



## Creating Coherent Sustainable Workplaces

Diverse organizations demonstrate that  
innovative stress reduction strategies lead to  
significant employee health savings



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Nearly every executive in American organizations today is struggling to find effective, sustainable solutions to the spiraling costs of five major issues: health care and benefits, disability, sick time, productivity, and retention. While the first four issues have been widely reported, it may be surprising that even when the US economy has not fully rebounded from its several-year recession, employee retention is still a big issue. The message is clear: more and more employees are making changes to put personal balance and health at the top of their personal priority lists, instead of waiting until retirement to be happy and healthy. One study says that *only one in twenty American adults* consistently engages in the five essential health behaviors<sup>1</sup>: regular exercise, healthy levels and types of fat intake, five daily servings of fruits and vegetables, moderate drinking and non-smoking. HeartMath research indicates there is a sixth essential healthy behavior that supports and energizes all the others: *reducing stress*.

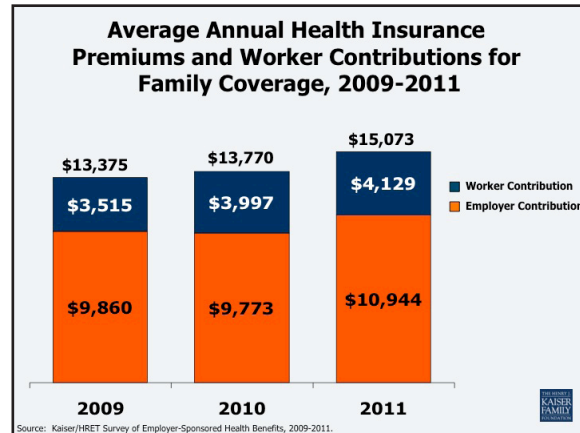
Spiraling costs of health care and employee well-being are actually a symptom of high stress, low productivity and poor safety.

There is a set of intertwining problems affecting nearly all US organizations, regardless of whether they are for-profit or non-profit, whether their industry is health care, finance, manufacturing, or high tech. The problem is universal, and lurking in the background is also a universal complaint: *staff are feeling more stressed than ever*. This white paper will not only explore the *causes and impact* of employee stress, but especially **solutions** which can have a profound, measurable impact on the issues vital to every organization's viability.

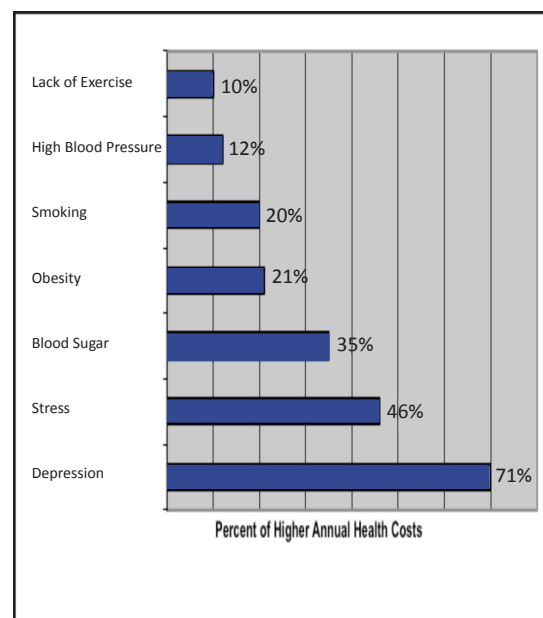


## Here are some sobering facts:

- Health care expenditures are increasing at a rate of 8-14% annually**, with no indication of slowing significantly. This expenditure alone threatens the profitability and survival of organizations of all sizes. Interestingly, 75% of health care spending is attributable to illnesses that are preventable.<sup>2</sup>
- Disability has a significant financial impact on companies** both large and small. In 2006, the total cost to employers for workers' compensation totaled \$87.6 billion.<sup>3</sup> Fortunately, there is a direct correlation between disability costs and pre-existing health and well-being.<sup>4</sup>
- Sick Time costs an organization on average \$602 per employee per year.** This figure does not include various indirect costs such as overtime pay for employees who are covering duties, the hiring of temporary employees such as traveling nurses, missed deadlines, lost sales, lowered morale and productivity, all of which add significantly to the direct costs.<sup>5</sup> It's been demonstrated in multiple studies that this figure can be reduced by 25% with an effective wellness program.<sup>6</sup>
- Productivity is an issue in manufacturing, service and health care environments, if not everywhere.** Productivity clearly affects customer or patient satisfaction: a poorly executed product or service brings low customer satisfaction, negative buzz about your organization, and a downward revenue trend. Now that issue has gained new priority for US hospitals, as a major share (30%) of their reimbursement rates will be based on patient perception of the level of care they receive while hospitalized. [www.CMS.gov](http://www.CMS.gov)
- Retention of top employees is estimated to be at least 150% of annual salary<sup>7</sup>** when considering everything from training costs to recruitment, lost productivity, new hire, lost sales, etc. Internal comparisons have demonstrated clearly that retention among wellness program participants can be two or more times greater than among non-participants.



