



Staff Retention and Development Program



A Change of Heart Changes Everything

“What will be required to increase the quality of life and health is a coming together of technology and values, based on a scientific guiding principle that people can agree on. Securing a healthy global future requires this guiding principle to preserve freedom of spirit yet be as provable as the laws of physics. A guiding principle that addresses the meaning of life and is compelling enough to generate social cohesion and behaviors that serve the greater whole. After thirty years of investigation and research, it has become clear to me that the answer lies within the human heart.”

— Doc Childre, Founder and Chairman, HeartMath®

The Power of the Heart

Stress poisons us. Every stressful event floods us with stress hormones, as harmful to our bodies as rivers of acid. The more stress we have, the more difficult it is for our cardiovascular system, our immune system and even our brains to function well. Chronic stress ages us long before our time, and if left unchecked, can kill us.

Researcher, author and consultant Doc Childre has devoted more than 30 years to understanding stress and developing ways that we—unable to escape from stress in our modern world—can learn to transform its effects.

During those decades of research, he discovered something remarkable, and remarkably simple. He found that a positive attitude creates stress relief, but only temporarily. However, by also engaging the heart, positive *feelings* create stress relief that not only lasts but also actually reverses the physical damage of stress.

When we consciously shift to appreciation, compassion or another positive, loving emotion, our heart rhythms immediately shift. This electrical shift in the heart creates a favorable cascade of neural, hormonal and biochemical events that benefit the entire body. Blood pressure drops. Stress hormones plummet. The immune system pumps up. Anti-aging hormones increase. We gain clarity, calmness, control. And effects are both immediate and long lasting.

“Some say that HeartMath® is the frontier of body/mind science.”

—Colleen O'Connor, *Business 2.0*

Based on years of validated results, Doc Childre developed HeartMath. HeartMath is a system of techniques and technology for consciously engaging this innate heart intelligence to prevent, manage and reverse the effects of stress. As a result, we can meet life's inevitable challenges with poise and resiliency. Our bodies and minds are nourished for optimal health and performance. And we convert “stress lockdown” into free-flowing energy for fueling creativity, productivity and personal fulfillment.

HeartMath has now become three organizations with different yet highly complementary missions.

The Institute of HeartMath is a nonprofit research and education organization that conducts leading-edge research on the relationship between the heart and the brain and how this relationship affects physical, mental and emotional health and human performance. The Institute also supports educational initiatives to enhance learning.

HeartMath LLC provides training, tools and technology for business, government and health care organizations on a global scale. HeartMath as an organization, transforming how we work and live, proves what we all intuitively know: A change of heart changes everything.

Quantum Intech, Inc. licenses proprietary biometric technology to world-class strategic partners in diverse markets for developing products “powered by HeartMath.”



Table of Contents

A Change of Heart Changes Everything	ii
The Power of the Heart	iii
HeartMath Overview.....	iv
HeartMath LLC – the Company	6
The Case for HeartMath in Health Care	7
HeartMath in the Community	8
HeartMath Health Care Programs	9
Staff Retention and Development Program	10-11
Setting Goals – Selecting Outcomes	12-13
Leadership Training	14-16
The Steps Toward Licensing	17-18
Staff Training	19-21
Project Manager Support	22
Measurements	23-25
Patient Programs	26-27
Appendix A – Case Studies in Health Care	28-29
Appendix B – The Science of HeartMath	30-34
Next Steps	35

“Unlike many other services and products that make similar claims, HeartMath has a solid scientific basis, and has been thoroughly tested in the workplace and other settings that have clearly demonstrated these benefits. ”

— Paul J. Rosch, M.D., F.A.C.P., President of the American Institute of Stress and Clinical Professor of Medicine and Psychiatry, New York Medical College

HeartMath LLC

HeartMath LLC specializes in individual and organizational transformation, and provides training, tools and technology for business, government and health care on a global scale. In the last five years alone, HeartMath LLC has sold more than \$20 million in products and consulting services and has trained more than 50,000 people.

Research Based

HeartMath is based on research conducted by the Institute of HeartMath (IHM), a recognized leader in research on the role of the heart and positive emotions in health and performance. IHM has developed powerful tools that help people manage change, challenge and the ever-building pressures of everyday personal and work life.

More than ten years of leading-edge research in neurocardiology, physiology, neuroimmunology, psychology and physics create the foundation for HeartMath tools and techniques. Numerous HeartMath studies have been published in a variety of journals, including *American Journal of Cardiology*, *Journal of Advancement in Medicine*, *Proceedings of the Eleventh International Congress on Stress, Integrative Physiological and Behavioral Science* and *Complementary Therapies in Medicine*.

Tools That Work

HeartMath provides a system of tools that are simple, practical and easy to learn. More importantly, they can be applied in the moment of challenge, when a person needs them most, rather than hours after the fact.

They are specifically designed to increase personal productivity by reducing stress and burnout and enhancing overall performance, goal clarity, and job satisfaction. When these benefits are extended to the organization, they lead to enhanced interpersonal communication, improved team dynamics, creative problem-solving, better planning and decision-making, better care for customers and co-workers, and a greater unfolding of the organization's full potential toward reaching its goals. Clients see dramatic savings through employee retention, improved internal processes, and increased productivity.

Measurable Outcomes

HeartMath LLC provides a whole-system approach and quantifies results for organizational leaders with pre- and post-training measurements. Long-term studies to track sustained results provide accountability, and clients certify their own trainers in HeartMath techniques and technology.

With corporate headquarters in California and offices in London and Sydney, HeartMath LLC serves an all-encompassing range of global clients, including business and government agencies, health and education organizations, military installations, and human services agencies. Many Fortune 100 companies and governmental agencies are clients of HeartMath, including AT&T, Bank of Montreal, Boeing, BP, Cathay Pacific Airways, Cisco Systems, EMC, FAA, Ford, Hewlett Packard, Intel, Liz Claiborne, Lockheed, Motorola, Pitney Bowes, Prudential Securities, Shell, Sears, Sony, Sprint PCS, Unilever, U.S. Postal Service, and the World Bank.

The Case for HeartMath in Health Care

This is a time of unequalled stress in health care. A nursing shortage, now reaching unprecedented proportions, ranks as one of the top three problems hospital administrators face. High turnover rates, sick leave, medical errors, and shrinking reimbursement add greater and greater stress. And the greater the stress, the lower the personal and organizational effectiveness.

The Importance of Emotional Balance in Health Care

Emotional management is a prerequisite for individual and organizational health and productivity. The winners of the health care race to the future will be those organizations that create a culture of care for their workforce as well as for the patients and communities they serve. As a rapidly changing world of health care demands increasing flexibility and adaptability among health professionals, inner balance takes on a corresponding importance in their education, training, and practice. Providing skills to reduce the noise and static within each individual translates into increased health and well-being for the organization as well as for those it serves.

If a computer could calculate the cost to health care due to unmanaged stress and emotions, the results would be staggering. When people lack tools for emotional management, communities, families and workplaces are far more vulnerable to stress and disease. Effective emotional management tools produce huge cost savings, while simultaneously improving the quality of life.

HeartMath is the only system scientifically validated to reverse the effects of stress on both individuals and organizations—and to translate those effects into bottom-line results.

After HeartMath training, Delnor-Community Hospital:

First Year Results:

- ▶ Reduced employee turnover from 28% to 20.9% overall; to 5.9% among HeartMath trained staff
- ▶ Achieved \$800,000 in annualized savings from turnover reductions
- ▶ Decreased Medicare length of stay by 9%, equaling \$1.4 million in annualized savings
- ▶ Improved Customer satisfaction from the 73rd percentile to the 93rd percentile
- ▶ Ranked #1 in employee satisfaction based on Sperduto and Association's national database of more than 300 health care organizations.

Second Year Results:

- ▶ Employee turnover down to 14% overall; to 1.3% among HeartMath trained staff
- ▶ Vacancy rate less than 5%

For more case study information see Appendix A - Case Studies in Health Care.

