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KEN RANDALL: Ladies and gentlemen, good afternoon and welcome to the National Press Club at today's National Australia Bank address, and welcome to our guest, Dr Alain Beaudet, who, as most of you would have heard from that broadcast introduction, is president of the Canadian Institutes of Health Research, the peak funding body for health research in Canada.

He's also the Australian Society for Medical Research's medallist for this year, and we're able to offer this forum for the presentation of the medal, a very handsome one which is right under my hand there, by the chief executive of the National Health and Medical Research Council, Mr Warren[sic] Anderson.

[Applause]

WARWICK ANDERSON: Thanks Ken, and what a privilege it is to be able to award the medal on behalf of the ASMR to my colleague, Alain.

I wanted to say that the Minister for Health, the Honourable Tanya Plibersek herself wanted to do this,

but at short notice, she was unable to be here. So, she sends her regrets.

This medal is awarded each year to a distinguished person of either gender in health and medical research around the world, and it's been a highlight of Medical Research Week that the Australian Society of Medical Research runs each year. The society wishes to use the week to make sure that the people of Australia understand and can be engaged in health and medical research.

As you've heard, Alain Beaudet i… who is the president of the Canadian Institutes of Health Research joins this distinguished list of ASMR medallists. At least two Nobel Prize winners previously, Alain, so the pressure is on.

[Laughter]

Alain's actually made very significant contributions to science - medical research in the neuroscience area and in policy development, and I believe he'll talk a little bit more about that. His own area of interest is in dementia and that's certainly a shared area of interest between the Canadian Institutes of Health and the National Health and Medical Research Council.

And one of the things that - one of the reasons I'm delighted to be able to award the medal personally, is that between CIHR and NHMRC, the relationships have developed a lot in recent years in Alain's time. We are

both members of the Global Alliance for Chronic Disease Research(*) with a number of other countries.

But, perhaps, most especially, we share a priority for improving Indigenous health. And for a number of years now, together with our colleagues in New Zealand, we've had specific research endeavours around improving Indigenous health, policy and practice research and clinical research to overcome the health disparities there are in the Indigenous and native first in… first peoples of our three nations.

So Alain, congratulations on all your achievements over years, and at the peak of it, the award of the ASMR medal, may I present it to you.

[Applause]

ALAIN BEAUDET: Well, thank you very much, Warwick, and good afternoon to all. It's a tremendous honour and a wonderful opportunity to be here with you today. I'm extremely be… I'm extremely proud to be receiving this prestigious award in recognition from the Australian Society of Medical Research.

It is also humbling to be sharing this award with previous medal winners of extraordinary stature, such as Barry Marshall and Peter Doherty, to whom I'd like to take this opportunity to pay tribute.

Australia is a country with a strong tradition of research excellence, a strong tradition of excellence in

medical research. Judging by the number of Nobel Prize winners that have graduated from Australian research lab, this point is crystal clear.

It is also a country that believes in sustained public support for health research, as well as in the correlation between research excellence and quality of care.

Our two countries are very similar in this regard, as they are in many others. Both Australia and Canada believe that research and innovation are critical for economic growth, as they are critical to the health and social welfare of our populations. Both punch above their weight in terms of research outcomes and return on investments. And both realise the importance of science for our collective future.

But both are also facing pressing societal challenges, including a more mobile and ageing population, a changing and more unpredictable climate, increasing environmental pressures and deep changes in lifestyles. All of these challenges have major impacts on health as they translate into new disease patterns, escalating health care costs and, increasingly, unequal access to health care.

These effects are further exacerbated among vulnerable populations, such as our Indigenous populations, and particularly in Canada, northern Aboriginal people, the Inuit.

So, how does research come to play here, and how can we bring our [indistinct] successes in health research to bear on better health outcomes and better health care? What is our responsibility as health research funders, to not only support the strongest science, but also to contribute to building a research enterprise that will translate into improved health and improved standards of care?

As the head of Canada's health research investment agency, these are some of the questions I'm grappling with. But before I try and address these questions, I would like to take a bit of a journey looking at the roots of modern health research enterprise, and how this enterprise has evolved to what we now know as health research.

If I were to ask many of the audience today for their definition of health research, I'd wager that the first response would point to biomedical research and the traditional basic science disciplines of anatomy, physiology or biochemistry. In other words, research focused on the understanding of the biological roots and basic mechanisms of disease.

