Transcript

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Item: **"CELEBRATING HEALTH & MEDICAL RESEARCH IN AUSTRALIA: A RENAISSANCE FOR DISCOVERY AND OPPORTUNITY"**

SPEAKER: PROFESSOR WILLIAM R. BRINKLEY, PH.D, SENIOR VICE PRESIDENT, GRADUATE SCIENCES & DEAN OF BIOMEDICAL SCIENCES

CHAIR: Ladies and Gentlemen welcome to the National Press Club and today's National Australia Bank Address. It's a great pleasure to welcome today Professor William Brinkley who is this year's Medallist of the Australian Society for Medical Research, many of whose members are here today and we are very pleased that the actual presentation of the Medal to Professor Brinkley will take place today.

Bill Brinkley has an extraordinarily distinguished record in medical research in the United States. He's Distinguished Service Professor (I'll do this in one breath) in the Department of Molecular and Cellular Biology and Dean of the Graduate School of Biomedical Sciences at Baylor College of Medicine in Texas.

But he's also been very prominent in a very substantial increase in medical research funding in the United States and he's a great advocate of scientists convincing the community and their political representatives of the need to keep up the support for medical science and research.

I'd like to ask the Chief Executive Officer of the Australian National Health and Medical Research Council, Professor Warwick Anderson to present the Medal.

PROFESSOR ANDERSON: Thank you Ken, and it's a great privilege to be able to do so. As you've said Bill Brinkley is a very distinguished scientist, has worked in the area of medical research that's probably been the most challenging and exciting actually over the last twenty years or so and he's been a major contributor to our new knowledge in that area.

Like the ASMR who will present this Medal to him, he also understands that engagement in the community and advocacy for research is an important responsibility that scientists have and of course as you've heard he's had a very large impact in that area.

The Australian Society for Medical Research is a wonderful society. It's led by the younger members of the medical research community. It's a very active society and like Bill, understands that we have a responsibility as scientists to engage with the

community, not just for increased funding, but for all the other issues that arise out of health and medical research. So it's a wonderful match between ASMR and Bill. And I feel very privileged Bill to be able to present this ASMR Medal for 2006 to you.

[Applause]

CHAIR: Ladies and gentlemen, with today's Address, please welcome Professor Bill Brinkley.

[Applause]

DR BRINKLEY: Thank you Professor, Professor Anderson.

It's a great honour to be here. It's a great honour to be selected to be the national speaker for the Australian Society for Medical Research. I can't begin to tell you how important the work is that this group is doing and I'm so honoured that they have chosen me to come here and receive this Medal and also to share with you some of my own experiences which I think are very similar in terms of our goals and ambitions for medical research and it's really about the patient. We want to be able to improve the quality of life of the citizens of Australia, the citizens of America, by supporting biomedical research because that's where it all begins and I'd like to share with you some of the experiences that we've had in this effort and I'd like to also celebrate with you this wonderful increase in funding that

you've recently gotten from your Federal Government and you're getting hopefully from your States to support medical research. And in the spirit of the ASMR, and Medical Research Week, I want to acknowledge the past recipients of this award, very distinguished individuals and I'm so honoured to be following in their footsteps.

It's a great honour to be associated with other citizen scientists such as Peter Doherty, the first recipient of the Nobel Laureate here in Australia and Peter Dwyer who was a recipient. Professor Leon Rosenberg from Yale University who came here and received it from the United States. Professor Ralph Bradshaw who came here to receive this. And more recently Professor Mary Hendrix and Alan Bernstein.

So, it's a wonderful thing that you're doing. It's a great honour to all of us to be able to come here and to participate in this advocacy and also to receive this, this Medal.

I'm reminded of Isaac Newton who stated, if I have seen further than others it is by standing upon the shoulders of giants. As a scientist and a medical researcher for the past forty years and in more recently my association with the advocacy for health and medical research, I have indeed stood on the shoulders of giants. And they are my mentors, my students, my associates and my many new friends that I've met here since I've been here. And

I - I think we've had remarkable progress at this time and a great future ahead and in my presentation I'd like to briefly address two major issues.

One is my view of the present and the future of health and medical research in Australia. And I give you this from my perspective as a visitor and I do it with all humbleness 'cause I know that you have worked hard and I have had only a brief glimpse of what you're doing, but I'm so impressed.

Secondly, I'd like to address the question, can countries like America and Australia develop an effective science policy, quote, that would stabilise research funding needed to attract and retain our best and brightest young minds in science?

