

PERSONALISED MEDICINE: How Pharmacists Can Play A Role?

By: Ms. Nur Nabihah binti Razak

“One-size-fits-all” – despite how alluring the concept may be, it is a promise that is rarely kept when it comes to medical treatment. More often than not, medicine prescribing and treatments need to be tailored to each patient. The appropriate pharmacotherapy required by each patient differs based on individual characteristics such as age, weight, ethnicity, clinical condition, comorbidities, concomitant drugs as well as genetic profile. Hence, debunking the concept and recognising that one size does not fit all.

Despite the fact that personalised medicine may sound a little intimidating, the concept of personalised medicine is essentially nothing new. The concept can be achieved through both clinical pharmacokinetics and clinical pharmacogenomics. Personalised medicine through clinical pharmacokinetics or therapeutic drug monitoring was introduced in the 1970s and practiced in Malaysia in the 1980s. However, personalised medicine through the implementation of clinical pharmacogenomics is not currently a widespread routine practice in Malaysia. Nonetheless, expertise and testing are currently available in the country including services offered by Zakesy Biotech, a startup company by Integrative Pharmacogenomics Institute (iPROMISE), UiTM Faculty of Pharmacy.

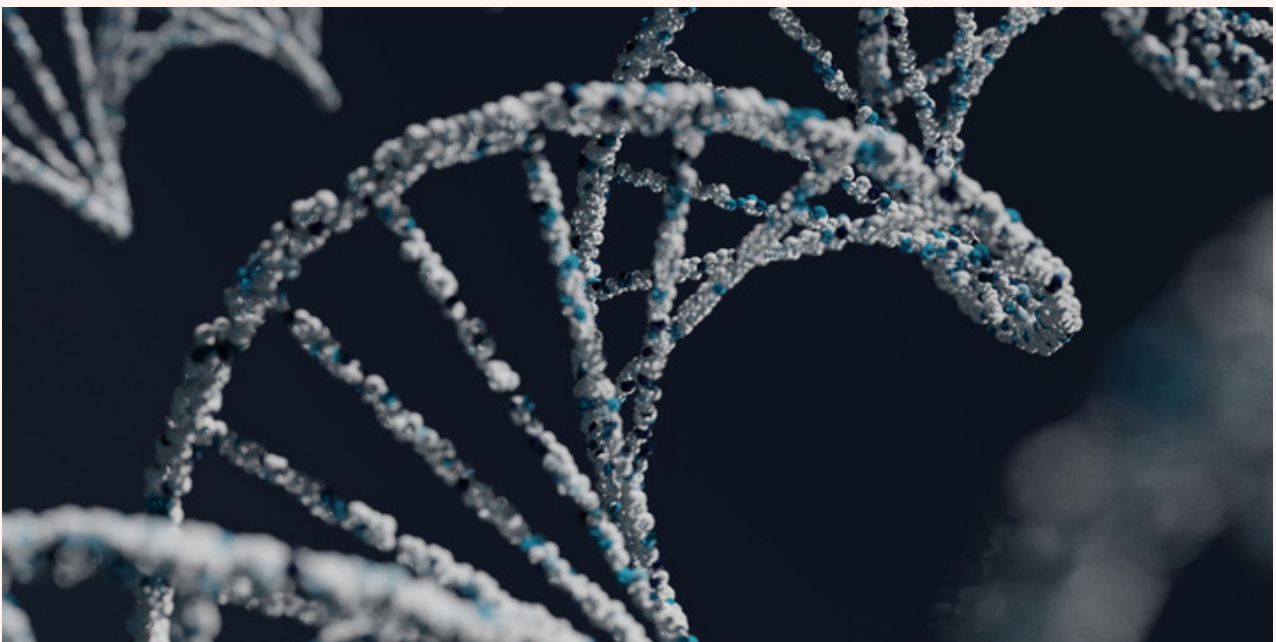
Therapeutic drug monitoring or clinical pharmacokinetics is one of the core components of successful therapies. Personalised medicine through clinical pharmacokinetics primarily relies on the pharmacist for its implementation in clinical practice. Therapeutic drug monitoring goes beyond the measurement of drug levels; it also involves clinical interpretation by pharmacists. With their knowledge of pharmacokinetics, pharmacists can design medication dosing that better meets therapeutic goals, in addition to monitoring side effects.

On the other hand, through the implementation of clinical pharmacogenomics can greatly improve the ability to predict and explain drug responses, as well as adverse drug reactions. Pharmacogenomics involves studying the link between gene variations and how individuals respond to drugs. For example, rare occurrences of life-threatening adverse drug reactions such as Steven-Johnson Syndrome (SJS) and toxic epidermal necrolysis (TEN) were mysterious until pharmacogenomics came into play.

Through pharmacogenomics, it has been discovered that HLA alleles can vary among different human populations and can contribute to drug hypersensitivity. The impact of pharmacogenomics on medication prescribing in clinical practice is indeed significant.

Clinical pharmacokinetics is an important area of personalised medicine services provided by pharmacists. Pharmacists play a key role in interpreting and providing recommendations. With regards to clinical pharmacogenomics, it is essential for more pharmacists to be well-equipped with the necessary skills and knowledge to implement clinical pharmacogenomics into practice. The active involvement of pharmacists is crucial in improving awareness and promoting pharmacogenomic testing, which allow for better tailored treatment for each patient.

Pharmacists, as personalised medicine experts, hold a promising and bright future. The future of personalised medicine through clinical pharmacogenomics and clinical pharmacokinetics is exciting. It is just a matter of time before the practice of personalised medicine through clinical pharmacogenomics becomes a widespread practice worldwide as well as in Malaysia. The future of clinical pharmacokinetics is evolving, with new drugs being able to be monitored using therapeutic drug monitoring, such as beta-lactams. The best time is now for pharmacists to invest in the knowledge to be advocates and ambassadors of personalised medicine.



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PRESCRIPTION

Faculty of Pharmacy,
Universiti Teknologi MARA,
Puncak Alam Campus,
42300 Bandar Puncak Alam, Selangor.

CONTACT US:

 @pharmacyuitm



 @pharmacy_uitm



 Faculty of Pharmacy UiTM



 <https://pharmacy.uitm.edu.my/>



 +603-3258 4645

 korporatff@uitm.edu.my