



Healthcare Study: The Use of Meridian Stress Assessment

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Overview

ICON Health and Fitness is headquartered in Logan, Utah, and is the world's largest manufacturer of home exercise equipment, with annual sales of \$710 million and a staff of 4,239. The company operates a self-funded medical plan, which is overseen by its Human Resources Director, Douglas Younker. ICON contracts with Benefit Management Services, Inc. of Salt Lake City, Utah for medical plan consulting services.

The company has aggressively pursued an employee fitness and wellness program for the past several years. One of its most recent projects was an outcome study using meridian stress assessment. The project began on June 1, 1998 and ended May 31, 1999. The final project assessment was conducted in February 2000. The Benefit/Cost Ratio was 10.40/1 and participant satisfaction was very high.

Narrative by Douglas Younker, ICON's Human Resources Director.

In January 1998, Dr. Brent Peterson of the Peterson Chiropractic Clinic tested me with the BEST (BioEnergetic Stress Test) System, a meridian stress assessment (MSA) device developed by BioMeridian Corporation. I was impressed by the health improvements I experienced. As the Director of Human Resources for a large company with a self-funded medical plan, I immediately recognized the potential this technology had to eliminate medical symptoms and reduce costs. I had to learn more. A few days later, I met with Mr. Reggie Hughes of BioMeridian. We decided that a study would help me determine the cost effectiveness of the BEST System.

I was not concerned about running a double blind, randomized test. In fact, I do not consider it appropriate for our company to

ask its employees to participate in clinical trials, nor would it be an appropriate use of corporate funds. All I wanted to know could be summed up with two questions: First, would BEST System services improve the overall health of our employees? Second, would the services reduce medical plan expenses? With these questions in mind, I had healthcare professionals help me develop a process to track symptom reduction and dollar savings. Later, as I started to see significant success with the program, I began to measure other important factors: reduced sick days, increased productivity and improved quality of life.

The "bottom line" results of the study were very favorable. Participants evaluated in the final audit had experienced a 75% (93% for children) reduction in symptoms weighted for severity. For every dollar spent, savings were \$10.40 (80% to ICON and 20% to the participants). Hence, the Benefit/Cost Ratio was 10.40/1 over the one-year study period. The average total study cost per participant was \$373 (approximately 80% paid by ICON and the balance by participants).

Annual gross and net savings per participant were \$3,878 and \$3,505 respectively. The average participant finished the course of treatment in about 8 weeks. Healthcare cost savings paid for the \$373 average cost per participant in 6 weeks (called the "Payback Period"). Participants reported improvement in the quality of their life ranging from 0% to 100% and averaging 45%. Most participants have continued to enjoy better health and lower healthcare costs beyond the one-year study period.

I waited 9 months after the completion of the study before making my final contact with 25 of the participants. The selection of participants was not done randomly, which will be discussed later in this report.

Of the 70 study participants entering the study, 9 did not complete the course of treatment, as described later in this report. Of the remaining 61, approximately 4 showed no improvement, and 4 improved, but retrogressed. (It is very possible that their improved state could be restored through further MSA services.) Hence approximately 53 (87%) of the 61 persons completing the study experienced significant and lasting improvement. However, the final report is based primarily upon the results experienced by the 25 participants who were included in the final, more thorough evaluation.

Dr. Peterson and his staff encouraged participants to continue using dietary supplements started during their participation in the study. The clinic's staff also taught the participants to occasionally use their homeopathic medicines if old health problems seemed to be returning. Several participants reported that following this advice has worked well for them.

I classified savings into two categories: hard dollar savings and soft dollar savings. Hard dollar savings are objective and concrete, while soft dollar savings are more subjective and open to debate. Gross hard dollar savings in reduced medical and prescription expenses came to \$1,393 per participant. Increased productivity and reduced sick-leave make up the soft dollar savings which amounted to \$2,485 per participant. For the 25 participants carefully tracked and included in the final audit, aggregate net savings were \$87,630. For the 70 participants, total savings were approximately \$200,000. The cost of this study obviously paid for itself, but the real satisfaction has come from the gratitude expressed by employee participants and their family members. Some of their stories are provided in Appendix A of this report.

