

STANDING COMMITTEE ON HEALTH AND DISABILITY

Health Science in the ACT

JULY 2008

Report 7

Committee Membership

Ms Karin MacDonald MLA (Chair)

Ms Mary Porter AM MLA (Deputy Chair)

Mrs Jacqui Burke MLA

Secretariat

Ms Trish Carling Committee Secretary (March 2005–June 2005)

Ms Ellie Eggerking Committee Secretary (August 2005–July 2006)

Ms Grace Concannon Committee Secretary

Ms Lydia Chung Administrative Assistant

Contact Information

Telephone: (02) 6205 0129

Facsimile: (02) 6205 0432

Post: GPO Box 1020
 CANBERRA ACT 2601

Email: committees@parliament.act.gov.au

Website: www.parliament.act.gov.au

Resolution of Appointment

On 7 December 2004, the Legislative Assembly for the ACT resolved to establish the Standing Committee on Health and Disability to:

examine matters related to hospitals, community, public and mental health, health promotion and disease prevention, disability matters, drug and substance misuse, targeted health programs and community services, including services for older persons and women, housing, poverty, and multicultural and indigenous affairs.¹

Terms of Reference

To inquire into and report on the relationship between the health and science sectors in the ACT, with particular reference to:

- the communication between primary and tertiary health organisations and the medical research community in the ACT;
- government and industry assistance to medical research in the ACT;
- the use of medical research in planning for health provision to the ACT and surrounding population;
- ways in which medical research can assist to lower the cost of health provision;
- models to support medical research;
- the availability and advancement of diagnostic testing; and
- any other related matter.

¹ Legislative Assembly for the ACT, *Minutes of Proceedings* No. 2, 7 December 2004, p 12

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RECOMMENDATIONS

RECOMMENDATION 1

2.18 The Committee recommends that ACT Health report on all ACT Government funded research activities in the ACT Health Annual Report.

RECOMMENDATION 2

2.30 The Committee recommends the ACT Government support the Director of Research at The Canberra Hospital to establish an overarching research structure to coordinate and strengthen research in the ACT, as recommended by the Powell Review.

RECOMMENDATION 3

2.32 The Committee recommends that the ACT Government investigate the 'contract research' model with a view to possible implementation.

RECOMMENDATION 4

2.42 The Committee recommends that ACT Health consult with the ACT Government Skilled and Business Migration Program to boost the national and international migration of medical professionals to the ACT and to look to streamline the process for successful applicants.

RECOMMENDATION 5

2.54 The Committee recommends that the ACT Government develop a new entry-level program for new-career researchers.

RECOMMENDATION 6

2.55 The Committee recommends that the ACT Government invest a minimum of \$50 000 annually to the new program to support new-career researchers.

RECOMMENDATION 7

2.66 The Committee recommends that the ACT Government continue to support the Research Centre for Nursing and Midwifery Practice and in particular, the Practice Development Grants for nurses with an increase in the annual investment from \$20 000 to \$50 000 to increase the research capacity of nurses.

RECOMMENDATION 8

2.68 The Committee recommends that ACT Health give due consideration to extending the mentoring program for allied health professionals, to include nursing and medical disciplines, pending the outcome of the evaluation.

RECOMMENDATION 9

2.77 The Committee recommends that ACT Department of Education and Training work with the University of Canberra to introduce the Tall Poppy Campaign into ACT Primary and Secondary Schools.

RECOMMENDATION 10

2.79 The Committee recommends that the ACT Government take a more active role in promoting medical research through Medical Research Week, by resourcing and partnering with the University of Canberra and the Australian National University.

RECOMMENDATION 11

4.27 The Committee recommends that the ACT Government fast track the establishment of the Research Foundation to be located at The Canberra Hospital.

RECOMMENDATION 12

4.28 The Committee recommends that ACT Health develop a new website for The Canberra Hospital to better reflect its role as a major regional and teaching hospital.

ABBREVIATIONS

AIHW	Australian Institute of Health and Welfare
APHCRI	Australian Primary Health Care Research Institute
ACHR	Australian Centre for Health Research
ARC	Australian Research Council
ANU	Australian National University
ANUMS	Australian National University Medical School
ACERH	Australian Centre for Economic Research on Health
APHCRI	Australian Primary Health Care Research Institute
ASMR	Australian Society for Medical Research
CMHR	Centre for Mental Health Research
CSIRO	Commonwealth Scientific and Industrial Research Organisation
FASTS	Federation of Australian Scientific and Technological Societies
JCSMR	John Curtin School of Medical Research
NCEPH	National Centre for Epidemiology & Population Health
NIS	National Innovation System
MCHP	Menzies Centre for Health Policy
NHMRC	National Health and Medical Research Council
NICS	National Institute of Clinical Studies
PHCRIS	Primary Health Care Research & Information Service
PHRC	Population Health Research Centre
R&D	Research and Development
UC	University of Canberra

1 INTRODUCTION

Conduct of inquiry

- 1.1 On 30 March 2005 the Committee resolved to conduct an inquiry into the relationship between the health and science sectors with a particular emphasis on health and medical research.²
- 1.2 The inquiry was first advertised in *The Canberra Times* on 16 April 2005 and in *The Chronicle* on 19 April 2005. The inquiry was readvertised in *The Canberra Times* on 23 February 2008 and *The Chronicle* on 26 February 2008.
- 1.3 The Committee visited the following research organisations in Victoria on 12 October 2005:
 - Bio21 Molecular Science and Biotechnology Institute;
 - Walter and Eliza Hall Institute (WEHI); and
 - Office of Science and Technology (Victorian Government).
- 1.4 Public hearings were held on 21 April 2008 and 23 April 2008. A list of witnesses is at Appendix A.
- 1.5 The Committee made considerable efforts to engage with research organisations and researchers in the ACT. Despite these efforts the Committee received a total of five submissions. A list of submissions is at Appendix B.
- 1.6 During a Member's study trip to the United States in July 2007, the Chair of the Committee also met with representatives from:
 - Howard Hughes Medical Institute; and
 - Maryland Department of Business and Economic Development, State of Maryland.

A report of these meetings is at Appendix C.

² Health and Disability Committee, Meeting No 6, 30 March 2005

- 1.7 The Committee thanks those people and organisations that made themselves available for this inquiry.

Background

- 1.8 Advances in medical technology, made available through health and medical research, have the capacity to improve health outcomes for individuals. Australia has been described as one of the healthiest nations, despite pockets of disadvantage, particularly for indigenous Australians, low-income earners and those living in rural and remote areas.³ The ACT population overall, enjoys above average health compared to other parts of Australia.

Life expectancy is higher than in any other jurisdiction and mortality rates from chronic diseases such as cardiovascular disease, diabetes and asthma are lower in the ACT compared to the rest of the country.⁴

- 1.9 Despite being a small jurisdiction the ACT has strong capabilities in health and medical research and development (R&D). As the centre of the Australian Government, Canberra enjoys national and international significance and is home to the national legislative, judicial and executive arms of government. It is also the centre for major national education and research institutions such as the Australian National University (ANU), the Department of Defence, Australian Defence Force Academy, the National Information and Communications Technology Centre of Excellence (NICTA), the Australian Institute of Health and Welfare (AIHW), the national headquarters of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Australian Institute of Sport.⁵
- 1.10 The Committee draws on two key reviews of health and medical research in the ACT, commissioned by the ACT Government in 2001 and 2005. They are:

³ Australian Institute of Health and Welfare, *Leaps and bounds in health, but some groups lag behind*, Media Release, 24 June 2008, viewed 25 June 2008, <<http://www.aihw.gov.au/mediacentre/2008/mr20080624.cfm>>

⁴ ACT Health, Population Health Division, *ACT Chief Health Officer's Report 2006*, p 21

⁵ ACT Government, *Innovation, Creativity and Leadership, Report of a Study of the ACT Innovation System*, March 2008, pp 26–27

- A review conducted by Michael Frommer, *Health and Medical Research and Development in the Australian Capital Territory* (referred to hereafter as the Frommer Review); and
- A review of research at The Canberra Hospital (TCH) conducted by a Committee chaired by Professor Lawrie Powell, *Strategic and Scientific Review of Research at the Canberra Hospital* (referred to hereafter as the Powell Review).

1.11 The Frommer Review found that despite the ACT Government's commitment to health and medical research the ACT Government had little influence over health and medical research in the ACT apart from that which occurred at The Canberra Hospital (TCH). The Review noted that the:

Main strengths of the research effort are its productivity, extent and diversity, which are remarkable when considered in relation to the size and population of the ACT. The ACT contains a number of research institutions of national and international significance, particularly within the ANU.⁶

1.12 Despite the limitations of the ACT Government, the Frommer Review identified a number of opportunities for the enhancement of health and medical research in the ACT. These included, among other things, the need for:

- an explicit policy commitment to research and development;
- a research and development administrative focus with designated personnel with a responsibility for implementing R&D policy and managing funding;
- an organised forum for consultation and provision of advice on policy;
- strategies to attract and retain clinicians / researchers; and
- strengthening links between universities and the needs of the health system.⁷

⁶ Michael Frommer, *Health and Medical Research and Development in the Australian Capitol Territory*, Effective Health Care Australia, July 2001

⁷ Michael Frommer, *Health and Medical Research and Development in the Australian Capitol Territory*, Effective Health Care Australia, July 2001, pp 2–6

- 1.13 The Frommer Review made 18 recommendations, many of which have been implemented. However, despite the time lapse the Powell Review, four years later, recommended that:

The unimplemented recommendations of the Frommer Report (2001) that are still relevant to the TCH and ACT Health should be fulfilled [this included seven recommendations].⁸

- 1.14 A review of ACT Health conducted by Michael Reid in 2002 fully endorsed the strategies of enhancement, better coordination and improved recognition proposed by the Frommer Review and went on to say:

Given the depth of the ACT's health research capacity and the quality of the clinical workforce, there is no reason why the ACT health system should not be pre-eminent in innovation and excellence in clinical practice.⁹

- 1.15 The Powell Review was commissioned to report on all aspects of health-related research at TCH. The Powell Review found that:

...health related research at The Canberra Hospital is under-developed (in quantum and in quality) in comparison to other similar sized teaching hospitals in Australia. The long term consequences of this should not be under estimated.¹⁰

- 1.16 The Powell Review made 15 recommendations, some of which have been fully or partially implemented and others that still require action. The Committee notes that the recommendations are still being considered by ACT Health, TCH and the ACT Health and Medical Research Council.¹¹ This report draws on some of those recommendations that the Committee considers are still the best way to enhance health and medical research in the ACT.

⁸ Professor Powell, *Strategic and Scientific Review of Research at the Canberra Hospital*, March 2005, p 9 and Appendix 4, p 27 for detailed comments including relationships to Powell recommendations.

