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MOTIVATING PATIENTS, IMPROVING CARE: A Case Study of Outcome Measures in Practice

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In early 2015, our clinic decided to begin using outcome measures routinely with patients throughout their treatments. The practitioners were all motivated by different things—some wanted to facilitate discussion with other members of the rehabilitation team, some wanted to enhance their knowledge about patients’ progress, and some wanted to explore whether outcome measures could provide support for clinical decision making. We all wanted to provide better care for our patients and wondered if conducting outcome measures was one way we could do that. What none of us expected was how enthusiastically our patients would respond to these changes in their care.

Heather was the first patient with whom we used outcome measures on a regular basis. Heather is a 61-year-old woman who had a transtibial amputation secondary to diabetes. After completing her rehabilitation, she returned to work and is living independently.

The first day Heather received her prosthesis, we attached a Modus Health StepWatch Activity Monitor (SAM) to it because we were curious about how her activity level would change over time. The first week she took between 62 and 81 steps per day on her prosthesis during her fitting and physiotherapy appointments (Figure 1).

Heather continued rehabilitation and after she had used her prosthesis for three weeks, we used three standard outcome measures, the activity-specific balance confidence (ABC) scale, the Prosthetic Limb Users Survey of Mobility (PLUS-M), and the two-minute walk test (2MWT), with scores as noted in Table 1.

We recorded her scores for these three measures and she continued her rehabilitation. The SAM continued recording and by the fourth and fifth week there was documentation of Heather’s increased activity, averaging 2,000–2,500

“If I had a choice, I’d say do them more often!” Is that how practitioners expect patients to respond to the use of outcome measures in their care?

steps each day on her prosthesis (4,000–5,000 steps total).

During an appointment with Heather in her fifth week, a simple adjustment to her prosthesis was made to change the dorsiflexion/plantarflexion angle of her foot by half a turn. That evening everything seemed to fall apart. Heather reported the following week that after that adjustment the prosthesis was extremely painful. She experienced so much pain that she was unable to don her prosthesis for several days following the adjustment. She wanted us to reverse the foot angle adjustment so that her prosthesis would be comfortable again.

