Review of: "A Value-Driven Future Approach to Precision Medicine for Health Sustainability in New Zealand: A Perspective"

Brian D. Tait

Potential competing interests: No potential competing interests to declare.

The author clearly has an extensive knowledge of precision medicine, and the manuscript (MS) is well written and informative. However, I have two major reservations.

1.Precision medicine require a strict definition which is absent in this MS. If it means the application of genetics /genomics to identify individuals who are likely to benefit from a particular procedure or drug then the original concept that this field was introduced by pharmacogenetics/genomics is flawed, as this has been practiced in the HLA field for 40 years. Two examples are the matching at the allele level of donor and recipient for hematopoietic stem cell transplantation to reduce graft versus host disease and increase overall survival, and the recognition in the 1980s that chronic hepatitis was sub-grouped into at least 4 types based on a series of biomarkers. Those females diagnosed under 30 years of age have a greater than 90% frequency of the A1-B8-DR3 haplotype and represent the auto-immune type of CAH. HLA typing is used to identify these patients and assist in determining treatment. One could argue that this fits with the definition of personalised medicine. The author should consider these and other examples when discussing PM.

2.Many of the genes involved in drug metabolism and human cancer have had more than one mutation reported. It is important therefore to consider genetic phase (haplotyping) when investigating the effectiveness of PM in pharmacogenetic or cancer studies. Statistical methods such as linkage disequilibrium fail when applied to non-Caucasian and disease groups. This is particularly relevant to the Māori populations in New Zealand. This issue should also be addressed in the MS discussion.

There is also one minor point: Line 2 of the section headed Precision Medicine: “group of population” should be replaced with “population group.”