⁹ ACT Health Review, Michael Reid and Associates, May 2002, p 45

¹⁰ The Powell Review, p 8

¹¹ Submission no 2, ACT Government, p 30

Recent developments

- 1.17 The change of the Australian Government, in November 2007, brought with it changes in national policy direction related to R&D as part of the national innovation system (NIS). The new Government established the Department of Innovation, Industry, Science and Research. The new department incorporates some of the policies and programs formerly administered by the Department of Industry, Tourism and Resources.
- 1.18 In his speech to the Federation of Australian Scientific and Technological Societies (FASTS) Forum at Old Parliament House, Senator the Hon Kim Carr said:
- The Rudd Government is committed to a future for Australia based squarely on innovation. A high performing science and innovation system is essential to the goal of prosperous, productive, sustainable society and improved social well-being. Internationally, increasing investment in science and technology is regraded as key to future growth and prosperity. Australia cannot afford to fall behind our competitors.¹²
- 1.19 In a show of support for health and medical research the Australian Government allocated increased funding of \$124 million for research projects to be administered by the National Health and Medical Research Centre (NHMRC). The funds are targeted at fellowships, scholarships, career-development and training awards, program grants and the facilitation of international collaborations with research institutions and researchers.¹³
- 1.20 The Committee notes the changes and policy directions at the national level but recognises that any impact on research and development in the ACT will not be realised for some time.

¹² Minister Kim Carr, *Rights and Obligations of Scientists and Researchers*, Federation of Australian Scientific and Technological Societies, Forum, Old Parliament House, 22 February 2008, p 2, viewed 19 June 2008, <<http://minister.industry.gov.au/SenatortheHonKimCarr/Pages/RIGHTSANDOBLIGATIONSOFSOCIETISTSANDRESEARCHERS.aspx>>

¹³ Australian Government, The Hon Nicola Roxon, Minister for Health and Ageing, *Major funding for health and medical researchers*, Media Release, 4 February 2008, viewed 10 February 2008, <<http://www.health.gov.au/internet/ministers/publishing.nsf/Content/mr-yr08-nr-nr014.htm?OpenDocument&yr=2008&mth=2>>

Innovations systems

- 1.21 Research and development is a vital part of innovation. Innovation has been described as:
- something new or different introduced;¹⁴
 - the successful exploitation of new ideas;¹⁵ and
 - deliberative processes by firms, governments and others that add value to the economy or society by generating or recognising potentially beneficial knowledge and using such knowledge to improve products, services, processes or organisational forms.¹⁶
- 1.22 Innovation systems are increasingly being recognised as the key drivers in the performance of modern economies. R&D is considered to be a major component of an innovation system.
- 1.23 The Productivity Commission in its report on *Public Support for Science and Innovation* noted that research and development accounts:
- ...for a major share of the activity of government research institutions and approximately one third of Australian business expenditure on innovation.¹⁷
- 1.24 The ACT Government recently commissioned a strategic review of the ACT's innovation system. The report stated:
- An innovation system can be characterised by the interaction, collaboration and competition between the components of the system—i.e. enterprises, institutions and individuals. All innovation systems are unique and reflective of economic and business structure, governance

¹⁴ The Macquarie Dictionary, Third Edition, Australia's National Dictionary, p 1100

¹⁵ ACT Government, *Innovation, Creativity and Leadership, Report of a Study of the ACT Innovation System*, March 2008, p 1

¹⁶ Productivity Commission Research Report, *Public Support for Science and Innovation*, 9 March 2007, p 7

¹⁷ Productivity Commission Research Report, *Public Support for Science and Innovation*, 9 March 2007, p 7

arrangements, institutional set-up, history and culture of the area they encompass.¹⁸

- 1.25 The Australian Government also commissioned a review of the National Innovation System, in February 2008, to streamline programs across commonwealth and state governments to reduce duplication and boost productivity. The six month inquiry is being lead by the Director of the CSIRO, Dr Terry Cutler. The review has generated significant public response with over 630 submissions being received, 28 per cent of which have been from research and public sector research organisations.¹⁹ Results from the review are expected at the end of July 2008.²⁰
- 1.26 It is not clear what impact the results of this review will have on the ACT but the Committee expects that the ACT Government will monitor the results and contribute to the review where appropriate.
- 1.27 The results of the ACT Innovation study were released in March 2008 and are expected to inform the development of a regionally focused approach to innovation policy.²¹ Findings from this review are discussed throughout this report.
- 1.28 While studies of innovations systems have a tendency to focus on 'science systems', the ACT Innovation Review draws attention to 'arts and creative practices systems' as a source of innovation.²² However, for the purposes of this inquiry the Committee is interested in science systems. In relation to science and research in the ACT the report found that:

¹⁸ ACT Government, *Innovation, Creativity and Leadership, Report of a Study of the ACT Innovation System*, March 2008, p 9

¹⁹ Australian Government Department of Innovation, Industry, Science and Research, *Record Number of Submission to Innovation Review*, 8 May 2008, viewed 13 June 2008, <<http://www.innovation.gov.au/Section/Innovation/Pages/RecordNumberofSubmissionstoInnovationReview.aspx>>

²⁰ Australian Government Department of Innovation, Industry, Science and Research, *Review of the National Innovation System*, viewed 13 June 2008, <<http://www.innovation.gov.au/innovationreview/Pages/home.aspx>>

²¹ ACT Government, Chief Minister's Department annual report 2006–07, Volume 1, p 46

²² ACT Government, *Innovation, Creativity and Leadership, Report of a Study of the ACT Innovation System*, March 2008, p 2

The strengths of the ACT science system relate to its position as an international centre and global hub for research and teaching excellence across a number of disciplines, including natural and life sciences, information and communications sciences, economics, the policy sciences and humanities, and curatorial studies. Research excellence attracts top students who in turn provide the human resource base for businesses starting up or relocating in Canberra, for government advice, and for national institutions wishing to tap into world class expertise and capabilities.²³

- 1.29 The Committee notes the strong research capabilities across the science sector in the ACT but the focus of this report is on health and medical research and development in the ACT. The aim of this inquiry is to determine the level of health and medical research currently being undertaken in the ACT and to look at ways to enhance the research potential by utilising the national research organisations located in the ACT and by developing strategies for attracting and retaining health and medical researchers to the ACT.
- 1.30 Chapter two of this report examines the health and medical research community in the ACT focusing on organisations and researchers. Issues considered included the skills shortage of health and medical researchers and barriers that impede the uptake of research projects, particularly for nursing and allied health professionals.
- 1.31 Chapter three explores the costs of health provision in the ACT and the affects of advances in medical technology on current and future costs, including a discussion on the use of diagnostic testing.
- 1.32 Chapter four examines the resources available for researchers in the ACT through government, business and private sources.

²³ ACT Government, *Innovation, Creativity and Leadership, Report of a Study of the ACT Innovation System*, March 2008, p 3

2 HEALTH & MEDICAL RESEARCH IN THE ACT

- 2.1 Health and medical research encompasses a broad range of activity that cut across the health, medical, science and academic sectors. The ACT Government describes health sciences research as 'any research activity designed to improve health outcomes'.²⁴ The ACT has a vibrant health and medical research community with local, national and international research projects being conducted across the ACT through local and national organisations.
- 2.2 The ACT Government supports health and medical research in the ACT through various means. TCH is the main centre of health of medical research in the ACT where the ACT Government has influence. The ACT Government also plays a major role in forging partnerships and links with national academic, research and Australian Government organisations.
- 2.3 The ACT Health Ethics Committee (ACTHEC) considers all ACT Research projects conducted in the ACT that are not linked to an academic institution. It is the official Human Research Ethics Committee for the ACT Government health portfolio and is constituted according to National Health and Medical Research Council guidelines. The Ethics Committee approved 118 research proposals during 2006–2007 out of 139 considered. 21 proposals were still pending approval as at 30 June 2007.²⁵
- 2.4 The driving force behind the ACT Government is the ACT Health and Medical Research Strategy, established in 2003, in response to one of the priorities identified in the *Health Action Plan 2002*.²⁶ The three key elements of the strategy were:

²⁴ Submission no 2, ACT Government, p 9

²⁵ Human Research Ethics Committee Annual Report 2006–07, ACT Health Annual Report, p 298

²⁶ *The Health Action Plan 2002* was superseded by the Corporate Plan 2006–2010 and the Corporate Governance Statement in 2006. The vision of the Corporate Plan is 'Good Health for all' and has five key performance areas which are: community and consumers; safety and quality care; partnerships; accountability and internal systems; and our people. Health and medical research is represented in

- The development of a policy statement;
- The establishment of the ACT Health and Medical Research Council; and
- The establishment of the ACT Health and Research Support Program.²⁷

2.5 The ACT Government Policy Statement for supporting the development of health and medical research in the ACT reads:

The ACT Government will work with the ACT health and medical research community in the following four endeavours:

1. Supporting the development of the health and medical research community in the ACT and surrounding region in a way that builds on our local advantages; including planning for the coherent development of research facilities, communication technology, training in research and major research collaborations.
2. Ensuring a whole of government approach that coordinates the evolution of the ACT's health and medical research effort with industry development and commercial investment.
3. Pursuing the ACT's interests in the development of national health and medical research policy and playing a strong part in the implementation of that agenda on behalf of the nation.
4. Encouraging policy and practice oriented research by the health and medical researchers; and supporting research and evidence based policy and practice in the provision of health care.²⁸

2.6 The ACT Health and Medical Research Council was established in 2003 to provide strategic advice to the Minister and ACT Health on developing the ACT health and medical research sector.²⁹ The role of the council, as described by the current Chair of the council, Professor Scott Henderson, is to:

...increase the national and international contribution of the ACT health and medical research community by supporting the leadership efforts of

Key performance area 3 that addresses 'partnerships with professional bodies, unions and our partners in education and research' (p 7).

²⁷ ACT Government Submission, Inquiry into Health Sciences in the ACT, p 16

²⁸ ACT Government, ACT Health, *Research - Health and Medical Council*, viewed 1 April 2008, <<http://www.health.act.gov.au/c/health?a=da&did=10058722&pid=1097715558>>

²⁹ ACT Health, *Corporate Governance Statement*, Issue 2, June 2006 Chapter 35, p 1

ACT based health and medical researchers and encouraging leading health care workers to participate in the research community.³⁰

- 2.7 The ACT Health and Medical Research Support Program was also established in 2004 and has provided \$200 000 in funding grants to researchers in the ACT annually, with the exception of 2005–2006 financial year where no funds were made available. The program provides opportunities for ACT researchers to contribute to national and international research efforts. It is the role of the ACT Health and Medical Research Council to disburse the grant. Some of the difficulties faced by the council, in the disbursement of grants, are discussed later in this chapter. A list of recent recipients of the grants is at Appendix D.

