



## **The Australian Society for Medical Research**

Submission to

### **The Government's Review Panel**

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### **Strategic Review of Health and Medical Research in Australia**

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## **Declaration of interests**

The Australian Society for Medical Research (ASMR) represents members from the health and medical research sector including researchers from universities, hospitals, research institutes, medical colleges and patient groups.

Some members are recipients of funding from the Australian and/or State Government bodies, including the National Health and Medical Research Council (NHMRC), and the Australian Research Council (ARC).

ASMR receives direct funding from the NHMRC for ASMR Medical Research Week®, a public outreach program that raises public awareness of medical research in Australia.

## The Australian Society for Medical Research

The Australian Society for Medical Research (ASMR) is the peak professional body representing the nation's health and medical research (HMR) sector. In addition to more than 1700 direct members, the ASMR represents the sector through 57 affiliated professional societies and medical colleges representing an additional 18,000 people actively involved in HMR. Our corporate and disease related foundation memberships bring a further 100,000 people into association with ASMR. Our mission is to foster excellence in Australian HMR and to promote community understanding and support of the sector through public, political and scientific advocacy.

ASMR has a demonstrable knowledge and understanding of the HMR community as a result of it being closely connected to its members and actively involved in research concerning the sector's productivity<sup>1-4</sup>, workforce conditions and planning<sup>5-6</sup>. ASMR keenly supports new initiatives for HMR that have the capacity to improve the nation's health, as well as enhance the productivity of the sector particularly through the development of our human capital.

Visionary leadership is of utmost importance, perhaps now more than ever. ASMR believes that the terms of reference for this review show the Government leadership this country needs. ASMR welcomes the *Strategic Review of Health and Medical Research in Australia* as an appropriate forum to determine the current and future health challenges, and to provide a platform for identifying strategies for mitigating the unsustainable projected health and economic burden that is forecast for our nation<sup>4, 7-9</sup>. Our responses to key aspects of the terms of reference are provided below.

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

Terms of Reference 1: The need for Australia to build and retain internationally competitive capacity across the research spectrum, from basic discovery research through clinical translation to public health and health services research.

The Government's 2010 Intergenerational report<sup>7</sup>; the Australian Institute of Health and Welfare review of "Australia's Health 2010"<sup>8</sup>; as well as the 2012 ASMR commissioned Deloitte Access Economics report<sup>4</sup>; have clearly identified the unsustainable costs of the projected health and ageing challenges to Government, which will greatly impact on the future health care of all Australians.

- Health and ageing expenditure currently exceeds one quarter of the total Federal Government spend, increasing to almost half of the total spend by 2049-50<sup>7</sup>.
- Health and aged care expenditure will escalate from 9.3% of gross domestic product (GDP) in 2003 to 12.4% of GDP in 2033<sup>9</sup>.
- Health system expenditure will grow from \$113 billion in 2012 to \$3.3 trillion by 2062<sup>4</sup>.

***The future health challenges facing Australia require effective use of resources to achieve the long-term goals of improving health, and alleviating the projected unsustainable health and aged care expenditure.*** One approach is to form academic health centres, to integrate biomedical research scientists undertaking innovative early stage research, and clinician researchers involved in a range of research activities from public health to disease management, diagnosis and prevention. This approach is proven to enhance research productivity and clinical outcomes:

- In 2010, merging of the Mater Medical Research Institute (MMRI) with all clinical research at the Mater Hospitals in South Brisbane, led to more than 200 publications in 2011, in comparison to less than 50 MMRI publications per year from 2007 to 2010<sup>10</sup>.
- Integrating prevention and acute health care services through Australian HMR, led to an 87% reduction in hospital readmissions for cardiac-related events, with substantial savings to the health care system<sup>11</sup>.
- A retrospective study of patient outcomes at 3270 acute care hospitals in the USA, showed a 15% lower odds of death at major teaching hospitals, when compared to nonteaching hospitals<sup>12</sup>.

***Investment in Australia's HMR sector is an important and evidence-supported approach to mitigate our nation's current and future health and economic challenges.*** Australian HMR has a proven track record of delivering exceptional economic and health returns to the nation, contributing 3% of the total world HMR outcomes from only 1.1% of the expenditure; and delivering twice the Organisation for Economic Cooperation and Development (OECD) average per capita<sup>2</sup>.

