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White House Commission on Complementary and Alternative Medicine Policy

Meeting on the Access and Delivery of Complementary and Alternative Medicine Services

December 4-5, 2000
Hubert H. Humphrey Building, Room 800, Washington, DC

FINAL AGENDA

DAY ONE: MONDAY, DECEMBER 4, 2000

8:00 a.m. Registration

9:15 a.m. Welcome and Introductions

- *Dr. Stephen C. Groft*
  Executive Director, White House Commission on Complementary and Alternative Medicine Policy

- *Dr. James S. Gordon*
  Chair

9:25 a.m. **Session I: Overview of CAM Utilization**

- *Dr. James S. Gordon*
- *Commission Discussion*

10:00 a.m. **Session II: Clinical and Cost-Effectiveness of Selected CAM Services**

- Mind-Body Approaches

- Chiropractic Practice
  William Meeker, DC, MPH

- Naturopathic Medicine
  Konrad Kail, ND, PA

- Acupuncture
  Patricia Culliton, LAc

- Homeopathy
  Joyce Frye, DO, MBA, FACOG

- Massage Therapy
  Tiffany Field, PhD

11:00 – 11:15 a.m.	15-MINUTE BREAK & PANEL CHANGE

11:15 a.m.

- Herbs/Botanicals
  Dennis Awang, PhD, SCIC
  Christopher Hobbs, LAc, AHG

- Dietary Supplements
  Alan Gaby, MD

- Nutrition
  Patsy Brannon, PhD, RD

- Integrated Overview
  Harley Goldberg, DO

- **Panel Discussion**

12:15 – 1:35 p.m.	LUNCH BREAK (405A) and PRESS CONFERENCE (634F)

1:35 – 2:35 p. m.

Public Comment (Open Session, as pre-registered)

1. Francine Butler, Association for Applied Psychophysiology & Biofeedback
2. Nancy Dolores Kolenda, Center for Frontier Sciences
3. Diana Chambers, Friends of Health
4. Rustum Roy, University of Arizona-PIM

- **Panel Discussion**

5. David Murray Blalwas, Maryland Acupunture Society
6. Kathleen Golden, Acupuncture Society of New York
7. Natalia Egorov, California Oriental Medical Association
8. David Edgar Molony, American Association of Oriental Medicine

- **Panel Discussion**

9. Elaine Marie Wallzer, Henry M. Jackson Foundation
10. Bhavna P Bhut, OJAS Cancer Care Institute
11. Neeta Kunai Suryavanshi, Aspen Systems Bruce Dadley
12. Salvatore A. D'Onofrio, Natural Health Practitioners Board

- **Panel Discussion**

2:35 –2:50 p. m.	15-MINUTE BREAK & PANEL CHANGE

2:50 p.m. Session III: Use of CAM for Selected Health Conditions

- Addiction & HIV/AIDS
  Howard Josepher, CSW
  Denise Drayton, Patient

- Cancer
  Written testimony submitted by Barrie Cassileth, PhD.
  Jeanne Andrews, Patient

- Heart Disease
  Richard Collins, MD
  Walter Czapliewicz, Patient

- Hospice Care
  J. Donald Schumacher, PsyD

- **Panel Discussion**

3:55 – 4:10 p.m. 15-MINUTE BREAK & PANEL CHANGE

4:10 p.m. Session IV: Issues in Integrating CAM in Service Delivery

- Richard Miles
  Health Frontiers

- The Honorable Berkley Bedell
  The National Foundation for Alternative Medicine

- Paul Kurtz, MA, PhD
  Committee for the Scientific Investigation of Claims of the Paranormal

- **Panel Discussion**

5:00 – 5:10 p.m. BREAK (Panel Change only)

5:10 p.m.

- Donald Kendall, OMD, PhD, LAc
  Office of Professional and Employees International Union

- Candace Campbell
  American Preventive Medical Association

- Michele Forzley, JD
  American Bar Association

- **Panel Discussion**

6:00 p.m. ADJOURN

DAY TWO: TUESDAY, DECEMBER 5, 2000

8:00 a.m. Charge for the Day
Dr. James Gordon, Chair

8:05 a.m. Session V: Meeting Public Needs/Systems of Delivery

- Private Practice
  Robert Atkins, MD
- Nursing
  Charlotte Eliopoulos, RNC, MPH, PhD
- Stand-Alone CAM Center
  Mort Rosenthal, MBA
- Hospice Care
  Dannion Brinkley
- **Panel Discussion**

9:00 – 9:15 a.m. 15-MINUTE BREAK & PANEL CHANGE

- Community Health Clinics
  Tom Trompeter, MPA
- Hospital-based Centers
  Sylver Quevedo, MD
- Academic Centers
  Woodson Merrell, MD
- **Panel Discussion**

10:00 – 10: 15 a.m. 15-MINUTE BREAK & PANEL CHANGE

10: 15 a.m.

- Managed Care Organizations
  James Dillard, MD, DC, CAc
  Lori Bielinksi, LMP
  Anna Silberman, MPH
- **Panel Discussion**

11:00 – 11:05 a.m. BREAK (Panel Change Only)

11:05 a.m.

- Ayurveda
  Robert Schneider, MD
- Naturopathic Medicine
  Tori Hudson, ND
- Traditional Chinese Medicine
  Robert Duggan, MA, MAc
- **Panel Discussion**

12:00 – 1:30 p.m.	LUNCH BREAK

1:30 p.m. **Public Comment (Open Session– as pre-registered)**

1. Bruce Nordstrom, American Chiropractic Association
2. Neal D. Barnard, Physicians Committee for Responsible Medicine
3. Doreen Chen, Chinese Medicine Council, AAOM
4. Gary Sandman, Integrative Medicine, LLC

- **Panel Discussion**

5. Danny Freund, Pennsylvania State University
6. Melinna Giannini, Alternative Link
7. Jane Hersey, Feingold Association
8. Boyd Landry, The Coalition for Natural Health

- **Panel Discussion**

9. Lawrence Auburn Plumlee, National Coalition for the Chemically Injured
10. Michael John Rohrbacher, Certification Board for Music Therapists, Inc.
11. Andrew L. Rubman, American Association of Naturopathic Physicians
12. Marshall H. Sager, American Academy of Medical Acupuncture

- **Panel Discussion**

2:30 – 2:45 p.m.	15-MINUTE BREAK & PANEL CHANGE

2:45 p.m. **Session VI: CAM Integration in Existing Delivery Systems**

- Alan Trachtenberg, MD, MPH
  Substance Abuse and Mental Health Administration (SAMHSA)
- Milton Hammerly, MD
  Catholic Health Initiatives
- **Panel Discussion**

3:30 – 3: 45 p.m.	15- MINUTE BREAK

3:45 p.m. **Session VII: Commissioners' Discussion**

5:00 p.m.	WRAP-UP AND ADJOURNMENT

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Tab 2: Session Overview and Commissioner's Notes

SESSION I	SPEAKER/PANEL	FOCUS
Overview of CAM Utilization	Dr. James Gordon	This is a "snapshot" overview of : (1) utilization data (2) cost and clinical effectiveness of CAM interventions for various life stages and health conditions (3) physician knowledge/ attitude/use/referral (4) CAM practitioner demographic data

✍ Your Notes:

✍ Your Notes:

SESSION II	SPEAKER/PANEL	FOCUS
Clinical and Cost-Effectiveness of Selected CAM Services	Mind-body: Chiropractic: *William Meeker* Naturopathic: *Konrad Kail* Acupuncture: *Patricia Culliton* Homeopathy: *Joyce Frye* Massage Therapy: *Tiffany Field* Herbs/Botanicals: *Dennis Awang, Christopher Hobbs* Dietary Supplements: *Alan Gaby* Nutrition: *Patsy Brannon* Integrated Overview: *Harley Goldberg*	Sets the stage by providing evidence of the Clinical Effectiveness and Cost-Effectiveness offered by CAM services. Presenters have been asked to focus on data that provide a solid rationale for WHY access and delivery of CAM services is worthwhile.

✍ Your Notes:

✍ Your Notes:

SESSION III	SPEAKER/PANEL	FOCUS
Use of CAM for Selected Health Conditions	Addiction & HIV/AIDS: *Howard Josepher, Denise Drayton* Cancer: *Jeanne Andrews* Heart Disease: *Richard Collins, Walter Czapliewicz* Hospice Care: *Donald Schumacher*	CAM providers and patients/consumers illustrate how CAM therapies are already being used as a primary defense against or treatment for disease or illness.

✍ Your Notes:

✍ Your Notes:

SESSION IV	SPEAKER/PANEL	FOCUS
Issues in Integrating CAM in Service Delivery	Richard Miles Berkley Bedell Paul Kurtz Donald Kendall Candace Campbell Michele Forzley	This is a "think tank" session, designed to provoke a thoughtful discussion on the impact of integration of CAM services into mainstream health care. Encourages "out of the box" consideration of the diverse and numerous policy issues involved.

✍ Your Notes:

✍ Your Notes:

SESSION V	SPEAKER/PANEL	FOCUS
Meeting Public Needs/Systems of Delivery	Private Practice: *Robert Atkins* Nursing: *Charlotte Eliopoulos* Stand-Alone CAM Center: *Mort Rosenthal* Hospice Care: *Dannion Brinkley* Community Health Clinics: *Thomas Trompeter* Hospital-Based Centers: *Sylver Quevedo* Academic Centers: *Woodson Merrell* Managed Care Organizations: *James Dillard, Lori Bielinski, Anna Silberman* Ayurveda: *Robert Schneider* Naturopathic Medicine: *Tori Hudson* Traditional Chinese Medicine: *Robert Duggan*	Presentations will focus on the unique challenges of delivering CAM services, and address the question of CAM Integration or CAM Separatism: Should or shouldn't CAM be integrated... and lessons learned: What worked & why/why not? The goal is to learn what are the potential implications of policy recommendations on these various models of delivery systems.

✍ Your Notes:

✍ Your Notes:

SESSION VI	SPEAKER/PANEL	FOCUS
CAM Integration in Existing Delivery Systems	Alan Trachtenberg Bridget Duffy Milton Hammerly	Focuses on the efforts of organizations to weave unconventional health care into existing systems. As a member of this panel, you are invited to discuss the operational and policy obstacles faced by large organizations or bureaucracies trying to integrate CAM services.

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White House Commission on Complementary and Alternative Medicine Policy

Meeting on the Access and Delivery of Complementary and Alternative Medicine (CAM) Services

December 4 - 5, 2000
Hubert H. Humphrey Building, Room 800
Washington, D.C.

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CONTENTS

SESSION II:

Clinical and Cost-Effectiveness Of Selected CAM Services

Mind-Body Approaches A

Chiropractic Practice: *Meeker* B

Naturopathic Medicine: *Kail* C

Acupuncture: *Culliton* D

Homeopathy: *Frye* E

Massage Therapy: *Field* F

Herbs/Botanicals: *Awang/Hobbs* G

Dietary Supplements: *Gaby* H

Nutrition: *Brannon* I

Integrated Overview: *Goldberg* J

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Speakers' Questions for Session II:
Clinical and Cost Effectiveness of Selected CAM Services
10:00 a.m. – 12:00 p.m. on Monday, December 4.

1. Please provide references that best describe the clinical and cost-effectiveness data for access to and delivery of [CAM service].

2. Relative to the clinical effectiveness of [CAM service], please summarize data regarding the following measures:

   - Specific health conditions
   - Populations (age, sex, occupation, etc)
   - Practice setting, including whether [CAM service] only, or in conjunction with conventional medicine
   - Type of Practitioner

3. Describe the cost-effectiveness of [CAM service] provided as a stand-alone therapy with [CAM service] that is provided in conjunction with conventional medicine as part of an integrative approach.

4. Compare the costs of [CAM service] with those of conventional medicine for the same or similar health conditions.

5. Summarize patient satisfaction data, if available.

6. Describe current significant barriers to the access and delivery of [CAM service].

7. Discuss whether [CAM service] should be delivered as stand-alone care or should be integrated with more conventional therapies.

8. Please suggest specific policy recommendations that would improve the access and delivery of [CAM service] to consumers, including legislative or regulatory recommendations.

Speakers' Questions for Session II:
Clinical and Cost Effectiveness of Selected CAM Services (Integrated Services)
10:00 a.m. - 12:00 p.m. on Monday, December 4.

Based on your experience at Kaiser-Permanente of Northern California, how did you integrate the various CAM products and practices? Please paint the big picture. Specifically:

1. How, for which conditions, and by whom were the CAM practices and products selected? Please include mind-body approaches.

2. How was it decided where (practice setting) and by whom these CAM products and practices should be delivered? Please include mind-body approaches.

3. How did you satisfy the needs of your MCO administration, physicians, and consumer demand of your members?

4. How did you handle integration in the absence of published research?

5. Have you collected any cost-effectiveness, clinical effectiveness, and/or customer satisfaction data? If so, what did those data show?

6. What policy recommendations do you have for the Commission?

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Mind Matters, Money Matters: The Cost-effectiveness of Mind/Body Medicine

David S. Sobel, MD, MPH, *Regional Health Education, Kaiser Permanente Northern California, Oakland, Calif*

WHAT IF THERE WAS A NEW MEDICAL TREATMENT THAT HAD been shown in clinical trials to improve health outcomes in a number of illnesses, speed postsurgical recovery, reduce unnecessary procedures, decrease medical costs, and improve patient satisfaction? And what if its major sequelae were that patients felt less isolated, more confident, satisfied, and happier, all without adverse effects? These benefits (and many others) result from a variety of nonpharmacologic mind/body and behavioral medicine treatments.

An increasing number of studies, including randomized clinical trials, point to safe and relatively inexpensive interventions that can improve health outcomes and reduce the need for more expensive medical treatments.[1] Consider the following mind/body prescriptions:

Heart Disease: A study of patients with heart disease found that psychosocial interventions can reduce the risk of further cardiac events by 75% compared to those given only usual medical care and medications.[2] A sample of 107 patients with heart disease was randomly divided into 3 groups (usual care, exercise, and stress management) and followed up to 5 years for the incidence of myocardial infarction, bypass surgery, and angioplasty. The stress management group showed a marked difference when compared with the other 2 groups: only 10% experienced these clinical endpoints, vs 21% in the exercise group and 30% in the usual-care group.

Chronic Illness: The Chronic Disease Self-management Program, developed jointly by Stanford University and Kaiser Permanente, includes educational group sessions for patients with chronic disease. The intervention consists of a patient handbook and 7 weekly 2-hour small group sessions that focus on developing practical skills to cope with common symptoms and emotions. In a randomized clinical trial of 952 patients, those participating in the course, when compared with wait-listed control subjects, demonstrated significant improvements at 6 months in weekly minutes of exercise, self-reported health, health distress, fatigue, and disability. They also had fewer hospitalizations and spent an average of 0.8 fewer nights in the hospital. Assuming that a day in the hospital costs $1000, the health care expenditure savings (savings in hospital visits minus program costs) approximated $750 per participant—more than 10 times the cost of the program.[3]

Surgical Preparation: An important component of psychological preparation for surgery involves giving patients positive physiological suggestions and imagery. In a randomized, placebo-controlled, double-blind clinical trial, 335 patients were given 1 of 4 different audiotapes to listen to before and during surgery. A placebo group listened to a tape with a neutral white noise. Only 1 of the experimental tapes produced statistically significant benefits. This tape contained guided imagery, music, and specific suggestions of diminished blood loss and rapid healing. Patients who listened to this tape experienced a 43% reduction in blood loss and were able to leave the hospital more than a day earlier than the other groups.[4]

Premature Infants: Certain types of pleasurable sensory stimulation are associated with positive health and cost outcomes. Pleasurable sensory stimulation can be used to improve mood, decrease recovery time, and foster healthy growth and development. Tactile stimulation appears to be vital to infant development. In 2 randomized trials premature infants who received comforting physical contact and massage 3 times a day for 10 days had 47% greater weight gain and were discharged from the hospital 5 to 6 days earlier, resulting in savings of more than $10000 (adjusted for inflation) per infant.[5]

If the case for mind/body medicine seems so strong from both a clinical and cost viewpoint, why has there been little investment in such integration?[6] One reason is that the data are incomplete. However, even when there are good data, providers of medical and mental health services are often unaware of them. Mind/body medical interventions are often held to a higher standard of evidence than are traditional, and must justify themselves not only by improved health outcomes and quality of care, but also on the basis of cost alone. Both medical and mind/body health interventions should be judged by a similar set of criteria, and the beliefs and biases that delay the use of psychosocial interventions need to be challenged.[7]

While the health care system cannot be expected to address patients' every psychosocial need, clinical interventions should better reflect the emerging evidence on the efficacy and cost-effectiveness of mind/body interventions. Mind/body medicine is not something separate or peripheral to the main tasks of medical care but should be an integral part of evidence-based, cost-effective, quality health care.

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1. Sobel D. The cost-effectiveness of mind-body medicine interventions. In: Mayer EA, Saber CB, eds. *The Biological Basis for Mind Body Interactions, Progress in Brain Research*. Amsterdam, the Netherlands: Elsevier Science. 2000;122:393-412.
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E.A. Mayer and C.B. Saper (Eds.) *The Biological Basis of Mind Body Interactions*
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CHAPTER 28

The cost-effectiveness of mind–body medicine interventions

David S. Sobel*

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Introduction

The health care system is reeling under the impact of escalating costs, emerging expensive technologies, rising public expectations, limited access, and an aging population with multiple chronic illnesses. The effort to address these problems has focused primarily on issues of financing, regulation, and reorganization of professional health care resources. Little has been done to understand the psychosocial factors that are driving the need and demand for health care services.

Thoughts, feelings, and moods can have a significant effect on the onset of some diseases, the course of many, and the management of nearly all. Nearly a third of patients visiting a doctor develop bodily symptoms as an expression of psychological distress. Another third have medical conditions that result from behavioral choices such as smoking, alcohol and drug abuse, poor diets, etc. Among the remaining patients with medical disease such as arthritis, heart failure or pneumonia, the course of their illness can be strongly influenced by their mood, coping skills, and social support. Yet, the predominant approach in medicine is to treat people with physical and chemical treatments that neglect mental, emotional and behavioral dimensions of illness. This critical mismatch between the psychosocial health needs of people and the usual medical response leads to frustration, ineffectiveness, and wasted health care resources.

More and more studies point to simple, safe and relatively inexpensive interventions that can improve health outcomes and reduce the need for more expensive medical treatments. Far from a new miracle drug or medical technology, the treatment is simply the targeted use of mind–body and behavioral medicine interventions in a medical setting (Sobel, 1994; Sobel, 1995; Sobel and Ornstein, 1998).

By helping patients manage not just their disease but common underlying needs for psychosocial support, coping skills, and sense of control, health outcomes can be significantly improved in a cost-effective manner. Rather than targeting specific diseases or behavioral risk factors, these mind–body interventions may operate by influencing underlying determinants of health such as attitudes, beliefs, and moods that predispose toward health in general. While the health care system cannot be expected to address all the psychosocial needs of people, clinical interventions can be brought into better alignment with the emerging evidence that mind–body interventions can improve health outcomes while helping to control health care costs.

Understanding the need and demand for health care services

Most recommendations offered to reduce health care costs involve 'supply-side' strategies such as altering access to health care, improving the

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Sobel DS. The cost-effectiveness of mind-body medicine interventions. In: Mayer EA, Saper CB, eds. *The Biological Basis of Mind Body Interactions*: Progress in Brain Research. vol 122. Amsterdam: Elsevier Science, 2000: 393-412.

efficiency of services, reviewing utilization, capitating payments, decreasing practice variation, and limiting technology. Seldom is the 'demand-side' of the healthcare equation given equal consideration (Fries et al., 1993). Why do people visit the doctor in the first place? What determines the demand and need for medical services? How can the need for medical services be reduced through strategies that empower patients, strengthen mind–body coping skills and enhance their adaptation to illness?

It is often assumed that people go to the doctor because they are sick and have symptoms. But the presence or severity of symptoms accounts for a surprisingly small portion of the variability in health care use. Studies have found that only 12–25% of utilization can be predicted by objective disability or morbidity alone (Berkanovic et al., 1981). Many patients with severe symptoms are low utilizers of medical services while some with relatively minor complaints seek care often. It appears that health care seeking is a complex behavior that is influenced strongly by psychosocial factors such as individual attitudes, perceptions, cultural norms, and levels of psychosocial distress. Lynch (1993) has conceptualized the demand for health care as having four components: morbidity (the presence or absence of illness); perceived need (individuals perceptions of the severity of a given problem); patient preference (patients differ in the treatment options they choose based on their knowledge and beliefs about risks and benefits); non-health motives (patients may manipulate the system just for benefits such as time off from work).

Behavioral and psychosocial variables significantly influence the need and demand for health services (Fries et al., 1993). Unhealthy behaviors, from smoking to diet, drug use to a sedentary lifestyle, are the major contributors to morbidity. But people access the health care system for many reasons: preventive services, medical illnesses and physical diseases, psychiatric disorders, life stress and emotional distress, and information needs. Many visits to physicians are prompted by somatic symptoms which are a final common pathway through which medical illness, psychiatric disorders, and emotional distress are expressed. While 10–20% of patients presenting in a primary care setting have a diagnosable psychiatric disorder, upwards of 80% have evidence of significant psychological distress (Stoeckle et al., 1964; Barsky, 1981). Physical discomfort resulting from psychological distress is one of the more common reasons people seek medical care. A 20-year study by Cummings and VandenBos (1981) at Kaiser Permanente, a large health maintenance organization (HMO), concluded that more than 60% of all medical visits were by the 'worried well' with no diagnosable disorder. Other estimates are that 25–50% of visits to doctors are for problems primarily with psychosocial origins.

Yet the pursuit of organic etiologies and treatments more often than not falls short. Kroenke et al. (1989) analyzed the records from over 1000 patients in an internal medicine clinic followed over three years. They selected the 14 most common symptoms: chest pain, fatigue, dizziness, headache, edema, back pain, dyspnea, insomnia, abdominal pain, numbness, impotence, weight loss, cough, and constipation. In less than 16% was the probable etiology established as organic while 74% were of unknown etiology. Although only 10% were clearly identified as psychological, the authors reported that "it was probable that many of the symptoms of unknown etiology were related to psychosocial factors".

Health status, quality of life, and functional status are often better correlated with psychosocial factors than physical disease severity. Some patients with abnormal X-ray, lab, and physical impairments function quite well while others with similar physical findings are debilitated. For example, in patients with osteoarthritis of the knee, disability and pain was better predicted by the patient's levels of anxiety and depression than by the extent of anatomical damage to the knee as evidenced on radiographic studies (Salaffi et al., 1991). In patients with documented coronary artery disease, measures of anxiety and depression better predicts the patient's level of physical functioning one year after cardiac catheterization than does the severity of narrowing of the coronary vessels (Sullivan et al., 1997).

Psychosocial distress may have a greater impact on health status than many common chronic

illnesses. For example, depressive symptoms were more debilitating than diabetes, arthritis, gastrointestinal disorders, back problems, and hypertension in terms of physical functioning (e.g. ability to engage in vigorous activities, climbing stairs, walking, dressing, and bathing), role functioning (e.g. interference with work, housework, or schoolwork), and normal social functioning (Wells et al., 1989; Wells et al., 1991). Only advanced coronary artery disease resulted in more days in bed than depressive symptoms and only arthritis causes more pain. Greenberg et al. (1993) estimated the economic costs of depression to American society at a staggering $44 billion per year.

The health care system can ill afford to ignore psychosocial distress and impaired functioning in its singular focus on organic disease. Realigning health care services, and integrating mind–body approaches can help improve overall effectiveness in preventing disease, managing illness, and controlling costs.

Scope of chapter

This chapter will address the question, "What is the evidence that mind–body medicine interventions are cost-effective?" The field of behavioral interventions is quite broad. This discussion will highlight some of the most significant studies of mind–body interventions for which there is data on cost and utilization. For some of the interventions described below cost-effectiveness data is provided. For others, the potential for cost-savings must be inferred from reductions in medical or hospital utilization or decreases in other medical services. There is unfortunately an absence of data on measures of work loss, productivity, and disability which can significantly change the cost equation.