Called the HERO study and published in 1998 in the *Journal of Occupational and Environmental Medicine*, this graph shows the percentage of higher annual health costs associated with a variety of conditions.



## The Impact of Stress

Unmanaged stress negatively impacts virtually every aspect of human behavior, and therefore it affects every issue causing health care costs to soar. Feeling frustrated, worried, or anxious about our personal finances, our job security, our increasing workload, our lack of control, our decreasing quality of life, our personal and/or family health concerns, our role as care-giver... all these are at the root of our increasing stress. These issues not only cause negative thoughts, worry and preoccupation, they can also profoundly affect our health, our well-being, our risk for developing chronic disease, and even our cognitive function. The American Institute of Stress famously reported that about 75-90% of all doctor visits are for stress-related issues. That stunning statistic should get the attention of every executive trying to rein in costs in an uncertain economy.

While the healthcare debate surges in Washington, each organization has been forced to face this uncomfortable fact: the **trend of rising employee health care costs, and the impact on our employees, customers, and patients, is simply unsustainable**. As a nation we are now spending at least 16%<sup>8</sup> of our GDP (Gross Domestic Product) on health care. We outspend every nation on earth by a significant margin. This is unsustainable and dangerous for not only our employees, patients and customers, but for our entire organization.

So logic would tell us if we want to positively impact employee health costs and retention, it would be prudent, if not *essential*, to address the pervasive problem of employee stress.

## Sustainable Solutions that Work – innovations in stress reduction

Since the late 1970s forward-thinking organizations have offered stress management programs to boost productivity and reduce stress and strain. Most of these programs offered a variety of tips and tricks to think differently, relax more, manage time more wisely, and other factors. Few, however, helped the individual deal with the stress response *in the moment it was happening*. Fewer still demonstrated a strong physiological understanding of the clinical mechanisms of stress in the heart, brain, autonomic and immune systems.



## Impact of Obesity

Another urgent problem for organizations is the problem of obesity, as it can negatively affect all of these critical issues. Since 1960, the percentage of overweight Americans age 20 to 74 increased from 44.8% to 65.2%. Obesity rose from 13.3% to 30.5% among this same age group, and has accelerated over the past twenty years. While many organizations are concerned about the health and productivity consequences of being overweight, rarely is one of the primary causes of obesity addressed effectively in the workplace: emotional stress. Most personal weight loss efforts are derailed when underlying emotional problems or behaviors overwhelm the commitments to better health.

## There is a Proven Solution

In the early 1990s research into heart rate variability revealed a high performance state known as *cardiac coherence*<sup>9</sup>, identified first at the Institute of HeartMath. This was described as a *state of internal synchronization in which heart, brain and nervous systems were able to work in a mode of energetic coordination and efficiency*. Simply said, we perform better and are healthier when our mind, heart and emotions are in sync.

Most people know what it feels like to be in a state of harmony and flow, where our hearts and minds are working together and there's a genuine connection with others. It's easy to enjoy this experience of synergy; but often times, this happens by chance, rather than by design or intention. In 20 years of applied research, the Institute of HeartMath has identified a core element, and we call it Heart Coherence. Heart coherence is when our heart, mind and emotions are in harmonious alignment, which has been shown in studies to enhance health and performance. Research shows that when we shift into a coherent state, the heart and brain operate synergetically. We can learn how to prevent stress-producing patterns, along with increasing our mental clarity and discernment capacity. Our coherence training was introduced to help people learn coherence building techniques that are intentionally simple, and based on science. The techniques enable us to access our natural inner technology – the heart's intuitive intelligence. One interesting finding from our research is that when people hold genuine core heart feelings such as appreciation or compassion, it naturally increases their heart coherence.