- Between 1993-2005, Australian HMR is estimated to have returned a net benefit of \$29.5 billion<sup>2</sup>.
- Every dollar invested in Australian HMR returns on average \$2.17 in health benefits<sup>2</sup>.
- Australian HMR returns 117%, exceeded only by the mining (159%) and wholesale/retail (438%) sectors<sup>2</sup>.

Over the past decade ASMR played a key role in championing for the two doublings of investment in the NHMRC (in 2001 and 2006). However, the most recent cycle of injections into the NHMRC has ended and current NHMRC funding is declining as a proportion of GDP<sup>3</sup>. Clearly, the economic benefits of investment into the NHMRC are proven to be an effective strategy for reducing future Australian health expenditure.

- Investment in the NHMRC between 2000-2010 is projected to save \$966 million in direct/indirect costs to the health system<sup>3</sup>.
- Gains of \$6 billion linked to increased well-being from NHMRC investment between 2000-10<sup>3</sup>.

To maintain the long-term benefits of investment in HMR, the sector needs a sustainable funding mechanism to be implemented immediately. In our recent meetings with The Treasury and the Department of Finance and Deregulation, ASMR presented a constructive business case for pegging HMR investment in the NHMRC to a percentage of the total annual health expenditure.

As an evidence-based response for mitigating escalating health costs, the ASMR's specific request is to lift NHMRC investment to 1.0% of total health expenditure in 2012, increasing by 0.2% annually to reach 3% in 2022<sup>13</sup>. While ASMR acknowledges the current financial climate and the Government's goal to restore the Federal budget back to surplus, we urge the Government to consider good business practice and ASMR's data, for investing 3% of the health spend on R&D in this sector.

- Currently, NHMRC investment is approximately 0.8% of the annual \$113 billion health spend<sup>4</sup>.
- Increasing NHMRC investment to 3% of the health spend over the coming decade has an extrapolated \$25.9 billion saving for the period 2012-63 and a saving of up to 14.3 cents in the dollar<sup>4</sup>.

Terms of Reference 6: Strategies to attract, develop and retain a skilled research workforce which is capable of meeting future challenges and opportunities.

**People make research happen.** Australia's HMR workforce underpins not only the creation of new knowledge, but also the dissemination and productive application of that knowledge into meaningful outcomes for the wider community. In addition, building and maintaining a critical mass of Australian HMR expertise is vital for assessing new therapies and technologies; and for the rapid response to unexpected health challenges e.g. H5N1 and Hendra viruses. The health and economic benefits of investing in Australian HMR are dependent on **attracting, developing and retaining** our nation's well-trained and highly skilled HMR workforce, which performs outstandingly on an international scale:

- The Australian HMR workforce attracts overseas (National Institutes of Health, USA) funding at a level similar to the United Kingdom and publishes in the top 1% of most-cited articles, 30% more frequently than the world average<sup>14</sup>.

**Attracting** individuals from secondary and tertiary education will require the development of courses with a HMR focus, as well as a clearly structured long-term career pathway<sup>15</sup>. Of great concern is the diminishing number of Australian students

studying science at school:

- Between 1991 and 2007, the percentage of high school students enrolling in science courses has gradually diminished: Biology (35.9 to 24.7%); Chemistry (23.3 to 18.0%); and Physics (20.9 to 14.6%)<sup>16</sup>.

**Developing** a range of HMR skills, particularly for early- to mid-career researchers, will equip individuals with the capacity to adapt to rapidly advancing technologies and priority areas of health research. Encouraging a broad skill set is also valuable for the generation of multidisciplinary HMR teams. Whilst fostering team building should be a priority for the Australian HMR sector, we need to ensure that individual track records are not compromised by the apparent dilution of each researcher's contribution. Accordingly, we need to implement processes to achieve individual recognition; such as training of grant review panels to recognise the importance of individual researcher contributions, as well as authorship contribution within a team.

**Retaining** our nation's workforce is vital for Australia to realise the full health and economic benefits of investment in HMR. This approach is critical to replace Australia's rapidly retiring generation of the HMR workforce, as well as improve the perception of a career in HMR.

