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When people live with multiple chronic diseases:
a collaborative approach to an emerging global challenge

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Contents

Chapter 8

Integrative medicine

This chapter is continuously evolving at www.opimec.org

Vignette: How it could be

At age 66, Alice has had her share of health problems: she is a breast cancer survivor, has had two heart attacks, and now experiences pain in both hips and knees due to severe osteoarthritis. Once a year she journeys from her home to her local Integrative Medicine Center, where a general internist, an endocrinologist, a rheumatologist and other specialists monitor her by means of blood tests, X-rays and bone scans, and adjust her medication. Over the past year, she has been spending increasing amounts of time with the Center´s alternative medicine practitioners, who have taught her about nutrition, fitness, yoga and tai chi. She feels this comprehensive approach has helped her to live a more satisfactory and meaningful life.

Summary

- Integrative Medicine is a model of health care based on a systematic approach, which is designed to bring together the best available knowledge from both conventional and traditional alternative medicine (TCAM) in order to address the biological, psychological, social and spiritual aspects of health and illness. It focuses on respect for the human capacity for healing, promotes collaboration amongst practitioners, and stresses the importance of the relationship between the practitioner and the patient and of evidence based health care.
- TCAM incorporates several different approaches and methodologies, including mind-body medicine (e.g. meditation), manipulative and body based therapies (e.g. chiropractic); energy medicine (e.g. Reiki), holistic medical systems (e.g. TCM,

Ayurveda); and biologically based therapies (e.g. dietary supplements, herbs and vitamins).

- TCAM in the Western world is a consumer-driven movement in which patients tend to self-educate, self-diagnose and self-treat themselves using interventions that may help or may also exacerbate illness.
- The World Health Organization is supporting health care policies designed to institute TCAM along with conventional medicine around the globe. However, the broad range of healing philosophies, approaches and therapies embraced by TCAM continue to generate resistance within mainstream Western medicine. As a result, TCAM, and, by default Integrative Medicine, is not used, accepted, studied, understood or made available within most conventional health care institutions around the world.
- As populations throughout the world continue to age, the concomitant increase in the prevalence of complex chronic diseases will make Integrative Medicine an inevitable component of a modern health system.

Why is this topic important?

The world is rapidly changing and vast amounts of information are readily and quickly available, literally at our fingertips. Yet health and disease are concepts that have evolved slowly, cautiously and incompletely. For more than 200 years, biomedicine has approached diseases by studying the processes which underlie them (pathogenesis), inferring causal connections and developing specific approaches to modify these processes by means of therapies. This pathogenic approach, which is highly successful in acute and traumatic conditions, is often ineffective in chronic disease, primarily because of the complex, multi-factorial nature of most disorders, which does not permit simple causal, linear inference or standardized therapeutic interventions that view individuals as cases of malfunctioning organs or systems and undervalue the socio-cultural and humanistic aspects of care (1). Unfortunately, the surge in technological development, the increased need for immediate reward and the overestimation of our capacity to deal with human suffering have driven the medical system even further toward this disease based approach to health care. The results are a diminishing public faith in the medical establishment and the rise of alternative medical philosophies and practices. The real crisis in medicine and healthcare in general today may not really be about economics,

but about the loss of the fundamental human relationship between the health system and the public; between health professionals and patients (2). Ancient models of care are now re-emerging, allowing physicians and other health professionals to refocus on the unique experience of illness for the individual and the community (3, 4).

Within this context an approach known as Integrative Medicine is evolving. It focuses on health and healing through the integration of conventional and traditional complementary and alternative medicine (TCAM). Integrative Medicine emphasizes the relationship between the patient and the health practitioner, and the responsibility of the latter to enable the patient to benefit from a full array of modalities that can be shown to benefit our health. It addresses the biological, psychological, social and spiritual aspects of health and illness and has a strong focus on preventive health (5-8).

At the micro (clinical) and meso (health services) level, IM seeks to harmonize the treatment methods which characterize conventional biopharmaceutical medical approaches with the TCAM approaches various cultures have adopted for the restoration and maintenance of health (9, 10).

