

## ‘Personalized’ or ‘Precision’, Future or Fashion

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Our great teacher, Professor Tada Yipinsoi, once taught his medical students that to make a decision for an individual patient based solely on evidence from a randomised control trial (RCT) should be done with caution, although RCTs were regarded as having the most reliable methodology for clinical research in the era of evidence based medicine (EBM). For the majority of the previous century, medical judgement was based on merely the art-of-practice, that leaned on experience and opinions of experts and authoritarians. EBM applies scientific thinking to clinical medicine through the use of statistical methods with an aim to reduce undue influence. With this philosophy, when choosing a treatment for each disease clinicians prefer evidence from bias-free clinical research that usually looks for significant differences when a treatment is given to a group of patients with a specific condition, compared to a group with the same characteristics but without treatment. Through the eyes of statistical analysis, such methodology relies on a representative value measured from a number of individuals who have subtle variations within the group being studied. A significantly better outcome in the treatment group can be a mixed-up result due to those who responded well and the non-

responders. Personalised medicine uses more extensive information to identify an individual that is likely to receive an exceptional advantage or exceptional harm from a certain treatment. Thanks to the rapid growth of -omic biology and data processing technology, the accuracy of outcome prediction is increasing, which opens up an opportunity to tailor treatments for each patient using multiple biomarkers or expanded personal data beyond the medical diagnosis. In January 2015, President of the United States Barack Obama announced the Precision Medicine Initiative (PMI). He described the meaning of the new phrase ‘precision medicine’ as “an innovative approach to disease prevention and treatment that takes into account individual differences in people’s genes, environment and lifestyles.” From that point of view, the 2 terms have been used interchangeably although some scientists do not agree.

In Thailand, the use of genetic data to guide medical treatment has recently begun. Testing for HLA-B\*1502 prior to carbamazepine use has been included in the universal health coverage program since fiscal year 2018. Fundamental resources are being allocated by the Ministry of Public Health in order to empower access to high-cost technology,

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such as the whole genome study. Earlier this year, a project called Precision Medicine for Breast Cancer Treatment was launched by the Department of Medical Science and the Thai Red Cross. The project aims to use a multigene panel to guide the whole course of treatment for each patient. Nevertheless, it may be too early to foresee the future as genetic tests are limited to individual projects in large research centers and academic institutes. The private healthcare sector seems to be ahead in terms of clinical application. To keep pace in precision medicine, Thailand needs much more than genetic sequencing technology, which means it requires manpower in data engineering, technologists, and clinical geneticists. Preparedness in ethical regulation is also essential in order to avoid the issue of violating personal data. Above all, increased awareness is needed among

medical doctors who employ these auxiliary data in the prevention and treatment of diseases. Like Professor Yipinsoi said long ago, an RCT or even a meta-analysis is inadequate without personal details. There will come a time when holistic medicine will care for the whole genome data, inevitably.

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