- More than 6000 individuals in Australian HMR, aged >40 years in 2009, are expected to leave the workforce during 2009-2019<sup>17</sup>. Of these, about 4000 would have held a PhD, and replacing these PhD qualified staff would cost about \$570 million in 2009 dollars to maintain the current size of the workforce<sup>6</sup>.
- In 2008, a survey of the Australian HMR workforce (379 individuals) revealed that most researchers (73%) had considered leaving active research, as a result of shortage of funding (91%), lack of career development opportunities (78%) and poor financial rewards (72%)<sup>14</sup>.
- Since 2003, the number of NHMRC Senior Research Fellowship applicants has increased from 122 to more than 200 per year. In recent years, up to 64% of those applicants ranked excellent (i.e. top 10% in world ranking) were not funded<sup>18</sup>.

Together, the above disturbing figures imply a potential loss of Australia's world-class and highly productive workforce, and convey a problem within the sector that there is currently not a supportive HMR career structure.

**Long-term funding** of salaries and research is critical for the recruitment, development and retention of Australia's HMR workforce. Currently, the vast majority of NHMRC project grants provide 3 or less years of research funding, of which most support the salaries of research staff<sup>18-19</sup>.

In 2011, 87% of awarded NHMRC project grants had a duration of 3 or less years<sup>18</sup>.

Years of funding	1	2	3	4	5	Total
NHMRC Project grants awarded in 2011	2	34	640	57	38	771

Almost 2/3 NHMRC 2011 project grant award funding was allocated for salaries<sup>18</sup>.

Budget component	Salary	Maintenance	Equipment	Total
Proportion	65.9%	33.8%	0.3%	100%
Amount	\$299,520,652	\$153,886,783	\$1,419,057	\$454,826,481

To ensure that Australia builds and maintains a vibrant HMR workforce, the duration of most grants should increase to a minimum of 5 years. Students, researchers and clinicians will be attracted to HMR if it is seen as stable and not a gamble in terms of their careers. The current HMR workforce invests considerable time and funds in preparing research grants applications with decreasing success rates:

- In 2004, the estimated costs of preparing ARC and NHMRC grant applications in Australian higher education institutions alone, cost approximately \$114 million<sup>20</sup>.
- In 2009, an average NHMRC grant application took 22 days to write at a cost of \$17,744. In total, the preparation of all NHMRC grant applications in 2009 took 180 years of research time at a cost of \$50 million<sup>21</sup>.

If the current HMR workforce can spend less time preparing grant applications, then more science will get done, leading to increased translation of research and improved health outcomes. In addition, we need to recognise that some disciplines in HMR, such as public health, often require a longer period of time (5 years rather than the usual 3 years) for the completion of postgraduate studies.

Inroads have been made in the UK to address similar issues encountered by science, technology, engineering and mathematic postgraduate students and research staff, including the following recommendations<sup>22</sup>:

- Doctoral stipends to be increased to average graduate starting salaries after tax.
- The length of a doctorate should be increased to an average of 3.5 years.
- Major funders of postgraduate researchers should make all funding conditional on postgraduate researchers' training meeting stringent minimum standards. This should include the provision of a least 2 weeks dedicated training each year, principally in transferable skills.
- Research staff should be able to have industrial secondments.
- Research staff should have a clear career development plan and access to appropriate training opportunities.

Accordingly, providing longer periods of time for certain postgraduate courses, as well as increased grant periods, is vital for Australia to have a viable and internationally competitive HMR workforce.

## **1. Recommendations:**

**1.1** Utilize our resources more effectively by supporting the development and integration of academic health centres.

**1.2** Peg the forthcoming round of investment in the NHMRC to 1% of the total health expenditure, increasing by 0.2% annually to reach 3% by 2022.

**1.3** Provide long-term structured career and financial support for attracting, developing and retaining the HMR workforce.

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

Terms of Reference 2: Current expenditure on, and support for, health and medical research in Australia by governments at all levels, industry, non-government organisations and philanthropy; including relevant comparisons internationally.

To address this question, we first need to identify all HMR funding sources and their relative proportions of the total pool, as well as our nation's total investment in HMR. Funding for Australian HMR is derived from a range of Australian and overseas sources: industry, private non-profit (PNP) organisations including philanthropy; and a suite of Federal, State and Local Government mechanisms.

- Health research and development (R&D) is performed by higher education facilities (44%), business (26%), PNP (16%) and Government facilities (14%)<sup>2</sup>.
- In 2004-05, Australia spent \$2.8 billion (0.38% of GDP) on health R&D, ranking our nation in the middle of comparable OECD countries<sup>23</sup>.