At the macro level, Integrative Medicine promotes health care systems that integrate self-care, lifestyle based interventions and TCAM with conventional medicine through rational, comprehensive patient evaluation and monitoring. It emphasizes respect for the human capacity for healing and our awareness of our own health. Promoting collaboration among practitioners, it also stresses the importance of the relationship between practitioner and patient, supporting individual behavioral changes focused on evidence based health care, be it conventional, alternative, or complementary (11, 12).

Given the undisputedly important role that TCAM plays in most cultures around the globe, the World Health Organization (WHO) has recognized it as a source of culturally acceptable, affordable and sustainable primary health care services (5). Such services, according to the WHO, include any health practices, approaches, knowledge or belief incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being (6, 7). Such therapies may be used alone, as an alternative to conventional therapies, or in addition to conventional, mainstream medicine to treat illnesses and promote wellbeing (5, 13, 14). Another important aspect of TCAM is that it views the patient holistically, seeking to shift from a disease treatment approach to addressing patients as individuals with the capacity to contribute to their

own well-being and choices (15, 16). This emphasis on making sure the patient's environment, choices, emotions and spirit are considered becomes ever more relevant for people living with multiple chronic diseases, whose ill health is caused and fuelled by the complex interaction of multiple factors (17-19). Such complexity is also taken into account in relation to efforts to evaluate interventions, as advocates of integrative medicine call for whole systems research, departing from the linear and reductionist approaches that pervade the assessment of conventional health interventions (20, 21).

Not surprisingly, the broad range of healing philosophies, approaches and therapies embraced by TCAM generate resistance within mainstream Western medicine. As a result, TCAM, and, by default Integrative Medicine, is not used, accepted, studied, understood or made available within most conventional healthcare institutions around the world.

What do we know?

Despite the resistance from conventional mainstream health institutions, Integrative Medicine services for chronic disease prevention and management seem to be growing at a fast pace, largely mediated, demanded, pursued and sustained by the public (19, 22, 23). A number of surveys indicate that TCAM use has increased around the world, regardless of socioeconomic status or cultures. However, in developed countries most users tend to be younger, affluent and well educated people hoping to gain control over their disease and its management (24-31).

Through its Traditional Medicine Program, the WHO estimated that 80% of the world's population currently uses TCAM as a primary source of medical treatment (32, 33). Most people living in Africa, Asia and Latin America use TCAM to help meet some of their primary healthcare needs. In Africa, up to 80% of the population uses TCAM for primary health care, while in India the corresponding figure is 70% (34). The percentage of the population that has used TCAM at least once in the past 10 years in high-income countries is also significant, the figures being 42% in the US, 48% in Australia, 49% in France and 70% in Canada (24, 35).

A 2002 survey from Harvard University indicated that approximately 72 million US adults used TCAM mainly to control diseases, such as diabetes, cancer, depression, chronic liver disease and arthritis, and for pain management. TCAM which is used solely for pain

relief includes acupuncture, low-level laser therapy, meditation, aromatherapy, dance therapy, music therapy, massage, herbalism, therapeutic touch, yoga, osteopathy, chiropractic, naturopathy and homeopathy (25). This study also revealed that the prevalence of TCAM use appears to have been fairly stable over the years, hovering at around one in three adults in the country as a whole. These findings were confirmed by the 2007 National Health Interview Survey (NHIS) in the United States, an annual in-person survey of Americans health- and illness-related experiences, which indicated that approximately 38% of adults (about 4 in 10) and also approximately 12% of children (about 1 in 9) are using some form of TCAM. Non-vitamin, non-mineral natural products are the most commonly used therapies among adults and are likely to be used for musculoskeletal problems, such as back, neck or joint pain (30).

In patients suffering from severe depression, TCAM use may be higher than 40% and 50% of cancer patients use these methods in conjunction with conventional cancer treatments (36). A literature review of 26 surveys from 13 countries, including the USA, Germany, the UK, Norway, Austria, Australia, Taiwan, Italy, Argentina, Finland, Holland, Switzerland and China, suggested that the use of TCAM amongst cancer patients is common, with an average prevalence rate across studies of 31% (range 7% to 64%) (37). More recent studies suggest that the use of TCAM could be considerably higher, with some studies reporting rates of 83% in an outpatient sample of 453 patients (38), 70% in a sample of 356 colon, breast and prostate cancer patients (39) and up to 73% in 14 European countries (40).