This chapter will focus on mind–body interventions that address medical problems in a clinical setting. It will not discuss interventions targeted specifically at mental health outcomes, drug and alcohol treatment, worksite health promotion, or preventive services such as screening, immunizations, and lifestyle risk reduction, all of which have significant behavioral components and can themselves yield cost savings. Further, we will focus on interventions that emphasize stress management, coping skills, biofeedback, relaxation, imagery, and other behavioral strategies that enhance self-regulation and a sense of control rather than traditional psychotherapy.

The evidence of cost-effectiveness can be sorted by condition or disease category (Sobel, 1994, 1995), presumed pathway or mechanism (Friedman et al., 1995), or by type of intervention or modality. In this chapter the discussion will be organized by type of intervention or modality: mental health interventions, group interventions, computer support, preparation for surgical and medical procedures, and sensory stimulation. In practice, however, many of the interventions combine modalities and, therefore, overlap.

Mental health treatment and consultation

Physical discomfort resulting from psychological distress is one of the more common reasons people seek medical care. Many people develop physical symptoms ranging from headaches to sleep disorders to gastrointestinal disturbances as expressions of psychological distress. Several reviews suggest that providing mental health services to address the psychosocial causes of these symptoms sometimes results in reduced medical utilization. An early meta-analysis by Mumford et al. (1984) combined results from 58 controlled studies of the impact of mental health treatments on medical utilization and costs. In 85% of the studies, after brief psychotherapy, medical utilization decreased from 10–33%. Hospital length of stay was down on average by 1.5 days. The costs of the mental health treatment were more than offset by the savings in medical care utilization.

Even when organic chronic illness is present, psychological distress can exacerbate the symptoms and interfere with effective coping. A meta-analysis by Schlesinger et al. (1983) measured the effect of mental health treatment on patients with one of four chronic diseases – chronic lung disease, diabetes, ischemic heart disease, and hypertension. By the third year following diagnosis, those who had seven or more outpatient

mental health visits a year beginning within 12 months of their diagnosis had overall lower cost for medical services – specifically inpatient services. The savings from reduced medical utilization often appears to offset the additional cost of the mental health services – a finding that has been called "the medical cost-offset effect" (Von Korff et al., 1990; Cummings et al., 1993).

These cost-saving results are echoed in the findings of a more recent study of the Medicaid population in Hawaii (Pallak et al., 1995). Over 1000 high-utilizing Medicaid patients were followed over a 3.5-year period. The group initially used medical services at a rate 2.5 times greater than an employed comparison group.

All enrollees were eligible to receive usual mental health treatment in a traditional, fee-for-service setting. About two-thirds were randomly assigned to be eligible for a special, additional managed mental health treatment benefit. This focused mental health treatment (FMHT) consisted of brief, targeted counseling with an emphasis on rapid alleviation of the principal distress rather than on more elaborate evaluation, history-taking, and long-term therapy. Patients who needed longer-term therapy appropriate to their condition received it. Specific outreach strategies were used to offer services especially to the distressed, high medical utilizers.

Four groups of enrollees were tracked: those who received no mental health treatment (No-MHT), those who received usual mental health treatment (usual MHT), those receiving the special focused mental health treatment (focused MHT), and those who received both types of mental health treatment (both MHT). Medical utilization and costs were compared for each group, 6, 12, and 18 months before and after the mental health treatments were made available. Medical costs of those not receiving any mental health treatment continued to climb throughout the study reaching a 22% increase by 18 months. Those receiving the usual MHT saw a 5% increase at six months followed by declines in costs of 12% by 18 months. Patients who received the special, focused MHT did best of all with a decline in costs of 9% at six months, 21% at 12 months, and 22% at 18 months. Those receiving both MHT demonstrated an intermediate overall decrease in medical costs of approximately 10% through the study period.

If only the patients receiving the focused MHT are compared to those receiving no MHT, the difference in medical costs is 44% at 18 months. The costs of providing the special, focused MHT were recovered in terms of reduced medical cost in just the first six months.

Access to appropriate, focused mental health treatment appears to reduce medical care costs. Addressing the emotional distress of patients, whether due to psychological problems or medical illness may decrease the utilization of costly medical services. Since nearly 80% of medical costs are accounted for by 20% of high utilizing patients, it makes health and economic sense to offer high medical utilizers the benefits of focused mental health services through referral and outreach.

Another way in which psychosocial issues of patients can be cost-effectively managed is through a brief, focused consultation. Typically the psychological specialist, often a psychiatrist, performs an evaluation of the medical patient and offers recommendations for management of the psychosocial and psychiatric problems concurrent with medical management.

For example, consider somatization, one of the most costly clinical conditions encountered in the medical care system, as illustrated in the following case:

> Mrs. G. had visited her physician nine times in the past year. Her complaints varied – dizziness, joint pain, difficulty swallowing, gaseousness and bloating, palpitations, and shortness of breath. Her physician discussed every symptom in detail, examined her carefully, and ordered appropriate laboratory tests and X-rays. Her test results and examinations were always completely normal. No physical cause or explanation was ever identified.

Mrs. G. was not imagining or faking her troubling symptoms. She was truly suffering; her life was significantly disrupted. And she is not alone. People with bodily complaints for which no physical cause can be found are an estimated 20% to 84% of all

patients seeking care in a general medical setting. Many of these patients suffer from somatization with recurrent unexplained physical symptoms amplified by psychosocial distress.

Somatization is quite common: an estimated one in ten people would qualify. While the symptoms are not life threatening, they can be even more disabling than many major medical conditions such as diabetes and heart disease. Somatizing patients may average up to five days per month in bed while most patients with major organically identifiable medical conditions average just one day or less.

Health care costs and use of medical services are also much higher. Somatizing patients spend more than twice as many days in the hospital. Typically fearful that their symptoms represent a serious, organic condition, they tend to move from one physician to another. Each time complex, costly tests and procedures are ordered, their belief in some elusive physical cause is reinforced. The result is often frustration for both patient and physician and a waste of vital health care resources. Most unfortunately, the patient continues to suffer.

When confronted with unexplained physical symptoms, physicians are prone to pronounce "there's nothing else that can be done". This is not actually the case; a recent report suggests that a simple intervention with physicians can significantly improve health and reduce costs.

In a study by Smith et al. (1995), 56 patients with a history of multiple unexplained somatic symptoms were identified and interviewed. Half of the patients' physicians received letters confirming the diagnosis of somatization syndrome. The physicians were advised to regularly schedule brief appointments every four to six weeks. They were encouraged to watch for signs of physical disease, but to otherwise try to avoid hospitalization, diagnostic procedures, surgery, and laboratory evaluations unless clearly indicated. Health care utilization was tracked for 2½ years before and after the consultation intervention.

After one year, the patients of the physicians receiving the consultations reported significantly improved *physical* functioning. They were better able to carry out their daily activities with less pain, distress, and limitation. In fact their improvement was comparable to that of a patient with mild arthritis, back problems, diabetes, or stomach problems whose medical condition completely disappeared. No significant improvements in emotional or social functioning were noted. However, overall annual medical charges decreased $289 – a 33% reduction in annual median charges for medical care. The savings resulted primarily from fewer days in the hospital.

Group behavioral medicine interventions

In addition to individual psychotherapy, counseling, and consultation, group interventions for medical problems have been developed and evaluated. These behavioral medicine groups are typically based on an educational model, helping patients gain new information as well as learn and practice new psychosocial coping skills such as relaxation, imagery, cognitive restructuring, communication, and physical reconditioning. Some examples that follow demonstrate the potential for health improvement and cost-effectiveness.

Psychosomatic complaints and stress-related disorders

One study at the Harvard Community Health Plan focused on high utilizing primary care patients who experienced physical symptoms with significant psychosocial components (Hellman et al., 1990). The study investigated the effectiveness of behavioral medicine group interventions aimed at helping patients change their attitudes, beliefs, and moods. The interventions focused on the mind–body relationship and offered patients educational materials, relaxation-response training, and awareness training. They included special techniques for recognizing and changing distressing thought patterns. These groups were compared with a randomized control group receiving only information about stress management. The behavioral medicine groups met once a week for six weeks in 90-min sessions in which the skills were practiced. The information-only group held just two 90-min sessions, two weeks apart.

Patients in the information-only group experienced no significant changes in physical symptoms, levels of psychological distress and number of

visits to the HMO before and after treatment. After six months, patients in the behavioral medicine groups reported less physical and psychological discomfort and each had roughly two fewer visits to the health plan than the patients did in the control group. The estimated net savings to the HMO above the cost of the intervention for the behavioral medicine patients was $85 per participant over the six-month follow-up.

Heart disease

The usual management of patients with known coronary artery disease focuses on cholesterol reduction, blood pressure management, smoking cessation, exercise, heart medications, and sometimes angioplasty or bypass surgery. But stress management and relaxation should also be considered in reducing heart disease risk and costs.

A meta-analysis of 23 randomized controlled trials by Linden et al. (1996) evaluated the additional impact of psychosocial treatment as part of rehabilitation for documented coronary artery disease. The psychosocial treatments included group psychotherapy, relaxation, individual therapy, cognitive-behavioral therapy, stress management, music therapy, and group education. Patients who received such psychosocial treatments showed reduced risk of mortality and recurrence by 70–84% during the first two years. The addition of psychosocial treatments also reduced psychological distress, systolic blood pressure and cholesterol levels.

A recent study of patients with heart disease found that relaxation, lowering hostility, and helping people change the way they look at life's challenges can reduce their risk of having further heart problems by 75% compared to people given only usual medical care and medications. Reducing stress proved even more beneficial than getting exercise. In this study by Blumenthal et al. (1997) at Duke University Medical Center, 107 heart patients were randomly divided into three groups. The control group of forty patients received usual medical care. Another 34 engaged in a vigorous exercise program for 35 min three times a week for 16 weeks in addition to their usual medical care. And 33 patients along with their usual care from physicians also participated in a stress management program that included weekly group sessions, educational information on heart disease and stress, and muscle relaxation practice and biofeedback. Patients were taught skills to monitor automatic irrational thought patterns and to develop alternative interpretations of situations and thought patterns. They were also instructed how to recognize signs of stress and manage moods such as anger and depression.

The patients' medical records were tracked for the next two to five years for heart attacks, bypass surgery, and angioplasty. In the control group that received usual medical care, 30% had additional heart trouble compared to 21% in the exercise group (not significantly different from usual care). But the stress management group showed a marked difference – only 10% had further heart problems. This translates into roughly one-quarter the cardiac risk compared to those not receiving the additional psychological skill training. Using these data, we can project the costs and benefits of the stress management intervention. The estimated cost of the stress management intervention is $300 per participant and the estimated savings from avoided nonfatal myocardial infarctions, coronary artery bypass grafts, and angioplasties is about $2100 per patient yielding an estimated 7:1 return on investment. The stress management training also resulted in lower levels of psychological distress, less hostility, and fewer episodes of ischemic chest pain.

Arthritis

Lorig and colleagues at the Stanford Arthritis Center developed a group arthritis self-management course that was designed to help patients cope better with the pain, disability, fear and depression often associated with arthritis. The group program consisted of six weekly two-hour sessions attended by patients and their families and led by instructors, many of whom had arthritis themselves. They learned basic information about the pathophysiology and treatment of arthritis, strengthening and endurance exercises, relaxation techniques, joint protection, nutrition, and the interrelationship of stress, pain, and depression.

Compared to a control group (who had to wait four months before beginning the course), the participants demonstrated significantly greater knowledge, self-management behavior, and less pain. But why? The usual assumption would be that knowledge increased, leading to behavior change (e.g. they performed more exercise and practiced the cognitive pain management techniques) and which then resulted in improved health outcomes (e.g. reduced pain). The data, however, did not support this conclusion (Lorig et al., 1989). The people who improved clinically were not necessarily the ones who knew more about arthritis or changed their behaviors. What did predict those who would improve? Careful interviews with participants suggested that those who improved had a positive outlook and felt an enhanced sense of control regarding their arthritis. Those who failed to improve, even if they exercised, practiced cognitive pain management, or changed their diet, felt "there was nothing they could do about their arthritis".

The key difference appeared to be the person's perception of his or her owns capability to control or change arthritis symptoms. This perception of self-efficacy reflects a person's own judgment and conviction that he or she can perform a specific action. The critical feature is the person's belief in his or her capacity, not what skills or capacities the person actually has. With regard to the improvement in arthritis symptoms, the best predictor was how likely the person thought he or she would be to improve. The arthritis self-management classes were accordingly reorganized to maximize this sense of self-efficacy. The participants were encouraged to set their own goals, breaking them down in very small achievable steps to ensure success. Feeling confident that one is able to walk up two steps may be more helpful than being able to walk up a whole flight but thinking oneself incapable of doing so. Successfully changing a self-selected behavior, any behavior, becomes a means to foster a sense of increased confidence. It may not matter as much what behavior a person changes, as long as they are successful.

At four-year follow-up participants in the arthritis self-management program experienced a marked increase in self-efficacy, a 19% reduction in pain, and a 43% decrease from baseline in physician visits. The improvements in symptoms were significantly correlated with perceived self-efficacy. The cost of the intervention was $54 per person. Based on the reduced physician visit rates, adjusted four-year health care savings were $648 per person with rheumatoid arthritis and $189 per person with osteoarthritis. Given these figures, if only 1% of the patients in the United States with moderate-to-severe osteoarthritis of the hand (103 000) and only 1% of the patients with classical or definite rheumatoid arthritis (21 000) participated in the group arthritis self-management program, total discounted savings over four years would equal $19.5 million for osteoarthritis and $13.6 million for rheumatoid arthritis (Lorig et al., 1993; Kruger et al., 1998).

Chronic disease self-management

Four out of five people over the age of 65 have one or more chronic conditions. Chronic diseases such as heart disease, diabetes, arthritis, and chronic lung disease account for 90% of all illness, 80% of all deaths, and 70% of all health care dollars.

The promising findings from the Arthritis Self-Management Program described above have been extended in the Chronic Disease Self-Management Program developed by the Stanford Patient Education Research Center and Kaiser Permanente Northern California. The groups are comprised of patients with one or more chronic diseases such as heart disease, lung disease, stroke and arthritis. The intervention consists of a patient self-management handbook (Lorig et al., 1994) and seven weekly two-hour small group sessions led by lay leaders most of whom themselves have chronic conditions. The focus of the group sessions is not on the specific diseases or conditions. Rather, it is on the shared determinants of functioning and living well with a chronic condition. The program content concentrates on patient's perceived needs and self-management options for common problems and symptoms such as pain, fatigue, sleeping problems, anger and depression which cut across specific diagnoses. Patients learn skills to maximize their functioning and ability to carry out normal daily activities. Relaxation and imagery are taught and

practiced within the group sessions. They also learn how to manage the emotional changes brought about by illness such as anger, depression, uncertainty about the future, changed expectations and goals, and isolation.

A significant part of learning and benefit comes from being able to share and help other patients, which reduces a sense of isolation and shifts the focus from one's own problems to helping others. Even patients with high levels of social support may feel isolated within their life role as a person with a chronic disease. The group interaction also improves the participant's sense of their own capabilities by putting their disabilities in perspective through the process of social comparison – "Things could be worse, I could have. . ."

Rather than providing solutions for problems, the sessions are highly interactive involving practice and feedback in decision-making and problem-solving skills. Similarly, the focus is on increasing patients' self-efficacy and confidence in their ability to manage their condition. Patients also develop skills to enhance physician/patient partnership by monitoring and accurately reporting changes in their condition and actively sharing concerns, questions, and treatment preferences. While health professionals are primarily responsible for medical management of the disease, the patient is primarily responsible for the day to day management of the illness. In the domain of living with a chronic disease the patient becomes the expert.

The desired outcomes of the intervention focus on quality of life, functional status, emotional well being, and health care utilization rather than disease specific outcomes or prescribed health behaviors. In a randomized clinical trial of 952 patients, those participating in the course when compared to wait-listed controls demonstrated significant improvements at six months in weekly minutes of exercise, communication with physicians, frequency of use of cognitive symptom management strategies, self-reported health, health distress, fatigue, disability, and social/role limitations. They also had fewer hospitalizations and spent on average 0.8 fewer nights in the hospital. Assuming a cost of $1000 per day of hospitalization, the health care expenditure savings (savings in hospital nights minus $70 in program costs) approximated $750 per participant – more than 10 times the cost of the group program (Lorig et al., 1999).

Chronic pain

Every year, millions of people with chronic pain make repeated visits to doctors at great expense to themselves and the health care system. They hope for a definitive diagnosis, relief from pain, and improved function. They are often disappointed.

A systematic behavioral group program designed to help people cope with the physical and psychological stress of chronic pain appears to make a difference – at a fraction of the cost of the unproductive medical visits. One study by Caudill et al. (1991) focused on the effects of a group intervention with 109 patients who had been living with chronic pain for an average of 6.5 years. Their pain conditions included headaches, backaches, stomachaches, and neck pain. The patients attended a 90-min group meeting led by a physician and psychologist once a week for 10 weeks.

During the 10 sessions, patients learned about the physiology of pain, medical and behavioral treatment approaches, the relaxation response, yoga-type exercises, communication skills, goal-setting strategies, problem-solving skills, and how to avoid distress-producing thoughts (Caudill, 1995). Homework entailed keeping daily pain diaries, assessing medication use, practicing the relaxation response, listening to a relaxation audiotape, and scheduling pleasurable activities.

In reviewing patients' status and clinic visits one year before the program and one to two years after, it became apparent that behavioral intervention did not make the pain go away but did decrease negative psychological symptoms such as anxiety, depression, and hostility. Furthermore, clinic visits decreased by 36% in the first and second year after the program. The program cost about $1000 per group. However, the net savings in clinic visits alone was estimated to average $110 per patient in the first year and an additional $210 per patient in the second year after the behavioral intervention. And these estimates do not include savings from reductions in prescription drugs and 'reassuring' diagnostic tests.

Cancer

There is little doubt that psychosocial support groups for patients with cancer can reduce emotional distress and pain, and enhance coping and quality of life. But whether these interventions can influence physical health – i.e. decrease cancer progression, recurrence, and survival – is still actively debated (Spiegel et al., 1991; Spiegel, 1993).

A study by Fawzy et al. (1993) at UCLA provides additional evidence for the impact of psychoeducation on cancer survival. The study involved 68 patients with malignant melanoma all receiving standard initial surgical treatment. Half were randomized to a control group while the other received, within several months of original diagnosis and initial surgical treatment, a structured psychiatric group intervention. Groups of seven to ten patients met in 90-min sessions once a week for six weeks to focus on four components: (a) education about melanoma, sun protection, and healthy nutrition; (b) stress management, including personal stress awareness and relaxation techniques; (c) coping and problem-solving skills; and (d) psychological support from staff and other patients.

At six months, the group of participants had improved coping ability, reduced psychological distress, and improved immune function. The most striking results appeared six years after the initial diagnosis and treatment. Only three of the 34 patients in the psychosocial group died, compared to ten of 34 in the control group – a 60% reduction in death rate. The group patients also tended to have fewer instances of recurrence – just seven of 34 experienced recurrence compared to 13 of 34 control patients.

The costs and savings of this psychoeducational group intervention have not been calculated. However, savings would be likely since managing recurrences and deaths from malignant melanoma is extremely costly while the estimated cost of a 6-week, time-limited intervention is comparatively low.

There are a number of possible explanations for these positive results. Intervention may have fostered improved health habits – more careful sun protection, better nutrition, and regular exercise. Effective coping may have improved physician-patient communication and adherence to treatment and follow-up regimens. Patients may have learned to manage stress more effectively through problem solving, changing attitudes towards minor daily stressors, or altering their physiological response to stress through relaxation techniques. Group patients also received a great deal of social support. They could express their feelings freely to an understanding and sympathetic audience and hear how others were dealing with the same disease. Survivors also showed more active coping skills. They attempted to change some aspect of their illness with exercise, relaxation techniques, and regular follow-up visits with their physicians. Those patients who used avoidance coping such as avoiding others, hiding feelings, or refusing to think about their illness tended to have more recurrence and lower survival rates.

The study revealed one unexpected finding. Patients who reported *higher* levels of emotional distress at the time of diagnosis and treatment had *lower* rates of recurrence and death. The highest risk patients were those who minimized and expressed little distresses. Distress in the face of life-threatening illness is appropriate and may help motivate patients to mobilize coping resources and behaviors. Denial may be helpful immediately after diagnosis, but persistent denial may interfere with this essential mobilization process. These findings suggest the need to tailor intervention strategies to the specific psychosocial needs of patients. Patients with high emotional distress but low active coping need help to improve their coping skills. Those with high distress and high levels of coping need reinforcement of the positive role of distress. The most difficult challenge will be designing interventions for the highest risk patients – those with low levels of distress and coping. These patients are the least prepared to deal with life-threatening disease. They are also least likely to see the need for psychosocial interventions.

Group visits and group appointments

Most medical care today is provided via the brief, individual office visit. Clearly appropriate in some circumstances, this one-to-one model of care often

falls short of meeting patients' real needs — especially patients with multiple chronic illnesses and psychosocial problems.

The typical brief office visit rarely provides enough time to uncover psychological and social factors that may be causing symptoms or be key to the solution. There is also little time for the patient to learn about the disease and how to manage it, or for exploring how the disease may be affecting the patient's moods, emotions, and ability to function at home or work. Brief office visits do not provide much social support or the opportunity for patients to experience how others cope with day-to-day challenges. In fact, both patient and physician often emerge from traditional visits feeling time-pressured and shortchanged — a situation getting worse as pressures to reduce costs force doctors to serve more and more patients.

What if patients could have a full two-hour visit with their physician every month? And what if during that visit they could learn not only from their doctor, but also from other members of the health care team as well as from other patients with similar problems?

Scott and colleagues at Kaiser Permanente in Colorado developed and evaluated a pilot project around group appointments. The 'Cooperative Health Care Clinic' involved group meetings of approximately 20 elderly, high utilizing patients with multiple chronic conditions. The patients met once a month for two and a half hours with their personal physician, nurse case managers, as well as some of the patient's spouses, other family members, and caregivers. At some of the group appointments psychologist, social workers, health educators, and pharmacists were invited to work with the patients.

The group appointments allowed time for socializing, interactive educational sessions, extensive questions and answers, blood pressure checks, X-ray and lab test ordering, review of medications, and discussion of preventative medicine, nutrition and exercise, living wills and advance directives, stress and relaxation, coping with grief, loss, and chronic pain. Time was reserved (but not always needed) for brief, one-to-one visits with the physician for physical exams and symptom evaluation.

In the pilot evaluation the Cooperative Health Care Clinic patients when compared to a similar group of patients who continued to receive traditional, one-to-one care, were more satisfied, reported that their health care needs were better met, and appreciated the improved access to care (Scott et al., 1996). Physicians, too, were more satisfied, noting that they felt they had more time to deal with the patients and that patients were more informed, helping the physicians to better diagnose and treat their conditions.

Preventative care also improved. More group patients received influenza and pneumonia immunizations. And more group patients had completed a durable power of attorney to designate someone to make decisions on their behalf if they were too ill to do so.

Medical utilization and costs decreased. Group patients made fewer individual doctor visits, visits to the emergency room, and spent fewer days in the hospital and skilled nursing facilities. After accounting for the costs of the group program, including the project coordinator, the savings were calculated at $177 per participant per year (Beck et al., 1997).

Virtual communities and online support

The group interventions described above rely on face-to-face encounters. But can some of the benefits of group interaction and social support be achieved through the use of computers? Interactive computers can help people: (a) access exactly the information they need, 24-hours a day, seven days a week (not just during clinic hours); (b) ask questions too embarrassing to ask a health professional face-to-face; (c) deal with complicated decisions about treatment and lifestyle at their own pace; (d) electronically seek sources of support to help them deal with their emotional responses to health problems; (e) examine how others have coped with similar problems – all at their own pace, in their own homes, and with complete confidentiality.

CHESS (the Comprehensive Health Enhancement Support System) is a PC-based computer system designed to support people facing life-threatening illnesses (including breast cancer, HIV

infection, heart disease, Alzheimer's disease, and alcoholism). Computers are placed in homes of patients with recently diagnosed conditions. At their own convenience, patients can access timely, comprehensible information about their disease and take advantage of a variety of non-threatening and anonymous support opportunities.

