The Royal Australasian College of Physicians

Strategic Review of Health and Medical Research in Australia

Submission by
The Royal Australasian College of Physicians
March 2012

Executive Summary

The Royal Australasian College of Physicians (RACP) welcomes the opportunity to provide a submission to the McKeon *Strategic Review of Health and Medical Research.* The RACP has received considerable feedback from its Fellows on this issue as a result of extensive consultation prior to compiling this submission. This submission draws on the expertise of the RACP Fellowship.

Health and medical research is about helping people to be healthier through the development of new and better ways to prevent, diagnose and treat disease, or promote population health.

Specialist Physicians of the RACP have a proportionally high level of involvement across all major areas of medical research and clinical trials in Australia. Fellows often play an active role in drafting clinical practice policy documents that result from medical research. That is, RACP Fellows are often involved in the translation of medical research into clinical practice in Australia.

Medical research in Australia should focus on the areas of current and future health needs, including:

- prevention and chronic disease management in both indigenous and non-indigenous Australians;
- prevention and treatment of health issues in the paediatric population;
- more research into managing and treating an ageing population;
- facilitating workplace based rehabilitation initiatives (not just for people with compensable injuries and illnesses);
- minimising unnecessary hospital admissions;
- delivering more care in the community; and
- increased research on self-management by consumers.

The RACP recommends the following:

1. Supporting strategic multi-institute initiatives, collaborating with partner organisations, and providing forums for discussion, knowledge exchange and direction setting.

2. Support for ongoing innovation in developing data capture to enhance community and consumer participation in medical research, and collaborative strategies between commercial and government sectors.

3. Providing seed funding to support proof of concept development for new and innovative research proposals.

4. Increased awareness and priority for research regarding indigenous peoples, aged care, paediatric and child health.

5. Addressing the skills shortages in the medical research workforce (including technical and medical staff), to attract more early and mid-career highly trained skilled researchers and promoting stable career pathways for young researchers.

6. Action to explore and promote healthier and more productive work practices, in recognition of the valuable impact work can have on societal health.

7. Implementing the Clinical Trials Action Group's (CTAG) recommendations. The RACP has previously advocated for paediatric research to be given higher priority.

The benefits of implementing these recommendations include:

For Patients

- continued rigour in the consideration of the scientific merit, the protection of participants, and the safety of clinical trials;
- improved access to information about clinical trials, their conduct and their outcomes;
- maintained or improved access to clinical trials in Australia;
- faster access to potential new treatments through clinical trials; and
- faster access to evidence-based treatments based on knowledge gained in Australia.

For Industry

- significant improvement in the timeliness, cost and consistency of clinical trials approvals;
- standardisation and transparency of the costs for approval and conduct of clinical trials;
- provision of benchmarked data on clinical trials performance that can be used to promote;
- improved global competitiveness within health and other industry; and
- increased patient recruitment into clinical trials.

For the Health system

- more efficient processes around ethical review and research governance for multi-centre clinical trials to optimise use of resources in the health system;
- streamlining the use of clinical trials for ongoing process improvement in the health system;
- improved health outcomes generated from healthy work, and transferred to employee's families and social networks;
- ensured cost recovery within the health system for clinical trials participation; and
- continued investment in Australia's medical research system which will, in many cases, reduce the public cost of treatment of trial participants.

For Researchers

- faster start-up of trials providing more time to recruit patients into the trials; and
- maintaining the current high level of global clinical trials activity in Australia to provide: opportunities to gain experience and training for research staff via global clinical trials; and
- opportunities to progress innovative Australian research ideas through increased collaboration with industry.

Introduction

The Royal Australasian College of Physicians (the RACP) welcomes the opportunity to contribute to the McKeon *Strategic Review of Health and Medical Research.*

Medical research includes various types of research, such as observational, diagnosis, early detection/screening; prevention; treatment with drugs, surgery or medical devices.

