

From Precision Medicine to Precision Health

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Precision medicine is an emerging new era for future health care. It has become feasible because of the advances in genome sequencing and pan-omics technologies as well as the application of large-scale biologic databases and artificial intelligence to identify biomarkers, stratify the patients and precisely guide the clinical practices. It has significantly improved treatment outcome of human diseases especially in cancers. Precision medicine has been basically using the clinical and molecular profiling technologies to improve diagnostic accuracy, predict the disease prognosis and tailor the right therapeutic strategy to the right person at the right time. However, the current practice of precision medicine mostly focused on the disease status that has been evident and symptomatic, the individual host organ may have been damaged beyond the stage of full recovery. The scope of this personalized disease care needs to extend towards the broader spectrum of health care before the disease is fully developed, that includes primary prevention, health promotion and society engagement. The broader term of precision health, not precision medicine is more appropriate in current holistic health care. Within this concept, we need to extend the data collection beyond patients' clinical information, molecular or genomic profiling, and incorporate more comprehensive personal information, family history social and environmental data as well as the patient generated data from wearable devices. With the help of cloud computing , machine learning and artificial intelligence, we are able to develop new biomarker and strategy to diagnose and treat the disease in earlier subclinical stage before it is incurable, prevent the disease to occur and provide truly personalized precision health.