And this is hardly surprising since first, a large segment of today's health research enterprise still revolves around basic biomedical disciplines, and second because it started at a time when most medical researchers were themselves physicians, and health research focused on treating disease.

A great Canadian example of these early types of physician scientists is the founder of the Montreal Neurological Institute, Dr Wilder Penfield. A neurosurgeon by training, Penfield made a considerably harsh comment about his chosen field of work, and I quote: Brain surgery is a terrible profession. If I did not feel it will become different in my lifetime I should hate it.

Penfield made that statement in 1921. He felt like many in his generation that he had a duty to perform the best research possible to improve care for his patients. Research and the improvement of patient care was an honourable thing to do.

Likewise for funding bodies, largely charities and philanthropists at the time - the Rockefeller Foundation in the case of Penfield - supporting research, like supporting the arts was the honourable thing to do. It was an activity that civilised, advanced and technologically capable countries should be doing.

But as Penfield embarked on this quest, he also came to realise a number of things. First, that to ensure optimal integration of research and care, research had to be carried out at the point of care, not in laboratories on far away university campuses.

Second, that addressing the problems he was facing could no longer be solely left to medical practitioners, but had to involve a variety of highly specialised scientists coming from disciplines as varied as physiology, pathology, chemistry or psychology.

He highly predict… he rightly predicted that if efforts were deployed to maintain a sense of coordination and synergy, creativity would emerge from the confrontation of ideas of people from different scientific backgrounds.

These were the principles on which Penfield built the Montreal Neurological Institute, in which I had the privilege to spend a large part of my career. Unbeknownst to him, these principles would become two of what are recognised today as the pillars of innovation: interdisciplinarity and translational research.

And indeed, the Montreal Neurological Institute has been the site of many Canadian firsts: electroencephalography was largely introduced and developed in Canada by MNI scientist Dr Herbert Jasper.

Penfield meanwhile developed a technique for epilepsy neurosurgery that became known as the Montreal Procedure. Dr Brenda Milner provided an incredible example of research that went from the bedside to the bench and back to the bedside. Her study of the famous patient HM yielded important insights into the formation and storage of memories, and basically created the field of neuropsychology.

So the model works. But to what extent is it sustainable? I would say that many of these principles still hold true today. But many factors have complexified the business model in today's lingo.

For one, the field has expanded tremendously since Penfield's days. From medical, and often disease-oriented research, it has transformed into health research to include disciplines such as sociology, economy, and health services and policy research to name a few.

Reflecting a shifting focus from disease to wellbeing, from treatment to prevention, the field now ranges from molecules to social determinants of health, and brings together players that have never before tackled the health research questions.

It also calls for engineers, computer scientists and mathematicians, as the amount of data to handle has increased exponentially, and as healthcare has become increasingly reliant on technology.

Health research has also seen a tremendous increase in volume; an amounting need to synthesise information and transform it into applicable data.

Take for instance, neuroscience that we were just talking about. In 1958, there were a mere 651 papers published in the field. By 1998, that number had increased to 17,217. And by 2008, the number had reached 26,500 papers.

Likewise, the funding model has deeply changed. When governmental contributions range in the tens of millions, they were referred to as expenditures. When, as in the case for the Canadian Institute of Health Research, they reach over a billion dollars a year, they

are referred to as investments. And investments call for return, both economic and health returns.

This demand for research impacts has in turn given rise to a not always health tension between basic and applied research, as well as to a rethinking of the role of public and private sectors, and supporting one versus the other. It is becoming increasingly clear that both basic and applied research are key to the research enterprise, and that there's a growing need for university/industry partnerships if one is to keep true economic benefits from the commercialisation of research results.

Nonetheless, finding the right balance between basic and applied research, or between curiosity-driven and more targeted research which are often wrongly taken as referring to the same thing, remains a major challenge for health research agencies.

Most would agree, and CIHR is no exception, that blue sky research - curiosity driven research is one of the cornerstones of clinical advances and must be supported at all costs. It is what feels - what feeds, sorry, the innovation pipeline. There'd be nothing to commercialise if the pipeline dried up.

One cannot ignore serendipity in science, nor can anyone predict where the next health threat will come up from. I like to remind students that the discovery by Mello and Fire that cells could silence certain genes using a special type of RNA, a discovery which holds tremendous therapeutic promises, actually started 25

years ago with studies of [indistinct] inheritance in petunias.

