

The Fine Road Ahead For Genomics in India- Better Late Than Never?

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An area which will have to be built over a decade or two



Scientists have always banked upon analysing wealth of genome data and making conclusions. Most decisions are on account of interpretation of sequence data. They have never hazarded a predictive or used data to gaze through a crystal ball to preventive future. However, with the advent of genomic era, the time has come for scientists to make predictions based on data sets that they will be generating by sequencing the human population, microbes and plants.

Prediction involves large data sets and mining through reams of this data. Many a times to find a pattern or sequence data and making predictions from this large data is challenging. Also, India's medical care system is highly tiered between rural and urban and between rich and poor.

Conducting systematic study, centralising data and interpreting for such a diverse population comes with innumerable challenges from affordability to statistical diagnosis, probabilistic prognosis and precision medicine. However, if we do not engage now, we may know very little on how to provide health, environment and food security to our future population.

Credible biomarkers and predictive & preventive models that are highly dependable will have to be developed. More efforts in this direction are needed that should be funded by government agencies since private bodies may not be able to afford 100k genome sequencing and million genome sequencing.

The clinical physician community must be taken along with the development of Clinical Genomics as they would find it extremely difficult to order or interpret a test outcome.

Hand holding exercises and confidence building measures will have to be in place for all the stakeholders to come into one platform under the umbrella of genomics. In addition, Indian database and its access must improve. More and more consortiums will have to be built and unified. Silos will go nowhere.

The most important factor that is overlooked currently is the role of microbes that are living within us, outnumbering our own cells 1:10. These under the broad category of microbiomes play a significant role.

Agriculture and environment of India with India being one of the hotspots for biodiversity will be another area where genomics

will play a role. Climate, environment, and agriculture productivity will again lean on the data that is generated in these areas.

The task ahead of us is enormous, no idea how much of storage and processing speed is needed, but we have to keep throwing more and more modern technologies into these areas and hope to get wiser handling our future.

We need a great plan that can be implemented for our nation. If we do and also succeed, the road ahead is going to be rosy with a very promising data driven decision making process of our future lives.

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