Health and medical research community

- 2.8 Using the broad definition of health science (p 9), research is conducted in local and national government organisations, hospitals, academic institutions, not-for-profit community based groups and for-profit enterprises.
- 2.9 Much of the academic research in the ACT is conducted through the University of Canberra (UC) and the Australian National University (ANU) and its associated research schools that include:
- ANU Medical School;
 - Australian Centre for Economic Research on Health;
 - Australian Primary Health Care Research Institute;
 - Centre for Mental Health Research;
 - John Curtin School of Medical Research; and
 - National Centre for Epidemiology and Population Health.
- 2.10 Other health and medical research is conducted through a number of Australian Government Departments located in the ACT, such as the Australian Institute of Health and Welfare, the CSIRO and the Australian Institute of Sport.

³⁰ Professor Henderson, Transcript of Evidence, 21 April 2008, p 2

- 2.11 The Frommer Review noted that a major portion of health and medical research in the ACT was conducted through the ANU and UC. These tertiary institutions receive the majority of their funding through the Australian government tertiary education funding and related research-infrastructure funding from national organisations such as NHMRC and ARC and relatively little funding from the ACT Government. The Review stated:

While research groups within the universities identify with the Canberra environment and wish to contribute to the development of the ACT, their institutions mostly have very little connection with the ACT Government.³¹

- 2.12 Despite the ACT Government having little influence over the operation of national organisations the ACT community stands to benefit from the social and economic contributions made by the employees of these organisations.
- 2.13 The area where the ACT Government has the most influence is through ACT Government funded organisations that include TCH, The Population Health Research Centre and the Research Centre for Nursing and Midwifery Practice (RCNMP), the Academic Unit of General Practice, the Canberra Clinical Schools and the Breast Cancer Treatment Project.³²
- 2.14 The Population Health Research Centre (PHRC) is an important ACT Government organisation that contributes to health research in the ACT. The PHRC assists in the development and evaluation of policies and interventions to improve health through the provision of information on the health of the ACT population.

The PHRC also undertakes projects to examine emerging issues; provides advice and assistance relating to research and evaluation; conducts research related to key public health issues including physical activity, injury prevention in older people and cardiovascular disease, and undertakes epidemiological analysis of population health data for the Population Health Division of ACT Health.³³

³¹ The Frommer Review, p 2

³² ACT Health, Corporate Governance Statement, Issue 2, June 2006, Chapter 35, pp 5-6

³³ ACT Health, Population Health Research Centre, viewed 13 June 2008, <<http://www.health.act.gov.au/c/health?a=da&did=10028987&pid=1055719144>>

- 2.15 The Powell Review found that the research at TCH was yet to reach its potential stating:

...health related research at The Canberra Hospital is under-developed (in quantum and in quality) in comparison to other similar sized teaching hospitals in Australia. The long term consequences of not addressing this should not be under-estimated.³⁴

- 2.16 The Powell Review further notes that:

...the co-location in the Canberra region of such powerful research organisations provides TCH with opportunities not available elsewhere in Australia.³⁵

- 2.17 The Committee notes that progress has been made on the recommendations made by the Powell Review and that TCH is expanding its research capacity. The Committee was interested to note that information regarding health and medical research at TCH and other ACT Health institutions was not included in the ACT Health Annual Report.³⁶ The Committee notes that information regarding the Population Health Research Centre and the Human Research Ethics Committee is included in the Annual Report.

RECOMMENDATION 1

- 2.18 **The Committee recommends that ACT Health report on all ACT Government funded research activities in the ACT Health Annual Report.**

³⁴ Professor Powell, *Strategic and Scientific Review of Research at the Canberra Hospital*, March 2005, p 8

³⁵ Professor Powell, *Strategic and Scientific Review of Research at the Canberra Hospital*, March 2005, p 8

³⁶ The Committee obtained a copy of the recently released report *The Canberra Hospital Research Report 2004 -2006* that highlights the research activities being conducted at TCH. The report is a result of a recommendation from the Powell Review to 'publish a regular research report, at least second yearly' (The Powell Review, p 11). The Committee notes the comments by Professor Gatenby about the delay in publication of the first issue of this report and looks forward to timely future publications.

Communication between organisations

2.19 One of the roles of the ACT Health and Medical Research Council is to provide advice to the Minister of Health and ACT Health on developing communication networks, training in research and major research collaborations.³⁷ The broad cross-sector representation on the board helps to facilitate this process. Current members of the Council include:

- Emeritus Professor Scott Henderson, (Chair);
- Dr Charles Guest, Chief Health Officer;
- Professor Paul Gatenby, Director of Research, TCH;
- Dr Paul Dugdale, Director, Chronic Disease Management, TCH;
- Dr Jane Dahlstrom, Anatomical Pathologist, ACT Pathology;
- Ms Elizabeth Grant, Chair of the ACT Health Ethics Committee;
- Professor David Ellwood, Associate Dean of the Canberra Clinical School;
- Associate Professor Gordon Waddington, UC;
- Professor Sue Thomas, Pro Vice Chancellor Research, UC;
- Dr Christine O'Keefe, Research & Business Leader, CSIRO Preventative Health National Research Flagship; and
- Mr Ian MacDonald, Consumer Representative.³⁸

2.20 Communication between primary health care organisations and the medical research community is also facilitated through a number of organisations that include the National Primary Health Care Research, Evaluation and Development Strategy (PHCRED), the Academic Unit of General Practice and Community Health and the ACT Division of General Practice.

2.21 According to the ACT Government the tertiary health sector and the medical research sector are inter-twined with good structural and communication links. The submission states:

The ACT Government recognises the importance of communication between primary and tertiary health organisations and the health and

³⁷ ACT Health, Corporate Governance Statement, Issue 2, June 2006, Chapter 35, p 2

³⁸ Information provided by the Office of the Chief Health Officer

medical research community and is actively involved in assessing and improving these links.³⁹

- 2.22 The Primary Health Care Research & Information Service (PHCRIS) is a national primary health care organisation based at Flinders University in South Australia, within the Department of General Practice. It is funded by the Australian Government Department of Health and Ageing and works in partnership with the Divisions of General Practice Network, primary health care researchers and policy advisors to generate, manage and share information and knowledge that contributes to policy and improves performance.⁴⁰
- 2.23 The NHMRC *Health Services Research Program* supports multi-disciplinary research into how financing arrangements, organisational structures and processes, health technologies and social factors affect the quality, cost and availability of, and access to, health care. Priority areas for funding include:
- Research that addresses significant gaps in evidence required for Australia's most important policy and practice issues;
 - Research that covers issues related to the Australian Government's National Research Priorities or National Health Priority Areas and/or Aboriginal and Torres Strait Islander health and access to health services; and
 - Research that has the potential to develop new productive partnerships between researchers, policy makers, health service providers and citizens.⁴¹
- 2.24 These organisations are available to ACT researchers and it is a matter for individuals how they utilise them.
- 2.25 Professor Henderson warned against collaboration being imposed on groups but described two models of collaboration that he considered occurred to some degree in the ACT. The first is through the investigators themselves identifying a need and pursuing it and the second is to invite the potential for

³⁹ Submission no 2, ACT Government, p 30

⁴⁰ Primary Health Care & Information Service, viewed 27 February 2008, <<http://www.phcris.org.au/aboutus/index.php>>

⁴¹ Australian Government, National Health and Medical Research Council, *Health Services Research Program*, viewed 18 June 2008, <<http://www.nhmrc.gov.au/FUNDING/types/granttype/strategic/healthserv.htm>>

collaboration by making resources in other fields and disciplines more visible.⁴²

- 2.26 To assist in information sharing the Powell Review recommended the creation of an overarching structure, equivalent to a 'Virtual Institute', to aid the coordination and strengthen research capacity in the ACT. The Powell Review suggested *Institutes of Health Research ACT* as a potential title and recommended that:

The Research Coordinator [also a Powell recommendation that has been implemented] and 'Institutes' should be seen as playing a crucial role in co-ordinating research into all aspects of health sciences and in liaising with the ACT and Federal Governments. In so doing they will optimise the chances of TCH developing outstanding new clinical research centres.⁴³

- 2.27 The establishment of a 'Virtual Institute' as an overarching structure, as recommended by The Powell Review, has not yet been achieved. However, this proposal is still supported by UC which stated in its submission that such an institute would 'strengthen interdisciplinary research linkages between medicine, nursing and allied health'.⁴⁴ The Committee also heard from the newly appointed Director of Research at TCH, Professor Paul Gatenby, who supported the further exploration of such a structure.⁴⁵

- 2.28 The Committee notes that there are a number of collaborative projects currently underway in the ACT. Examples of these include:

- A project on chronic disease management involving Australian Primary Health Care Research Centre based at ANU and the ACT Division of General practice.
- The Population Health Research Centre led the formation of a research consortium with the ANU, CSIRO and other academic institutions to

⁴² Professor Henderson, Transcript of Evidence, 21 April 2008, p

⁴³ Professor Powell, *Strategic and Scientific Review of Research at the Canberra Hospital*, March 2005, p 10

⁴⁴ Submission no 5, University of Canberra, p 3

⁴⁵ Submission no 3, Professor Gatenby, p 5

investigate approaches to understanding and managing population obesity in the ACT.⁴⁶

- 2.29 While there are good examples of collaborative approaches and various organisations that assist in strengthening the links between the medical, health and academic sectors, the Committee considers that the establishment of an overarching 'Virtual Institute', as described by the Powell Review, would greatly enhance and support the ACT research sector and would assist in fostering further collaborative partnerships.

RECOMMENDATION 2

- 2.30 **The Committee recommends the ACT Government support the Director of Research at The Canberra Hospital to establish an overarching research structure to coordinate and strengthen research in the ACT, as recommended by the Powell Review.**
- 2.31 Professor Henderson advised the Committee of an alternative model of research called 'contract research' that begins with the project and is then followed by the costing and recruiting of researchers. This model would enable the ACT Government to determine and prioritise the research projects that would be of the greatest benefit to the ACT community and fund them accordingly.⁴⁷

RECOMMENDATION 3

- 2.32 **The Committee recommends that the ACT Government investigate the 'contract research' model with a view to possible implementation.**

The researchers

- 2.33 Health and medical research is conducted by academics and medical professionals including general practitioners, allied health professionals, nurses and midwives. The Committee was advised that the health and medical

⁴⁶ ACT Health, Annual Report 2006–2007, p 125

⁴⁷ Professor Henderson, Transcript of Evidence, 21 May 2008, p 6

research sector is not immune from the skills shortage that is hitting the rest of the ACT and Australia.⁴⁸

2.34 The Committee heard that increasing the capacity of research at TCH, and for allied health professionals and nurses, has the potential to attract and retain a highly specialised workforce.