Or that the development of a vaccine again a human papillomavirus - HPV - that was to save millions of lives stemmed from the basic discovery by Harold Zer Hausen of the prevalence of HPV in cervical carcinomas.

But basic research is not all. In a recent editorial of the journal *Science*, Peter Gruss reminds us that over 400 years ago, the British philosopher and statesman Francis Bacon stated that, and I quote: Science discovery should be driven, not just be the quest for intellectual enlightenment, but also for the relief of man's estate.

For this is the lingering question, isn't it? Have we lost a connection between the generation of knowledge and the effective application of that knowledge, namely to health care?

Let's look at the facts. In Canada and the US, it is estimated that less than half of clinical acts are evidence based. Worse, figures hover around 30 per cent for interventions that are at best, useless, and at worst, harmful.

Most policy makers recognise that health research is essential to the quality of care, if only through the training of health professionals in a culture of scientific inquisitiveness and evidence-based practice. Yet, too

many still see health research as a cost driver rather than as a cost saver.

And there's some truth in this, for health research is still very much associated with the introduction of new technology and of new expensive diagnostic and therapeutic tools. Yet an increasing fraction of the health research sector aims at evaluating, not only therapeutic and technological innovations, but also the outcomes of current practices to ensure that we are doing more good than harm, research that looks at the comparative and cost effectiveness of treatments and clinical practices.

Let me give you an example. One Canadian researcher, Dr Shoo Lee, was concerned that virtually all health indicators in neonatal units in Canada had been plateau-ing for years. So he first inventoried current care practices in neonatal units worldwide and based on the published literature came up with a check list of number of new care practices which he evaluated in a randomised control setting.

The results were stunning. And the changes in practice were soon to be scaled up from a few original pilot studies to all neonatal units in Canada. Not only did the mortality rate decrease significantly but there was a close to 20 per cent reduction in hospital-acquired infections, a 20 per cent reduction in a condition known as retinopathy of prematurity and a 15 per cent reduction in a frequently deadly intestinal illness known as necrotising enterocolitis, not to mention over

$7 million in yearly savings due to reduced hospitalisation times.

When I speak to Shoo Lee, he tells me that the most challenging aspect of the work, which could be best described as implementation research, has been to induce changes in behaviour among clinical practitioners and to build research capacity that allowed him to do this.

For we are talking a totally new breed of health researchers here, way different from the ones Penfield surrounded himself with. We're talking epidemiologists, implementation scientists, health economists, bio-statisticians, behavioural psychologists.

We're also talking about a research agenda that is driven by patients and decision makers, as well as by researchers. We're talking about integrated knowledge translation, whereby knowledge users are fully involved in the conceptualisation of the research project.

To try and tackle some of these new challenges, CIHR, together with partners from the provincial ministries of health, provincial health research organisations, the universities and academic health sciences sector and representatives from the charities and private enterprise, have launched together a national strategy for patient-oriented research.

Through major new joint investments in clinical and interventional research infrastructure, the strategy aims at improving health outcomes through research.

To quote Canada's Minister of Health, the Honourable Leona Aglukkaq, who launched a strategy last September, and I quote: By putting patients first, we're making sure that research will have a greater impact on treatments and services provided in clinics, hospitals and doctors' offices throughout Canada. Better integration of research evidence and clinical practice means improved health outcomes and a better health care system in Canada. End of quote.

In conclusion, there's no question that health research holds opportunities and promises for the future that defy the imagination. Think, for instance, about personalised medicine and the possibility it holds for transforming health care from a reactive, one size fits all system to a system of predictive, preventative and precision care.

Already, genetic testing in the user specific biomarkers have revolutionised the way in which we treat certain cancers. Genetic testing has virtually eradicated the Newfoundland Curse, a rare heart arrhythmia syndrome caused by a highly penetrant genetic defect.

The defect was identified by Terry-Lynn Young, a molecular geneticist at Memorial University in St John's, Newfoundland. Whereas 80 per cent of male carriers used to die before age 50, systemic genetic testing and implantation of defibrillators provided to

male carriers in their late teens have made the curse a thing of the past.

Think about Nanomedicine and the innumerable possibilities it offers to target, for instance, drugs to specific organs or tumours, thereby increasing therapeutic focus and decreasing side effects. Think of regenerative medicine and the use of stem cells. Already, trials are underway to explore the applicability of stem cells in a variety of conditions, ranging from leukaemia to septic shock to the restoration of vision after retinal degeneration.