In paediatric patients the rates seem equally high, ranging from 33% in the UK (41) to 84% in the USA (42).

For cancer herbal medicines and remedies, used together with homeopathy, vitamins/minerals, medicinal teas, spiritual healing and relaxation techniques, appear to be the most commonly used TCAM therapies (40, 43). Apart from cancer management, TCAM use is most often associated with the «chronic disease triad» - arthritis, musculoskeletal disorders and stroke; with people who experience low satisfaction with care; and with those who have strong cultural beliefs (44).

The use of TCAM also appears most likely among people who have been diagnosed with chronic disease (23) and among health conscious people who are interested in interventions that could help them prevent diseases (45).

An emphasis on integration does not imply shunning conventional medicine, nor is there the assumption that all modes of TCAM are worthwhile (46). Advocates of TCAM hold that their interventions and methods are effective in treating a wide range of major and minor medical conditions, and that integrative medicine interventions encourage positive behavioral changes in terms of diet, exercise, stress management and emotional well-being (6, 7, 47). However, most treatments are recommended on the basis of opinion rather than research. Obviously, opinion and evidence can differ without either of them necessarily being wrong and an intervention could be recommended without the back-up of research simply because trials are not yet available. As pointed out by Ernst and his colleagues, the absence of evidence of effectiveness does not imply the absence of effectiveness (13).

There is limited evidence, however, about the effectiveness, potential harm and overall cost of integrating TACM with conventional Western care approaches (22, 48) and there is concern about Integrative Medicine, particularly when clear definitions and descriptions for many interventions and terms are lacking (49, 50). There is also a real need for standardized Integrative Medicine education (8, 51, 52, 53) and more thorough scientific research into the use and efficacy of TCAM in chronic disease, as well as the appropriateness, quality, availability and cost of TCAM modalities in the current healthcare system.

A number of studies and systematic reviews which address the evidence for the efficacy of TCAM in chronic conditions have been published and recent trials have reported both positive (54, 55, 56, 57) and negative (58, 59, 60) results for specific interventions. However, the evidence varies widely in different countries and types of study.

In 2009, an attempt to distil the evidence available from clinical trials and systematic reviews concluded that only 7.4% of 685 treatment/condition pairings were based on what the authors considered to be sound evidence (a composite of the weight and direction of the studies). From this analysis, 51 were characterized as «having maximum <weight> in terms of evidence as well as being clearly positive» (61). The table below provides a list of the most widely used TCAM treatment/condition pairings for which there seems to be sound evidence. Although valuable, this approach must be complemented with a much deeper analysis of the data that are available before conclusions are drawn in relation to the management of people living with multiple chronic diseases.

Table 1

CAM Treatments Based on Sound Evidence*

INTERVENTION	DISORDERS
Acupuncture	Nausea/vomiting induced by chemotherapy
Acupuncture	Osteoarthritis
African plum	Benign prostatic hyperplasia
Allium vegetables	Cancer prevention
Aromatherapy/massage	Cancer palliation
Biofeedback	Hypertension
Biofeedback	Migraine
Chondroitin	Osteoarthritis
Co-enzyme Q10	Hypertension
Diet	Rheumatoid arthritis
Ephedra sinica	Obesity
Exercise	Cancer prevention
Exercise	Cancer palliation
Exercise	Chronic fatigue syndrome
Exercise	Depression
Exercise	HIV/AIDS
Fiber	Irritable bowel syndrome
Ginkgo biloba	Alzheimer's disease
Ginkgo biloba	Peripheral vascular disease
Glucosamine	Osteoarthritis
Green tea	Cancer prevention
Group behaviour therapy	Smoking cessation
Guar gum	Diabetes
Guar gum	Hypercholesterolemia
Hawthorn	Chronic heart failure
Horse chestnut	Chronic venous insufficiency