2.35 According to the Powell Review:

It is indisputable that hospitals with a strong research base attract staff with enquiring minds and a pursuit of excellence. Such staff themselves attract others with similar interest and standards. The end result is a higher quality of patient care and greater job satisfaction for all staff.⁴⁹

2.36 In his submission Professor Waddington of UC also supported this view in relation to nursing and allied health professionals. The submission stated:

A strong nursing and allied health research sector attracts high quality nursing and allied health staff to the ACT and Capital Region.⁵⁰

2.37 The Committee considers this to be an important aspect of attracting and retaining health and medical professionals to the ACT region. As noted in the in the ACT Government Skills Future Report:

We must aspire to be an attractive and accessible location for skilled workers. Our attraction efforts must be focused on those persons most likely to contribute and most likely to stay. We must be well positioned to understand and respond to future workforce needs.⁵¹

2.38 Professor Gatenby was of the view that skill shortages would be resolved in the longer term by more people graduating from health sciences and in medicine.⁵² However, Professor Gatenby described the current challenge as encouraging more graduates to do research, particularly given the low salaries offered to full-time researchers. As a result of the skills shortage Professor

⁴⁸ Professor Gatenby, Transcript of Evidence, 23 April 2008, pp 32–33

⁴⁹ Professor Powell, *Strategic and Scientific Review of Research at the Canberra Hospital*, March 2005, p 8

⁵⁰ Submission no 5, University of Canberra, p 1

⁵¹ ACT Government, *ACT Skills Future Key Initiatives in a Long Term Strategy to Address the Skills Challenge*, 2008, p 10

⁵² Professor Paul Gatenby, Transcript of Evidence, 23 April 2008, p 33

Gatenby advised the Committee that graduates are often able to walk into well paying non-research positions. He described the situation:

When we advertise for a job here, we get half an applicant for each job in medicine at the Canberra Hospital. They are medical jobs, senior medical jobs. I remember the days when there would have been five applicants. So the one who had a research track record and a higher degree would get the job. People do not need that any more to get a job. They can walk into a highly paid specialist job having just basically got their fellowship the week before.⁵³

- 2.39 According to Professor Gatenby it would be even more difficult for a medically qualified person to consider a research degree unless they were prepared to earn significantly less money. Professor Gatenby further advised that only 25 percent of grant applications to the NHMRC were successful.⁵⁴
- 2.40 The Chair of the Committee was concerned that the ACT was losing overseas recruits to other states and territories because of administrative issues. Professor Henderson advised the Committee that he was aware of a number of cases where immigration issues had impeded successful recruitment. Professor Henderson further advised that administrative issues concerning the registration of registrars differ between the states and territories which could result in the ACT losing recruits to other states.⁵⁵
- 2.41 The Committee notes the successful campaign by Care and Protection Services to recruit staff from the United Kingdom and would be pleased to see a similar campaign developed to recruit health and medical researchers / clinicians.⁵⁶

RECOMMENDATION 4

- 2.42 **The Committee recommends that ACT Health consult with the ACT Government Skilled and Business Migration Program to boost the national and international migration of medical professionals to the ACT and to look to streamline the process for successful applicants.**

⁵³ Professor Paul Gatenby, Transcript of Evidence, 23 April 2008, p 33

⁵⁴ Professor Paul Gatenby, Transcript of Evidence, 23 April 2008, p 33

⁵⁵ Professor Henderson, Transcript of Evidence, 21 April 2008, p 8

⁵⁶ Transcript of Evidence, 2007–2008 Estimates Hearing, 28 May 2008, pp 907–910

Barriers to research

- 2.43 The Committee was advised of a number of barriers that impede research capacity, such as: heavy clinical workloads that made it impossible for staff to engage in research activities; complex reporting structures; and 'difficulty in accessing competitive peer review grants'.⁵⁷ There was no suggestion that money should be directed towards less experienced researchers but rather to develop strategies to assist new-career researchers through mentorship programs and start-up funds for research projects.⁵⁸
- 2.44 The Committee considers it imperative that the ACT Government develop strategies to remove the barriers currently impeding research capacity at TCH, as identified in the Powell Review. This would provide opportunities for new-career researchers to participate in research activities that are currently not available to them due to competitive and limited funding opportunities.
- 2.45 The Committee is pleased to note the appointment of the new Director of Research at TCH and expects that research will increasingly become a core business function of the work of TCH.

ACT Health and Medical Research Support Program

- 2.46 As noted earlier, a major role of the ACT Health and Medical Research Council is the disbursement of grants provided through the ACT Health and the ACT Medical Research Support Program. The program began in 2003 and has been providing \$200 000 per annum with the exception of the 2005-2006 financial year where no funds were available. Professor Henderson described this as a difficult task with what he considered to be 'modest sum of money'.⁵⁹
- 2.47 Professor Henderson advised that in awarding the grants:
- ...[the Council] is bound by what is scientifically meritorious and, as with NHMRC, there are difficulties in marrying what is really good science and what is desirable in terms of the health of the population.⁶⁰

⁵⁷ The Powell Review, p 17

⁵⁸ Professor Paul Gatenby, Transcript of Evidence, 23 April 2008, p 32

⁵⁹ Professor Henderson, Transcript of Evidence, 21 April 2008, p 3

⁶⁰ Professor Henderson, Transcript of Evidence, 21 April 2008, p 5

2.48 The Committee was advised that a desirable outcome of the Council's work would be the establishment of a project that unites a number of disciplines:

...outside health, such as exercise and the environment, which are not specifically medical issues but have a huge impact on health. The success of such a project would depend on appropriate scientific and administrative leadership.⁶¹

2.49 The Committee heard that the Council is keen to see new-career researchers awarded grants through the program and has actively encouraged young researchers to make applications. Despite the small pool of money the development of a grant application is a complex, time consuming process with the standard matching that expected by a funding body such as NHMRC. The Committee was advised that the applications are ultimately judged on merit, creating an inequitable situation for new-career researchers competing with the more prestigious experienced researchers for the same funding pool, presenting the Council with a conundrum.⁶²

2.50 As interest in submitting applications from new-career researchers remains low the Council has been looking at ways to encourage younger people to take up research by hosting fora or research days. The Council noted that even finding the time to attend such an event could be challenging for young people in clinical practice. Once decided on a project, a young researcher would also need to ensure access to an experienced supervisor.⁶³

2.51 The Committee supports all efforts to engage new-career and young researchers and clinicians in research projects and considers this to be a priority area. Professor Henderson described time as being a major obstacle for young health and medical researchers with tertiary training stating:

There are a fair number of people out there, the nursing community and young registrars and residents in hospitals, who will never go near research, but amongst them there will be a few who would do very well in research.⁶⁴

⁶¹ Professor Henderson, Transcript of Evidence, 21 April 2008, p 2

⁶² Professor Henderson, Transcript of Evidence, 21 April 2008, p 3

⁶³ Professor Henderson, Transcript of Evidence, 21 April 2008, p 5

⁶⁴ Professor Henderson, Transcript of Evidence, 21 April 2008, p 11

- 2.52 Professor Henderson considers it a missed opportunity that people in the health and medical field with tertiary qualifications, such as nurses, young registrars and residents in hospital, do not consider taking up a research career, whilst possessing the potential to do very well. Professor Henderson further considered that encouragement from senior health administrators in supporting research activity amongst young people across all the health disciplines would be one way to recruit more people into research.⁶⁵
- 2.53 Given the need to encourage new researchers, especially to provide research for the future, the Committee considers that new-career researchers should not have to compete with more experienced researchers for the same funding provided through the ACT Health and Medical Research Support Program. The Committee considers supporting new-career researchers to be a priority and considers that a mentoring program as well as a small grant program should therefore be considered.

RECOMMENDATION 5

- 2.54 **The Committee recommends that the ACT Government develop a new entry-level program for new-career researchers.**

RECOMMENDATION 6

- 2.55 **The Committee recommends that the ACT Government invest a minimum of \$50 000 annually to the new program to support new-career researchers.**

Nursing and allied health

- 2.56 Research conducted by nurses and allied health professionals is an important part of health and medical research that is often not given the same status as research conducted by medical practitioners. Nurses work collaboratively with allied health professionals such as physiotherapists, nutritionists, dieticians,

⁶⁵ Professor Henderson, Transcript of Evidence, 21 April 2008, p 11

and physiologists and play a critical role in responding to chronic disease and other health concerns in the ACT.⁶⁶

2.57 Allied health care professionals and nursing staff are a significant part of the ACT Government's *ACT Primary Health Care Strategy 2006–2009* which has the overarching aim of improving the health of the ACT population through the provision of:

- population based and person centred health care;
- continuity of health care; and
- high quality health care.⁶⁷

2.58 Professionals operating within the primary health care system include; general practitioners, allied health professionals, ambulance services, non-government services, Aboriginal medical services and community health services, such as those for maternal and child health and mental health.⁶⁸

2.59 The strategy has three aims, one of which is 'achieving high quality health care through evaluation and research'. The strategy states:

Research and evaluation are central to ensuring quality and safety in the health system. Innovation and system redesign need to be described, assessed and evaluated so that evidence-based improvements are adopted for the benefit of the whole health system.⁶⁹

2.60 In its submission to the inquiry Professor Waddington of the UC argued for the enhancement of nursing and allied health research development in the ACT through substantial ongoing support from the ACT Government stating:⁷⁰

A strong Nursing and Allied Health Research Sector attracts high quality nursing and allied health staff to the ACT and Capital Region...A high quality research base underpinning the Nursing and Allied Health workforce enhances patient care through greater use of evidence-based

⁶⁶ Submission no 5, University of Canberra, p 1

⁶⁷ ACT Health, *ACT Primary Health Care Strategy 2006–2009*, p 5

⁶⁸ ACT Health, *ACT Primary Health Care Strategy 2006–2009*, p 3

⁶⁹ ACT Health, *ACT Primary Health Care Strategy 2006–2009*, p 10

⁷⁰ Submission no 5, University of Canberra, p 1

practices, has the potential to reduce cost, enhance higher levels of job satisfaction and increase staff retention rates.⁷¹

- 2.61 The Research Centre for Nursing and Midwifery Practice (RCNMP) is a division of ACT Health and offers research opportunities for nurse and midwives. The centre is:

...a clinically based research centre that provides a physical and intellectual environment and the administrative structure to support nursing and midwifery research and the application of evidence into practice. The Centre conducts research and is working to build capacity to further foster cross-disciplinary collaboration, both nationally and internationally, particularly for the prevention of pressure injury. RCNMP staff are committed to providing leadership and support, for clinicians across ACT Health, to conduct and utilise research to improve clinical practice.⁷²

- 2.62 The Committee notes the Practice Development Grants, administered by RCNMP, available to clinicians and researchers 'to undertake practice improvement projects within their clinical area'. The grants aim to:

- Increase the evidence base of nursing and midwifery practice;
- Develop the research capacity of nurses and midwives within ACT Health; and
- Improve patient outcomes through research.⁷³

- 2.63 The Committee notes the *Practice Development Grants* began in 2007 with a total funding pool of \$20 000. The Committee is aware that four grants were awarded in 2007 at approximately \$5 000 each. The Committee found no mechanisms in place to ensure the continuation of this grants program in future years.