They can read brief answers to hundreds of commonly asked questions, detailed articles about their health problem and descriptions of services available. They can ask questions of experts anonymously and receive confidential responses. They can read real-life, personal stories of others living and coping with similar problems and communicate directly with these people. Using problem-solving tools to monitor their health status and risk behaviors, they can think through difficult and important decisions, plan how to overcome obstacles and implement those decisions. Facilitated, online support groups also help reduce the sense of isolation and helplessness for patients and their families.

Preliminary results of the CHESS system – one of the few computer-based patient education and support programs to be evaluated scientifically– are very promising. Women with breast cancer who used CHESS noted that the system was very valuable and easy-to-use. They reported more positive emotions and fewer negative emotions. CHESS was used extensively by both older and younger women, as well as by both college- and high school-educated women (Gustafson et al., 1993).

In controlled studies over a six-month period, HIV-infected men and women used the system an average of 132 times per person (more than once a day on average) for an average total of 39 hours per person. Minority subjects used CHESS as much as Caucasian subjects (Gustafson et al., 1994). Compared to controls, CHESS users reported significantly improved quality of life: improved mental functioning, more social support, less negative emotion, more active participation in their health care, and, in general, a more active life. While the number of outpatient visits did not decrease, CHESS users reported spending 15% (6.5 minutes) less time during visits and having 47% (or 6.8) more telephone consultations. The CHESS group also reported fewer and shorter hospitalizations. The number of hospital days for CHESS subjects was 66% lower than for the control patients. Using $1454 per day for AIDS-related hospital costs, the CHESS group's costs were $483 higher per month before the trial began, $728 per month lower during the implementation, and $222 per month lower after implementation (Gustafson et al., 1999). These savings would more than offset the cost of providing such services especially with the emergence of Internet-based applications.

Computer systems can go beyond delivery of information to provide decision support and emotional support by connecting people with others who share a similar life experience. And well-designed computer systems such as CHESS may measurably improve health status and reduce health care costs.

Preparation for surgical and medical procedures

Surgery, childbirth, and other medical procedures offer excellent opportunities to measure the value of mind–body interventions. The speed of recovery and length of hospital stay or treatment is influenced by many factors including how well the patient is prepared to deal with the psychological impact of the procedure.

Surgery

A meta-analysis by Devine (1992) was carried out on 191 studies conducted between 1963 and 1989 of the effects of psychoeducational interventions on the recovery, postsurgical pain, and psychological distress of adult surgical patients. The operations in these studies were both minor and major, including abdominal (gall bladder, bowel, or gastric) and thoracic (heart and lung). The interventions were in three broad categories: (1) health care information – details about what would be done before and after surgery, timing of the various procedures and activities, and the functions and roles of various health care providers. (2) Skill building exercises

for coughing, breathing and relaxation. (3) Psychosocial support – identifying and attempting to alleviate patient concerns, providing reassurance, encouraging patients to ask questions throughout hospitalization and shaping specific expectations of recovery.

Nearly 80% of the studies indicated beneficial effects from the various interventions. Length of stay was decreased by an average of 1.5 days even in the studies conducted during the late 1980s when changes in hospital reimbursement had already increased the pressure to shorten hospital length of stay.

Additional studies by Bennett and colleagues at the University of California, Davis, suggest that an important component of psychological preparation for surgery involves boosting confidence by giving patients specific, positive physiological suggestions. In one study, blood loss was reduced by 50% in patients given specific verbal instructions to control blood flow during surgery compared to those given general relaxation instructions or no special preparation (Bennett et al., 1986). The significant reduction in blood would be anticipated to reduce the risks and costs of transfusions in some of the patients.

A follow-up study of 40 patients undergoing abdominal surgery found that giving patients specific verbal suggestions before major operations can influence physiological recovery, and possibly, length of stay (Drisbow, 1993). In this randomized trial, one group was given a 5-min presentation of general pre-op instructions and reassurance while the experimental group patients received 5-min of specific instructions, suggestions, and imagery about restoring bowel function. Patients receiving specific suggestions reported passing first gas after only 2.6 days compared to 4.2 days for the control patients. Another measurement of the return of bowel function, length of time until first meal, also favored the preoperative suggestion group. Though not statistically significant, the experimental group was also discharged from the hospital in 6.5 days on average, that's 1.5 days earlier than the control group. If these trend results are found significant with a larger group of patients, the projected savings from these brief verbal instructions would be over $1000 per patient.

In a larger study Bennett conducted a randomized, placebo-controlled, double blind clinical trial of 335 surgical patients (Bennett, 1996). Patients were given one of four different audiotapes to listen to before and during surgery and compared to a placebo group that listened to a tape with a neutral white noise sound. Only one of the experimental tapes produced statistically significant benefits. This tape contained guided imagery, music, and specific suggestions of diminished blood loss and rapid healing. With this tape blood loss was reduced 43% and hospital length of stay was reduced by over a day resulting in considerable savings.

Psychological support provided after surgical procedures may also speed recovery and reduce hospital costs. A study at Mount Sinai Medical Center in New York and Northwestern Memorial Hospital in Chicago evaluated psychiatric screening and consultation for 452 patients 65 years or older admitted for surgical repair of a fractured hip (Strain et al., 1991). These interventions led to early detection of psychiatric problems, better psychological care, and earlier hospital discharge by nearly two days on average. The psychiatric intervention resulted in cost savings of nearly $1300 per patient.

Childbirth

Cesarean section is the most common surgical procedure performed in the United States, affecting about one in every five deliveries. Delivery by C-section extends the hospital stay of mother and child and increases the risk of maternal infection and other complications.

Five studies conducted in Guatemala, Canada, the United States, and South Africa have confirmed that the continuous presence of a supportive female during labor and delivery can reduce the need for C-section, shorten labor and delivery, and reduce perinatal problems (Klaus et al., 1992). In all cases, the mothers were healthy women with a normal pregnancy giving birth for the first time. The intervention was a doula – a trained lay person who provided emotional support consisting of praise,

reassurance, physical contact (such as rubbing the mother's back or holding her), explanations of what was happening, and a continuous presence. Though far from ideal, in these studies the women in labor met their doulas for the first time only after they were admitted to the hospital.

One of these studies took place at Jefferson Davis Hospital in Houston, Texas. Participants were divided into three groups: a control group, an observed group to measure the potential supportive effects of a passive observer, and a group actively supported by doulas (Kennell et al., 1991). Of the 204 patients in the control group, 18% had C-sections and of the 212 in the group supported by doulas only 8% had C-sections – a reduction of 56%. The presence of a doula also resulted in other benefits. Epidural anesthesia was reduced by 85%. Labor was an average of 2 h shorter. And only half as many babies required more than 48 hours hospitalization because of neonatal problems.

A meta-analysis of five doula studies showed that the presence of the doula reduce the length of labor by 25%; the odds of having a C-section by 34% to 67%; and the odds of needing analgesia by 1% to 47%, oxytocin by 43% to 68%, and forceps by 35% to 82% (Klaus et al., 1992). The cost savings from reduced surgical and anesthesia procedures as well as reduced hospitalization would greatly exceed the $200 cost of providing continuous emotional support from a doula.

Phototherapy and mindfulness meditation

The skin has long been known as an organ that responds to emotional stress and psychological interventions. A variety of skin conditions appear to worsen in times of stress and stress even appears to slow wound healing. Warts appear to respond to hypnosis and suggestion. Now new evidence suggests a new link between mind and skin: using meditation and guided imagery can speed healing in patients with psoriasis.

Psoriasis involves an epidermal hyperproliferation resulting in uncomfortable, itchy, disfiguring thickened patches of skin. The cause is unknown but appears to involve an abnormal cutaneous immunologic/inflammatory response. Psychological distress has been linked to the severity of the psoriasis in many patients. The treatment for patients with extensive skin lesions often involves phototherapy: repeated exposure to ultraviolet light. Hypnosis, biofeedback, meditation, relaxation, and psychotherapy have also been tried with some success but never formally tested in a carefully controlled clinical trial.

In a recent study, Kabat-Zinn et al. (1998) 37 patients with moderate to severe psoriasis were scheduled to begin phototherapy. Half were randomly assigned to listen to a stress-reduction audiotape during their phototherapy sessions. The other half did not listen to any tapes during their treatment sessions. Phototherapy consists of three sessions a week in which the patients stand naked, with eyes shielded in four-foot diameter cylindrical booth. They are exposed to increasing dosages of ultraviolet light starting with 30 s exposure and gradually increasing to 10–13 min of treatment. The patients are usually treated until the skin lesions significantly clear. Treatment is typically completed in approximately 40 sessions over a three to four month period.

The instructions on the tape included guidance in mindfulness meditation. This consists of developing moment-to-moment, non-judgmental awareness of breathing and skin sensations such as warmth from the lights and air currents. In later sessions, the tapes instructed the patients to visualize the UV light slowing down the growth and division of skin cells. After 20 sessions, patients in the tape group were offered the option of listening to a tape of harp music while meditating during the phototherapy sessions. Patients in the tape group were specifically asked not to meditate outside of the light therapy sessions and were not permitted to take the tapes home.

The rate of improvement of the skin lesions was measured for patients in the tape and no-tape groups. Those patients who listened to the audiotape guided meditation reached the 'halfway clearing point' and 'clearing point' of the skin lesions significantly quicker than those in the no-tape group did. For example, the estimated time to achieve a 50% likelihood of clearing was 30–40 days sooner among those listening to the tapes.

While no formal cost analysis was performed, savings can be anticipated by reducing the number of phototherapy sessions by an estimated 10–12 sessions with a low-cost audiotape intervention. The reduction in the number of phototherapy sessions also reduces the amount of exposure to the UV light and may yield a reduction in the risk of skin cancer developing in the future.

This study provides a model for demonstrating the effects of mind–body interventions. Psoriasis represents a specific disease process that can be readily observed and measured. The clinically improvements in skin clearing demonstrate the effect of a psychological intervention on physiological, cellular and immune processes—not just subjective improvements in reported symptoms or health status. Given that phototherapy and the audiotaped, guided meditation are performed in isolation, the potent effects of social support are minimized. Therefore, the improvements can be attributed with more confidence to the meditation and visualization. One caution: since the control group did not listen to placebo instructional or music audiotapes, the study cannot exclude the possible role of expectancy effects such as the positive anticipation of improvement with those assigned to listen to the taped vs. possible disappointment for those in the control group. However, these findings provide a clear illustration of how mind–body techniques can be used as a valuable adjunct to enhance and complement conventional medical treatments.

Sensory stimulation

Many 'mind–body' interventions rely primarily on mental and cognitive techniques to influence physiological states and symptoms. However, symptoms and mental states can also be influenced by changing the body. For example, certain types of pleasurable sensory stimulation are associated with positive health and cost outcomes (Ornstein and Sobel, 1989; Warburton and Sherwood, 1996).

Pleasurable sensory stimulation can be used therapeutically to improve mood, speed recovery, and foster healthy growth and development. For example, tactile stimulation appears to be a vital ingredient for infant development. In two randomized trials premature infants who received comforting physical contact and massage three times a day for ten days had 47% greater weight gain and were discharged from the hospital five to six days earlier, saving over $10 000 (adjusted for inflation) per infant (Field et al., 1986; Scafidi et al., 1990).

Visual stimulation, in particular looking at nature, can also have health benefits. When people are shown slides of natural scenes, they say they have more positive feelings such as friendliness and elation. They also have fewer feelings of sadness and fear than when they look at man-made urban scenes. Compared to cityscapes, images of natural habitats such as lakes, trees, and vegetation produce lower blood pressure, less tension, more relaxation and a quicker recovery from stressful events. Ulrich (1984) studied the impact of viewing nature with patients recovering from surgery. Half the patients had hospital rooms with a window looking out onto a small stand of trees while the matched controls had a view of the brown brick wall of another wing of the hospital. Patients with a view of nature showed less postoperative distress, required less of the stronger pain medications, developed fewer postoperative complications, and spent nearly one day less in the hospital (a 12% reduction). The cost savings from such a reduction in postoperative length of stay are considerable.

Mind–body mechanisms: behavior, mind and mood matters

The mind–body interventions described above cover a wide-range of modalities: from individual counseling and consultation to social support and group interventions, from print and 'bibliotherapy' to audiotapes and interactive computers, from imagery and relaxation to cognitive restructuring and sensory stimulation. Yet all appear to influence health and cost outcomes.

There are several different pathways by which such varied mind–body interventions might act (Friedman et al., 1995). These include:

- *An Information and Decision-Support Pathway* to empower patients with safe, effective self-care and self-management strategies.
- *A Psychophysiological Stress Response Pathway* to decrease the chronic, inappropriate physiological stress response that creates symptoms.
- *A Lifestyle or Behavior Change Pathway* to support successful behavior change strategies to decrease health-damaging behaviors and increase health-promoting behaviors.
- *A Social Support Pathway* to increase perceived levels of social support and reduce social isolation.
- *A Psychiatric Disorder Pathway* to improve the detection and treatment of unrecognized psychiatric conditions.
- *A Somatization Pathway* to identify physical symptoms that are expressions of emotional distress and help patients develop alternative coping strategies.

Any of these mechanisms may, singly, or in combination, provide a mechanism by which mind–body interventions can improve health outcomes while reducing medical utilization and costs.

When behavioral issues are considered within mainstream medical care it is usually within the context of trying to change unhealthy behaviors that contribute to disease and disability. Patients are encouraged to stop smoking, curtail alcohol consumption, take their medications, practice safer sex, eat a low-fat diet, exercise, and so on. This focus on behavior change and risk reduction makes sense since all these lifestyle factors, and others, have been associated with health outcomes. However, the link between changes in health behaviors and improvement in health status, especially with regard to chronic disease is not as clear as generally believed (Lorig and Laurin, 1970; Rybarczyk et al., 1999).

The impact on health status of social support, socioeconomic status, and personality disposition may influence health through mechanisms other than the usual behavioral risk factors. When other factors such as beliefs, attitudes, and emotions are considered, they are often viewed as determinants of health behaviors that in turn influence health. However, such beliefs (sense of control, self-efficacy, and optimism) may themselves have direct effects on physiological systems independent of their effects on health behaviors (Ornstein and Sobel, 1987; Bandura, 1997).

For example, a person's perceived health turns out to be one of the best predictors of future health – even better than the results of laboratory tests and medical examination. People who rate their health poorly die earlier and have more disease than their counterparts who view themselves as healthy. Even people with objective disease seem to do better when they believe themselves to be healthy than when they believe themselves ill (Idler and Kasl, 1991).

In Manitoba, Canada over thirty-five hundred senior citizens were asked at the outset of a seven-year study, "For your age would you say, in general, your health is excellent, good, fair, poor, or bad?" In addition, their objective health status was determined by reports from their physicians on medical problems and how often they required hospitalization or surgery. The results showed that those people who rated their health poor were almost three times more likely to die during the seven years of the study than those who perceived their health as excellent. Surprisingly, subjective self-reported health was more accurate in predicting who would die than the objective health measures from physicians. Those who were in objectively poor health by physician report survived at a higher rate as long as they believed their own health to be good. Nearly 15% of the people rated their health as fair or poor, even though according to the objective health measures it was excellent or good. These 'health pessimists' had a slightly greater risk of dying than the 'health optimists' who viewed themselves as healthy in spite of negative reports from their doctors. The predictive power of self-rated health was the same whether one was male or female, older or younger, urban or rural, objectively sick or well. Only increasing age appeared to have a more powerful influence on death rates than self-rated health (Mossey and Shapiro, 1982).

Another study of seven thousand adults in Alameda County in California confirmed the importance of the way a person views his or her

own health. Men with poor self-rated health were 2.3 times more likely to die than those who saw their health as excellent. For women the difference was five times greater. The importance of self-reported health remained even when health behaviors (smoking, drinking, and exercising), social ties (marriage and contacts with friends), and psychological state (happiness and depression) were controlled for (Kaplan and Camacho, 1983).

There appears to be a biology of self-confidence and a core set of attitudes, beliefs, and moods that predispose toward health in general. Variously termed hardiness (Kobasa et al., 1982), optimism (Seligman, 1990; Peterson and Bossio, 1991), self-efficacy (Bandura, 1982, 1997), sense of coherence (Antonovsky, 1987), sense of control (Rodin, 1986), sense of connectivness (Cohen and Syme, 1985; House et al., 1988), happiness (Myers, 1992), and pleasure (Ornstein and Sobel, 1989), these core factors are related to a wide range of outcomes: improved physical and mental health as well as healthier behaviors. They are also often associated with lower utilization of health care services. Interventions that target a specific disease or condition may have broader impact if these underlying attitudes, beliefs, and moods are positively impacted. So even when specific information is imparted (e.g. knowledge about fevers or asthma) or behaviors are changed (e.g. exercise regimens or use of asthma inhalers) the impact of the intervention on health outcomes, quality of life, or medical utilization may be due as much to general effects on sense of control, optimism, and mood as to changes in specific behavioral mediators.

When it comes to health promotion, a confident attitude may contribute as much or more to health than specific health behaviors. Yet, patients are often given prescriptions for behavior change – plans for new diets, exercise regimens, stress reduction techniques, etc. – that are difficult to carry out, leading to poor adherence and feelings of failure. What are the consequences of failing at a health behavior change? So much emphasis has been placed on changing lifestyles, adopting 'the good life', that what is often missed is that the feelings of success or failure may be as important or more important to health than the actual behaviors.

Barriers to integration of mind–body medicine

If the case for integrating mind–body medicine from both a clinical and cost viewpoint seems so strong, why haven't we seen more investment in such integration (Friedman et al., 1995)? One reason is that the data are incomplete (Strosahl and Sobel, 1996). Although we have highlighted some of the evidence supporting the cost-offset effect, the majority of behavioral and psychosocial interventions have never been thoroughly investigated to assess their impact on medical utilization and costs. We also lack knowledge in most cases as to what mind–body interventions are most cost effective for which patients and under what circumstances. No intervention works for everyone in every case. Admittedly, much more data is required to address the issue of specificity.

Where there is good data, often providers of medical and mental health services are not aware of it. Even when 'hard' data on cost and health outcomes are reported for 'soft' psychosocial interventions, medical professionals too often dismiss or ignore such studies. Over the past century the medical community has been focused on improving technology and clinical services. The prevailing attitudes toward the origin of disease have emphasized biological explanations.

Patients also may be resistant to psychosocial explanations and behavioral interventions. Somatizing patients, in particular, are often focused on finding a medical explanation and treatment to fix their somatic concerns. Psychosocial interventions, especially those associated with traditional psychiatric diagnoses and treatment, unfortunately still carry with them a stigmatizing shadow.

There continues to be confusion between behavioral medicine and psychotherapy (Friedman et al., 1994). Patients, third party insurers and policy makers still tend to view behavioral medicine interventions as the equivalent of psychotherapy. The traditional, long-term psychotherapy model consisting of several individual-counseling sessions per week, which can persist for several years, is likely to have quite different outcomes than the more efficient and targeted behavioral approaches

described above.

Another practical problem, which must be confronted in order to achieve maximal integration, is the issue of cost/benefit accounting and budgeting. The Strain et al. (1991) study of a psychiatric consultation-liaison intervention for post-surgical patients noted earlier is a good example of the problem. While medical costs, or more specifically, hospital costs, were reduced, the 'bottom line' for the provision of psychiatry services was increased. An important part of increasing use of psychological, or in this case psychiatric, interventions in medicine is a readjustment of accounting. It is usually the case that profits and losses are independently calculated for each clinical service. Furthermore, it is also frequently the case that insurance coverage for medical problems are handled by one company while mental health problems are handled by another. Trying to convince the latter to spend money so that the former would save money is problematic at best. Developing mechanisms for addressing these problems is critical if health policy and the delivering of health services is brought into better alignment with the underlying psychosocial and behavioral issues that determine overall medical utilization and cost.

Finally, the lack of practical tools, self-help materials, training programs and models of effective mind–body intervention has until recently slowed the adoption and dissemination of this information (Benson and Stuart, 1992; Goleman and Gurin, 1994; Lorig et al., 1994; Sobel and Ornstein, 1998; Sobel and Ornstein, 1999).

Caveat emptor: the limits of cost analysis

Many studies of psychosocial interventions have not included utilization or cost impact in their outcome analysis. Often we have to infer or project potential savings. For example, psychosocial interventions that reduce anxiety and depression, boost smoking cessation, or enhance adherence to medical regimens might be assumed to favorable impact health and cost outcomes even though utilization may not have been directly measured. For the purposes of this review, however, we have primarily drawn on examples where cost-related data is available.

The primary purpose of psychosocial interventions should be to improve health outcomes, not just reduce medical costs or utilization. While on balance, many psychosocial interventions appear to reduce overall health care costs through the 'cost-offset effect', some may very well *increase* costs. For example, by extending the life of patients with metastatic breast cancer (Spiegel et al., 1991) with a support group, the total lifetime medical costs are likely to increase. In the rush towards cost-effective interventions, we should not lose sight of the true purpose of all health care interventions – to improve the quality, and when appropriate, quantity of life. Fortunately, most of the studies described above yield both improvements in health along with cost savings.

Unfortunately, mind–body medical interventions are often held to a higher standard of evidence than other medical and surgical treatments. Not only must mind–body interventions improve health outcomes and quality of care, but they must also demonstrate cost savings. Seldom are new drugs, diagnostic tests, radiation therapy or surgical procedures challenged to justify themselves on a cost basis alone. They are often accepted even if they increase the overall costs of care. Both medical and mind–body health interventions should be judged by a similar set of criteria. Given a 'level playing field' mind–body interventions should fare quite well compared to traditional medical services in terms of health and cost-effectiveness.

Summary

Evidence is mounting that addressing the psychosocial needs of patients makes economic and health sense. If there were a drug or surgical procedure that could reduce ambulatory care visits, decrease postsurgical length of stay, reduce c-section rates, or decrease death rates from cancer, this medical intervention would be widely accepted and utilized with little hesitation. The beliefs and biases that delay and retard the use of psychosocial interventions need to be challenged (Engel, 1977; Williamson et al., 1991). This brief review of mind–body interventions suggests that health care providers can ill afford to treat patients simply as disordered machines whose health can be restored

with physical or chemical interventions alone. Indeed, a burgeoning interest in alternative and complementary medicine with a focus on non-drug, non-surgical interventions as well as the exploding field of lay literature and self-help groups suggests that many patients are ready, willing, and even demanding that mind–body health techniques be considered as part of health care (Friedman et al., 1997).

While the health care system cannot be expected to address all the psychosocial needs of people, clinical intervention can be brought into better alignment with the emerging evidence on the health and cost-effectiveness of mind–body interventions. Mind–body medicine is not something separate or peripheral to the main tasks of medical care but should be an integral part of evidence-based, cost-effective, quality health care.

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Rethinking Medicine: Improving Health Outcomes With Cost-Effective Psychosocial Interventions

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Thoughts, feelings, and moods can have a significant effect on the onset of some diseases, the course of many, and the management of nearly all. Many visits to the doctor are occasioned by psychosocial distress. Even in those patients with organic medical disorders, functional health status is strongly influenced by mood, coping skills, and social support, yet the predominant approach in medicine is to treat people with physical and chemical treatments that neglect the mental, emotional, and behavioral dimensions of illness. This critical mismatch between the psychosocial health needs of people and the usual medical response leads to frustration, ineffectiveness, and wasted health care resources. There is emerging evidence that empowering patients and addressing their psychosocial needs can be health and cost effective. By helping patients manage not just their disease but also common underlying needs for psychosocial support, coping skills, and sense of control, health outcomes can be significantly improved in a cost-effective manner. Rather than targeting specific diseases or behavioral risk factors, these psychosocial interventions may operate by influencing underlying, shared determinants of health such as attitudes, beliefs, and moods that predispose toward health in general. Although the health care system cannot be expected to address all the psychosocial needs of people, clinical interventions can be brought into better alignment with the emerging evidence on shared psychosocial determinants of health by providing services that address psychosocial needs and improve adaptation to illness.

Key words: Behavioral medicine, cost-effectiveness, psychosocial interventions, medical utilization, self-care.