HeartMath in the Community

If you could give something of value to the people of your community, what would it be?

- A feeling of safety and security
- Hope and optimism for the future
- More balance and control in the midst of change
- The ability to treat others with kindness and care
- Skills to feel calm and focused in school and work
- A way for young people to feel eager and prepared for the world of work
- The ability to listen deeply, and to feel listened to in their families

What if you could...for young people, for families, for yourself?

The Foundation of Health

Research at the Institute of HeartMath—conducted in major corporations, schools, and other environments worldwide—shows that the ability to effectively manage one’s thoughts and feelings is at the foundation of physical, mental, and emotional health and productivity.

Emotional Reactivity and its Consequences

It is unmanaged emotional reactivity which turns an innocent look or comment into a perceived life threat, which takes a parent from frustration to child abuse, which drains a workforce of productivity, families of love, and a community of care.

Healing Communities from the Inside Out

The ability to recognize inner turmoil sooner and to shift the emotional “gears” to neutral can save lives. The ability to transform this emotional energy into a positive force can heal individuals, families and communities. In the moments when life feels best—in loving what one is doing or simply feeling appreciated—our hearts come alive and change the way we respond to external challenges. We perceive situations more clearly, and we choose solutions which are healthier and more productive.

Using HeartMath programs you can provide simple and practical tools for emotional self-management to individuals of all ages and cultures. Studies with middle school children in Miami, state government employees in California, and executives and assembly workers in Motorola show that when these tools are practiced, significant benefits are achieved in health, quality of life, job satisfaction, school performance, and personal effectiveness.

HeartMath Health Care Programs

These customized programs provide cost effective interventions which boost health and performance, reduce health care costs, improve employee retention and morale, improve safety and reduce stress.

Your staff will receive new tools and strategies for managing stress and increasing personal effectiveness in the face of increasing change and challenge.

The results of the project are quantified by collecting psychometric data from all participants before and after training. These results give you the accountability you're looking for and translate into measurable, bottom-line business results.

Research studies, organizational case studies and individual testimonials all comprise a strong body of evidence that shows how the HeartMath system is adding great value to the lives of individuals and organizations.

All HeartMath Health Care programs are built upon HeartMath's model of Organizational Coherence and the principle that boosting organizational effectiveness begins with increasing coherence—clarity, focus and balance—at the individual level.

HeartMath's Health Care Division offers programs for:

- ▶ Leadership
- ▶ Staff
- ▶ Patients
- ▶ Community

These programs provide cost effective interventions which improve outcomes in:

- ▶ Morale
- ▶ Job Satisfaction
- ▶ Staff Retention
- ▶ Teamwork
- ▶ Problem-solving
- ▶ Decision-making
- ▶ Performance
- ▶ Managing Time Constraints
- ▶ Managing Health Issues

Results include greater care for staff and patients and increases in customer satisfaction.

“Before I learned the tools I was wondering ...is it possible to stay in health care and be healthy? My options were to quit health care and look into another field in order to stay balanced, or cut my work load in half, which was not realistic. Besides, I loved the work I do but it completely drained me. Between the juggling of the work and the intensity, I was so exhausted, resentful and tired, and there was no end in sight. After I learned the HeartMath tools, I realized that I can have more energy and get more accomplished and be excited to stay in health care.”

— Mary Laubinger, RN, Director of Quality Management

Staff Retention and Development Program

The HeartMath Staff Retention & Development Program is our flagship health care program in Organizational Coherence and was designed for practical use in today's health care environment, with its fast pace and unpredictable situations. The fundamental aim: enable people to relieve stress and function with maximum effectiveness in the moment. Results are both immediate and quantifiable for both staff and patients, and long-term improvements in staff retention rates have been dramatic.

Major Benefits

Immediate Cost Savings

The average cost to recruit and train one employee is estimated at 30% of an employee's salary. The number of employees saved from leaving your hospital within the first few months implementation of the program usually covers your start-up costs. Each additional job saved improves your bottom line and improves your turnover rate.

Decreased Turnover and Improved Morale

The HeartMath Staff Retention and Development program will improve employee satisfaction, enhance communications, generate more harmonious and productive teamwork, and facilitate an increase in work/life balance, thus contributing to increasing and maintaining high morale and decreasing the debilitating costs of burnout and high employee turnover. At a HeartMath-trained hospital, employees were asked what value they had received from the program. The most common answer was, "Now I know that the hospital really cares about me."

Cultural Shifts Measured

The Personal and Organizational Quality Assessment (POQA) is a validated and normed assessment tool designed by the Institute of HeartMath to provide a broad overview of the individual's emotional stressors and social attitudes, vitality and physical symptoms of stress, as well as measures of workplace effectiveness and strategic alignment. This tool gives you the means to monitor the shifts in your culture as you roll out this program to your staff.

Increased Patient Satisfaction and Decreased LOS

A more satisfied and productive staff will improve patient care levels, thus generating higher patient satisfaction scores, reducing patient length of stay and improving your DRG performance which can contribute significantly to the profits of your hospital.

More Referrals and More Business

Referrals increase when doctors hear from their patients that they received exceptional care. This creates a broader payer mix and higher census numbers, helping you become the hospital of choice in your community.

Why Does It Work?

HeartMath has learned that providing staff with tools to reduce the impact of stress while enhancing health and performance increases the employees' sense of confidence, clarity and control. Morale also increases as the individuals realize they have developed new skills that impact themselves in their personal life, as well. And HeartMath's well-defined process of program implementation ensures beneficial results.

Key Elements of Program Implementation

Setting Goals
Selecting Outcomes



Leadership Training



Licensing and Internal
Trainer Training



Staff Training



Project Manager
Support



Measurements

Setting Goals - Selecting Outcomes

Our top priority is to listen to you. The primary goal is to customize the program to fit your needs. This includes defining the critical business outcomes that will demonstrate the value and success of the program. At this stage we identify key players, preferred measurements and how to best quantify and communicate the impact of the program.

Leadership Training

Leadership training consists of a 1-day core tools workshop followed by a hands-on Freeze-Framer™ software training and an application and integration workshop. This multi-contact approach ensures maximum implementation and sustainability back on the job.

Licensing and Internal Trainer Training

Licensing your own organizational trainers will reduce the cost of training as you roll the program out across the organization. This phase includes business model design, train-the-trainer sessions at HeartMath's Research and Conference Center and a full complement of trainer materials.

Staff Training

We help your licensed internal trainers build a training schedule that will optimize the addition of the HeartMath tools into your work environment.

Project Manager Support

We support your project manager in:

- ▶ establishing program momentum
- ▶ reaching your benchmarks
- ▶ maintaining quality control
- ▶ internal marketing

Measurements

HeartMath has a full menu of performance, physiological and psychological assessments that are designed to capture pre and post-training results so you can quantify and evaluate the effectiveness of the program. The schedule for when and what to measure will be determined when we initially plan your program and select the outcomes you seek. Programs brought into today's health care environment need to show a fast return. HeartMath programs result in cost savings which you verify by tracking the appropriate financial indicators.

Setting Goals and Selecting Outcomes

Setting Goals Selecting Outcomes



Leadership Training



Licensing and Internal
Trainer Training



Staff Training



Project Manager
Support



Measurements



Phase 2
Support & Maintenance

HeartMath's goal is to provide a program that gives maximum value to your hospital. Implemented as a stand-alone program, HeartMath has created significant organizational improvements with various clients.

The HeartMath tools are also powerful in their ability to integrate well with other initiatives and training and can synergistically boost the results of other programs you are currently doing or ones you may be planning.

Needs Analysis

An optional needs analysis can be conducted with your key people so that we understand the dynamics unique to your organization and to identify any specific issues to be addressed. Together we select the leaders in your hospital who are critical in the successful implementation of key aspects of this program. From this group we identify those who will own the outcomes. With them we will define the standards and benchmarks and set the desired outcomes, measurements and performance evaluations.

