

INTEGRATIVE MEDICINE: BETWEEN WISHFUL THINKING AND REALITY

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SUMMARY

Integrative concepts of medicine and health have manifested in various forms through the history of medicine. There have been major transformations in understanding health care and integrative medicine in the past decades. Comorbidities and multimorbidities are indifferent to professional specialties and ever growing subspecialization in medicine so integrative medicine bringing separated branches of medicine close to each other is more and more important. Integrative medicine as a conceptual scientific frame and practical approach attempts to bring coherence to theory and practice of health care. There exists a lack of consensus regarding a clear and precise definition of integrative medicine. We suggest here a holistic definition which emphasizes transdisciplinarity of the field with aims of restoring body, cognitive, affective and behavioral functions, and the most varied methods that can contribute to achieving these aims. A clear definition of integrative medicine could help to unify the field of medicine and is very important for better understanding among policy makers, funding agencies and the general public, as well as from academic and clinical disciplines. Integrative medicine is a transdisciplinary holistic approach to healthcare that combines integrated conventional Western medicine with evidence-based complementary concepts therapeutic methods to provide optimal and person-centered care. The scientific background for integrative medicine includes a research physiological, psychological, social and spiritual factors that contribute to health and disease through processes of salutogenesis and pathogenesis.

Key words: *integrative medicine, integrative health, comprehensive medicine, holistic medicine, precision medicine, complementary medicine, alternative medicine, person-centered medicine, evidence-based medicine, value-based medicine, narrative-based medicine*

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INTRODUCTION

Integrative, holistic and comprehensive care is a challenging theoretical concept that is becoming a widely wishful standard for contemporary medicine, particularly important in family medicine and primary care medicine. Integrative systems network medicine provides new possibilities, particularly for a better understanding, treatment and prevention of the multisystem diseases, multimorbidity, comorbidity and syndemics (see Jakovljević et al. 2010, Jakovljević & Ostojic 2013, Jakovljević et al. 2021). Integrative, comprehensive, complementary, and holistic medicine is wishful concepts in theory and practice, but still there has been no unified and generally accepted coherent theory of integration as well as there are no practical clinical guidelines for combining disparate treatment approaches. As a broad topic integrative medicine can have different meaning for different people as well as for medical experts, both in academic and clinical practice. It involves holistic bio-psycho-socio-spiritual model and medicine of the person including body, mind, spirit and life-style and synergies of conventional with traditional and complementa-

ry medicine in order to improve treatment outcomes (see Daengneam et al. 2023). A large part of the populations all over the world makes use of naturopathic, alternative and complementary medical treatments. Relationship of different treatment approaches and options has been in constant change what has been manifested in the use of different terms, perspectives and concepts (Homberg et al. 2022). The concept of alternative medicine was first appeared in Western culture as a counterbalance the increasingly scientific and evidence-based orientation and sub-specialization of medicine. Interestingly, the term complementary medicine was initially used as synonym of alternative medicine, particularly when it could be joined to conventional medicine. From the beginning of the 2000s, the term integrative medicine has been referred to all treatment options synergistically and cooperatively combined on the basis of scientific evidence for the benefit of the patient (Homberg et al. 2022). WHO traditional medicine strategy 2014-2013 recommends integration of traditional and complementary medicine into health systems (WHO 2013). Many European countries and the United States have established educational and certification programs for medical doctors

in order to promote the comprehensive and complementary delivery of health care (Konigsberg 2023). Integrative medicine, although an indispensable term has a variety of meanings and definitions in literature so that it may be a synonym for holistic medicine, comprehensive medicine and complementary and alternative medicine but also a way of practicing medicine which incorporates elements of complementary and alternative medicine into the practice of conventional (Western) medicine (Rees & Weil 2001, Rosenberg 2007).

tion, or cure of disease and suffering (see Merriam-Webster dictionary <https://www.merriam-webster.com>). Academic medicine is trident of medical education, research, and promotion of health care in synergy of educating physicians and scientists, discovering causes and treatments for diseases/illnesses through scientific research, and comprehensively caring for patients (Fares et al, 2020). Basic, translational and clinical research as well as health care in practice is related to different conceptual models and paradigms. According to Ghaemi (2003) there are four conceptual

Table 1. Conceptual approaches in medicine (Ghaemi 2003 modified)