There is a clear need to identify the health and economic returns on investment from each funding source. This evidence-based approach will be critical for justifying long-term Government investment in HMR, as well as providing incentive structures to encourage philanthropy and commercial investment in health R&D. An example of a funding source that has been analysed for health and economic returns is the Federal Government, through the National Health & Medical Research Council (NHMRC).

- In 2011-2012, NHMRC investment represented 0.8% of Australian health expenditure (\$113 billion)<sup>4</sup>.
- Investment in the NHMRC between 2000-2010 is projected to save \$966 million in direct/indirect costs to the health system<sup>3</sup>.

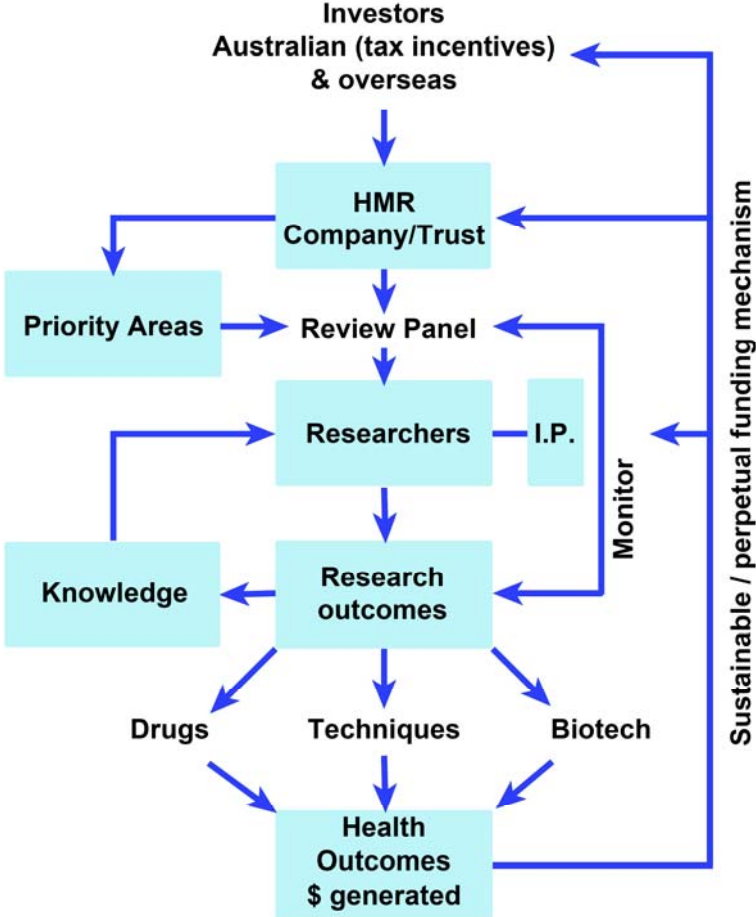
Over the past decade, the advancements in information technology have enabled data management of NHMRC expenditure to be mined for its projected health and economic benefits<sup>3</sup>, as well as extrapolating returns on future increased investment<sup>4</sup>. Accordingly, linked database management of all Government funded HMR should be a powerful strategy for regular assessment and self-improvement of HMR outcomes.

Terms of Reference 3: Opportunities to improve coordination and leverage additional national and international support for Australian health and medical research through private sector support and philanthropy, and opportunities for more efficient use, administration and monitoring of investments and the health and economic returns; including relevant comparisons internationally.

The ASMR proposes a bold and long-term vision for leveraging additional investment in Australian HMR (Figure 1). This model provides an opportunity for all Australians to invest in the future of our nation's health, with the added incentive of long-term financial returns.



With appropriate tax incentives, this perpetual funding model would draw investment from Australian companies and the general public, and attract overseas finance. This sustainable and perpetual investment model would complement the strategic health research priorities of the NHMRC, and its review process could be tailored to a flexible rolling deadline for grant applications.



**Figure 1.** Investor-driven value added Australian HMR funding model.

Terms of Reference 7: Examine the institutional arrangements and governance of the health and medical research sector, including strategies to enhance community and consumer participation. This will include comparison of the NHMRC to relevant international jurisdictions.

ASMR supports the transparency of institutional arrangements and governance of the sector, as well as strategies that aim to streamline processes for consumer participation and the ethics of conducting HMR.

