

This submission is made by the Consortium of Medical Technologies (CMDT) and the MedTech Centre of Research Excellence (MedTech CoRE), a partnership between AUT, the Universities of Auckland, Canterbury and Otago, Callaghan Innovation and Victoria University of Wellington (www.cmdt.org.nz).

The CMDT is a national industry-research network established in 2012 as a single point of contact for NZ's capability and resources in medical technology R&D. The MedTech CoRE is our translational research platform taking basic research into applications for economic growth and healthcare outcomes. The MedTech CoRE is funded by NZ's Tertiary Education Commission for 6 years from 2015 and is hosted by University of Auckland with nodes across the CMDT partner organisations.

The CMDT and MedTech CoRE work together to support NZ's MedTech Sector by

- bringing new opportunities to existing companies and catalysing start-ups,
- developing and implementing strategic initiatives that help fabricate the sector's innovation ecosystem, and
- linking researchers, healthcare providers and companies.

Comment on the NZ Health Research Strategy: Public Discussion Document

- A strategy to guide NZ's health research spend is timely with the recent release of the "HRC Refresh" study and the "NZ Health Strategy 2016". It will be effective if it aligns closely and supports the disruptive changes that face our healthcare system as advocated in the "NZ Health Strategy 2016".

A NZ health research strategy needs to (1) clearly prioritise areas of focus to maximise our scarce resources; (2) support the clinical translation of new processes and technologies that show benefits to patients and value to the health system, as well as (3) promote commercial outcomes. A balance between curiosity driven research and innovation will be critical in developing a portfolio of world leading science and technology opportunities for NZ's future.

- A health research strategy should take into account the significant investment into the National Science Challenges (NSC) and the Centres of Research Excellence that contribute to the aspirations of the "NZ Health Strategy 2016". In particular, the MedTech CoRE and the MedTech portfolio in the NSC 'Science for Technological Innovation' specifically address translational research designed to achieve health and economic outcomes with the goal of improving the unit cost of care.
- The NZ Health Strategy 2016 addresses problems that are also global issues such as a growing elderly population, prevalence of long-term diseases and the need for holistic integrated care. While a research agenda should benefit the health and well-being of the nation, it also needs to be cognisant that "health technology innovation has the potential to change the NZ economic landscape" (NZ Health Technology Review, 2016 pg 14). Closer partnerships between research, health providers and companies need to be supported to ensure that innovation has a clinical need and commercial viability to

maximise our research spend. The current situation can be improved if the research system provides DHB clinicians and staff interested in health innovation the ability and mandate to participate in technology development and validation.

- Industry indicated an interest in more public-private partnership investment in the health sector (Auckland “Invitation only” Workshop, 12 July 2016). However, these should span both long-term projects such as the MBIE-funded Orion Health, University of Auckland and Waitemata DHB Precision Medicine platform as well as shorter to medium term initiatives that more immediately meet the needs of industry to capitalise on market opportunities. An example of the latter is the partnership that has ensued around the Rehabilitation Innovation Centre between Rex Bionics, Healthvision NZ, AUT and Callaghan Innovation.
- A major challenge for the research community and industry is that there is no clear and transparent process for introducing new kiwi technologies into our health system. This has meant that NZ has not been able to benefit socially from innovative and disruptive home-grown technologies, as many companies are forced to take their technologies (particularly devices) overseas first (e.g. Adherium, ARANZ Medical, Rex Bionics and ImAble). Additionally, more markets now require proof of home country adoption prior to purchasing new technologies; this will negatively impact on NZ’s medical technology export potential if the NZ health system is not an early adopter of our own technologies.

We now need a research system that (1) extends into supporting the establishment of reference sites where kiwi innovations are validated and used, and (2) clearer purchasing policies from our major end-users i.e. the DHBs and ACC, to optimise the early health research investments.

NZ has the opportunity to lead the world in the upcoming technology intensive healthcare revolution in the delivery of community and integrated care identified in our “Health Strategy 2016”. (Prof. Scott Wallace, University of Austin, NZ Healthcare Congress 2016). We should take the steps to cement this position as a global medtech innovator.

- The policies around funding clinical trials are presently unclear. However, clinical trials are an area which is critical to the success of early stage companies entering new markets. We recommend that these policies be reviewed in the development of the new research strategy.

An option is to extend private-public partnership programmes to support the assessment of new technologies between companies and local health providers. This should include the early R&D phase as well as the clinical validation stage needed to prove the efficacy of new technologies. The latter generates invaluable data for end-user and market acceptance. (<http://www.nbr.co.nz/article/govt-grants-should-fund-kiwi-tech-pilots-rather-hand-out-cash-start-founder-says-b-190757>).

- NZ has a strong culture of international partnerships in research and business. Often the development of these relationships is left to chance depending on the available funding support. A more strategic view will benefit NZ in the long-term by targeting specific

overseas organisations which are beneficial to the medtech sector as a whole (e.g. the Fraunhofer Institutes, Germany; A-Star, Singapore; Texas Medical Centre, US and EXCITE International, Canada) and ensuring that there is a mechanism to develop and evolve the relationship over a 3-4 year period. This will help accelerate technology development and validation as well as commercial uptake of NZ innovations.

In order to take advantage of cutting-edge research, the bulk of which is done outside New Zealand, the NZ Health Strategy must be balanced such that the NZ research environment is attractive to world-class researchers. Such NZ-based researchers can multiply our limited research efforts by critical interpretation of the scientific and clinical literature and through international collaborations.

Some exemplar science platforms which will benefit from international partnering to accelerate our innovation and capability development include robotics, textiles for wearable sensors, bio-scaffolds for tissue regeneration, digital rehabilitation and artificial intelligence. These areas support the technology needs of the “NZ Health Strategy 2016”.

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