

FEATURE STORY

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the low risk and high return of integrative health services

Integrative health modalities have been gathering steam as effective supplemental treatments. Now, leading hospitals and health systems are beginning to see them as a financial boon.

AT A GLANCE

Supplemental treatments and practices such as yoga, acupuncture, guided imagery, and meditation can benefit not only patients in their recovery but also hospitals and health systems financially and operationally. Benefits include:

- > Savings in sedation costs for patients who use guided imagery during procedures
- > Increased revenue due to measurably increased patient satisfaction
- > Decreased length of stay

The use of integrative health interventions as adjuncts to conventional treatment is gaining traction at medical centers across the country. Patient-centered approaches that address the full range of physical, emotional, mental, social, spiritual, and environmental factors affecting individuals—referred to collectively as integrative health modalities (IHMs)—have saved hospitals and health systems millions and enhanced patients' treatment and recovery.^a

Beneficial to both patients and balance sheets, IHMs are worth considering from all angles. These modalities embody concepts related to patient-centered care and shared medical decision making, essential components of both the Affordable Care Act and The Joint Commission accreditation standards. IHM practices are aimed at engaging patients in the healing process. An emphasis on patient self-care through IHMs, as an adjunct to conventional care, provides healthcare systems with a competitive differentiator for affordable, sustainable population health management.

The Evidence Base for IHMs

IHMs include practices that patients can be trained to do on their own (such as meditation, yoga, and relaxation response) and therapies that are provided

a. Lemley, B., "What Is Integrative Medicine?" *Balanced Living*, www.drweil.com, 2015.

to a patient by a licensed practitioner (such as acupuncture or massage).

The National Center for Complementary and Integrative Health (NCCIH), administered by the National Institutes of Health, further defines IHMs as practices that “focus on the interactions among the brain, mind, body, and behavior with the intent to use the mind to affect physical functioning and promote health.”^b The NCCIH, established in 1991, has recently been charged with promoting evidence-based decision making for integrative therapies in health care and health promotion.

Certain IHMs have been shown through evidence-based research to effectively manage specific symptoms either as a stand-alone therapy or as an adjunct to conventional treatment. Systematic collaborative reviews conducted by contributors to Cochrane—a global network of researchers, professionals, patients, caregivers, and other healthcare stakeholders—have corroborated much of this research. These reviews include validation for acupuncture, cognitive-based therapy, progressive relaxation, biofeedback, massage, and yoga for specific purposes, including chronic pain.^c Summaries of the evidence-based research supporting the use of IHMs

b. “The Science of Mind and Body Therapies,” NCCIH Video Series, page last modified July 27, 2015.

c. See, for example, Furlan, A.D., Giraldo, M., Baskwill, A., and Imamura, M., “Massage for Low-Back Pain,” Cochrane, Sept. 2, 2015.

ECONOMIC BENEFITS OF IHMs

Patient Population	Hospital or Health System	Estimated Savings	Identified Benefits to the Patient	Program Type
Cancer/Oncology	Beth Israel Medical Center, New York [†]	\$156 per patient per day; \$279,592 in after-cost recurring annual savings	Decreased narcotics, anxiety	Inpatient
Interventional Radiology	Beth Israel Deaconess Medical Center, Boston [‡]	\$304 to \$431 per patient; \$1.6M to \$2.4M annually for 5,000 interventional radiology cases per year	Decreased anxiety	Outpatient
GI Surgery	Cleveland Clinic [§]	\$3,200 per patient; \$8M annual savings for 2,500 GI surgery cases per year	Decreased length of stay (LOS), narcotics, pain	Inpatient
Cardiac Surgery	Inova Fairfax Hospital, Va. [#]	\$2,271 per patient; \$4.5M annual savings for 2,000 cardiac surgery cases per year	Decreased LOS, narcotics, anxiety	Inpatient
After Coronary Artery Bypass Graft (CABG) and Percutaneous Transluminal Coronary Angioplasty*	8 hospitals nationwide [¶]	\$29,529 per patient based on the calculated cost of avoidance of CABG surgery	Increased satisfaction	Outpatient
Diabetes and Pre-Diabetes*	Universities of Michigan, Colorado, and Indiana medical centers ^{**}	\$31,000 to \$34,400 per patient per quality-adjusted life year	Increased satisfaction, decreased depression	Outpatient

*These studies used lifestyle interventions that included dietary modifications and/or exercise in addition to integrative health modalities.