We did not try to calculate savings resulting from the avoidance of hospitalization. However, several of the participants said they avoided the need to be hospitalized because of the favorable results they experienced in the study. Total hospitalization savings might have been in the range of \$10,000 to \$20,000.

Twenty-one months have passed since we started the study. At this point, my observations are as follows:

- I really feel that Meridian Stress Assessment is most remarkable.

- Overall, employees were very open with me about their health conditions and study results. I believe that their written and verbal reports have been honest and accurate. However, a few may have been reticent to admit that their performance prior to the study was less than it is now. For example, a co-worker of a female employee participant called me to ask if he too could participate. He had seen a significant improvement in his co-worker's energy level and productivity. She had also told me how much better she felt. But at a later date, when I asked if she had experienced any improvement in productivity as a result of the study, she said that there had been no change. My first thought about this seemingly contradictory statement was that she did not want the Human Resources Director to think that she had been less productive before the study.
- One of the more common conditions the BEST system suggested was an allergic reaction to red and yellow food dyes. When these dyes were eliminated from diets and homeopathic remedies used to detoxify the body, the following conditions diminished or disappeared: diarrhea, asthma, joint pain, allergies, and ADD. Dr. Peterson commented to me that in every ADD case he has evaluated; the participant has tested positive for red and yellow dyes.
- Some people might ask, "Allergic to red and yellow food dye? You've got to be kidding!" I respond by asking, "Do you know anyone who is allergic to bee stings or peanuts?" Everyone says, "sure." Then I add, "Why is it so hard to believe that just as some people are highly sensitive to bee stings or peanuts, others are sensitive to red, yellow or other food dyes? And maybe others are allergic to other food additives or chemicals." The answer is typically, "I've never thought of it that way".
- Two methods were used to select the study participants. First, I selected employees who spent a significant amount on prescriptions. Second, I placed an article in our company newsletter inviting employees to contact me if they or a family member had unresolved medical issues and wanted to consider participating in an alternative medicine study. Participation was voluntary. The two methods produced about 70 participants. A small number of employees volunteered to participate, not because they had major medical problems, but because I wanted them to be familiar with the new service.

- Since the completion of the study, we have continued to cover MSA services. Participants' co-payments for the MSA office visit are the same as they pay for a doctor's office visit. Their co-payment for dietary supplements is the same as they pay when purchasing prescription drugs.
- We are now writing a formal policy for the inclusion of MSA as a covered service of our self-funded medical plan. Included will be an MSA gatekeeper program with incentives for its use when plan participants are faced with certain challenging and potentially costly health problems. MSA will also be a covered service for our employees at our other manufacturing locations, where we will contract with local MSA providers for the service.

Information pertinent to the study

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| | <p>April 1 through March 31.</p> <p>Compared to other corporate self-funded medical plans, benefits and copayments are about average. ICON covers approximately 80% of the costs and employees cover the balance.</p> <p>The annual medical cost per participating employee in the year 1999 through 2000 was \$2,455, which is 43% below the 1999 large employer national average of \$4,320 (William M. Mercer, Business Insurance, December 13, 1999). This cost includes plan administration and reinsurance. ICON's annual cost per participating employee excluding administration and reinsurance was \$2,220 (\$185/month) in 1999/2000, which was down from the 1998/1999 cost of \$2,352 (\$196/month). , as illustrated by the chart in Appendix B. delete this part of the sentence since I did not include appendix B.</p> <p>ICON's average number of covered lives per enrolled employee is approximately 3.6. The national average is in the range of 2.8 to 3.1.</p> |
| Plan Year: | |
| Plan Benefits: | |
| Cost/Employee: | |
| Covered Lives: | |

