HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Health

HESA • NUMBER 088 • 1st SESSION • 41st PARLIAMENT

EVIDENCE

Thursday, May 23, 2013

Chair

Mrs. Joy Smith

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● (1605)

[*English*]

The Chair (Mrs. Joy Smith (Kildonan—St. Paul, CPC)): We will get the committee started, ladies and gentlemen. Please take your seats.

We want to welcome our wonderful guests and to thank them very much for their patience. You never know when the bells are going to ring again. Not to worry, but I have to tell you that you have to talk fast, because each of you has a chance to speak for 10 minutes, as individuals. Dr. Hudson, from Biosential Inc., that's for you as well. Then we'll go to questions and answers.

We are very excited about your being here because this committee has done one of the most exciting studies we've ever done. A lot of the committee members feel that way. It is a study of technological innovation.

Without further ado, as individuals, we'll begin with Dr. Tyrrell, professor and director of the Li Ka Shing Institute of Virology, University of Alberta. How exciting.

Dr. D. Lorne Tyrrell (Professor and Director, Li Ka Shing Institute of Virology, University of Alberta, As an Individual): Thank you very much.

I'll start with a brief background. I did my MD at the University of Alberta, my Ph.D. at Queen's, and my post-doctoral fellowship, sponsored by CIHR or the MRC, at the Karolinska Institute. I've served as the dean of the faculty of medicine as well as the chair of medical microbiology. I've established three biotech companies and believe very much in the commercialization and translation of research.

Canada receives an A grade in excellent support of educational institutions and research universities. This net result is a really excellent grade for research. However, in innovation, Canada receives a D and is far down the line. Why do we fail to transform our excellent research into innovation and companies? We would expect more based on our research record. Innovation is critical to our international competitiveness and our social and economic well-being and, in the long term, is critically important.

Let me just say that the number one problem is maintaining our discovery research. I think there is a lot of concern out there among basic scientists in Canada that as we move towards commercialization it is taking away from one side and putting to the other. Basic research is really what generates the ideas that transform the health care system. Let me just say that we do 1% of the peptic ulcer disease because a scientist discovered that ulcers were caused by a bacterium and treated with antibiotics rather than surgery. That's an example of how basic discoveries can really transform health care systems.

When I first started practising in infectious diseases, those with AIDS had a life expectancy of about 18 months. Today, they have normal life expectancy. The critical discovery was the structure of the viral enzymes and the production of antiviral agents, which have transformed this disease. There are many such examples, so please do not cut back on our discovery research. We cannot simply trade them off. Not all research should be translated and commercialized. Many of our basic researchers are not trained in that area and should not be forced into that area, but they will continue to make critical discoveries that help build the knowledge base for translation.

We live next door to one of the most innovative countries in the world, and we need to learn some lessons from them. We recruited a Canada excellence research chair, Michael Houghton. When he came to the University of Alberta, he said that he couldn't understand why there wasn't more biotech in the city based on the research that was being done at the University of Alberta. After being here for three years, he said that he had come to understand why there is such a weak biotech industry in the province and in the country.

First, we need to change the culture. In the culture in academic centres and communities they really think about their discovery research. If they get into translation research or commercialization, they're still viewed in many Canadian institutions as second class if they do that.

In the United States, academics often think about discovery, translation, and commercialization all in the same frame, but in Canada, we often think in the academic centres of the commercialization as being a bit tainted. Even our educational systems and evaluation often recognize basic research or discovery research more than they recognize somebody who might have filed patents. A good publication is better than a patent in the academic centres, really.

With patenting costs, you want to see more commercialization. But let me tell you that the people who make the discoveries and the universities they are in have no money to patent. They can put out the initial patent for $8,000 to $10,000, but after that, 12 to 18 months later, they have to come up with between $50,000 and $80,000 to get an international patent. If you don't have the international coverage, you cannot partner with industry. You won't have venture capital or any other money coming in to support it. You have to get international patents.

We also deal with the valley of death between the discovery until you get a product to the level where somebody will come in and help support it. In the United States, they've had the SBIR grants, which have helped many people get across that. There has been a 47% success rate of the SBIR grants at phase 2, the ones that actually go out and produce products and have sales. In Canada, we simply don't have that type of assistance across that period of time. I think we need to see some kind of money equivalent to that, to help us go across.