Think of robotics and of mind machine interfaces, which hold so much in store, including the possibility of prosthesis control through EEG-sensing devices. Sounds like a brave new world? Not if we pursue these areas of investigations, being careful to first ensure that we do not over-promise. We have seen too many cases, for instance in genetics, where therapeutic applications that were 20 years down the road at best were presented as imminent.

Second, if we're careful to develop strong ethical frameworks that will guide and charter the responsible use of these new technologies. And third, if we ensure that mechanisms are set in place to assess the applicability, the effectiveness and the cost effectiveness of these revolutionary tools, as we introduce them into the clinic.

As I conclude my remarks, I wish to offer my sincere gratitude and thanks to the ASMR for this tremendous

honour. I would like also to acknowledge and give my thanks to Warwick Anderson and the NHMRC, who have been tremendous partners of CIHR over the years, as well as great friends and allies of Canadian researchers.

I would like to thank everyone who has listened to, and watched this presentation today. I hope that the ASMR will continue to provide these outstanding opportunities to raise awareness of the extraordinary value of health research for our societies.

Thank you for your attention.

[Applause]

KEN RANDALL: Thank you very much, Dr Beaudet. And congratulations on your award. And my apologies for accidentally filching your script.

ALAIN BEAUDET: So you're the culprit.

KEN RANDALL: I would like to start off the question period today by asking you whether you could tell us what do you think about the alternatives facing us? You mentioned the choices between preventative and treatment, particularly in terms of aging populations everywhere.

Do we really have a choice about that now or have we gone past the point where it's possible to emphasise one against the other?

ALAIN BEAUDET: One - I'm sorry, I - one against what?

KEN RANDALL: Preventive against treatment.

ALAIN BEAUDET: I think we have to continue pursuing both. I think there are, for instance, certain cases, we think of infectious disease, where you have obviously to focus on both the preventative aspect through vaccine and through the treatment aspect, through research in the very real problem of antibiotic resistance, for instance.

You -I don't think one should de-associate the rest from the other. However, we all realise that our societies will be facing tremendous challenges, with the increase in chronic diseases. And you realise that treating these diseases can have a huge social and economic burden if we don't focus or target the early phase of the diseases or if we won't - don't target research aimed at preventing the diseases.

So dementia, as Warwick was mentioning, is a good case in point, I think. We really have to focus on early diagnosis, early treatment, if we want to prevent the incredible costs, human costs, and economic costs to society that otherwise we'll be facing a few years down the road.

KEN RANDALL: Thanks. Here's a question from Mark Metherell.

QUESTION: Mark Metherell, doctor. Just following on from the sort of theme that Ken mentions, often there is a greater

profit motive in producing and selling a cure than in financing prevention.

Is that a major challenge facing particularly developed countries, where there are all sorts of incentives, financial and otherwise, to bring out out a new drug, to deliver a new treatment, to have a new technology, but dealing with prevention is a much more indirect and less profitable venture. Is that an issue, do you think?

ALAIN BEAUDET: It's certainly an excellent research question because this is really the challenge isn't it. How do we bring people to change their lifestyles? How do we truly implement the change of our lifestyles that we know already could be - play a tremendous role in prevention?

And this, I think, is something we ought not only not to forget but I think we have also to work on education and a change of culture. And change of culture that I think starts in your universities and our universities where also - it's not only a question for the private sector, it's also very often very - more prestigious to be doing research on treatments than doing research on prevention.

You know, that's one reason why we moved from the Medical Research Council to the Canadian Institute of Health Research, is to really put this emphasis on health, wellbeing and prevention. Now, this being said, we haven't found all the solutions for sure.

KEN RANDALL: What are the lifestyle changes that most concern you in terms of what you've been saying today?

ALAIN BEAUDET: I mean, where do you start?

[Laughter]

You know them as well as I do. I mean, you know what our society is facing; sedentarity [sic], poor nutrition, exposure to environmental toxins that we weren't exposed to only 100 years ago, exposure to new threats that are emerging from increased travelling of our populations and increased mobility of the populations.

I think that all of - you know, the fact that you're spending your day in front of a computer has major effects on the - on chronic diseases, for instance.

So we have to evaluate what is the role of these various elements and how can we cope with modern life while at the same time remaining healthy. And that's what we have to do research on.