But first I want to thank the ASMR for selecting me as their National Lecturer and Medallist for 2006 and to congratulate them on their successful advocacy for increased funds for health and medical research in Australia. This is truly a victory for ASMR and the people of Australia and all the other organisations that have helped.

Secondly I wish to share my excitement for the future of medicine and to reflect on remarkable opportunities that are now possible in the medical research field and encourage our respective governments, both Australia's and the US, to establish more meaningful health policy that will address the needs of future, basic and

translational research and to stabilise the funding for the future endeavours that we must have to be a healthy nation.

The power, co-operation and healthy competition continues to be the driving force of modern innovation in many fields, of course in medicine. In this regard I wish to recognise and applaud your Government, especially Prime Minister John Howard and Health Minister Tony Abbott, for their important leadership in world health and medical research. Also I wish to congratulate the ASMR of course under the leadership of its President Professor Levon Knachigian for his leadership. It's been remarkable. He and I have been in contact by email for almost a year now and he has prepared me hopefully well for this presentation and for this opportunity to lecture in every one of your capital cities and share the excitement that we all have for medical research, so I thank you very much for that, Levon.

As I reviewed recent advances in Australia, before coming, it was obvious that your country ranks public health and medical care among its highest priorities.

ASMR, Research Australia, and AAMIR, which I'm told is abbreviated [indistinct] or whatever. Anyway, it's a wonderful organisation that has continued to play a critical role by garnering support for public and clinical research - basic and

clinical research needed to fuel Australia's rise to prominence in world leadership in biomedical research.

Recently the Australian Government sent a clear message in this effect by naming Professor Ian Frazer as the 2006 Australian of the Year for his pioneering work in the development of cervical cancer vaccines. Now that was a remarkable discovery and it was a remarkable thing for your Government to do to recognise a scientist as one of the outstanding Australians. What a wonderful thing.

This demonstrates your - that your political leaders regard HMR - Health and Medical Research - as a community asset for all to celebrate.

And of course another sweeping accomplishment was the remarkable discovery made by two world renowned Australian scientists that intestinal Helicobacter Bacterium Pylori causes more than 90% of the intestinal ulcers and up to 80% of the gastric ulcers in humans. This was a remarkable achievement too because for many - it was a unique moment - because for many years we thought ulcers were produced by stress, physiological problems, it was - had no idea that it was an infectious disease. We thought it was caused by problems in society, graduate students thought it was a problem caused by graduate school, but we have all been through our stresses but now we know as science progresses

how these diseases really develop. And that's so important and we're so grateful. They're great heroes in our nation.

Australia has produced six Nobel Prizewinners. A clear metric of world class strength and leadership in science. I believe that Australia and America hold very similar views on the importance of medical research.

A few years ago in 2006 - in 2003 I'm sorry - my government also appropriated significant increases in the funding for medical research through the NIH. As past President of the Federation of American Societies for Experimental Biology or FASM at that time, I had the privilege and unique opportunity to be on the ground floor in this effort to convince American people that we needed to have this kind of increase in funding.

Our society, which represents twenty-two research societies and eighty-four thousand members has had an impact in Washington and we were able to get our Congress and our Members of the House of Representatives and our Senate to be interested in this problem and to develop champions in Washington. And that's so important for this effort that we're doing.

We have a scientist to become proficient and strategically capable of taking our message to the state houses and to government and telling them

how science works and how we as researchers depend so much on the funding that's needed to support this science.

For many years in the US the growth of funding for research was slow and erratic. Our National Institutes of Health or NIH did not even come into existence until after World War II.

In the early 1990s a wide range of advocates led by Passab and Coales ran the goal of doubling the NIH budget. Research America another very good organisation that supports advocacy did a survey of the American public and this is a very careful survey to show that the majority of our public supported this increase and that was very important for the legislators for us to know that the public was behind this and this to be done. You have to bring everyone into this and Research America was able to show that the public wanted to support it. And we all agreed that the rising tide of funding would raise all votes of health and medicine. And this was an important message because up until then each individual disease group would go to Washington and strongly advocate for their disease, Cancer, Diabetes, heart disease and our politicians were confused because they would get the word, we have to put more into Cancer research, we have to put more money into research on the heart, and Diabetes is almost a growing problem and we've got to do something. So that the legislators that we met, said the politicians, help us out here. Do we give to he NIC or do we give to each individual institute

and these disease groups? And so the notion of doubling the NIH budget and raising the tide was very appealing to them because they could see that basic research is what we're talking about and that's what's needed.