INTERVENTION (continued)	DISORDERS (continued)
Hypnotherapy	Labor pain
Kava	Anxiety
Massage	Anxiety
Melatonin	Insomnia
Music therapy	Anxiety
Oat	Hypercholesterolemia
Padma 28	Peripheral vascular disease
Peppermint/caraway	Non-ulcer dyspepsia
Phytodolor	Osteoarthritis
Phytodolor	Rheumatoid arthritis
Psyllium	Constipation
Psyllium	Diabetes
Red clover	Menopause
Relaxation	Anxiety
Relaxation	Insomnia
Relaxation	Nausea/vomiting induced by chemotherapy
S-adenosylmethionine	Osteoarthritis
Saw palmetto	Benign prostatic hyperplasia
Soy	Hypercholesterolemia
St John's wort	Depression
Stress management	HIV/AIDS
Tomato (lycopene)	Cancer prevention
Vitamin C	Upper respiratory tract infection (treatment)
Water immersion	Labor pain
Yohimbine	Erectile dysfunction

*From Ernst 2009 How Much of CAM is Based on Research Evidence?

Probably the most widely evaluated approach has been the combination of medicinal plants with conventional drugs. The WHO estimates that of the 35,000 to 70,000 species of plants that are used for medicinal purposes around the world, 5,000 have been submitted to formal biomedical scrutiny (33). Of these, a much smaller number has been evaluated to confirm either beneficial or adverse effects, particularly those associated with herb-drug interactions (62-64). Nevertheless, in many countries scientific evidence of efficacy is beginning to emerge from randomized controlled trials in which herbs compare favourably with placebo. In addition, a number of studies indicate that herbal products may in fact complement and improve the efficacy and/or adversely affect the properties of commonly used drugs (65).

Much work has been done in recent years to increase the credibility and acceptance of herbal medicines and to comply with new regulations that address quality issues, good manufacturing practices and science-based research. Government and non-government institutions around the world are spending considerable resources to facilitate research in this area and to increase the body of evidence about the value of herbal medicines in improving human health (66-70).

An important outcome and ultimate goal of Integrative Medicine is to reduce the cost of medical health care without sacrificing quality of life. Two key principles: Normalization and Substitution have been identified as critical for this to occur. Normalization enables self-determination. The principle of substitution involves replacing more costly services for cheaper services. Within the mainstream health system, this happens when a health insurance company or a healthcare facility uses generic instead of brand name drugs or when patients are discharged so that they can go home following a surgical procedure, armed with the resources they will need to engage in self-care. Ultimately, cost is reduced while patient empowerment is increased, but without jeopardizing the overall health outcome, thereby reducing the burden on healthcare workers (71, 72).

In some settings, however, substitution and self-care do not happen by choice. In the poorest communities in the world, people are forced to rely on traditional systems and traditional healers, as well as on herbal medicines and concoctions of questionable quality as substitutes for conventional care, in an effort to compensate for limited access to appropriate resources. But this limited access is not only due to a lack of money but also to the lack of access to appropriate medicines. In fact, the WHO reports that less than 1% of the nearly 1,400 pharmaceutical drugs registered between 1975 and 1999 were for diseases affecting the poorest people in the world (73, 74).

Although the WHO has instituted plans and centers to help countries integrate traditional medicine with national health care plans (75), the wealthiest nations in the world continue to use TCAM as a complement rather than as an alternative to mainstream care. In the past decade, integrative medicine centers have opened all over the world. In the US, the American Hospital Association's 2003 Annual Hospital Survey showed that the percentage of hospitals that offer TCAM has more than doubled in less than a decade, increasing from close to 9% in 1998 to almost 20% in 2003. Out of 1,007 respondents, 269 hospitals stated that they offered some CAM services. Their top three reasons for doing so were: patient demand (83%); organizational mission (69%); and clinical effectiveness (61%). 24% of the hospitals which are not currently offering TCAM stated that they planned to do so in the future.

Patients usually pay out of their own pocket, although some services such as nutritional counselling, chiropractic treatments and biofeedback are more likely to be reimbursed by insurance companies (76). A similar survey in 2007 indicated that more than 37% of US hospitals, up from 26% in 2005, offer one or more TCAM therapies with 67% of survey respondents stating that clinical effectiveness was the top reason for choosing them (77).

What do we need to know?

- How should TCAM interventions and Integrative Medicine be evaluated?