The HMR sector has become increasingly aware of the necessity to engage consumer groups via competitive funding bodies, such as Cure Cancer Australia and Cancer Council Australia. A metric for successful applications with these bodies is the ability to demonstrate consumer participation. This also provides unique opportunities to disseminate research outcomes via the consumer groups’ donor, philanthropic, corporate and media networks.

There is a clear need for evidence of productivity and research quality, in all institutional settings.

- For example, the recent Menzies-commissioned report “*Economic and social contribution of Menzies School of Health Research to the NT, Australia and the Asia Pacific*” documents their institutional output in terms of economics, knowledge, skills, health benefits and commercialisation of research<sup>24</sup>.

In particular, it would be beneficial to understand the performance of Academic Research Centres and large research institutes, in comparison to small HMR institutes, relative to opportunity. In addition, comparison of the NHMRC’s governance and arrangement to relevant jurisdictions overseas, such as the Canadian Institutes of Health Research (CIHR), would be a valuable gauge of Australia’s performance in all areas, including community and consumer participation. Together, these comparisons are needed to identify and plan the optimal structures and settings for Australia’s future HMR. One approach to implement such a scheme, could be through a central body that monitors, audits and links Australian HMR (eResearch, see page 16).

## **2. Recommendations:**

**2.1** Link database management of all Australian Government-funded HMR, with the view to monitor and continually improve our nation’s HMR output.

**2.2** Establish an investor-driven HMR perpetual funding mechanism, with tax incentives to attract industry and general public investment.

**2.3** Formation of a central body to monitor, audit and link performance indicators of all Australian HMR (eResearch), for identifying optimal institutional arrangements and governance, as well as processes for streamlining consumer participation and HMR ethics.

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

Terms of Reference 5: Likely future developments in health and medical research, both in Australia and internationally.

The genomics era continues to rapidly advance with new technologies in nucleic acid analyses, which has led to the development and implementation of personalised medicine. In particular, Australia’s contribution to the International Cancer Genome Consortium is paving the way for understanding and treating patients with pancreatic and ovarian cancer. However, advancements in the genomics field have been limited by the huge data sets generated, coupled with the limited capacity to store and analyse this information to its full potential. Accordingly, the potential of genomics and personalised medicine is reliant on the development of cross-platform training in the fields of bioinformatics and information technology.

- Bioinformatics is currently underfunded due to lack of recognition and/or difficulty

in comparing output of a bioinformatician versus a wet laboratory researcher.

- Implementing cutting edge genetics in the clinic is hampered by cost of and lack of funding for genetic screening. We could be assisting families with “Next Generation” genetic testing and counselling today but there currently is a lack of funds to translate genetic discoveries.

Appropriate development and implementation of these exciting new technologies has the capacity to revolutionise health care delivery, transforming the model from attempting to manage and fix illness, to one of prevention, early diagnosis, and more effective treatments. Such a shift will undoubtedly save and improve lives, as well as save money. Ethical and philosophical deliberations on personalised medicine are also of paramount importance. So, it will be necessary to engage ethicists, community groups and the government as these technologies are strategically implemented.

Terms of Reference 12: The degree of alignment between Australia’s health and medical research activities and the determinants of good health, the nation’s burden of disease profile and national health priorities, in particular “closing the gap” between Indigenous and non Indigenous Australians.

Our nation faces unprecedented health and economic challenges of an ageing population, the growing burden of lifestyle-related chronic diseases, and disproportionate levels of disease amongst indigenous populations<sup>4,7-9</sup>. Australia’s economic burden associated with health and ageing is projected to increase to unsustainable levels of almost half of the total Government expenditure by 2050<sup>8</sup>. Investment in HMR is a proven approach for mitigating the escalating health and aged care costs:

- Dementia is a significant health problem in Australia, with associated health expenditure projected to outstrip that of any other health condition by the 2060s. Delaying the onset of dementia by 5 years through Australian HMR will result in estimated savings of \$67.5 billion by 2040<sup>2</sup>.
- Diabetes is Australia’s largest growing chronic disease projected to increase by 436% in the period 2003-2033<sup>9</sup>. Prevention or delay of vision loss associated with diabetes will save \$7.6 billion by 2025<sup>2</sup>.
- An Australian vaccine for Group A *Streptococcus* will provide health benefits valued at \$319 million per year of which \$78.4 million will be realised by Indigenous Australians<sup>2</sup>.