- 2.64 The Committee heard that the clinical commitments of nurses impede their ability to perform research projects. Funds from the Practice Development

⁷¹ Submission no 5, University of Canberra, p 1

⁷² Act Health, Research Centre for Nursing and Midwifery, viewed 17 June 2008, <<http://www.health.act.gov.au/c/health?a=da&did=10072943>>

⁷³ ACT Health, Information and Guidelines, Practice development Grants, viewed 17 June 2008, <<http://www.health.act.gov.au/c/health?a=sendfile&ft=p&fid=-1167135081&sid=>>>

Grants can be used to backfill positions while clinicians complete their projects. However, as noted in the UC's submission to the inquiry:

Mechanisms for mentoring nurses and allied health staff interested in research development are substantially limited by staff time release capacity and minimal access to staff with appropriate research experience.⁷⁴

- 2.65 The Committee considers that the support for nurse and midwifery research though the specific funding program should be continued and the amount of money increased.

RECOMMENDATION 7

- 2.66 **The Committee recommends that the ACT Government continue to support the Research Centre for Nursing and Midwifery Practice and in particular, the Practice Development Grants for nurses with an increase in the annual investment from \$20 000 to \$50 000 to increase the research capacity of nurses.**
- 2.67 The Committee was advised of a pilot research mentoring program for allied health professionals conducted by the Faculty of Health at UC, with the support of ACT Health and the ACT Health and Medical Research Council. The Committee was further advised that while universities have a range of internal strategies to support new-career researchers there was little evidence of such programs being undertaken as a health or regional initiative. The submission from UC stated:

The development of the research mentoring program for allied health staff with a multidisciplinary and regional focus is an exciting new initiative in the health and medical research field and is a model for other jurisdictions. The research mentoring program provides an opportunity for allied health staff in the ACT and region to develop and enhance their research skills and is currently undergoing evaluation with a view to extending this program format across the nursing and medical disciplines.⁷⁵

⁷⁴ Submission no 5, University of Canberra, p 1

⁷⁵ Submission no 5, University of Canberra, p 2

RECOMMENDATION 8

- 2.68 **The Committee recommends that ACT Health give due consideration to extending the mentoring program for allied health professionals, to include nursing and medical disciplines, pending the outcome of the evaluation.**

Raising community awareness

- 2.69 The Committee heard there was little community awareness about the role that medical research plays in the everyday lives of people. The Committee considered that raising the profile of health and medical research would have positive outcomes in terms of young people considering science careers and encouraging more people to contribute financially to health and medical research projects.

- 2.70 The declining interest of young people pursuing careers in science and research was raised as a concern. As noted by Professor Gatenby:

Science as a career is not considered to be a sexy option - [hence] decline in numbers enrolling into university.⁷⁶

- 2.71 The Committee was advised that strategies to attract young people to these careers must begin at an early age and the Committee was interested, in the extent to which, the promotion of scientific and medical research occurred in ACT schools.

- 2.72 Professor Henderson advised the Committee that guest speakers to schools are well received and that he was aware of scientists / researchers visiting schools to speak to teenagers about science in a language they would understand. In Professor Henderson's view:

Young people at school, in their mid to late teens, are a very attractive target to seduce into a research career, but it does not happen very often.⁷⁷

⁷⁶ Professor Gatenby, Transcript of Evidence, p

⁷⁷ Professor Henderson, Transcript of Evidence, 21 April 2008, p 11

- 2.73 The Committee took evidence from Professor Suresh Mahalingam of UC who has a strong involvement in the ACT medical research sector. Professor Mahalingam expressed to the Committee his view that the ACT had not been as successful as other states in raising community awareness about science and medical research and its significance in everyday applications.⁷⁸
- 2.74 Professor Mahalingam advised the Committee of the *Tall Poppy Campaign* that was created by the Australian Institute of Policy & Science to recognise and celebrate Australian scientific and intellectual excellence and to encourage younger Australians in this field. The *Tall Poppy Campaign* promotes the achievements of Australian scientists through the *Young Tall Poppy Program* that identifies and acknowledges outstanding young Australian researchers through the prestigious *Young Tall Poppy Science Awards* which are held each year in different states. Award winners are then engaged in an education program to foster a stronger interest in science in schools and the broader community. Through the *Young Tall Poppies Reaching Students Program* the award recipients visit schools to talk to students about science, in consultation with departments of education, science teachers' associations and individual schools.⁷⁹
- 2.75 Professor Mahalingam was strongly of the view that the ACT Government could do more to support the *Tall Poppy Campaign* and establish a similar program in the ACT. Professor Mahalingam advised the Committee that he had personally initiated a similar program to give Canberra school children an insight into the world of science and research.⁸⁰ As Professor Mahalingam explained:

My main objective is to try to increase the interest of students at primary as well as secondary schools in science education and science as a career, so that in universities, for example, at least science will not have a decline in enrolment and we will get the brightest students considering science.⁸¹

⁷⁸ Professor Mahalingam, Transcript of Evidence, 21 April 2008, p 14

⁷⁹ The Australian Institute of Policy and Science, The Tall Poppy Campaign, viewed 6 June 2008, <<http://www.aips.net.au/tallpoppies/>>

⁸⁰ Professor Mahalingam, Transcript of Evidence, 21 April 2008, p 15

⁸¹ Professor Mahalingam, Transcript of Evidence, 21 April 2008, p 15

- 2.76 The Committee considers that with the high calibre of educational institutions in the ACT, encouraging ACT students from an early age to consider a career in science and research would ultimately benefit the ACT community as more ACT school students take up science and research careers.

RECOMMENDATION 9

- 2.77 **The Committee recommends that ACT Department of Education and Training work with the University of Canberra to introduce the Tall Poppy Campaign into ACT Primary and Secondary Schools.**
- 2.78 Medical Research Week, held in June each year, provides an opportunity to promote the benefits of health and medical research as well as promote science as an attractive career option for young people. The Committee heard that this had not been utilised well in the past and considers that the ACT Government could have a greater involvement with promotional opportunity offered through Medical Research Week.⁸²

RECOMMENDATION 10

- 2.79 **The Committee recommends that the ACT Government take a more active role in promoting medical research through Medical Research Week, by resourcing and partnering with the University of Canberra and the Australian National University.**

⁸² Professor Mahalingam, Transcript of Evidence, 21 April 2008, p 17

3 HEALTH PROVISION IN THE ACT

- 3.1 Consumer demand for health care services and medical technology has increased significantly in recent years. This demand is driven by 'personal income growth, rising community expectations, population growth and the interaction of low consumer prices and new technologies in both the private and public systems'.⁸³ The ageing population, along with increased life expectancy, chronic disease management and skills shortages of medical professionals is also contributing to the increasing costs of health care in Australia.

Costs of health provision

- 3.2 In 2005-06 Australia spent \$1 in every \$11 dollars on health services. This amounted to \$86.9 billion or 9.0% of gross domestic product (GDP). Compared to other OECD countries for the same year, Australia spent more than the United Kingdom (8.3%GDP) and Italy (8.9% GDP) and significantly less than the United States (15.3%). After adjusting for inflation, health spending in 2005-06 was 45 per cent more per person than it was a decade earlier.⁸⁴
- 3.3 The expenditure on health services in the ACT has almost doubled since 2001–2002 to \$889 million in 2008-2009.⁸⁵ This includes a \$300 million investment over 4 years to begin the health infrastructure program to take the ACT Health system into the next decade and beyond.
- 3.4 The demand on health services in the ACT is expected to continue to increase. Work commissioned by the ACT Government found that over the next 15–20 years the ACT could expect a 60 per cent increase in demand across a whole range of health services including hospital beds, cancer services and surgery.⁸⁶

⁸³ Australian Government, Productivity Commission, *Impacts of Advances in Medical Technology in Australia*, Productivity Commission Research Report, 2005, p xxx

⁸⁴ Australian Institute of Health and Welfare, *Australia's health 2008*, June 2008, p xiv

⁸⁵ ACT Government, Budget 2008 –2009, Paper no 2, *Ready for the Future*, p 29

⁸⁶ Minister for Health, Hansard Transcript, 21 May 2008, p 314

- 3.5 The costs of maintaining a skilled professional workforce coupled with new medical procedures and technologies are also expected to add to increases in health costs.⁸⁷
- 3.6 With low unemployment and the full-time adult average weekly wage nearly \$200 more than the national average⁸⁸ the socioeconomic circumstances of most ACT residents is at the higher end of the scale, contributing to the increased demand for health services. However, for people with lower socioeconomic circumstance health outcomes are not at good. As noted by AIHW:

Disadvantaged Australians, wherever they live, are more likely to have shorter lives, higher levels of disease risk factors and lower use of preventive health services.⁸⁹

- 3.7 The ageing population is also expected to add to health costs in the coming years as the costs of health care increase with age. A research report on the *Economic Implications of an Ageing Australia* by the Productivity Commission stated:

Across all health expenditure types expenditure per person per year on those aged 65 years and over is around four times higher than on those under 65 years, and rises to between six and nine times more for older age groups.⁹⁰

Advances in medical technology

- 3.8 Advances in medical technology have the capacity to improve health outcomes for individuals through better treatments, improved medications, and the availability of diagnostic testing and screening programs. While these advances bring a range of benefits they also increase the costs of health care

⁸⁷ ACT Government, 2007–08 Budget Paper No. 3, p 21

⁸⁸ ACT Government, Department of Treasury, *Full-Time Adult Average Weekly Ordinary Time Earnings–February 2008*, viewed 30 June 200, <<http://www.treasury.act.gov.au/snapshot/AWOTE.pdf>>

⁸⁹ Australian Institute of Health and Welfare, *Leaps and bounds in health, but some groups lag behind*, Media Release, 24 June 2008, viewed 25 June 2008, <<http://www.aihw.gov.au/mediacentre/2008/mr20080624.cfm>>

⁹⁰ Productivity Commission, *Economic Implications of an Ageing Australia*, cited in, Productivity Commission, *Impacts of Advances in Medical Technology in Australia*, August 2005, p 22

associated with the delivery of new technologies and expensive new medications. As noted in the ACT Government submission:

The cost-effectiveness of future health technologies is, however, not guaranteed, while community expectations for access to the latest advances, which are often costly, are unlikely to abate.⁹¹

- 3.9 Most of the advances in medical technology over the past decade have provided ways to treat or diagnose patients more effectively or efficiently than was previously possible under the existing technologies. However, there have also been breakthroughs in treating previously untreatable conditions.
- 3.10 Not all technological advances will add to the cost of health care. Advances in prevention and early detection and interventions, diagnosis and disease management strategies have the capacity to reduce long term costs to the health budget. A recent study conducted by Access Economics found that each dollar invested in Australian health R&D returns \$2.17 in health benefits.⁹²
- 3.11 Major advances in medical technology over recent decades include a range of diagnostics, medical procedures, prostheses, devices and improved medications that include:
- magnetic resonance imaging (MRI) and computerized tomography (CT) scanning;
 - ‘Phaco’ cataract removal & foldable lenses;
 - ACE inhibitors for high blood pressure;
 - Hip and knee replacement;
 - Angioplasty to unblock arteries;
 - Inhaled steroids for asthma;
 - Statins to reduce cholesterol;
 - SSRI and non-SSRI antidepressants; and
 - Tamoxifen to treat breast cancer.⁹³

⁹¹ Submission no 2, ACT Government, p 36

⁹² Access Economics, *Exceptional Returns: The Value of Investing in Health R&D in Australia II*, p 70

⁹³ Australian Government, Productivity Commission, *Impacts of Advances in Medical Technology in Australia*, Productivity Commission Research Report, 2005, p xxvii

- 3.12 Many of these procedures and treatments come at a significant cost to the public health system as many of them are subsidised by the Australian Government, either through the Pharmaceutical Benefits Scheme (PBS) or Medicare system.