Table a

Study process information

| | |
|----------------|--|
| Study Name: | ICON Meridian Stress Assessment (MSA) Pilot Project |
| Type of Study: | Outcome study without a control group. Voluntary participation. |
| Purpose: | To evaluate the degree to which sustainable health improvements and cost savings might be achieved when healthcare professionals use MSA technology as an assessment tool in the treatment of persons with longstanding, and/or unresolved illnesses. |
| Study Period: | June 1, 1998 to May 31, 1999 |
| Location: | Peterson Chiropractic Clinic, Logan, Utah |
| Sponsor: | ICON Health and Fitness' self-funded medical plan. Authorization required for participation. |
| Planned by: | Douglas Younker, Human Resources Director, ICON Health & Fitness Brent Peterson, DC, Peterson Chiropractic Clinic, Logan, Utah Elmo Gruwell, MD, Chair, Dept. of Emergency Medicine, Utah Valley Regional Medical Center, Provo, Utah. Richard Droubay, VP, Benefit Management Services, Salt Lake City, Utah |

Table b

Reginald Hughes, VP, BioMeridian Corporation of Draper, Utah

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|---------------|--|
| Participants: | Covered lives with long-standing, and/or unresolved health problems having resulted in significant, ongoing healthcare costs. |
| Methods: | Two technicians performed the MSA under the direction of a chiropractor experienced in complementary medicine. Both technicians were trained and experienced in the use of MSA. One was a Medical Assistant and the other a Registered Nurse. Dietary supplements and homeopathic medicines were used. |

Table c

Each participant agreed to report results by completing a Symptom Checklist and by answering study-related questions in telephone and/or personal interviews with the HR Director. Participants rated the severity of their condition(s) on a scale of 1 to 5, with 5 being the most severe.

Participants co-paid for MSA office visits and remedies (dietary supplements and homeopathic medicines) at the same rates paid for routine doctor office visits and prescriptions. The clinic discounted all services and products sold to ICON's participants.

Participants reported on changes in their symptoms at the beginning of each office visit. Participants also gave updates to the HR Director, usually by telephone. They rated each of their symptoms on a scale from zero (0) to five (5). A rating of 5 was assigned to extremely severe symptoms, a 1 was assigned to the least severe symptoms, and a zero was used to indicate that a symptom had disappeared. Participants also completed a medical history at the time of their first visit for MSA services.

Participants were advised to remain under the care of their primary care physician, and to cease using any MSA-related remedies if adverse side effects were experienced. Participants were advised by the clinic not to alter their use of any prescription medications without first consulting with their Medical Doctor.

ICON's Director of Human Resources, who also serves as the director of the company's self-funded medical plan, personally tracked the progress of all participants through frequent phone calls.

Study Results

ICON, assisted by Peterson Chiropractic Clinic, conducted several evaluation meetings at the clinic throughout the course of the study. BioMeridian did not participate in any of these meetings. The first audit was conducted on October 26, 1998. Records were reviewed, and phone calls were made to 20 of the first 48 participants. Results reported were:

- Reduction in symptoms to date, weighted for severity: 64%
- Percentage of participants reporting health improvement: 94%
- Estimated net annual cost savings per participant — (80% of savings to the company and 20% to the participants): \$1,271.

Participants who joined the study after the first audit experienced results similar to those presented above. When the one-year study period ended, 70 persons had participated. Nine months after completion of the study, the HR Director personally contacted 25 of the participants to gather information for the final report. As indicated earlier in this report, the 25 were not randomly selected. They were because they were:

- Still employed by ICON at its Logan, Utah facilities,
- Easily accessible,
- Willing to be included in the final evaluation, and
- Likely to have followed the MSA provider's suggestions.

A few participants did not wish to be included in the final evaluation but reported results similar to those reported by the 25 participants included in the final evaluation. Others were not available during the final evaluation but have since reported that they too experienced results similar to those reported in the final evaluation. At the time the 25 participants reported on their current health status, as presented below, more than one year had passed since some of them had completed their course of treatment. Generally, the 25 reported that their improvements remained unaltered.