Most research funding comes from two major sources, commercial corporations (such as the pharmaceutical and biotech industries) and government (including the Australian Research Council, the National Health and Medical Research Council (NHMRC), Australian Research Council (ARC)). Additional sources include hospitals, universities and specialised government agencies. Small amounts of scientific research are carried out (or funded) by charitable foundations, especially in relation to developing cures for diseases such as cancer, malaria and AIDS. Around 40 % of medical research and development is carried out by universities and government, 21% by industry, and the remainder by other collaborative groups, charities, foundations and societies[1]. Despite the fact that we boast some of the world's best clinical researchers and state-of-the-art infrastructure, the number of new clinical trials in Australia has been declining over the past three years by an average of 13 per cent per year[2]. Australia is now competing for pharmaceutical research and development resources and manufacturing activity with locations around the world.

The RACP advocates for the need to manage the research relationships between these entities, and examine the ways in which they fund research. The RACP acknowledges the positive steps the Commonwealth Government is taking towards strengthening health and medical research. These steps include:

- the inception of the collaboration research centre (CRC) program administered by the Department of Industry, Innovation, Science, Research and Tertiary Education in which 186 CRCs have been funded or approved for funding. The Australian Government has committed more than $3.3 billion in CRC Program funding. The RACP supports the Government's initiative to set up CRC's in Aboriginal and Torres Strait Islander Health; oncology, asthma and mental health. The CRC for Indigenous health example highlights the importance of having an efficient and effective health and medical research sector to ensure Australian-specific translational research is carried out. Whilst other nations with strong medical research sectors have Indigenous populations, and others still have rural areas, each nation's Indigenous issues are unique. Success of the CRC program has led to indigenous health being one of NHMRC's enduring research priorities. Given our longstanding commitment to providing at least 5% of total research funding to Indigenous health research, special initiatives include funding into dementia, palliative care, hearing services and maternity services research.

[1] Australian New Zealand Clinical Trials Registry (ANZCTR) [database on the internet]. Sydney (NSW): The University of Sydney (Australia); 2005 [accessed 2012, March 9]. Available from http://www.anzctr.org.au].

[2] http://medicinesaustralia.com.au/2011/03/31/clinical-trial-numbers-fall-for-third-straight-year/ accessed March 15, 2012

- Australia's Clinical Practice Guidelines Portal, an initiative of the NHMRC; developed from evidence based medical research and supported by RACP fellows.

- the recommendation for the implementation of the National E-Health Transition Authority (NEHTA) by state and territory governments, which will make the clinical research system more viable. The implementation of personally controlled electronic health records (PCEHR) offer the opportunity to enhance community and consumer participation in medical research and have the potential to provide data to enhance recruitment into clinical trials for areas of need such as oncology, Aboriginal and Torres Strait Island and paediatric research. The PCEHR can improve access of health care professionals to health information of patients who are eligible and willing to participate in medical research.

- the introduction of the Australian New Zealand Clinical Trials Registry (ANZCTR) as an online register of clinical trials being undertaken in Australia, New Zealand and elsewhere[1] and includes a transparent portal that captures trials from the full spectrum of therapeutic areas of pharmaceuticals, surgical procedures, preventive measures, lifestyle, devices, treatment and rehabilitation strategies and complementary therapies, including the funding sources.

- establishment and ongoing actions of the Clinical Trials Action Group, (CTAG) by government to develop recommendations to boost Australia's profile as a preferred destination for conducting clinical trials.

- the Government's plan to help promote Australia as a centre of excellence for clinical trials. The RACP also commends the fact that the *Consumer Guide to Clinical Trials* has been implemented by CTAG which provides information for consumers, including details on clinical trials that are being conducted in Australia.

- the Harmonisation of Multi-Centre Ethical Review (HoMER) to enable the recognition of a single ethical and scientific review of multi-centre health and medical research within and/or across Australian jurisdictions. Such an initiative will improve timeliness for both investigator- and commercially driven research. It is important to ensure such reviews occur with maximum efficiency.

Part 1 – Responses to *McKeon Review* Questions

Why is it in Australia's interest to have a viable, internationally competitive health and medical research sector?