## Results of Coherence Training

Since its introduction in the early 90s, coherence training has seen adoption across diverse industries, age groups, and life activities. Hundreds of schools now utilize the approach to help students reduce test anxiety and improve emotional stability. Athletes use coherence training to improve focus, resilience, recovery time, and emotional management. Health care systems use coherence to help staff reduce stress and improve self-care while providing more genuine care to patients. Hospitals and clinics also provide the training to patients suffering from the stress associated with emotional issues like anxiety, depression, and sleeplessness, as well as the stress of chronic diseases such as cardiovascular problems, hypertension, diabetes, asthma, cancer, etc. Corporations and government agencies train leaders, managers, soldiers, and staff to learn coherence skills to develop leadership capacities, emotional management, resilience, and overall well-being.





## Hospitals Benefit from Increased Coherence

At a 2011 Best Practices Conference near Silicon Valley in California, several health care organizations shared the results of their coherence-based stress reduction training to improve the well-being of employees. Several of the organizations introduced the programs with an initial emphasis on nursing staff. Within hospitals and health care systems, nursing is an especially appropriate area of focus, since nurses represent the largest single group of hospital staff, having a profound impact on bedside care.

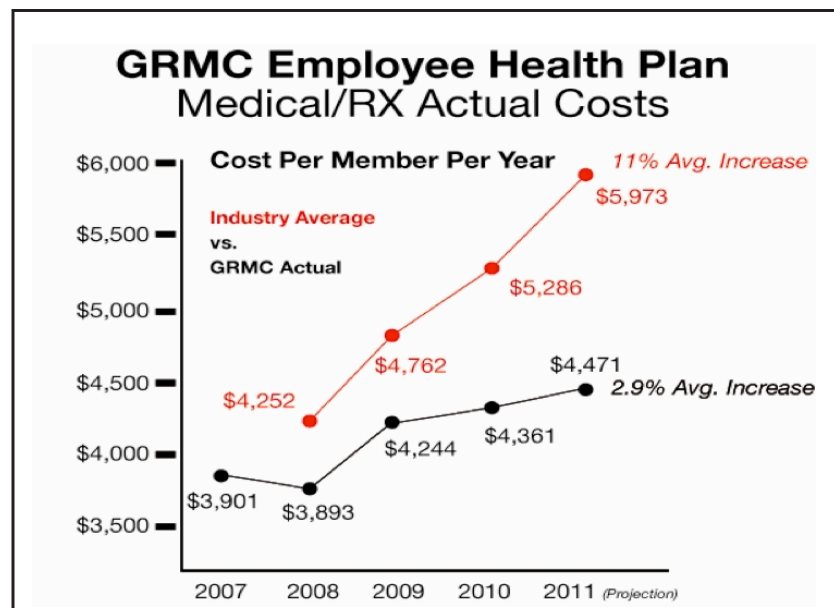
As hospitals seek innovative ways to improve patient care—which are often measured in patient satisfaction surveys—many have found incorporating the coherence-based stress reduction programs to be beneficial. One nurse manager summarized it this way: *“By caring for ourselves, we will be better able to meet the needs of our patients every day.”*

### Case Study 1

#### Grinnell Regional Medical Center

Grinnell Regional Medical Center (GRMC) in Grinnell, Iowa, realized \$3 million in savings over a four-year period by imbedding HeartMath’s coherence stress reduction training in their employee wellness programs.

Actual annual costs for the Grinnell Regional Medical Center Employee Health Plan showed a significantly lower rate of increase compared against the national average on a cost per member per year over a five-year period once the HeartMath coherence training was offered to employees.