Data Collection

Data is collected at each stage of the program to:

- ▶ justify the expenditure with demonstrable benefits, especially to calculate Return on Investment (ROI)
- ▶ communicate with your team the program effectiveness and progress toward the program goals
- ▶ track outcomes so any adjustments can be made
- ▶ produce a case study to publish in trade magazines
- ▶ provide potential articles for peer-reviewed journals
- ▶ provide press releases for local media

Communication

You select an executive project manager to work with HeartMath. Our work with them will include:

- ▶ initial meetings to collect needs and define and select measurements
- ▶ meetings to identify rollout details that best support program success
- ▶ monthly telephone meetings to discuss progress, track results and make adjustments where necessary
- ▶ on-site visits to review results, make executive presentations, plan next steps and work with the on-site training team to encourage best practice

How Much Money Could HeartMath Be Saving You?

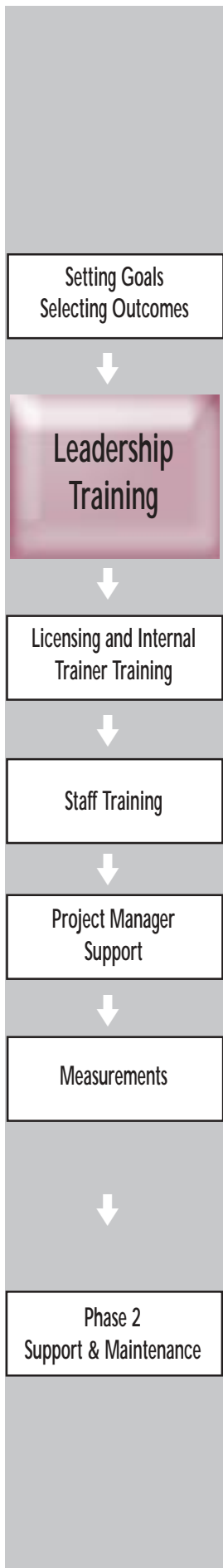
Staff Retention Savings Worksheet

	Example	Your Organization
A - Size of staff	1000	_____
B - Annual turnover rate	25%	_____
C - # of new employees each year (A x B)	250	_____
D - Average salary	\$40,000	_____
E - Annual cost of turnover/employee (30% of salary)	\$12,000	_____
F - Total annual turnover cost (C x E)	\$3,000,000	_____

When HeartMath reduces your turnover by 3% in Year 1

G - New turnover rate	22%	_____
H - # of new employees needed	220	_____
I - # of jobs saved	30	_____
J - Cost of turnover/employee	\$12,000	_____
K - New turnover cost (H x J)	\$2,640,000	_____
L - Savings in turnover cost (I x J)	\$360,000	_____
M - Cost of customized HeartMath program		_____
N - ROI		_____

Leadership Training



Week 1: 1-day Power to Change Performance Workshop

Organizational success is built on coherent leaders. Internal coherence stems from each individual's ability to build and maintain mental, emotional and physical balance during times of change.

The Core Skills Program

The core modules of the program present HeartMath concepts, tools and technology for balance and clarity. The primary application is to successfully meet the daily challenges of delivering quality care. These modules include the Freeze-Frame® tool for internal self-management; Coherent Communication for more effective speaking and listening; effective care giving and self-care; and successful change management.

This program provides tools to help individuals recognize stress and lack of clarity as it's happening and make perceptual and behavioral shifts immediately to enhance communication, decision making, and balance.

Learning Outcomes:

- ▶ Be less reactive, think clearly and make good decisions under pressure.
- ▶ Dramatically improve communication by listening intuitively from the heart, making sure the other person feels appreciated and heard.
- ▶ Improve health and well-being, maintain personal balance and avoid stress and burnout in chaotic environments.
- ▶ Activate “big picture” vision and maintain it.
- ▶ Innovative strategies for creating a strong culture and esprit de corps.

Dynamic 1: Internal Self-Management

- ▶ Understand the physiology of human performance.
- ▶ Learn how “stress” or working under pressure impacts performance (e.g., decision making, communication issues, relationships, creativity).
- ▶ Understand the role of perception in performance.
- ▶ Learn how stress affects brain function. Understand Cortical Inhibition and Facilitation.
- ▶ Define Heart Rate Variability (HRV) and how it relates to brain function and cognitive performance.
- ▶ Learn Freeze-Frame®—a one-minute stress management technique.
- ▶ Learn the Power of Neutral to prevent stress accumulation.
- ▶ Practice with the Freezer-Framer software. Individuals will observe physiological changes under stress and learn how to control heart rhythms while using the Freeze-Frame tool.

Dynamic 2: Coherent Communication

- ▶ Describe how the model of physiological coherence impacts communication skills.
- ▶ Define intuitive listening and its application to leadership development.
- ▶ Apply the intuitive listening and Freeze-Frame tools to business issues through interactive exercises.
- ▶ Learn to sustain coherence with the Heart-Lock-in® tool.

Freeze-Framer Software

The Freeze-Framer™ is a PC-based proprietary heart monitor that demonstrates the real-time input of stress or heart function. By bringing your emotions, body and mind into balance, you learn to produce significant long-term shifts in hormonal, immunological and cardiovascular systems. By the end of the session, participants will have seen they can quickly re-calibrate their physiology back to a balanced state after a stressful situation.

Integration

Use of the tools can ease into the participants' lifestyles in just a few weeks of practice. The following have proven successful in facilitating the integration period:

- ▶ Measuring coherence during the day, via Autonomic Nervous System (ANS) balance, as recorded on the Freeze-Framer
- ▶ Calibrating to healthy levels of balance using the tools at strategic points during the day
- ▶ Periodic meetings for support and discussion

Measurements—Personal and Organizational Quality Assessment (POQA)

The POQA is a broad-based instrument designed to measure key elements of individual and organizational effectiveness. Includes measures of psychological health resilience, stress symptoms, emotional competencies, organizational climate and work performance. The POQA is conducted in the first 10 minutes of the workshop and again during the Application and Integration Session.

Who should attend:

- ▶ Executives (CEO, COO, CFO, Senior V.P. HR)
- ▶ Board Members
- ▶ Key Physicians
- ▶ Director of Nurses, Nurse Managers
- ▶ Trainers chosen to teach HeartMath Program

Week 3: (2 weeks after initial training)

Application and Integration Workshop

Many participants will use the tools to manage recurring challenges at home and work. This follow-up session allows individuals to internalize and sustain all they have learned and addresses more specific work issues. The follow-up applications focus on:

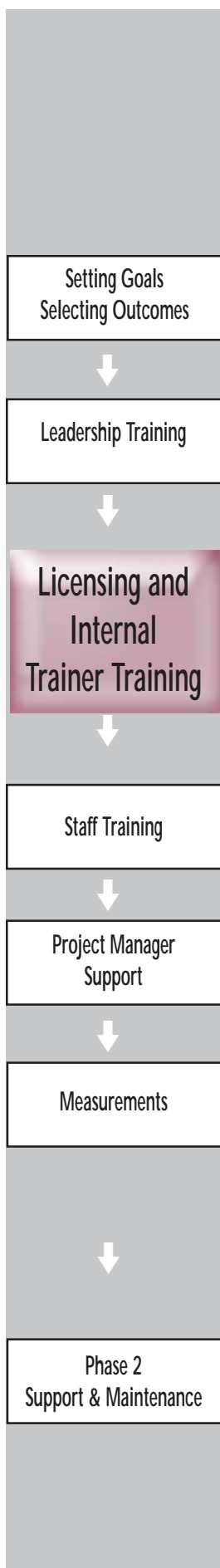
- ▶ Building and reinforcing prior skills
- ▶ Increasing effectiveness in specific work applications
- ▶ Solidifying the connection between the individual practice and the ability of the team/organization to accomplish more with less time and effort
- ▶ Improving individual and organizational coherence

With increased practice of the tools, individuals will regain their emotional balance and mental clarity in less time and with greater results than they might have thought possible.