Patient Care

An ongoing Commonwealth Government priority includes pursuing high quality patient-centred care. Health and medical research is imperative to advance treatment and prevention of disease and to provide world class medical treatment for life threatening and chronic illnesses and is key to capturing economic gains and improved health outcomes from productivity and increased workforce participation. Critical assessment of options for improving patient care can be honed through the practice of and involvement in clinical research

Australia's medical community needs to conduct relevant research to ensure that the nation is in a position to expertly assess and promptly translate research into the Australian context. Through involvement in clinical trials, Australian researchers ensure the earliest access for Australians to advances in therapeutics and medical devices, as well as facilitating knowledge transfer and training around the use and deployment of these innovations. Ultimately, this level of engagement in research can contribute to improved health outcomes here in Australia.

Ensuring there is a viable and competitive health and medical research sector better enables Australian patients to be involved in clinical trials. In addition to the improved health outcomes that individual patients can observe as a result of involvement in trials, patient involvement can contribute positively to community health literacy. The clinical trials sector is worth around $1 billion per annum to Australia with direct foreign investment of over $450 million per annum[3]. These trials provide patients with early access to innovative medicines that otherwise would not be available. However, despite the fact that we boast some of the world's best clinical researchers and state-of-the-art infrastructure, the number of new clinical trials in Australia registered by the therapeutic goods administration (TGA) has been declining over the past three years by an average of 13 per cent per year[2].

Health Economics

Beyond patient care, efficiently competing in medical research can have economic benefits for the health sector. This competition can assist Australia in developing its own world leading products and procedures for the international market, or in translating foreign research for production and use in the Australian market.
A skilled workforce in scientific and medical research expertise contributes to decisions about health standards, health policy, regulations and health programs. The highly technical and specialised nature of most clinical research makes it important to attract suitably qualified people to the industry.

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[3] *Clinically competitive: boosting the business of clinical trials in Australia March, 2011 (*http://www.innovation.gov.au/Industry/PharmaceuticalsandHealthTechnologies/ClinicalTrialsActionGroup/Pages/default.aspx accessed March 15*, 2012)*

Australia's strengths in relation to clinical trials include:

- high-quality infrastructure;
- an ethnically diverse population, enabling trials within different ethnic groups;
- high volunteer rate and a fast track approval system for Phase I clinical trials;
- well established track record and a high number of ongoing trials for our population size;
- globally recognised clinicians; and
- strong and effective IP laws.

Given these advantages, it should be possible to effectively leverage a leadership role in global medical research. Each year more than 18,000 Australians take part in clinical trials sponsored by the medicines industry[2]. Industry's investment in clinical trials delivers multiple benefits. It:

- facilitates early patient access to new medicines;
- enhances the uptake of new evidence into clinical practice;
- improves the general standard of medical care in Australia;
- supports academic research;
- provides technical experience and global recognition to Australian researchers; and
- helps retain talented researchers in the Australian healthcare system.

The benefit-to-cost ratio was estimated to be 2.17:1, "which means that a dollar invested in Australian health R&D returns $2.17". Applying this ratio to the estimated annual industry expenditure on clinical trials ($450 million) shows there is an economic benefit of $977 million from clinical trials in Australia.[4]

There are other benefits of clinical trial activity, including:

- generating investment that is deployed to academic research and supports Australian doctors, medical students and PhD candidates to pursue other research interests; and
- providing valuable training for researchers and study staff in clinical trial methodology,

Trials can be investigator-driven or investigator-initiated clinical research; initiated by doctors, nurses, pharmacists and other healthcare professionals. Commercial companies

[4] NHMRC. Discussion Paper Health and Medical Research and the Future in NHMRC's 75th Year. 2011

also support investigator-driven research, both directly by providing funding or supply of the medicine, and indirectly through their financial support of company-sponsored clinical trials. Many clinical trials are global, where Australia contributes data from a group of patients to the trial that may be run across 10 or more countries.

Importantly, the conduct of the clinical trial in Australia provides employment for many people in pharmaceutical companies, research organisations as well as researchers and their support staff in clinics.