Diagnostic testing

- 3.13 Diagnostic testing, as its name suggests, is widely used to diagnose disease and illness, check on progress of symptoms of disease or to determine a clean bill of health. Advances in diagnostic imaging technologies offer improved diagnosis from cancers to neurological conditions. The most common forms of diagnostic tests used in Australia are pathology and radiology.

- 3.14 Diagnostic testing has the capacity to both increase and reduce health care costs. The Productivity Commission notes the increase in detection of breast cancer since the introduction of *BreastScreen* Australia and the increase in the detection of prostate cancer since the introduction of the prostate specific antigen test in Australia. While the detection of these are an important aspect of health care the Productivity Commission notes:

By increasing the number of cases of disease diagnosed, diagnostic imaging technologies increase health care expenditure, both through the cost of these imaging technologies themselves, and in the treatment of patients who would otherwise have remained undiagnosed. On the other hand, these technologies may prove expenditure-reducing over time because early detection and treatment may negate the need for more intrusive (and expensive) treatments once the disease has progressed.⁹⁴

- 3.15 Advances in diagnostic tests now enable diagnostic procedures to be performed by individuals in their own homes through various home-test kits, such as checking blood pressure and blood glucose monitoring for diabetes. A recent example of this is the Australian Government's \$87 million budget commitment to increase bowel cancer screening for people 50, 55 and 65 years of age. The faecal occult blood test (FOBT) kit, which can be used in the

⁹⁴ Australian Government, Productivity Commission, *Impacts of Advances in Medical Technology in Australia*, Productivity Commission Research Report, 2005, p 74

privacy of people's homes, will be sent free of charge to Australians of the age groups above with the aim of increasing early detection and saving lives.⁹⁵

- 3.16 Early detection and preventative measures are important tools that can save lives and reduce health spending. There is however, growing concern that diagnostic testing is being over prescribed in Australia. This has been addressed in a paper by Hammett and Harris that states:

...the rise in the cost of diagnostic testing in pathology and radiology is second only to the rise in the cost of pharmaceutical prescriptions, the fastest growing sector in the healthcare budget.⁹⁶

- 3.17 Recording the use of pathology testing in Australia, the Australian Institute of Health and Welfare found that the increase in pathology testing in the 1990's was mainly due to the number of tests ordered at the one time. The AIHW further found that the ordering of pathology tests by GPs continued to increase not only in the number of tests ordered but also in the likelihood of a test being ordered in an encounter with a GP. The increase in encounters generating a pathology test order rose from 13 per cent in 1998–1999 to 16 per cent in 2004–2005, equating to an increase of 1.5 million tests ordered. Further to this the number of tests increased by almost 25 per cent after 2000–2001 to 2004–2005 equating to 5.2 million pathology tests being ordered by GPs in the latter year.⁹⁷
- 3.18 The AIHW also reported an increase in the likelihood of GPs ordering imaging tests, such as MRIs, ultrasound and x-rays but noted that the increase had not been on the same scale as for pathology.⁹⁸
- 3.19 A recent study that looked specifically at the rates of mammography and breast ultrasounds, in the six months following the highly publicised incidence of breast cancer in an Australian celebrity, found a sharp rise in mammograms,

⁹⁵ Cancer Council Australia, *Cancer Council urges 50-year-olds to take a seat for Bowel Cancer Awareness Week*, Media Release, viewed 11 June 2008, <<http://www.cancer.org.au/Newsmedia/mediareleases/mediareleases2008/8June2008.htm>>

⁹⁶ R Hammett and R Harris, *Halting the growth in diagnostic testing*, eMJA, The Medical Journal of Australia, July 2002, viewed 5 June 2008, <http://www.mja.com.au/public/issues/177_03_050802/ham10334_fm.html>

⁹⁷ Australian Institute of Health and Welfare, *Australia's health* 2006, p 350

⁹⁸ Australian Institute of Health and Welfare, *Australia's health* 2006, p 350

breast ultrasounds and breast biopsies in women aged 25–44 years. The increase in screening did not lead to an increase in the detection of incidences of breast cancer. The study noted that while raising people's awareness about certain conditions and the need for screening is a positive outcome of publicity surrounding certain conditions:

At a health system level, there is a potentially serious organisation and cost issue: an influx of lower risk women may reduce the capacity of services to deal with higher risk women, particularly if this occurs suddenly and there is no time to plan a response.⁹⁹

- 3.20 The Committee was unable to determine the level of diagnostic testing occurring in the ACT but considers that any over use of diagnostic testing would have implications for the timeliness of access to diagnostic testing in a system that is currently suffering from skills shortages, particularly in the area of radiographers for breast screening services.¹⁰⁰
- 3.21 The Committee would like to ensure that diagnostic testing is not being over prescribed in the ACT but considers that this is an issue for ACT Health and the ACT Division of General Practice, and falls outside of this inquiry's terms of reference.

⁹⁹ Dr Kelaher and others, *Use of breast cancer screening and treatment services by Australian women aged 25–44 years following Kylie Minogue's breast cancer diagnosis*, International Journal of Epidemiology, 2008, pp 5–6

¹⁰⁰ Mr McCormack, Transcript of Evidence, Estimates Hearing 2007–2008, 22 May 2008, 462

4 RESOURCES FOR RESEARCHERS

- 4.1 In 2004–2005 Australia spent a total of \$2.8 billion on health research and development. The majority of the research (58 per cent) was performed in the public sector (44 per cent universities and 14 per cent government institutions) with the remaining (42 per cent) performed in the private sector (business 26 per cent, private non-profit organisations 16 per cent).¹⁰¹
- 4.2 Securing appropriate funds to conduct research is an ongoing challenge not only for experienced researchers but particularly so for new-career researchers. The preparation of a grant application is a complex process that often requires significant time and preliminary research to support the application. A recent survey conducted by the Australian Society for Medical Research (ASMR), examining health and medical research careers, found that employment insecurity and lack of funding were two major factors negatively impacting on researchers.¹⁰²
- 4.3 The Australian government is the main source of funding for health and medical research in Australia. State and Territory governments also provide funding at the local level and other funds are generated through private and industry sources.

Government funding

- 4.4 The Australian Government contributes significantly to health and medical research in the ACT through national peer-reviewed competitive grants and other national funding schemes. The National Health and Medical Research Council (NHMRC) is the major funding provider for health and medical research nationally and covers all areas of research relevant to human health and medical research. In the ASMR survey 69 per cent of respondents had funding through the NHMRC.

¹⁰¹ Access Economics, *Exceptional Returns The Value of Investing in Health R&D in Australia* 11, June 2008, p 69

¹⁰² M Kavallaris, S Meachem and others, *Perceptions in health and medical research careers: the Australian Society for Medical Research Workforce Survey*, MJA, Volume 188 Number 9, May 2008, p 521

Over the past 9 years, Australian HMR has experienced a marked increase in federal government support administered through by the National Health and Medical Research Council (NHMRC). Between 2000 and 2006, the NHMRC increased research and people support by 170 per cent, from \$169.7 million to \$457.5 million.¹⁰³

4.5 Despite the significant increase in funding the Committee was concerned that employment insecurity and lack of funding, as noted earlier, are still a major cause of concern among Australian health and medical researchers with serious implications for the retention and recruitment of researchers.¹⁰⁴

4.6 Researchers in the ACT have been very successful in attracting NHMRC Grants. In its submission to the Committee in 2005, NHMRC stated:

In the funding round for Project grants commencing 2005, ACT researchers achieved the highest percentage success rate for applications lodged, compared with the other State and Territories.¹⁰⁵

4.7 A supplementary letter to the inquiry provided by NHMRC in 2008 stated:

Since 2000, ACT researchers have been successful in attracting 104 NHMRC grants worth over \$62.6 million to support research in Canberra...In 2007 NHMRC awarded Professor Anthony McMichael from the National centre for Epidemiology and Population health at the Australian National university a prestigious Australia Fellowship worth \$4 million over 5 years to support his ongoing work on climate change and health.¹⁰⁶

4.8 The Australian Research Council is the primary agency responsible for administering Australian Government competitive funding for research in universities. In 2006–07 the ARC administered a budget of \$570.3 million for the National Competitive Grants Program, accounting for 9.0 per cent of total Australian Government financial assistance for research and innovation.

¹⁰³ M Kavallaris, S Meachem and others, *Perceptions in health and medical research careers: the Australian Society for Medical Research Workforce Survey*, MJA, Volume 188 Number 9, May 2008, p 520

¹⁰⁴ M Kavallaris, S Meachem and others, *Perceptions in health and medical research careers: the Australian Society for Medical Research Workforce Survey*, MJA, Volume 188 Number 9, May 2008, p 520

¹⁰⁵ Submission no 1, National Health and Medical Research Council, p 4

¹⁰⁶ Submission no 4, National health and Medical Research Council, p 1

- 4.9 The Australian Government also contributes to research conducted in the ACT through its own departments such as, the CSIRO, the Australian Institute of Health and Welfare, Australian Government Analytical Laboratories and the Australian Institute of Sport.

Industry funding

- 4.10 Canberra businesses invest significantly in research and development (R&D) but little of the investment is directed at health and medical research in the ACT. While publicly funded R&D investment reflects the priorities of government, 'privately funded R&D medical technology investment undertaken by for-profit organisations largely responds to potential demands and profit expectations'.¹⁰⁷ As noted in the ACT Innovation study the benefits of the science system to the ACT are not in its profits. The report states:

Although the science system does not impact through the commercialisation of research, it has a major impact through employment and in direct expenditure on goods and services—universities in the ACT have budgets totalling \$700m—and in the flow of educated graduates ('knowledge workers') who establish, or are available to work in, a growing 'knowledge intensive business services' industry and a burgeoning 'creative industries' sector.¹⁰⁸

- 4.11 In 2005–2006 Canberra businesses invested \$99 221 on R&D equating to about one per cent of the total Australian expenditure on R&D. Of that amount, \$11 782 (11.87 per cent) was spent on science research, while over 60 per cent was spent on computer services (\$47 976 or 48.35 per cent) and electronic equipment (\$14 052 or 14.16 per cent).¹⁰⁹
- 4.12 Business and economic development in the ACT is the responsibility of the Minister for Business and Economic Development and sits in the Chief Ministers Department. The output class description is the:

¹⁰⁷ Productivity Commission, *Impacts of Advances in Medical Technology in Australia*, August 2005, p 37

¹⁰⁸ ACT Government, *Innovation, Creativity and Leadership, Report of a Study of the ACT Innovation System*, March 2008, p 3

¹⁰⁹ ACT Government, *Innovation, Creativity and Leadership, Report of a Study of the ACT Innovation System*, March 2008, p 47

The provision of programs, initiatives and business policy advice to support strategic business and industry development in the ACT... [this includes] manage relationships with key stakeholders in the ACT innovation system including universities, research organisations, commercialisation entities, business organisations and other government agencies.¹¹⁰

- 4.13 The ACT Government 2003 Economic White Paper specifically targeted the development of biotechnology firms in the ACT with a view to:

...build biotechnology industry relationships with the Eastern States and promote opportunities for State to Territory and company to company collaboration and partnerships.¹¹¹

- 4.14 The review of the ACT Innovation system found that this strategy needed to be reassessed given that it was now understood that stand alone biotechnology firms were not great employers and were not always profitable companies.

