REVIEW ARTICLE

HEALTH AND MEDICAL ECONOMICS APPLIED TO INTEGRATIVE MEDICINE

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Cost-benefit analyses (CBA) of every aspect of health and medical care are a necessity to address both the clinical effectiveness and cost effectiveness of health and medical care for the purpose of allocating limited practitioner, organizational, governmental, and monetary resources while maintaining the highest quality outcomes. In response, there are an array of approaches that emphasize the full continuum of prevention, restructuring primary care, involvement of the workplace and communities, and adoption of innovative strategies and interventions ranging from genomic assessments to complementary and alternative medicine (CAM). Among these approaches is an integrative medicine (IM) model that is consistent with these national objectives and that uniquely and explicitly includes "evidence-based global medical strategies" in its definition. All of these strategies require rigorous, appropriate, state-of-the art medical economic analyses. Since few if any IM models have been rigorously evaluated in terms of CBA, it is possible to draw upon the cost-effectiveness research focused on a limited number of CAM modalities as well as from the work-site/corporate clinical and cost outcomes research to suggest the evidence-based foundation from which a true healthcare system will evolve.

Key words: Integrative medicine, complementary and alternative medicine, prevention, clinical outcomes, cost outcomes, medical economics, evidence based, primary care, Patient Centered Medical Home (PCMH)

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INTRODUCTION

Although this white paper focuses on medical economics with an emphasis on integrative medicine (IM), it needs to be emphasized that the present crisis is not inherently one of not enough money, per se. Clearly, the global crisis is due to a perfect storm where potentially adequate funding is misdirected, expenditures are excessive in many domains while inadequate in others and are expended on fragmented clinical services, and we have an overreliance on excessive technology and pharmaceuticals, a lack of a continuity of care, with fragmentation of services and appropriate medical records, and inadequate funding of basic prevention services that have been documented to be cost effective.

Currently in the United States, there are over 133 million people with one or more chronic conditions. As a result, 70% of all deaths and 75% of the current $2 trillion plus spent annually in medical care expenditures are related to chronic conditions.[1] One study cited the fact that more than 80% of medical spending is consumed in the care of chronic conditions. In fact, chronic conditions drive 96% of the costs in the Medicare system and 83% of the costs of the Medicaid system as well as being responsible for two thirds of the rise in overall medical care costs in the United States since 1980.[2] On a global scale, chronic medical conditions that are largely preventable are responsible for more than half of all deaths in the world and are projected to account for over two thirds of all deaths in the next 25 years.[3] Given such dire, longstanding predictions, it is indeed urgent to operationalize both prevention and intervention practices that are demonstrably effective in terms of both clinical and cost outcomes.

According to the consensus statements of the "Workforce Health and Productivity Summit," medical expenditures are rising dramatically just at the time when the "silver tsunami" is arriving in the form of millions of aging baby boomers who are exiting the workforce, no longer helping fund Medicare and Social Security, and beginning to utilize the medical care system with a growing burden of illness and medical conditions.[4] Employers ranging from Fortune 500 companies to the federal government currently provide funding for the majority of this financial burden and the impact upon all employers is central to any successful solution to the current global medical crisis.[1] Chronic conditions are on the rise across all age groups, and it is expected that in the near future, conditions such as diabetes, heart disease, and cancer will tax employers more heavily as they provide medical benefits for employees and absorb the costs of absence, short-term disability, and long-term disability costs.[2]

Another important issue is the link between poor health and reduced performance and productivity. Research has demonstrated that on average, for every one dollar that employers spend on worker medical/pharmacy costs, the employers lose two to three dollars of health-related productivity costs. These costs are manifested largely in the form of presenteeism, which is a condition where employees are on the job but not fully productive, resulting in increased absence and escalating short-term and long-term disability. Research has also documented that in addition to common chronic conditions such as cancer, heart disease, and diabetes, there are a host of other readily identifiable chronic conditions–ranging

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from musculoskeletal pain, depression, fatigue, anxiety, and obesity–that are driving total medical costs in the workplace. Such excessive expenditures add to the cost of every product and service and therefore affect the ability of all US corporations to compete in the increasingly global markets. There may be one answer for diabetes, one for asthma, one for congestive heart failure, and one for high-cost patients with multiple diagnoses. It is within and consistent with these challenges and possible solutions that the newly evolving area of IM needs to be considered and evaluated in terms of both clinical and cost outcomes.

INTEGRATIVE MEDICINE

At the present time, there is a growing body of basic and clinical research focused on IM. However, there is a virtual absence of cost effectiveness or return on investment analyses of such approaches to health and medical care. There is, however, a fair amount of data evaluating cost effectiveness of specific complementary and alternative medicine (CAM) interventions.

