the ***Australian Society*** *for* ***Medical Research***

December 2000

Platform for Health and Medical Research in Australia

- **The Australian Society for Medical Research (ASMR) has developed a platform which we believe should have bipartisan support.**
- **The implementation of this platform is critical to the effective growth and development of the Australian economy to one which is knowledge based.**
- **Consistent with this development will be continued improvements in health and medical research outputs which will directly benefit the Australian community.**

ASMR has considered the recommendations of the Government commissioned reports -

"Health and Medical Research Strategic Review" by Mr Peter Wills

"The Chance to Change" by the Chief Scientist, Dr Robin Batterham

"Innovation – Unlocking the Future" by the Innovation Summit Implementation Group

Collectively ASMR offers strong endorsement to the broad thrust of the recommendations contained in each review.

Specifically, ASMR has identified three key areas for urgent action to ensure Australia's continued economic, health and social wellbeing.

Education

- Increased school and university funding is essential to establish a strong base and broad literacy in mathematics, physics and the sciences
- Doubling the number of postdoctoral fellowships is essential to nurture development of the innovators of the future

Research

- Australia's expenditure on biomedical research should exceed the OECD average
- Doubling of ARC funding over the next five years is required to support the national scientific research base
- Increased infrastructure support is required to meet the increased investment in science, health and medical research
- Philanthropy and philanthropic investment in health and research must be encouraged

Biotechnology

- Incentives for the growth and development of biotechnology industries are economic imperatives

ASMR, through its core membership of medical research scientists, affiliations with specialist societies, medical colleges and foundation groups represents 113,500 Australians

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Education

Increased school and university funding is essential to establish a strong base and broad literacy in mathematics and the sciences

The primary focus of innovation occurs in the tertiary sector. To underpin our science and technology base, support must be directed to increasing the level and capacity of scientific and technical literacy in our schools and universities. If science teachers are not formally trained in science, as is the case in some instances, it becomes hard to positively sustain and nurture students.

Programs that support and develop science and maths teachers in our schools should therefore be implemented with priority.

At Universities, where we train our scientists and teachers of the future, it is crucial to provide incentives to attract high quality students into these areas. The provision of several hundred HECS scholarships would serve to attract students into these disciplines and to ensure that the pool of graduates entering science and maths teaching and the support base for the underpinning sciences of physics, maths and chemistry is strong and vibrant.

Doubling the number of postdoctoral fellowships is essential to nurture development of the innovators of the future

To develop Australia's innovation capacity, we must attract and retain high quality science, engineering and technology researchers. At present, there are few incentives to retain higher degree trained science graduates within Australia. Overseas countries, the US in particular, offer greater incentives in terms of salary level, job security and a better funded research environment. There are many examples of Australian researchers who have chosen to continue their research careers overseas which have been documented by the ASMR over the recent past. Postdoctoral research is the generally accepted first step in establishing a research career. Despite an increasing number of Australian trained postgraduates, there has been a decreasing number of postdoctoral fellowship applications, eg 851 in 1997 to 701 in 2000. This is likely due to relatively low salary levels relative to years of tertiary study and/or poor career development or research support prospects. The low success rates of ARC administered Australian Postdoctoral Fellowship applications (14.6% in 2000,resulting in 55 new fellowships) is not encouraging to applicants and may prompt them to look at alternate careers or pursue overseas opportunities. In addition, an increasing number of overseas applicants are rejecting successful fellowship applications.

Such trends indicate that Australia is not internationally competitive in attracting and retaining its postdoctoral researchers.

We need to attract and retain high quality, well trained postdoctoral researchers as these will be the innovators of tomorrow.

ASMR supports the immediate doubling of the number of Australian Postdoctoral Fellowships and a critical review of the level of fellowship salaries.

Research

Australia's expenditure on biomedical research should exceed the OECD average

Successful nations, driven by innovation, underpinned by scientific, engineering and technology advances are making the vital transition from commodities based 'old' to knowledge based 'new' economies. Our key to innovation is creating a smooth transfer from knowledge generation in universities and public institutions to product and process generation in the private companies which create Australia's wealth. Government has a key role to play in aiding this linkage process through adequate funding and incentives to promote basic biomedical research. Australia's innovation performance against international standards lags in many areas and is exemplified by our poor investment in knowledge as a percentage of GDP which is below the OECD average of 8%.

Governments around the world are reacting to the pressures of globalisation and the transition to the knowledge based economy primarily through funding policies designed to improve their domestic innovative capacity.

Knowledge based economies are those that are excelling in innovation and reaping benefits from wealth creating technologies and biotechnology. Australia must become a knowledge-based

economy if it is to remain globally competitive in terms of wealth, jobs and prosperity. *Specifically we must invest in biomedical research in terms of infrastructure, attracting and retaining top scientists, and translation of research innovation through provision of pre-seed capital for government funded agencies.* ASMR notes with enthusiasm the reforms and government commitments which have already occurred in response to the Wills Review. However, global trends are rapidly outpacing Australian performance, and goals which once would have brought investment in Health and Medical Research to near OECD averages will now only maintain our position in the lower ranks of OECD countries. Failure to remain competitive with other OECD countries will result in further erosion of Australia's international economic performance. Investment in innovation in science, engineering and technology is urgently required to support the countries economic and social aspirations for the 21st Century.