● (1610)

The Canada excellence research commercialization program has helped recently. It is in a few centres and they have made excellent progress.

There is a lack of angel funding, and venture capital is really vulture capital in many ways. You've got to be very careful with it, and it's very hard to get in Canada compared to in the U.S. Many companies move to the U.S. from Canada because of the SBIR grants or because venture capital or the money to come in and support it is easier to get,

We need to continue to see the emphasis on the pillar 3 and 4 research. We shouldn't think only of commercialization of our research but also of how health outcomes have been changed by a lot of our research as we expanded the mandate of CIHR. There's been some excellent examples of that.

The results of a heart attack used to be a 25% mortality rate; someone with an acute MI would die. But today, it's down to about 5% to 6% during the acute phase. This is related to better ways of using treatment, including the ability to transmit an EKG through a cellphone, to interpret the EKG, and have the ambulance attendants, with the help of a cardiologist, make the decision and give therapy immediately at the site. It often changes the outcome quite dramatically, and you see people who have much better outcomes.

There are many examples where our Canadian health outcomes research has dramatically changed health care in Canada, and we need to see that continue to expand.

Let me say a few, very positive things about what Canada has done. Why we compete so well internationally is that the CFI grants have given us equipment and equipped our labs. Without the CFI grants, that wouldn't have happened.

The MRC and CIHR have broadened the mandate, which I think is very good. Then there are the CERCs, the Canada excellence research chairs. We had a day in Edmonton this last week where 18 of them came in and gave talks on their work, which is really transforming those centres that have CER chairs. Certainly, it has transformed ours, with Michael Houghton’s joining the Li Ka Shing Institute of Virology—that has been a major change. Centres for research excellence and Genome Canada have been tremendous.

But if you're thinking of commercialization, you have to help in the patenting, and in funding across that valley of death, to get them to a point where they can bring in the partners or venture capital, because most stop there.

In the last week, I've had three different people at different universities call me about their excellent work that can't be patented. They did the first patent. The universities can't afford to help them with the second patent. They asked if they could bring it to the Li Ka Shing Institute, if we would look after it, and they'll work out a partnership to do this. It's just an indication of how little money there is in universities to help these people get to the point of commercialization and translation.

Thank you.

● (1615)

The Chair: Thank you very much for your very insightful comments. With some of the terminology you used, I had to ask my analyst what it was. Don't be sorry—it's wonderful that you bring all sorts of new information to the committee.

We'll now go to Dr. Brindle, professor at Brock University. Please go ahead, doctor.

Dr. Ian D. Brindle (Professor, Brock University, As an Individual): Thank you, and thank you for inviting me to give this talk.

I put this slide together from the journal *Nature Reviews* . I've modified the data so that it's hopefully more understandable to a lay audience. It basically illustrates the cost of bringing a drug to market over the last 60 years. The costs are corrected for inflation, and what you see is a process that in many ways looks like it's going out of control. The cost of generating new drugs is going up and up as a consequence, in part, of regulation.

The scare started back in the time of the thalidomide scare when the drug called thalidomide was given to women in the first trimester of pregnancy and produced a large number of kids born without limbs as a consequence of the teratogenic effects of these drugs. There was a great deal of effort put into regulating the drug manufacturing industry as a result.

These are the costs; these are not the profits made by the drug companies. The natural tendency, looking at these data, would be to say that we have to stop making drugs because they are just costing us too much money, that we need to go back to the drugs that we've had in the past, and that's where we need to put our effort.

The next slide quotes a piece from the *National Post*, from last fall, which basically says this isn't really part of the picture. The drugs only amount to some 9% or so of the costs of bringing medical assistance to patients, so we can't just assume this is unnecessary. We'll see in the next slide why that is.

The other message was the notion that governments should think like investors, with long-term assessments of the relative return on investment, which I think is what the witnesses here today are going to be speaking to.