When surveys indicate that in 1997 up to $32.7 billion[5] were spent on CAM professional services, we do not know whether that $32.7 billion cost has been added to our healthcare system or whether it is offsetting other medical costs. If CAM is primarily a complementary healthcare service, the economic case in favor of integrative care becomes somewhat more challenging. The complementary care component of integrative services is likely adding costs to the system, at least in the short run. Unless the added CAM service results in improved clinical outcomes, the added cost of complementary services is unwarranted. Thus, the burden that must be met, for complementary services to be considered as cost effective, is that the additional costs are justified by the additional health benefits that result. As alternative care (substitution care), integrative services are being used in place of usual medical care, and those offset medical costs may be greater than the integrative services that are being used in their place. In this scenario, there is a very real possibility of cost savings to the system, assuming the clinical benefits of the integrative care are equivalent or better than the medical care being replaced.

One example of this substitution phenomenon is demonstrated in a study of chiropractic services.[6] Taking advantage of a natural experiment, an analysis of utilization patterns of chiropractic and medical services in a managed healthcare plan has evaluated this phenomenon. In this particular health plan, chiropractic services were offered as an optional benefit to employers. That is, employers–the purchasers of the health insurance–could choose to include a chiropractic benefit (at a slightly increased premium) or not. This health plan served a limited geographic area, Southern California. As a result of this benefit structure and limited geographic coverage, two equivalent cohorts are created: one with the chiropractic benefit (over 700,000 members), and one without the benefit (over one million members). Both of these cohorts have an identical medical insurance benefit and access to essentially the same set of medical physicians, clinics, and hospitals, and thus, are likely to receive the same standard of medical care. These two cohorts also had very similar demographic and clinical profiles.

Four years of claims data were compared between these two cohorts. There were 38% fewer episodes of care for low back pain, neck pain, and related disorders in the cohort with the chiropractic benefit.[7] This in turn resulted in significant reductions in the rates of advanced imaging (low back pain: −20.3%; neck pain: −25.7%), inpatient episodes (low back pain: −24.8%; neck pain: −31.1%), and surgeries (low back pain: −13.7%; neck pain: −31.1%) related to these spinal complaints.[8] These offsets resulted in estimated savings of $110 per episode of care for these complaints.

APPLYING MEDICAL ECONOMIC EVALUATIONS TO INTEGRATIVE MEDICINE AND COMPONENTS OF INTEGRATIVE MEDICINE

This section summarizes what can be gleaned from the literature with regard to the medical economics of these components of IM. In this summary, we review the economic evaluations of a vast array of studies of appropriate therapeutic approaches and identify a number of promising components that could be included in an IM approach, which simply does not exist at the present time. Full economic evaluations require an assessment of effectiveness, so that these studies both include and inform the evidence base. A majority of these studies examine the economic impact of adding various therapies that have a whole person approach compared with what is now usual care.

There appears to be only one study of a therapeutic approach, self-identified as IM, and reporting cost savings. It is an analysis of claims data for the patients of an IM independent physician association consisting of chiropractic doctors and medical doctors and doctors of osteopathy who practice as "natural medicine doctors."[9] If the practice of these doctors can indeed be termed IM, these results bode well for its success.

Intensive Lifestyle Interventions

Intensive lifestyle interventions focus exclusively on helping patients make healthy behavior changes. These programs tend to target secondary prevention of either heart disease or diabetes. Perhaps the two most well-known cardiac rehabilitation programs are the Ornish Lifestyle Heart Program and the Cardiac Wellness Program designed by Herbert Benson. In essence, the Ornish program consists of a heart-healthy, low-fat, whole food vegetarian diet, aerobic exercise, stress management training (including yoga and meditation), smoking cessation, and group psychosocial support. The Benson program consists of supervised exercise, individual nutritional counseling, and a comprehensive stress management program, including relaxation response training. One study exists of the actual costs of these programs to hospitals, and it compared those costs to Medicare allowed reimbursement rates.[10] It found that hospitals incurred substantial nonreimbursable costs for both programs (costs of $9,895 per patient and reimbursement of $4,520 for the Ornish program, and costs of $4,458 and reimbursement of $3,840 for the Benson program). One early study compared the cost of the Ornish program to the estimated cost of percutaneous transluminal coronary angioplasties with cardiac catheterization and coronary artery bypass grafts no longer needed by the experimental group.[11] Estimated savings were $29,529 per patient compared with a cost of $7,000 for the Ornish program. No study has been made on the impact of either program on long-term healthcare utilization and costs.