“ This program has helped me in ways I haven't been helped before. There was a very stressful situation at work where we had to somehow significantly reduce our budget—a very complex situation—and with the use of the tools, we ended up more than exceeding our budgeting goals with nobody being seriously impacted, and I left on the day of the final meeting with MORE energy than I had at the beginning of the day! Situations in health care are so stressful, and we get bogged-down and pulled in so many different directions that it's easy to lose focus. Of course, time is always an issue. But I have found out through these tools that time is really about my perspective and emotional efficiency and mental clarity. It's about how I am when I come to work. These tools have just changed how I go through my day—with much more ease and clarity. ”

— Velma Wachter, Director of Nursing

The Steps Toward Licensing



HeartMath offers licensing and training for internal trainers to organizations that want to integrate HeartMath tools and technology into their strategic initiatives. The training course is a 4-day program at HeartMath's research and conference facility in northern California.

Benefits of Licensed Trainers

The application of HeartMath technology provides you double benefits. On its own it creates new levels of excellence and helps you and your teams cut through today's many challenges. Integrated with your other training initiatives it creates a booster effect to speed, deepen and sustain results.

Selection

Your hospital selects Trainer Candidates within your system and sends a list of their names, positions, relevant job responsibilities and phone numbers to your contact at HeartMath.

Attend Initial Program

Trainer Candidates attend the training that HeartMath provides for your leaders at your location. Through using HeartMath techniques personally, Trainer Candidates become aware of their value in both their work and home environments.

Application

Each Trainer Candidate submits an application form to HeartMath.

Contract

Upon review and acceptance of the application HeartMath draws up the appropriate contract.

The signed contract is returned to HeartMath 60 days prior to the training.

Each registered trainer receives in the mail:

- a. Registration packet, including dates, arrival and departure times, transportation options and map.
- b. Comprehensive pre-training assignment and materials, 2-3 weeks prior to training session.

HeartMath Staff Retention and Development Program

Internal Trainers Learn How To:

- ▶ Teach HeartMath's 1 day Power to Change Performance workshops, the core of the Staff Retention and Development Program.
- ▶ Deliver the scientific research that is a foundation of the HeartMath technology.
- ▶ Facilitate and coach training on the Freeze-Framer interactive software.
- ▶ Market HeartMath programs within their hospital.

HeartMath Licensing Includes:

- ▶ The right to be identified as a licensed HeartMath trainer within the hospital
- ▶ The right to use HeartMath technology within the hospital
- ▶ Comprehensive 4 day training course and materials
- ▶ Library of selected HeartMath books, music, CD-ROM, videos and Freeze-Framer software.
- ▶ Internal marketing materials
- ▶ Monthly trainer phone support consultations and use of trainer extranet
- ▶ 1-day co-facilitation
- ▶ Room and board at HeartMath's research center

Standards

HeartMath reserves the right to decline approval of any individual who does not meet the standards prescribed by HeartMath.

Observation and Consultation

After the Training Session, HeartMath conducts an on-site observation and consultation.

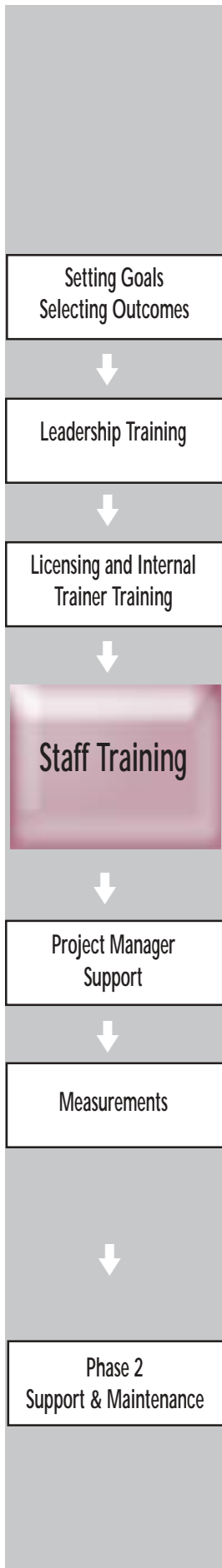
Renewal

Once a year, HeartMath conducts an on-site observation, coaching and consultation.

Ongoing support

Trainers receive ongoing support from HeartMath which includes coaching, consultation and instruction as needed.

Staff Training



Major Elements

Phase 1 - Employee Training

Week 1:

The POQA (Personal and Organizational Quality Assessment) is done as the first activity in the training module.

The 1-day Core Tools workshop (Power to Change Performance). (See pages 14-15 for complete program outline.)

Dynamic 1 – Internal Self-Management

Topics: the physiology of human performance, science of HeartMath, Freeze-Frame technique, Power of Neutral and practice with the Freeze-Framer software.

Dynamic 2 – Coherent Communication

Topics: how physiological coherence impacts communication skills, intuitive listening, application of Freeze-Frame tool, sustained coherence with the Heart Lock-in tool.

After the workshop the POQAs are sent to HeartMath

Week 3: (2 weeks after initial training)

Application and Integration Workshop – a follow-up session, usually 3 hours in length that brings participants back together to share what is working and what challenges people have found in implementing the tools. This discussion is important to help overcome problems early and create support among those who have attended the core skills training. Participants will have the opportunity to use HeartMath’s Freeze-Framer heart rate monitor software to observe and control real-time changes in their heart rate variability as they use the tools learned in Week 1. This is the time to implement a post-POQA assessment to monitor changes.

Phase 2 - Supporting Organizational Initiatives

Week 8:

Team training - brief review and application session. Present at department team meetings. Customize to fit the needs of the team.

Sample Schedules

Training Schedule

This sample schedule was used by a hospital that decided to train 900 people during the first 12 months of their program. They decided to have two of their staff licensed as HeartMath internal trainers.

Months 1 and 2

Two trainers co-facilitated while they were perfecting the delivery of this material; together they conducted four sessions each month. They shared and switched modules to become competent with the complete program.

	# of Sessions	# of Attendees	Monthly Total	Total Trained
Month 1	4	20	80	80
Month 2	4	20	80	160
Month 3 - Trainers were ready to train on their own				
Trainer 1	2	20	40	200
Trainer 2	2	20	40	240
Months 4 - Onward - They continued at a rate of training 80 employees a month				

At this rate you can reach these totals:

Six months/two trainers	480
Twelve months/two trainers	960
Six months/four trainers	960
Twelve months/four trainers	1840

Sample Training Schedule


Week Number	8-hour workshop	Application & Integration Session
Week 1	Group 1	Group 1 Group 2
Week 2	Group 2	
Week 3	Group 3	
Week 4	Group 4	

Activity Checklist

Front Side

Freeze-Frame®
Quick Reference Steps

- **Shift**
(to the heart)
- **Activate**
(a positive feeling)
- **Sense**
(a new perception,
attitude or feeling)

 **HeartMath®**
A Change of Heart Changes Everything

Back Side

HeartMath Activity Checklist

Name: _____
Department: _____

POQA's Completed:
Pre: _____ Post: _____ Six Month: _____

Sessions Attended:
Workshop: _____
Hands-on Freeze-Framer: _____
Application & Integration: _____

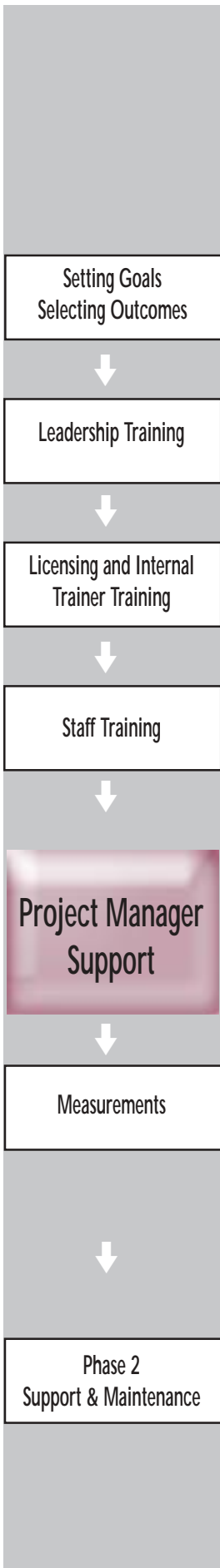
Heart Lock-in Practice:

Week 1: 1) _____ 2) _____ 3) _____ 4) _____
Week 2: 1) _____ 2) _____ 3) _____ 4) _____
Week 3: 1) _____ 2) _____ 3) _____ 4) _____
Week 4: 1) _____ 2) _____ 3) _____ 4) _____

Practiced Freeze-Frame

Week: 1) _____ 2) _____ 3) _____ 4) _____

Project Manager Support



A key person who will ensure success of the program is someone designated on your team to oversee or project-manage the larger aspects of the program. This is not a trainer activity; it is usually owned by an executive who will oversee the program.