The report stated:

Most biotechnology firms are quite small and they typically contract with global pharmaceutical companies to produce, market and distribute successful products rather than attempting to create their own capacity to do so. Following the end of the technological bubble, there is a realisation that communities and regions are unlikely to create wealth through blockbuster biotechnology related drug discoveries and the rapid growth of the bio-pharmaceutical manufacturing industry.

- 4.15 Despite the lack of profitability, biotechnology is a growing field and the benefits provided by biotechnological advances are worth pursuing. The Committee considers that the ACT government should continue to support the industry in Canberra where appropriate. As noted on the Chief Minister's website:

The biotechnology industry in Canberra is an expanding sector that is increasingly focussing on the commercialisation of biotechnology research. For instance, industry leaders have estimated that the

¹¹⁰ 2007–2008 Budget Paper No. 4, p 40

¹¹¹ ACT Government, *The Economic White Paper for the Australian Capital Territory*, p 60

biotechnology industry in Canberra could employ up to 4000 people by the year 2010. This estimate demonstrates that Canberra's biotechnology industry is a growth sector that is building upon the strong R&D culture that exists in the industry.¹¹²

- 4.16 In its submission, the ACT Government noted that the absence of pharmaceutical and medical device manufacturers in the ACT limits industry support for local medical research. The submission further stated that despite this 'there is scope for an increase of private sector support for medical research in the ACT'.¹¹³

Private funding

- 4.17 The Powell Review recommended the establishment of a Research Foundation focused on the TCH campus.¹¹⁴ Professor Gatenby advised the Committee that despite the establishment of a planning Committee in 2006 to set up the Research Foundation little progress has been made since then. Professor Gatenby supported the establishment of a Foundation and considered that Canberra residents were generous and securing patrons for large donations could be achieved through a more coordinated effort. Professor Gatenby advised the Committee that:

More money is raised in Canberra for the Australian Cancer Research Foundation, per head of population, than in any other city in Australia. More money is raised in Canberra for the Sydney children's hospital than in any other jurisdiction in Australia.¹¹⁵

- 4.18 Professor Gatenby described the benefits of a Foundation and how the funds could be used:

One of the things that foundations often do within teaching hospitals or area health services is provide funds for people who just miss out on

¹¹² ACT Government, Business and Industry Development, viewed 30 June 2008, <<http://www.business.act.gov.au/servicestobusiness/businessdevelopment/biotechnology>>

¹¹³ Submission no 2, ACT Government, p 34

¹¹⁴ Professor L Powell, *Strategic and Scientific Research Review of Research at the Canberra Hospital*, Report submitted to the General Manager, The Canberra Hospital Canberra ACT, March 2005, p 9

¹¹⁵ Transcript of Evidence, 23 April 2008, p

NHMRC, to bridge them for a year so that nobody has to become unemployed, so that they can have another go next year with some more preliminary data.¹¹⁶

4.19 Professor Mahalingam was also of the view that private investors were a potential source of funding for research in the ACT. So convinced of this, he told the Committee of his personal plans to promote the research work of the University of Canberra through television advertising in a bid to win the sympathy of the general public and raise funds.¹¹⁷

4.20 The ACT Government submission also supported the concept of a research foundation with TCH as the auspice organisation, stating:

The establishment of a foundation for TCH to support medical research for example would be more attractive to private sector donations than a generic ACT Medical Research Fund.¹¹⁸

4.21 The Committee noted a model of investment in the United States known as 'angel investors' that targets mum and dad investments in research companies.¹¹⁹ The Committee notes that this happens to a certain degree in Australia, particularly in relation to specific illnesses and diseases through highly publicised national fund raising campaigns such as *Go Red for Women* that raises money for the Heart Foundation, *Red Nose Day* for sudden infant death syndrome and *Australia's Biggest Morning Tea* raises funds for the Cancer Council.

4.22 Another source of potential funding for researchers is through The Canberra Hospital Private Practice Fund. The Fund is open to specialists and other employees of ACT Health to apply for grants for certain purposes such as professional development activities and research. The Fund provides approximately \$650 000 for research per annum.¹²⁰

¹¹⁶ Professor Gatenby, Transcript of Evidence, 23 April 2008, p 35

¹¹⁷ Professor Mahalingam, Transcript of Evidence, 21 April 2008, p 22

¹¹⁸ Submission no 2, ACT Government, p 34

¹¹⁹ Transcript of Evidence, 21 April 2008, p 22

¹²⁰ Professor L Powell, *Strategic and Scientific Research Review of Research at the Canberra Hospital*, Report submitted to the General Manager, The Canberra Hospital Canberra ACT, March 2005, p 17

- 4.23 The Committee was advised that the Canberra Region Medical Foundation, that has been replaced by the fundraising body at the TCH, attracted significant corporate funds such as \$250 000 from Coles Supermarket for asthma research and \$200 000 from Cable and Wireless Optus.¹²¹
- 4.24 The Committee notes the TCH website and the specific section relating to Donations to TCH.¹²² However, the Committee is disappointed that the TCH website is lost within the ACT Health portfolio and is not prominently featured as a major hospital. A quick comparison of major hospitals such as the Royal Melbourne Hospital and Sydney Children's Hospital reveal that *Research* and *How to Help* are prominently featured on their homepages.
- 4.25 The Committee was not able to ascertain the amount of funds that have been donated to TCH for research and training purposes. The Committee does consider however, that fund raising efforts at TCH should be enhanced with the establishment of a TCH Research Foundation as recommended by the Powell Review.¹²³
- 4.26 The Committee further notes that the plan for the new women and children's hospital at TCH provides the ACT Government with an opportunity to reconsider the website of TCH to reflect a major teaching hospital.

RECOMMENDATION 11

- 4.27 **The Committee recommends that the ACT Government fast track the establishment of the Research Foundation to be located at The Canberra Hospital.**

RECOMMENDATION 12

- 4.28 **The Committee recommends that ACT Health develop a new website for The Canberra Hospital to better reflect its role as a major regional and teaching hospital.**

¹²¹ Submission no 2, ACT Government, p 34

¹²² ACT Health, Canberra Hospital, Donations to TCH, viewed 30 June 2008, <<http://health.act.gov.au/c/health?a=da&did=10070558>>

¹²³ The Powell Review, *Strategic and Scientific Review of Research at the Canberra Hospital*, March 2005, p 9

5 CONCLUSION

- 5.1 The greatest influence the ACT Government has in relation to health and medical research in the ACT is at TCH. The Committee commends the Government's efforts in enhancing the research capacity at TCH but considers that further investment, particularly aimed at new-career researchers, nurses and allied health professionals would provide considerable long-term benefits for the ACT community.
- 5.2 The low cost investment of promoting science and research careers through the ACT school system, to encourage young people to embark on such careers, also has the potential to impact on the sector in the long-term.
- 5.3 With the expected increases in health care costs in the coming years the ACT Government would be well placed to increase its investment in new-career researchers by developing ACT specific projects and engaging young researchers, under the supervision of a senior researcher in conjunction with the ACT Health and Medical Research Council.
- 5.4 Due to limited business investment and limited funds available through the ACT Government for health and medical research in the ACT, medical researchers would benefit from greater promotion of fund raising initiatives centred at the TCH and in particular the establishment of a Research Foundation.
- 5.5 The recommendations by the Committee are not based on large capital investments from the ACT Government as the Committee considers the current level of funding to be commensurate for the ACT.
- 5.6 The Committee wishes to thank all those who contributed to this inquiry through the provision of submissions and / or oral evidence, as well as those organisations in Victoria and the United States that made the Chair and the Committee welcome.

Ms Karin MacDonald

Chair

30 July 2008

APPENDIX A: Public Hearings

21 April 2008

ACT Health and Medical Research Council

Professor Scott Henderson, Chair

University of Canberra, Faculty of Science

Professor Suresh Mahalingam, Associate Dean, Research

23 April 2008

Professor Paul Gatenby

APPENDIX B: Submissions

1. National Health and Medical Research Council
2. ACT Government
3. Professor Paul Gatenby
4. National Health and Medical Research Council (supplement)
5. Professor Gordon Waddington University Canberra

APPENDIX C: Report of United States Study Trip by Ms Karin MacDonald MLA

Meeting with Department of Business and Economic Development,

Maryland State

9 July 2007

Present at the meeting:

Dr Lawrence C. Mahan, Ph.D. – Director, Biosciences, Division of Business Development

Ms Signe Jalak Pringle – Investment and Trade Executive, International Operations

Dr Brendan Scott, Ph.D. – ANU Visiting Fellow Predictive Medicine Group Division of Molecular Bioscience John Curtin School of Medical Research

Ms Karin MacDonald, MLA – ACT Legislative Assembly

Dr Mahan outlined Maryland's position with respect to spin-offs from research: being close to the giant American research institutions in neighbouring Washington, DC, Maryland has attempted to harness opportunities from this nearby research using the limited resources of its state government. He stated this was one area where the state could make a difference with minimal cost.

Dr Mahan said that there were ways that the state government has assisted in the areas of:

- Consequences of National Institutes of Health (NIH) reform;
- Venture capital
- Patents

During the review and transition of the NIH, a forum was held on establishing businesses in the area of bioscience – they had 450 people turn up with an interest in the area.

The Maryland Government has co-opted local entrepreneurial and venture capital people as advisers for its strategy. Dr Mahan did not elaborate on who specifically,

but in the ACT context, this would consist of people within organisations and companies such as CAMBiA, ANUTECH, and DArT.

There is a need to have a mix of individuals for advisory groups, including venture capital/entrepreneurial businesses, investment groups, as well as what might be considered to be the “usual players” in the medical sciences area.

There was discussion around how many of the organisations had grown up servicing Federal groups and bodies. The state can identify if the institutions are thinking in this way, and look to identifying alternative ways of thinking, as well as looking at what the needs are of the organisations and the state. It can be asked “How much do you want to do yourself (as the state government), and how much do you want to attract other companies in to sponsor the project(s)?”

