

Precision Medicine: A New Concept in Healthcare System

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The new concept precision medicine is revolutionizing healthcare by transitioning from the traditional 'one-size-fits-all' approach to a more individualized strategy. This concept of precision medicine tailors' diagnostics and treatments based on every patient's unique genetic, molecular and environmental profiles. Various advanced technologies like genome profiling, advanced imaging techniques and artificial intelligence driven data analytics are used in this process. By using this we can see the reduction of the reliance on trial-and-error prescribing. This can not only successfully minimize adverse effects of various therapy but also enhances overall treatment efficacy. As a result of the overall process, disease taxonomy is evolving to more accurately reflect the underlying pathology of several diseases now a days like cancer, Alzheimer disease and various chronic illnesses.¹

Despite its drastic transformative potential, precision medicine faces significant challenges. Although the initial costs of implementing precision medicine may be higher, it has some long-term benefits including- improved patient outcomes, cost-effectiveness and optimized resource utilization, underscore its potential to transform global healthcare systems. Unequal access of individuals to advanced diagnostics and therapies can worsen existing health disparities, limiting the benefits of precision medicine to more affluent and well-resourced populations. For medical trainees, understanding and applying evolving molecular insights and a commitment to inclusivity and innovation is very much necessary to ensure the full advantages of precision medicine.²

Although the use of the term "precision medicine" is relatively new, this concept has been a part of healthcare system for many years. For example, a person who needs an emergency blood transfusion is not given blood from a randomly selected donor. It goes through a systematic process. At first the donor's blood type is matched to the recipient to reduce the risk of complications. Then, screening of various diseases is done. Lots of examples of precision medicine can be found in several areas of medicine but its role in day-to-day healthcare is relatively limited. Researchers hope that this approach will expand to many areas of health system in coming years.³

Generally, doctors have had to make most recommendations about disease prevention and treatment based on the expected response of every patient. This one-size-fits-all approach works well for some selected patients and some specific conditions, but not so much for others. Precision medicine is an innovative approach. It takes into account individual differences in patients' genes, environments, and lifestyles. Millions of people have already been touched and having successful results by the area of precision medicine that has grown directly from biomedical research.⁴

References

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