<i>Reductionism:</i> (body paradigm) biological dogmatism in medicine: monistic approach that one approach is more or less sufficient to explain and solve the problem
<i>Eclecticism:</i> (mind-body paradigm or body-energy paradigm) - biopsychosocial model in medicine useful in understanding of the psychosocial aspects of somatic diseases and biological aspects of mental disorders
<i>Pluralism:</i> (body paradigm, mind-body paradigm, body-energy paradigm, body-spirit paradigm) multiple independent methods are necessary for understanding and treatment of medical conditions because no single method is sufficient
<i>Integrationism:</i> body-mind-energy-spirit paradigm interconnections between different (physical, psychic, social and spiritual realities/dimensions and moving barriers between them in medical practice

Medicine has never been as effective and efficient as it does today, but still it is significantly characterized by depersonalized, reductionist, fragmented and only disease oriented care in clinical practice (Perard et al.2015) and commonly is not efficient enough. The trend of super specialization has strengthened fragmentation of medicine so that many patients need to have a case manager to help them cope with the maze of multitude medical opinions and proposed treatments. Integration has been recognized as very important in transforming health care systems to increase its efficiency (see Singer et al. 2020). The definition of integrative medicine and integrative health has been and continues to be an issue of disagreement among those who toil in this vineyard. The aim of this position paper is to present different concepts of pluralism and integrationism regarding to integrative medicine, complementary medicine and alternative medicine. We are interested in the following three issues:

1. integration within conventional (regular, official, orthodox) precision medicine;
2. integration of precision conventional medicine and non-conventional e.g. alternative and complementary medicine;
3. transdisciplinary integrative holistic medical education about integration of evidence-based medicine, value-based medicine and narrative-based medicine not only on the individual but also on the collective, public and global level. This position paper is based on our long-term personal experience in clinical practice and controversial literature analysis.

CONCEPTUAL MODELS AND PARADIGMS IN MEDICINE

Medicine is the science and art dealing with the maintenance and promotion of health and the prevention, allevia-

approaches existing together in contemporary medicine: reductionism, eclecticism, pluralism and integrationism (see table 1).

Dogmatic reductionists take rigidly one position or the other, see through one perspective which explains everything. Eclectics claim that it is all very complex and that Engel's biopsychosocial model is useful in practice, while pluralists agree with dogmatists that specific methods should be applied purely, but they agree with eclectics that no single method is satisfying (see Ghaemi 2003). Integrationists try to integrate different perspectives in holistic transdisciplinary way that bridges different dimensions of the human being in the world, both in the health and in the disease/illness. From the systems perspective, the genome operates within the context of the cell, the cell within context of the body, the body within the context of the person/self, the person within the concept of the family and society, the society within the concept Universe (see Jakovljević 2018). Integrationism is very attractive because it offers one large explanatory framework in medicine to be more efficient in clinical practice. Conceptual models are related to the four basic types of thinking: 1. mechanistic (single-cause or single-effect thinking), 2. formistic or binary categorical thinking (black or white, either-or thinking), 3. contextual thinking (meaning and significance of events, tasks and action depends on context, understanding and interpreting within context) and 4. systems thinking (a holistic approach to problem solving which takes into account the overall systems as well as its individual elements and interactions that lead to a possible outcome). It is an approach to problem-solving which recognizes and delineates linkages, relationships, interactions and interdependencies among the components of a system that give rise to the system's observed behavior and functioning (WHO Alliance for Health Policy and Systems Research 2023 <https://ahpsr.who.int>). Systems thinking is a process of moving from ob-

