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Usage of Outcomes Measurements in Chiropractic Care



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Executive Summary

Back and neck pain has reached epidemic levels in the United States, with over 80% of adults reporting neck and/or back pain at some point in their lives. When compared with other common treatments, spinal manipulation has provided equal or better improvement in pain and function. In spite of the demonstrated clinical benefits and value it provides, chiropractic care remains underutilized.

With such a high percentage of the population experiencing back and neck pain, more now than ever before, there is a need to identify and implement quality focused, patient-centered care delivery models that include chiropractors. To qualify as high-quality and patient-center focused, a physician must utilize and incorporate outcomes as part of their treatment model. Insurance companies, employers, state and federal governments, and consumers are all looking for direction about what kind of care a consumer should obtain for back and neck pain. A study of the use of chiropractic treatment outcomes is the first step in the process of validating doctors of chiropractic as high-quality and patient-centered. If successful, the next step is to design and implement new care delivery models that include chiropractors.

Within the chiropractic profession, outcomes are traditionally measured using the Oswestry Disability Index (ODI) for back pain and the Neck Disability Index (NDI) for neck pain. These measurement tools focus on measuring a patient's functional improvement before, during, and at/after discharge. The information gathered is used to assess the effectiveness of the care provided by the chiropractor. Outcomes also provide evidence about benefits, risks and results of treatments so the doctor and patient can make more informed decisions. If the results are positive, meaning the patient returns to full function, it provides validation for developing and implementing clinical guidelines to recommend the same approach with other patients with similar conditions.

ChiroCare believes the current research supports a doctor of chiropractic being the first-line treatment for back and neck pain. Before ChiroCare can move forward with designing and implementing Chiropractic Centers of Excellence, in which a doctor of chiropractic is the first-line treatment for back and neck pain, we needed to validate the following:

1. Chiropractors use outcome tools like ODI and NDI and can successfully obtain at least the initial and discharge score on a majority of their patients.



2. Chiropractors have the ability to successfully and consistently communicate the results with another organization.
3. Identify effective strategies that improve the quality and value of care.

As part of our project, we also conducted a secondary survey designed to evaluate the experiences of the participating chiropractors and their staff in using these outcome tools and to identify areas of opportunity for improvement. The survey included questions focused specifically on the process for collecting the information from the patient, ease of communicating the results with another organization, and the overall administrative burden to the participating office.

Overview of Chiropractic Care of Minnesota, Inc.

Chiropractic Care of Minnesota, Inc. (CCMI) is a nonprofit organization whose mission is to improve the quality of life of our communities by delivering high value healthcare networks and support services. CCMI developed ChiroCare, the upper Midwest's largest independent network of chiropractors, over 25 years ago.

ChiroCare has become a brand that symbolizes the standard of excellence among chiropractic practices. Since its beginnings as the nation's first chiropractic network, ChiroCare has remained at the forefront of managed chiropractic care. The ChiroCare network includes nearly 2,000 contracted providers throughout Minnesota and in North Dakota, South Dakota, Iowa, Nebraska, and Wisconsin. The network currently makes high quality, value-based services available to approximately 1.6 million eligible members of ChiroCare's contracted managed care and health insurance customers.

Planning the Outcomes Program

To ensure ChiroCare is achieving its objectives and meeting the needs of its stakeholders, ChiroCare established an Advisory Council. The ChiroCare Advisory Council consists of leading chiropractors in the Midwest who are members of the ChiroCare network. The Council offers input on new clinical, administrative and communication initiatives being developed, evaluated, and implemented by ChiroCare. For this initiative, ChiroCare engaged the council to evaluate and pilot different online tools designed to gather and report various outcomes. After reviewing potential measurement tools, the



Council selected an online tool for enrolling patients and capturing outcomes data.

The company that supplied the tool is a well-known supplier of web-based outcome measurement systems. Primary considerations in selecting a tool included ease of use, compatibility with existing software systems, few technical requirements, and not requiring the purchase of additional software or hardware by either ChiroCare or the participating providers. Previous pilot studies required participating doctors to submit information, but they could not retrieve the data after it was submitted. This system allowed access to information previously submitted and allowed patients to enter responses from their own home computer or mobile device.