Challenges to be overcome include:

- a small and geographically dispersed population meaning fewer patients per trial site.
- less trial sites compared with emerging markets (leading to higher costs through lower efficiency of monitoring procedures);
- a diminished capacity to supply patients in some therapeutic areas that are already stretched due to the number (such as rheumatoid arthritis);
- significantly more expense for Phase II and III trials than emerging markets; and
- inefficiency — multi-centre trials require approvals from each institution. The NHMRC supported process (HOMER) has recently been devised to streamline ethics approval for multisite studies and has been adopted in several Australian States. Room for improvement, however, in its implementation times is warranted to be internationally competitive.

The RACP supports the ongoing implementation of the CTAG recommendations to benefit patients, industry, the health system and researchers in Australia. State governments, research institutes, universities, consumer groups and other healthcare and industry stakeholders all have important roles to play in supporting the implementation of the CTAG recommendations.

How might health and medical research be best managed and funded in Australia?

The RACP supports enhancement of pathways to encourage collaboration between funding agencies. Recent examples of collaboration include the Department of Climate Change and Energy Efficiency; NHMRC collaboration with the Cancer Councils and the Heart Foundation. The implementation of a transparent database platform for all funding bodies in Australia and linked to relevant international research sites such as the National institute of health (NIH) in the USA and INSERM France, and Canada (Canadian Institute of Health Research; CIHR) and the UK (National Institute for Health Research, NIHR) will strengthen the ability of Australian researchers and research entities to function and develop partnerships.

Management

Developing an appropriate model for NHMRC funding will necessarily involve the use of tools to measure and evaluate previous research and works in progress. This could include an up to date database of NHMRC funded and endorsed projects and researchers, with a view to understanding the intermediate and long term outcomes of projects funded (and not funded) by the NHMRC. Such a database should include information on any links the NHMRC has to foreign research and researchers, as well as industry connections locally. A key element of such a database should be a high level of accessibility and transparency.

More rational use of competitive grant schemes for clinical trials that address areas of need such as Indigenous health and Paediatrics and Child Health should be encouraged. Where a chronic research gap exists, it may be necessary to increase infrastructure to allow independent clinical trials to be based in hospitals with adequately trained and resourced research staff. Such an approach would be in line with the CTAG report which found there is insufficient support of trials amongst hospitals and health professionals. The RACP supports the development of key performance measures with consideration given to indicators that include cost, recruitment (capacity and rate), timelines, and trial type. That data should be captured in a trial management platforms used starting from the time of ethics submission and throughout the trial lifetime.

The development of appropriate treatments for priority health needs of the paediatric population represents another chronic research gap. The capacity to develop and conduct high quality paediatric drug trials and relevant medicines research is an important public health need, both domestically and globally. In its submission to the CTAG discussion papers, the RACP previously outlined that major international initiatives are currently under way to stimulate and support global paediatric drug trials and medicines research to address important child health needs. These initiatives provide unique opportunities for Australia. In order to properly take advantage of these opportunities, any action on clinical trials and medicines research generally should take into account the special needs of the paediatric population, and the need for specialised expertise, guidance and support for the design, scientific and ethical review, and conduct of clinical trials and other medicines research appropriate for the paediatric population. This should also help increase public confidence in children's participation in such research, which has been one of the barriers identified in the past. These measures are likely to help deliver major benefits both for the economy and child health in Australia.

In this regard the RACP endorses the following actions by CTAG:

- speeding up ethics and governance review;
- providing for cost recovery of efficient clinical trials;
- ensuring clinical trials can take advantage of the developing e-health system;
- improving patient recruitment;
- facilitating better national coordination and greater collaboration across trial networks; and
- improving reporting and monitoring of the value and performance of clinical trials.

The RACP also recommends the development of initiatives to improve the quality of scientific and ethical review of clinical trials. For example, in the case of paediatric participants in drug trials, additional work is needed to ensure they are adequately protected within the current context of major developments globally.[5]

Data

There are a number of existing and emerging national database networks, based on professional groupings or patient populations (e.g. paediatric, neonatal/perinatal, rheumatology, and cancer) which facilitate various types of clinical research and serve as a source of specialised research and clinical expertise. These networks could serve to also support clinical trials activity such as patient recruitment, with appropriate additional support, resourcing and national coordination. In the case of the paediatric population, a key "success factor" is that such activity would provide the ability to generate solutions to the specific public health needs of this vulnerable population in terms of producing much needed evidence on the efficacy and safety of medicines. International experience indicates that substantial dedicated public funding and support (in addition to support from the pharmaceutical industry), and access to specialised expertise in paediatric drug trials and medicines research is needed to achieve optimal outcomes.