servicing events, data, symptoms to identifying patterns of process or behavior overtime, to recognizing the structure that elicit and maintain those processes and patterns which are interrelated. Key elements of systems thinking are 1. shifting away from linear to circular approach to see interconnectedness, 2. synthesis as ability to recognize interconnected feedback loops, 3. emergence as outcome of the synergies of the parts and self-organization, 4. reinforcing and balancing feedback loops, 5. understanding causality how one things results in another one, and 6. systems mapping of the elements within system to describe how they act, relate and interconnect in order to develop interventions, treatments, shifts or policy decisions that will change the system in the most effective and efficient way (Acarogly 2017, Marticek 2023). In addition to four conceptual approaches in contemporary medicine also four hierarchically related paradigms embodying different assumptions about phenomenological nature of the health and disease can be recognized: the body paradigm, the mind-body paradigm, the body-energy paradigm and the body-spirit paradigm (Tataryn 2002). According to Kuhn (1970) paradigms are sets of beliefs that make up theoretical frameworks of a scientific school or discipline within which theories can be critically evaluated, modified or revised and experiments performed in support of them are formulated. A paradigm can be described either with a set of ideas expressed as defined premises, by premises expressed as precepts, or by a set of precepts expressed as rules which represent the essence of those of premises or precepts (Auerswald 2003). The process of transformation in the thinking of scientists from one reality construct to another is defined as a paradigm shift. Body paradigm is a framework in which somatic medicine operates. The mind and mental functions develop as the genetically programmed maturation of the brain and neural circuits responding to ongoing experiences. The mind exists primarily as a by-product of brain activity. Some scholars claim that the mental supervenes on the somatic/brain, others think it is realized by the somatic, and the thirds hold that the mental is constituted by the somatic. Mind-body paradigm is a framework in which the mind-body or psychosomatic medicine operates. The mental is real and irreducible to as well as it is non-identical with the physical/somatic, but it is physically influenced. The physical realm is causally closed, while the mental realm and the biological realm are not (Krickel 2018). Acute and chronic stress is associated with dysregulation of hormones, immune dysfunctioning and neurotransmitter imbalance that manifest as somatic, cognitive, affective and behavioral disorders. Increasing integration of mind-body practice with integrative, conventional and complementary treatments will probably result in significant improvements in patient's autonomy, improved outcomes and reduced health costs. Body-energy paradigm is based on scientifically validated forms of energy or information that are directed at the body/brain. Energy exists in various states and forms, with some more easily detectable than others (zero-point energy, life-fields). Representative

energy-information treatment modalities that have been scientifically accepted by modern medicine are electroconvulsive therapy (ECT), trans-cranial magnetic stimulation (TMS), neurobiofeedback, vagal nerve stimulation, bright light therapy. Some recently introduced conceptual models assume that thoughts exist in fields, negative emotions are rooted in energy configurations, and psychological phenomena are fundamentally quantum physics events or processes (Gallo 2005). Body-spirit paradigm as well as body-energy is based on the beliefs that mind, body and spirit can be described in terms of putative subtle energies (Lake 2007). This paradigm is related to shamanic healing, reiki, qigong, and possibly homeopathy. Body, Mind, Spirit and Energy are four mutually interconnected ontological dimensions/ domains of human beings in health and disease. This approach relies on the body-spirit, mind-body and body-energy paradigms integrating them. A proper model of the nature of human being should understand each person as a unified entity comprised of body, mind, and spirit who is inseparable part of various social systems as well as an all-encompassing cosmic order (Cloninger 2004). Integration trends in medicine have progressed over the last several decades from a rather singular emphasis on the integration of particular therapeutic approaches to a pluralistic aggregative coexistence of different methods to coherent transdisciplinary, complementary and comprehensive health science and practice.

INTEGRATIVE MEDICINE: WHOLE PERSON HEALTH AND MEDICINE OF THE PERSON/PERSON-CENTERED MEDICINE

Ideas about integrative medicine have taken various forms through the history of medicine (see Rees & Weil 2001, As-smuth et al. 2020). Defining integrative medicine and integrative health, comprehensive medicine, holistic medicine and complementary medicine has been complex and elusive. Today, the term integrative medicine usually refers to the integration of complementary and alternative medicine with conventional medical practice (Konigsberg 2023). However, it's important to note that the term integrative medicine can mean different things to different peoples so that one can speak about conceptual cacophony. Although integrative medicine, comprehensive medicine, alternative medicine, holistic medicine, natural medicine, unorthodox medicine, fringe medicine, unconventional medicine, and new age medicine are terms that are used interchangeably and synonymously or with overlapping meanings in the most contexts they have also some specificity. So, the use of these terms should always be accompanied by a brief explanation of their respective meaning and theoretical framework in order to get consensus (see table 2). From our perspective key principles of integrative medicine are: 1. transdisciplinary holistic approach based on research and evidence-based practice, systems thinking and