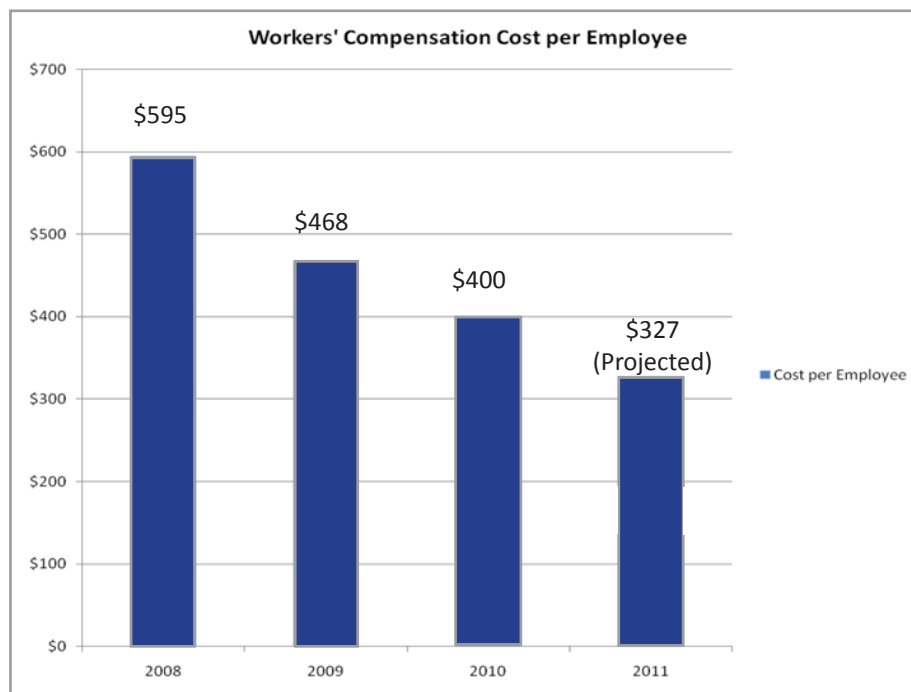
Grinnell Regional Medical Center saved \$3 million in its Employee Health Plan over a four-year period once the coherence training was offered to employees.

	2007	2008	2009	2010	2011 <i>Projection</i>
<b>Total Plan Cost</b>	\$3,854,188	\$3,920,251	\$3,917,212	\$3,815,875	\$3,912,125
<b>Members</b>	988	1,007	923	875	875
<b>Cost Per Member Per Year</b>	\$3,901	\$3,893	\$4,244	\$4,361	\$4,471
<b>Annual % Increase Cost PMPY</b>	-	-01%	9.1%	2.6%	2.5%
<b>Industry Average Increase</b>	10%	9%	12%	11%	13%
<b>Plan Savings Compare to Avg.</b>	-	\$361,513	\$478,114	\$809,375	\$1,314,250

**\$3 Million Savings Over the Past Four Years** \*GRMC is self-insured

**GRMC** used the HeartMath program to anchor its overall employee wellness initiative, and reported an increase in effectiveness of their other wellness programs once the coherence-building stress reduction techniques had been learned by staff.

GRMC also determined that their Workers Compensation costs per employee were reduced by almost 50% during the same four-year period.



Workers Compensation costs per employee at Grinnell Regional Medical Center were cut nearly in half over a four-year period once the coherence training was offered to employees.



Through the leadership of CEO Todd Linden, the hospital also focuses on “Optimal Healing” — which can be defined as “the process of bringing together parts of oneself (physical, mental, emotional, and spiritual) at deeper levels of inner knowing, leading to integration and balance, with each part having equal importance and value.”

GRMC was one of the first hospitals in the nation to embrace integrative medicine approaches in both in-patient and outpatient settings. Their downtown integrative medicine clinic provides a variety of alternative therapies to the community, as does their fitness center, to bring healthy lifestyle and exercise programs to residents of Grinnell and Poweshiek County.

## Case Study 2

### Fairfield Medical Center

Fairfield Medical Center in Lancaster, Ohio, has thoroughly integrated coherence-based stress reduction training for all members of its staff, including nursing, allied health professionals, physicians, and residents. They have realized a significant decrease in their medical claims for employees who participated in the Program. Health care costs for the *employees who participated in the coherence program were just half the costs of employees who did not participate*. Through the leadership of CEO Mina Ubbing and chief nurse executive Cynthia Pearsall, FMC is now offering programs for family members and the community.