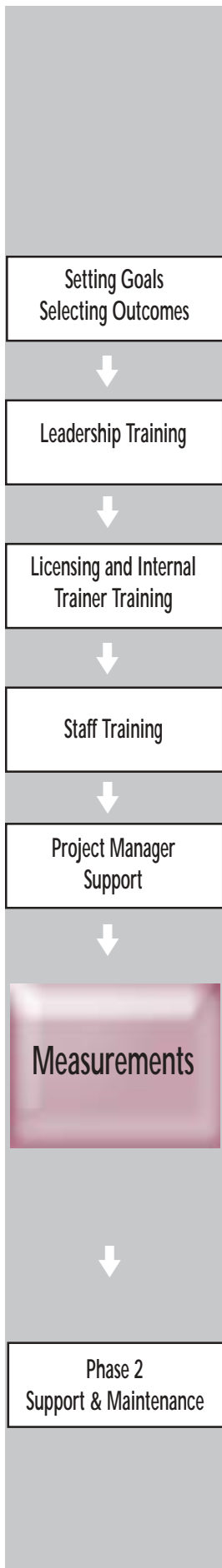
The following are among the responsibilities shared by the Project Manager and the HeartMath consultant:

- ▶ Identify initial goal and needs assessment analysis, which is undertaken with deep intent, addressing not the symptoms but the source of your organizational problems.
- ▶ Align with the most important aspects of the hospital's strategy/plans.
- ▶ Ensure timely updates on the outcomes/measurements of the program are communicated to senior management.
- ▶ Facilitate a process for handling any barriers or challenges to providing a high quality program.
- ▶ Ensure that access to future programs through HeartMath is available by making sure appropriate budget owners are kept abreast of the results.
- ▶ Provide support for the trainer team so that any/all of the following items are available:
 - ▶ access to all people who can benefit from the program
 - ▶ access to tools (Freeze-Framers) for all
 - ▶ availability of free services from HeartMath is communicated to all those who receive training:

The IQ tip is a weekly message that supports the use of the tools in day-to-day activities. Workshop attendees find these reminders an excellent way to reinforce an aspect of the training they received.

The HeartQuotes are daily, bite-sized heart power boosters selected from books and articles by HeartMath authors and other well-known writers.
- ▶ Ensure that access to other value-added HeartMath services, such as coaching, additional products, etc., is available so staff enjoys full support.

Measurements



HeartMath measurements are designed to assess and quantify the levels of performance, stress and health of your staff.

Personal and Organizational Quality Assessment (POQA)—see sample pgs. following

You will acquire a baseline measurement of your employees' physical, mental and emotional well-being to evaluate the effectiveness of our intervention with the POQA. The POQA is a broad-based, self-report instrument designed to measure key elements of individual and organizational effectiveness. Includes measures of psychological health resilience, stress symptoms, emotional competencies, organizational climate and work performance. Employees' Self-Management Competencies interact with the Organizational Climate to influence Personal Quality and ultimately affect Organizational Quality. The end result of these interactions is Organizational Effectiveness.

- ▶ Designed to measure key elements of personal and organizational quality, key factors of organizational climate and self-management competencies.
- ▶ 24 constructs are divided into two main topic areas: Personal Quality and Organizational Quality.
- ▶ Items include communication effectiveness, attitude towards job, emotional management, anger, perception of management, interpersonal skills, job challenge, goal clarity, morale and value of contribution.

Decreased Health Care Expenditure - Blood Pressure

High blood pressure, or hypertension, is a leading risk factor and may significantly compromise one's work performance, cognitive function, productivity, and quality of life. HeartMath interventions have proven successful in helping hypertensive individuals markedly reduce their blood pressure in relatively short periods of time, often without the aid of medications. In a controlled trial design, after 3 months of HeartMath training the study group had a 10.6 mm HG systolic drop in BP and a 11.8 mm HG diastolic drop in BP. $P < .05$. The size of this effect is double what an exercise program normally delivers and if it were repeated across the entire population it could reduce the incidence of stroke by approximately 50%. Tracking blood pressure changes are an optional part of the HeartMath program.

HeartMath Staff Retention and Development Program

POQA-R

Personal and Organizational Quality Assessment-Revised

Following is a list of statements that describe the way people sometimes feel or think about themselves. Please **CIRCLE THE NUMBER** which reflects how frequently you have felt or thought the following during the **LAST MONTH**.

		NOT AT ALL	ONCE IN A WHILE	SOMETIMES	FAIRLY OFTEN	OFTEN	VERY OFTEN	ALWAYS
29 My life is deeply fulfilling	1	2	3	4	5	6	7	
30 Dynamic	1	2	3	4	5	6	7	
31 I get upset easily	1	2	3	4	5	6	7	
32 It's difficult for me to calm down after I've been upset	1	2	3	4	5	6	7	
33 I feel loved by my spouse/partner	1	2	3	4	5	6	7	
34 I feel optimistic about the future	1	2	3	4	5	6	7	
35 I wake up and look forward to each day	1	2	3	4	5	6	7	
36 Motivated	1	2	3	4	5	6	7	
37 I am pleased with my life	1	2	3	4	5	6	7	
38 I sometimes have urges to break, throw or smash things	1	2	3	4	5	6	7	
39 I sometimes have a short fuse	1	2	3	4	5	6	7	
40 Enthusiastic	1	2	3	4	5	6	7	

We are asking about your feelings and experiences over the **LAST MONTH**. Please **CIRCLE THE NUMBER** which reflects how much you **AGREE** or **DISAGREE** with the following statements, as they apply to you, your job and place of employment during the **LAST MONTH**.

		STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	AGREE	STRONGLY AGREE
41 I constantly work at full capacity	1	2	3	4	5	6	7	
42 We listen carefully to each other at work	1	2	3	4	5	6	7	
43 Peoples roles and responsibilities are made clear	1	2	3	4	5	6	7	
44 I strive as hard as I can to be successful in my work	1	2	3	4	5	6	7	
45 There is tension between management and staff	1	2	3	4	5	6	7	
46 My work is usually interesting and stimulating	1	2	3	4	5	6	7	
47 Other people know me by the long hours I keep	1	2	3	4	5	6	7	
48 I feel good about what I do at work	1	2	3	4	5	6	7	
49 The quality of communication at work is excellent	1	2	3	4	5	6	7	
50 The goals of my organization are clear to me	1	2	3	4	5	6	7	
51 I accomplish all my objectives at work	1	2	3	4	5	6	7	
52 I feel there is never enough time	1	2	3	4	5	6	7	
53 I feel good about the future of the organization	1	2	3	4	5	6	7	
54 My efforts make a big difference in my organization	1	2	3	4	5	6	7	
55 I am proud of the company I work for	1	2	3	4	5	6	7	

Please turn to the next page

HeartMath Staff Retention and Development Program

We are asking about your feelings and experiences over the LAST MONTH. Please CIRCLE THE NUMBER which reflects how much you AGREE or DISAGREE with the following statements as they apply to you, your job and place of employment during the LAST MONTH.