Table 2. A bird's eye view: the many roots of integrative medicine

Alternative medicine: a non-mainstream approach used in place of conventional medicine, but which is defined loosely as a set of products, practices, and theories that are believed or perceived by their users to have the healing effects of medicine, but whose effectiveness has not been established using scientific methods or whose theory and practice is not part of biomedicine, or whose theories or practices are directly contradicted by scientific evidence or scientific principles used in biomedicine” (Wikipedia <https://en.m.wikipedia.org>)

Behavioral Medicine is the interdisciplinary field concerned with the development and integration of behavioral, psychosocial, and biomedical science knowledge and techniques relevant to the understanding of health and illness, and the application of this knowledge and these techniques to prevention and diagnosis treatment and rehabilitation” (<https://www.sbm.org>)

Complementary medicine (CM - a non-mainstream approach used together with conventional medicine) “refers to a broad set of health care practices that are not part of that country’s own tradition or conventional medicine and are not fully integrated into the dominant health-care system” (<http://www.who.int/medicines/areas/traditional/definitions/en/>)

Comprehensive medicine is an all-encompassing approach to wellness, addressing physical, mental, social and spiritual health needs which integrates various services, from illness prevention to emergency interventions and rehabilitation (McMahon 2023).

Comprehensive precision medicine holistically integrates essential and interconnecting disciplines that contribute to the make-up of Precision (<https://www.sciencedirect.com>)

Conventional medicine (Western medicine, allopathic medicine, mainstream medicine, orthodox medicine, regular medicine, biomedicine) practiced by licensed doctors, nurses and other health-care professionals bases its approach to treating and preventing disease on modern science and consider the human body, its diseases and disorders, and treatments from a biophysical or biochemical perspective (Freking 2022)

“Energy Medicine is a method to transmit healing energy to patient’s body through the hands of a practitioner to restore or balance the body’s energy field for better health”. (<https://www.sciencedirect.com>)

“Herbal Medicine is the art and practice of using herbs and herbal preparations to maintain health and to prevent, alleviate, or cure disease” (<https://merriam-webster.com>)

Holistic medicine is a doctrine of preventive and therapeutic medicine that emphasizes the necessity of looking at the whole person – body, mind and spirit – in the quest for optimal health and wellness (Sachdev 2023 <https://www.webmed.com>) rather than at an isolated function or organ and which promotes the use of a wide range of health practices and therapies <https://www.britannica.com>. It is a whole-body approach to wellness, environment and health

care, meaning that the goal is to treat a person as a whole: body, mind, and spirit <https://www.medicinenet.com>

Lifestyle medicine is an evidence-based discipline which aims to support patients to prevent, manage and reverse certain chronic conditions, using supported behavior change skills and techniques (to eat more healthy, stay active, sleep better, improve social connections, reduce harmful substance use) to create, and sustain lifestyle changes (<https://bslm.org.uk>).

Mind-Body Medicine focuses on the interactions among the brain, mind, body, and behavior, and the powerful ways in which emotional, mental, social, spiritual, and behavioral factors can directly affect health” (Dreher 2023, <https://www.sciencedirect.com>)

Naturopathic medicine is a distinct system of primary health care that emphasizes prevention and the self-healing process through the use of natural therapies, based on 7 principles: 1. first do not harm; 2. identify and treat the causes, 3.the healing power of nature (Vis Medicatrix Naturae – Bastyr University <https://bastyr.edu>)

Nutritional Medicine is the science and practice of diagnosis, treatment and prevention of disease, using food, food supplements and other nutritional substances, for the treatment and prevention of disease” (<http://docredd.com>) based on the concept “food as medicine”. Nutritional medicine studies nutritional and metabolic imbalances in diseases and illnesses, and supports the back to health and wellness through dietary and lifestyle measures

Orthomolecular medicine: Linus Pauling (1901-1994): “the right molecules in the right amounts”) is a part of complementary medicine that uses nutritional supplementation (vitamins, minerals, amino acids, trace elements and fatty acids (<https://en-m-wikipedia.org>).