INTRODUCTION

Social isolation, lower social class, and personality dispositions have been implicated in the development and/or progression of cancer, heart disease, immune dysfunction, and other chronic illnesses. Because these psychosocial factors have been linked with more than one disease, it is increasingly thought that they may operate through common physiological pathways, i.e., "disease superhighways." It seems that such psychosocial risk factors increase or decrease disease susceptibility in general by altering host resistance (1, 2). Psychological and social factors also influence adaptation to disease and illness in ways that can have a profound impact on quality of life and utilization of medical care. These findings challenge researchers, clinicians, and policy makers to consider the impact of psychosocial risk factors on disease and illness more broadly rather than focusing primarily on specific diseases (3).

This article considers some of the implications of clinical interventions that address psychosocial needs and improve adaptation to illness. Much of the current effort in health care reform has focused on issues of financing, cost containment, and access. Little is said about improving health itself or reexamining the content of care. Simply providing access to medical care that largely ignores the emerging evidence on shared psychosocial determinants of health compromises the prospect of significantly improving the public's health. At the same time, by considering psychosocial factors that create distress, prompt health care utilization, and influence successful adaptation to illness, medical care can be reshaped to improve health and quality of life in a manner consistent with controlling health care costs (4).

BEYOND MEDICAL DISEASE: UNDERSTANDING THE NEED AND DEMAND FOR MEDICAL SERVICES

As a discipline, medicine holds an implicit view of patients as mindless machines whose health can be restored by physical and chemical interventions administered by health professionals. In the acceptance of this basic assumption of medicine, efforts to

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improve health outcomes and to control costs have emphasized "supply-side" strategies, i.e., increasing limiting access to health professionals, improving ciency of services, utilization review, capitated payments, and so on. Seldom is the demand side of the equation considered. For example, why do people seek health care services in the first place? How can their demands be managed better? How can the need for medical services be reduced through strategies that empower patients and enhance their adaptation to illness (5)?

People access the health care system for many reasons: preventive services, medical illnesses and physical diseases, psychiatric disorders, life stress and emotional distress, and information needs. Many visits to physicians are prompted by somatic symptoms, which are a final common pathway through which medical illness, psychiatric disorders, and emotional distress are expressed. Although 10% to 20% of patients presenting in a primary care setting have a diagnosable psychiatric disorder, more than 80% have evidence of significant psychological distress (6, 7). The usual medical focus on identifying and treating organic causes of disease results in inappropriate responses to illness and suffering.

The pursuit of organic causes and treatments more 'en than not falls short. Kroenke et al. (8) analyzed records from more than 1000 patients in an rnal medicine clinic who were followed more than 3 years. They selected the 14 most common symptoms: chest pain, fatigue, dizziness, headache, edema, back pain, dyspnea, insomnia, abdominal pain, numbness, impotence, weight loss, cough, and constipation. In less than 16% was the probable cause established as organic; 74% had unknown etiologic factors. Although only 10% were clearly identified as psychological, the authors reported that "it was probable that many of the symptoms of unknown etiology were related to psychosocial factors."

Health status, quality of life, and functional status are often better correlated with psychosocial factors than physical disease severity. Some patients with abnormal radiographic, laboratory, and physical impairments function well; others with similar physical findings are debilitated. For example, in patients with osteoarthritis of the knee, disability and pain w better predicted by the patient's levels of anxiety and depression than by the extent of anatomical damage to the knee, as evidenced on radiographic studies (9).

Psychosocial distress may have a greater impact health status than many common chronic illnesses. For example, only advanced coronary artery disease resulted in more days in bed than depressive symptoms, and only arthritis causes more pain. Depression was more debilitating than diabetes, arthritis, gastrointestinal disorders, back problems, and hypertension in terms of physical functioning (e.g., ability to engage in vigorous activities, climbing stairs, walking, dressing, and bathing), role functioning (e.g., interference with work, housework, or schoolwork), and normal social functioning (10, 11). A recent analysis demonstrated the tremendous economic costs to society of depression—nearly $44 billion per year (12).

The health care system can ill afford to ignore psychosocial distress and impaired functioning in its singular focus on organic disease. This critical mismatch between the psychosocial health needs of people and the usual medical response leads to frustration, ineffectiveness, and wasted health care resources.

BEYOND BEHAVIOR CHANGE AND RISK REDUCTION: MIND AND MOOD MATTERS

When behavioral issues are considered within mainstream medical care, it is usually within the context of trying to change unhealthy behaviors that contribute to disease and disability. Patients are encouraged to stop smoking, curtail alcohol consumption, take their medications, practice safer sex, eat a low-fat diet, exercise, and so on. This focus on behavior change and risk reduction makes sense because all these life-style factors, and others, have been associated with health outcomes. However, the link between changes in health behaviors and improvement in health status, especially with regard to chronic disease is not as clear as generally believed (13).

The impact on health status of shared determinants such as social support, socioeconomic status, and personality disposition may influence health through mechanisms other than the usual behavioral risk factors. When other factors such as beliefs, attitudes, and emotions are considered, they are often viewed as determinants of health behaviors, which in turn influence health. However, such beliefs (sense of control, self-efficacy, and optimism) may themselves have direct effects on physiological systems independent of their effects on health behaviors (14, 15).

For example, a person's perceived health turns out to be one of the best predictors of future health; it is even better than the results of laboratory tests and

medical examination. People who rate their health poorly die earlier and have more disease than their counterparts who view themselves as healthy. Even people with objective disease seem to do better when they believe themselves to be healthy than when they believe themselves to be ill (16).

In Manitoba, Canada, more than 3500 senior citizens were asked the following question at the outset of a 7-year study. "For your age would you say, in general, your health is excellent, good, fair, poor, or bad?" In addition, their objective health status was determined by reports from their physicians on medical problems and how often they required hospitalization or surgery. The results showed that those people who rated their health poor were almost three times more likely to die during the 7 years of the study than those who perceived their health to be excellent. Surprisingly, subjective self-reported health was more accurate in predicting who would die than the objective health measures from physicians. Those who were in objectively poor health by physician report survived at a higher rate as long as they believed their own health to be good. Nearly 15% of the people rated their health as fair or poor, even though according to the objective health measures it was excellent or good. These "health pessimists" had a slightly greater risk of dying than did the "health optimists," who viewed themselves as healthy in spite of negative reports from their doctors. The predictive power of self-rated health was the same whether one was male or female, older or younger, urban or rural, or objectively sick or well. Only increasing age seemed to have a more powerful influence on death rates than self-rated health (17).

Another study of 7000 adults in Alameda County in California confirmed the importance of the way a person views his or her own health. Men with poor self-rated health were 2.3 times more likely to die than those who saw their health as excellent. For women, the difference was five times greater. The importance of self-reported health remained even when health behaviors (smoking, drinking, and exercising), social ties (marriage and contacts with friends), and psychological state (happiness and depression) were controlled (18).

It may be possible to improve health perceptions, attitudes, and beliefs through health care interventions that target the psychosocial adaptation to disease. Consider the series of experiments conducted by Lorig and colleagues at the Stanford Arthritis Center. An arthritis self-management course was designed to help patients with arthritis cope better with the pain, disability, fear, and depression often associated with arthritis (19). The program consisted of six weekly 2-hour sessions attended by patients and their families and led by lay instructors, many of whom had arthritis themselves. They learned basic information about the pathophysiology and treatment of arthritis; strengthening and endurance exercises; relaxation techniques: joint protection; nutrition; and the interrelationship of stress, pain, and depression.

The results were impressive. Compared with a control group (who had to wait 4 months before beginning the course), the participants demonstrated significantly greater knowledge, self-management behavior, and less pain. But why? The usual assumption would be that knowledge increased, behavior changed (e.g., they performed more exercise and practiced the cognitive pain management techniques), and reduced pain resulted. The problem was the data did not support this conclusion (20). The people who improved were not necessarily the ones who knew more about arthritis or changed their behaviors. What did predict those who would improve? Careful interviews with participants suggested that those who improved had a positive outlook and felt an enhanced sense of control regarding their arthritis. Those who did not improve, even if they exercised, practiced cognitive pain management, or changed their diet, felt "there was nothing they could do about their arthritis."

The key difference seemed to be the person's perception of his or her own capacity to control or change arthritic symptoms. This perception of self-efficacy reflects a person's own judgment and conviction that he or she can perform a specific action. The critical feature is the person's belief in his or her capacity, not what skills or capacities the person actually has. With regard to the improvement in arthritic symptoms, the best predictor was how likely the person thought he or she would be to improve. The arthritis self-management classes were accordingly reorganized to maximize this sense of self-efficacy. The participants were encouraged to set their own goals, breaking them down in very small achievable steps to ensure success. Feeling confident that one is able to walk up two steps may be more helpful than being able to walk up a whole flight but thinking oneself incapable of doing so. Successfully changing a self-selected behavior, any behavior, becomes a means to foster a sense of increased confidence. It may not matter what behavior a person changes, as long as they are successful.

At 4-year follow-up assessment, participants in the arthritis self-management program experienced a marked increase in self-efficacy, a 19% reduction in pain, and a 43% decrease from baseline in physician

visits. The improvements in symptoms were significantly correlated with perceived self-efficacy. The cost of the intervention was $54 per person. Based on the reduced physician visit rates, adjusted 4-year health care savings were $648 per person with rheumatoid arthritis and $189 per person with osteoarthritis. Given these figures, if only 1% of the patients in the United States with moderate-to-severe osteoarthritis of the hand (103,000) and only 1% of the patients with classic or definite rheumatoid arthritis (21,000) participated in the arthritis self-management program, total discounted savings over 4 years would equal $19.5 million for osteoarthritis and $13.6 million for rheumatoid arthritis (21).

There is a biology of self-confidence. When it comes to health promotion, a confident attitude may contribute as much or more to health as specific health behaviors. However, patients are often given prescriptions for behavior change—plans for new diets, exercise regimens, stress reduction techniques, and so forth—that are difficult to carry out, leading to poor adherence and feelings of failure. What are the consequences of failing at a health behavior change? So much emphasis has been placed on changing life-styles and adopting "the good life" that what is often missed is that the feelings of success or failure may be as important or more important to health than the actual behaviors.

BEYOND MEDICAL INTERVENTIONS: DEVELOPING COST-EFFECTIVE PSYCHOSOCIAL INTERVENTIONS

What goes on in a person's head—the thoughts and emotions—can have a dramatic effect on the onset of some diseases, the course of many, and the management of nearly all. Nearly one-third of patients who visit a doctor have bodily symptoms as an expression of psychological distress. Another third have medical conditions that result from behavioral choices such as smoking, alcohol and drug abuse, poor diets, and so forth. Among the remaining patients with medical diseases such as arthritis, heart failure, or pneumonia, the course of their illness can be strongly influenced by their mood, coping skills, and social support.

More and more studies point to simple, safe, and relatively inexpensive interventions that can dramatically improve health outcomes and reduce the need for more expensive medical treatments. Far from a new miracle drug or medical technology, the intervention is simply the targeted use of educational, behavioral, and psychological interventions in a medical setting.

These interventions require more than just providing information to patients. Education through brochures, videos, classes, self-help groups, and/or individual counseling sessions are accompanied by strategies that increase confidence, reduce isolation, and encourage patients to play an active role in their own health care. Patients' psychosocial and medical needs are addressed through stress management techniques, psychoeducation, psychotherapy, and emotional support.

Rather than targeting specific diseases, these psychosocial interventions may operate by influencing underlying, shared determinants of health. For example, there seems to be a core set of attitudes, beliefs, and moods that predispose toward health in general. Variously termed hardiness (22), optimism (23, 24), self-efficacy (25), sense of coherence (26), sense of control (27), sense of connectedness (28, 29), happiness (30), and pleasure (31), these core factors are related to a wide range of outcomes such as improved physical and mental health and healthier behaviors. They are also often associated with lower utilization of health care services. Interventions that target a specific disease or condition may have a broader impact if these underlying attitudes, beliefs, and moods are positively affected. So even when specific information is imparted (e.g., knowledge about fevers or asthma) or behaviors are changed (e.g., exercise regimens or use of asthma inhalers), the impact of the intervention on health outcomes, quality of life, or medical utilization may be due as much to general effects on sense of control, optimism, and mood as to changes in specific behavioral mediators. This seems to hold whether the intervention addresses acute illness, psychosomatic complaints, chronic disease, cancer, surgery, or childbirth. Some examples follow.

Self-Care for Minor Injuries and Acute Illnesses

Patients have been viewed primarily as passive consumers of health care and health professionals as active providers of services that improve health outcomes. The usual image of the health care system is a pyramid with subspecialty care at the top and primary care physicians at the bottom. This incomplete image of the health care system is, in reality, only the professional care segment. Professional care is just the tip of an iceberg with the much larger system of lay health care or self-care submerged

beneath the surface and hidden from view (Figure 1) (32, 33).

Consider the fact that, in any month, 75% of the general population experiences some kind of physical discomfort or symptom. Between 70% and 90% of these symptoms are self-diagnosed and self-managed without the help of health professionals (34, 35). If only 10% of these individuals were to forgo self-care and seek professional care, the demand for costly medical care would increase by nearly 50%, immediately swamping the health care system.

At the same time, it is estimated that at least 25% of physician office visits are for problems that patients could treat themselves (36). If self-care increased by even a small percentage ~~of this amount~~, such as 5%, the demand for expensive professional services could be reduced by nearly 25%. This suggests that it may be possible to improve health while reducing health care costs simply by helping patients to care for themselves, i.e., knowing when to seek professional advice and when and how to use self-care. Once consumers are viewed in their role as *providers* of care, practical and safe methods of self-care could be developed and disseminated. A vital function of the health care system then becomes increasing self-care competence and empowering patients to become active partners in health care (37, 38).

To evaluate whether self-care education affects how patients use medical services, the Rhode Island Group Health Association, a health maintenance organization (HMO), conducted a large, prospective, randomized, controlled trial. Patients were offered a self-care book, a telephone information service, and individual counseling by a trained nurse. The self-care guide contained algorithms for nearly 100 common symptoms and problems (39). It informed patients when to call a physician and when and how to provide home treatment. The telephone information service was hardly used, but the program as a whole reduced visits for minor illness by 35% while total use of ambulatory care was reduced by 17%. Furthermore, there was no evidence that the health of patients suffered as a result of following self-care information and visiting the doctor less often. The program saved $2.50 in medical costs for every $1 spent on self-care education (40).

Fever is the chief complaint in nearly 25% of all acute pediatric office visits. A study was conducted at Kaiser Permanente in Southern California to determine whether an office health education program designed to increase knowledge, skills, and sense of confidence about fever in children could affect how parents use medical care (41). In this randomized clinical trial, 500 families who visited the doctor with a feverish child younger than 13 years old were divided into two groups. Only one group was shown a 10-minute slide presentation on fever called "Fever in Children: Fears & Facts." This audiovisual presentation addressed not only the factual information deficit but sensitively redirected the fear and emotional responses of parents with a sick child. Participants in both groups were seen individually by a physician. All were given a pamphlet covering all the major points of the slide presentation and had the opportunity to ask questions triggered by the pamphlet. Over the 8-month follow-up period, the group that watched the audiovisual presentation made 35% fewer visits for fever and 25% fewer visits for all acute illnesses than the group that only received a pamphlet. Clearly, informing and reassuring parents with an innovative audiovisual approach had a significant impact.

People are not just consumers of health care, they are the true primary care providers in the health care system. Increasing the confidence and skills of these primary care providers can make health and economic sense.

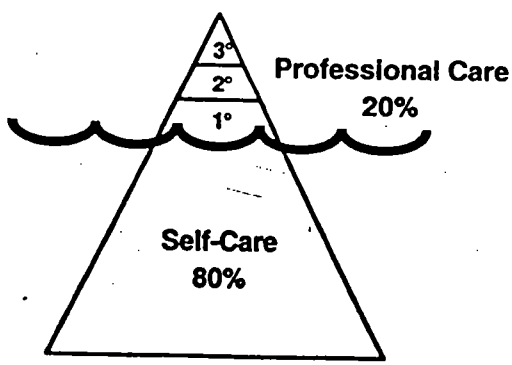

Fig. 1. The hidden health care system.

Psychosomatic Complaints and Stress-Related Disorders

Physical discomfort resulting from psychological distress is one of the more common reasons why people seek medical care. A 20-year study at Kaiser Permanente concluded that more than 60% of all medical visits were by the "worried well" with no diagnosable disorder (42). Other estimates are that 25% to 50% of visits to doctors are for problems primarily with psychosocial origins.

Many people have physical symptoms ranging from headaches to sleep disorders to gastrointestinal

disturbances as expressions of psychological distress. Several reviews suggest that providing mental health services to address the psychosocial causes of these symptoms sometimes results in reduced medical utilization (43, 44). The savings from reduced medical utilization often seems to offset the additional cost of the mental health services—a finding that has been called "the medical cost-offset effect" (45, 46).

One study at the Harvard Community Health Plan focused on high-utilizing primary care patients who experienced physical symptoms with significant psychosocial components (47). The study investigated the effectiveness of behavioral medicine interventions aimed at helping patients change their attitudes, beliefs, and moods. The interventions focused on the mind/body relationship and offered patients educational materials, relaxation-response training, and awareness training. They included special techniques for recognizing and changing distressing thought patterns. These groups were compared with a randomized control group that received only information about stress management. These behavioral medicine groups met once a week for 6 weeks in 90-minute sessions in which the skills were practiced. The information-only group held just two 90-minute sessions 2 weeks apart.

Patients in the information-only group experienced no significant changes in physical symptoms, levels of psychological distress, and number of visits to the HMO before and after treatment. After 6 months, patients in the behavioral medicine groups reported less physical and psychological discomfort and had roughly two fewer visits to the health plan than did the patients in the control group. The estimated net savings to the HMO above the cost of the intervention for the 46 behavioral medicine patients was $85 per participant over the 6-month follow-up.

Chronic Pain

Every year, millions of people with chronic pain make repeated visits to doctors at great expense to themselves and the health care system. They hope for a definitive diagnosis, relief from pain, and improved function. They are often disappointed.

A systematic behavioral group program designed to help people cope with the physical and psychological stress of chronic pain seems to make a difference—at a fraction of the cost of the unproductive medical visits. One study focused on the effects of a behavioral intervention with 109 patients who had been living with chronic pain for an average of 6.5 years (48). Their pain conditions included headaches, backaches, stomachaches, and neck pain. The patients attended a 90-minute group meetings led by a physician and psychologist once a week for 10 weeks.

During the 10 sessions, patients learned about the physiology of pain, medical and behavioral treatment approaches, the relaxation response, yoga exercises, communication skills, goal-setting strategies, problem-solving skills, and how to avoid distress-producing thoughts. Homework entailed keeping daily pain diaries, assessing medication use, practicing the relaxation response, listening to a relaxation audio tape, and scheduling pleasurable activities.

In reviewing patients' status and clinic visits 1 year before the program and 1 to 2 years after, it became apparent that behavioral intervention did not make the pain go away but did decrease negative psychological symptoms such as anxiety, depression, and hostility. Furthermore, clinic visits decreased by 36% in the 1st and 2nd year after the program. The program cost about $1000 per group or $11,000 for all 109 patients. However, the net savings in clinic visits alone was estimated to average $110 per patient in the 1st year and an additional $210 per patient in the 2nd year after the behavioral intervention. These estimates do not include savings from reductions in prescription drugs and "reassuring" diagnostic tests.

Given the potential of such interventions to reduce patient suffering and costly, unnecessary, and potentially harmful medical treatments, it is unfortunate that so few patients receive this type of treatment for chronic pain.

Chronic Disease

The promising findings from the Arthritis Self-Management Program described earlier are now being extended in the Chronic Disease Self-Management Program to mixed groups of patients with a variety of chronic diseases such as heart disease, lung disease, stroke, and arthritis. This collaborative, 5-year trial is sponsored by the Stanford Patient Education Research Center and Kaiser Permanente Medical Care Program in Northern California. The intervention consists of a patient self-management handbook and seven weekly 2-hour small group sessions led by lay leaders, many of whom have one or more chronic conditions (49). The focus of the group sessions is not on the specific diseases or

conditions. Rather, it is on the shared determinants of functioning and living well with a chronic condition. The program content concentrates on patient's perceived needs and self-management options for common problems and symptoms such as pain, fatigue, sleeping problems, anger, and depression, which cut across specific diagnoses. Patients learn skills to maximize their functioning and ability to carry out normal daily activities. They also learn how to manage the emotional changes brought about by illness such as anger, depression, uncertainty about the future, changed expectations and goals, and isolation. Even patients with high levels of social support may feel isolated within their life as a person with a chronic disease. Group sharing helps reduce feelings of isolation. The group interaction also improves participants' sense of their own capabilities by putting their disabilities in perspective through the process of social comparison, i.e., "things could be worse, I could have. . . . "

Rather than providing solutions for problems, the sessions are highly interactive, involving practice and feedback in decision-making and problem-solving skills. Similarly, the focus is on increasing patients' self-efficacy and confidence in their ability to manage their condition. Patients also develop skills to enhance physician/patient partnership by monitoring and accurately reporting changes in their condition and actively sharing concerns, questions, and treatment preferences. Although health professionals are primarily responsible for medical management of the disease, the patient is primarily responsible for the day to day management of the illness. In the domain of living with a chronic disease, the patient becomes the expert.

The desired outcomes of the intervention again reflect a focus primarily on quality of life, functional status, emotional well-being, and health care utilization rather than just disease-specific outcomes or prescribed health behaviors. The preliminary results from this 5-year study are encouraging (50). Despite modest increases in disability (i.e., the chronic diseases continue to progress), patients tend to report less distress, increased confidence, and fewer days of hospitalization.

Cancer

There is little doubt that psychosocial support groups for patients with cancer can reduce emotional distress and pain and enhance coping and quality of life. Whether these interventions can influence physical health, i.e., decrease cancer progression, recurrence, and survival, is still actively debated (51).

A recent study by Fawzy et al. (52) provides strong evidence for the impact of psychoeducation on cancer survival. The study involved 68 patients with malignant melanoma who all underwent standard initial surgical treatment. One-half were randomized to a control group; the other half underwent a structured psychiatric group intervention within several months of the original diagnosis and initial surgical treatment. Groups of seven to 10 patients met in 90-minute sessions once a week for 6 weeks to focus on four components: a) education about melanoma, sun protection, and healthy nutrition; b) stress management, including personal stress awareness and relaxation techniques; c) coping and problem-solving skills; and d) psychological support from staff and other patients.

At 6 months, the group participants had improved coping ability, reduced psychological distress, and improved immune function. The most striking results appeared 6 years after the initial diagnosis and treatment. Only three of the 34 of patients in the psychosocial groups died compared with 10 of 34 in the control group, a 60% reduction in death rate. The group patients also tended to have fewer instances of recurrence; just seven of 34 experienced recurrence compared with 13 of 34 control patients.

There are a number of possible explanations for these results. Intervention may have fostered improved health habits such as more careful sun protection, better nutrition, and regular exercise. Effective coping may have improved physician-patient communication and adherence to treatment and follow-up regimens. Patients may have learned to manage stress more effectively through problem solving, changing attitudes toward minor daily stressors, or altering their physiological response to stress through relaxation techniques. Group patients also received a great deal of social support. They could express their feelings freely to an understanding and sympathetic audience and hear how others were dealing with the same disease. Survivors also showed more active coping skills. They attempted to change some aspect of their illness with exercise, relaxation techniques, and regular follow-up visits with their physicians. Those patients who used avoidance coping such as avoiding others, hiding feelings, or refusing to think about their illness tended to have more recurrence and lower survival rates.

The study revealed one unexpected finding. Patients who reported higher levels of emotional distress at the time of diagnosis and treatment had

lower rates of recurrence and death. Patients with the highest risk were those who minimized and expressed little distress. Distress in the face of life-threatening illness is appropriate and may help motivate patients to mobilize coping resources and behaviors. Denial may be helpful immediately after diagnosis, but persistent denial may interfere with this essential mobilization process. These findings suggest the need to tailor intervention strategies to the specific psychosocial needs of patients. Those with high emotional distress but low active coping need help to improve their coping skills. Those with high distress and high levels of coping need reinforcement of the positive role of distress. The most difficult challenge will be to design interventions for the highest-risk patients, i.e., those with low levels of distress and coping. These patients are the least prepared to deal with life-threatening disease. They are also least likely to see the need for psychosocial interventions.

Surgery

Americans undergo more surgery than any other people in the world. Each year surgical procedures are performed on more than 25 million Americans. The speed of recovery and length of hospital stay is influenced by many factors, including how well the patient is prepared to deal with the psychological impact of surgery.