Importantly, the effectiveness of national priority research, including Indigenous health, needs to be closely and regularly audited.

Special initiatives and strategic research focus will become increasingly important as the effects of the aging population, global warming and chronic diseases reach their projected levels in the coming decades<sup>7-9</sup>. Continual assessment of our nation’s current and projected health status is critical to ensure that Australia’s health priorities remain up to date and aligned with investment in HMR.

The current and future health challenges for Australia also require a long term funding strategy that recognises and encourages a balance of health priority driven

HMR and “blue sky” research. The urgency in funding innovative research stems from the fact that the pipeline from basic biomedical research to health benefit takes considerable time, usually 10 to 15 years. Accordingly, an increased injection of Federal Government funds into the novel “blue sky” thinking in basic biomedical research, which underpins preventative and translational research, is warranted for the immediate forthcoming rounds of Government HMR investment. A major source of basic biomedical research funding is the Federal Government via the NHMRC, which provides exceptional returns on investment:

- Investment in NHMRC over the period 2000-2010 is projected to save \$966 million in direct and indirect costs to the health system, as well as gains of \$6 billion linked to increased well-being<sup>3</sup>.
- Projected increased investment in NHMRC over the coming decade, to reach \$6.1 billion in 2022 has extrapolated health expenditure savings of \$25.9 billion over the next 50 years<sup>4</sup>. This is a conservative saving which does not include Health expenditure savings linked to gains in well being.

Increased investment of Federal expenditure in Australian HMR at this moment will feed directly into treating patients, building knowledge for developing future innovations, and protect our Nation’s future health and aged care affordability.

HMR is not a short term investment. It is a long term investment, taking time to achieve projects of scale and national importance, for the translation of basic discovery into practice, and to produce a highly skilled workforce. This is why ASMR believes it makes sense to reform funding policy in order to lock-in long ranging sustainable investment. This guarantees the strength and diversity of our world-class research, enabling us to continue to deliver strong economic returns and improved health outcomes. For example, long range investment in National Institutes of Health (USA) correlates with staggering improvements in health:

- NIH investment in health and medical research has reduced the number of heart, stroke, cancer and diabetes related death with beneficial outcomes ranging between 10-25 years<sup>25</sup>.

Similarly, investment in the NHMRC over the past decade (2000-2010), has projected health and economic benefits over the coming 40 years<sup>3</sup>.

ASMR agrees that international engagement, particularly in the Asia-Pacific region, plays a part not only in building capacity but in securing greater investment in Australian HMR through international partnerships and philanthropic investment.

Terms of Reference 13: Opportunities for Australia’s health and medical research activities to assist in combating some of the major barriers to improved health globally, especially in the developing world.

To effectively assist in improving health in the developing world, ASMR believes in adopting a HMR collaborative approach rather than a paternalistic approach. For example, the value added Australia-India Strategic Research Fund was designed for Australia to work with the Indian Government in a collaborative effort. This international funding mechanism has arisen through India’s recognition for the need to invest in HMR as an approach to alleviate its nation’s current and future health crisis associated with chronic disease and an ageing population<sup>26</sup>.

However, the transfer of Australian HMR expertise to developing countries, such as India, is impeded by language and cultural barriers, as well as the high costs of delivering drugs and vaccines that often require cold storage. To overcome these barriers, we need to improve education to minimise the language/cultural barriers, as well as reduce costs of medicine delivery technologies (e.g. nanopatch needle technology for vaccine delivery). In addition, opportunities could be created for Australian researchers to train field health workers from countries, including India. Similarly, exchange programmes could be put in place to train foreign HMR workers, who would return home with skills.

Together, these approaches would be aimed at supporting greater cross-regional training and research to address the health problems that affect the Asia-Pacific region. To facilitate the integration of our nation's HMR sector with neighbouring countries, the ASMR has proposed the formation of an Asia-Pacific Funding Union<sup>6</sup>, as a value-added investment mechanism. This model would be somewhat akin to the European Union's Seventh Framework programme but tailored to the health needs of our Asia-Pacific neighbours.

### **3. Recommendations:**

**3.1** Develop cross-platform research training to enhance the integration and development of bioinformatics and information technology, particularly in the fields of genomics and personalised medicine.

**3.2** Implement mechanisms for translating genetic discoveries, i.e. funding for exome (and soon genome) sequencing in the clinic, as well as funding for clinical geneticists and genetic counsellors.