Osteopathic Medicine is a system of medicine in the USA and Canada that emphasizes the care of the whole person, using the latest scientific treatments and also sometimes treating injuries to bones and muscles using pressure and movement (<https://dictionary.cambridge.org>) Osteopathic Oath: 1. the body is a unit; a person is a unit of body, mind, and spirit; 2. the body is capable of self-regulation, self-healing, and health maintenance; 3. structure and function are reciprocally interrelated, 4. rational treatment is based on an understanding of these principles: body unity, self-regulation, and the interrelationship of structure and function <https://en.m.wikipedia.org>

Paramedicine (in the US) is the physician-directed practice of medicine, often viewed as the intersection of health care, public health, and public safety (<https://en.m.wikipedia.org>).

Personalized or precision medicine: “a medical model using characterization of individuals’ phenotypes and genotypes (e.g. molecular profiling, medical imaging, lifestyle data) for tailoring the right therapeutic strategy for the right person at the right time, and/or to determine the predisposition to disease and/or to deliver timely and targeted prevention”

Table 2. Continuous

the Horizon 2020 Advisory Group <https://research-and-innovation.ec.europa.eu>

Precision medicine is an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person (<https://medlineplus.gov>). Precision medicine is a healthcare approach that utilizes molecular information (epi/genomic, transcriptomic, proteomic, metabolomics, etc. phenotypic and health data from patients to generate care insights to prevent or treat human disease resulting in improved health outcomes (EPFIA <https://www.epfia.eu>).

Psychosomatic medicine may be defined as a comprehensive, interdisciplinary framework for: assessment of psychological factors affecting individual vulnerability as well as course and outcome of illness; biopsychosocial consideration of patient care in clinical practice; specialist interventions to integrate psychological therapies in the prevention, treatment and rehabilitation of medical disease” (Fava & Sonino 2010 <https://doi.org/10.1111/j.1742-1241.2009.02266.x>)

Regenerative Medicine, an umbrella term for the medical specialty of the regeneration of human tissue, organs and cells which involves replacing or regenerating cells, tissues or organs in the human body, in order to restore or

establish normal function using cell therapy, gene therapy, tissue engineering, biologics, scaffold and other therapeutic methods (European commission 2013 <https://ec.europa.eu>). Regenerative medicine is a technique to replace or repair defective or diseased tissue or organs by in vitro design with in vivo usage (Porcellini 2009).

The Medicine of the Person (Paul Tournier 1898-1986) refers to an approach in the medical care of the whole person involving biological, psychological, social and spiritual aspects of health problems (Jakovljević & Ostojčić 2015). It is an international, multi-faith exploration of the demonstrable need to integrate the scientific basis of healthcare more fully with spiritual, religious and ethical values (<https://www.lernmedien-shop.ch>)

Traditional medicine (TM) “is the sum total of the knowledge, skill, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness” (WHO 2013 <http://www.who.int/medicines/areas/traditional/definitions/en/>).

Traditional and complementary medicine (T&CM): merges the terms TM and CM, encompassing products, practices and practitioners (WHO 2013)

culture of dialogue 2. The medicine of the person approach with supporting a proactive role of the patient provides a person-centered care to each patient taking into account the patient’s values, preferences and uniqueness. 3. synergistic combination of therapeutic methods: integrating both conventional and complementary therapies to have achieved optimal treatment results; 4. empathic communication, treatment alliance, partnership and creation of therapeutic relationship; 5. empowerment of the patient and health promotion aimed not only to decrease illness, but also to increase wellness; 6. collaborative comprehensive care: supporting collaboration between experts from different disciplines within conventional medicine and complementary medicine; 7. family and social support respecting cultural specificities. Integrative medicine is based on systems thinking as a research framework, philosophy of health care and diagnostic and therapeutic tool. When talking about the science-based medicine and pseudoscience-based medicine it is important to have in mind science in three guises: science as fact, science as hypothesis and science as dogma (Sims 2007). It is important to make difference between established facts (evidence-based medicine) and hypotheses of authorities proclaimed as facts or dogma (eminence-based medicine or marketing-based medicine). Whole person health approach involves helping individuals, families, communities, and populations improve and restore their health in multiple interconnected realities – biological, psychological, social and spiritual – rather than just treating disease (National Center for Complementary and Integrative Health <https://www.nccih.gov>). Personal