[†] Kligler, B., Homel, P., Harrison, L.B., Levenson, H.D., Kenney, J.B., and Merrell, W., “Cost Savings in Inpatient Oncology Through an Integrative Medicine Approach,” *The American Journal of Managed Care*, December 2011.

[‡] Lang, E.V., and Rosen, M.P., “Cost Analysis of Adjunct Hypnosis with Sedation During Outpatient Interventional Radiologic Procedures,” *Radiology*, February 2002.

[§] Tusek, D.L., Churh, J.M., Strong, S.A., Grass, J.A., and Fazio, V.W., “Guided Imagery: A Significant Advance in the Care of Patients Undergoing Elective Colorectal Surgery,” *Diseases of the Colon and Rectum*, February 1997.

[#] Halpin, L.S., Speir, A.M., Capobianco, P., Barnett, S.D., “Guided Imagery in Cardiac Surgery,” *Outcomes Management*, July-September, 2002.

[¶] Ornish, D., Preventive Medicine Research Institute, Sausalito, Calif., “Avoiding Revascularization with Lifestyle Changes: The Multicenter Lifestyle Demonstration Project,” *American Journal of Cardiology*, Nov. 26, 1998.

^{**} Herman, W.H., Hoerger, T.J., Brandle, M., Hicks, K., Sorenson, S., Zhang, P., Hamman, R.F., Engelgau, M.M., Ratner, R.E., “The Cost-Effectiveness of Lifestyle Modification or Metformin in Preventing Type 2 Diabetes in Adults with Impaired Glucose Tolerance,” *Annals of Internal Medicine*, March 1, 2005.

can be found in various professional guidelines and publications.^d

The ROI of IHMs

A survey released Sept. 7, 2001, by the American Hospital Association’s Health Forum found that, at that time, roughly two-thirds of U.S. academic medical centers had an integrative health program in place and 42 percent of all hospitals provided some form of IHM intervention to patients.^e The use of integrative health is as high as 90 percent for certain patient populations in the United States—and 38 percent for all Americans.^f Furthermore, patients who received IHMs in addition to their regular treatments had higher satisfaction scores than did patients who did not

IHM METRICS: MARYLAND INPATIENT DATA, CY13

Total number of patients in data set	589,253
Average age of patients in this data set	55
Patients with symptoms that can be managed by IHMs	86%
Average total charges (ATC)	\$13,354
ATC for patients with IHM-manageable diagnoses	\$14,012
ATC for patients without IHM-manageable diagnoses	\$9,177
ATC differential for patients with IHM-manageable diagnoses	+34%
Average length of stay (ALOS)	4.4 days
ALOS for patients with IHM-manageable diagnoses	4.7 days
ALOS for patients without IHM-manageable diagnoses	2.9 days
ALOS differential for patients with versus those without IHM-manageable diagnoses	+1.8 days

d. See, for example, Cramer, H., Lauche, R., Haller, J., and Dobos, G., “A Systematic Review And Meta-Analysis of Yoga for Low Back Pain,” *Journal of Clinical Pain*, May 2013; and Hutchinson, A.J., Ball, S., Andrews, J.C., and Jones, G.G., “The Effectiveness of Acupuncture in Treating Chronic Non-Specific Low Back Pain: A Systematic Review of the Literature” *Journal of Orthopedic Surgery and Research*, Oct. 30, 2012.

e. American Hospital Association, “More Hospitals Offering Complementary and Alternative Medicine Services,” press release, Sept. 7, 2011.

f. Callahan, L.F., Wiley-Exley, E.K., Mielenz, et al., “Use of Complementary and Alternative Medicine Among Patients with Arthritis,” *Preventing Chronic Disease*, April 2009; and Nahin, R.L., Barnes, P.M., Stussman, B.J., and Bloom, B., “Costs of Complementary and Alternative Medicine (CAM) and Frequency of Visits to CAM Practitioners: United States, 2007,” *National Health Statistics Reports*, July 30, 2009.

receive IHM therapies.^g Of those hospitals that offer outpatient IHMs, 55 percent report that they plan to expand services to include the inpatient setting. The exhibit on page 2 provides a summary of the economic benefits of IHMs identified in a number of studies that examined the use of these modalities as an adjunct to conventional treatment. (For additional detail about the studies

g. Myklebust, M., Pradhan, E. K., and Gorenflo, D., “An Integrative Medicine Patient Care Model and Evaluation of Its Outcomes: The University of Michigan Experience,” *The Journal of Alternative and Complementary Medicine*, September 2008.

