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● Editorial

Integrative medicine, or not integrative medicine: that is the question

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ABSTRACT

On September 26–27, 2015, the 8th European Congress for Integrative Medicine convened the Global Summit on Integrative Medicine and Healthcare in Greater Copenhagen and Helsingør, Denmark at the Culture Yard just across from Kronborg Castle, which is home to William Shakespeare's Hamlet. This article is a summary of the author's presentation about integrative medicine within the Nordic region, driving factors that determine value in healthcare, key tenets of integrative medicine that lead to healthcare cost savings and the potential for a Nordic healthcare renaissance.

Keywords: integrative medicine; Nordic; Shakespeare; Hamlet; Renaissance; healthcare; value; cost-effectiveness

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1 Introduction

On September 26–27, 2015, the 8th European Congress for Integrative Medicine convened the Global Summit on Integrative Medicine and Healthcare in Greater Copenhagen and Helsingør, Denmark with over 30 countries represented. The event was held at the Culture Yard, an architecturally innovative center just across from Kronborg Castle, which is home to William Shakespeare's *Hamlet*.

2 An existential question

“To be, or not to be: that is the question”^[1]—these well-known opening words uttered by Hamlet during his soliloquy when contemplating the very question of life and death are quite apropos to the existence of integrative medicine within the Nordic region and, in particular, the nation of Denmark where it is virtually nil. Ironically, Hamlet, who was a Prince of Denmark, could very well

have applied these words to his home country.

3 Does integrative medicine bring value?

Inherent within the existential question of integrative medicine is the determination of value. If integrative medicine presents value, then this would support the need for its existence; however, a lack thereof, would argue against it.

The core metrics of healthcare that drive such a decision include: 1) health outcomes (both objective, disease-related outcome measures and subjective, patient-centered reported outcomes), 2) effectiveness/efficacy, 3) science, 4) research, 5) safety, 6) quality improvement and 7) cost-effectiveness, which determines appropriate resource allocation and, ultimately, where healthcare dollars should be spent. Victor Dzau, M.D., President of the National Academy of Medicine (formerly Institute of Medicine), had

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emphasized during the summit that value can be defined as quality divided by cost^[2].

4 Healthcare systems and cost

The Organisation for Economic Co-operation and Development (OECD), which currently has 34 member countries including all Nordic nations, published a working paper that evaluated the strengths and weaknesses of each country's healthcare system and assessed the scope for improving value-for-money^[3]. Its conclusion was that there is no healthcare system that performs systematically better in delivering cost-effective healthcare and that all countries have room to improve healthcare spending efficiency. To no surprise, the OECD also found that most countries within the European Union have annual healthcare costs that are rising faster than the economy.

Broadly speaking, there are 2 major healthcare system cost models: 1) revenue generating with a reliance upon market mechanisms in service provision and 2) cost saving with a single source of coverage and provision. Consequently, the former healthcare system tends to be volume-driven and high technology-oriented, which flourishes in a fee-for-service, third-party insurance "open" system model. In contrast, the latter healthcare system is more value-driven, embraces low technology and produces cost savings in a "closed" model such as a single payer system, health maintenance organization, capitated system or accountable care organization. In a cost-saving model, a stronger emphasis is also placed upon prevention and wellness.

5 Integrative medicine is inherently a cost-saving healthcare model

A 6-year economic evaluation of healthcare costs and mortality rates was conducted in the Netherlands, which compared a conventional approach among general practitioners (GPs) versus care provided by GPs who had additional training in complementary and integrative medicine (CIM)^[4]. The main outcome measures were annual healthcare costs accrued from care by GPs, hospitalizations, pharmaceuticals, paramedic care and care from supplementary insurance.

This study demonstrated that Dutch patients who received care from GPs that provided CIM had a 10% reduction in total annual healthcare costs, most of which was attributed to lower hospital care and pharmaceutical costs, and with similar mortality rates when compared to patients who received conventional care.

Herman and colleagues^[5] had done a comprehensive systematic review of economic evaluations of CIM

published from 2001–2010, which yielded 338 economic evaluations with 114 full evaluations. Among the higher-quality studies, nearly 30% demonstrated cost savings as shown by cost-effectiveness, cost-utility and cost-benefit comparisons for CIM therapy versus usual care.