Results were:

- Average age of participants: 30
- Percent of participants reporting health improvements: 100% (Case #15 reported very minor improvement. Case #31 was not treated but conformed to the dietary changes given to her parent, who was treated, resulting in significant health improvements for the child.)
- Average cost per participant (ICON and participant payments): \$373
- Estimated net annual savings per participant, office visits and prescriptions only, excluding any hospital cost savings (\$1,393 - \$373) \$1,020
- Gross annual savings per participant, hard and soft costs: \$3,878
- Net annual savings per participant, hard and soft costs (\$3,878 - \$373): \$3,505, Benefit/Cost Ratio (\$3,878/\$373): 10.40/1
- Average payback period per participant: 6 weeks

NOTE: The average Benefit/Cost Ratio of 8 pilot studies reported by Steven Aldana in *The Art of Health Promotion* was 3.35/1.

A spreadsheet presentation of final report results is attached as Appendix C. Although the data is useful, it does not conform to the data collection standards of a clinical trial. However, the data has been considered adequate to help determine whether ICON and the participants benefited from the study.

Participants were also asked to rate any improvement they might have experienced in the quality of their life as a result of their participation in the study. Ratings ranged from zero to 100% and averaged 45%.

There was no attempt to measure the effect a spouse or child's health improvement might have had on an ICON employee. However, it is possible that employees were able to perform better at work once a family member's health had significantly improved.

Of the 70 participants, the following withdrew from the study prior to completing the course of treatment:

- Participant #20, a 55-year old female diabetic who participated in the first audit, reported an 80% reduction in leg and knee pain, and an 80% decrease in pain and numbness in her feet. However, her blood sugar level became more erratic during the pilot project. She withdrew at the recommendation of her ND. This was the only adverse reaction reported.
- Approximately 4 people withdrew from the program without completing it due to lack of satisfaction.
- Approximately 4 others moved from the area prior to completing the program.

As noted earlier, no attempt was made to measure cost savings due to the avoidance of hospitalization. However, several participants commented that had the MSA services not been successful, they were anticipating receiving inpatient care.

Participants took natural and homeopathic remedies associated with the MSA service, but in most cases did not continue to take them routinely for more than 4 to 8 weeks. Thereafter, participants kept the homeopathic medicines and used them occasionally if their health problems began to resurface. Some participants were asked to consider using dietary supplements regularly and to consider making permanent changes in their diet (e.g., minimizing the use of refined sugar and avoiding foods containing certain food

dye). Participants who have followed these suggestions report positive results.

Conclusions and Actions

Savings, health improvements and employee satisfaction resulting from the study suggest that adding MSA to ICON's medical plan as a covered service would be beneficial. The company has continued to provide the MSA service to its health plan participants on a selective basis but will soon issue a policy establishing MSA as a standard benefit. The company is also preparing a gatekeeper policy pertaining to the use of MSA. ICON will also contract with additional physicians for MSA services for its employees living in other locations.

Information about MSA

BioMeridian Corporation of Draper, Utah manufactures and sells a meridian stress assessment device called the MSA-21, which is an upgrade of its BEST System. The MSA-21 is an FDA registered, computerized galvanic skin response testing device used for meridian stress assessment. It is based upon the traditional acupuncture meridian system. Acupuncture works on the principle that there is a network of energy channels, called meridians, suffusing the body. In 1950, Reinhold Voll, M.D, of Germany, developed a means of electronically measuring electrical resistance in meridians. Computerized versions of the technology originated in the United States around 1980. The MSA-21 is one such device. It is not used to diagnose or treat disease, as defined by Western Medicine. Nor is it used to define disease based on clinically manifested symptoms. It is used to assess the body's energy balance, which may help a physician (Medical Doctor, Doctor of Chiropractic, Doctor of Osteopathy, Naturopathic Doctor or other licensed practitioner) in identifying energy imbalances and in selecting a course of action to restore balance. Because the technology is employed only as a topical evaluation, it is non-invasive and completely safe. MSA procedures and equipment are complements to — not replacements of - a conventional doctor's diagnostic and therapeutic procedures and equipment. Remedies used in conjunction with the MSA services are typically dietary supplements and homeopathic medicines.