TOP 10 DIAGNOSES IN MARYLAND HOSPITALS THAT CAN BE ADJUNCTIVELY MANAGED WITH IHMs

Diagnosis	Number of Hospital Patients in Maryland with This Diagnosis in 2013	Percentage of All Hospital Patients with This Diagnosis	Percentage of Patients Who Could Benefit from IHMs with This Diagnosis
Hypertension	311,233	53%	61%
Diabetes, Type 2	140,583	24%	28%
Alcohol/Drug-Related Diagnoses	131,773	22%	26%
Coronary Artery Disease	118,482	20%	23%
GERD	107,704	18%	22%
Obesity/Weight Control	104,895	18%	21%
Depression	82,346	14%	16%
Arthritis/Osteoarthritis	73,230	12%	14%
Pain	73,198	12%	14%
Anxiety	67,758	12%	13%

listed in the exhibit, see the sidebar “Calculating Costs and Savings of IHMs,” page 5.)

IHM Interventions in Maryland

To help corroborate the potential benefits of IHMs, the lead author of this article performed a detailed analysis looking at inpatient data for all patients hospitalized in the state of Maryland in 2013.^h The analysis focused on current evidence-based research supporting IHM treatment by diagnosis or symptom. Of the 589,253 Maryland hospital inpatients, 509,044 (or 86.3 percent) had diagnoses or symptoms, identified using ICD-9-CM codes, that had the potential for adjunct treatment with IHMs. The study produced two key findings that reinforce those of the individual studies highlighted in the exhibit on page 2: Total hospital charges for patients who could benefit from adjunct IHMs were 34 percent higher than those for patients who could not benefit, and length of stay (LOS) was 1.8 days longer for the former group than for the latter group. These findings suggest that IHMs can produce significant savings, especially for patients with a higher per capita cost.

In addition to being evidence-based, IHMs should match the needs of the patient population. In the Maryland data analysis, the recommended IHM practices and therapies were matched to patient diagnoses and procedures using evidence-based research. The top 10 inpatient diagnoses that can be adjunctively managed with IHMs are listed in the exhibit at the bottom of page 3. More than half (57 percent) of Maryland inpatients are treated for three or more of these diagnoses. Simply put, patients with chronic conditions such as hypertension, coronary artery disease, pain, and anxiety all can benefit from receiving training in at least one IHM, such as relaxation response. This adaptive use of IHM reinforces its importance as an effective and economically viable population health management strategy.

h. Data from “2013 Inpatient discharge abstract data set for use in HSCRC’s APR-DRG based revenue constraint system,” Maryland Health Services Cost Review Commission, 2014.

Established Benefits of IHMs

Many health systems have shared specific benefits they and their patients have experienced from the addition of IHMs to the organization’s treatment protocols. These benefits include the following.

Decreased costs. The decrease in direct costs is driven by some combination of fewer medications and shorter length of stay, as well as increased patient self-care.

Decreased LOS. Reduced length of stay has been identified by several healthcare systems as a benefit of IHM, prior to and immediately following surgery.

Decreased use of narcotics. Decreased use of pharmaceutical drugs not only results in cost savings but also can reduce length of stay and post-operative comorbidities, increase patient self-care options, and decrease the possibility of dependency in certain patient populations.

IHMs also offer additional indirect benefits, including the following.

Increased patient satisfaction. This benefit can be measured using standard patient satisfaction surveys such as HCAHPS Hospital Survey results. HCAHPS accounts for 30 percent of a hospital’s value-based purchasing score, which is used to determine the amount of incentive payment each hospital receives, linking improved patient satisfaction due to IHMs with increased revenue.

Increased patient retention. An IHM program can play an important role in a hospital’s relationship-building efforts with patients, given that patients are likely to perceive providers that offer access to IHMs as being responsive to their preferences and values, in accordance with patient-centered care goals.