**3.3** Ensure a balance of long-term health priority-driven research and innovative research, with continual monitoring of our nation's current and projected health status.

**3.4** Develop an Asia-Pacific Funding Union to maximise the transfer of Australian expertise to developing countries; i.e. improve education to minimise language and cultural barriers; invest in medicine delivery technologies; and support exchange programmes to train foreign HMR workers.

### **4. How can we optimise translation of health and medical research into better health and wellbeing?**

Terms of Reference 4: The relationship between business and the research sector, including opportunities to improve Australia's capacity to capitalise on its investment in health and medical research through commercialisation and strategies for realising returns on Commonwealth investments in health and medical research where gains result from commercialisation.

A major source of Australian HMR funding ( $\approx 26\%$ ) comes from the commercial sector<sup>2</sup>. Stimulating industry to further invest in HMR should therefore be a major goal for Government to achieve sustained and appropriate funding of the HMR sector.

- Overseas examples include Scotland's Translational Medicine Research Collaboration (TMRC) that merges basic and clinical research with pharmaceutical companies and industry<sup>27</sup>.

Tax incentives for industry and commercial partners, coupled with bio-innovation designed courses for postgraduate scientists and clinicians, similar to the oft-quoted Mayo clinic and Stanford models<sup>28-29</sup>, should be considered as an important approach to stimulate investment in HMR.

Another strategy could be the leverage of industry funds through the NHMRC development grants, which are presently funded at relatively low levels. In 2011, 16 new development grants were awarded, representing 1% of total funding commitments<sup>19</sup>. Increasing development grant funding will further enhance the HMR workforce and strengthen intellectual property for stimulating greater industry involvement. Investment in NHMRC has a proven track record in generating commercial returns:

- Since 1970, the commercialised benefits of NHMRC R&D are \$6.1 billion<sup>2</sup>.
- The projected commercial returns from NHMRC R&D between 2000-2010 are \$1.45 billion for cardiovascular disease and cancer<sup>3</sup>.

Terms of Reference 8: Opportunities to improve national and international collaboration between education, research, clinical and other public health related sectors to support the rapid translation of research outcomes into improved health policies and practices. This will include relevant international comparisons.

Also important for the translation of health outcomes is the two-way dialogue between the biomedical scientist and clinician researcher. For this very important collaboration to be effective, we need to improve clinician researcher career paths, promote alliances between institutions, integrate academic/research/clinical centres and introduce more effective science research education to clinicians, and clinical education to scientists.

- Example is the UK Clinical Research Collaboration (UKCRC) that has introduced new training programmes across the UK to enable doctors and dentists to combine research and education with a clinical career. This model is also being used to develop clinical academic training for nurses, midwives and allied health professionals<sup>30</sup>.

The usual career paths for Australian clinician researchers are either the progression to PhD and research following the completion of MBBS studies, or joint MBBS-PhD programs. However, we should also consider supporting the pathway of clinical training for our PhD qualified HMR workforce.

The Federal Government must commit to long term incentive structures to encourage and promote both the development of biotechnology-based industries and the career paths of our nation's biomedical and clinical HMR workforce. In particular, increased flexibility for clinicians juggling clinical loads and research projects.

Terms of Reference 9: Ways in which the broader health reform process can be leveraged to improve research and translation opportunities in preventative health and in the primary, aged and acute care sectors, including through expanded clinical networks, as well as ways in which research can contribute to the design and optimal implementation of these health reforms.

Clearly, unbiased communication between state and federal health policies and departments; Departments of Health, Education, Science and Industry, are crucial to the development of a cohesive health policy. The implementation of optimally efficient health reform will depend upon the engagement and effective interactions of basic science researchers, physician researchers, clinicians, allied health workers, carers and patients. The great divides which isolate these groups from each other can and must be overcome.

The removal of barriers which blinker groups within the sector can begin with an education process which focuses on the 'whole' of health and succinctly identifies the roles and contributions each group has in positive health outcomes through discovery, translation, prevention, intervention and care. The implementation of programs which would regularly bring these groups together within the context of the 'whole' of health, would inevitably lead to greater understanding and the cross fertilization of ideas which gives birth to needed new research, translation, innovative prevention, strategic intervention and care.