Table 1

	ABC	PLUS-M	2MWT
THREE WEEKS AFTER INITIAL FIT	58%	47.7	86m

Daily Step Count Versus Time

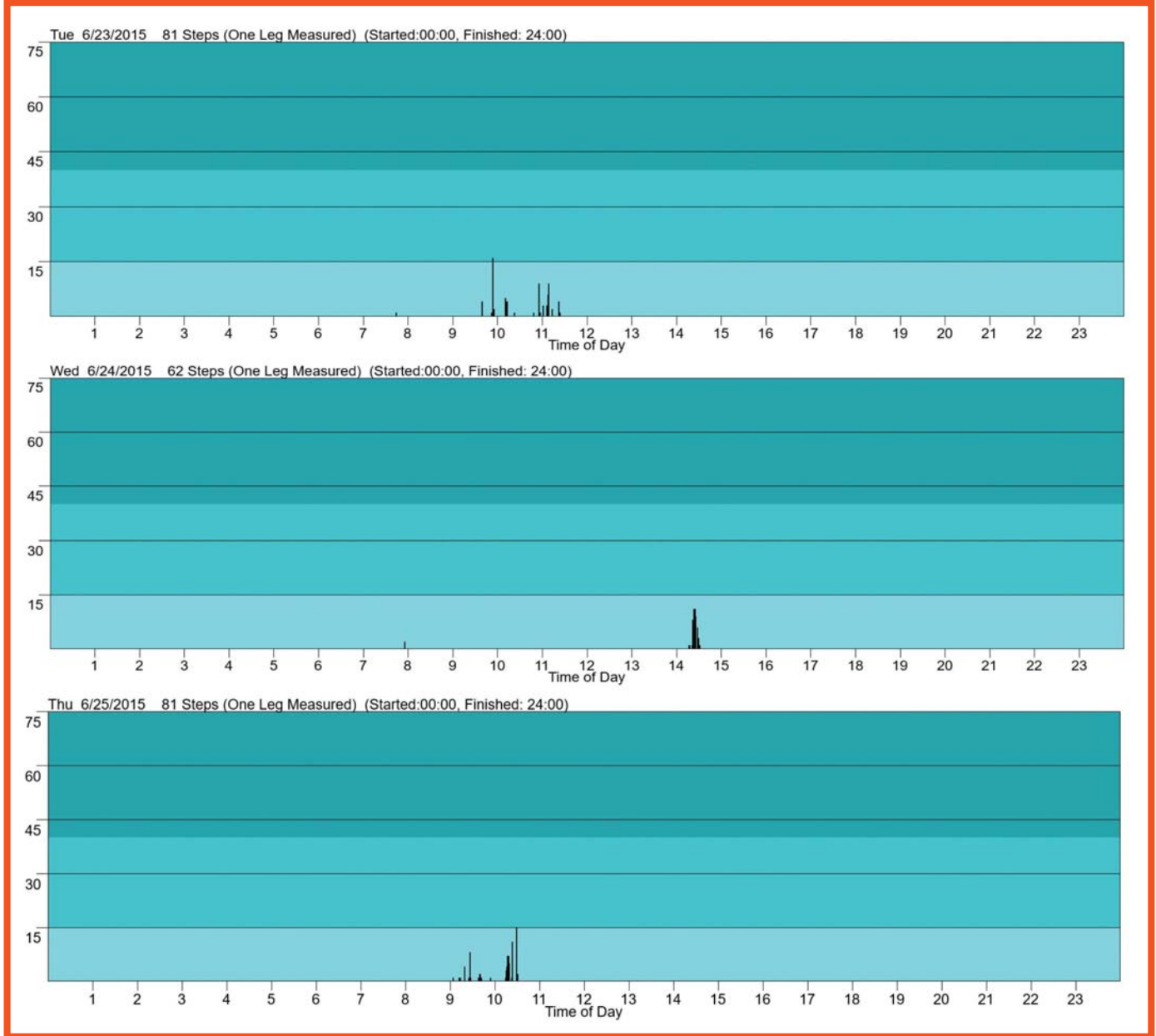


Figure 1: A section of the SAM report showing the steps that Heather took on her prosthesis for the first three days she had it. Each vertical black line shows the number of steps taken per minute. The width of the graph includes a full 24-hour period.