The Government is uniquely placed to determine the framework within which the health industry and its various partners and actors operate. Partnership and collaborative funding opportunities between different research sectors (individuals, industry, hospitals and educational institutions and governments) should be encouraged. All of these partnerships would be closely monitored to ensure that gaps in research are identified and appropriately funded. There should be a variety of flexible research partnership models available, to accommodate the needs of different sectors. The Government's role may include identifying and providing that infrastructure necessary to allow collaborative research. The RACP supports funding models such as the *Discovery Indigenous Researchers Development* run by the Australian Medical Council. This program aims to provide flexible funding to Indigenous researchers. This model could be extended to other medical research priority areas list below.

What are the health and medical research strategic directions and priorities and how might we meet them?

[5] Hoppa. K. *The status of paediatric medicines initiatives around the world—what has happened and what has not?* 2012

Chronic diseases, including those associated with ageing, and mental illness, are now the leading causes of morbidity and mortality. There is increasing evidence that a healthy 'start to life' is a critical factor in avoiding chronic diseases in adulthood thus necessitating more preventative research in the paediatric and child health arena.

Medical research in Australia should focus on the areas of current and future health needs. These include:

- prevention and chronic disease management in both indigenous and non-indigenous Australians;
- prevention and treatment of health issues in the paediatric population; research into managing our ageing population;
- research focused on maximising the health benefits of work;
- minimising unnecessary hospital admissions; and
- delivering more care in the community.

The RACP recognises the limited pool of public funds available for medical research. This reality makes it all the more important that partnerships between sectors are promoted and encouraged, to ensure the use of all potentially available research funding. Evaluating funding models, examining the possibility of using seed funding to support ideas to a proof of principle stage, are all possibilities to explore. The RACP, through the RACP Foundation, is an example of how an organisation can work to support young talented physicians and trainees in the medical research through research Scholarships, Fellowships and Grants. The targeted funding of researchers in the early stage of their career inherently benefits and adds value to Government-funded research programs.

Paediatric research

Improving the capacity for research within our health system provides the opportunity to develop research skills and experience in our paediatric clinicians, attract expert clinicians to our health system, and develop a culture of continuous improvement within the health service.

Knowledge-led continuous improvement, innovation and research is one of the stated levers of National Health Reform. The commitment to invest in health services, public health, health policy and health system research, and establishing clinical research fellowships across hospitals and primary health care settings will be enormously important in underpinning the growth of quality and quantity of research possible in the paediatric setting.

As referenced earlier, the NHMRC has estimated that for every $1 that is invested in clinical research, there is a $2.17 benefit to the health of the nation. Supporting paediatric research activities provides additional benefit by ensuring the health care delivered to paediatric patients is evidenced-based and provides a good foundation for wellness as adults.

Due to the small size of the paediatric population, it is important to engage nationally and internationally in order to recruit enough volunteers with specific medical problems to achieve scientifically valid conclusions. Clinical trial networks are therefore important in

paediatric research for establishing critical mass, attracting development of and efficient use of infrastructure, creating linkages with external partners (such as government, industry, international partners) and acting as a central contact point for efficient communication and coordination of multi-centre trials.

A good health foundation in childhood is the key determinant of health throughout life. Medical research in children should be a priority because improvements to child health and prevention will reduce the overall burden of disease and improve long-term adult health across the population. Children from lower socioeconomic groups living in rural and regional areas (such as Aboriginal and Torres Strait Islanders in urban areas) are less likely to receive timely treatment and therefore are more likely to experience longer term health problems thus more research is warranted in paediatrics.