So, the doubling went very well and the funding for the NIH was doubled over a period of five years. We had to get 15% increase every year for five years.

And that was difficult at first to get that point across because our politicians and our legislators have many priorities and they have to support them and so it's hard to get them to support medical research over something else. You have to build a very good case for it.

And so we went from 14 Billion to 27.2 Billion dollars in five years, the largest increase in the history of NIH.

Achieving the goal also required a united chorus of influential supporters including patients, scientists, industry leaders and most importantly, strategically placed elected individuals with a power of being a champion to cause and to support this research. And by the way, you have your own champions here in Australia, in individuals such as The Honourable Peter Beattie whom I had the joy of having dinner with the other night in Queensland who gave an enormously impressive speech that

indicated his support for medical research. We need more like him.

The co-operations of such individuals is not easily obtained. They're very busy. They have other priorities. But you have to work at it. Once they come together though, at least in the United States, the commitment to double the NIH budget seemed to be a fait accompli. In fact we knew we had one when our Congress thought it was their idea.

[Laugher]

And that's what you need to work for. And we were delighted to say yes it's your idea Congressman. Thank you so much.

After five years of beating the drum, not only was the NIH double, but private investment in research doubled as well. According to Research America, most recent estimate included private and public funding in the United States. It's now over 100 Billion dollars.

I should mention nonetheless that this is a really remarkable number but it's still paltry when one considers the cost of healthcare. When we do the math, when you do the calculations, we'd only increased and invested six cents for each healthcare dollar that we spend. That's a very small amount in the research needed to ameliorate the current burden of disease and disability.

And by the way I understand in Australia it's only two cents out of the health dollar.

So, we should not feel guilty about requesting more funds now and in the future for the health of our nation when we consider the enormous burden of healthcare on our citizens that is ever growing.

Many saw the competition of our successful doubling campaign as the end of the story. Present Bush and Congress turned their attention to other priorities and I won't go there.

[Laughter]

Research funding in the US has since stagnated. In truth the real battle to make health research a top priority in our country has just begun. We've got to continue. And that's my message to you here today.

It's a cautionary tale. Making the case for greater investment in health and medical research is a never ending endeavour. As we live longer, we must live healthier or suffer the consequences of skyrocketing healthcare costs. That has to be our driving force. We've got to reduce that.

Australians are facing the same challenge. Your National Health and Medical Research Council budget for research has doubled under the present Howard Government. In a phase in programme over five years starting in 1999, an investment of more

than 400 Million dollars, an amazing feat that was catalysed in 1999 by the Wills Report. I recognise Professor Wills for his remarkable report that got this started in many ways. And the follow up assessment of Australia's Government Investment - the Grant Investment Review. John Grant Review bears out what we're also experiencing in the US. Investment in the private sector follows investment in the public sector. 350 new bionic medically related businesses were established in Australia between 1992 and 2003. And industry investment has more than doubled to reach a Billion dollars here. Success breeds success.

And on May the 9th your Government allocated an additional 905 Million as an investment in the future of health and medical research. This will virtually double again the NHMRC's funding base from its current level of 400 Million per year and again my sincere congratulations to ASMR and all who worked to make this possible.

Another amazing statistic. The NHMRC funding provided leverage to obtain 30 Million dollars in overseas competitive grants. This represents 112% increase in your ability to get funding from groups like our NIH. Your scientists competing in this very competitive game of trying to get money and you've succeeded in getting it from our own NIH and that's just wonderful because we feel that you are our colleagues and we're delighted that you can have this opportunity. This represents, as I said, 112% increase and more over Australia was third

only to Canada and the United Kingdom as the highest funded country for winning overseas NIH grants.

I also understand that funds from the Bill and Melinda Gates Foundation might be on their way here. The national co-operation between public and private investors stimulates Australia's international competitiveness as the math clearly shows and this makes you a significant player in world competition for the production of tomorrow's medicines and technologies. You're in a great position here. I think Australia's uniquely positioned to be the next leader in this area. So keep going.

But importantly the investment of HMR makes must be maintained in light of your present good news about increased Government funding of HMR and this may be my most important message to you today.

Ironically, as we have learned in America, success and fund raising, Federal funding makes one's mission vulnerable. Just like those of us fighting for sustainable resources in the US, ASMR Resource Australia must re-tool and dig your heels in for the next big push to keep Australia at the leading edge. To capitalise on the great discoveries in science that you're making. To maintain world leadership in health and medical research.

