

Medicine in 2030: Should We Prepare for the Future of Medicine?

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CONFEMEL (Confederación Médica Latino-Iberoamericana y del Caribe) held its annual meeting in Bolivia from 31 October to 2 November 2018. Informative workshops and meetings were held for all participants. In addition, Dr. Anibal Cruz, President of CONFEMEL, delivered powerful remarks about healthcare for all. He also read remarked on behalf of Prof. Leonid Eidelman, President of the World Medical Association, who conveyed his appreciation to the delegates of CONFEMEL. The following are remarks from Dr. Cruz.

Protágoras, a student of Socrates and Aristotle (2500 BC), said that, “Man is the measurement of all things.” Predicting the future without remembering our principle values can lead us to make mistakes. Physicians understand that there is nothing more important than protecting health or understanding disease. Humans are the only beings who can remember the past, live in the present, and plan for the future. We create history.

In Mesopotamia, medicine was based on using mystical potions to excise evil spirits. In ancient Egypt, priests and fortune tellers treated diseases. It was Hippocrates who initiated the scientific method and medicine based on experience and carefully observation of the patient. Galen dissected cadavers to understand anatomy and physiology. The Romans installed the first hospitals to take care of their war wounded, thus the concept of municipal hospitals was born. Albucasis removed the goiter with rough instruments, using cauterization methods to treat wounds.

Medieval medicine was characterized by pests. The Catholic church inferred that disease was a punishment for sins and condemned scientific research. Louis Pasteur talked about germs and bacteria that passed from one individual to another, thus causing disease. Röntgen discovered X-rays, the basis for exploring the skeletal structure inside the human body. Many centuries passed before the concept of a physician not only curing diseases, but also preventing them was accepted.

In the 20th and 21st centuries, many drugs that cure, prevent, and control diseases were discovered. In addition, electronic devices capable of diagnosing and transmitting impor-

tant patient information were invented. These rapid advances have allowed for an increasingly better life for people, improving patient care and increasing their life expectancy.

WHAT IS THE FUTURE OF MEDICINE?

Five medical technologies could change the world:

- Drugs and anti-aging treatment (molecular repair until organ replacement)
- 3-D and 5-D impressions
- Bionic implants (nanotechnology)
- Prenatal genetic manipulation (avoiding the development of mutations)
- Personalized medicine accompanied by big data and artificial intelligence

The main purpose of this article is to show that the amazing advances in technology are leaving behind the human part of medicine. We ask ourselves: “What about human values?” Disease has a biological as well as psychological and social component. The disease not only attacks the organism, it involves environmental and social factors. Illness influences the family and the environment, aspects that we must not neglect, from the human point of view.

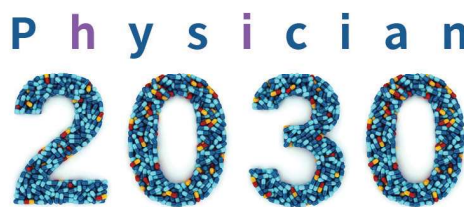
Approximately 70% of the world population does not have access to a full health system, which is the human right to equal care without considering economic, racial, or political factors, the latter being used by unscrupulous governments as discourse to conquer the population.

We must consider that a vast majority of the health systems in the world are affected by poverty, malnutrition, col-

lapse of the hospital systems, limited access medicines, precarious governmental infrastructure, lack of supplies and human resources in health, desolation, and death. These issues are the true reality that we will face and will be the challenge of medicine in the future.

HOW SHOULD WE PREPARE FOR THE MEDICINE OF THE FUTURE?

Technology should not dehumanize medicine; on the contrary, it must be accompanied by ethical and deontological principles.



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This is an important responsibility of medical schools where teaching with values determines that the main concern is the patient and the resolution of their disease in an integral way. Second, as physicians, we should proclaim to health administrators that the human right of free and equal access to health follows the basic principles of the Hippocratic oath.

WE MUST MAKE A MORE HUMAN MEDICINE!

We must make the physician–patient relationship is essential for good health and healing. From the CONFEMEL conference, we demand this right from global health institutions, the unconditional commitment to professional competence, altruism and the trust of society. The patient's trust is the responsibility of the physician.

As participants at the CONFEMEL conference, we should look to the future for medical advances. Our institutions

should ensure that the patient–medical relationship is preserved from the beginning of treatment until it is completed.

CONCLUSIONS

Cruz ended his remarks with a thought from Hippocrates (5th Century BCE): Life is short, science is extensive, the situation is limited, the experience is insecure, and the judgment calls are difficult. It is necessary not only to be willing to act appropriately, but also to collaborate with the patients the sick, those who assist you and external circumstances.

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Capsule

T cells help keep you lean

The gut microbiota is a critical factor regulating mammalian metabolism. The host immune system, in turn, can shape the microbiome, in part via immunoglobulin A (IgA) antibodies.

Petersen et al. report that mice defective in T follicular helper cell development and gut IgA production show hallmarks of metabolic syndrome with age. These mice gain more weight, accumulate more fat, and show greater insulin resistance compared with controls. IgA in these mice inappropriately

targets Clostridia species and allows for the outgrowth of *Desulfovibrio*. Clostridia suppress and *Desulfovibrio* enhance host lipid absorption by modulating CD36 expression. A better understanding of the microbial products that modulate lipid absorption may open the door to future therapies for obesity and metabolic disease.

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Eitan Israeli

Capsule

Empty MHC reagents improve T cell detection

Recombinant major histocompatibility complex (MHC) molecules displaying single peptides in their peptide-binding cleft are valuable reagents for identifying T cells that bind specific peptide-MHC complexes. It now seems that disulfide-stabilized (DS) class I MHC molecules offer a more efficient path to preparing large libraries of MHC-peptide reagents. **Saini** et al. developed DS versions of three class I MHC molecules and used a library of DS-HLA-A2-peptide multimers to rapidly screen T cells infiltrating

human melanoma tumors for neoantigen reactivity. **Moritz** et al. prepared libraries of DS-HLA-A2-peptide complexes to screen an affinity-matured T cell receptor for cross-reactivity with self-peptide-MHC complexes. Empty class I MHC molecules that are stable and easily loaded with peptide will facilitate the wider use of MHC-peptide reagents for T cell detection.

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Eitan Israeli

“It is impossible to enjoy idling thoroughly unless one has plenty of work to do. There is no fun in doing nothing when you have nothing to do. Wasting time is merely an occupation then, and a most exhausting one. Idleness, like kisses, to be sweet must be stolen”

Jerome K. Jerome (1859–1927), humorist and playwright