	STRONGLY AGREE							
	AGREE							
	SLIGHTLY AGREE							
	NEUTRAL							
	SLIGHTLY DISAGREE							
	DISAGREE							
	STRONGLY DISAGREE							
56	I really like the way I'm treated by my supervisor	1	2	3	4	5	6	7
57	I feel pressed for time	1	2	3	4	5	6	7
58	I understand our business strategy	1	2	3	4	5	6	7
59	My work produces excellent results	1	2	3	4	5	6	7
60	I always approach my work with whole-hearted effort	1	2	3	4	5	6	7
61	The pace of life is too fast and I can't keep up	1	2	3	4	5	6	7
62	I feel a strong sense of rapport with my supervisor	1	2	3	4	5	6	7
63	I am creative and innovative	1	2	3	4	5	6	7
64	I feel conflict between work and personal priorities	1	2	3	4	5	6	7
65	I see a connection between the work I do and the company's strategic objectives	1	2	3	4	5	6	7
66	I feel very supported by my supervisor	1	2	3	4	5	6	7
67	It takes a lot of effort to sustain my performance level	1	2	3	4	5	6	7
68	I feel very useful in my job	1	2	3	4	5	6	7
69	I always know how my supervisor wants me to utilize my time	1	2	3	4	5	6	7
70	I am able to speak out without fear of the consequences	1	2	3	4	5	6	7
71	I feel like leaving this organization	1	2	3	4	5	6	7
72	My work is very challenging	1	2	3	4	5	6	7
73	We have great confidence about being successful in the future	1	2	3	4	5	6	7
74	I feel like quitting my job	1	2	3	4	5	6	7
75	People respectfully express different points of view during meetings	1	2	3	4	5	6	7
76	People where I work feel free to express their opinions	1	2	3	4	5	6	7
77	My work is often recognized and appreciated by my superiors	1	2	3	4	5	6	7
78	When people talk about the current state of our organization, most of the stories are about good news (e.g. innovations, achievements, new and better practices, etc.)	1	2	3	4	5	6	7
79	My job gives me a sense of accomplishment	1	2	3	4	5	6	7
80	I am always highly productive	1	2	3	4	5	6	7
81	I work with people who don't get along with each other	1	2	3	4	5	6	7
82	This is an organization where people feel a sense of appreciation for one another	1	2	3	4	5	6	7
83	My job requires me to use all of my abilities	1	2	3	4	5	6	7
84	I'm aware of power struggles between co-workers that damage morale	1	2	3	4	5	6	7
85	Doing my tasks well substantially contributes to my organization	1	2	3	4	5	6	7

Thank You Very Much For Your Participation!

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Patient Programs

The road to health is compromised by feelings of helplessness, hopelessness, and the frustration of being ill. HeartMath provides simple and practical tools to successfully manage emotions in the moment so patients can make healthy life choices, communicate more effectively, and feel more satisfied with those who care for them. ***Patients and family members internalize and sustain skills to find more balance in the midst of difficulty and mobilize their energy in service of the healing process.***

Emotions, Stress and Disease

Emotions, positive and negative, can profoundly influence physical well being. High stress levels, which are epidemic in our environment, are associated with the development of a variety of disease states and are linked to autonomic activity. Autonomic dysfunction is a contributor to such important conditions as High Blood Pressure, Heart Attacks, Strokes, Congestive Heart Failure, and Abnormal Heart Rhythms.

Which Populations Will Benefit?

Disease states associated with Autonomic Dysrhythmias:

Arrhythmia	Hypertension	Coronary artery disease	Diabetes
Depression	Irritable bowel	Asthma	Fibromyalgia

Symptoms associated with Autonomic Dysrhythmias:

Panic	Fatigue	Chemical Sensitivity	Migraine
Anxiety	Dizziness	Premenstrual Syndrome	Sleep Disorder

HeartMath's Patient Program

This is a step-by-step process to help patients transform their in-the-moment stress responses and empower them to choose healthier behaviors. HeartMath programs have been shown to improve psychosocial functioning, balance the autonomic nervous system and hormonal system, boost hormonal immunity, decrease state and trait anxiety, reduce blood pressure, and decrease a variety of other disease symptoms.

How Does HeartMath Improve Patient Health?

Practice of the HeartMath tools results in cortical facilitation, positive mood, and peacefulness, and can reduce usage and reliance on other therapies and drugs. Using HeartMath tools, people feel less anxious in the midst of a challenging health situation.

Today people want things that are both easy to learn and give fast results. HeartMath technology accomplishes both of these. It can be applied anytime, anywhere—in the car, at your desk, etc.

What is the Compliance Factor?

Compliance is high because balancing the Autonomic Nervous System (ANS) feels good, motivating people to do it. Difficult life situations themselves are the built-in reminders to continue use.

Are there Documented Research and Case Studies?

HeartMath research has been published in the *American Journal of Cardiology*, *Stress Medicine*, *Journal of the American College of Cardiology* and other peer-reviewed journals.

Hypertension—In one study all hypertensive subjects were able to normalize their blood pressure within six months without other modifications (diet, exercise, and medication) to their regimen.

Immune System—The tools Freeze-Frame and Heart Lock-in significantly increase IgA levels, while feelings of anger trigger reduction in IgA for up to 6 hours. Study participants were able to self-generate increases in IgA up to 140%.

Hormonal System—After four weeks intervention, participants averaged 100% increase in usable DHEA and a 23% decrease in cortisol.

Reduced Physical Symptoms—Among participants who reported feeling physical symptoms of stress like fatigue, sleeplessness, indigestion, body aches, and being tired *often or much of the time*, there was a 40% reduction in fatigue and a 41% reduction in feeling tired. Among this group, sleeplessness decreased 39%, indigestion by 47% and body aches by 41%.

Reduced Emotional Symptoms—Among participants who reported feeling angry, annoyed, anxious, worried, depressed, and uneasy *often or much of the time*, there was a 50% drop in anger, a 50% decrease in annoyance, a 47% reduction in anxiety, a 46% decline in worry, a 47% decline in depression, and 57% less uneasiness.

Enhanced Well-Being—Increases in study group compared to control group over an 18 week period included: peacefulness (19%), vitality (14%), communication effectiveness (14%), and social support (17%).

Compliance—71% of program participants were still using the tools six months after a one-day program, and 85% reported significant improvements in health status.

Is there Ongoing Support for Patients?

After completing the program, participants may continue self-study, individually or with a group, using the HeartMath Discovery Program. This program consists of 27 monthly guide-book themes. This offers your patients a sense of continuity and ongoing care from the hospital.

In Summary

Evidence suggests that the application of practical stress and emotional management interventions will significantly benefit patients by improving quality of life, reducing symptomatology, and decreasing health care costs by minimizing the demand for health services and the development of complications such as cardiovascular disease.

Case Studies in Health Care

Appendix A Case Studies

Appendix B Science of HeartMath

HeartMath's solutions support a variety of applications to produce immediate and sustainable bottom-line results.

St. Joseph Hospital

The HeartMath Assignment (for 25 nurses):

- ▶ Improve nurse retention by helping the system manage nurse stress, fatigue and burnout and help front line nurses deal with the stress of caring for seriously ill patients and anxious family members.
- ▶ Help nurses manage difficult physician relationships.

Results:

- ▶ Avoided turnover costs for four nurses who decided not to resign.
- ▶ Program helped people understand that the administration did recognize and care about them and their work-related stress.

St Luke's/Shawnee Mission

The HeartMath Assignment (for 50 nurse leaders)

Help long-term staff (15+ years) maintain a sense of empowerment and dedication to each other and the system during times of rapid change and expansion.