A meta-analysis was done on 191 studies conducted between 1963 and 1989 of the effects of psychoeducational interventions on the recovery, postsurgical pain, and psychological distress of adult surgical patients (53). The operations in these studies were both minor and major, including abdominal (gall bladder, bowel, or gastric) and thoracic (heart and lung). The interventions were in three broad categories: a) health care information, i.e., details about what would be done before and after surgery, timing of the various procedures and activities, and the functions and roles of various health care providers; b) skill-building exercises for coughing, breathing, and relaxation; and c) psychosocial support, i.e., identifying and attempting to alleviate patient concerns, providing reassurance, encouraging patients to ask questions throughout hospitalization, and shaping specific expectations of recovery.

Nearly 80% of the studies indicated beneficial effects from the various interventions. Length of stay was decreased by an average of 1.5 days even in the studies conducted during the late-1980s when changes in hospital reimbursement had already increased the pressure to shorten hospital length of stay. Additional studies by Bennett et al. (54) at the University of California, Davis, suggest that an important component of psychological preparation for surgery involves boosting confidence by giving patients specific physiological suggestions to prompt recovery. In one study, blood loss was reduced by 50% in patients given specific verbal instructions to control blood flow during surgery compared with those given general relaxation instructions or no special preparation. Similarly, in patients undergoing abdominal surgery, those who received specific verbal suggestions about restoring bowel function recovered more quickly and were discharged from the hospital earlier than those who received general preoperative instructions and reassurance (55).

Attending to psychological issues after surgical procedures can also pay off. A study at Mount Sinai Medical Center in New York and Northwestern Memorial Hospital in Chicago evaluated psychiatric screening and consultation for 452 patients 65 years or older admitted for surgical repair of a fractured hip (56). These interventions led to early detection of psychiatric problems, better psychological care, and earlier hospital discharge by nearly 2 days on average. The psychiatric intervention resulted in cost savings of nearly $1300 per patient.

Despite the potential for significant savings and improvement in outcomes, such programs are not routinely provided to surgical patients in most hospitals.

Childbirth

Cesarean section is the most common surgical procedure performed in the United States, affecting about one in every five deliveries. Delivery by cesarean section extends the hospital stay of mother and child and increases the risk of maternal infection and other complications.

Five studies conducted in Guatemala, Canada, the United States, and South Africa have confirmed that the continuous presence of a supportive woman during labor and delivery can reduce the need for cesarean section, shorten labor and delivery, and reduce perinatal problems (57). In all cases, the mothers were healthy women with a normal pregnancy who were giving birth for the first time. The intervention was a *doula*, i.e., a trained lay person who provided emotional support that consisted of praise, reassurance, physical contact (such as rubbing the mother's back or holding her), explanations of what was happening, and a continuous presence.

Although far from ideal, in these studies, the women in labor met their *doulas* for the first time only after they were admitted to the hospital.

One of these studies took place at Jefferson Davis Hospital in Houston, Texas. Participants were divided into three groups: a control group, an observed group to measure the potential supportive effects of a passive observer, and a group actively supported by *doulas* (58). Of the 204 patients in the control group, 18% underwent cesarean sections. Of the 212 in the group supported by *doulas*, only 8% had cesarean sections, a reduction of 56%. The presence of a *doula* also resulted in other benefits. Epidural anesthesia was reduced by 85%. Labor was an average of 2 hours shorter, and only one-half as many babies required more than 48 hours of hospitalization because of neonatal problems.

A meta-analysis of all five *doula* studies showed that the presence of the *doula* reduced the length of labor by 25%; the odds of having a cesarean section by 34% to 67%; and the odds of needing analgesia by 1% to 47%, oxytocin by 43% to 68%, and forceps by 35% to 82% (54). This, in turn, reduced the length of hospital stay and the rate of complications among newborns. Meanwhile, the average cost of the *doula* was $200. This is another striking example of how making health care more humane and attentive to patient's psychosocial needs may improve health outcomes and generate cost savings.

SUMMARY

Evidence is mounting that addressing the psychological and educational needs of patients makes economic and health sense. If there were a drug or surgical procedure that could reduce total ambulatory care visits, decrease postsurgical length of stay, reduce cesarean section rates, or decrease death rates from malignant melanoma, this medical intervention would be widely accepted and utilized with little hesitation. The beliefs and biases that delay and retard the use of psychosocial interventions need to be challenged (59, 60). This brief review of psychosocial interventions suggests that health care providers can ill afford to treat patients simply as disordered machines whose health can be restored with physical or chemical interventions alone. Indeed, a burgeoning field of lay literature and self-help groups suggests that many patients are ready, willing, and even demanding that mind/body health techniques be considered as part of the treatment of the whole person (61–73).

Health care can be reformed by helping patients manage not just their disease but also common underlying needs for psychosocial support, coping skills, and sense of control. Patients can be offered real choices that build confidence in living with and managing illnesses. Patients and health professionals alike can develop more realistic expectations about the limitations of biomedical cures and a better appreciation for the vital role of patient participation and responsibility in managing health (74).

Psychosocial interventions can be successfully integrated into health care as a complement to biomedicine. Rather than targeting specific diseases or behavioral risk factors, psychosocial interventions may influence underlying, shared determinants of health such as attitudes, beliefs, and moods that predispose toward health in general. Although the health care system cannot be expected to address all the psychosocial needs of people, clinical intervention can be brought into better alignment with the emerging evidence on shared psychosocial determinants of health by providing services that improve adaptation to illness and quality of life. By offering information, emotional support, and skill training, people can be encouraged to participate as active partners in health care. The result seems to be healthier patients and, potentially, lower health care costs.

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Evidence Suggesting That a Chronic Disease Self-Management Program Can Improve Health Status While Reducing Hospitalization

A Randomized Trial

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OBJECTIVES. **This study evaluated the effectiveness (changes in health behaviors, health status, and health service utilization) of a self-management program for chronic disease designed for use with a heterogeneous group of chronic disease patients. It also explored the differential effectiveness of the intervention for subjects with specific diseases and comorbidities.**

METHODS. **The study was a six-month randomized, controlled trial at community-based sites comparing treatment subjects with wait-list control subjects. Participants were 952 patients 40 years of age or older with a physician-confirmed diagnosis of heart disease, lung disease, stroke, or arthritis. Health behaviors, health status, and health service utilization, as determined by mailed, self-administered questionnaires, were measured.**

RESULTS. **Treatment subjects, when compared with control subjects, demonstrated improvements at 6 months in weekly minutes of exercise, frequency of cognitive symptom management, communication with physicians, self-reported health, health distress, fatigue, disability, and social/role activities limitations. They also had fewer hospitalizations and days in the hospital. No differences were found in pain/physical discomfort, shortness of breath, or psychological well-being.**

CONCLUSIONS. **An intervention designed specifically to meet the needs of a heterogeneous group of chronic disease patients, including those with comorbid conditions, was feasible and beneficial beyond usual care in terms of improved health behaviors and health status. It also resulted in fewer hospitalizations and days of hospitalization.**

Key words: chronic disease; self-management; patient education; cost; utilization. (Med Care 1999;37:5–14)

As the average age of our population increases, so does the prevalence of chronic disease. It is now estimated that people aged 60 years and older have, on average, 2.2 chronic conditions.[1] Chronic disease is responsible for almost 70% of health care expenditures.[2]

There are many examples of how patient education programs for specific chronic conditions have increased healthful behaviors, improved health status, and/or decreased health care costs of their participants. An excellent bibliography of more than 400 such patient education studies has

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been published recently.[3] To date, few of the studies have dealt with more than one disease or with the problems of comorbidity. Rather, each patient education intervention has been disease-specific.

With the emergence of chronic disease as the largest threat to health status and the largest cause of health care expenditures, the potential role of patient self-management assumes increased importance. If benefits can be shown from an inexpensive, replicable self-management program, such programs might be a useful part of a therapeutic regime. Our study explored this possibility. It differed from previous self-management studies in that it: (1) placed subjects with different chronic diseases and different combinations of comorbid diseases in the same program at the same time; (2) utilized a randomized, controlled design; and (3) measured outcomes in terms of behaviors, health status, and health service utilization. Although former patient self-management education studies had one or more of these attributes, none have had all three.

The objectives of the study were to evaluate the effectiveness (changes in health behaviors, health status, and health service utilization) of a self-management program for chronic disease designed for use with a heterogeneous group of chronic disease patients and to explore the differential effectiveness of the intervention for subjects with specific diseases and comorbidities. The experience during 6 months with the 952 patients with heart disease, lung disease, stroke, or arthritis is reported here.

Methods

The Chronic Disease Self-Management Program (CDSMP) is a community-based patient self-management education course. Three principal assumptions underlie the CDSMP: (1) patients with different chronic diseases have similar self-management problems and disease-related tasks; (2) patients can learn to take responsibility for the day-to-day management of their disease(s); and (3) confident, knowledgeable patients practicing self-management will experience improved health status and will utilize fewer health care resources. Other assumptions that shaped the program were that: (1) patient self-management education should be inexpensive and widely available; (2) trained lay persons with chronic conditions could effectively deliver a structured patient education program; and (3) such lay instructors would be acceptable to both patients and health professionals. There is research evidence that positive role models (in this case, lay leaders with similar backgrounds and disease problems) increase patients' self-efficacy or confidence in their ability to manage their disease.[4]

Needs Assessment

The content and methodology of the CDSMP were based on two needs assessments. The first was a literature review of existing chronic disease patient education programs.[5] The purpose of this review was to identify common topics taught across chronic disease courses. In a review of more than 70 articles, the authors found 12 common tasks: recognizing and acting on symptoms, using medication correctly, managing emergencies, maintaining nutrition and diet, maintaining adequate exercise, giving up smoking, using stress reduction techniques, interacting effectively with health care providers, using community resources, adapting to work, managing relations with significant others, and managing psychological responses to illness.

The second needs assessment sought information from 11 focus groups.[6] Participants included people older than 40 years with chronic diseases. Participants were invited to: (1) describe their disease(s) and what they thought caused them; (2) explain their feelings and beliefs about getting older; (3) describe the physical, social, and emotional impacts of chronic disease on their lives and the lives of their families; (4) describe how they coped with the problems caused by their disease(s); and (5) elaborate on their fears, hopes, and wishes for the future. Theme analysis from these groups' responses was used to shape both the content of the CDSMP and the process of instruction.

Chronic Disease Self-Management Program Design

The topics covered in the CDSMP included: exercise; use of cognitive symptom management techniques; nutrition; fatigue and sleep management; use of community resources; use of medications; dealing with the emotions of fear, anger, and depression; communication with others including health professionals; problem-solving; and decision-making. The content of the course

has been published as Living a Healthy Life with Chronic Conditions.[7] This book was used as a text for course participants.

The process of teaching the course is based on Self-Efficacy Theory. It incorporates strategies suggested by Bandura to enhance self-efficacy.[8] These include weekly action planning and feedback, modeling of behaviors and problem-solving by participants for one another, reinterpretation of symptoms by giving many possible causes for each symptom as well as several different management techniques, group problem-solving, and individual decision-making. The leaders act more as facilitators than as lecturers. For example, rather than prescribing specific behavior changes, they assist participants in making management choices and achieving success in reaching self-selected goals. The process is documented in a detailed protocol, Chronic Disease Self-Management Leader's Manual.[9]

Each course had 10 to 15 participants of mixed ages and diagnoses, including family members if they wished to attend. Each course was taught by a pair of trained, volunteer lay leaders. The 87 leaders received 20 hours of training with the detailed teaching manual. They ranged in age from 21 to 80 years (82% were older than 40).[9] Seventy-one percent of the leaders had one or more chronic diseases, 23% were health professionals, and 15% were students. Few had previous experience in health education. On average, leaders taught 2.4 courses. The program was given in seven weekly 2.5-hour sessions.

Entry Criteria

To enter the study, subjects had their physician confirm a diagnosis of chronic lung disease (asthma, chronic bronchitis, or emphysema), heart disease (coronary artery disease or congestive heart failure), stroke (completed cerebrovascular accident with neurologic handicap and normal mentation), or chronic arthritis. In addition to at least one of the above conditions, they could have other conditions. Patients with compromised mentation, cancer patients who received chemotherapy or radiation within the past year, and persons younger than 40 years of age were excluded. Subjects' physicians and hospitals were not informed as to their study status (treatment or control).

Recruitment and Randomization

Subjects were recruited using public service announcements in the mass media, referrals from flyers left in physicians' offices and community clinics, posters at senior citizen centers, announcements in health maintenance organization (HMO) patient newsletters, and referrals from county government employers. Before filling out their initial questionnaire and before randomization, all subjects were told they would either receive the course immediately or after serving as a control for 6 months.

To assure that the program would be easily accessible to patients, it was held in multiple community sites in a four county area. Programs were held in churches, senior and community centers, public libraries, and health care facilities. In addition, programs were planned at varied times for the convenience of patients including late mornings, early afternoons, evenings, and Saturday mornings. The project was approved by the institutional Committee for the Protection of Human Subjects in Research. All participants gave written informed consent. After each subject's physician(s) had supplied a diagnosis and after each subject had completed a consent form and baseline questionnaire, participants were randomized to treatment or control status. Randomization was conducted serially. After all subjects had applied to a specific site, typically 16 to 30 subjects, the randomization ratio (treatment versus controls) was determined so as to assure no fewer than 10 and no more than 15 treatment subjects. Thus, in some sites the ratio of treatment-to-control subjects was 4:6, whereas in others it was 7:3. This randomization method resulted in an overall 6:4 ratio.

Outcome Measures

There were three primary classifications of outcome variables: health behaviors, health status, and health service utilization. Data were collected by previously tested self-administered, mailed questionnaires. To minimize acquiescent response, data collection was completely separate from the intervention and carried out by persons who did not know the subjects or their treatment status. Measures included the self-rated health scale used in the National Health Interview Survey and a modified version of the Health Assessment Questionnaire (HAQ) disability scale.[10,11] The psychological

well-being scale, also known as the MHI-5, which is part of the SF-36, as well as the SF-20, was used.[12,13] The pain and physical discomfort scale was an adaptation of the Medical Outcomes Study (MOS) pain scale; it was modified to include physical discomfort.[14] The energy/fatigue scale was the scale used in the long-form MOS, and the health distress scale was a slightly modified version of the MOS health distress scale.[15] The remaining measures (ie, duration of exercise, use of cognitive symptom management, communication with physicians, social/role activity limitations, shortness of breath, and utilization measures) were developed and tested for this study. Definitions of all measures and information on their reliability and validity are presented elsewhere.[6] The magnitude of the correlations among the health status scales ranged from 0.14 to 0.60 (median, 0.43). The highest correlation was between psychological well-being and health distress (0.60).

Subjects were assessed for three types of health utilization: visits to physicians, including visits to the emergency room (ER), visits to hospitals during the past 6 months, and the number of nights spent in a hospital. For each category, they reported how often they used these health services. The self-reported data for 200 subjects who were HMO members were validated against automated medical records. Outpatient self-reported visits were associated with the medical record visits ($r = 0.64$) and ER visits ($r = 0.60$). We found that patients often included urgent care and after-hour visits with ER visits instead of counting these as outpatient visits. Thus, the data for all subjects' ER visits were combined with data for outpatient physician visits. When combined, the self-reported data for outpatient visits correlated ($r = 0.70$) with medical records. We found errors made both by patients and by the automated record system. Patients tended to underreport recorded visits by approximately 17%. Conversely, the system sometimes overreported visits. For example, a subject who received numerous allergy injections from a nurse was reported by the system to have had a physician visit for each injection. For days in hospital, medical records correlated with patient self-report ($r = 0.83$).

Analyses

The primary analysis compared 6-month outcomes between the treatment and control groups on each outcome variable using analysis of covariance on endpoint scores, controlling for the baseline value of the study variable, as well as age, sex, education, and marital status. The endpoint data were examined by analysis of covariance for variation among the 108 CDSM programs in which participants were taught; between-program variation in effects was found to be minimal and did not influence overall conclusions. Therefore, treatment and control data were aggregated across programs of instruction.

The secondary analyses determined if the intervention had different outcomes for those with different diseases. Two-way analyses of variance were utilized, testing for the interaction of disease by treatment status (treatment/control).

Results

Primary Results

Of the 1,140 subjects who entered the study (ie, were randomized to treatment [n = 664] or to control status [n = 476]), 952 [83%] completed the 6-month study. Of the treatment subjects, 84% completed 6 months compared with 82% of the control subjects. Treatment subjects completing 6-month data attended an average of 5.5 of the seven program sessions. Of those treatment subjects not completing 6-month data, 1.2% had died, 3.4% were too ill to continue, and 11.4% had unknown reasons. For the control subjects, the respective percentages were 0.81, 7.8, and 9.4. Comparing baseline data for subjects who completed 6-month data with those who did not, the noncompleters had significantly fewer minutes of aerobic exercise per week and higher levels of activity limitation, pain/physical discomfort, fatigue, and health distress than did those who completed the 6 months ($P < 0.05$); however, there were no statistically significant differences between the treatment and control subjects at study entry on any variable. Table 1 presents the demographic and disease characteristics of study participants completing the study. Only marital status was significantly different ($P < 0.05$). Table 2 gives baseline data and mean 6-month uncorrected change scores for the CDSMP treatment subjects and the control subjects. As compared with controls, the treatment group demonstrated significant improvement in all four health behavior variables ($P < 0.01$; number of minutes per week of stretching/strengthening and aerobic exercise; in-

TABLE 1. Subject Characteristics

	Treatment (n = 561)	Control (n = 391)
Mean age (years)	65.6	65.0
Age range	40–90	40–89
Median/Mode	65.5/71	65.5/71
% Female	65	64
Mean education (years)	15	15
% ≤ 12 yrs	27	27
% 13–15 yrs	28	25
% 16 yrs	16	21
% > 16 yrs	29	27
% Married	54.1	59.1*
% White	91.4	88.8
Diseases		
% Heart disease	31	35
% Lung disease	46	43
% Arthritis	56	53
% Stroke	10	12
Mean number diseases	2.2	2.3
Provider		
% Covered by HMO	57	55
% Private fee for service	35	35
% Govt. only (Medicare, Medical, and CHAMPUS VA)	8	10

*χ^2. $P < 005$.

creased practice of cognitive symptom management; and improved communication with their physician). They also demonstrated significant improvement in five of the health status variables (self-rated health, disability, social/role activities limitation, energy/fatigue, and health distress; $P < 0.02$). No significant differences were demonstrated for pain and physical discomfort, shortness of breath, or for psychological well-being. The treatment group, as compared with the control group, had fewer hospitalizations ($P < 0.05$) and spent, on average, 0.8 fewer nights in the hospital ($P = 0.01$). There were no significant differences in visits to physicians ($P = 0.11$).

An intent to treat analysis also was conducted that included 1,128 subjects. Baseline (entry) data were used at 6 months for the 176 subjects (drop outs) who did not complete 6-month data. (The eight treatment and four control subjects who died were excluded.) In this analysis, all probability values remained unchanged, although the change scores were reduced slightly for both the treatment and control groups. For example, the changes in communication with physicians were 0.22 for treatment subjects compared with 0.09 for controls, health distress was -0.20 for the treatment subjects compared with -0.06 for controls, and nights in hospital was -0.22 for treatment subjects compared with 0.46 for controls.

Of the 391 control subjects who completed the 6-month randomized study, 283 (72%) chose to take the CDSMP. Of these, 237 provided 6-month post-CDSMP endpoint data. Using matched pair *t* tests comparing data before starting the CDSMP and 6 months after starting the program, this group increased their aerobic exercise and use of coping strategies ($P < 0.05$). They also decreased their disability and health distress while increasing their social and role activities ($P < 0.05$). Visits to physicians decreased by 0.98 ($P < 0.05$). The group had fewer visits to hospitals and 0.65 fewer days in hospital ($P < 0.05$). Changes in other study variables listed in Table 2 were not significant, although all demonstrated a trend toward improvement. Thus, it appears that by taking the CDSMP, control subjects reversed many of the trends toward worsening health demonstrated during the 6-month randomized trial.

Secondary Results

Tables 3 and 4 present baseline data and 6-month change scores for treatment and control subjects in the various disease categories: those whose only disease was arthritis, heart disease, or lung disease, and those with comorbidities. Subjects who only had a stroke were not included in this analysis because of small numbers. A two-way analysis of covariance, controlling for baseline status, examined main treatment effects and interactions among the four disease categories and found no significant interactions for any of the 20 outcome variables. Examination of the 6-month change scores confirmed the tendency for the change scores to reflect program effects similarly across all four diagnostic subgroups.

Program costs versus savings also were examined. Although the treatment group reduced their visits to physicians slightly more than did the control group, the difference was not significant. The decrease in the number of hospitalizations and in the number of nights of hospitalization were significant ($P < 0.05$, Table 2). Assuming a

TABLE 2. Baseline and Six-Month Changes for Treatment and Control Subjects: Health Behaviors, Health Status, and Health Service Utilization

	Baseline		Six-Month Change		
	Treatment Mean (SD) (n = 561)	Control Mean (SD) (n = 391)	Treatment Mean (SD of Δ)	Control Mean (SD of Δ)	Significance P^*
Health behaviors					
Stretching & strengthening	40	37	13	5	0.005
Exercise (minutes/week)	(54)	(54)	(56.7)	(54.6)	
Aerobic exercise	95	93	16	-2	0.0003
(minutes/week)	(97)	(83)	(94.5)	(87.0)	
Cognitive symptom	1.3	1.3	0.38	.07	0.0001
Mgmt. (0–5, ↑ = better)	(0.88)	(0.94)	(0.77)	(0.73)	
Communication w/MD	3.0	3.0	0.26	.11	0.006
(0–5, ↑ = better)	(1.2)	(1.2)	(0.98)	(0.96)	
Health status					
Self-rated health	3.4	3.3	-0.09	0.02	0.02
(1–5, ↓ = better)	(0.88)	(0.93)	(0.72)	(0.69)	
Disability	0.78	0.85	-0.02	.03	0.002
(0–3, ↓ = better)	(0.59)	(0.63)	(0.32)	(0.36)	
Social/Role activities	1.8	1.8	-0.07	.08	0.0007
Limitations (0–4, ↓ = better)	(1.1)	(1.1)	(0.92)	(0.87)	
Pain/Physical discomfort	58	59	-2.6	-2.2	0.27
(0–100, ↓ = better)	(22.6)	(23.6)	(19.4)	(17.6)	
Psychological well-being	3.4	3.4	0.09	0.04	0.10
(0–5, ↑ = better)	(0.88)	(0.98)	(0.69)	(0.67)	
Energy/Fatigue	2.2	2.2	0.14	0.02	0.003
(0–5, ↑ = better)	(1.1)	(1.1)	(0.79)	(0.75)	
Health distress	2.1	2.1	-0.24	-0.07	0.001
(0–5, ↓ = better)	(1.2)	(1.2)	(0.98)	(0.97)	
Shortness of breath	1.3	1.4	0.02	-0.02	0.56
(0–4, ↓ = better)	(1.1)	(1.2)	(0.87)	(0.78)	
Health service utilization					
MD & ER visits	6.1	6.4	-0.77	-0.54	0.11
(times past 6 months)	(5.7)	(6.1)	(5.6)	(6.3)	
Number of hospital stays	0.24	0.30	-0.07	-0.05	0.047
(past 6 months)	(0.69)	(0.98)	(0.69)	(1.1)	
Nights in hospital	1.1	1.0	-0.28	0.56	0.01
(past 6 months)	(4.1)	(4.1)	(5.2)	(7.0)	

*Analysis of covariance on 6 month post-test scores controlling for treatment status, age, sex, education, marital status, and baseline status.
(Two-tailed P values.)

cost of $1,000 per day of hospitalization, the 6-month health care costs for each control participant in this study were $820 greater than for each treatment subject. The costs of providing the program for treatment subjects who completed the 6-month study were calculated to be $70 per participant. This includes $26 for training leaders (assuming two leaders teach each course and that

TABLE 3. Baseline Scores for Treatment and Control Subjects By Disease: Health Behaviors, Health Status, and Health Service Utilization

