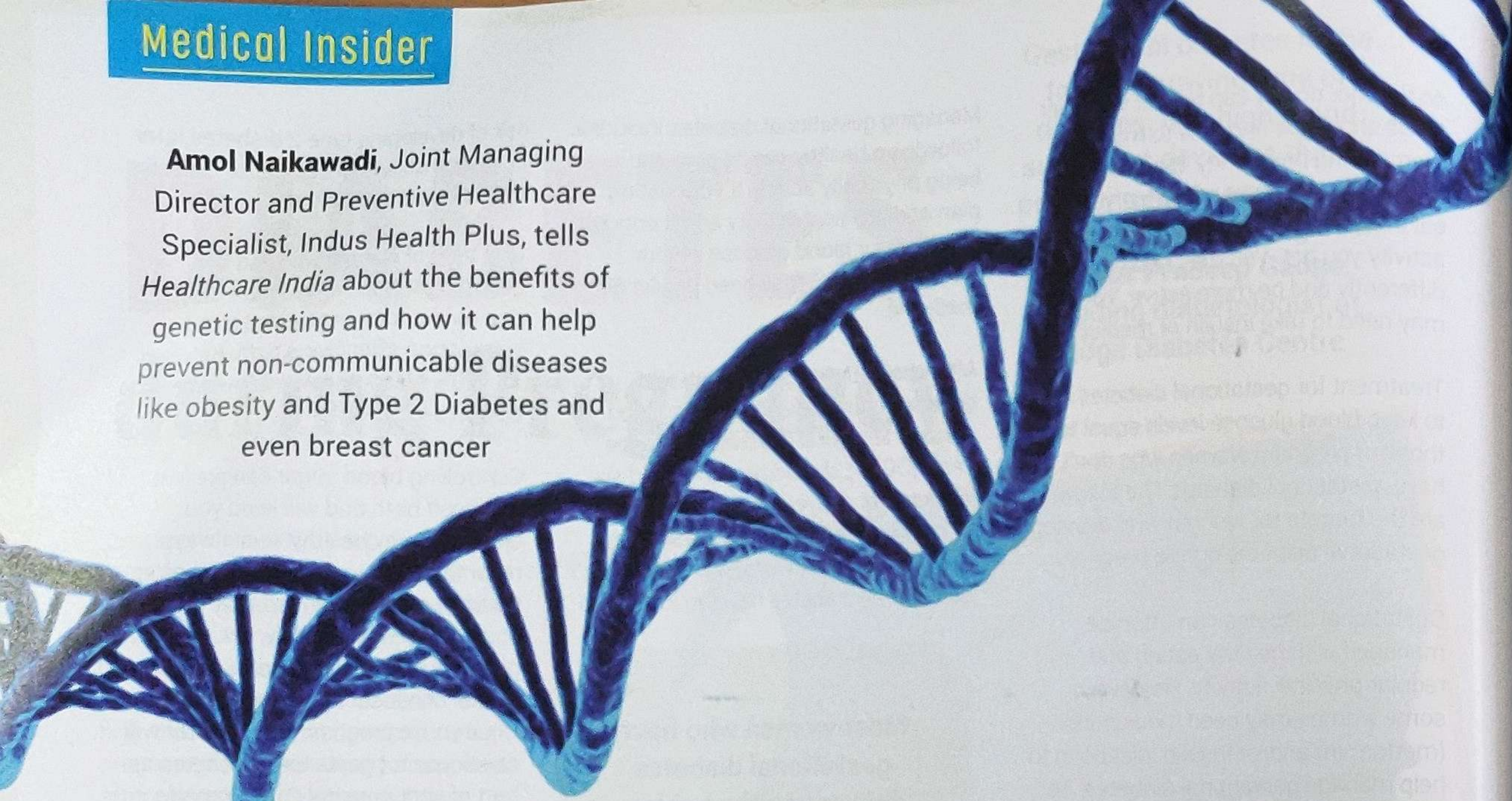