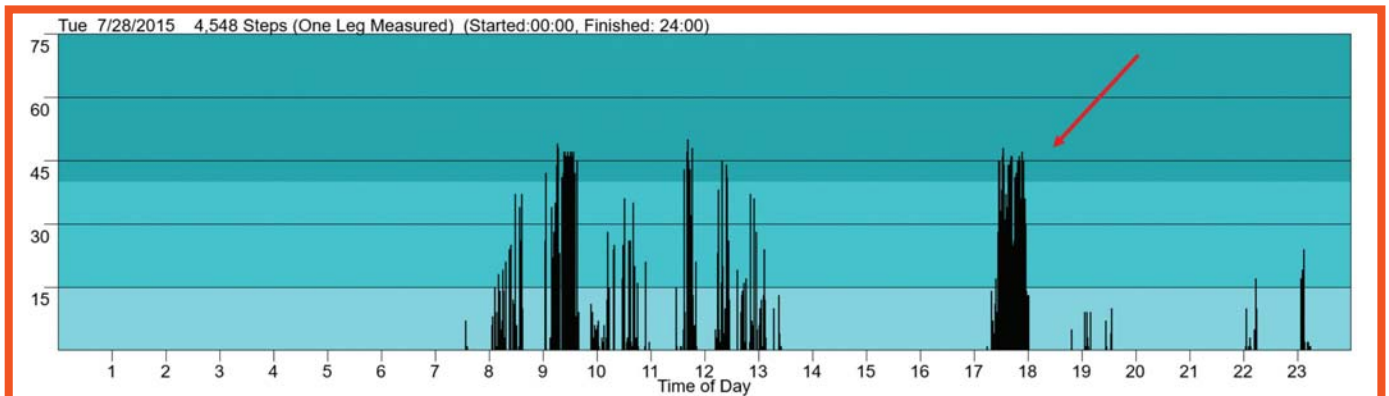


Figure 2: A section of the SAM report that shows the steps that Heather took on the day her pain began. Notice the thick black section in the later afternoon indicating a sustained period of high activity.

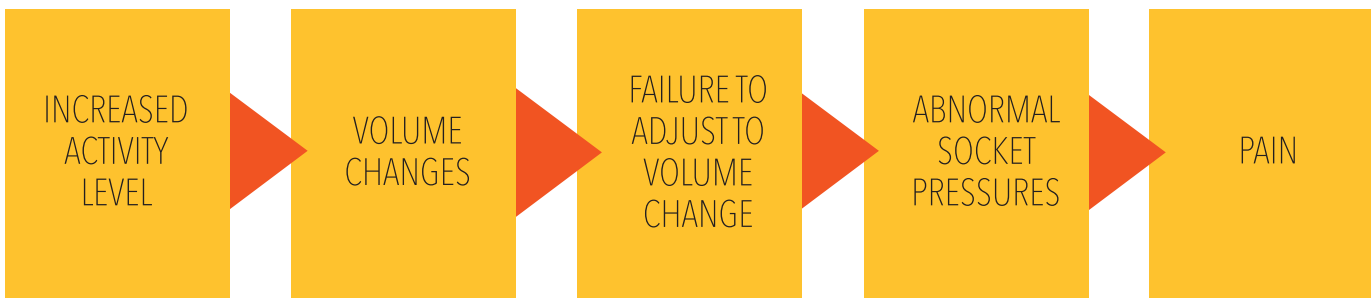


Figure 3: The process that led Heather to experience socket pain.

We asked Heather several questions about her activities on the day her prosthesis began to hurt and she commented that it was the same as any other day—she donned her prosthesis, attended physiotherapy, rested for a few hours, went for an afternoon walk around the neighborhood, and wore her prosthesis around the house until she went to bed. She could not remember anything about that day that was different than her normal routine. However, it did not make sense to us that a small adjustment could bring about the severity of pain that she was describing.

So we reviewed the data collected from the SAM. There were several days of consistent wear, and then there was the day we made the adjustment and the pain began (Figure 2). Heather took 4,548 steps that day on her prosthesis (9,096 steps total), which was double what she had taken on the average day in the week previous and several thousand steps more than her most active day previous to that. There was also a period in the afternoon in which Heather walked at a quick rate for approximately three-quarters of an hour.

We asked Heather about this and she said she had gone for a walk in her neighborhood. When we asked her where she walked, she reported that she decided

to spend this walk practicing walking up and down a moderately steep hill near her house as fast as she could. When asked if she adjusted her sock ply during or after her walk, she said that she had not.

Suddenly the picture was becoming clear. Heather had increased her activity level and walked on a steep slope for the first time with a prosthesis. This likely put pressure on her limb that she had not experienced before. In addition, the increased and sustained activity level likely resulted in volume changes. Thus, when she failed to adjust her socks accordingly, she experienced abnormal socket pressures and then pain (Figure 3). It was not the prosthesis adjustment that caused her pain, but a lack of coaching on how to increase her activity level and tackle new obstacles in her community, along with a lack of understanding of how to adjust for volume changes.

