a funeral director. The patient was first fitted with a body-powered mechanical prosthesis with a hook because it would withstand the rigorous tasks required of a farmer. However, the patient worried that the hook was a distraction when meeting with grieving clients at the funeral home and wanted something functional that also offered enhanced aesthetics. In that respect, a hybrid prosthesis worked exceptionally well for him, Brenner says. In the end, the patient ended up with both prostheses, and even delivered a calf from one of his cows using his mechanical arm, which may have been too difficult to do while using the hybrid arm, he says.

For Lake, one of the more advanced prosthetic solutions he tried ended up not being the best solution for one patient. In this case, his patient was born with a hand anomaly and lacked the index, middle, and ring fingers. She had never used that hand much and came to Lake to see if they could find a way to get more functionality from it. He fitted her with three powered fingers that let her pick up and grip things better. Using those fingers, though, meant she couldn’t physically feel the items she was picking up with that hand. She decided to try using her hand consciously without the powered fingers and soon realized she had more functionality than she thought. She also discovered

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that feeling what she was touching was very important to her. “Being able to feel across her whole hand was, to her, better than using the powered fingers and not having that sensation,” he says.

Miguelez also remembers a case where lesser technology was the right solution for one of his patients. The patient would have been the perfect candidate for a myoelectric arm except for one problem—he lived in a remote area of Alaska. The patient liked to fish, so he was constantly around water, and he didn’t have consistent access to electricity. He also wouldn’t have easy access to a prosthetist and thus, in an emergency, would need to be able to make his own repairs to the device with which he was fitted. “The more we talked, we both decided he would be better suited for a body-powered prosthesis,” Miguelez says.

While more technology isn’t always the solution, it does offer a host of benefits when appropriate, Brenner says. At the Michigan Institute, they routinely fit children who are still in diapers with myoelectric arms. Most of the young patients he sees are born without an arm, and as a practitioner, he is able to prepare some of the parents for the realities ahead while their child is still in utero. When the child is able to sit independently, he or she is fitted with a passive prosthesis, which helps the child acclimate to wearing a more functional device in the future. Prior to the 18-month mark, the child will begin myoelectric training with an occupational therapist (OT), and soon thereafter, Brenner will start transitioning the child into a myoelectric arm, he says.

While pediatric mechanical arms can offer acceptable grip force, a myoelectric hand approaches a higher, more age-appropriate level of pinch, and a potentially more comprehensive means of control, Brenner says. “By integrating a Cookie Crusher circuit into the myoelectric technology, it becomes very intuitive for a child to operate a myoelectric arm. When they wiggle and the hand opens, both the OT and the parents clap, providing the child [with] immediate positive feedback,” he says.

Brenner says that he deals with each patient on a case-by-case basis. Although a myoelectric prosthesis tends to work well for the very young, all options need to be considered, which sometimes means that not using a prosthesis may be the answer.

**Getting Out of Your Comfort Zone**

Just like patients, O&P professionals have their own preferences. “I have friends who are really high tech and are the first ones to buy the next greatest cell phone or electronic gadget on the market,” Lake says. “I also have friends who are just as happy with existing technology and carry flip phones. There are some practitioners who position themselves as cutting edge, and as new things come out, they try them on their patients. Then there are also some ultraconservative practitioners who are less willing to try new things. Sometimes practitioners who are in between wait for the high-tech group to prove which technologies will work and which ones will not.”

He says practitioners need to search for and find a balance between the technology extremes to arrive at the best solutions for their patients, despite their personal preferences, because those preferences might be limiting to a patient at times. “If we don’t challenge ourselves with new technologies, techniques, and products, we may not be providing our patient with the best options,” Lake says. “We may just be providing our patient with the most comfortable or familiar choice.”

Stepping out of the comfort zone might also mean pushing for what’s best for a patient, even at the risk of payer refusal. Stevens says that practitioners have been shying away from higher-end technologies lately because they are more likely to trigger audits from the Centers for Medicare & Medicaid Services (CMS). “It’s no longer about matching the appropriate technology to the patient, but trying to guess exactly what it is that Medicare’s going to decide to require and determine if you can weather the delays in payment between provision of services and ultimate reimbursement,” he says. “We’ve certainly already begun to see patients presenting in suboptimal technologies, not because they weren’t candidates for something better, but because their previous provider was unwilling to take the financial risks associated with providing optimal technology. In the long run, patients will lose in this type of healthcare climate.”

In cases like these, Kowalczyk says that practitioners need to fight for what is best for their patients. “Otherwise you are playing right into [third-party payers’] hands,” he says.

While Kowalczyk isn’t a fan of the Recovery Audit Contractor (RAC) audits that have impacted the industry, they have taught O&P practitioners to better document what their patients need and to justify it, he says. “I think the one good thing that came out of the RAC audits was the need for great note-taking and the justification for why you are fitting a patient,” he says. “It taught us to be better advocates for our patients and [to] explain the medical justification for what they need.”

Now practitioners can test their individual patients, know what’s best, medically justify it, and insist that their patients get it, Kowalczyk says.

“Technology may be a solution, and sometimes not,” says Naft. “There is no such thing as the ‘best device.’ What makes a device ‘best’ is how appropriately the device allows the patient to meet their goals.”

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