This can act as a stimulus for other things. We discussed how this might apply in the ACT:

- CSIRO – Research Days
- PMP’s – plant made products/ plant made pharmaceuticals, plant made antibodies. This has been a big area last few years
- Going out and sensing where industry mindset is
- Seed Technology– Local Wine Industry
- Look to local applications where you can tap funding.

The Maryland Government actively establishes incubators as a government initiative, in the form of Public Private Partnerships (PPP), or they maybe wholly Government funded.

Dr Mahan gave the example that the state might work with a Real Estate Agency, which would then fund the physical building, but the government would provide the seed funding.

The Maryland Government has created a redundant equipment pool for these incubators. As laboratories and companies in (and around?) Maryland replace their equipment with more state-of-the-art equipment, the Maryland Government purchases the (working) replaced equipment for these incubators to use.

The Maryland Government runs the Maryland Venture Fund (<http://www.choosemaryland.org/businessservices/marylandventurefund/mvf.html>). Under this scheme, the Maryland Government gives US\$50,000 grants to start-ups in return for US\$100-\$150,000 in private investment. They also provide a 50% tax credit for up to US\$50,000 in private investment. In the opinion of Dr Mahan, this policy has worked well. There is only \$6 million a year in the Budget for this scheme; applications are decided on a “first come, first served” basis. The tax credit is not granted automatically, but rather the investor must apply for it. Applicants are largely individual investors. In Dr Mahan’s opinion, this strategy is one of the more aggressive pursued by state governments, and one of the first (it was twelve to thirteen years old at the time of the meeting). The policy applies to all high-tech start-ups, not just biotech or medical start-ups.

In the first year of running, there was US\$6 million in funding, but they recouped US\$14 million. At that point, the fund had largely “Angel” investors – i.e. individuals in the community, not with large fortunes, but looking to make investment in an area that they thought was worthwhile for both their value in research, but also their value in investment. In the time that the program fund has been running, Maryland State Government has put in approximately US\$50million, but has leveraged about US\$1.3billion.

The Maryland Government has also set up infrastructure in scale-up facilities for start-ups to run “proof of principle” studies (Maryland Technology Enterprise Institute (MTECH) Bioprocess Scale-Up Facility <http://www.biotech.umd.edu/BSF.html>).

For more adventurous schemes, they have the Economic Development Opportunities Fund (Sunny Day Fund). This scheme is run by only 4-5 staff from the Maryland Government, and also gets scrutinised by the Department of Legal Services.

The Maryland Government runs these and some other programs via the Maryland Technology Development Corporation (TEDCO), which the Maryland General Assembly established in 1998 <http://www.choosemaryland.org/businessservices/productdevelopment/TecdoUTDF.html>.

The Maryland Government also proactively mentors high-tech companies, and sends representatives to regional conferences to attract investors and companies into the state.

Meeting with Howard Hughes Medical Institute (HHMI)

Maryland

11 July 2007

Present at the meeting:

Dr Jill Conley, Director, International Programs and Precollege Science Education Program

Ms Avice Meehan, Vice President, Communications and Public Affairs

Ms Karin MacDonald, MLA – ACT Legislative Assembly

<http://www.hhmi.org/>

We started by talking about how Maryland has been very lucky with the NIH (National Institutes of Health) (<http://www.nih.gov/>) in close proximity, this has had a lot to do with the success of the State of Maryland with regards to Health Sciences. There is also the benefit of having Johns Hopkins University and University of Maryland, College Park in close proximity.

HHMI has opened a new campus, Janelia Farm, at Virginia (7 miles west of Dulles Airport). Some in surrounding area were disappointed by the lack of spin-off so far. There is a need to have a high class research institute at the core. Dr Conley and Ms Meehan expressed the view that it will take a long period of time for the new campus to establish.

We discussed the AAAS – American Advancement Association for Science (<http://www.aaas.org/>) is an organisation in the USA which works towards the promotion and advancement of Science through Education. They have a Scientific/Government exchange through their Science and Technology Policy Fellowship program (<http://fellowships.aaas.org/>). This helps both scientists and legislators to understand the role of the other side.

HHMI is the third largest philanthropic trust in the world, (the second in the US).

There is a need to ask yourselves, *“What are other people not doing? What is our niche?”* when looking at your health science. This is what HHMI are doing.

When looking at the advancement of science, we also need to look at how do we recognise and reward innovation?

We see that not enough money leads to heavy competition in the scientific research arena.

There is a need to get the right valuation processes in place when it comes to research. We need to ask ourselves “*Where do we want to be in 5 years, 10 years, even 15 years?*”

HHMI is about placing a bet on highly creative scientists. Not about saying “*find a solution to problem x or problem y*”. In other words, research for the sake of the unknown potential.

HHMI has obligations to spend the money and spend within the limit of the law, but no other requirements are placed on them. We discussed in detail how the organisation came to be set up, first by Howard Hughes, and then followed and reformed by others.

We had an extensive conversation about national science education, both in the USA and Australia. The HHMI run year long courses in genomics. They look towards securing scientists at the beginning of their careers.

We talked about the need to take another look at science education within both Australia and the ACT. There was discussion about whether the level of science education within our primary schools and high schools was adequate, and if there was a need to better educate primary school teachers within the context of science education. There was also some discussion about specialist science teachers at the primary school level so that you are engaging with students when they are young, fresh, and have inquisitive and enquiring minds that would naturally lead them to an interest in science.

We discussed a program for primary school age students that was started in California with University of California, Berkley – The Medical Mystery Festival. It was then taken on to Uruguay, Argentina & Mexico.

It gets the students to be “Doctor for a Day” and to become medical mystery solving sleuths. More information about the program can be found in the article at <http://www.hhmi.org/bulletin/pdf/dec2003/DrD.pdf>

Ms Karin MacDonald MLA

31 July 2008

APPENDIX D: ACT Health and Medical Research Support Program Grants 2004-2007

2004

Professor Ian Hendry, John Curtin School of Medical Research, ANU	Protein 14-3-3 in the CSF of newborn rats following hypoxia-ischaemia A grant to undertake pilot research activities to assist in the development of a large research project proposal. Ultimately this research may lead to better treatments for babies who have suffered brain damage during childbirth.	\$16 592
Dr Jane Dixon, National Centre for Epidemiology and Population Health, ANU	Obesity Prevention and Monitoring in the ACT: a collaborative response A grant to assist in the development of a major research proposal for the establishment of a Territory-wide obesity-prevention demonstration project. Such a project would be a national first in obesity research.	\$42 492
Assoc Prof Christian Lueck, Dept of Neurology, The Canberra Hospital	Development of the ACT Hub of an Australian Neurovision Network A grant to assist in the development of a major research proposal to create a Neurovision Centre in the ACT as part of the Australian Neurovision Network.	\$45 520
Assoc Prof Anne-Louise	Australian Multi-Centre Study of	\$14 756

Ponsonby, National Centre for Epidemiology and Population Health, ANU	Environment and Immune Function: Research Collaboration Meeting A grant to host a two-day meeting for clinicians and researchers participating in the multi-centre trial to discuss project developments and advances in the field.	
Dr Buddhima Lokuge, ANU Medical School	Implications of Trade Agreements for the provision of medicines in Australia A Fellowship grant to examine the impact of commitments made under the US-Australia Free Trade Agreement in relation to the provision and regulation of medicines in Australia.	\$25 267
Dr Julie Christie, Research School of Biological Sciences, ANU	The Role of Oxygen and Fibronectin in Streptococcal Infective Endocarditis A Fellowship grant to develop a greater understanding of the mechanisms involved in streptococcal infections.	\$5 200
Ms Melissa Parker, Research Centre for Nursing Practice, The Canberra Hospital	Menstrual Disorders in Teenage Women A Fellowship grant to research menstrual disorders affecting the younger female population in the ACT.	\$29 500

2005

Professor David Elwood & Ms Joanna Holt Women's Hospitals Australasia Inc.	A Prospective Cohort Study of Morbidity Following Significant Postpartum Haemorrhage (PPH) This project aims to investigate the impact of PPH on short and medium term morbidity using standard instruments to assess various aspects of maternal health.	\$50 000
Professor Roger Dean & Dr Ruth Foxwell University of Canberra	DOPA as a Potential Therapeutic for Diseases of Oxidative Stress To test whether sacrificial and enzymatic antioxidants are under control of DOPA in human cells and to determine the range of proteins which are regulated by DOPA.	\$50 000
Dr Rosemary Martin School of Biochemistry and Molecular Biology (BaMBi) ANU	Diagnostic Proteomic Approach to Identification of Hypoxic-Ischaemic Neonatal Brain Injury in Rats This study will use a proteomic approach to examine changes in protein expression with time after an hypoxic insult in an animal model of neonatal asphyxia.	\$49 156
Dr Christine Kilham University of Canberra	A Collaborative Therapeutic Intervention for Children with Autism This fellowship will assist services to better and more consistently meet the	\$28 476

needs of young children with autism and their families.

Dr Pam Megaw University of Canberra	Molecular Changes in the Retina During the Development of Myopia	\$24 000
	The aim of this project is to characterise the molecular changes in the eye during the development of myopia as the basis for defining the mechanism of action of atropine, and for the development of alternative therapies.	

2007

Prof Ian Ramshaw Australian National University	The Development of a Cross-strain and Cross-subtype Pre Pandemic Influenza Vaccine	\$50 000
	This project aims to develop a cross-strain and cross-subtype vaccine based on cell-mediated immune responses to internal influenza antigens to provide coverage against H5N1, H1N1 and H3N2	
Dr Matthew Cook The Canberra Hospital and Australian National University	Regulation of cutaneous mast cell-mediated inflammation	\$50 000
	This project aims to examine how IgE, T cells and intrinsic signalling influences mast cell activation and their effect on atopic dermatitis using a unique mouse model.	

Dr Kevin Saliba Australian National University	Riboflavin utilisation by malaria parasites as an antimalarial drug target This projects aims to determine whether the mechanisms by which the malaria parasite acquires and utilises riboflavin (vitamin B2) can be targeted by riboflavin analogues to kill the malaria parasite, both in vitro and in vivo.	\$49 983
Ms Jennie Yaxley The Canberra Hospital and University of Canberra	Development of graduated home-based wobble-board strength and balance training programs This fellowship will enable the researcher to develop and trial a Sequential Wobbleboard Exercise Program, that progressively challenges balance through gradual increases in instability.	\$40 600
Dr Ljubov Simson University of Canberra	Adult Stem Cell Release by Novel Small Modified Sugars This project aims to develop, optimise and characterise a panel of novel small modified sugars that have been identified to initiate adult stem cell release.	\$30 000
Prof Klaus Matthaei Australian National University	New Mouse Model for Interferon Action in Human Viral Diseases This project aims to generate a new mouse model that will allow the analysis of the antiviral activity of p150, an interferon (IFN)-induced isoform of the adenosine deaminase ADAR1 and its contribution to IFN side effects	\$36 000