If we go to the next slide, you will see that an economist, Frank Lichtenberg, estimates that relying on existing drugs will get us nowhere, that the costs of health care will continue to increase and that the drugs are necessary. We still need to develop new drugs because, as it says in the second bullet point here, organisms are evolving constantly. We're playing a constant game of catch-up against drugs, and some organisms are very difficult to deal with, such as MRSA, the multiple-resistant Staphylococcus aureus, which is running rampant in a number of hospitals across Canada and, indeed, across the world at the moment. Diseases like that, like Clostridium difficile, are diseases that are modern diseases and need to be treated with modern medicines.

Perhaps I could just speak about the kinds of things going on at Brock University. I echo Dr. Tyrrell's comments about the value that we put on the Canada research program and the Canada Foundation for Innovation in bringing tier 1 researchers—literally as tier 1 Canada research chairs, in many cases—back from other countries to Canada, or by recruiting them from other countries themselves.

If we look at the work here, one of the things going on at Brock University at the moment relates to daffodils, as you see in the picture. Daffodils produce a chemical compound called galanthamine. Most of you are younger than I am and so you never have to worry about Alzheimer's disease—at least not yet. Galanthamine is used in the treatment of early-stage Alzheimer's disease.

● (1620)

Our tier 1 Canada research chair, Vincenzo De Luca, has been working on an efficient extraction of this particular compound—that's the structure of it up there on the screen—to make it more efficient and bring it quickly and cheaply to market. It's not an unknown compound but a known drug, and what we're looking to do is to decrease the cost of production. Despite the fact that southern Ontario looks like a very busy place growing grapes and everything like that, we have acres and acres and acres of land that can be used for growing interesting crops like the daffodil.

The next one is the Madagascar periwinkle, which is the source of two major anti-cancer drugs—you see those at the bottom of the screen—vincristine and vinblastine. This plant is sold as an ornamental and you can buy it in your local Home Depot and put it in as a border plant, but it produces two major anti-cancer drugs, which are useful against a whole range of cancers. Vincenzo De Luca, our tier 1 Canada research chair—who, by the way, we recruited from North Carolina despite the fact that he has his Ph.D. from the University of Montreal—has some 4,000 variants of the Madagascar periwinkle. He's trying to find the best, high-producing plant that will allow us to make vincristine and vinblastine, currently very expensive drugs, much more accessible to the market.

The next slide is actually an interesting one in a way. There's this chemical here called pancratistatin. It's an incredibly powerful anti-cancer drug but it only works in vitro. You can only kill off cancer cells in the test tube. Once you inject it into people it becomes ineffective because it's not very soluble. It doesn't actually work in the organism, so the question is what do you do with a compound like that? You have something that's a good candidate but it doesn't do the job.

Another of our tier 1 Canada research chairs, Tomas Hudlicky, who came to us from the University of Florida in Gainesville, is working on variations of this particular compound to make it more accessible. In fact, he has tested a number of variants of this compound that have greater solubility and are effective at the kind of dose that would be useful as an anti-cancer drug.

Although it's patented at this point, I echo Dr. Tyrrell's comment about how much money you can spend on this to get it through the next stages, through the initial studies to animal studies to human studies. It's a huge job, as you saw from the first slide that I showed you, so at the moment we're working with a small company called Lorus Therapeutics in Rexdale, Ontario, hopefully to move this forward and to produce what essentially, for the treatment of cancer, will be a new drug, although the compound, as I said, has been known for some time.

My final slide speaks to some of the issues that I know are not going to be a surprise to any of you but that you know full well: how to reduce the costs of treatment, the costs of aging, the treatment time, and the duplication of tests and so on. Getting information quickly flowing through the system is obviously one of the things we've heard about.

One of the things that really need a lot of attention is preventative medicine to stop people needing to go to a hospital for treatment. For example, using simple exercises to improve balance will reduce the percentage of falls by people over 65. Falls represent a major source of death for people over the age of 65. Being over the age of 65, I take that quite seriously, and I'm sure many of you do as well.

These things are very important. They don't cost a lot. They can be franchised. Get the right method. Get people improving their balance, and things will improve at very little cost to the system.

● (1625)

The Chair: Dr. Brindle, your time is just about up. I just want to let you know.