Doubling of ARC funding over the next five years is required to support the national scientific research base

The central role of Universities in the generation of new knowledge underpinning national competitiveness is well recognised. The ARC is the major funding body supporting research across a wide range of disciplines with excellent opportunities for generating new intellectual property.

Like the NHMRC, the benefit of strengthening the ARC base has the potential to markedly enhancing our global position as a creator of new knowledge.

Investment in Australia's higher education research base is essential for our economic competitiveness, as over 90% of our intellectual capital is generated in Universities. Even in a nation such as the US, where industrial innovation is notable, at least 75% of intellectual capital is generated in the University sector. At present both grant values and success rates are substantially lower than equivalent support in the US and UK. Therefore, a doubling of the ARC budget is essential to merely bring us into the range of expenditure of our OECD competitors. Nurturing of the enabling sciences of physics, chemistry and mathematics, which underpin our medical research capabilities, is essential for continued improvement of the health and wellbeing of Australians.

Enhancing ARC funding will have the added benefit of leveraging the new gains made in NHMRC funding.

Discoveries in the basic and enabling sciences have generated economic and health related revolutions and include semiconductor research of the 1940's, laser research of the 1960's and bacterial genetic research of the 1970's which led to the development of electronics, information and communications industries, the use in consumer, medical and industrial equipment, and the development of modern biotechnology, respectively.

The common feature of these examples is that the lead time between the discovery and its eventual economic impact was 1-2 decades. This is why curiosity driven public funded research is critical for the economic survival of any modern society.

Failure to nourish research activity in our universities is a recipe for economic decline. *Even the perception that a country has a structural inability to capitalise on innovation, or relies far too heavily on traditional commodity based industrial activity can lead to severe global impacts on its economic status and outlook.*

Increased infrastructure support is required to meet the increased investment in science , health and medical research

Research in Australia is world class but has become increasingly limited by aged buildings, equipment and lack of funding to support the ongoing use and maintenance of our scientific research facilities. Australia lags behind initiatives of our OECD partners. For example, in the UK, the Wellcome Trust and the UK Government have provided a one-off program to provide an additional 1.25 billion pounds (~$A3,500 million) for infrastructure investment in the universities' science base. Of this, 750 million pounds (~$A2,000 million) has been allocated to the Joint Infrastructure Fund to target buildings, major equipment and infrastructure in the physical and biological sciences. To meet the needs of rapidly changing technologies, *infrastructure funds must extend beyond operating grants to provide buildings and provision of core services.* Without such internationally recognised enabling

support for our research base, the investments in competitive research funding are seriously undermined.

The level of infrastructure funding needs to increase with the current and proposed increases in competitive research funding. This will allow the advancement of Australia in the new knowledge-based global economy.

ASMR welcomes the recommendations made to increase infrastructure funding to Universities and Hospitals.

Philanthropy and philanthropic investment in health and research must be encouraged

The ASMR fully endorses proposals that encourage philanthropic support of research activity. In the US, philanthropy is widespread and an accepted part of the cultural, academic and educational landscape. While the range of philanthropic activity is enormous, the Howard Hughes Medical Institute is especially notable as it directly employs and funds much of the research activity of several hundred of the nations top biomedical researchers. Restructuring of the Wellcome Trust in the UK has led to that organisation now contributing more biomedical research funding per annum than the UK Medical Research Council. In Australia, there are very few biomedical research organisations or philanthropic foundations that have assets exceeding $A50 million. Annual giving is thus highly restricted and even our largest medical charities frequently only make annual grants of $A10-20,000. We must promote philanthropy for science and research, recognise significant donations and develop awareness about the availability of incentives for philanthropy.

Key tax deductions and exemptions for R&D donations need to be introduced to match those available for the arts.

This should include carry forward provisions for tax deductions and Capital Gains Tax exemptions. Activities such as the Prime Minister's "Community Business Partnership" and "Research Australia" a new community-based initiative to increase the national priority for health and medical research are to be commended and should actively promote science and research philanthropy

Biotechnology

Incentives for the growth and development of biotechnology industries are economic imperatives

Inadequate incentives for the biotechnology industry to invest in medical R&D have weakened the ability of Australian researchers to find partners to join in the commercial development of research discoveries. Furthermore, commercial investment in R&D in Australia is now amongst the lowest in OECD countries due to a reduction in tax concessions for commercial interests. Long term strategies must be developed to increase investment in medical R&D by biotechnology industries in order to retain our international competitiveness in health and medical research.

ASMR endorses the Innovation Summit Implementation Group recommendations to restructure the Commonwealth Government's R&D Tax Concession to encourage more R&D by industry.

ASMR recognises that other incentives may also be harnessed to encourage the development of biotechnology based industries. While improved support mechanisms for early stage ventures is crucial, equally important are reward mechanisms for commercial success to further enhance the development of medium to large enterprises.

A clear commitment by the Commonwealth government to increase commercial investment in R&D will encourage biotechnology industry and venture capitalists to bring Australian research discoveries to commercial realisation.