Terms of Reference 10: Ways in which health and medical research interacts, and should interact, with other Government health policies and programs; including health technology assessments and the pharmaceutical and medical services assessment processes.

Some areas of government (State and Federal) and indeed the wider community, have tended to regard HMR as an endeavour undertaken by physicians in their spare time. While this perception is not widespread, there is a need for the HMR sector to educate both government and community on the value of research and the integral role it plays in underpinning the whole of health.

To facilitate more effective communication between the HMR sector and Government, we should consider the development of political science internships (i.e. similar to those in the USA and Europe) that provide science students with experience in the practical aspects of politics and Government<sup>31</sup>. Such an approach would provide scientists with valuable first-hand experience in politics for enhancing communication between the HMR sector, community and Government.

We also need to consider Government's structure for the effective 2-way dialogue with the HMR sector. ASMR welcomes the Federal Government's decision to reallocate the NHMRC directly under the Health portfolio. Since HMR underpins the 'whole' of health, we should also consider the implementation of a Federal Government HMR portfolio, akin to the N.S.W. State Government's dual Health and HMR portfolios, currently held by the Hon. Jillian Skinner MP. Such an approach would facilitate the integration of eHealth and eResearch (see below) for the rapid assessment of new health technology/pharmaceutical and medical services to establish their safety, outcomes and cost effectiveness.

Terms of Reference 11: Ways in which the Commonwealth's e-health reforms can be leveraged to improve research and translation opportunities, including the availability, linkage and quality of data.

ASMR supports national and cohesive e-health reforms as opposed to current trends to state-based plans. Enhanced communication throughout our nation's HMR sector is paramount for the rapid translation of research outcomes. The potential value in linking all Australian HMR together, through database management (eResearch), would be an ambitious but world-first exercise in monitoring and continually improving our nation's HMR output. This approach comes at a time when new technologies and advancements in personalised medicine are being adopted into the clinic, and therefore we should also consider the cross-platform integration of electronic health (eHealth) and research (eResearch). This approach should lead to more effective translation of research outcomes, as well as enhance the potential for new discoveries.

Australia's HMR sector also needs to be in a position of preparedness to respond rapidly to health issues, most notably epidemics and pandemics, which have potential major health implications. To achieve this, Australia must have a critical mass of HMR workers with a range of expertise, ready to be called upon, as well as the capacity to coordinate between states. This approach would position Australia to quickly identify and respond to health issues and implement change, such as identifying patients at risk or most likely to respond to treatments in cases of disease outbreak.

- A prime example of rapid Australian HMR funding was the timely allocation in 2009 of \$7 million to react to the swine flu outbreak, in which 41 research projects received investment in a very short time frame<sup>32</sup>.
- Swine flu continues to spread in countries such as India, where in March 2012, at least 12 deaths and more than 100 infections have been recorded<sup>33</sup>.

ASMR believes this preparedness and coordination by the sector is now more than ever critical to respond to the impacts of current and unexpected diseases.

#### **4. Recommendations:**

**4.1** Stimulate industry investment in HMR through tax incentives and strengthening intellectual property via NHMRC development grants.

**4.2** Commit to long term incentive structures to encourage and improve clinician researcher career paths, promote alliances between institutions, integrate academic/research/clinical centres and introduce more effective science research education to clinicians, and clinical education to scientists.

**4.3** Facilitate more effective 2-way communication between the HMR sector and Government by introducing Political Science Internships for scientists, as well as creating a new HMR portfolio in Federal Government.

**4.4** Enhance communication and coordination of Australian HMR through linked database management (eResearch) of all HMR, with the view to monitor and continually improve our nation's HMR output.



## **Summary**

Health is Australia's biggest publicly funded business, which is projected to reach unsustainable costs within the coming decades. HMR has a proven track record in delivering exceptional health and economic returns to our nation. The 2012 *Strategic Review of HMR in Australia* is a timely forum to identify the optimal structure, processes and governance of Australian HMR. However, we have the responsibility to ensure that Government receives clearly articulated and evidence-based advice from the HMR sector.

ASMR believes that the most important aspect of this HMR strategic plan is the vision for long-term structured and sustainable investment in the HMR sector. This approach will deliver high quality health care to all Australians, in a sustainable and effective manner for mitigating the projected future health and aged care challenges.

ASMR looks forward to working with the Government's review panel to facilitate the strategic review of HMR in Australia in all its aspects.



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