Decreased pain. Pain levels are a key metric in HCAHPS scores. The experience of pain involves both a physical and an emotional component, often expressed in the form of anxiety and/or

Calculating Costs and Savings of IHMs

The current published literature on IHM program costs and savings covers a wide spectrum based on the interventions used, the structure of the program, and the measures employed. For example, a study conducted at Beth Israel Medical Center in New York City identified savings in the oncology unit amounting to \$156 daily for each patient who participated in yoga, meditation, and relaxation response practices.^a The authors estimate annual savings to be \$977,184. The recurring costs for the program were calculated to be \$209,000 annually (\$92,000 for a patient navigator plus \$117,000 for a yoga coordinator). A one-time renovation cost of “converting the patient lounges into a healing sanctuary for meditation, yoga practice, and quiet visiting” was \$355,000. Final recurring annual after-cost savings was estimated to be \$279,592.

A study of the use of adjunct hypnosis in association with radiologic intervention at Beth Israel Deaconess Medical Center in Boston identified savings estimated at \$304 to \$431 for patients who received self-hypnotic relaxation, or *guided imagery*, prior to and during the procedure.^b Savings were calculated based on the differences in sedation costs. On average, the cost of sedation for patients receiving imagery was \$338 less than for patients who did not receive imagery. Guided imagery can be administered either by operating room (OR) staff who have been trained on the modality or by a certified hypnotherapist. The authors estimated the one-time costs for training OR staff to be \$3,000 to \$15,000, versus a cost of \$70,000 annually plus 30 percent in fringe benefits for hiring a certified professional. After-cost savings were projected to be \$290 per case, or as much as \$2.4 million per year, depending on the number of interventional radiology cases.

A study of the use of guided imagery in association with colorectal surgery at the Cleveland Clinic found that the length of stay (LOS) was reduced by 1.6 days for patients who participated in guided imagery prior to and following surgery, compared with patients in the control group who did not receive the IHM intervention. This decreased LOS resulted in a cost savings of \$3,200 per study patient.^c

a. Kligler, B., Homel, P., Harrison, L.B., Levenson, H.D., Kenney, J.B., and Merrell, W., “Cost Savings in Inpatient Oncology Through an Integrative Medicine Approach,” *The American Journal of Managed Care*, December 2011.

b. Lang, E.V., and Rosen, M.P., “Cost Analysis of Adjunct Hypnosis with Sedation During Outpatient Interventional Radiologic Procedures,” *Radiology*, February 2002.

c. Tusek, D.L., Churh, J.M., Strong, S.A., Grass, J.A., and Fazio, V.W., “Guided Imagery: A Significant Advance in the Care of Patients Undergoing Elective Colorectal Surgery,” *Diseases of the Colon and Rectum*, February 1997.

Similarly, a study of the use of guided imagery in association with cardiac surgery interventions at Inova Fairfax Hospital in Falls Church, Va., found that LOS was 1.5 days shorter in the guided imagery group than in the control group. In addition, the mean pharmacy direct costs for the study group were \$288 less than the control group. Based on these findings, Fairfax estimated the combined savings for imagery to be \$2,271 per procedure.^d

In 1998, a multihospital lifestyle demonstration project investigated the effect of lifestyle changes in preventing the need for revascularization in patients who met the criteria for either coronary artery bypass graft (CABG) surgery or percutaneous transluminal coronary angioplasty (PTCA).^e The project found the average savings per patient who made comprehensive lifestyle changes, which included IHM interventions, to be \$29,529. Lifestyle changes included meditation, yoga, and progressive relaxation.

These savings were calculated by subtracting the cost of the intervention in the experimental group from the average cost of CABG or PTCA surgery, depending on the patient’s scheduled procedure.

Similarly, a multihospital intervention for diabetes and pre-diabetes calculated savings from lifestyle changes by subtracting the cost of the lifestyle intervention in the experimental group from the average cost for traditional diabetes case. Savings calculated in this study amounted to between \$31,000 and \$34,400 per person per year.^f

These studies highlight single interventions. Both patients and the healthcare systems that serve them will benefit most from a comprehensive implementation of IHM interventions that have been shown to effectively and efficiently manage symptoms and chronic conditions. A combination of inpatient and outpatient interventions should be implemented and managed centrally, with staff placed locally throughout the health system. Central management ensures appropriate training and use of only evidence-based interventions.

d. Halpin, L.S., Speir, A.M., CapoBianco, P., Barnett, S.D., “Guided Imagery in Cardiac Surgery,” *Outcomes Management*, July-September, 2002.

e. Ornish, D., Preventive Medicine Research Institute, Sausalito, Calif., “Avoiding Revascularization with Lifestyle Changes: The Multicenter Lifestyle Demonstration Project,” *American Journal of Cardiology*, Nov. 26, 1998.

f. Herman, W.H., Hoerger, T.J., Brandle, M., Hicks, K., Sorenson, S., Zhang, P., Hamman, R.F., Engelgau, M.M., Ratner, R.E., “The Cost-Effectiveness of Lifestyle Modification or Metformin in Preventing Type 2 Diabetes in Adults with Impaired Glucose Tolerance,” *Annals of Internal Medicine*, March 1, 2005.