One of the biggest challenges in relation to TCAM is the lack of accepted research methodologies to evaluate complex interventions that aim to treat chronic diseases, particularly when two or more are present in the same person, or at least to prevent their progression. As noted in the previous section, little is known about the efficacy and adverse effect profile of many specific TCAM interventions and practices. Similarly, there are few guidelines on how to assess the impact of any TCAM interventions on healthy people.

- What are the socioeconomic implications of Integrative Medicine?

Many socioeconomic challenges also remain unaddressed. Highly developed mass marketing campaigns invite and entice consumers to return to basics, appealing to the general public to go back to nature, without taking into consideration the myriad of differences between the old natural, agricultural peasant society and the technology-

driven, industrialized distribution chains of today. It is unclear whether existing government agencies, professional associations and consumer advocacy groups might play a significant role in protecting the public from unscrupulous TCAM marketeers, at the same time promoting access to beneficial products.

Another set of challenges is societal in nature. We have become a society in which we believe that we are entitled to cures for all our diseases, regardless of how we neglect and misuse our bodies. We are willing to pay for pills and therapies to cure self-inflicted conditions that result, to a large extent, from our own sedentary and stressful lifestyles and gluttony. We want quick fixes to our problems, no matter how little we understand them, but we are unwilling to take any risks or to participate in research that may improve our understanding about their benefits or risks. We want protection from unscrupulous quacks, but then we declare a conspiracy against and show a lack of trust in the very institutions we created for our protection.

- Could Integrative Medicine promote the demedicalization of multiple chronic disease management?

We can define medicalization as a process whereby nonmedical problems become defined and treated as medical problems. It could be argued that childbirth, menopause and obesity are examples of this. Far less commonly, demedicalization can be defined as the process whereby a condition or life process under medical jurisdiction is reconsidered so that it is no longer regarded as a medical problem and therefore no longer requires the intervention of medical personnel. Historically, homosexuality could be seen in this context. How about ageing? Even without co-existent chronic disease, the ageing process brings physical co-morbidities, emotional traumas, such as bereavement, and social concerns, such as loneliness. Have these issues been medicalized? Are financial interests leading us to do more harm than good, for example by converting the symptoms associated with normal ageing processes into new diseases that require treatment? If so.

- Could Integrative Medicine promote greater acceptance, among patients and caregivers, of the unavoidable suffering associated with multiple chronic diseases and the ageing process?

The literature suggests that there are two types of individual approaches to chronic diseases: an accepting and progressive approach or a non-accepting and regressive approach. A study evaluating the life of coronary artery disease patients from their own

perspective revealed that participants who demonstrated an accepting and progressive attitude to life achieved a better level of rehabilitation than those with a non-accepting and regressive attitude (78).

The Judeo-Christian approach to suffering implies acceptance, as well as coping, within the broader concept of a perfect/higher purpose. Suffering is transient and it has an eternal perspective.

Accepting chronic diseases as a part of life can impact not only on their management, but also on the extent to which they are perceived as a burden. A person´s attitude, as well as his or her spirituality, values and thoughts, influence his experiences of both health and illness. This depends on factors such as: irreversibility of the condition, availability of medical technology to improve it, the desire of the individual to live a full life and a realistic approach to life and death. When confronted with traumatic or chronic conditions, patients may feel the need to understand their own experiences in the context of their spiritual views. The incorporation of culturally appropriate spiritual practices, alongside the administration of medical care, in an integrated and holistic manner may be needed for a meaningful demedicalization of care.

- How could Integrative Medicine support health promotion efforts at the community level?

Healthy environments, in particular healthy cities, where most of the world population live, are currently the focus of WHO programs which aim to recognize that people form an integral part of the earth's ecosystem and that their health is therefore irrefutably interlinked with the environment.

A healthy environment may not only help to prevent chronic complex disease. It may prove essential in coping with non-drug therapeutic strategies for these pathologies. Most people with multiple chronic diseases are elderly. Cities could adapt their structures and services to make themselves more accessible and inclusive for older people and individuals with disabilities. Community action involving other sectors besides the health sector is required. Town planning could include more outdoor spaces, adequate transportation and housing, encouraging social participation and providing health care facilities with easy access (79).

What innovative strategies could fill the gaps?