#### Medical Claims Data from Fairfield Medical Center

Year	HeartMath PMPM	Non-HeartMath PMPM	HeartMath PMPY	Non-HeartMath PMPY
2007	\$143.92	\$310.88	\$1727.09	\$3730.53
2008	\$250.93*	\$304.40	\$3011.10*	\$3652.82
2009	\$159.70	\$285.29♦	\$1916.37	\$3423.56

*Fairfield Medical Center in Fairfield, Ohio realized a significant decline in their medical claims for employees who participated in the HeartMath Transforming Stress Workshops. Chart shows “per member per month” (PMPM) and “per member per year” (PMPY) data.*

*\*HeartMath claims expense excludes five outlier claims in excess of \$20,000 for conditions, which could not have been avoided using HeartMath*

*♦Non-HeartMath participants total claims expenses excludes six outlier cases with payments >\$125,000.*

### Case Study 3

#### Nonprofit Organization Reduces Health Care Costs

Long considered one of the least stressed professions, the clergy has moved from one of the healthiest to one of the least healthy over the past thirty-five years. The Reformed Church of America (RCA), a protestant denomination, recognized that medical insurance costs among the clergy had reached a level 60 percent higher than the cost in an average preferred provider program. High levels of emotional distress have been found to be among the most costly health problems for organizations in terms of direct health costs, absenteeism, disability, and performance standards. Clergy, and others in care-giving professions such as nurses, teachers and health professionals, have the added health burden of caring for others often without sufficient self-care strategies.

More specifically, they noticed that the discrepancies were due to several clearly defined issues that are tied to chronic stress:

- 75% of claims attributable to lifestyle factors
- 54% of disability diagnosis attributable to psychosocial issues
- 96% higher incidence of type 2 diabetes
- 83% higher incidence of depression
- 87% higher incidence of hypertension
- 250% higher incidence of obesity

As a result, the RCA Board of Benefits Services decided to intervene to see if they could stop and then reverse the trend. They engaged HeartMath in 2006 to provide the six-week Revitalize You!™ program, on a voluntary basis, to eligible clergy and staff in order to reduce their stress and to improve health and well-being.

McCarthy Actuarial Consulting, LLC (MAC) was retained by RCA to analyze their experience during 2007 and 2008 to determine what impact HeartMath had on RCA's medical benefit costs. According to the MAC audit:

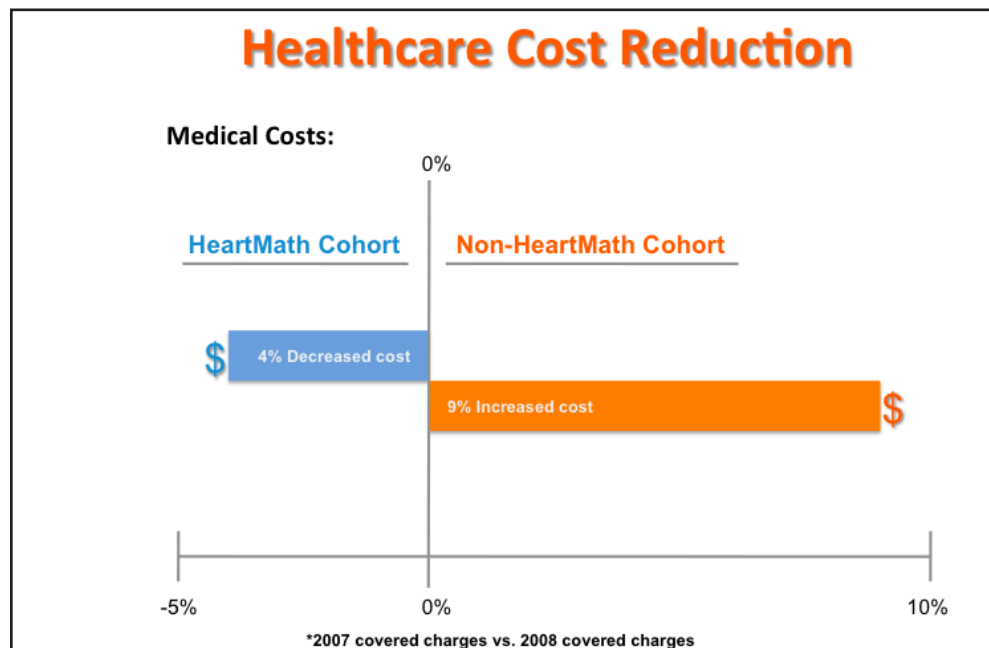
“RCA absorbs all associated costs, including incentives, to employees who participate in the Revitalize You! program. This analysis will evaluate the impact this program has had on medical and pharmacy utilization of the HeartMath participants, relative to Non-Participants. This evaluation will be used to estimate the savings, if any, that can reasonably be assumed to have resulted from this program. Census and program participation data for this analysis was provided by RCA and claims data was provided by United Health Care, the claim administrator.”