While we may have concluded that it was a volume management issue without the SAM data, we would not have had the concrete and accurate evidence of her sudden increase in activity level. It provided information that allowed us to make better clinical decisions and have meaningful conversations with her about how she was doing in her progress. It also gave us insight

needed to coach her on how to work up to vigorously walking those hills without pain (something she now does daily). We became regarded as the experts within the larger rehabilitation team because we had information about Heather’s life outside of rehabilitation and could share it with others so that we all could provide her with better care. Once we coached her to gradually increase her activity level, she was even more active without any further issues in socket comfort.

Heather completed her rehabilitation program and was ready to be discharged. At her discharge appointment, we completed the same outcome measures that we had used seven weeks earlier. We then had another discussion with her about her progress.

By the end of her rehabilitation, Heather’s outcome measures scores had increased and she was now scoring above average in each of them (Table 2). Her ABC score was 92 percent compared to the average for community-dwelling individuals with a unilateral lower-limb amputation of 64 percent.¹ Her PLUS-M score put her in the 83rd percentile for people with a lower-limb amputation.² Her 2MWT score was 115m, approximately average for community-dwelling people with lower-limb amputations.³

Table 2

	ABC	PLUS-M	2MWT
THREE WEEKS AFTER INITIAL FIT	58%	47.7	86m
DISCHARGE (TEN WEEKS LATER)	92%	59.6	115m

When we look at her change over time, we see improvements as well. The minimal detectable change (MDC) of a measure is the amount a score must change to be a true change and not the result of measurement error. Heather's self-report measures changed significantly, indicating that she is more confident in her balance and mobility than she was at the beginning of her treatment (See Table 3). While her 2MWT score did not increase significantly, she tends to walk faster and farther than she did initially.

After sharing the outcomes data with Heather, she responded by asking if she could take home a copy of her scores so that she could show her sister the progress she had made. She was proud of herself and wanted to share that with others. When I asked her how she felt about outcome measures, she said, "If I had a choice, I'd say do them more often! Everyone needs this encouragement." Heather was shocked to hear that outcome measures were not a part of everyone's care and encouraged me to use them more often since she perceived them to be such a beneficial part of her treatment. Throughout her care, Heather found that outcome measures were a way to encourage and motivate her to keep working hard because they showed her progress in a concrete and objective way.

Heather has now used a prosthesis for two years, and we have continued to use outcome measures to track her progress. From this, we can see how outcome measures document change over time of the elements they measure: mobility confidence (as measured by the PLUS-M) drops when her socket is not fitting well and increases again when she gets a new socket. Her walking speed (as measured by

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the 2MWT) also increases with a well-fitting socket. Balance confidence, however, has decreased over time. This could be because as Heather does more activities, she realizes that they are more challenging than she imagined earlier when she completed the questionnaire but had not actually done any of the tasks yet. By tracking them over time, we can celebrate her progress, monitor any concerns, and set goals based on concrete and objective milestones.

As we began to use outcome measures consistently in our treatment, we found that Heather's response was a common one. Almost every patient responded extremely positively to outcome measures, in fact, in the past two years, I have only had one patient respond negatively. Patients request outcome measures to be used more often, they request a copy of their scores so they can take them home, and many are motivated to beat their performance scores (or the scores of others) to achieve the highest score they can.

From a clinician's perspective, we have found outcome measures to be invaluable. Time after time they have helped support clinical decisions, helped us to evaluate our patients' progress and set specific and appropriate goals, and improved our communication with our patients and with other members of the rehabilitation team.