Appendix A

Participant Accounts from ICON Outcome Study

(Names Changed)

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|---------------------------|---|
| Joe, age 28 | Joe had been diagnosed with acid reflux and had been on Prilosec for the past 2 years (cost \$1200/yr.). MSA suggested the possibility of parasites. 2 weeks after treatment, he was off drugs. 1 year later, still off the drugs and no stomach pain. Savings, at least \$1,200/yr. |
| Sam, age 3 Karl, age 1 | Both were considered ADD/ADHD. Parents were asking for Ritalin. MSA showed a possible sensitivity to food dyes. The parents have changed the boys' diet and they are no longer hyperactive. The 2 MD's who had treated them earlier couldn't find anything wrong with them. Savings, \$635/yr. and 1 mother's nerves. |

Table d

Susan, age 31 Chronic hip pain. 12-15 visits to the Chiropractor without success — referred to a specialist charging \$600 per test. MSA suggested possible allergy. 2 months after treatment, no hip pain. \$1,720/yr. savings.

Jess, age 34 Had been on Claritin for 2 years. 3 months after treatment (February to May 1999) no need for Claritin. \$500/yr. savings.

John, age 28 Asthma patient using an inhaler 3 to 4 times a day. Several visits to the ER in the past year for breathing problems. Now uses inhaler once per month. Savings, \$950/yr. plus no ER visits for breathing problems in past 6 months.

Matt, age 66 Hip pain, pinched nerve, and back pain. After treatment he commented, "I feel great. I can stand up straight for the first time in 18 months. This has improved the quality of my life. Doctors have not been able to help me." Treatment has resulted in savings of at least \$1,000.

Betsy, age 40 Couldn't sleep. Headaches, dizzy spells and allergies were all listed as severe before starting the program. Now she says that if these problems do exist, they are mild. Commented "I slept better after that first assessment than I have for a long time." Savings \$1,219.

Jose, age 15 Swollen lymph nodes, low energy, sleeping problems, and irritability listed as moderate to severe. The family had spent \$6,000-\$7,000 in the past 3 yrs. on doctors and cancer tests. MSA suggested a possible reaction to an old childhood

immunization. 2 months after MSA, all symptoms were gone. Savings in the thousands of dollars.

As amazing as these stories are, they are true. These were employees that I personally knew and worked with on a regular basis.

Since the ICON Study was completed in 2000, I have learned about other amazing out-of-the-box solutions: PGx or also known as Pharmacogenetic testing, Regenerative Medicine or commonly called Stem Cell therapy, Hyperthermia, and the list goes on.

In 2017 I was invited to speak at Stanford Medicine X and below is the outline of my presentation. I am not a Doctor or Medical researcher – however as a Human Resource executive that has spent millions of dollars of company money on healthcare and conducted personal interviews with numerous employees hearing their first-hand accounts of the good and not-so-good medical practices I believe I have unique perspective on healthcare.

We all know that medical costs are rising twice as fast as inflation and if don't fix the problem it will bankrupt our companies and our countries. 20 years ago my CFO challenged me to fix this problem – and I did. 5 out of the last 6 years ICON's medical costs have had a flat or negative trend. We introduced 11 innovative ideas into our medical plan I will tell you about the 4 of them.

How many of us would buy a car or a home without knowing the price up-front? None of us. So why do we do it with medicine. Over 3 years ago, I found a group called Coba Health that brings transparency to the surgical world. They take the most expensive part of our medical plans and create competition, while improving quality of care.