## Approach

Two cohorts of RCA employees were identified, those who completed the Revitalize You!™ program prior to December 31, 2007 (144 participants) and those who, as of the end of 2008, had not participated in the HeartMath program (343 participants). Only employees who had continuous coverage from January 1, 2007 through December 31, 2008 were included in either cohort.

For each cohort claims costs were collected for calendar years 2007 and 2008. This experience was analyzed by diagnoses (medical) and therapeutic (pharmacy) categories. The key metric was covered charges per employee per year. Other metrics calculated to aid our analyses included incidence rates and cost per utilization unit.

## Findings



- Adjusted annual medical cost trends were dramatically lower for HeartMath Participants than for Non-Participants (-3.8% vs. +9.0%).
- Pharmacy cost trends were also significantly lower for HeartMath Participants than for Non-Participants (7.9% vs. 13.3%).
- Total 2008 savings due to the HeartMath program are estimated at \$585 per Participant, compared to HeartMath fees of \$300, yielding a Return on Investment of nearly 2:1.
- It is expected that savings will continue to grow, but no further HeartMath fees will be incurred for these Participants.
- 22.5% decrease in medical costs with Hypertension diagnostic code for HeartMath Participants vs. 46.9% increase for Non-participants
- Clinical lab improvements in Triglycerides, blood pressure, glucose, and body mass index.



## Additional Results

### Retail Pharmacy Chain Improves Patient Safety

Since the Institute of Medicine published its landmark study in the late 90s describing the estimated 100,000 patients per year who die of problems *acquired in hospitals*, there has been increasing concern and focus on patient safety. A regional pharmacy chain brought in the coherence training program to 220 of its pharmacists across dozens of retail locations. Of those who had been measured to be making errors in the reporting period, there was a **40-71% reduction in errors** as a result of the coherence training.

At the same time, significant increases were noted in:

- well-being and, quality of life
- reductions in sleeplessness, fatigue, and anger

### HeartMath Coherence Techniques Successfully Help Minority Nursing Students Overcome the Stresses of Nursing School

A nursing school in Oklahoma City with a large proportion of Native American students uses coherence training to improve their students' dropout rate while enhancing the self-confidence and skills of the nursing students. A Native American nursing professor decided to try the HeartMath program to help students with test anxiety, enabling them to relax, get more focused and feel more confident. The pilot program worked, and more Native American nursing students have successfully graduated with degrees in nursing.

Scottsdale Healthcare System used the HeartMath program in a study of 87 breast cancer survivors to help them overcome several side effects from their treatment, including fatigue, sleep quality, depression, cognitive function and several other quality of life indicators. The patients in the study reported significantly reduced fatigue when compared to a control group. They also decreased their body mass index (BMI), while the control group saw a slight increase in BMI.

Indiana University Health Bloomington Hospital successfully uses the coherence training as a key element in their "Quest for Preeminent Patient Care" to fulfill their charter of delivering relationship-based care to patients. Their journey to improve patient care started by focusing on the well-being of individual employees then shifted to a focus on collective groups of employees which all transferred to an overall patient-centered focus in the end.

## Clinical Outcomes of Coherence Training

A number of studies have demonstrated a range of benefits from coherence training. With the reduction in health care costs seen in several organizations, it has also been noted that the physiological underpinnings of these medical cost improvements probably lie in one or more of the following areas:

- Reduced blood pressure in hypertension (McCraty, 2001)<sup>11</sup>
- Increased functional capacity in congestive heart failure patients (Luskin, 2002)<sup>12</sup>
- Improvements in asthma (Lehrer, 2000)<sup>13</sup>
- Improved quality of life and glycemic control in Type II Diabetes (McCraty, 2000)<sup>14</sup>

## Other benefits of Coherence-Based Training

### Increasing Employee Satisfaction Scores

One hospital has reported significant or commendable improvements in their employee satisfaction scores following the launch of the coherence training program. Specific improvements were reported in:

- Involvement in decisions that affect my work
- Understanding why suggestions cannot be acted on
- Being recognized for their work contributions
- Individuals held accountable for their actions
- Being able to speak their mind without fear
- Supervisor keeps me informed of changes
- Satisfied with availability of resources
- Their intentions to remain with the hospital

### Coherence Training Helps Sustain Employee Education Programs

According to several hospitals, coherence training helps make other training that employees receive “stick” or “sustain” more effective. The programs’ practical tools and technology give employees a meaningful practice they can use anytime and anywhere.