6 Key tenets of integrative medicine that lead to cost reduction

6.1 Holism

In 2009, the Institute of Medicine convened the Summit on Integrative Medicine and the Health of the Public, during which Dr. Ralph Snyderman articulated a shift in healthcare paradigm whereby the 19th–20th centuries focused on 'reductionism' with a resulting emphasis upon the fields of chemistry, physics, physiology and pathology, while the 21st century exhibits 'holism' with a greater significance placed upon the subdisciplines of systems biology, genomics, proteomics, metabolomics and bioinformatics^[6].

This transition in healthcare paradigm was also described by Federoff and Gostin where systems medicine and 'care for the whole person' manifest dynamic interactions among all components of health and disease through integration of multiple networks and connectivity that exists beyond reductionism^[7]. From this, arises a key feature of 'emergent properties'—a phenomenon that exists only among complex whole systems, but not found within their individual parts. Through utilizing the diagnostic and therapeutic power of holism and harnessing the unique quality of emergent properties, the entire system of the human body can be treated in a congruent and unified fashion and, hence, can have important economic implications and cost-saving potential.

6.2 Homeostasis, allostasis and the innate healing response

The human body has an incredible innate healing capacity to maintain homeostasis (physiological parameters essential for maintaining life) in the midst of continual environmental perturbations through adaptive preservation of its internal milieu (*e.g.*, pH, oxygen tension, temperature regulation)^[8]. This occurs via mechanisms of allostasis (achieving stability through change), such as feedback production of various hormones like cortisol or other mediators that modulate the autonomic nervous system, inflammation and immune system.

One of the goals of integrative medicine is to augment and facilitate this inherent healing response through various lifestyle changes (*e.g.*, balanced diet, moderate exercise, stress management, optimal sleep quality) and other therapeutic interventions, such as acupuncture. As described by Li and colleagues^[9], "acupuncture



restores the homeostatic balance by a differential effect of suppressing hyperfunction, stimulating hypofunction, and regulating disturbed function.” Hence, a unique therapeutic attribute of acupuncture is its concurrent treatment of both hyper- and hypofunction, whereas conventional allopathic pharmacotherapy primarily treats either one.

For example, in a patient with irritable bowel syndrome from which one may experience alternating diarrhea and constipation, the conventional Western medical approach is to prescribe medication depending upon the predominant symptom. In contrast, acupuncture can treat both diarrhea and constipation simultaneously via re-regulation of the gastrointestinal physiology.

Through incorporation of various lifestyle changes and low-cost interventions that are inherently holistic and homeostatic to achieve high-quality outcomes and clinical effectiveness, integrative medicine has the potential to reap large healthcare cost savings.

7 The Renaissance

The Renaissance period has certainly left an indelible mark upon history. Within the Nordic region, the royal castle of Kronborg, a strategic coastal fortification that controlled the narrowest portion of the Øresund strait between Denmark and Sweden, was one of the most important castles built during the Renaissance. William Shakespeare, who is widely considered the world’s greatest playwright and author in the English language, had written *Hamlet* during the height of the Renaissance period.

More recently, over the past 15 years, the new Nordic cuisine has brought a resurgence of interest in traditional Scandinavian fare leading to a type of ‘culinary renaissance’ with Copenhagen being home to the best restaurant in the world, *Noma*, for 4 of the last 5 years^[10] and the entire Nordic region becoming a gastronomic haven with a wealth of Michelin star restaurants^[11]. Reasons for this nouvelle cuisine are numerous, but perhaps the most important is the integration of innovation with tradition, the avant garde with the age-old.

Could the Nordic region be poised to experience yet another renaissance, and more specifically a Nordic healthcare renaissance? There seems to be much in place for such a transformation to occur: fresh, natural and organic food sources; lush verdant greens; an abundant clean water supply; a culture where walking and bicycling are the preferred modes of transportation; low pollution; a national healthcare system that can reap the rewards of a cost-saving model and a region where all 5 Nordic nations consistently rank among the top 10 happiest countries in the world^[12]. All that remains is the integration of

healthcare innovation with tradition.

Perhaps, eventually there will no longer be any reason to question the existence and need for integrative medicine in the Nordic region. Integrative medicine will someday be its own *raison d’être*.

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9 Disclosure of competing interests

The author declares that he has no competing interests.

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