A future in which we understand the intrinsic value of integrative approaches, focusing on the whole person and prescribing effective combinations of TCAM and conventional interventions to treat and prevent illness, alleviate pain and improve quality of life for people with complex chronic diseases, will require unprecedented levels of collaboration between regulators, industry, health care practitioners, researchers and patients/consumers.

There are some encouraging examples of this type of collaboration (80). For example, the WHO has issued Guidelines for the Assessment of Herbal Medicines. Based on the classical paradigm, they follow the traditional approach to validating quality, safety and efficacy which is used for conventional pharmaceutical products, but with one major difference. The starting point is to look at the effects of interventions in human instead of animal models. By taking into account traditional experience with herbal medicine and viewing commercially based datasets, the apparently uneventful use of a substance for long periods is taken as evidence of its safety. Manufacturers are then encouraged to support research which seeks to develop a drug or a derivative, following good development practices and standard operating procedures based on the initial identification, collection and processing of plant or natural product materials. However, major challenges remain, particularly in relation to the marked variations in source material, the lack of understanding of the synergistic effects of multiple chemical ingredients and the absence of information on the potency of various formulations.

Given its reach and global role as an overseer and de facto coordinating body for issues related to human health, the WHO may need to be more aggressive in promoting better chronic disease management. Indeed, it has already encouraged the publication of reports proposing several detailed options to facilitate the implementation of Integrative Medicine services as part of programmed national health care system reforms (22). This work, which already involves substantial international collaboration, includes valuable information for those who are interested in harmonizing science and traditional medicines in diagnostics and health education, and who employ complementary treatment methods, so that they can ensure the optimal quality of CAM products in their own countries. Joint efforts with other global bodies, such as the World Trade Organization, will be needed to achieve these goals, with industry and health professional organizations playing a more prominent role.

The documentation of the safety and efficacy of TCAM practices and interventions, as well as innovative methods to develop cheaper, faster and effective medicines, should be encouraged (74). Nowadays, this is being facilitated by powerful information and communication technologies that permit the easy tracking of individuals and societies, tendencies and styles in real time. These technologies could also strengthen our efforts to gain a much better understanding of the basic sciences, chemistry, physics and mathematics, underlying the effects of TCAM, enabling us to shed light onto sorcerers' wisdom and mystical forces and to improve our comprehension of the incredible complexity of the processes involved in healing.

Other initiatives, such as Integrative Health Coaching at the Duke Integrative Medicine Center, are currently being implemented at Integrative Medicine Centers (81). This personalized health planning and coaching program expands conventional behavioral change models by linking behaviours to personal values in the context of life as a whole and focuses on the relationship and partnership dynamics between patients and a team of providers (82). This team includes physicians, TCAM providers and health coaches, amongst others.

The importance of Integrative Medicine as a means of addressing the mental, emotional and physical aspects of the healing process and the need for greater patient involvement in health care was considered in a report by the Institute of Medicine in the US as a spin off from a Congress on Integrative Medicine in Public Health held in February 2009. The congress included reviews of the state of the science, assessed its potential and priorities and began to identify the elements of an agenda to improve our understanding, training, practice and other actions that might help improve prospects for the contributions of integrative medicine to better health and health care (83). More gatherings like this should not only be encouraged but should also be linked to large-scale projects designed to fill existing gaps.

The gap between knowledge and practice, conventional and traditional, and alternative and integrative is still wide, despite the fact that health professional associations are starting to concede value to TCAM interventions, health care professionals are enrolling in TCAM-related continuing medical education courses and consumers are seeking information about interventions they believe to be good for them, while at the same time advocating for more freedom, fewer regulations and better access. Studies on the delivery, organization and financing of different integrative healthcare models and medical and public education, which is geared to expanding the reductionist disease-

oriented model and understanding the changing dynamics of TCAM, should be regarded as a priority by funders of research and health services.

As populations throughout the world continue to age, the concomitant increase in the prevalence of poly-pathology will make TCAM an inevitable component of a modern health system. Now it is our turn to ensure that TCAM is properly integrated with conventional biomedical options, as part of a relationship with the public that is built on trust, respect and commitment to achieving optimal levels of well-being. A healing environment should be the ultimate goal for all.