## Critical Success Factors to Sustaining Employee Health Gains

In the organizations described, several critical factors have emerged as essential in the success not only of coherence-based stress reduction training, but in fact all wellness programs.

### Senior Leadership Support is Critical

- Senior leadership support was a common element in all the organizations mentioned, and was seen as a significant factor to ensure widespread implementation and integration. In several cases, senior leadership support went as high as the Board of Directors.
- Many of the organizations launched their coherence training by first providing a leadership program and then cascading the training throughout the organization.
- When senior leadership actively and publicly supported the programs, the organizations saw even better results.
- Having an active **Champion Team** ensures engagement, sustainability and successful results.
  - These Champion Teams volunteered for the project and met on a regular basis to brainstorm and implement new ideas, evaluate the impacts of the program and encourage participation.
  - Having an Executive Champion from the organization's senior leadership team is especially critical to ensuring sustainability, acceptance throughout the organization and successful results.

### Grinnell Regional Medical Center's strategies for engaging senior management included:

- Encourage senior level programs and pilots
- Educate the board and medical staff about the program
- Point to examples from other hospitals, especially nationally recognized hospitals, to show the credibility of the program
- Provide business justification:
  - Health plan savings can increase from including stress management within an overall wellness program
  - Improved performance that can come from employees who are more focused, able to communicate better and who feel better about themselves and their employer
  - Morale improvements that translate into a more productive work environment (i.e., lower absenteeism)
  - Lower turnover, which means lower costs of hiring and training new staff



## Incorporating Coherence Training as a Routine Way of Doing Business Offers Increased Benefits

A common strategy employed by all of the organizations involved building a support network that ensures sustainability.

- Coherence training provides a *common, scientifically-based language* and *practical techniques* that give staff an effective and easy-to-use set of tools to solve problems and reduce the stresses of day-to-day life.
- Individuals can *look to their team* to help them get back on track when they are stressed or losing focus. Many organizations encourage daily use of the tools as well using them together as a team, such as during meetings, at shift change, while washing hands, and throughout their day.
- *Sharing personal stories of how staff and others benefit* from using coherence training techniques helps to create a culture of caring as the stories become part of the organization's legend. They also bring clarity both to those who practice the techniques, as well as to those who are considering enrolling in the program. The more personal the stories are, the greater the level of commitment and engagement in the stress management program.
- Several hospitals incorporate coherence training as a *requirement in their employee orientation program* to ensure that newly hired nurses are equipped with the same tools and techniques as veteran nurses. Participating in the coherence training is required within an individual's first 90 days of employment.
- Several hospitals also *include the coherence training programs in their organizational development efforts* to help employees learn new skills to enhance their ability to perform and succeed. Refresher programs are also offered to employees, including senior leadership, to increase sustainability.



**Offering coherence training on a regular basis establishes true commitment to a caring culture.**

- Workshops offered on a weekly or monthly schedule can help ensure that the training is valued within the organization and that it sticks as the way they conduct their business.
- Having one or more employees trained as a HeartMath trainer helps ensure continuity and sustainability of the program and provides a service the hospital can offer to other organizations in the community.