One story to prove the point. We had a 22-year-old dependent who needed a \$43,000 jaw surgery. This medical group brought a \$22,000 option, we told the original surgery center we were cancelling in lieu of a better price. They asked, "Why do you care what it costs... you have insurance". But rather than lose the surgery, the original surgeon offered a cash price of \$9,500. So, in a matter of 2 weeks we went from \$43,000 to \$9,500.

When you have transparency, you can create consumerism which creates employee engagement.

Over a 3 ½ year period, ICON saved over \$400,000 on 15 surgeries using this platform, without having to charge the employees a co-pay or a deductible.

Story #2 13 years ago, it was rumored by a parent that it was very easy to get opioid's through our plan. This is the last thing an HR Director wants to hear. My Pharmacy Benefit Management group told me that we were fine. Two years later this father called me and told me his son had just died from an overdose of OXY and SOMA. I called my PBM - they told me the same story - no problems with ICON's pain medication usage.

I was not satisfied with this answer and asked for the claims detail. 15 minutes after doing two simple sorts on 23,000 lines of data, I found the problem. Two doctors were prescribing 90% of all pain meds. One was a pain specialist, the other a general practitioner - same doctor who wrote the script for the employee who died.

I learned that Oxy was originally designed for final stage cancer patients and the manufacturer had plead guilty to fraud and paid a 634.5 million dollar fine.

I worked with our PBM to create a solution that would allow those who needed this drug to get it and protect those who did not need it. This was no easy task! I had to disagree with pharmacists and medical doctors, but in the end, it worked. ICON's use dropped by over 40%. From 153 grams per 1000 members to 91 grams. Six months later our PBM asked if they could implement my program in other companies

About 8 years ago one of our VP's with tendonitis did not want surgery and asked me to look into PRP and Regenerative Medicine. We found an MD with experience in these therapies and sent the VP and a handful of other employees - with great success. 8 years later the VP and many others have avoided surgery with no additional issues. We've had no adverse events and have saved thousands of dollars. This also saves employees from losing thousands of dollars in lost compensation.

In 1998 I read an article about Natural medicine. It detailed how in other parts of the world medical doctors prescribe it, there is science behind it, it typically costs less, tends to have fewer side effects and really works: So, I asked, how do we do this in the US - I was told it was unproven and dangerous.

We did a pilot study and followed 25 employees or dependents for 1 year and measured the results. On average, they reported a 75% reduction in symptoms, it is important to note that all of these individuals were using traditional medicine and/or using

traditional medical advice. The parents of the children in the study reported a 93% reduction in symptoms. At the end of the study we calculated a 10.4 to 1 ROI.

But more important than the ROI was the positive effect on my employees and their families.

These are some of the other programs that we adopted: Acupuncture, Reflexology, Massage therapy, 340 b pricing for Rx, Near site medical clinic, Wellness plans.

I heard a well-respected medical doctor once say, "Keep or mind open as there will be many great discoveries in the medical world in the months and years to come." Another similar quote was given to a new group of medical graduates, "Half of what we have taught you in medical school will be found to be dangerous or ineffective by the time you retire from practice".

So why do certain groups oppose new discoveries or state that new therapies or some old therapies are unproven or dangerous when these same therapies are used in other countries that have better outcomes at lower costs. I guess we will never really know that answer.

In the meantime keep your eyes, ears and hearts open to new things coming and sometimes it may be old remedies that are worth exploring.

Sometimes, you have to be the lone voice - you have to swim upstream - you have to be willing to go out on a limb - you are not reckless, but you have to question everything.

Conclusion

Adding Meridian Stress Assessment into a Self-funded medical plan is a very smart and reasonable thing to do. This opinion was created after having my own very positive medical outcome and then seeing and hearing the successful results from my employees during this yearlong study. We had many very positive events and only one very minor adverse event (some changing blood sugar levels) during this study. Not only did the medical Plan save thousands of dollars, we had happier and healthier employees and dependents.

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