Results:

- ▶ "I feel fatigued" dropped from 65% to 26%
- ▶ "I feel frustrated" dropped from 57% to 17%
- ▶ "I feel worried" dropped from 35% to 9%
- ▶ "I tend to feel emotionally drained" dropped from 43% to 13%
- ▶ "Tension between management and staff" dropped from 39% to 17%

Kaiser Permanente

The HeartMath Assignment (for physicians and spouses):

- ▶ Deliver a program for physicians and spouses to enhance work/life balance.
- ▶ Atlanta: Reward and recognize most productive physicians with a high-value professional program.
- ▶ Sacramento: Improve communication skills with patients/co-workers/family.

Results:

- ▶ Programs are highly valued; ongoing programs are being delivered.

Sierra Providence Health Network

The HeartMath Assignment (System-wide):

- ▶ Reduce employee turnover by 3%
- ▶ Help staff manage stress caused by time pressures and communication issues
- ▶ Support cultural change initiatives in customer service excellence and professional growth and development

Results:

- ▶ Trained 55 leaders in the HeartMath Leadership Training
- ▶ Licensed six trainers for program delivery
- ▶ 50% of FTEs to be trained in Year 1 of the HeartMath intervention

Christus Health

The HeartMath Assignment (for 20 staff in CFO's office):

- ▶ Reduce staff stress levels about meeting deadlines; improve work/life balance.
- ▶ Reduce staff turnover due to overwork-related stress.

Results:

- ▶ Workload hasn't slowed down—deadlines increased—but staff is more able to manage.
- ▶ Expected attrition didn't materialize.
- ▶ Six months after training, mental clarity, goal clarity, productivity, communication effectiveness and job satisfaction continued to show improvement.

Riverside HealthCare

The HeartMath Assignment: (System-wide):

In response to employee-identified goals on an organizational employee opinion survey, provide employees with a solution to relieve stress

On-going Results:

- ▶ Trained 65 leaders in the HeartMath Leadership Training
- ▶ 240 staff (including new hires) to be trained in first six months of the HeartMath intervention
- ▶ Will track retention and compare against future employee opinion survey results
- ▶ Will use as a future recruitment tool i.e., caring for the caregivers.

The Science of HeartMath

Appendix A

Case Studies

Appendix B

Science of HeartMath

Perceptions, Emotions and Health

For centuries, the heart was considered the source of emotion, courage and wisdom. But for at least the past 100 years, the heart was increasingly viewed as little more than a pump. For more than a decade The Institute of HeartMath (IHM) Research Center has been exploring the physiological mechanisms by which the heart communicates with the brain, thereby influencing how well we deal with stress, the brain's ability to process information, our perceptions, emotions and health. They are asking questions such as: Why do people usually experience the feeling or sensation of love and other positive emotional states in the area of the heart? How do stress and different emotional states affect the autonomic nervous system, the hormonal and immune systems, our heart and brain?

Over the years IHM has experimented with many different types of psychological and physiological measures, but it was consistently the heart rate variability (HRV), or heart rhythms, that stood out as being the most dynamic and reflective of emotional states and stress. It became clear that the experience of negative emotions leads to increased disorder in the heart's rhythms and in the autonomic nervous system, thereby affecting the brain and the rest of the body. In contrast, positive emotions created increased harmony and coherence in the heart's rhythms and improved balance in the nervous system. The health implications are easy to understand: disharmony in the nervous system leads to inefficiency and increased stress on the heart and other organs, while harmonious rhythms are more efficient and less stressful to the body's systems.

How the Heart Affects Perception

More intriguing are the dramatic positive shifts that can occur in a person's perceptions. One's ability to reduce stress and more effectively deal with difficult situations increases after learning techniques which increase the coherence in the rhythmic patterns of the heart rate variability. Researchers as far back as the late 1960's observed that the heart was acting as though it had a mind of its own and was profoundly affecting perception. In essence, it appeared that the heart was affecting our intelligence and awareness. During the 1990's many of the answers began to come together and now provide a scientific basis for explaining how the heart affects mental clarity, emotional balance, effectiveness and health. IHM's research and others' indicate that the heart is far more than a simple pump. The heart is, in fact, a complex, sensory organ with its own functional "heart brain" that communicates with and influences the brain via the nervous system, hormonal system and other pathways. These influences profoundly affect brain function and most of the body's major organs.

Heart Rate Variability: A Key Indicator of Autonomic Function

Autonomic Nervous System

The autonomic nervous system (ANS) is the portion of the nervous system that controls the body's visceral functions, including heart rate, the movements of the gastrointestinal tract and the secretion of different glands, among many other vital activities. It is well known that mental and emotional states directly affect the ANS. Many of IHM's research studies have examined the influence of emotions on the ANS utilizing the analysis of heart rate variability, which serves as a dynamic window into autonomic function and balance (Figure 1).

Heart Rhythms

Heart rate variability (HRV), derived from the electrocardiogram (ECG), is a measurement of the beat-to-beat changes in rate (Figure 2). The normal variability in heart rate is due to the synergistic action of the two branches of the ANS. These act in balance through neural, mechanical, humoral, etc., mechanisms to maintain cardiovascular parameters and react optimally to changing external or internal conditions. These changes are influenced by emotions, thoughts and physical exercise.

Our changing heart rhythms affect not only our heart's but also our brain's ability to process information, including decision-making, problem-solving and creativity. They also directly affect how we feel.

Power Spectrum Analysis

The mathematical transformation (Fast Fourier Transform) of the HRV data into power spectral density (PSD) discriminates and quantifies sympathetic, parasympathetic and total ANS activity. The power spectrum is divided into three frequency ranges. The very low frequency range (VLF) (.0033 to 0.04 Hz), is an index of sympathetic activity; the high frequency range (HF) (0.15 to 0.4 Hz), is primarily due to parasympathetic activity. The frequency range around the 0.1 Hz region is the low frequency (LF) band, often referred to as the baroreceptor band, because it reflects the blood pressure feedback signals sent from the heart back to the brain, also affecting the HRV waveform. The LF band can contain a mixture of sympathetic and parasympathetic activity.

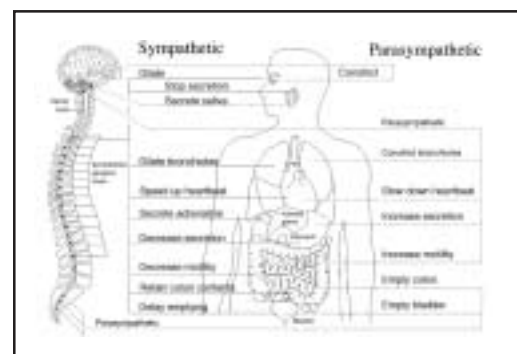


Figure 1. The Autonomic Nervous System: The sympathetic branch speeds heart rate while the parasympathetic slows it.

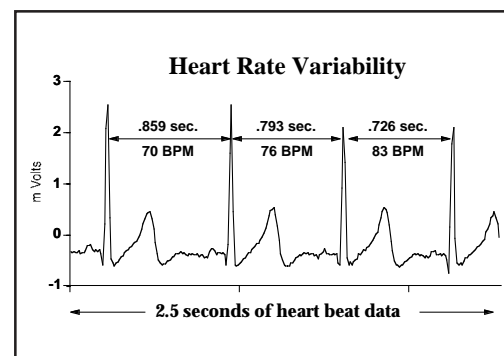


Figure 2. Heart rate beat to beat changes.

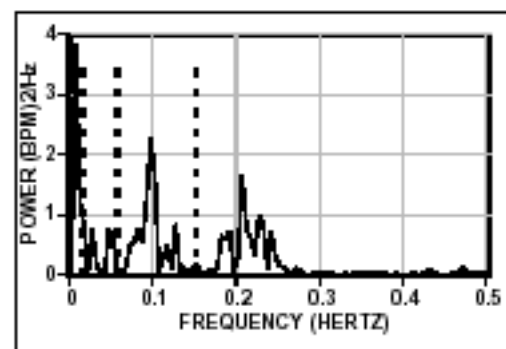


Figure 3. In this power spectrum of the HRV waveform, the power (height of the peak) in each band reflects the activity in the different branches of the nervous system.

