

Revolution in Medicine, That is not Noticed by Medicine Yet

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Abstract

Traditional approach of health care is reactive, as a result, we have a world of chronic diseases, most of which are poorly managed, such as congestive heart failure, high blood pressure, and diabetes, or not managed at all, as in the case of Alzheimer's. These chronic diseases can largely viewed as an end-stage phenomenon, since once they are manifest there is often irrevocable damage to vital organs and tissues in the body – such as the heart muscle, the pancreatic beta-islet cells that make insulin, the lungs, the kidneys, or the brain (Eric Topol, 2012).

Developments of modern technology create the basis for prevention of chronic diseases, that should be based on estimation of health risks of individual, which includes usage of genomic sequencing and regular monitoring of vital parameters. Most human diseases, including heart disease, cancer, and neurodegenerative conditions, are late onset. It means, that we have a forty- or fifty-year head start in preventing them. The information from digitizing a person early in life, and the appropriate surveillance with biosensors and imaging, lay the ground for true prevention.

The rare or single tests, like popular prophylactic inspection or test , are not suitable for early diagnostics. In such cases we can “catch” disease in its late stage of development because we can compare individual data only with the averaged “norm” figures for the population. Early diagnostics should be based on the ‘first derivative’ of sequential measurements of vital parameters. In such case the individual human data , being taken early in healthy condition, will serve as a personal “norm” .

Unfortunately, current medicine continues to resist the digital revolution. But the convergence of the digital world and medicine is inevitable, that will be followed by big transformation in organization structure of medicine and interrelationships between doctors and patients. Digital high definition of humans will shape the great infection of medicine, producing a reflection of human beings through the unparalleled super-convergence of DNA sequencing, mobile smart phones and digital devices, wearable and embedded wireless nanosensors, the Internet, cloud computing, information systems, and social networking.