Background: Chiropractic Treatment for Back and Neck Pain

Approximately 80% of adults have experienced significant back and neck pain at some point in their lives¹. The condition comes at a price, with musculoskeletal costs making up the highest cost category. Back pain is the sixth most costly health condition in the United States; health care costs and indirect costs due to back pain equal more than \$12 billion per year².

Chiropractors are now part of the mainstream health care delivery system since chiropractic's inclusion in Medicare in the 1970s. In the United States, 65,000 chiropractors see approximately 19 million individual patients per year.³ Chiropractors are not only are part of the health care delivery system, but numerous research studies indicate that chiropractic care has demonstrated significant improvements in the treatment of uncomplicated back and neck pain. For example, a 2010 systematic review concluded spinal manipulation achieves equivalent or superior improvement in pain and function when compared with other commonly used interventions for short, intermediate, and long-term follow-up. Despite the positive outcomes experienced by many patients, chiropractic care continues to be underutilized. This underutilization causes unnecessary discomfort and potential delays in effective care for patients.⁴

¹ Relief for your aching back what worked for our readers. Consumer Reports, March 2013.

² Dagenais S, Caro J, Haldeman S. A systematic review of low back pain cost of illness studies in the United States and internationally. **Spine J.** 2008;8:8-20.

³ Martin BI, Deyo RA, Mirza SK, Turner JA, Comstock BA, Hollingworth W, Sullivan SD. Expenditures and Health Status Among Adults With Back and Neck Problems. JAMA. 2008 Feb 13;299(6):656-64.

⁴ Dagenais S, Gay RE, Tricco AC, Freeman MD, Mayer JM. "NASS Contemporary Concepts in Spine Care: Spinal manipulation therapy for acute low back pain". Spine J 2010;10:918-940.



A 2008 meta-analysis looked at 40 randomized controlled trials between 1975 and 2007, and found spinal manipulation for low back pain outperformed medical treatment. Additionally, a 2011 Consumer Reports survey asked subscribers to rate a comprehensive list of remedies. The most popular options were hands-on treatments including chiropractic treatments (58%), massage (48%), and physical therapy (46%).

A study published January 3, 2012, in the *Annals of Internal Medicine* also indicated that spinal manipulation is more effective than over-the-counter and prescription medication for relieving acute and sub-acute neck pain. The study involved 272 adults ages 18-65 with neck pain of two to 12 weeks' duration. Participants were recruited from a university research center and a pain management clinic in Minnesota. Spinal manipulation was provided courtesy of a doctor of chiropractic. According to the study, six chiropractors, each with at least five years' experience, provided treatment. The specific spinal level to be treated and number of treatments provided was left to the discretion of the individual chiropractor.

Research clearly supports chiropractic being the first-line treatment for back pain. The Institute for Clinical Systems Improvement (ICSI) determined that health reform goals should include a "triple aim" to improve the health of populations, improve the patient experience of quality and satisfaction in care, and reduce the per capita cost of healthcare. We propose that evidence-based, cost effective chiropractic care is part of the answer and should be the portal of entry for most patients experiencing back pain because it provides demonstrated outcomes, in the right setting, at the right time, and at the right value.

Chiropractic Treatment Outcomes Collection

Objective

ChiroCare, with advice from their Advisory Council and other subject matter experts, selected a practice-based outcomes approach in this data collection initiative. ChiroCare also selected an outcomes research approach to complete our project because outcomes research studies the end results of care in real-life settings. This type of research is quite different from traditional randomized controlled studies, which measure health outcomes in controlled environments such as a hospital, clinic or laboratory. Traditional studies only tell part of a patient's health status, while practice-based



outcomes research indicates a patient's functional status, well-being, and satisfaction with typical, pragmatic care.