KEN RANDALL: Here's a question from Simon Grose.

QUESTION: Simon Grose, from *Science Media* and *Inside Canberra*.

I've got a question about what's known in the popular shorthand as gene patenting. As you move further to the left and to the right in our political spectrum, you find an increasing propensity to outlaw gene patenting.

Late last year we had reforms of our intellectual property laws which did not go that far. Now we're at a situation where we have a government backbencher who is planning a private members bill. She happens to be the partner of our Minister for Innovation, and she's keen for it to become a government bill. So it might become a very strong issue in Australia in the next six months.

What's the situation in Canada? Is it a live issue there? And what would - what are your views on the potential impact on research of patenting genes?

ALAIN BEAUDET: So - oh, this is tricky because the last thing I want to do is to immerse myself into Australian politics.

[Laughter]

So, there's no patenting of genes in Canada. And, quite frankly - I mean, it's… you know, I'm really not a specialist here but it has not been an issue. And as to where I'm leaning, I'm leaning to free access for everything.

We're talking about research that's publicly funded. The results of that research belongs to the people and should be freely accessible rapidly, not only in writing but very - also I think that the data and the data banks should be made accessible rapidly and globally. And I'd go further that.

I really think we have to start thinking about clinical research, even phases one and two research, that is totally open. We need to change the model of drug development because, let's face it, the model is not working right now. So we have to look at things differently and I think from - we have to take it from a totally different angle.

And I don't think that the angle of increased protection is the one that we should be taking.

KEN RANDALL: Doctor, I suppose the issue that goes in parallel with that is genetic testing for things like insurance. How far do you think that should be restricted?

ALAIN BEAUDET: It should be totally restricted.

[Laughter]

Well, obviously - it's a very important issue, right, because we're building a data bank, we're building DNA banks, and you realise of course how important these banks are for research. And there's a lot of push back because of the fear that indeed someone will one day have access to the data in these banks and indeed someone could be, for instance, an insurance company.

So I think the onus is on us to build a solid protection against - you know, to protect the anonymity of these data banks because they have to be accessible to the larger number for research.

KEN RANDALL: Peter Phillips.

QUESTION: Dr Beaudet, Peter Phillips, one of the directors of the National Press Club. Congratulations on your award and a warm welcome on your third visit to Australia, and a particularly warm welcome on your first occasion at the National Press Club.

I want to take you to the issue outlined in the release prepared to advise us about your coming, in which you said - which you were reported as saying that Dr Beaudet believes the key to success in health research is bridging the gap between research and outcomes by removing the bottlenecks which exist between basic biomedical research, clinical science knowledge, clinical practice and decision-making.

Bridging the gap. As a corollary doesn't this take us to the most compelling of all issues which relates to funding and finance, particularly that funding of research, recognition of research?

And doesn't it as a corollary then mean that the - probably the most compelling and the most important role of scientific researchers and of research societies and organisations revolves around their bringing pressure to bear on government and governments everywhere to recognise differently and to legislate and regulate differently for the financial status of researchers and the financial and taxation recognition of research, particularly as it relates to health and medical research?

ALAIN BEAUDET: [Laughs] So first let's talk about the gap because I really think that there are two gaps. The first gap is the traditional gap to bring the results of basic science into the clinic; the bench to the bedside gap. And conversely bringing the observations of the bedside back to fuel the ideas of basic science researchers. And this can only be achieved through not only public investments but also investments from the private sector.

And I think we - and now I'm talking about data for both Australia and Canada that are extremely similar. In both cases, if you look at the whole envelope of funding for health research, both of our countries have only 26 per cent of the total envelope that is coming from the private sector. And that's way inferior to the percentage that would be coming from let's say the US, the UK or Germany.

So I think we have a problem right there. We have to, as I mentioned earlier, to foster partnerships with industry, to listen first of all to what the industrial needs are and to ensure that together we build a research infrastructure and capability that would benefit both of us. So that's the first gap.

The second gap is perhaps even more challenging to cross and to bridge, and it's once you've brought things to market, i.e. to the bedside - you've evaluated them clinically, you know that they work. It could be a drug but it could be a new medical device, it could be a new practice, it could be a new diagnostic test. The

challenge then is to review the literature, synthesise it, disseminate it, write guidelines.