Internationally competitive paediatric research ensures health and cost dividends over extended periods of time. Effective child health research has the capacity to modify child health outcomes into the future. Safeguarding paediatric research is particularly important at a time when other sectors, such as aged care, mental and indigenous health are gaining prominence.

Improving Australian capacity for paediatric medicines research was one of the key recommendations of the Australian Health Ministers Advisory Council (AHMAC) Paediatric Pharmaceuticals Working Group (PPWG), which was supported by the RACP. Countries and regions (e.g. UK and SE Asia) which have had relatively greater success in attracting and conducting clinical trials, have made major investments in nationally co-ordinated infrastructure and capacity building to support clinical trials and medicines research generally. These include some with specific focus on medicines research in children, e.g. the UK Medicines for Children Research Network (MCRN), and more recently established national and regional paediatric drug trials networks in the US and Europe[6]. This type of infrastructure has provided successful support for both industry-sponsored and investigator-initiated studies.[7] Australia would benefit from a similar model being established with major benefits both for industry and child health.

Aged Care Research

Australia's population is ageing and although people are living longer, they are not necessarily living healthier. As people age, they are more likely to experience complex health conditions, including chronic disease, often with multiple co morbidities. As a result, many older people now have higher care needs and dependencies that can escalate without access to adequate care and support, risking inappropriate and avoidable hospitalisation and increased mortality. The RACP supports the involvement of specialist physicians, particularly those in general medicine, geriatric medicine, rehabilitation and palliative medicine, in medical research across health settings for older people with chronic and complex medical conditions. Specialist physicians play a pivotal role in the prevention and

[6] Hoppa. K. *The status of paediatric medicines initiatives around the world—what has happened and what has not?* Eur J Clin Pharmacol (2012) 68:1–10.
[7] Medicines for Children Research Network. *MCRN Annual Report 07/08.* 2008

management of disease in the elderly. Involvement of specialists in medical research related to prevention, early intervention and self-management (including management of medication, pain and wounds) has the potential to improve health outcomes and reduce the likelihood of acute events and hospitalisation. Funding mechanisms need to be explored to enable the involvement of specialists in medical research (such as patient recruitment; data collection) within the realms of their medical practice.

Work Force Initiatives

The Government's vision for 2020 is of a strong and productive Australian research workforce. The Government's review and development processes have identified five key areas of particular challenge for Australia's research workforce over the coming decade:

- meeting anticipated increased demand for research skills in the workforce;
- increasing the standard and relevance of research training programs and thus the quality of supply;
- enhancing the attractiveness of research careers;
- facilitating research workforce mobility; and
- increasing participation in the research workforce.

Working closely with employers to offer incentives to researchers to deliver additional value through developing industry-relevant skills and experience can help strengthen Australia's research environment. Ensuring sustainable career pathways for researchers in clinical, public health and health services research that include adequate time to conduct research and skills training is critical to the long-term viability of Australian research. The RACP is well placed to deliver such training to its members.

Training

Educational and professional support for careers in medical research is critical to the training and retention of talented researchers. Opportunities for intellectual, academic and research outside of major tertiary centres will help attract physicians to rural and regional areas rural areas. An evaluation of the University Departments of Rural Health Program and the Rural Clinical Schools Program (undergraduate medicine) showed retention of clinical staff who found clinical practice, combined with educating and supervising students, had increased their job satisfaction – beyond providing a service. The schools also attract qualified medical staff who are interested in academic practice alongside clinical practice, as well as the development of a 'learning culture' within a setting. Increasing the medical research workforce in rural areas has the potential to address research gaps mentioned above in Australian children including Aboriginal and Torres Strait Islanders.

Health Benefits of Work

The potential health, economic and social gains of medical research are substantial. The Australian Safety and Compensation Council (ASCC), Safe Work Australia[8] estimated the

[8] Safe Work Australia (March 2012) The cost of work-related injury and illness for Australian employers, workers, and the community, 2008–09

total economic cost from work related injuries and illness for the 2008–09 financial year to be **$60.6** billion, representing 4.8 per cent of GDP for the same period. It should be noted that this is an estimate of "foregone economic activity" by the Australian community. In terms of the burden to economic agents, 5 per cent of the total cost is borne by employers, 74 per cent by workers and 21 per cent by the community. Regardless of which sector bares the cost, the direct consequential loss to the Australian economy, the Australian Government and our society, is highly significant.