The Functional Ability Tracking and Outcomes Program, a program to collect outcomes data measuring the level of improvement in patients receiving chiropractic treatment, encouraged the use of functional ability measurement tools provided to the ChiroCare network and those providers participating in the program. These tools were intended to help ChiroCare demonstrate the positive outcomes provided by its participating chiropractors. Our hypothesis is threefold:

1. Chiropractors use outcomes tools, and do obtain initial and discharge scores on most of their patients.
2. Chiropractors are able and willing to communicate outcomes results with another organization.
3. Utilizing outcomes data will provide the information necessary to create strategies to improve the quality and value of patient care.

In an effort to meet our objectives, we determined appropriate measurement tools and how to best utilize them. Further, we established how readily chiropractors, their staff, and patients would be willing to use these tools.

Methodology

The Revised Oswestry Disability Index (ODI) version 2.1a⁵ was selected as the measurement tool for the back treatment outcomes collection because it is the most commonly used outcome measure for low back pain. It is a questionnaire that examines the patient's perceived level of disability in various activities involved in daily living. Patients report their pain level in doing these activities on a scale of zero being no pain to 5 being the worst imaginable pain.

The Neck Disability Index (NDI) is a modification of the Revised Oswestry Disability Index. The NDI is a patient-completed, condition-specific functional status questionnaire with 10 scaled items including pain, personal care, lifting, reading, headaches, concentration, work, driving, sleeping and recreation. The NDI is the most commonly used self-reported measure for

⁵ Fairbank J, Pynsent PB. The Oswestry Disability Index. Spine 2000; 25(22):2940-2953

neck pain⁶. Both the ODI and NDI have been found to be reliable and valid measures of functional disability related to neck and back pain.

An invitation to participate was sent to 120 pre-selected network chiropractors with high patient volumes. These chiropractors were selected based on the assumption that their volume would allow them to provide information on a minimum of 50 new adult patients. Fifty-five chiropractors agreed to participate.

The electronic survey system allowed chiropractors and staff, as well as patients, to enter responses electronically. The system also allowed chiropractic offices access to the data to review the data and determine whether patients were responding. Offices were given an Apple iPad to allow staff to input patient responses electronically. Patients could enter responses from their own computers, which was initially considered to be a convenient feature of the program. Feedback from the participants relatively early in the program made it clear that the iPad collection method was limited in its effectiveness. The process flow of setting up the patient's account and having the patient enter the initial index on the iPad was cumbersome and too time consuming – as a result most offices established a paper collection process instead.

Results

Patients experiencing both acute (sharp or severe) and chronic (constant or ongoing) pain reported approximately 44% improvement in the first 15 days of chiropractic treatment, with additional improvement in the next 15 days. Females accounted for 60% of the back pain respondents and 73% of neck pain respondents.

15 Day Results	Back	Neck
Average Initial Score	37	29
Average 15 Day Score	21	16
% Functional Improvement	43%	45%
Number of 15 Day Scores	243	172

30 Day Results		
Average Initial Score	35	30
Average 15 Day Score	23	20

⁶ Macdermid JC, Walton DM, Avery S, Blanchard A, Etruw E, McAlpine C, Goldsmith CH. Measurement properties of the neck disability index a systematic review Journal of Orthopedic and Sports Physical Therapy. 2009 May;39(5):400-17.

Average 30 Day Score	19	20
% Functional Improvement (Initial to 30 Days)	46%	33%
% Functional Improvement (15 to 30 Days)	17%	*
Number of 30 Day Scores	84	69

These reports indicate the improvement in pain experienced during daily functions such as personal care, walking, lifting, sitting and sleeping. At 15 days after the initial chiropractic treatment, patients reported a 43% improvement in back function using the Oswestry Disability Index, and a 45% improvement in neck function using the Neck Disability Index. At 30 days after initial treatment, patients reported a 46% improvement in back function. Results were similar to those collected in a 2003 outcomes collection project conducted by ChiroCare.