Incidentally the seeds of your investment in human - medical research have already begun to bear significant economic fruit.

The ASMR commissioned Access Economics reports reveal that for each Australian dollar invested in medical research, there's a gain of five to eight dollars to the economy. That's a pretty good investment. This ratio will only improve if future investments from both Government and private industry are maintained, but you should be able to make the case, right, that this is a great investment. Economically, not just for the health of the nation.

Australians should be proud of the growing prominence and impact of biotechnology industry and the wonderful developments that have occurred here.

To bring me to my second and last point, very briefly, given the importance of medical research, the health and protection of our citizens and the remarkable achievements that have been proved in improved health, longevity - we're living eight years longer, that creates new problems, but it's a wonderful problem, I think if we voted on it we'd agree that's good. But it does bring new problems for the geriatric population and how to do geriatric medicine. But it's a good problem.

So, my question is why do we have to go from rags to riches every year or so to convince the

Government that we need more money and our scientists are having a difficult time getting grants and everyone thought in Congress that we were doing so well. Why can't we develop some kind of policy that would stabilise this? There are other questions. Why does the government funding for physical sciences such as math, physics, engineering often lag so far behind the funding of our medical sciences? Now we're delighted to get the funding but we know our colleagues in the physical sciences suffer and their contributions are so critical to biomedical science that we have to work together. Medical science will not succeed and flourish without them. A good example is the field of imaging today. Where would we be without NMR and Cat Scans for diagnosis. And there are many other examples that we could cite.

I bring this to your attention because I believe that nations that maintain world leadership in science and technology must find a way to stabilise the funding of both of our sciences. The basic physical sciences as well as the biomedical sciences.

I encourage our policy makers to seek and establish a more stable science policy that will secure our countries' leaderships in future for the best and brightest of today, and those of tomorrow.

I'd like to mention a few benchmarks if I may for just a second. The benchmarks are how you do this. It's not easy to establish a science policy. We've

never done it in the United States yet. And we need to. But an excellent report has been published by Cornetal in Science in 2002. It lists the following as benchmarks and objectives. Balancing the current funding commitment - once you get scientists funded how can you maintain that funding while retaining opportunities for young investigators that are coming into the field? We need to know how to estimate the size of our training pool that we need in science and the future manpower needs in science. We have no formula for that. What should be the success rate of funding? Right now in the United States 30 to 40% of approved grants are funded if the money is there but with the drop off that we've had in our funding we're now only funding about one out of five approved grants and that's falling. There needs to be a policy. What is needed for maintaining science infrastructure? We've got to build buildings and we've got to build infrastructure. I just saw your beautiful building here and I'm so envious and the basic sciences here, that you have this building coming for basic research. And it's the kind of thing need. We need funding for that, we need funding for equipment to go in that building. What should be the commitment in the Awards institution. In other words what should the Institute itself pay? Should it share the cost? So what allowances should be made for the needs and for contemporary science. Emerging new areas such as nanoscience, nanobiology, great new discoveries for the future. But they haven't really hit the field yet because they're so new. And what about new

infectious diseases and epidemics and pandemics caused by such things as Avian Flu? What about threats from bioterrorism?

We need to have a science policy that can deal with these critical needs and maintain our leadership.

Built into any policy should be a mandate for excellence in basic and clinical research while expending the translation of discoveries to the patient's bedside. [Indistinct] a new discipline called translational science. We need that badly. It takes ten years for a discovery on the average to get to the patient's bedside and millions of dollars from pharmaceuticals. We can speed that up. We should train people who understand biology and medicine in the same laboratory. So if they have a PhD on the one hand, but they also have the equivalent of an MD on the other.

Well, I believe the vision of PRs from health and medical research are the same for our two countries. We're at a critical juncture.

In his remarkable book *The World is Flat* Thomas Friedman warns us that with modern electronic communications and little more than the click of a mouse at your computer, the playing field of science in the world has been levelled. We have become the benefactors as well as the victims of globalisation. Always in danger of losing our competitive edge and becoming a third world player

with the click of a mouse, through outsourcing for example. US National Academy of Medicine - the US National Academy of Science I'm sorry - considers this a major problem and in their report 2006 called 'Rising Above the Gathering Storm' this problem is delineated and it comes down to two solutions. Train and retain the very best. Your current future leaders and science and medical research beginning with science in the public schools - math, physics, biology and the K212. That's our big problem in America. We lose them in the third grade. They become Lawyers.