	Arthritis Only		Heart Disease Only		Lung Disease Only		Comorbid Conditions	
	Treatment Mean (SD) (n = 86)	Control Mean (SD) (n = 62)	Treatment Mean (SD) (n = 45)	Control Mean (SD) (n = 31)	Treatment Mean (SD) (n = 107)	Control Mean (SD) (n = 60)	Treatment Mean (SD) (n = 311)	Control Mean (SD) (n = 225)
Health behaviors								
Stretching/Strengthening	42.4	48.8	47	25.2	30.4	23.8	39.9	37.1
Exercise (minutes/week)	(56 6)	(62.9)	(61.1)	(36 2)	(50.7)	(45.0)	(52 4)	(53.4)
Aerobic exercise	107.4	89.5	122.3	126.8	80 2	67.5	89.1	94.5
(minutes/week)	(103.4)	(85.2)	(104.2)	(80.0)	(91.2)	(72.0)	(91.5)	(81.6)
Cognitive symptom	1.2	1.6	1.3	1.2	1 3	1.1	1.4	1.2
Mgmt. (0–5, ↑ = better)	(0.88)	(1.1)	(0.78)	(0.96)	(0.91)	(0.82)	(0.88)	(0.91)
Communication with MD	3.0	3.0	2.9	3.0	2.9	2.8	3.1	3.1
(0–5, ↑ = better)	(1.2)	(1.2)	(1.1)	(1.0)	(1.2)	(1.2)	(1.2)	(1.2)
Health status								
Self-rated health	3.1	3.0	3.2	3.2	3.3	3.4	3.5	3.4
(1–5, ↓ = better)	(0.91)	(1.0)	(6.3)	(0.87)	(0.90)	(0.89)	(0.88)	(0.91)
Disability	0.98	0.90	0.24	0.34	0.57	0.63	0.87	0.94
(0–3, ↓ = better)	(0.63)	(0.55)	(0.37)	(0.46)	(0.48)	(0.55)	(0.57)	(0.61)
Social/Role activities	1 8	1.9	1.1	1.0	1.8	1.6	1.9	1.9
Limitations (0–4, ↓ = better)	(1.0)	(1 2)	(1.0)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)
Pain/Physical discomfort	68.6	70.3	40.9	40.2	50.4	50.6	60.8	61.5
(0–100, ↓ = better)	(18.7)	(17.8)	(18.5)	(22 0)	(19.2)	(23.6)	(22.7)	(22.8)
Psychological well-being	3.5	3.5	3.3	3.5	3.5	3.5	3.4	3.3
(0–5, ↑ = better)	(0.92)	(0.90)	(0.90)	(0.78)	(0.89)	(0 90)	(0.87)	(1.05)
Energy/Fatigue	2.1	2.4	2.6	2.6	2.3	2.3	2.1	2.0
(0–5, ↑ = better)	(1.2)	(1.1)	(1.0)	(1.1)	(1.1)	(1.0)	(1.0)	(1.1)
Health distress	2.1	2.0	1.7	1.9	2.0	2.0	2.2	2.2
(0–5, ↓ = better)	(1.2)	(1.2)	(1.1)	(1.2)	(1.1)	(1.1)	(1.1)	(1.2)
Shortness of breath	0.48	0.37	0.94	1.0	2.2	2.3	1.3	1.6
(0–4, ↓ = better)	(0.69)	(0.73)	(0.94)	(0.97)	(0.94)	(0.97)	(1.1)	(1.2)
Health service utilization								
MD and ER visits	4.97	5.37	5.02	5.00	5.98	5.95	6.51	7.08
(times past 6 months)	(4.32)	(5.61)	(4.51)	(3.49)	(5.68)	(4.63)	(6.12)	(6.82)
Number of hospital stays	0.14	0.13	0.42	0 52	0.19	0.28	0.26	0.31
(past 6 months)	(0.47)	(0.38)	(0.84)	(0.85)	(5.2)	(1 1)	(0.75)	(1.1)
Nights in hospital	0.66	0.13	1.2	1.5	0.69	1.3	1.3	1.0
(past 6 months)	(0.26)	(0.38)	(2.9)	(3.6)	(2.3)	(7.2)	(4.9)	(3.1)

TABLE 4. Six-Month Changes for Treatment and Control Subjects By Disease: Health Behaviors, Health Status, and Health Service Utilization

	Arthritis Only		Heart Disease Only		Lung Disease Only		Comorbid Conditions	
	Treatment Mean Δ (SD)	Control Mean Δ (SD)	Treatment Mean Δ (SD)	Control Mean Δ (SD)	Treatment Mean Δ (SD)	Control Mean Δ (SD)	Treatment Mean Δ (SD)	Control Mean Δ (SD)
Health behaviors								
Stretching/Strengthening	16.4	5.3	5.7	2.9	10.9	10.3	13.2	3 3
Exercise (minutes/week)	(60.5)	(55.5)	(47.6)	(51.4)	(46.1)	(56.2)	(60.6)	(52.2)
Aerobic exercise	24.1	11.4	3.3	-21.3	21.9	11.1	12.7	-6.5
(minutes/week)	(120.9)	(96.8)	(92.8)	(67.8)	(85.4)	(82.5)	(89.3)	(86.5)
Cognitive symptom	0.57	0.03	0.29	-0.01	0.33	0.17	0.35	0.07
Mgmt. (0–5, ↑ = better)	(0.81)	(0.64)	(0.85)	(0.91)	(0.81)	(0.73)	(0.73)	(0.74)
Communication w/MD	0.34	-0.03	0.30	0.19	0.26	0.26	0.24	0.10
(0–5, ↑ = better)	(1.2)	(1.1)	(1 2)	(0.79)	(0.89)	(0.89)	(0.91)	(0.91)
Health status								
Self-reported health	-0.08	0.02	-0.20	-0.06	-0.11	0.08	-0.08	0.04
(1–5, ↓ = better)	(0.80)	(0.67)	(0.59)	(0.63)	(0.83)	(0.56)	(0.68)	(0.73)
Disability	-0.05	0.00	0.06	0.10	-0.04	0.09	-0.01	0.02
(0–3, ↓ = better)	(0.38)	(0.42)	(0.35)	(0.34)	(0.29)	(0.33)	(0.30)	(0.34)
Social/Role activities	-0.13	-0.13	-0.15	0.19	-0.17	0.22	0.01	0.08
Limitations (0–4, ↓ = better)	(0.97)	(0.78)	(0.93)	(0.87)	(1.0)	(0.85)	(0.86)	(0.89)
Pain/Physical discomfort	-5.4	-7.5	-4.8	2.7	-4.3	-3.4	-1.0	-0.89
(0–100, ↓ = better)	(15.9)	(15.2)	(17.0)	(18.5)	(20.7)	(20.5)	(20.1)	(17.1)
Psychological well-being	0.08	0.09	0 36	-0 04	0.05	0.07	0 07	0.03
(0–5, ↑ = better)	(0.73)	(0.60)	(0.76)	(0.66)	(0.70)	(0.68)	(0.67)	(0.69)
Energy/Fatigue	0.31	-0.04	0.22	-0.08	0.1	0.13	0.08	0 02
(0–5, ↑ = better)	(0.82)	(0.74)	(0.74)	(0.95)	(0.92)	(0.66)	(0.73)	(0 75)
Health distress	-0.30	-0.27	-0.20	0.04	-0.26	0.01	-0.23	-0.07
(0–5, ↓ = better)	(1.1)	(0.96)	(0.84)	(0.70)	(0.92)	(0.76)	(0.97)	(1.1)
Shortness of breath	0.12	0.00	0.06	0.11	-0.18	-0.19	0.04	-0.02
(0–4, ↓ = better)	(0.59)	(0.57)	(0.87)	(0.78)	(0.93)	(0.77)	(0.91)	(0 83)
Health service utilization								
MD & ER visits	-0.67	-1.69	-0.89	-0.52	-1.44	-0.17	-0.55	-0.21
(times past 6 months)	(4.14)	(5.51)	(3.82)	(3.45)	(5.77)	(5.04)	(6.10)	(7.24)
Number of hospital stays	-0.04	-0.03	-0.20	-0.23	-0.04	-0.15	-0.07	0.02
(past 6 months)	(0.57)	(0.48)	(0.63)	(0.76)	(0.68)	(1.2)	(0.73)	(1.2)
Nights in hospital	-0.44	0.21	-0.60	-0.71	0 19	0.23	-0.25	1.1
(past 6 months)	(2.8)	(1.9)	(2.5)	(3.4)	(3.4)	(11.0)	(6.3)	(6.8)

each leader teaches only one course), $14 for volunteer leader stipend (assuming $100 per leader per course of 15 participants), $15 for course materials (book and audio tape), and $15 administrative costs. This analysis does not take into account the cost of space (which was donated for this study) or indirect costs. Assuming that these figures reflect current costs, the health care expenditure savings (savings in hospital nights minus program costs) approximated $750 per participant, more than 10 times the cost of the intervention

Discussion

This study was an evaluation of a self-management education intervention for persons with one or more different conditions. The format of the intervention had the attributes of medium-sized classes, lay leaders, and heterogeneity of participants in terms of type and severity of disease(s). Overall, the intervention was successful in increasing healthful behaviors, maintaining or improving health status, and decreasing rates of hospitalization (Table 2). These results indicate that it is possible to educate patients with different chronic diseases successfully in the same intervention at the same time. Because most chronic disease patient education programs have not been formally evaluated, it is difficult to determine if heterogeneous educational interventions such as the CDSMP are more or less effective than homogeneous, single disease-oriented programs. Because people 60 years of age and older have, on average, two or more chronic conditions, it would seem that a program focused on the problems common to the various comorbidities would be a reasonable substitute for, or adjunct to, the more traditional single disease programs.

One key question concerns the generalizability of the findings. As in nearly all such studies, the subjects self-selected to be in the study and may have been more motivated than most chronic disease patients. From past arthritis self-management studies, we have evidence that when patients in a closed HMO rheumatology practice were repeatedly offered an opportunity to participate in an intervention similar to the CDSMP, 47% chose to do so.[16] Men and non-English speakers were less likely to attend. Glascow and Litzelman[17,18] have found similar participation in a diabetes self-management intervention. Studies now being conducted with the Kaiser system and with Latinos should offer more information about the generalizability of CDSMP.

The subjects in our study had a high mean level of education. It is noteworthy that approximately 27% of the subjects had 12 years of education or less and 29% had 16 years or more. When education was entered into the analysis as a covariant of outcomes,however, it did not affect them.

Because of the heterogeneous mix of patients, not all patients had the same symptoms, nor did they all need to change the same behaviors. Thus, the results of the primary analysis of specific outcomes may have underestimated somewhat the individual improvements because they contained data from subjects who either did not have a target symptom or who already had achieved acceptable levels on that outcome. Although we do not have a definitive answer about clinical significance, activity limitation, health distress, and disability were all improved. This suggests that the CDSMP affected important physical and mental aspects of participants' lives.

Tables 3 and 4 explore the effectiveness of the intervention for various subsets of patients. Because these are secondary analyses, we cannot draw definitive conclusions from these data. The findings, however, may be helpful in guiding future studies. Although all of the subgroups appear to have made changes in healthful behaviors, these changes varied by group, as might be expected For example, the group with heart disease reported the most aerobic exercise at baseline (122.3 and 126.8 minutes/week for the treatment and control groups, respectively), the lung disease group reported the least (80.2 and 67.5), and the arthritis group was intermediate (107.4 and 89.5; Table 4). The treatment participants with arthritis and those with lung disease increased their exercise more than the control subjects did (Table 4). The treatment group with heart disease remained the same, and the control group decreased their exercise. Thus, for patients with low baseline activity levels, the intervention increased activity, whereas for patients with relatively high activity level, this level was maintained. The results concerning the practice of cognitive symptom management techniques and communication with their physicians were uniform across all subgroups.

That the intervention had some differential effects on different subsets of patients is not surprising. Although chronic diseases create similar problems, these problems are more or less salient

for an individual patient at different times across diseases. The CDSMP was designed to meet such a challenge by aiding patients to identify their own individual needs and problems and then assisting them to work most intensively in those areas. In addition, it was designed to meet the needs of the many older patients who have more than one chronic condition.

It is important to note that participants in this study were volunteers, recruited largely by word of mouth and by various forms of public announcement. Although their physicians confirmed their diagnoses and knew of their participation, there was no linkage between the CDSMP content and the individual treatment plans. The CDSMP did not alter participants' treatment. Therefore, the benefits that were achieved were additional to those achieved by usual care. Conceivably, integration of a CDSMP with usual care, perhaps at the outset of a chronic disease, would further enhance the benefits.

Conclusion

The Chronic Disease Self-Management Program is a program designed specifically to meet the needs of a heterogeneous group of chronic disease patients, including those with comorbid conditions. The results of this study suggest that such an intervention is feasible, is beneficial beyond usual care in terms of improved health status, and can decrease hospitalization with a potential of substantial savings in health care costs. If replicated in similar studies, a program such as the CDSMP deserves a place in the treatment regime of patients with chronic disease.

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Behavioral Medicine, Clinical Health Psychology, and Cost Offset

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The use of medical services is a function of several interacting psychological and social variables as well as a function of physical malfunction. The clinical significance of addressing patients' psychosocial issues has only occasionally been considered. However, the shift in health care economics toward health care maintenance is responsible for the increased interest in interventions in the domain of behavioral medicine and health psychology. Evidence is reviewed for 6 mechanistic pathways by which behavioral interventions can maximize clinical care and result in significant economic benefits. The rationale for further integration of behavioral and biomedicine interventions is also reviewed.

Key words: cost offset, behavioral medicine

The current health care reform agenda represents both a threat and an opportunity for mental health providers and behavioral scientists. The health care system is reeling under the impact of escalating costs, limited access, and the prospect of an aging population with multiple chronic illnesses that will increase demand for health care. Traditionally, the primary focus of most mental health providers has been on the diagnosis and treatment of mental illness—an important and challenging undertaking in itself. However, the current health care debate challenges health care providers to look beyond diagnostic categories and disciplinary boundaries, beyond the dysfunctional distinction between mind and body, and beyond traditional psychotherapeutic interventions. The challenge is to most effectively address the true needs that people bring into the health care system and to do so with maximum efficiency.

Increasingly, the focus of health care reform is controlling costs, and the secondary focus is on improving health and quality outcomes. Although studies have shown that providing psychological services can reduce health care costs (Pallak, Cummings, Dorken, & Henke, 1995), the national health care reform agenda, driven by a concern for cost containment, ensures that medical services in general and mental health services in particular will be examined in great detail. There is reason for optimism, however, partly on the basis of the evidence summarized below and elsewhere that psychosocial interventions can improve both health and cost outcomes (Sobel, 1995).

Most recommendations offered to reduce health care costs involve "supply-side" strategies such as altering access to health care, improving the efficiency of services, examining more closely the utilization and capitated payments, decreasing practice variation, and limiting technology. Seldom is the "demand side" of the health care equation given equal consideration. What determines the demand and need for medical service? Patients are more likely to seek care when they have symptoms, but the presence or severity of symptoms or conditions account for a surprisingly small portion of the variability in health care use. Studies have found that only 12–25% of health care use can be predicted by objective disability or morbidity alone (Berkanovic, Telesky, & Reeder, 1981). It appears that health care seeking is a complex behavior that is influenced strongly by psychosocial factors such as individual attitudes, perceptions, cultural norms, and levels of psychosocial distress. Lynch (1993) has conceptualized the demand for health care as having four components: morbidity (the presence or absence of illness), perceived need (individuals' perceptions of the severity of a given problem), patient preference (patients differ in the treatment options they choose on the basis of their knowledge and beliefs about risks and benefits), and nonhealth motives (patients may manipulate the system just for benefits such as time off from work).

Clearly, behavioral and psychosocial variables significantly influence the need and demand for health services (Fries et al., 1993). Unhealthy behaviors, from smoking to diet and drug use to a sedentary lifestyle, are the major contributors to morbidity. In addition to behavior patterns contributing to illness, psychosocial variables have increasingly been implicated in

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health care utilization. For example, Kroenke and Mangelsdorff (1989) reviewed the records of over 1,000 patients in an internal medicine clinic over a 3-year period. In less than 16% of cases was the origin of the most common somatic complaints identified as being organic. The authors concluded that in 74% of the cases with unknown etiology "it was probable that many of the symptoms ... were related to psychosocial factors" (p. 265).

Evidence that attending to the psychological needs of medical patients was advantageous both clinically and economically was provided by Cummings and Follette (1968). They found that for patients at a large health maintenance organization (HMO) more than 60% of all visits were made by the "worried well" with no diagnosable disorder. Not only did psychotherapy help these patients but the direct costs of providing treatment was "offset" by reductions in subsequent general medical use.

Understanding that the demand for medical services is motivated not solely on the basis of the physical components of disease is crucial to improving medical care and reducing medical costs. Managing demand to control costs can be done by developing interventions to address the "pathways" by which psychosocial factors influence the need and decision to seek medical care. For description purposes we have identified six pathways by which psychosocial factors drive medical utilization and costs. We also provide examples of the evidence that addressing the psychological and behavioral aspects of illness can decrease medical utilization and costs. The savings from reduced medical utilization can also more than offset the cost of providing the behavioral interventions, resulting in total cost savings. The pathway categories clearly overlap and interact. Patients often present with a combination of psychosocial factors that motivate their medical utilization. Similarly, most of the cost-effective behavioral interventions that we use as examples cross over to impact multiple pathways to utilization.

Information and Decision-Support Pathway

The medical community has traditionally placed patients in a very passive role. Patients frequently feel that their only responsibility is the selection of a competent health care provider who will then diagnose and prescribe. This dependency on health professionals undermines patients' self-confidence and ability to distinguish symptoms and problems that can be safely self-managed and those that would benefit from professional attention. Many unnecessary and costly visits to professionals are occasioned by a lack of information and confidence in appropriate self-management and use of the health care system. Patients are not just consumers of health care. With over 80% of all illness episodes self-diagnosed and self-treated without professional consultation, patients are, in fact, the true primary health care providers in the health care system (Demers, Altamore, Mustin, Kleinman, & Leonardi, 1980; White, Williams, & Greenberg, 1961).

With both acute and chronic conditions, maximal clinical efficacy and economic efficiency require a far more active participation on the part of patients. Teaching patients how to effectively distinguish those symptoms and circumstances that require professional attention from those that can be self-treated is becoming increasingly important. For a variety of illnesses, patients can be taught specific intervention strategies that can be safely and effectively applied to remediate symptoms. In many cases, the clinician can assume the role of teacher who will naturally want to maintain a sufficiently good relationship with the patient so that the patient feels comfortable turning to the clinician should the circumstances dictate.

Empowering patients in appropriate self-care can be enhanced through print and audiovisual materials, professional teaching one-on-one or in groups, as well as the emergence of peer-led support groups. Such interventions are paying remarkable dividends in terms of improved quality of care, reduced symptoms, enhanced satisfaction, and reduced costs (Kemper, Lorig, & Mettler, 1993).

Evidence of Cost Offset

Parents of children sick with a fever are naturally fearful, confused, and concerned. These feelings often result in a visit to the pediatrician for reassurance. In nearly 25% of all acute pediatric visits, fever is a chief complaint. A randomized clinical study was conducted at Kaiser Permanente in southern California to evaluate the cost effectiveness of an office health education program designed to improve knowledge, skills, and sense of confidence about fever in children. At follow-up the group receiving the health intervention evidenced decreased medical visits for fever and for other acute illnesses (Robinson, Schwartz, Magwene, Krengel, & Tamburello, 1989).

In a controlled study, patients were offered a self-care book, a telephone information service, and individual counseling by a trained nurse. The self-care guide contained information on nearly 100 common symptoms and advice about home treatment and when to call a physician. In patients exposed to the intervention, visits for minor illnesses were reduced by 35% as a result of the program, and the total use of ambulatory care services was reduced by 17%. For every $1 that was spent on self-care education in the program, $2.50 was saved in medical costs (Vickery et al., 1983).

Teaching self-management skills is particularly critical for patients with chronic illness. Providing patients with social support, skill building, and accurate information regarding the nature and treatment of disease stimulates and engenders feelings of self-control, empowerment, and self-efficacy, which further enhance clinical outcome. The clinical and economic importance of self-efficacy was examined in a series of studies conducted at the Stanford Arthritis Center (Lorig et al., 1989; Lorig, Mazonson, & Holman, 1993). Patients and their families participated in an arthritis self-management course conducted by lay leaders who themselves often had arthritis. Results showed that it was not the patients who learned more about arthritis that did better but rather those who evidenced a greater sense of self-efficacy, or a conviction in their ability to manage their arthritis. At 4-year follow-up, in addition to participants experiencing a marked increase in self-efficacy and a 20% reduction in pain, they also reported a 43% decrease in physician visits as compared with pretreatment levels. On the basis of the reduced physician visit rates, adjusted 4-year health care savings were $648 per person with

rheumatoid arthritis and $189 per person with osteoarthritis. Given these figures, if only 1% of the patients in the United States with moderate-to-severe osteoarthritis of the hand (103,000) and only 1% of the patients with classical or definite rheumatoid arthritis (21,000) participated in the arthritis self-management program, total discounted savings over 4 years would equal $19.5 million for osteoarthritis and $13.6 million for rheumatoid arthritis.

Psychophysiological Pathway

Psychological stress itself can generate profound effects on the body by stimulating what has been termed the fight-or-flight response (Cannon, 1941). The fight-or-flight response is a heightened state of sympathetic nervous system arousal that prepares the body for vigorous muscular activity. Repeated exposure to everyday annoyances or prolonged stress can trigger the fight-or-flight response, which in turn effects the skeletal muscular system, the autonomic nervous system, and the neuroendocrine system. The importance of stress in the etiology and exacerbation of a wide variety of illnesses is documented in an extensive experimental literature and a growing clinical literature (Gatchel & Blanchard, 1993).

The physiological opposite of the fight-or-flight response is the relaxation response. Whereas the fight-or-flight response involves central and peripheral nervous system changes that prepare the organism for action, the relaxation response involves central and peripheral nervous system changes that prepare the organism for calmness and behavioral inactivity. The same physiological relaxation response pattern (Benson & Stuart, 1992) can be achieved in numerous ways, including progressive muscle relaxation, focused attention, yoga, meditation, prayer (Benson, Beary, & Carol, 1974), or even repetitive exercise (Benson, Dryer, & Hartley, 1978). There is a substantial literature that documents the significance of the control of stress in the treatment of many diseases such as arthritis (Lorig et al., 1993) as well as hypertension, cardiac arrhythmias, insomnia, premenstrual syndrome, infertility, and the nausea and vomiting associated with chemotherapy (Benson & Stuart, 1992). There is a growing literature suggesting the efficacy of stress management in the treatment of cancer (Fawzy et al., 1993; Spiegel, Bloom, Kraemer, & Gottheil, 1989). To the extent that stress plays a role in either etiology or exacerbation of disease and to the extent that increased disease is costly to society, it is economically reasonable to include stress management in comprehensive treatment.

Evidence of Cost Offset

The impact of modifying and controlling autonomic reactivity through biofeedback and relaxation albeit considerable can only be estimated. As Schneider (1987) has pointed out in her review, there are no studies that examine the cost effectiveness of biofeedback alone because biofeedback is generally administered as part of a clinical package. Several studies have attempted to estimate cost effectiveness by examining reductions in physician visits and medication use.

A study of medicated and nonmedicated patients with hypertension conducted at the Menninger Clinic (Fahrion, Norris, Green, Green, & Schnar, 1987) reported decreased medication use as well as lowered blood pressure readings following a multi-modal biobehavioral treatment that included biofeedback-assisted training to regulate the vasodilation in patients' hands and feet. Over half of the medicated patients were able to eliminate hypertensive medication and reduce their blood pressure after treatment. Of the unmedicated patients in the sample, 22% showed clinically significant reductions in blood pressure readings. Fahrion et al. estimated that the cost savings for medication over a 5-year period would be $738. This savings was assuming that the group treatment cost was $600 per patient and that the average 5-year medication cost was $1,338 per patient.

Shellenberger, Turner, Green, and Cooney (1986) reported that physician visits were significantly reduced among a group of individuals who participated in a biofeedback and stress management program. Participants received a stress profile and 10 weeks of biofeedback-assisted relaxation training. Control participants received only a stress profile. At 2-year follow-up, the stress management group reported a 70% reduction in visits to physicians, whereas the control group reported a 26% increase.