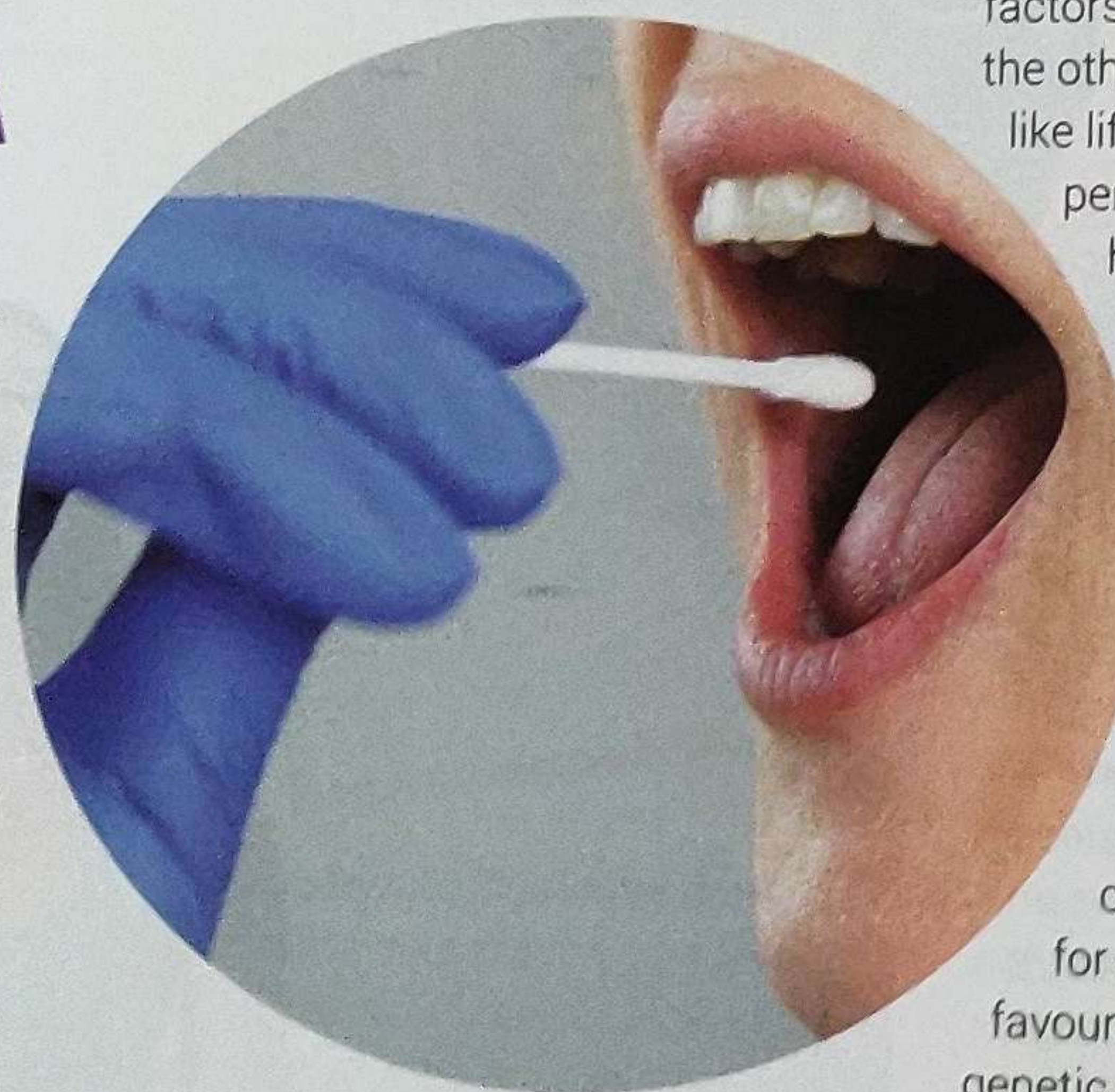