SAMPLE IHM INPATIENT KEY METRICS

Key Metric	Target	Q1	Q2	Q3	Q4	% Achievement
Decreased Costs	-10M	-2M	-2M	-3M	-1M	80%
Patient Satisfaction	+5%	+3%	+3%	+4%	+3%	80%
Pain Scores	+8%	+5%	+4%	+5%	+5%	63%
Length of Stay	-0.25 day	0	0	0.12	0.12	49%
Pharmacy Costs	-3%	-1.5%	-1.8%	-2%	-2%	67%

depression. When interventions can address all the components of pain, they are likely to produce higher HCAHPS scores. An IHM prior to surgery has been found to reduce anxiety, pain, and narcotic requirements—results that, in turn, can lead to increased patient satisfaction.

These are only a few potential benefits that hospitals can glean from implementing an IHM program. Because the use of IHMs is still in its early stages, additional benefits are likely to be identified over time.

Ensuring Economic Success

As with any initiative, planning an IHM service requires vision, a sense of urgency, key financial metrics, and a structured implementation plan. An organization’s vision, strategy, and culture drive the specifics of its IHM service. Any hospital that is contemplating implementation of an IHM program should keep in mind the following recommendations.

Analyze data to create a patient-centered IHM program. Healthcare finance leaders can begin by using the list of the top 10 most common IHM diagnoses from the Maryland analysis. By using ICD-10 codes to identify which patients have these diagnoses within an organization’s facility or facilities, it is possible to estimate of the percentage of the organization’s patients who could be helped using IHMs.

Align with the medical staff to increase patient acceptance and program success. Active involvement of the medical staff is crucial to the success of an IHM implementation. Creating a successful program is symbiotic. The health system needs physicians to assess patient-specific needs and order appropriate IHM interventions, and physicians need the system to provide necessary staffing, training about the IHM program, and continuous updating of new IHM research findings. In obtaining physician buy-in to an IHM program, the health system will need to educate physicians about the evidence-based benefits of IHMs. To ensure appropriate IHM therapies are ordered, the health system should inform physicians and mid-level practitioners about the range of IHM offerings.

Emphasize low-cost/high-impact approaches.

Organizations should target high-cost patients and patient groups using data and evidence-based IHM services. A hybrid model should be used to implement and sustain a program that embraces physician support, but relies on licensed nonphysician, non-nurse clinicians to deliver services. The goal should be to create an extensive class/group approach that reaches not only patients before and after hospitalization but also members of the geographic community who have yet to become patients. This approach can set the stage for the organization to become an economically viable feeder for an accountable care organization.

Communicate benefits; emphasize structure and accountability.

These concepts are exemplified in the adoption of an IHM program called HeartMath by Indiana University Health Bloomington Hospital.¹ HeartMath is designed to deliver a form of self-induced biofeedback that improves stress management, resiliency, and heart rate variability. The program began with a focus on the health system’s staff, grew to include patients, and eventually was introduced to every segment of the organization’s population health program. Indiana University Health credits this modality with improving its aggregate culture of care index and employee satisfaction by 6 percent.

Set goals and track key metrics. The use of IHMs can have a positive effect on a range of financial and quality metrics. Tracking these metrics is crucial to the long-term success of IHMs as a hospital and population health management strategy. Sample key metrics are provided in the hypothetical scorecard shown on page 6. Some organizations, such as Indiana University Health, may include employee satisfaction measures in such metrics as a way to measure global impact.

An emphasis on engagement through IHMs, as an adjunct to conventional care, can provide health systems with a competitive differentiator for affordable, sustainable population health management. As IHMs continue to rise in popularity, the benefits will only increase. ■

i. Danielson, K., Jeffers, K., Kaiser, L., McKinley, L., Kuhn, T., Voorhies, G., "Sustained Hospital-Based Wellness Program," *Global Advances in Health and Medicine*, January 2014.

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