



Content parallels between systems biomedicine and e-health.

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Abstract. Systems biomedicine as a new paradigm has evolved into an independent branch of interdisciplinary and transdisciplinary knowledge at the intersection of many disciplines.

The aim of this work was to create a universal system for organizing and processing transdisciplinary knowledge in medicine.

Systems biomedicine is the most important area of inter- and transdisciplinary knowledge, which is at the intersection of many disciplines.

Systems medicine as a direction illuminates many levels of abstraction - from mathematical disciplines (statistics, graph theory, etc.) to applications to other large systems - systems bioengineering, systems bioinformatics, and the like.

The global purpose of this area is to provide a connection between the main conceptual approaches and constructs of systems biology and systems medicine.

The particular complexity of the direction of systemic biomedicine is due to the diversity and multidimensionality of its components and at the same time - the ambiguity and insufficient formalization and structuring of concepts.

Another obstacle is the lack of uniform terminology.

Conclusions. The progress of medicine at the present time and the effective implementation of e-health directly depend on the understanding of the processes occurring at the molecular level. Modern research concerning topical areas, such as the development of drugs against human immunodeficiency virus and cancer, is carried out precisely at the level of genes, proteins that control transcription and mechanisms of regulation of these processes.

The requirement for the creation of unified descriptor and thesaurus dictionaries, and especially the formalization and structuring of accumulated information, i.e. ontological models.



Fig. 2. Ontological model

The goal of **systems biomedicine** is to create new networks, modules and their integration with already existing functional biological structures for their future unification in an optimal clinical phenotype.

The use of the principles of systemic biomedicine in the clinic is still extremely rare. Even more timid attempts to use the knowledge of systems medicine for health informatization (e-health). In this regard, we need to find the best way to collect and integrate multi-platform data of high dimension and with a significant level of heterogeneity, as well as take into account their temporal and spatial dynamics.

The potential for the future is the use of systemic approaches and network analysis in medical practice based on a better understanding of the systemic relationship between the intermolecular and clinical features of the disease for their optimal screening and therapy.

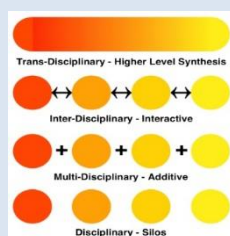


Fig. 1. Transdisciplinarity