Contributors

Carmen Tamayo, Alirio Arreaza and Christina Almonte wrote the initial draft of this chapter in English. It received important contributions from Mario Barbagallo, Ligia Dominguez, Josephine Fagan, Renée F. Lyons and Kerry Kuluski (in English), and Jaime Espín (in Spanish). Alejandro Jadad incorporated these contributions into a revised version of the chapter and approved it for publication.

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Abbreviations

AAL: Ambient Assisted Living

BMJ: British Medical Journal

CAM: Complementary And Alternative Medicine

CCD: Complex Chronic Disease

CCM: Chronic Care Model

CIRS: Chronic Illness Resources Survey

CMPs: Case Management Programs

CVD: Cardiovascular Disease

DMPs: Disease Management Programs

EASP: *Escuela Andaluza de Salud Pública*

EPP CIC: Expert Patients Programme Community Interest Company

GRIN: Genomics, Robotics, Informatics and Nanotechnologies

ICCC: Innovative Care for Chronic Conditions

ICD: International Classification of Diseases

ICED: Index of Coexisting Disease

IDS: Individual Disease Severity

MCCs: Multiple Chronic Conditions

MD team: Medical Doctor

MeSH: Medicines Medical Subject Headings

MI: Motivational interviewing

MPOWER: Monitor (tobacco use and prevention policies), Protect (people from tobacco smoke), Offer (help to quit tobacco use), Warn (about the dangers of tobacco), Enforce (bans on tobacco advertising, promotion and sponsorship), Raise (taxes on tobacco)

NHIS: National Health Interview Survey

NHS: National Health Service

OECD: Organization for Economic Co-operation and Development

OPIMEC: *Observatorio de Prácticas Innovadoras en el Manejo de Enfermedades Crónicas Complejas*

PACE: Program of All-inclusive Care

QALY: Quality-Adjusted Life Year

QRISK: Cardiovascular disease risk score

RE-AIM: Reach, Effectiveness, Adoption, Implementation and Maintenance

SNOMED CT: Systematized Nomenclature of Medicine-Clinical Terms

SSPA: *Sistema Sanitario Público de Andalucía*

TCAM: Traditional Complementary And Alternative Medicine

TPE: Therapeutic patient education

VHA: Veterans Health Administration

WHO: World Health Organization

Figures and Tables

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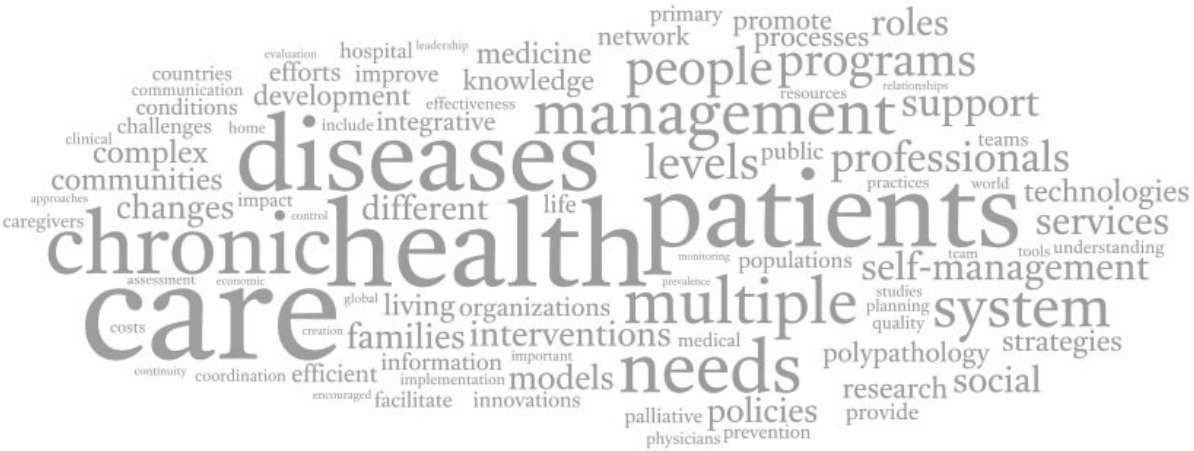

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When people live with multiple chronic diseases:

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