Numerous studies have attempted to reduce the acute stress of hospitalization and surgery. The effects of psychoeducational interventions on postsurgical outcome was examined through a meta-analysis on 191 studies conducted between 1963 and 1989 (Devine, 1992). Seventy-nine percent to 84% of the studies indicated that there were beneficial effects from interventions, such as providing health care information, skill building, and psychosocial support. Length of hospital stay following surgery for patients given such interventions was decreased by an average of 1.5 days. Using a conservative estimate of $200 in savings from hospital expenses and $20 in educational costs, $10 would have been saved for every $1 invested in patient education.

Behavior Change Pathway

There is little doubt that overt behavior patterns have a great impact on disease. How a patient eats, drinks, smokes, takes prescribed or illegal drugs, and exercises has profound implications for health. Those with higher health risks do tend to have higher medical costs. To the extent that diet, smoking, and exercise patterns could be positively modified, rates of our most widespread illnesses, heart disease and cancer, would be reduced (Ornish et al., 1990). Formal behavior modification programs make sense both clinically and economically because systematic efforts at changing behavior have been shown to be more successful than informal unsystematic efforts (Black & Bruce, 1989).

Along with efforts to change behavior patterns such as smoking, drinking alcohol, and overeating, it is also important both clinically and economically to establish ways to maintain healthy habits and reduce relapse rates. For many patients stressful events can increase the likelihood that they will reengage in anxiety-reducing behaviors that they have used in the past, such as smoking and eating high-fat foods (Heatherton & Renn, 1995). This common pattern has been termed the stress-disinhibition effect (Marlatt, 1985). Coping with stress

and anxiety has a "psychic cost" that takes the form of lowered self-regulatory capacity (e.g., Glass, Singer, & Friedman, 1969). Relaxation training has been demonstrated to be a very effective acute coping strategy for anxiety reduction (American Psychiatric Association, 1989) and for maintaining abstinence among ex-smokers (Wynd, 1992). Health care utilization rates can thus be reduced by incorporating strategies that assist patients to stop engaging in unhealthy behaviors and can be further reduced by integrating strategies that help patients maintain their healthy habits.

Attempts to fully integrate systematic behavior modification programs into medical care have been hampered to a significant degree by the reimbursement policies and health plan contracts of insurers and providers. However, it is clear that such behavioral interventions would pay economic dividends to the extent that they obviate the need for more expensive interventions.

Evidence of Cost Offset

Ornish and his colleagues (1990) provided a good example of how an intensive lifestyle change program consisting of maintaining a low-fat diet, exercise, yoga, meditation, and group support can reverse the effects of heart disease and potentially save money. It was widely publicized that Mutual of Omaha would reimburse patients who chose to participate in the program, and it was the first time that such a costly, nonpharmacologic intervention program for heart disease reversal had received such coverage. On the one hand, the motivation on the part of the insurance company to cover the costs of the program, about $3,500 per year, could have been based on the clinical results reported by Ornish and his colleagues that program participants showed reductions in the narrowing of coronary arteries. On the other hand, given the average cost of coronary bypass surgery, about $35,000, the motivation for covering the costs may have made good economic sense as well. If by virtue of participation in behavioral medicine intervention programs only a few bypass operations could be prevented, such programs become cost effective.

Less intensive, low-cost programs to support positive lifestyle and behavior change also appear to have favorable effects on the bottom line. For example, Fries et al. (1993) conducted a study with 4,712 senior citizens in which information was mailed to participants about ways to improve health habits, increase feelings of personal self-efficacy, and increase the appropriate use of health care services. Participants in the experimental group received books and newsletters on health care, a health habits questionnaire, a computer-based personal health risk report every 6 months, and individualized recommendation letters from a physician. Results showed that compared with controls who received only mailed questionnaires, those who received the intervention had overall health risk scores 20% lower than baseline. Improvements were seen in blood pressure, body weight, seat belt use, dietary intake of salt and fat, alcohol use, exercise, smoking, cholesterol levels, and stress levels. Health care expenditures were reduced by 10–20%. The cost of the program was approximately $30 per person per year and reduced health care expenditures by an average of $164 in the 1st year alone. In the control groups, average costs increased $15.

Behavioral medicine interventions can be quite nonintrusive and not labor intensive. They need also not be restricted to the clinic environment. Several studies have demonstrated that behavior modification and stress management programs provided directly at the work site reduce clinical symptoms in targeted populations and reduce use of health services (Pelletier, 1993). These work site studies also afford the opportunity to suggest additional economic advantages of providing behavioral medicine services. The interventions tend to generally increase health and result in positive psychological changes. Most studies have also reported increases in worker productivity and decreases in absenteeism. These effects further increase the economic viability of behavioral medicine above those ascribed to decreased clinic utilization.

Social Support Pathway

Many patients feel isolated and confront perceived or real medical problems without social support. These patients frequently enter the health care system to obtain social support as well as traditional diagnostic and therapeutic services. Even patients who have high levels of social support under ordinary circumstances may develop feelings of isolation when they experience chronic illness. There is evidence that providing social support not only results in increased psychological benefits but may reduce physical symptoms as well. Most studies on social support have not focused on reduced costs as an outcome measure. However, some studies allow economic conclusions to be drawn.

Evidence of Cost Offset

A good example of a positive impact of social support in medical settings was reported by Frasure-Smith (1991). Male patients with myocardial infarction (n = 461) were examined over a 5-year period. Participants completed a 20-item General Health Questionnaire (GHQ) a few days before hospital discharge, and those assigned to an experimental group completed the GHQ on a monthly basis through telephone interviews. Participants assigned to a control group received routine medical care. Experimental group patients were supported by nurses' visits when they reported high GHQ stress scores. Patients receiving routine care exhibited an increased risk of cardiac events relative to those receiving the support visits. Although this study demonstrates the important clinical impact of providing social support, it did not directly address economic outcomes. However, by reducing the frequency of nonfatal myocardial infarctions some cost savings may be inferred.

Emotional support during labor and delivery also appears to have a positive effect on health and cost outcomes. Cesarean section (C-section) is the most common surgical procedure performed in the United States, affecting about one in every five deliveries. Delivery by C-section extends the hospital stay of mother and child and increases the risk of maternal infection and other complications.

Five studies have confirmed that the continuous presence of a supportive woman during labor and delivery can reduce the need for C-section, shorten labor and delivery, and reduce perinatal problems (Kennell, Klaus, McGrath, Robertson, & Hinkley, 1991; Klaus, Kennell, Berkowitz, & Klaus, 1992). The intervention was a *doula*—a trained lay person who provided emotional support consisting of praise, reassurance, physical contact (such as rubbing the mother's back or holding her), explanations of what was happening, and a continuous presence. In one study of the 204 patients in the control group, 18% had C-sections, and of the 212 in the group supported by doulas only 8% had C-sections—a reduction of 56%. The presence of a doula also reduced rates of epidural anesthesia by 85%, labor was an average of 2 hr shorter, and only half as many babies required more than 48 hr of hospitalization because of neonatal problems. The cost savings from reduced surgical and anesthesia procedures alone would greatly exceed the $200 cost of providing continuous emotional support from a doula.

Undiagnosed Psychiatric Problem Pathway

In many cases, patients present with somatic symptoms but have undiagnosed psychiatric illnesses. The problems that are increasing medical utilization in this case are not related entirely to physical symptoms but rather to problems such as depression (Jacobs, Kopans, & Reizes, 1995) and generalized anxiety disorder (GAD; Carter & Maddock, 1992). Failure to appropriately diagnose these conditions can have profound clinical and economic implications.

A recent study examining acute chest pain typifies the problem. Patients with acute chest pain (n = 334) were prospectively evaluated for panic disorder and depression over an 8-week period. Panic disorder was identified in 17.5% of the cases, and depression was identified in 23.1% of the cases. Importantly, the likelihood of an emergency room visit for chest pain in the previous year was significantly higher for those patients identified as panic disordered and depressed than for those patients without psychiatric disorder. This suggests that psychiatric variables may identify frequent utilizers of emergency room services for chest pain (Yingling, Wulsin, Arnold, & Rouan, 1993). The authors postulated that a third of all patients with chest pain making emergency visits have a current psychiatric disorder. Because the prevalence of psychiatric disturbance is so high, and because it is so clearly a contributor to the unnecessarily high utilization of medical services, careful assessment of psychiatric disorders is required in patients with coronary artery disease (Wulsin & Yingling, 1991). These examples regarding anxiety, depression, and chest pain are indicative of a widespread but poorly defined set of relationships between medical symptom reports and underlying but underdiagnosed psychiatric conditions. Because most physicians are not trained in diagnosing and treating these widespread conditions, an expanded role for experts in psychological and behavioral issues may result in better diagnosis and treatment and also save money.

Although the importance of diagnosing psychiatric problems within the medical population is recognized, standardized psychological screening inventories and interviews are often lengthy and thus impractical for clinical use. Recently, however, Spitzer et al. (1994) developed the Primary Care Evaluation of Mental Disorders (PRIME-MD), a 30-item self-report inventory that assesses four groups of mental disorders (mood, anxiety, somatoform, and alcohol) commonly seen in the clinical settings. The inventory was tested among 1,000 adult patients, and on average it took approximately 8 min for clinicians to complete an evaluation. Spitzer et al. found that 48% of the patients who, through the use of the PRIME-MD, were diagnosed as having a disorder and who had been fairly well-known by their physicians had not had the disorder detected by the physician prior to the assessment. Of more relevance to the current discussion, it was also found that compared with patients without PRIME-MD diagnoses, those diagnosed with disorders had significantly ($p < .005$) lower functioning, more disability days, and higher health care utilization rates.

Evidence of Cost Offset

A particularly good example of how the treatment of psychiatric disorders can reduce health care costs was reported by Strain et al. (1991), who studied a group of elderly patients with hip fractures who had been admitted to the hospital for surgical repair. Strain and his colleagues had noted that relatively few such patients were screened for psychiatric problems before surgery. To determine the degree to which depression and other psychiatric disorders occurred in this population, 452 consecutive patients who were admitted to the hospital received a psychiatric screening consultation. Sixty percent of the patients met diagnostic criteria and received treatment. The control group in this case consisted of a cohort of patients admitted to the hospital under normal circumstances. For this cohort, the average length of the postsurgical hospital stay was reduced by 2.2 days. However, the experimental cohort, consisting of the 452 screened patients, had a reduction in mean postsurgical stay of 1.7 days. This reduction in postsurgical hospitalization translated into a significant net savings for the hospital of nearly $1,300 per patient. This study provides a good example of the need to look at total reduction in cost. Although the cost for psychiatric and psychological services in this study was $40,000, medical expenses were reduced by $270,000. Thus, the intervention was cost effective from an institutional perspective.

Another example was reported by Carter and Maddock (1992), who studied the relationship between chest pain and GAD. They found that among 50 patients with GAD 48% had a history of chest pain. Sixteen of the GAD patients associated episodes of excess worry with their chest pain. Seven of the patients also reported having had panic attacks. However, of these 7 patients, 4 reported that their pain was not associated with their panic attacks. The Yingling et al. (1993) study described previously is also relevant. The results do not directly address the issue of cost offset. However, they do indicate a need for evaluating and treating anxiety disorders among patients with chest pain. In an environment that readily provides access to medical services but restricts access to psychological services, such patients are more likely to receive

expensive electrocardiographic evaluations than psychological evaluations.

Somatization Pathway

Patients presenting with somatic complaints may have an organic disease, a psychiatric disorder, or significant emotional distress being expressed through somatic symptoms (Barsky, 1981). Although some somatizing patients qualify for a formal psychiatric diagnosis, a far greater number are expressing psychosocial distress in bodily terms. In either case, the medical system is overused by some patients who complain of physical symptoms to their physicians but who are primarily in need of relief from emotional distress (Smith, Monson, & Ray, 1986). Physicians trained primarily to diagnose and treat somatic complaints will typically respond with tests and interventions that may fail to produce symptom relief. This may in turn magnify symptom reporting, initiate a round of more exotic and more expensive tests to find "the problem," or trigger a round of doctor shopping, all which increase costs. A recent review by Ross, Hamilton, and Smith (1995) has suggested that a simple screening procedure, which involves counting the number of symptoms presented, may help physicians detect this disorder. With early diagnosis and recognition regarding attention to the emotional needs of the patient the primary care clinician can alter their treatment accordingly. Although referral to a mental health professional may be appropriate in many cases, Ross et al. suggested that physicians can forestall excessive medical utilization and reduce costs by providing services directly appropriate to the emotional problems at the root of the patient's complaint.

Evidence of Cost Offset

Some patients are particularly sensitive to changes in physical sensations and are quick to seek medical attention. Organic causes for physical symptoms are generally not discovered for these patients, and for the majority of this group emotional distress appears to aggravate their sensitivity. Psychological interventions before or in conjunction with treatment have been found to reduce medical utilization.

Smith et al. (1986) studied 38 patients who had been diagnosed with somatization disorder prospectively for 18 months. Patients in the treatment group received a psychiatric consultation, and treatment recommendations were given to the patients' primary physicians. The control group received the same intervention after 9 months. Results showed that the quarterly health care charges in the treatment group declined by 53% ($p < .05$), and the control group showed no overall change. However, after the control group was crossed over and received treatment, their quarterly charges declined by 49% ($p < .05$). The authors concluded that psychiatric consultation reduced medical costs significantly in patients with somatization disorder.

More recently Smith, Rost, and Kashner (1995) reported the results of a randomized intervention for somatizing patients who had a history of seeking help for 6 to 12 lifetime unexplained physical symptoms but who did not meet the formal diagnostic criteria for somatization disorder. Physicians in the intervention group received a consultation letter recommending specific behavioral strategies for managing their somatizing patients. Patients of physicians who received the consultation letter reported significant increases in physical functioning and had reduced annual medical charges of $289, which equated to a 33% reduction in the annual median cost of their medical care.

The largest study to date of the cost-offset effect of mental health treatment involved an examination of a group of high utilizers of Medicaid services. This study found that 80% of medical costs were distributed in 15% of the Medicaid population (Pallak et al., 1995). Although no specific attempt was made to determine the degree to which the utilization patterns of this high-use group were due to somatization, the results of previous studies suggested that it was likely that a significant percentage of medical visits were prompted by psychological distress.

On the basis of this presumption, an intervention study was initiated. Two thirds of the high-use group were offered and received brief psychological intervention, and one third were assigned to a control group and did not receive therapy. Those patients who received brief psychotherapy showed significant reductions in medical costs. Differences were found depending on the length of time patients had been enrolled for Medicaid services. For those enrolled 6 months, medical costs declined by 20–23%. For those enrolled 12 months, costs declined by 36–25%.

Access to appropriate, focused mental health treatment clearly reduces medical care costs. Addressing the emotional distress of patients, whether because of psychological problems or medical illness, decreases the utilization of costly medical services. It makes health and economic sense to offer high medical utilizers the benefits of focused mental health services through referral and outreach. Health care systems that make use of appropriate expertise directed at both medical and emotional distress can provide superior patient care and medical cost reductions.

Psychosocial interventions do not always have to consist of individual counseling. A study at the Harvard Community Health Plan investigated the effectiveness of two group behavioral interventions among high-utilizing primary care patients who experienced physical symptoms (e.g., palpitations, shortness of breath, gastrointestinal complaints, headaches, sleeplessness, musculoskeletal complaints, malaise, etc.) with significant psychosocial components (Hellman, Budd, Borysenko, McClelland, & Benson, 1990). Both interventions offered patients educational materials, relaxation–response training, and awareness training, and both included cognitive restructuring. These groups were compared with a randomized control group that received only information about stress management. The behavioral medicine intervention groups met for 90-min sessions once a week for 6 weeks. The information-only group met for just two 90-min sessions. Six months after treatment, only patients in the behavioral medicine groups reported less physical and psychological discomfort and averaged nearly two fewer visits to the health plan than the patients in the control group. The estimated net savings to the HMO above the cost of the intervention for the 46 behavioral medicine patients was $85 per participant in the first 6 months.

The implications of these representative studies are clear. For many patients who are heavy utilizers of the medical system, psychological interventions pay economic dividends. In the Smith et al. (1986) study, the patients were identified on the basis of a psychiatric diagnosis. In the Medicaid (Pallak et al., 1995) study, patients were identified on the basis of utilization patterns. The former strategy is more effective for smaller studies, whereas the latter strategy is more effective for larger studies. It is also worth emphasizing that the cost offset associated with these studies is realized immediately. Furthermore, these cost savings are real and not a function of cost shifting from one clinical service to another.

Chronic Pain Management: An Example of a Cost-Effective Intervention

The arbitrary distinction between mind and body undermines clinical efficacy and economic savings. Psychiatric, psychological, behavioral, and biomedical evaluations and interventions should be integrated. Although such combination makes it more difficult from a research point of view to tease out the active ingredients, more often than not effective clinical care of patients will involve a multidisciplinary approach. Multidimensional back pain centers are a good example of successful integration of behavioral medicine interventions with biomedical treatment. Such centers generally treat patients who have been unsuccessful with the use of usual medical and surgical treatments. Relaxation, cognitive restructuring, exercise, and nutritional counseling are integrated with physical, occupational, and vocational therapy, as well as pharmacological and surgical interventions.

Several studies have now demonstrated that multidimensional pain centers are a cost-effective way to treat patients with chronic back pain. As an example, Simmons, Avant, Demski, and Parisher (1988) compared the medical costs for patients in the year before treatment and the year after treatment in a multidimensional pain center. In the year before treatment at the pain center, medical costs averaged $13,284 per patient and in the year after averaged $5,596. For the 16 patients sampled, this represented a total savings of $123,000 in medical costs. Turk and Stacey (in press) extrapolated the savings reported by Simmons et al. to a much larger sample. Specifically, they estimated the savings that would occur if the 2,318 patients successfully treated in pain centers as reported in a meta-analysis by Flor, Fydrich, and Turk (1992) exhibited reductions similar to those in the Simmons et al. study. With a 3% correction for inflation, Turk and Stacey estimated a cost savings of $20 million in medical expenses in the 1st year following treatment. They further extrapolated the cost savings that would occur if disability payments could be eliminated. The Flor et al. meta-analysis estimated that 50% of patients treated in pain centers receive some form of disability. Turk and Stacey calculated that if 1,544 patients, half the patients in the cohort described by Flor et al., were to stop receiving disability payments, the savings in reduced disability payments would be over $90 million.

Caudill, Schnable, Zuttermeister, Benson, and Friedman (1991) also investigated the effect of a behavioral group intervention on clinic usage in an HMO for patients with chronic pain. One hundred nine patients who had been suffering with chronic pain for an average of 6.5 years participated in the study. The patients attended 90-min group sessions once a week for 10 weeks. The behavioral medicine intervention resulted in decreases in negative psychological symptoms such as anxiety, depression, and hostility. In addition, clinic use decreased by 36% among patients who had received the intervention in the 1st and 2nd year after the program. The program cost $1,000 per group of 10 patients. However, the net savings in clinic visits alone was estimated to average $110 per patient in the 1st year and $210 per patient in the 2nd year after the behavioral intervention. These estimates do not include possible savings from reduced prescription drugs and reassuring diagnostic tests.

Barriers to Integration of Behavioral Medicine and Biomedical Interventions

If the case for integrating behavioral and biomedical interventions from both a clinical and cost viewpoint is so compelling, why has there not been more investment in such integration? One reason is that the data are incomplete. Although we have highlighted some of the evidence supporting the cost-offset effect, the majority of behavioral and psychosocial interventions have never been thoroughly investigated to assess their impact on medical utilization and costs. Along with the message that incorporation of mental health services into routine medical care can save money comes the responsibility to define what mental health services are most cost effective for which patients and under what circumstances. No intervention works for everyone in every case. Admittedly, much more data is required to address the issue of specificity.

It is unlikely that the incorporation of behavioral medicine into the treatment of all chronic disease would have equally profound cost savings. Where there is good data, often providers of medical, and even psychological, services are not aware of it. Even when hard data on cost and health outcomes are reported for soft psychosocial interventions, medical professionals too often dismiss or ignore such studies. For one, over the past century, the medical community has been focused on improving technology and clinical services. The prevailing attitudes toward the origin of disease has emphasized biological explanations.

Patients also may be resistant to psychosocial explanations and behavioral interventions. Somatizing patients, in particular, are often focused on finding a medical explanation and treatment to fix their somatic concerns. Psychosocial interventions, especially those associated with traditional psychiatric diagnoses and treatment, unfortunately still carry with them a stigmatizing shadow.

There continues to be confusion between behavioral medicine and clinical health psychology on the one hand, and psychotherapy on the other (Friedman, Vasile, Gallagher, & Benson, 1994). Patients, third-party insurers, and policy makers still tend to view all behavioral medicine interventions as the equivalent of psychotherapy. The traditional, long-term psychotherapy model consisting of several individual counseling sessions per week that can persist for several years is likely

to have quite different outcomes than the more efficient and targeted behavioral approaches described above.

Another practical problem that must be confronted to achieve maximal integration is the issue of cost–benefit accounting and budgeting. The Strain et al. (1991) study of a psychiatric consultation-liaison intervention for postsurgical patients noted previously is a good example of the problem. Although medical costs, or more specifically, hospital costs, were reduced, the "bottom line" for the provision of psychiatry services was increased. An important part of increasing use of psychological, or in this case psychiatric, interventions in medicine is a readjustment of accounting. It is usually the case that profits and losses are independently calculated for each clinical services. Furthermore, it is also frequently the case that insurance coverage for medical problems is handled by one company, whereas coverage for mental health problems is handled by another. Trying to convince the latter to spend money so that the former would save money is problematic at best. Developing mechanisms for addressing these problems is critical if health policy and the delivering of health services is brought into better alignment with the underlying psychosocial and behavioral issues that determine overall medical utilization and cost.

Caveat Emptor: The Limits of Cost Analysis

Many studies of psychosocial interventions have not included utilization or cost impact in their outcome analysis. Often we have to infer or project potential savings. For example, psychosocial interventions that reduce anxiety and depression, boost smoking cessation, or enhance adherence to medical regimens might be assumed to have favorable impact on health and cost outcomes even though use may not have been directly measured. For the purposes of this review, however, we primarily have used examples where cost-related data are available.

The primary purpose of psychosocial interventions should be to improve health outcomes, not just reduce medical costs or utilization. Although on balance, many psychosocial interventions appear to reduce overall health care costs through the cost-offset effect, some may very well increase costs. For example, by extending the life of patients with metastatic breast cancer (Spiegel et al., 1989) by means of a support group, the total lifetime medical costs are likely to increase. In the rush toward cost-effective interventions, we should not lose sight of the true purpose of all health care interventions—to improve the quality and, when appropriate, quantity of life.

Conclusion

The economic pressures prompting more consistent incorporation of cost-effective behavioral medicine into clinical practice come at a propitious moment. The empirical evidence documenting clinical efficacy of behavioral medicine over the past 20 years continues to accumulate. There are patient-specific and disease-specific intervention strategies that can be integrated into clinical care with the same degree of scientific credibility as pharmaceutical or surgical interventions. Although the current economic climate provides a new impetus for integration, practitioners must appreciate the need to incorporate only those interventions that have been scientifically validated.

Fortunately, there is growing evidence that attending to the multiple psychosocial reasons that prompt patients to visit physicians can be both health and cost effective. Interventions can be designed and targeted to address each of six pathways that reflect the psychosocial drivers of medical utilization and medical costs. It is important to emphasize that enhancing self-management skills and self-efficacy, reducing psychophysiological arousal, altering specific behavior patterns while preventing relapse through stress management, and enhancing social support are not independent interventions but rather components of an overall strategy of psychological and behavioral management. When these four strategies are combined with increased sensitivity to psychiatric and somatoform disorders that prompt medical utilization, maximum clinical and economic gains are to be expected. Providing behavioral interventions better suited to patient needs can often offset the demand for costly medical services.

The studies cited above have addressed a variety of clinical problems and used a variety of interventions to eventuate savings. Some of the studies involved mental health interventions that demonstrated cost-offset benefits from individual brief psychotherapy or psychiatric consultations for medical–surgical patients. Other studies involved multi-faceted behavioral medicine interventions that combined medications, cognitive therapy, group support, biofeedback, relaxation, and behavior modification. The incorporation of psychological, psychiatric, and behavioral interventions into routine medical care has always made clinical sense and is grounded in empirical science. The contemporary economic climate now makes such an integration essential.