well-being depends on what patient “has” or “has no”(disease), how a patient suffers (illness), how a patient is defined by diagnosis and how community respond to his behavior (social role, stigma), what a patient “is” (personality, being in the world, narrative self), what a patient “does” (behavior, morality), what a patient believes (life philosophy, spirituality), what a patient feels (life satisfaction), what a patient “encounters” (life story, script) and what a patient tends to be (life management, life mission, self-actualization) – (see Jakovljević 2008). As a growing branch in contemporary medicine transdisciplinary integrative medicine integrates evidence-based medicine, value-based medicine and narrative-based medicine. It also uses person-centered approach and practice-based evidence to achieve optimal health at individual, public and global level. Integrative medicine is a holistic, comprehensive, complementary and individualized approach to healthcare that combines official or conventional medicine with nonofficial or nonconventional medicine considering the whole person dimensions: somatic, psychic, social and spiritual. Integrative medicine promotes the empathic therapeutic communications and relationship between healthcare worker and patients aiming to establish empathic partnership between them involving also families of the patients. The goal is not only to decrease and eliminate illness, but also to increase wellness and promote integrative health. According to Witt et al (2016) integrative health approach covered eight domains: 1. inter-relationship among all health-related domains; 2. role of health determinants outside of health care (e.g. personal behaviors, genetics); 3. role of upstream determi-

nants (e.g. physical and social environment); 4. empowerment of individuals, groups, and communities; 5. value of person-centered evidence and evidence-based care; 6. receipt of appropriate services; 7. community-based strategies, and 8. population-based strategies. Integrative medicine addresses all five different realities we live in 1. somatic/body reality or the world of physiology; 2. psychic reality, the world of ideas, feelings and stories; 3. social reality, the world of interpersonal communications and social relations; 4. spiritual reality, the world of invisible forces and entities, and connections into wholeness, and 5. virtual cyber-reality or the world created in cyberspace. So we can speak about somatic medicine, psychological medicine, social medicine, spiritual and cyber-medicine (the use of internet for delivering medical services). Medicine in theory and practice is based on certain views regarding what there is in salutogenesis or health and pathogenesis or disease/illness theories, how we know what we know about health and disease/illness (epistemology, science/evidence-based medicine, practice-based evidence), what we value (ethics, value-based medicine) and how we create stories (narrative-based medicine). Integrative medicine is a growing branch in contemporary medicine that integrates evidence-based medicine, value-based medicine and narrative-based medicine. It also uses person-centered approach and practice-based evidence to eliminate diseases and achieve optimal health. Integrative and comprehensive medicine combines the most well-researched conventional medicine with the most well-researched complementary therapies to achieve the appropriate or optimal care for each patient (<https://www.mayoclinic.org>) treating the whole person so that physical, psychosocial and spiritual needs are all involved (<https://my.clevelandclinic.org>). Integrative precision medicine tends to enhance the accuracy of diagnosis, to make therapies more effective and efficient, and to decrease unwanted side-effects and adverse events by customizing treatment to individual characteristics (biomarkers) and personal needs of the patient. Integration of conventional and non-conventional medicine should be based on the principles of evidence-based medicine, value-based-medicine, narrative-based medicine and precision medicine. Transdisciplinary integrative holistic medical education is immensely challenging and the onus is on medical hodegetics, an essential but almost forgotten field, to address them efficiently (see Jakovljević et al. 2018).

CONCLUSIONS

There are a lot of challenges and opportunities for integrative theory and practice of health care. Integrative medicine is much more than only the simple sum of conventional medicine and nonconventional, complementary and alternative medicine. We believe that when different perspectives are connected and integrated, for an example, evidence-based medicine, value-based medicine and narrative-based medicine, the best results are achieved not

only at the individual health level, but also at the public and global health level. We have applied an innovative transdisciplinary approach to contribute to more integrative, comprehensive, complementary, holistic and efficient health care in theory and practice. Transdisciplinary integrative and comprehensive model should be based on the 10 rules: 1. care based on continuous healing and therapeutic relationships based on the culture of empathy; 2. customization based on patient needs and values; 3. patient as the source of control, 4. shared knowledge and vision and the free flow of information; 5. evidence-based decision making; 6. safety as a system property; 7. need for transparency; 8. anticipation of needs, placebo inducing and nocebo reducing treatment response; 9. continuous decrease in waste; 10. cooperation among clinicians. Transdisciplinary integrative holistic medical education is immensely challenging and the onus is on medical hodegetics, an essential but almost forgotten field, to address them efficiently.

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