[Laughter]

But they lose interest in science. We have to find a way around it. With co-operation and a little healthy competition, and with a larger and more stable investment in health and medical research, both of our countries can retain leadership and bring in better health and prosperity not only to our citizens but the people of the world because it is a world community of health we're talking about. Our two nations have long been allies in times of war and peace and now we're allies on the great war on disease. May we always remain friends and allies. Together I think we can rise above the gathering storm.

Thank you for this high honour. I will carry this honour with me back to the United States with great memories of your beautiful, beautiful country.

Thank you.

[Applause]

CHAIR: Thank you Professor Brinkley and for those of you who are not aware of the beautiful new building he was talking about, it was the new John Curtin School of Medical Research at the Australian National University.

We do have our usual period of questions now and the first one today is from Simon Gross.

QUESTION: Simon Gross from *Science Media* and *The Canberra Times*. You - you sketch the success that the medical research communities had in your country and Australia in terms of increasing the amount of money to put to research recently. But on another front, the issue of funding and regulation of embryonic stem cell research. I think you'd be fair to say that you guys have had a loss in your country and where you've kind of achieved a kind of unsatisfactory truce. I wonder if - if you could throw us any insights into the nature of that battle over in the US and whether you see any hope beyond just the - just a change of Party at the top? And whether you have any comments on the criticisms of the Bush regime generally that it meddles with - with the direction and the funding of medical research?

DR BRINKLEY: Thank you. That's a dissertation question.

[Laughter]

But I will right this dissertation very quickly because I appreciate the question. Yes, you're correct. The future I think one of the most exciting technologies, discoveries for the future are all of the biology and medicine, stem cell research. We have an opportunity here to understand the very basics of life and the basic molecular mechanism development. It's for that reason it's one of the most exciting things that have occurred in decades. And I think Australia has a much more wholesome view of it at the moment than I think the leadership. In the United States we have - we're basically, Jim Thomson and others, discovered embryonic stem cell research. It's such an irony that our government has on the one hand approved stem cell research with existing cell lines and put a limitation and a law against our making new embryonic cell lines in our universities that are funded by the Federal Government. That is, is the most egregious thing because as you all know here as well as in the United States, the well spring of ideas, discoveries come from our universities, and our medical centres, where scientists and individual investigators have the opportunity to do research that inspires them, that excites them. But now we're told we can't use Federal money which is the main operational money for most of our schools to do any embryonic stem cell research and create new cell lines. We can work with the old cells. So basically, it's a problem that is a great irony because our private industry has no such limitations. Our

private industry can do all they want. They can make the new cell lines, make all the profit, they can lock it up in terms of patents and they are but our universities are locked out. And this is caused to some extent entirely politically I think by the supporters of an Administration that sort of came in from the fringe, to use a term my good friend Bill Morter uses, to govern and they're bound by very old and primitive ideas I think for modern biology as to what life is and we can't do this research until - you're right - until we have a new government. But let me say at the same time, Research America has done a poll in America, a very good poll, and most of the States, 70% approve embryonic cell research and over 60% approve therapeutic embryonic stem cell research and yet we're still locked out. So there's hope that our country will insist on this wonderful technology but it is a serious problem right now. You mentioned a little bit of the problems we have - I think the biggest problem we have, one as far as science goes, is the incredible politicisation of science in our country. Not only stem cell research but Intelligent Design. Our own President says we should teach both in the classrooms. We won't stand for that. Scientists will not stand for that. We're not going to teach fables. We're going to teach science as it exists at the cutting edge. We don't feel uncomfortable with that although we try to say that it is kind of a creationism in new clothes and many of us say well those guys are just atheists and blah blah blah. Well I'm a Christian, I've been a Christian for many years, I'm very proud of it and I'm delighted to go to

any Church and tell them that Jesus was a healer and that we can heal as well and if we can create the knowledge that we're given by new discoveries and I believe that is just and we must do it. But I don't know that I've gotten that point across to my conservative colleagues but we're trying. I hope that will answer your question.

CHAIR: Thank you. Next question's from Mark Metherall.

QUESTION: Mark Metherall from the *Sydney Morning Herald* Professor. The - we seem to be seeing an incredible outpouring of medical research results that point to all sorts of new technologies, new cures, all - most of the them - all at very significant cost. Is there a risk do you think that, that the very speed of scientific discovery these days is in a sense widening the gap between the haves and the have nots? The haves can afford the best and latest medicine made possible by research while those who don't or can't afford are left back on the - is there any sign do you think of a widening gulf, particularly in your own country?