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Call for Nominations

The Publications and Communications Board has opened nominations for the editorships of the *Journal of Experimental Psychology: Animal Behavior Processes*, the "Personality Processes and Individual Differences" section of the *Journal of Personality and Social Psychology*, the *Journal of Family Psychology*, *Psychological Assessment*, and *Psychology and Aging* for the years 1998–2003. Stewart H. Hulse, PhD; Russell G. Geen, PhD; Ronald F. Levant, EdD; James N. Butcher, PhD; and Timothy A. Salthouse, PhD, respectively, are the incumbent editors.

Candidates should be members of APA and should be available to start receiving manuscripts in early 1997 to prepare for issues published in 1998. Please note that the P&C Board encourages participation by members of underrepresented groups in the publication process and would particularly welcome such nominees.

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- Lyle E. Bourne, PhD, for *Psychology and Aging*. Members of the search committee are Carol Barnes, PhD; Alfred Kaszniak, PhD; M. Powell Lawton, PhD; and Michael A. Smyer, PhD.

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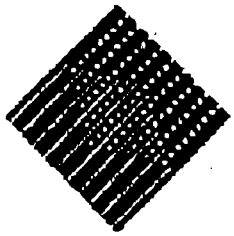
First review of nominations will begin December 11, 1995.

Putting Evidence into Practice



OBSSR
OFFICE OF BEHAVIORAL AND SOCIAL SCIENCES RESEARCH

The OBSSR Report of the Working Group on the Integration of Effective Behavioral Treatments into Clinical Care

Office of Behavioral and Social Sciences Research
National Institutes of Health

Working Group Chairs:

Jessie Gruman, PhD
Center for the Advancement of Health

Michael Follick, PhD
The Abacus Group

This report is dedicated to the
memory of the late
Dr. Richard Friedman,
the original chair of the working group.

Foreword

The Working Group on the Integration of Effective Behavioral Treatments into Clinical Care was convened in 1997 to address a critical issue: the lack of integration of evidence-based behavioral approaches into health care. Behavior mediates almost every aspect of health and health care. Whether we focus on risk behaviors of individuals or the appropriate use of the latest biomedical technology, attention to behavior will lead to better outcomes. To date, however, what is known about behavior is rarely incorporated into the planning and delivery of medical care. What barriers have prevented this from occurring? What must happen to ensure widespread integration of evidence-based practices and interventions within health care nationwide? What is the role of the behavioral science and practice communities in facilitating integration? This report reflects the deliberations of the working group as it addressed these questions.

The recommendations presented are relevant to six audiences, each of which has a critical role in advancing the use of evidence-based behavioral approaches in health care:

Professional societies will benefit from the recommendations that clearly identify ways to build the capacity of their members to conduct relevant intervention research and increase delivery of effective services.

Researchers will find interesting new lines of research that would advance evidence-based practice.

Clinicians who deliver behavioral services will see the important role they have in communicating the value of behavioral approaches and in shaping intervention research to improve its real-world relevance.

Academic faculty will see new research and training directions for students.

Entrepreneurs will see new opportunities for the development of products that will facilitate the use of evidence-based behavioral approaches in health care.

Funders will find the recommendations useful for shaping grant initiatives that will significantly advance the integration of health and behavior research, thereby leading to improved health outcomes.

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Introduction

Nearly half the nation's premature deaths from the ten leading causes of mortality are attributable to behavioral factors. Behavioral health risks — unhealthy diet; lack of exercise; tobacco, alcohol, and drug abuse; risky sexual practices; and others are associated also with higher ambulatory care and hospitalization costs and account for almost three-quarters of all medical care spending.

Despite abundant evidence showing these risks to be major contributors to chronic disease, injury, disability, premature death, and escalating health care costs, behavioral interventions and treatments have largely been overlooked as cost-effective ways to identify and change health-related behaviors. Why have evidence-based behavioral interventions had such limited penetration in health care settings and what can be done to facilitate their integration into clinical care?

In 1997, at the National Institutes of Health, the Office of Behavioral and Social Sciences Research (OBSSR) convened a national working group of health professionals from multiple disciplines to answer these questions and to assist OBSSR in advancing the field of health behavior. Specifically, this group was charged with identifying barriers to the full integration of behavioral interventions in health care, devising strategies for overcoming these barriers, and issuing a final set of recommendations that can serve as a blueprint for action.

Working group members agreed that to address early and unnecessary death and disability, behavior must be acknowledged as one of the most important factors in health status and behavioral interventions must be developed and applied accordingly. What follows is a plan for achieving these goals and, ultimately, incorporating what is known about changing behavior into health care systems across the country.

The Value of Behavioral Approaches

The major health problems of our time cannot be adequately addressed without integrating the psychological, social, and behavioral aspects of health into health care. By improving quality of life and medical outcomes, preventing disease onset, and decreasing health care costs and utilization of care, behavioral approaches will help the health care system achieve its long-term goals.

Specifically, behavioral approaches:

Reduce risky behaviors/increase preventive behaviors. There are now evidence-based behavior change interventions available to address most of the behavioral risk factors for disease, including tobacco use, obesity, poor diet, sedentary life-style, and alcohol and drug addiction. And there are effective interventions that improve diet, increase participation in screening programs, and reinforce behaviors that prevent injury (e.g., reducing the number of motor vehicle accidents and the incidence of high-risk sexual behavior among HIV patients).

Treat a range of defined illnesses and conditions. Behavioral interventions have been effective in expanding the functional capacity of people with lung disorders; reversing atherosclerosis; decreasing cardiovascular disease (CVD) mortality, pregnancy complications, and sudden infant death syndrome (SIDS); and promoting self-management of diabetes, cancer, high blood pressure, asthma, psoriasis, stress, anxiety-related disorders, and conditions such as insomnia, chronic pain, irritable bowel syndrome, and headaches.

Treat proximal conditions that enhance health outcomes. Behavioral interventions, which have been shown to improve health outcomes, can help enhance an individual's sense of efficacy and coping skills; reduce the incidence of surgical complications; and prevent avoidance behaviors and irrational thinking that may delay disease diagnosis and treatment.

Enhance health care quality and reduce costs. Behavioral interventions can help change physician behavior, reduce stress-related visits to providers, and decrease client turnover. These demand-reduction benefits are increasingly important in today's market-driven health care system.

The Urgent Need for Behavioral Approaches

Several recent trends strongly suggest that it may be time for health care systems to take a closer look at evidence-based behavioral interventions and incorporate them into their service delivery protocols.

First, a myriad of efforts has been implemented in recent years to control health care costs, including managed care. Yet, health care costs have continued to rise, forcing many systems to control and, in many cases, reduce health care supply. Now, as these cost control opportunities rapidly diminish, health care systems must find ways to reduce the demand for costly procedures and treatments.

Behavioral treatments and interventions can reduce health care demand and thus, health care costs. Studies have shown that health care utilization is not necessarily related to disease frequency or severity, but often depends on patients' individual perceptions and attitudes about their symptoms. Patient suffering, for example, has driven health care demand, which has resulted in higher costs for both patients and providers. By addressing this suffering through counseling, self-care, patient education, and prevention-oriented interventions, it is possible to reduce health care utilization, length of hospital stays, and the need for more expensive and invasive treatments. Behavioral interventions can also help to lessen the burden of chronic disease, which exacts considerable economic and human costs, by changing behaviors that contribute to the progression of chronic disease and to costly complications.

Second, consumers — especially those that do not fall under the traditional, acute care medical model — are searching for new ways of maintaining and improving health and thus, are becoming increasingly more selective about which health plans they choose. In turn, consumers' desires are influencing the choices of public and private health care purchasers, who are also concerned about the human and economic costs of behaviors that contribute to disease and disability.

If market-driven health care systems are to survive, they must meet the demands of consumers and purchasers, especially the desire for high-quality services, better physician/provider-patient communication, and interventions that enable consumers to take greater control of their health. Time-tested and proven behavior change services and interventions directly respond to these needs and allow health care plans to play a central role in primary prevention to reduce health care risks.

Third, a new emphasis on accountability has forced many health care systems to reassess their health care services in terms of quality and health outcomes. Numerous studies have demonstrated the effectiveness of targeted educational, behavioral, and psychosocial

interventions in health care settings — nearly all of which are simple, safe, and relatively inexpensive ways to dramatically improve health outcomes and reduce the need for more expensive approaches.

Moreover, research on patient satisfaction has found that consumers often define quality in terms of the interpersonal nature of that care. By stressing quality over quantity, behavioral approaches not only increase the likelihood of consumers viewing more favorably the care they receive, but also foster greater job satisfaction among providers who want to offer this kind of individualized and supportive health care.

Fourth, the health care system is currently in a state of flux, offering unprecedented opportunities for innovation. New computer-based technologies, for example, have emerged to facilitate prevention and disease management strategies that have long been the hallmark of behavioral intervention. Cost-sharing arrangements that shift more payment responsibility to consumers mean that health plans will have to become even more responsive to consumers' and purchasers' interests in behavior-related services and programs. Greater consolidation of health care systems has resulted in less patient-shifting, giving plans the opportunity to strengthen the patient-provider relationship through the use of behavioral techniques. Delivering effective behavioral interventions to managed care enrollees using tailored communication methods, where they are efficient, is potentially highly cost effective. As Medicaid and Medicare enrollees increasingly are served by managed care programs, behavioral approaches can offer them readily available access to information and support that will help them better manage and prevent disease.

Barriers to and Facilitators of Integration into Health Care Delivery

What are the barriers that prevent full integration of behavioral approaches into health care systems and what are the carriers that can facilitate this process? This question was posed to working group members as well as to the medical directors of several managed care systems through a study conducted by the Center for the Advancement of Health.

Barriers to Integration

Working group members identified seven major barriers to incorporating behavioral approaches into mainstream medicine:

Lack of Standardization. The health care system demands standardized quality control and clinical information systems, evaluation criteria, program accreditation, and pricing, but most behavioral interventions are intrinsically less standardizable than medical procedures. Surgery, for example, can be performed, evaluated, priced, and assigned

administrative codes based on standard formulae. In contrast, while there are many effective interventions to change health-related behavior, few are converted into clinical practice guidelines and integrated thoroughly into standard health care practice.

Many behavioral interventions are still in the formative stages of integration with mainstream health care systems. Adding to this challenge is the perception that health behavior research is a relatively "softer" science, which means that the field must produce a greater amount of evidence than is usually the case with more procedural interventions.

Perception of High Costs. Unlike other medical interventions such as pharmaceuticals and surgery, behavioral interventions typically do not yet have powerful financial stakeholders who can encourage government and private insurance companies to cover them. While the majority of these interventions may pay for themselves over the long-term, insurers tend to be primarily interested in evidence of short-term cost-effectiveness, based on their awareness that consumers often switch plans before any long-term savings can be realized.

Lack of Knowledge and Awareness. A knowledge gap exists at several levels between what health behavior research can do to help the health care system achieve its goals, and how much is known about these interventions. At the consumer level, patients are often unaware of behavioral approaches and fail to demand them from their health care plans. Health care providers continue to view pharmaceutical, diagnostic, and/or surgical interventions as easier, quicker, and more effective than behavioral procedures, or they do not expect or trust patients to comply with behavioral recommendations. At the organizational level, health care plans have resisted integrating them fully into their service regimen because they remain unconvinced of their effectiveness.

The bulk of health care research—and, by extension, research funding—continues to be focused largely on traditional medical models and/or interventions, rather than on behavioral or combined biomedical/behavioral approaches. Moreover, multicultural approaches to research (e.g., identifying the best health care strategies to use cross-culturally), have yet to be fully adapted for use in behavioral research.

Organizational Barriers. Health care plans that acknowledge the value of behavioral approaches still face considerable hurdles when trying to integrate them into service delivery. The current acute care-oriented health care system is not staffed or organized to deliver the planned, supportive care required for behavioral prevention and disease management. In addition to lacking trained and credentialed staff (e.g., nutritionists, psychologists, occupational therapists, etc.) that can provide high quality behavioral care,

many health care plans simply have not established payment/reimbursement systems or policies for covering behavioral treatments.

Finally, assessing or evaluating the behavioral treatments offered through health plans is often difficult because stringent practice guidelines have yet to be established. To some plans, for example, "patient education" means simply giving patients a pamphlet, while others include a broader range of educational services (e.g., counseling, biofeedback, etc.) under this rubric.

Lack of Clear Identity. The health behavior research field continues to struggle with a lack of clarity as to its goals, parameters, and interests. Specifically, it has yet to adequately define what makes it effective and what distinguishes it from other models, including those that have been readily embraced by the health care profession, as well as the public at large.

Gaps in Evidence Base. In a number of areas, the health behavior field has yet to gather sufficient empirical evidence that will support fully the efficacy of many of its interventions and claims, as well as justify the establishment of policies and processes to identify, train, and credential a wide range of health and mental health professionals.

Few Dissemination Vehicles. There is a dearth of dissemination vehicles for getting the data that does exist into the hands of multidisciplinary professionals quickly and efficiently. Currently, there are few centralized information and dissemination sources, crippling the ability of those in the field to advocate for these approaches in a more concerted, strategic way. Further, dissemination efforts have relied on passive, rather than active, strategies (e.g., guidelines). As a result, implementation of behavioral interventions continues to be scattershot, leaving those in the field and outside it unaware of current research, issues, and/or trends.

Facilitators of Integration

Strategies that can overcome these barriers include:

Obtaining better evidence. With more scientific evidence to substantiate the need for behavioral interventions and their effectiveness, health care systems will have more incentive to incorporate them into their plans.

Improving standardization. Quality standards, practice guidelines, decision models, and cost-effective analyses will provide legitimacy and also help improve services. Categories that describe treatments (e.g., short-, medium-, or long-term interventions and group- or individual-focused interventions, etc.) must also be developed.

Better practice models and training approaches. Practitioners, researchers, and proponents need to be more proactive in developing and reporting on model programs that can inspire and guide others to develop effective and cost-efficient behavioral health programs. In addition, the field must offer better training for those who deliver behavioral services, which will not only impart a standardized set of skills to professionals but will also legitimize and motivate the profession at large.

Mobilizing public support. Although studies show that consumers have readily embraced the notion of "alternative medicine," the public does not appear to include behavioral approaches to improving health and preventing and managing disease. It is not clear whether this is because they do not understand evidence-based behavioral approaches — what they are and how they work — or because the public resists the notion that improved health might involve working to change habits when some less laborious herb or manipulation might have the same effect.

The definition, purpose, and outcomes of behavioral approaches must be clearly defined in language that is useful to decisionmakers and the public. Strategic educational and marketing efforts should be targeted toward consumers, policymakers, and others with the power to champion behavioral interventions. Messages must be developed that emphasize behavioral effectiveness of the interventions and their ability to improve health outcomes, expand patients' choices, and enhance quality of life.

Clear framing of the role of interventions. If behavioral interventions are to be accepted more fully, practitioners and researchers must talk about them differently than they have in the past. Specifically, the role of behavioral interventions is neither clear nor vital within a traditional medical model, in which the primary goal is to offer a "cure" for an existing disease. However, in a risk management model of health care, in which the goal is to prevent disease and reduce risk factors for multiple disease, such interventions become key.

The View of Providers

What do managed care representatives perceive as barriers or carriers to the integration of behavioral approaches into health care systems? Preliminary data from a survey[1] conducted by the Center for the Advancement of Health (CAH) reveals that there is some agreement among health care providers, researchers, and clinicians as to barriers and carriers, but there is also some disagreement.

The Center surveyed HMO medical directors licensed in five states (Oregon, Wisconsin, Massachusetts, Colorado, and Florida, and the District of Columbia) about the behavior change programs their plans provided, their views of the scientific evidence supporting behavior change interventions, factors that influence the provision of behavior change programs in their plans, and the sources of evidence-based information they use to support their choices. Fifty (50) of 110 HMO medical directors responded to the survey (a relatively high response rate of 46 percent), which defined "behavior change programs" as activities that help members modify their behavior to prevent or manage a health condition.

Participants were asked whether they provided any of the following programs to HMO enrollees: exercise/fitness, nutrition education, smoking cessation, and alcohol and other drug dependency programs. Respondents were also asked whether they provided behavioral interventions as treatment for several conditions that have proven to respond positively to behavioral approaches: asthma, depression, diabetes, pregnancy, back pain, and cardiovascular conditions.

Of the 50 medical directors surveyed, a considerable percentage reported offering alcohol/drug dependency (92 percent) and smoking cessation (76 percent) programs, and slightly less said they provide nutrition education (66 percent) and exercise/fitness regimens (30 percent). Nine out of 10 HMOs reportedly offer behavioral change programs for diabetes, 86 percent for asthma, 80 percent for both pregnancy and cardiovascular conditions, and 76 percent for depression. Only about a quarter of HMOs offer such interventions for back pain (26 percent). Although 98 percent of HMOs say that the scientific evidence now available is sufficient to support the behavior change programs offered, less than half indicate that such evidence is "most important" to their decision to offer these programs.

According to HMO medical directors, barriers to incorporating behavior change programs include concerns about the lack of trained staff people and uneven quality of available

[1] The Robert Wood Johnson Foundation funded "Changing Health-Related Behavior in Managed Care Settings," a program of the Center for the Advancement of Health.

vendors/services; the perception that these programs are either too costly or cost-ineffective; and the difficulty of measuring health outcomes when they are used. Administratively, respondents said that these interventions were still not yet part of their organizational culture, which continues to favor an acute-care model. Organizational structure is also a barrier; specifically, institutions are not designed to facilitate the kind of patient-provider contact and communication they associate with behavioral interventions. Other identified barriers were financial systems (payment and reimbursement), regulatory issues (state versus local regulations), and consumer access to and location of these services.

At the provider level, a major barrier to the full integration of health behavior research into managed care was the acute care or biomedical treatment orientation of physicians and other providers, as well as providers' negative attitudes toward patient adherence to a behavioral regimen. Confidentiality breaches were also perceived as a barrier.

Further, medical directors stressed that behavioral approaches were not in high demand from consumers/members and purchasers, so they did not feel required to offer them. High member turnover rates (12-30 percent) and difficulties involved in documenting the long-term success of behavioral interventions were also perceived as barriers to integration.

Factors the medical directors said were most important to their decisions to offer behavior change programs fell into two categories: administrative, such as organizational culture and image, and program/intervention, such as quality, cost and outcome evaluation. Plans stressed that incorporating these programs not only "helps to improve the plan's image," but increasingly is required by quality assurance agencies such as the National Committee for Quality Assurance (NCQA). At the program level, HMOs perceive the behavioral interventions as an opportunity to improve quality of life, reduce the use of medical services, improve health outcomes, and increase treatment compliance.

Strategies for Change

A model for translating evidence-based health and behavior research into practice[2] serves as a useful heuristic through which to organize the recommendations of the OBSSR Working Group.

The model posits three dynamic and interacting kinds of activities that will increase the number of systems and providers of evidence-based behavioral interventions and the

[2] The model was developed by Jessie Gruman, Center for the Advancement of Health; Tracy Orleans, the Robert Wood Johnson Foundation; and Norman Anderson, Office of Behavioral and Social Sciences Research, NIH. It was presented at the Society of Behavioral Medicine annual meeting in March, 1999.

number of individuals receiving them, with the ultimate aim of improving population health and well-being. The three types of activities are:

Technology Push: Proving or improving interventions for population-wide use. This activity includes the development of standards for defining effectiveness, the development of formal clinical practice guidelines, and testing/adapting interventions in underserved and high-risk populations and settings.

Research and Clinical Capacity: Building the capacity of relevant systems to produce stronger and more precise evidence and to deliver interventions. This activity includes providing technical assistance for the delivery of evidence-based interventions in real world settings, provider training, and clinical improvement/quality control standards and packaging interventions to make the best possible use of available technologies.

Market Pull/Demand: Building a market and demand for interventions, including direct-to-consumer marketing; increasing market demand through cost-effectiveness research; and implementing policies that drive demand and implementation, such as Healthplan Employer Data and Information Set (HEDIS) quality measures.

It is only through a level of simultaneous strategic activity in each of these domains that we will realize the promise of behavioral approaches to the prevention and treatment of disease.

The same model can be used to describe the types of actions needed to strengthen practice- oriented research. The OBSSR Working Group recommended the following actions:

Technology Push

I. Increase Practice-Oriented Research (POR)

Make use of all available research-related resources to increase the amount of high quality interdisciplinary research:

- Seek out and utilize non-RO1 research funding mechanisms (e.g., Small Business Innovation Research, minority supplement, quality of life supplement, etc.).

- Make use of non-Federal research funds to support pilot interventions and intervention evaluations.

- Increase the use of Agency for Health Care Policy and Research grant mechanisms to produce cost-effectiveness/cost benefit research.

- Get end-users involved early as stakeholders and partners in the design of interventions to be tested.

II. Improve Research Funding for POR

Increase commitment and action by funding organizations to increasing knowledge and practice based on an expanded view of health:

- Communicate with NIH institute directors and program officers about the potential of evidence-based behavioral interventions to help their public constituencies.

- Work to ensure that training and research funding mechanisms clearly include behavioral and social scientists.

III. Strengthen Intervention Presentation and Availability

Summarize, organize, and make widely available comprehensive evidence-based interventions:

- Standardize behavioral interventions for health promotion and disease prevention and management. Make those standards widely available to clinicians, training programs, health plans, and the public.

- Develop formal clinical practice guidelines.

- Test/adopt interventions in new populations and settings.

- Translate the evidence base of behavioral interventions into language that is useful for policy makers, health care decisionmakers, and consumers.

Research and Clinical Capacity

IV. Improve Clinical Capacity

Develop and implement strategic approaches to communicate essential research findings to those who will implement them on a day-to-day basis:

- Train clinicians (biomedical and behavioral) to deliver evidence-based interventions in clinical settings.

- Provide technical assistance to health plans and other health care delivery institutions to ensure access to and implementation of evidence-based interventions and practices.

V. Improve Training in POR and Evidence-Based Practice

Maximize use of available training resources to increase the number of capable researchers working on mechanisms and intervention:

- Build electronic and other vehicles to link behavior change clinicians and provide them with easy access to experienced clinicians and emerging evidence about effective treatment.

- Identify, publicize, and utilize NIH training resources.

- Develop a network of those receiving NIH training resources in which at least part of those funds are used for intervention development and communication about common concerns, core competencies, etc.

VI. Develop Credentialing and Certification

Improve the ability of clinicians working to change health-related behavior to define and deliver high quality effective services:

- Define core competencies, training requirements, and professional standards for the delivery of behavioral interventions. This will involve issues of licensing, certification, and accreditation.

Market Pull/Demand

VII. Increase the Demand for Evidence-Based Behavioral Interventions

Increase the demand for evidence-based biobehavioral services among individual clinicians, health care decisonmakers, policymakers in the Federal, State, and local government, as well as the general public:

- Summarize cost-effectiveness information about standardized behavioral approaches and make them available to health care leaders.

- Ensure that evidence-based behavioral interventions are included as part of NCQA and Joint Commission on Accreditation of Healthcare Organizations (JCAHO) accreditation for health care delivery, NCQA performance indicators, and other quality measurement strategies.

- Develop strategies for keeping interventions to change health-related behavior in public view.

VIII. Encourage Business Development

Learn from successful ventures to market health behavior change interventions:

- Convene those active in business applications of behavioral approaches to disease prevention, treatment, and management. Identify action steps and disseminate lessons learned.

IX. Improve Stakeholder Knowledge

Increase the visibility and utility of the science base among policymakers, health care decisonmakers, clinicians, the biomedical research community, and the general public:

- Improve the ability of behavioral researchers and clinicians to share information, learn across disciplines and fields, and advocate for increased resources.

- Publish and present reviews and meta-analyses of interventions in nonbehavior/social science journals and venues.

X. Monitor Use of Evidence-Based Behavioral Interventions in Health Care

Establish means of monitoring needs and trends among the decisonmakers and practitioners and communicate this information to the research, funding, and quality assurance communities:

- Monitor attitudes, practices, and needs of managed care decisonmakers, health care purchasers, clinicians, and consumers to discover how behavioral approaches are viewed and used. Use this information to shape an ongoing strategy to advance evidence-based behavioral approaches.

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