Work practices, workplace culture, life balance, injury management programs and relationships within workplaces are key determinants, not only of whether people feel valued and supported in their work roles, but also of individual health, wellbeing and productivity. The RACP has previously published substantial work examining the benefits of work to individual and societal health[9]. Work is an effective means of reducing poverty and social exclusion, including that faced by indigenous populations and other currently disadvantaged groups. With appropriate support, many of those who have the potential to work, but are not currently working because of economic or social inequalities, illness or acquired or congenital disability, can access the health and economic benefits of work.

The RACP recognises that work is a substantial portion of an adult's life. Research[10] into the characteristics of good work has revealed the power of extending the effects of behavioural change from within the workplace environment into the health of families and social networks. Furthering this research would be to the strategic and social benefit to Australia.

Research into the relationships between work, health and wellbeing, and productive participation in society, is therefore a key frontier for realising the health of individuals and the Australian community. Efforts can be made to direct medical research towards examining the best methods to promote health in workplaces and establish the most appropriate means to communicate these solutions to employers.

New Technologies

Considered alongside conventional infrastructure should be established and emerging e-health tools. These include WebEx, Webinar, teleconferencing and possible integration of Telehealth and the Personally Controlled E-Health Record into clinical trials work. Working with NEHTA, many of these tools could be of great use in improving the quality and efficiency of clinical trials, and could allow more health professionals to participate. E-Health tools are increasingly being used to help manage chronic disease in rural and regional areas.

[9]RACP AFOEM (2010) Realising the Health Benefits of Work

How can we optimise translation of health and medical research into better health and wellbeing?

Evidence from research needs to be implemented through governmental, professional and community-based policies and practices and through commercial development[11]. The RACP supports the NHMRC discussion paper that provides the strategy to build Australia's capacity to undertake essential health and medical research and to translate knowledge acquired from biomedical research into improved patient car and thereby support a self - improving system.

It is important to translate research into practice; i.e., to ensure that new treatments and research knowledge actually reach the patients or populations for whom they are intended and are implemented correctly. Finding and evaluating ways to take clinical research from the laboratory bench to frontline medicine is amongst the most effective methods of ensuring research remains relevant, competitive and of high quality. Translational research if often referred to as a "bench-to-bedside" enterprise.[12] In essence, translational research focuses on the importance of bringing new and effective treatments to the forefront of clinical and commercial practice.

A critical factor in the advancement of medical research and clinical translation is the ease with which data can be integrated, redistributed, and analyzed both within and across functional domains.

The Human Variome Project is a key example of translational research. The Human Variome Project is an international consortium of researchers and healthcare professionals who are working to ensure the routine collection, curation, interpretation and sharing of all genetic variation information. The Project achieves this by establishing and maintaining the standards, systems and infrastructure that are necessary to automatically share vital genetic variation information around the world. Sharing information in this manner provides clinicians and diagnostic laboratories with access to high-quality, curated information that can be used to deliver speedier, cheaper and more accurate diagnoses and treatments, as well as providing a platform for medical research. Human Variome Project activities in Australia include the Human Variome Project Australian Node, a register of genetic variation reported by Australian diagnostic laboratories, located in the Department of Pathology at the University of Melbourne, and the Project's International Coordinating Office in the Florey Neurosciences Institutes, also in Melbourne.

[11] Developing advanced health research centres in Australia: Integrating leadership in research and research translation to improve patient care and health professional education. discussion paper December 2010 (http://www.nhmrc.gov.au/research/advanced-health-research-centres accessed March 15, 2012).

[12] Woolf. S.H. *The Meaning of Translational Research and Why it Matters.* American Medical Association. 2008.

Acknowledgments

The RACP would like to acknowledge the valuable contributions made to this submission by our Fellows and staff.

The Sydney Children's Hospitals Network (Randwick and Westmead, incorporating The Royal Alexandra Hospital for Children).