DR BRINKLEY: It's an important question. One - also very difficult to answer. But I think if we look at history and we look at where science has come since we're over to and where medicine has evolved, everyone is benefiting from these new increases of the past. It takes a little time and it's not fair and our poor people have difficulty having access to the cutting edge research and technology that's going on in our

big centres in the major nations. They can't get there. They can't get access to it. And you're right. It's a problem. But the way we solve that problem is not only to train new researchers but to train physicians and to go out in the community that are full of the knowledge that we are developing and the technology and to bring that technology to the small communities in the country and to make it possible. And yes it's going to cost money but look at the burden of health care to the poor people. They suffer more from it than anyone else. And so anything we can do to raise that ratio of more dollars spent for medical research in reference to health care dollars, it will eventually help, hopefully soon, the underprivileged and it's always on our mind. But it's a difficult question to answer because it is a real question that concerns many of us.

CHAIR: Peter Phillips.

QUESTION: Peter Phillips, Professor Brinkley, I'm one of the Directors of the National Press Club. Another esteemed Texan, former Ambassador Schaeffer, said to us here not very long ago that one of the things which he had to learn as an Ambassador was that whenever he got to go to where the real power centre was, which was in Washington, he'd only get fifteen seconds with people that mattered and I guess we knew who he meant when he was talking about people who mattered, but on that basis, the sort of thing if Tom Schaeffer could get fifteen seconds, one infers that US medical research and scientific research is getting a pretty fair chunk of

the fifteen seconds as well because your results would appear to be in terms of government support and government involvement in research, would seem to be pretty good. I don't seek to involve you, as a visitor to our country, in domestic/political issues but your presence nevertheless does beg a comment. Molecular - biological research and science can achieve a lot without involving governments of course but long experience suggests that it can achieve an awful lot more with governments. What does your experience of successful interaction with governments in the US at both the State and the Federal levels, suggest that your Australian counterparts might do here to secure and sustain even more favourable and indulgent attitudes of governments towards the provision of funding support for medical and scientific research?

DR BRINKLEY: Wonderful question. Thank you very much. It's been occupying my mind for about ten years. We were getting a lesson - how long did you say - six seconds sometimes to talk to the right people. But we changed all that because we developed networks of scientists throughout the country and what we call the legislative alert network in which we were able to teach our young people and our scientists how to interact and not how but to strategically who to talk to. Many of our scientists thought if you went to Congress and you talked to your representative or your Congressman you did your part for science. That won't work. You've got to go and target your advocacy to people on

appropriations and budget committees and you have to develop a good story and yes you only have a short time, but they don't want to hear about the three prime end of [indistinct] C21. Their eyes roll. And that's what we had to teach our, our scientists to be spokesmen to get their message across. Simple and straight forward. And that was one way and secondly we started building champions on the Hill we say, in Washington, who had a great interest in biology and medicine and we would work through them to have access to the key people and when we worked through our champions, people like John Porter, who was Chairman of Labor Health and Human Services during the doubling at NIH, he's now retired, but Congressman Porter would help us and he knew everyone. He'd walk down the hall and he could recognise them all and say this is Bill Brinkley from Baylor College of Medicine, why don't you take a few minutes and chat with him? And that worked. And so you develop inside help. But if you just go up there with what they teach you in the textbooks and [indistinct] about seeing your representative and talking about health, it won't work. You've got to develop these networks. You've got to teach them to be strategically capable of communicating with the members of Congress and you've got to teach them how to get to the right people. And you need to do the same thing here.

CHAIR: Next question's from Glen Milne.

QUESTION: Glen Milne from *News Limited, Sunday Publications* and *The Australian* which to translate for you is Fox News without pictures. I speak to you today as…

DR BRINKLEY: I love Fox.

QUESTION CONT'D: I speak to you today as a father of a daughter who hated chemistry in Grade III and is now studying Law. But at our table here today is an esteemed guest, Jim Peacock who's the Chief Scientist of Australia. And he's just been appointed to oversight in the role of peer review an inquiry into nuclear power in Australia. I just - he's already been attacked, you know, from several quarters for having certain views on nuclear power already. I'd like to reflect on the role between the job that Jim does, which he's described as onerous today and the tension between government appointees and the oversight of science and how you resolve that kind of tension, particularly in the context of my colleagues' reflections on embryonic stem cell research in the US?