And you think, well, I'm there. No, you're not there. You haven't started. You're still on this side of the valley. What you have to do then, it's to change the behaviour of the practitioners. It's to look at new business models for the system to better integrate research in Canada. Because governments have been investing substantially in both of our countries into health research, and they've been maintaining their investments in both of our countries despite challenging economic times. The private sector has not followed - firstly.

Secondly, I think that if we cannot demonstrate to the public that health research has a critical impact, we will not be able to increase and sustain the growth of investments forever. Because governments listen to the public, and it's the public who needs to be asking for more funding for health research. And for the public to ask for more funding to health research , we have to demonstrate to the public that indeed, we're impacting health - we're impacting health care.

KEN RANDALL: I wonder how much…

[Applause]

I don't want to interrupt the applause, but I wonder how much, Doctor, you think prescriptive action can also contribute to public understanding? I'm thinking particularly of the announcement this week by New

York Mayor Bloomberg; that he wants to ban the sale of high-sugar drinks in large containers.

It's been a very divisive issue in the United States opinion channels, most of them accusing him of running a nanny state. But they said the same thing about banning public smoking in New York and it worked very well. What do you think about those sort of things?

ALAIN BEAUDET: Well I think you've answered the question. I mean, it worked very well for smoking. I think that unfortunately, I mean, we've tried all sorts of incentives to bring, for instance, the food industry to decrease the salt content in food. And there's way more salt needed for preservation. So I think you'll have to try first to I think obtain consensus and do it through incentives. And if all fails, I think yes, regulation is certainly an option.

Our Government is trying to avoid over-regulating, trying to avoid the syndrome of the nanny state, but will take the necessary decisions if the private sector doesn't play ball.

KEN RANDALL: Here's another question from Mark Metherell.

QUESTION: Your comments in response to the gene patent question, you said two things which would be considered probably fairly radical in Australia, and one is - well if you consider government policy. One is that gene patents, as I understood your response, was -

should not be made commercially exclusive to whoever's bought them.

ALAIN BEAUDET: That's my opinion.

QUESTION: That's your opinion.

Secondly, that first and second stage medical research should be open to all. Both of those points, I think I'm right in saying, would be considered controversial in Australia and…

ALAIN BEAUDET: Also in Canada.

[Laughter]

QUESTION: Oh right. Okay, so - right, okay.

And particularly in the US.

ALAIN BEAUDET: I'll give you…

QUESTION: What I'm getting to is - and it comes back I suppose - I'm sorry if I'm sort of going - banging on about profit, because I just see profit as taking an increasingly bigger role in health care in one way or another in Australia and many western countries.

Wouldn't your critics say, oh, by doing that you'll stifle research because these big companies spend billions - my colleague here will know, argue they spend a billion

dollars to develop a big bang pharmaceutical product. What would you say to that?

ALAIN BEAUDET: We'll I'd say that obviously what I'm proposing here is fair…I realise it's fairly radical. We - but you know, look at the pharmaceutical industry nowadays; look at the problems they're facing. They will have to change their business model. Already you see them changing. They use to do a lot of pre-competitive research that they now divulge to academia.

I think we ought to be there and we ought to take advantage of this new paradigm. But I think also that we can go further and develop with them, new models of development - of drug development that would be in the end of course, I think more profitable for them.

I'll give you an example. While I was the head of the Quebec Health Research Agency, I started a small project: pre-competitive level, you know, academia/industry partnership, industry-led, strictly on drug development, pre-competitive, i.e. bring at the same table, the VP research of several pharmas(*) together with academia.

And of course, I thought that, you know, the great thing was to bring academia and the pharmas at the same table. But actually no. As it turned out, the great thing was to bring all these guys from the pharmas at the same table, because they were actually all doing the same things, and realised that wait a minute, not only are we doing that with academia and we're going

to save a bundle, but also, we're talking about, you know, pre-competitive research.

We're talking about, you know, looking at new enzymatic models, we're talking about developing animal models. I mean we're saving a lot of money because we don't have to each do it in parallel; we'll be doing it together. So that's what I have in mind; more thinking differently about how we will generate profits down the line. I don't want to eliminate profit. [Laughs]

QUESTION: That wouldn't do.

KEN RANDALL: Simon.

QUESTION: Simon Grose again.