When we began this journey, we wanted to use outcome measures for our patients because we believed that it

might have been a way to provide them with a higher level of care. However, what we did not expect was that our patients would continue to drive us to use them more frequently as they began to see the benefits outcome measures bring. **O&P EDGE**

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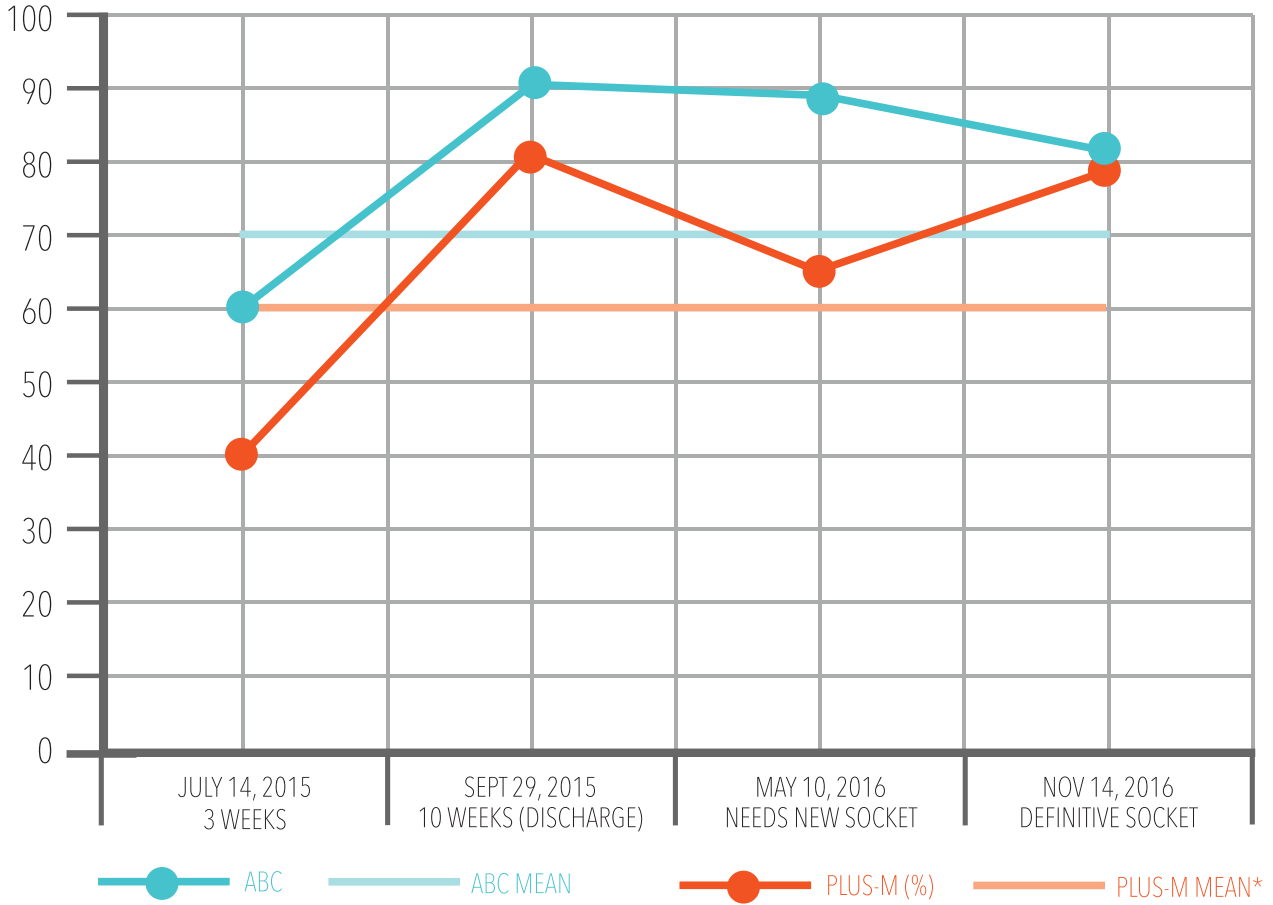
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Table 3

	ABC	PLUS-M	2MWT
MINIMAL DETECTABLE CHANGE	6%	4-6	34.3m
HEATHER'S CHANGE	34%	12	29m

Self-Reported Measures (ABC and PLUS-M) Throughout Treatment



2MWT Scores Throughout Treatment