Although 37% of respondents intended to use outcomes measurements in their practices, only 21% felt that collecting the data assisted them in treating their patients. Eighty-one percent of respondents indicated that they had used outcomes tools previously, and 17% indicated that they had not previously used outcomes tools.

Besides the improvement in outcomes, chiropractors also demonstrated that they can gather outcomes data, despite using a challenging tool and a collection process that was cumbersome at times. However, gathering data is only part of the process. Chiropractors need to use the tool as part of their patient’s treatment plan and as a communication tool with the patient.

Secondary Survey Results

ChiroCare also conducted a secondary survey to help determine and understand how easy it was for chiropractors and their staff to collect outcomes data. If these tools are required for tracking, reporting, and incorporating into the patient’s treatment plan, it must be easy for the patient and office to administer and provide the necessary data. Their feedback indicated that the current process is labor-intensive and does not collect other clinical indicators, such as quality of life.

One of the key issues with the current process was the additional manual entry of data into the outcomes tool. Patients were able to enter data into the ChiroCare-selected tool themselves, but it was time-consuming and tedious. The lack of patient response and engagement was disheartening.



In the secondary survey, we asked doctors to rate the collection tool on ease of use. On a scale of 1 (difficult) to 5 (easy), the average rate of the responses was 2.8. Using the tool created barriers for users as follows:

- 63% of respondents reported difficulty collecting index scores from patients
- 46% reported that the patient enrollment process was inconvenient
- 41% reported that completing responses took too much time
- 31% of respondents reported that their office staff was not engaged in the process
- 29% stated that the online tool was cumbersome

Providing tools that are easier to use, less time-consuming, and afford more methods of measurement need to be taken into consideration for a future study or implementation by any organization. Integrating such data collection measures with Electronic Health Records to reduce duplicative data entry may help to streamline the process and improve practitioner utilization.

As a result of our study and secondary survey, we would recommend additional training in the value of using outcomes and tools regarding how to collect them. By training staff and providers, the chiropractors may see this step in the treatment plan process as a value and use the tools to create functional goals, and help guide treatment.

Summary

Our goals for completing this Outcomes Program included:

1. Successfully obtain at least the initial and discharge score on a majority of their patients.
2. Accurately and consistently communicate the results with another organization.
3. Identify potentially effective strategies that can be implemented to improve the quality and value of care.

We successfully completed the program and obtained the information we needed to validate moving forward with designing and implementing Chiropractic Centers of Excellence that places a doctor of chiropractic as the first-line treatment for back and neck pain. We also identified areas of opportunity for improvement within the collection, reporting, and integrating of outcomes as part of the treatment process. These will require additional



attention if outcomes are going to be a key requirement within the process going forward.

While we were successful, in the outcomes data collection process the lack of response from providers was unexpected. A goal moving forward would be demonstrating value to doctors, staff, and patients. Health care providers are assisting in data collection, but are not fully incorporating the data into their treatment practices. Our outcomes collection results would suggest a need to demonstrate the value of making changes and increase engagement and understanding of the value of outcome tools.

Besides the challenges of obtaining the outcomes data from the chiropractor, we also observed how difficult it is for a chiropractor's office to induce patients to complete and collect the indexes from their patients. Proving the value of the information and its usefulness in each patient's treatment plan is a critical step in ensuring a successful outcomes process. Providing a user-friendly tool for patients is equally important.

Additional studies using simple, streamlined tools and processes are suggested solutions based on the responses we received. Clearly-defined processes to implement changes based on study results are needed as well. ChiroCare is considering collaborating with other organizations who are implementing outcome tools to address these issues. Unless we are able to demonstrate the value of outcome collection to doctors and their staff, they are less likely to implement change. Additional research into the cost-effectiveness of chiropractic as first line treatment for neck and back pain is necessary. Because this project clearly demonstrated that chiropractic care provides improvement in pain level and function, further study is needed to create a protocol for chiropractic treatment as the first-line treatment for patients with back and neck pain, whether they initiate treatment in a medical doctor's clinic or a chiropractic clinic.