**In hospital settings, offering programs beyond the nursing staff extends benefits to:**

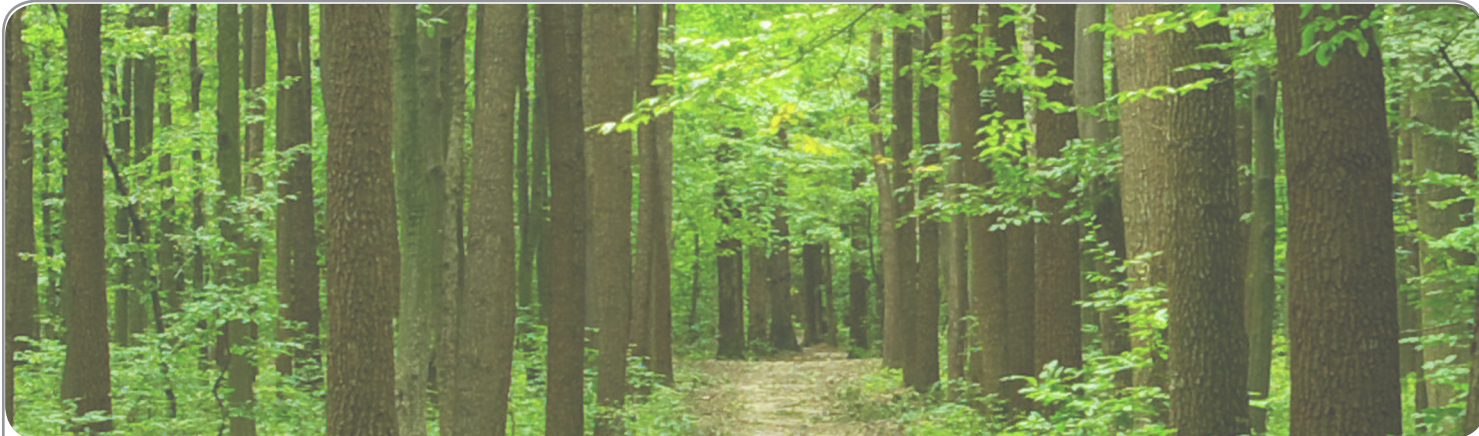
- Other staff so all stakeholders in the hospital environment receive the benefit of coherence training and learn ways to provide better care to patients.
  - Once they realized the benefits of the HeartMath program, several hospitals expanded the offering to non-nursing staff, including physicians.
- Training for Family Members
  - Many hospitals allow an employee's family members to take the coherence training to improve their well-being and extend the cost savings, given that most family members are usually covered by an organization's health plan. Additional benefits are derived from employees who are better equipped to handle stress in their personal lives.

**Extending HeartMath Training to Patients Helps Improve Their Healing**

- Many hospitals report they initiated their coherence training as an intervention to help nursing staff cope with the stresses of caring for patients.
- One hospital adopted the philosophy that *"By caring for ourselves, we will be better able to meet the needs of our patients every day."* They report that "be present" techniques that teach people to focus on those around them can be an especially strong benefit for improving nursing care.
- Several hospitals provide coherence training to patients and reported an improvement in their well-being, which also translated into an improvement in their treatment and recovery.
- Several hospitals reported improvements in patient satisfaction scores, especially in such areas as:
  - Staff communication with patients
  - Teamwork between providers and nurses
  - Improved discharge process







## About the HeartMath Programs

The HeartMath system provides practical tools and technologies to improve physiological health and mental/emotional well-being. A research-based, clinically-validated program, HeartMath workshops provide staff with new information about the central role of the heart to human well-being and health.

Through extensive clinical and organizational research, HeartMath has pinpointed “coherence” as an optimal performance state that can help the body break these unhealthy stress patterns. Increasing one’s personal level of *coherence* - a naturally occurring and highly efficient psychophysiological state - can be created by aligning the heart-brain system. Teaching employees how to obtain and sustain a coherent state has proven to be beneficial for both employees’ overall well-being as well as for organizations that want to reduce health care costs.

HeartMath’s programs help employees identify stress triggers, learn how to deploy highly focused, specialized techniques designed to release emotional stress and change their response to stress. Many organizations encourage employees to use these techniques during their work day in interactions with colleagues and patients.

For most organizations, the program includes training with the HeartMath emWave® technology. The emWave2® is a hand-held device that measures a person’s heart rhythm and emotional state. The emWave2 includes an innovative computer interface that works with PCs or Macs and allows the user to track and save sessions.

A major benefit of the emWave® technology is its objective monitoring of one’s emotional state, adding a valuable component to the program for employees who truly want to gain control of stress. As employees practice with the emWave2 they quickly start to achieve a state of coherence more often and for longer periods of time, which equates to less stress, increased cognitive performance, and resilience. Many organizations encourage employees to use during their work day in interactions with colleagues and patients.

**For more information about HeartMath’s programs and services,  
please contact [healthcare@heartmath.com](mailto:healthcare@heartmath.com) or [corpwell@heartmath.com](mailto:corpwell@heartmath.com).**

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