Let's talk about clinical trials. Australia's been struggling over recent years to maintain its attractiveness as a venue for clinical trials. And there was a KPMG report came out recently which as far as the advanced economies are concerned, if you use the US as a benchmark, Canada is 5.7 per cent more attractive as a base for clinical trials and Australia is 3.7 - no it's 5.3 per cent and Australia's 3.7 per cent less attractive than the US.

So… and both country's currencies have appreciated, but… so that's a little factor, but ours more than yours. But what is Canada doing better than Australia in this area?

ALAIN BEAUDET: Well I think actually that these figures actually reflect a reality - or really camouflage a reality which deep down is exactly the same between our two countries. We're facing the same issues. We're losing clinical trials both here and there, and the proportion may be slightly different, but we're losing them to countries such as China, such as India, such as [indistinct] Europe… Eastern Europe.

Why? Population is larger, more concentrated in city centres, and it's dead cheaper. Can we fight that? No, I don't think we can. Can we reverse the trend? No, I don't think we will. So what should we do? I think that we should focus on high quality research because that's what our strength is - highly ethical, high quality, highly reproducible clinical research. And that's what we have to focus on.

Our problem is that we're not efficient enough; we have regulations that are at times overpowering. The ethical review of multi-site trials is taking a long time and I understand you are actually ahead of us in terms of building mechanisms to deal with this issue.

But clearly in Canada what has been identified as the impediments to be an attractive niche for high-end clinical research is infrastructure that's insufficient. Training of clinical researchers - we are not training enough. Recruitment of the patients - we are not doing that efficiently enough. And regulation wise we are really too top-heavy.

So what are we doing? We're building clinical research infrastructure, we're increasing the training of health professionals doing clinical research - not only positions. We're developing schemes to compensate positions for the time they spend doing clinical research for certainly the public… for the public sector, which they are not properly compensated for now.

We are trying to revalue the mission of the clinical researcher. Very often clinical researchers seem as less prestigious and as undervalued as compared to basic research. I think this is a mistake - both are critically important in the chain of innovation.

So now we're [indistinct] a change in mentality and culture, and in practice we're setting up mechanisms to be more effective in contracting, by developing with the industry a common contract that will be used worldwide. And - while we're in Canada, I'm sorry - and by developing, and developing also methods and approaches for more efficient ethical reviews of multi-site trials.

So it's a multi-pronged approach. It will take time. But if we offer quality we will get the investments I'm positive of that.

KEN RANDALL: Here's a question from Ian Chalmers. Oh sorry. Michael, you got a… one today?

QUESTION: Apparently, I'm a little bit ahead of you Ian.

I'm Michael Moore, I'm the CEO of the Public Health Association of Australia, and I've heard you talk today in a very wide-ranging aspect of health, which is very refreshing.

But also heard you talking about fostering partnerships with industry, but of course there are times when we need to challenge industry, and that has been touched on over the sugary soft drinks and so on.

But one of the things that is interesting to me, and a number of us here to try and do transa… translational work is actually how do we influence government and we spend a lot of time. It's the same issue in Canada as I've discussed with Jim Chauvin the World Federation[sic] Public Health Association president and Canadian.

What sort of funding do you in Canada put into health advocacy research, and what percentage should we be putting in here so we can actually know how to translate and influence governments?

ALAIN BEAUDET: So I can only tell you about what we're trying to achieve because it's still early days, but through this strategy on patient-oriented research that I talked about, we've decided to build with the provinces, in partnership with the provinces, support unit for translational, but also implementation research in each province, and basically we've thrown back the ball to the provinces.

We've said look - the paradigm is changing, okay. We're now talking not research for researchers, we're talking research for patients. We won't be counting the papers and measuring the impact factors - we're going to look at health outcomes, we're going to look at changes in practice, we're going to look at patient accrual in trials.

Now tell us what your priorities are and what structure you'd like for your unit, and by the way, how much money you will put on the table. I will have it evaluated by an international review panel. I'll make sure that it fits in the national framework that we're trying to build and, if it does, I will match your funding. But this is what we're going to be measuring.

We're talking about health outcomes. We need in each of these support units the decision-makers, the policymakers, and the patients to be involved in setting up the research agenda. So if you invite me in a few years I'll tell you how the experiment went.

[Laughter]

KEN RANDALL: And how has that gone across with the academic community who is used to citations and publications?