Amol Naikawadi, Joint Managing Director and Preventive Healthcare Specialist, Indus Health Plus, tells *Healthcare India* about the benefits of genetic testing and how it can help prevent non-communicable diseases like obesity and Type 2 Diabetes and even breast cancer



The need for personalised GENETIC TESTING IN INDIA

Genetic testing gives us the knowledge of our past history along with an ability to analyse and match our profiles with a massive peer group that helps to come up with the right health recommendations. Today, technology is capable of telling us everything from the kind of ailments that may overwhelm us to personalised diets and fitness plans on the basis of our DNA tests.



According to research, the global prognostic genetic testing and consumer or wellness genomics market was valued at \$2.24 billion in the year 2015 and it is expected to double to \$4.6 billion by 2025.

Unlike various other markets, in India, people are using genetic

testing with the purpose of treatment but not for prevention. Conversely, the need for the preventive measures is at its peak in India, as a WHO 2016 report estimates that non-communicable diseases account for ~60 lakh deaths i.e. 63% of all deaths. There

are various factors which increase the risk of the onset and progression of NCDs. To name a few: genetics, lifestyle or behaviour, environmental, age, physiology, metabolism, etc. It is imperative to note that genetics is one of the key non-modifiable risk factors. An individual's genetics along with other factors determines their health. On the other hand, modifiable risk factors like lifestyle or behaviour, especially pertaining to nutrition or food habits and fitness levels helps in controlling NCD development.

Interestingly, the modifiable and non-modifiable risk factors, i.e. lifestyle and genetics, interact to yield numerous health outcomes. A genetic risk in combination with an unfavourable lifestyle can increase the risk of NCD for an individual. In contrast, a favourable lifestyle can attenuate the genetic risk of NCDs. For example, a study from the *New England Journal of Medicine* showed that a favourable lifestyle was associated with an almost 50% lower risk of coronary artery disease. Similarly, vegetable and fruit consumption was associated with a reduction in the risk of cancers of mouth, pharynx, oesophagus, lung,



stomach, colon and rectum. Research has demonstrated similar risk attenuation in other NCDs, e.g. obesity, Type 2 Diabetes etc. The key question is - can we determine the genetic risks of an individual? Indeed so. With genetic testing, it is now possible to identify genetic risks or predisposition of individuals.

Genetic testing is a method to identify variations in your DNA. In a personal genetic test, variants in DNA are identified for reporting your individual risk for a parameter. For example, a personal genetic test on breast cancer may involve detecting the presence or absence of risk-associated variants in BRCA1, BRCA2 and other genes linked to the disease. Likewise, many such risk-associated variants have been identified for other NCDs as well as other traits, e.g. nutrition, fitness, pharmaceutical drug sensitivity, beauty etc. Identification of the risk variants in DNA allows reporting of genetic risk/predisposition to a wide array of parameters that help in personalising lifestyle as well as regular surveillance tests. Such a DNA-based personalised lifestyle can offset genetic risks and prevent the development of NCDs.

It is imperative to note that genetics is one of the key non-modifiable risk factors. An individual's genetics along with other factors determines his health

Thus, identifying genetic risks followed by lifestyle modification and regular surveillance emerges as an important

health strategy for early detection and prevention of NCDs.

Therefore, India, with its rising burden of NCDs is a huge untapped market. Besides, there is a need to create awareness about the critical role of genetic testing to enable the preventive mindset of the people.

Mentioned below are some myths and facts about genetic testing which are important to know:

MYTH	FACT
Genetic test helps cure diseases	Genetic test predicts your risks for various diseases
Genetic test is relevant only for people of a certain age	Genetic test is relevant for all ages
Genetic test can be done only on blood samples	Genetic test can be done on blood, saliva, buccal swabs, hair follicles
Genetic test is useful for diagnostic purposes only	Genetic test is relevant for preventive/predictive and therapeutic purposes also
Either genes or lifestyle plays a role in health and wellness	Genes and lifestyle interact to contribute towards an individual's health and wellness