DR BRINKLEY: Well thank you very much. I'm glad you mentioned Professor Peacock. He's one of my personal friends from way way back. We're soul brothers in research. I learned all about resolvable eggs in his lab many years ago and how to manufacture them and I see - I'm so proud he's, he's now a leader here in the science community. But your question is one that is again, requires education on the part of the

scientist on the issues that are facing us, whether they be nuclear energy or whether they be global warming or whether they be stem cells. We have to talk to ourselves and say what is the important message we want to get across. And then we have to strategically target our supporters in Congress and solicit their help. And then we have to go on the street and we have to talk to the public. That's the key issue that we often forget in science advocacy is talk to the people on the street. Every chance you get to talk to a rotary club or a church group about stem cells, sometimes it's just to walk into a fundamentalist group and talk about stem cells, and say no it didn't happen that way in Genesis but I - let me tell you it was even more miraculously - it was even more of a greater plan that you can imagine, and let me tell you about that plan. Well anyway, that is, ideally what we should do but it is a difficult problem, I don't have a simple answer to it. My sympathy goes out to Jim, but knowing Jim, he'll handle it.

[Laughter]

CHAIR: Next question's from Levon Knachigian.

QUESTION: Levon Knachigian, Australian Society for Medical Research. Bill, health and medical research is truly an investment in our future. We've demonstrated health, wealth and knowledge gains excellence and cutting edge research is built on a continuum of support and the government has recognised the

value of investing in health and medical research. I'm - but just expanding I guess this, this issue of a continuum, I'm reminded of what Aristotle said which is that excellence is not a act, it's actually a habit. So, so ongoing recognition and support by both government and as you say public, is, is critical for the future of this and other nations. So, could you perhaps tell us what's been the US experience in sourcing research dollars from non-government funds like for example or sources, like for example superannuation funds or health funds?

DR BRINKLEY: From non government - and you like private? Well it's been very good. We happen to have some organisations like the Howard Hughes Foundation that has contributed enormously to the quality of science in our country. Millions and millions of dollars to support the research of our investigators and an investigator that gets and competes successfully for Howard Hughes is not easy to get to do. Once you get that funding it's good for several years and it's - it relieves you from the burden of having to find your money sometimes with government which is difficult. So that's one good example. Another, I think, is private endowment. We have wonderful people in the community. In our community we're very fortunate to have some very wealthy people in Houston for example and I'd just use one example. A man there recently gave us a hundred Million dollars to start a Cancer centre at our university. That was a nice cheque and the thing about it, the way we got that private investment, was to become friends with this

gentleman and begin to explain to him how his family, all of whom had had a serious episode of Cancer, particularly gynecological Cancer. He'd lost a wife, he'd lost a daughter. He was a self-made Billionaire and it was easy to talk with him once we got to know him about what we could do with a Cancer centre and with the new data coming in and all the work that's going on with genome and molecular biology. He was not a science educated individual but he knew a lot about oil. Anyway he came about and was very generous and he did this on his own. We didn't really ask him for a penny. He realised that we needed a Cancer centre and he gave it. So, there are examples out there, both in all avenues and arenas of the private area that'll help you and pharmaceutical industries in my opinion, and I'll probably get shot down for this, but I don't think they've helped enough, in America. They're doing better but the - we're training the next generation of workers in industry, in our bio-medical schools and our PhD programmes, and medical programmes. We're training their next talent. They haven't returned training grants and funding as much as I think they should. That's still having to come largely from government sources. So, on the one hand we have been lucky to get some private funding from wealthy entrepreneurs and wealthy individuals but we've not been able to get nearly enough to alleviate the need for training dollars. That's been our biggest problem. Training dollars. So, good and bad in some respects. I don't think the big farmer has done enough and they're capable of doing a lot more.

CHAIR: Next question's from Judith Whitworth.

QUESTION: Thanks. Judith Whitworth from the *Australian National University*. You talked, Bill, about the global community of health, but I think we all realise that billions of people worldwide are suffering from diseases for which little or no research has been done. Could you comment on who should be advocating for them and what the role should be of our governments in this?

DR BRINKLEY: Well thank you for that question because that's so true and these orphan diseases, or diseases that are very serious in third world countries that we don't know much about don't get nearly enough attention from these sources. I don't know exactly how to answer that except to say that the Gates Foundation for example, for some reason, has been very generous in helping some of these. We're going to have to tap into private efforts I think at the moment to get more funding worldwide and I think some of the work that been done by celebrities in Hollywood and other places have been good. It's been good. And - but you're right we haven't done nearly enough and we've got - I don't think we sometimes realise what a horrible situation exists in nations that are third world countries that have serious medical problems with just medicine in general, but especially Aids and HIV but things like that are just - poorly - poorly underfunded and I don't know the solution to it except to say that we need to develop strategy and we need to get more private foundations involved and we need to think

about it more like you have. Not a very good answer but I don't know the answer.