Achieving Coherence and Entrainment through Sympathetic and Parasympathetic Balance

A number of research studies employ PSD analysis of HRV to measure changes in total ANS power and sympathetic/parasympathetic balance that occur when people experience different feeling states.

Coherence

HRV is an excellent measure of nervous system balance, and research is showing that our perceptions and reactions affect our heart rhythms. Therefore, HRV is an important indication of how well we are balancing our lives. With practice, the nervous system can be balanced and the heart rhythm patterns can be brought into an ordered coherent pattern as shown in Figure 4.

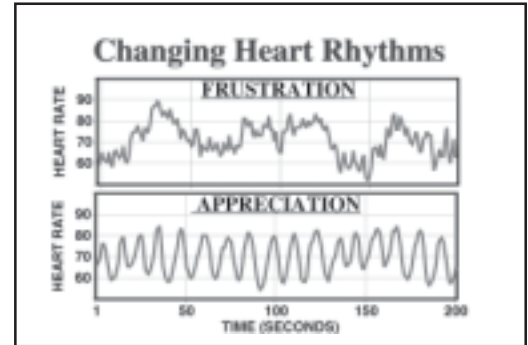


Figure 4. Thoughts and emotions influence the activity and balance of the ANS. Positive feelings create balance in the ANS resulting in an ordered coherent pattern.

Entrainment

Experiments at IHM have demonstrated that when people experience feelings of sincere appreciation, the heart adopts a more coherent mode of function in its rhythmic beating patterns and can pull other biological oscillators into entrainment with it. (Figure 5). In this state in which there is harmonious balance between the two branches of the ANS, our physiological systems operate with increased efficiency.

When we use Freeze-Frame to shift to a positive emotion, the coherence in the information generated by the heart is increased, which increases its capacity to orchestrate and sustain such psychophysiological shifts.

In Summary

There is considerable scientific rationale to support the integration of an effective stress reduction and emotional management intervention program as a fundamental component in the workplace. Stress due to the uncontrolled mind and emotions significantly harms our health, inhibits our ability to perform to our optimal potential and constricts the range of intelligence we can access. In contrast, when we bring the mind and emotions into balance and coherence, we are able to self-activate a higher intelligence that results from the synergy of heart and mind working in concert. The Freeze-Framer heart monitor technology provides a real-time view of our heart's rhythmic patterns and HeartMath techniques enable us to access this intelligence with consistency.

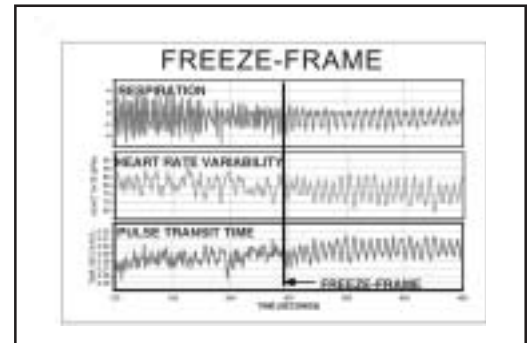


Figure 5. Physiological benefits of Freeze-Frame. Shown are an individual's HRV, pulse transit time and respiration patterns for 10 minutes. At the 300 second mark the individual Freeze-Framed and all 3 systems came into entrainment, meaning the patterns are harmonious instead of scattered and out-of-sync.

Research Papers, Abstracts and Reports

Minneapolis Public School District, Minnesota. **Improving Test-Taking Skills and Academic Performance in High School Students Using HeartMath Learning Enhancement Tools.**
Collaborative study conducted by the Institute of HeartMath, Pam Aasen, PhD and Stephanie J. Thurik, MEd.
HeartMath Research Center, Institute of HeartMath, Publication No. 00-010. Boulder Creek, CA, 2000.

Analysis of Twenty-Four Hour Heart Rate Variability in Patients with Panic Disorder.
R. McCraty, M. Atkinson, D. Tomasino, W. P. Stuppy.
Biological Psychology. 2001; 56(2-3): In press.

Emotional Self-Regulation Program Enhances Psychological Health and Quality of Life in Patients with Diabetes.
R. McCraty, M. Atkinson, L. Lipsenthal.
Submitted to *Diabetic Medicine*.

The Heart Reinnervates Post-Transplantation.
D. A. Murphy, G. W. Thompson, J. L. Ardell, R. McCraty, R. Stevenson, V. E. Sangalang, R. Cardinal, M. Wilkinson, S. Craig, F. M. Smith, J. G. Kingma, J. A. Armour.
Annals of Thoracic Surgery. 2000; 69(6): 1769-1781.

Pilot Study of a Group Stress Management Training on Elderly Patients with Congestive Heart Failure.
F. Luskin, M. Reitz, K. Newell.
Journal of Cardiopulmonary Rehabilitation. 2000; 20(5): 303.

The Impact of an Emotional Self-Management Skills Course on Psychosocial Functioning and Autonomic Recovery to Stress in Middle School Children.
R. McCraty, M. Atkinson, D. Tomasino, J. Goelitz, H. N. Mayrovitz.
Integrative Physiological and Behavioral Science. 1999; 34(4): 246-268.

The Effects of Different Types of Music on Mood, Tension, and Mental Clarity.
R. McCraty, B. Barrios-Choplin, M. Atkinson, D. Tomasino.
Alternative Therapies in Health and Medicine. 1998;4(1):75-84.

The Electricity of Touch: Detection and Measurement of Cardiac Energy Exchange Between People.
R. McCraty, M. Atkinson, D. Tomasino, W.A. Tiller.
In: KH Pribram, ed. *Brain and Values: Is a Biological Science of Values Possible*. Mahwah, NJ: Lawrence Erlbaum Associates, publishers., 1998: 359-379.

24 Hour Time Domain Heart Rate Variability and Heart Rate: Relationships to Age and Gender over Nine Decades.
K. Umetani, D. H. Singer, R. McCraty, M. Atkinson.
Journal of the American College of Cardiology. 1998;31:593-601.

The Impact of a New Emotional Self-Management Program on Stress, Emotions, Heart Rate Variability, DHEA and Cortisol.

R. McCraty, B. Barrios-Choplin, D. Rozman, M. Atkinson, A. D. Watkins.
Integrative Physiological and Behavioral Science. 1998; 33(2):151-170.

Assessment of Autonomic Function and Balance in Chronic Fatigue Patients Using 24-Hour Heart Rate Variability Analysis.

R. McCraty, S. Lanson, M. Atkinson.
Clinical Autonomic Research. 1997; 7(5):237.

An Inner Quality Approach to Reducing Stress and Improving Physical and Emotional Wellbeing at Work.

B. Barrios-Choplin, R. McCraty, B. Cryer.
Stress Medicine 1997; 13: 193-201.

Cycle Length Dependency of Heart Rate Variability in Elderly with Ischemic Heart Disease.

K. Umetani, D. H. Singer, R. McCraty, M. Atkinson.
Circulation (suppl I). 1996; 94(8):I-498.

The Effects of Emotions on Short-Term Power Spectrum Analysis of Heart Rate Variability.

R. McCraty, M. Atkinson, W. A. Tiller, G. Rein, A. Watkins.
American Journal of Cardiology. 1995:76(14):1089-1093.

The Physiological and Psychological Effects of Compassion and Anger.

G. Rein, R. McCraty, M. Atkinson.
Journal of Advancement in Medicine. 1995:8(2):87-105.

Head-Heart Entrainment: A Preliminary Survey.

R. McCraty, W. A. Tiller, M. Atkinson.
Proceedings of the Brain-Mind Applied Neurophysiology EEG Neurobiofeedback Meeting, Key West, FL 1996.

Next Steps

We at HeartMath are very accessible to our clients and we look forward to talking with you at any time. Please feel free to contact us in any of these ways.

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