ALAN BEAUDET: Well, again, another change in culture. But you have to realise that in the realm of the clinical researchers, they totally understand what we're trying to achieve. Are they always happy? Well, you know, when a province decides, as one has done, that they will focus entirely on primary health care and the outcomes that

they want to be improved are primary health care outcomes, obviously some researchers are unhappy; the ones that aren't working on primary health care. But that's to be expected. I mean, have you ever seen change without resistance to change?

KEN RANDALL: No [laughs]. Ian Chalmers.

QUESTION: I'm here on behalf of the Asthma Foundation in Canberra, so I'm interested in your remarks about patient-oriented research. But specifically from organisations such as ours which are seeking to raise funds to support medical research. What works in your experience? What approaches for organisations such as ours are most effective? And how do we integrate our efforts right across the nation rather than just state-by-state?

ALAIN BEAUDET: Well, first of all, it's not an area where I have a lot of experience. It is an area where we face similarly sometimes a certain degree of rivalries between the various provincial branches of so-called national charities.

This being said, my gut response would be consumer involvement. Get the consumers involved, listen to them.

KEN RANDALL: We've got time for one more question and it's over there on your left.

QUESTION: Alain, congratulations again for this award. This is Julio Licinio from the John Curtin School of Medical Research.

I have a comment and a question, and it's something that really puzzles me, which is that if I walk to that door and I open the door, I'm not going to walk into Trafalgar Square in London; I'm going to be in Canberra. So there is a logical outcome to a certain course of events.

And the logical outcome to the ageing of the baby boomers is going to be an enormous economic drain on society. And only one-third of the population of Australia, the US is normal weight, so everybody else is overweight or obese. So the long-term medical consequence of that will be immense and neither of these [indistinct] countries has the money to pay for that.

And yet - and I know that you represent the Government so you have to be grateful for what you have, but the expenditure of health research is flat and the opportunities are like exploding but the funding doesn't explode in a commensurate way, and we are going towards a catastrophe.

So what can be done?

ALAIN BEAUDET: Julio, first of all, the research funding is not flat. Certainly, and I speak for Canada, despite the economic downturn, we have been receiving yearly sustained increases in health research. Not only that,

government wants a balanced budget within three years and to do that has cut severely everywhere, across the board, but has totally protected our grants and awards budget.

So I think that we have to be careful here. There's really a strong message that governments are telling us, that they believe it's important.

Now, governments are also paying - and these are recent statistics from one of the provinces in Canada, just came out with a study, showing that 30 per cent of the lab tests ordered in the past year and paid for by the Government were totally useless. And at times, you know, not even relevant to the differential diagnosis.

So I think that had they asked researchers to evaluate the use of this test, had we built mechanisms for increased accountability, I think the savings would have been absolutely tremendous.

And I think we have to start thinking about evaluation, evaluative research, cost effectiveness research, and looking at smart - start… you know small is beautiful. Let's start small, get the results and scale up. And I think it can work.

KEN RANDALL: By popular request I'm persuaded we do have time for one more question, and it's from Maurice Reilly.

QUESTION: Thank you Ken. Doctor, I was reading in the *Vancouver Sun* this morning, as I do…

[Laughter]

…and I noticed in late 2010 there's - you know, Canada is at the forefront of gender sex research, and that the Canadian Institute of Health in which you are president, over a period of time have provided the most amount of money in the world for this type of research, about $30 million.

I know that one of the researchers emphatically called for the end of using male mice for scientific research. What should we conclude from this? That Canadian female mice are smarter than Canadian male mice, and what implications of that are there for Australian mice?

[Laughter]

What can we conclude?

ALAIN BEAUDET: I'm sure that any female mice are more clever, and that the Australian mice are more clever than the Canadian mice.

[Laughter]

Seriously, it is a very important issue because, you know, that for years, you know, systematically we wouldn't even think about it. We'd report, if we did, that all the studies were done on male mice or on male rats. They're usually - the standard deviations when you work on male rodents are usually smaller so there's this huge tendency of just doing everything in

male. And then we draw conclusions, not thinking that in fact had we done the studies on females conclusions could be totally different.

Now, it gets slightly annoying when you realise that clinical research studies are the same, very often. We just don't pay attention to the gender of the subject. Well, as you know very well, reaction to drugs are not the same in male and female.

So I think that, you know, one of the reasons why we created the Institute of Gender and Health is to increase the awareness of a balanced representation of genders in research because males are not females.

KEN RANDALL: Thank you very much.

[Applause]

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