CHAIR: The next question's from Maria Kavallaris

QUESTION: Bill, Maria Kavallaris from the *Australian Society for Medical Research*. With an ageing population that we have here in Australia and obviously many developed countries have, there's going to be competing interest for money for health care as opposed to putting money in research. Do you have any advice about how to approach the policy makers about you know investing in medical research so we reduce the burden of disease in the future, because as you know medical research takes a long time between doing the basic research, translational research to outcomes and with increasing health costs how we can compete in that arena and do you have some advice?

DR BRINKLEY: Well I really wish I did have some advice. I am getting older and I think about it a little bit more than I used to. But it is becoming a great problem with the great advances we made with longevity and I think the way to deal with it is to look at our curriculum and medical schools and develop more gerontology education with people that really understand the problems. Medical students I talk to don't really want to go there much and we need to develop innovative programmes in our educational programmes to deal with bringing in the knowledge to the aged population. We need to develop better

health care policies that will enable people to not just live at the fringes with government support like we have in our government but to have opportunities to qualify for more funding and to be the benefactors of research on ageing which we need to enhance as well. We need to learn more about ageing than we know right now both sociologically as well biologically and how to deal with the fact that we're going to have people living to a hundred very soon, routinely I think, and my father died at sixty-three with a coronary and I had a similar episode at sixty-four and very quickly taken in and given a double bypass and [indistinct] and given statins because they had said my cholesterol was too high and look at me - I'm just a specimen of health here. And I wish we could do that for more - I think it's going to be more of our older generation will benefit from these kinds of discoveries and our parents didn't live long but we're going to be living longer, we're going to be - our children need to know that we have - have to have access to these great medical treatments and cures and we will. I think it's going to be better but it is still a big problem. Thank you.

CHAIR: Jim Peacock.

QUESTION: Bill, I'd like to return - Jim Peacock - to the point you brought up about medical - support for medical research verses physical and natural sciences and I'm reminded of the time in President Ford's day where he declared that he needed to solve Cancer and Cancer research was much favoured, but in fact

a lot of the major breakthroughs came from the fundamental work on genetic and molecular cellular processes and I'm wondering whether the very success of support for medical research has been carried along with it a narrowing of the definition of what's medical research and whether you've got any feel about that? An observation, I don't know whether it's correct is that NIH I think used to be a little more broad minded about what it supported and although I'm sitting next to Warwick Anderson here, I think our NHMRC is fairly narrow in what it recognises as research fields to support. Can you comment on that?

DR BRINKLEY: Yes Professor Peacock. Thank you for that question because it's a question I feel very emotional about. The example I gave of neglect of the physical sciences is due largely - I think - has its base in education. I think that our policy makers don't realise the importance of discoveries in the physical sciences for health. I think they know how to get to Mars and the Moon and they're excited about things like that but they don't focus on the needs that we have and I do agree that medical research is very narrowly defined and two Nobel Laureates that discovered the buckyballs and the nanotube had no idea that these little tiny molecular fibres would do anything but strengthen maybe some of our space craft when they were developing from funds from NASA. But now we know that that's the future of medicine, using these little nanotubes and nano particles to get drugs inside cells with molecular motors that we've all been

helping purify and develop is a good example of how basic discovery is so critical to the future of medicine. But that message has never gotten beyond the more advanced scientific audience I think. We've not been able to make a good story out of that. I think the press hasn't helped us a lot either because they focus on - as they are probably required - to medical discoveries that are you know saving patients with Diabetes and so forth which is important. But if we could get more good op-eds on the importance of fundamental basic research and training in math, chemistry and physics of our education systems in public schools, it would be very helpful in what you've identified. But yes it's still a major problem. Thank you for the question.

CHAIR: And Professor Brinkley, thank you for the past hour. We've run out of time for you. I would like you to show people what the middle actually looks like. You never know what happens with microphones…

[Applause]

Bill Brinkley was telling us that he first visited Australia and first met Jim Peacock thirty years ago and he enjoyed that so much that he's remembered just about every detail of it. I hope it's not that long the next time. We'll give you a membership of the Club in case it's quite soon in which case you can come back and do it all again. Thank you very much.

DR BRINKLEY: Thank you very much.

[Applause]

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