Dr. Ian D. Brindle: I have one more thing to say and then I'm done.

The last-but-one point on the right-hand side of the screen speaks to some work that was not actually done at Brock University. It was done at the University of Calgary, and the reason I know about it is that my daughter did some of this work. Simply replacing a regular vegetable oil with fish oil improved the life expectancy of premature infants with infected bowel disease. The life expectancy was significantly improved and the time to recovery was halved by the simple expedient of moving from simple vegetable oil to fish oil.

Thank you very much.

The Chair: Thank you, Dr. Brindle. You've given an extremely informative presentation, and we thank you for that.

Now we go to Dr. Albert Friesen. I understand you're from my hometown of Winnipeg, so a special welcome to you, Dr. Friesen.

Dr. Albert Friesen (As an Individual): Thank you, and thank you for the opportunity. It's much appreciated.

The Chair: Please do your presentation.

Thank you.

Dr. Albert Friesen: Again, thank you to the committee and to you for this opportunity to share.

Health innovation has been a lifelong interest of mine. Actually, I think it's a calling and a passion. This is actually the first time I've organized some of my thoughts from over the past 40 years.

The business that I'm in right now is helping to start-up biotech companies, life science companies. If a university professor or somebody contacts us and says they have a cure for cancer, if we like it we form the company to provide the financing and the infrastructure to manage IP and all the rest of it. I get probably a dozen or two dozen a month, so we have lots to choose from. I've done 17 companies. In the last five years we've only done two because of the economic situation.

I've presented and shared with you six ideas, and I want to illustrate the six ideas through two stories that I'll share with you. I played a lead role in one story, a very successful Canadian story. The other is also a successful research story that I observed from a bit of a distance.

I've given you the six areas to focus on and some of them, as you would understand, overlap with and are the same as Dr. Tyrrell's and others'.

The first one is, of course, strengthening and continuing to support basic research. This is really a key underpinning to any commercial venture or technology for the future. There are many different stories, so I was pleased. I'm on the CFI board. I see what CFI has done with billions of dollars to transform Canada. It has been in world-leading research but it was dipping a bit. CFI has regenerated it.

I was pleased to see Minister Goodyear's announcement this past week on the NSERC funding. I think that's a really strong message to the community, and I support that. Even though I'm in the business of commercialization, I think this is an absolutely necessary part of growing in the future.

Venture capital is an obvious area, and we talk about it a lot. My point is that venture capital needs to be managed locally. The second story will demonstrate that. Again, the government is encouraging venture capital, which is good and it's a start, but we really need to have local management across the country for this venture capital.

The other thing that is really critical and what I think is actually one of the most important issues is teaching and nurturing entrepreneurship. That's what commercialization is all about. A lot of our universities are now teaching entrepreneurship in their business schools, but I don't think that's the place to start. I think it should start at elementary school, really a whole dynamic. When you get into the business world, it's competitive. You know that in your situation you compete to win a seat. Our kids are taught in hockey not to keep score, that it's all fine, and not to worry about graduating, and that they'll get through. I think that's been a misunderstanding of the need for nurturing. We need to teach competition and we need to teach entrepreneurship starting at the elementary school and all the way up. I think that's key for our success and even for Canadian productivity.

Procurement policies have been talked about. I think it's important and I'll demonstrate that in the first story.

Dr. Tyrrell mentioned the cost of regulatory processes. When I started in the business in the seventies, regulatory was an entirely different environment. Today it's very costly. It's ironic that in our hospitals, where we provide health care, there are substantially fewer regulatory processes than the regulatory processes you have to go through for drugs. Every single drug that is introduced to the U.S. under the FDA is presented to Health Canada. We have one-tenth the population and one-fifteenth the budget, and that budget is used to review every single drug that's been applied for under the FDA. It doesn't make sense. We have to coordinate our regulatory pathway with other countries. They do that in Europe, and we need to do it in Canada.

● (1630)

My sixth area is a bit of paradigm shift. We have a single-payer system. Canada has led in the world in terms of a single-payer social health care system. But we have a multi-provider system. I think GE provides MRIs with which it makes money. We have a policy that says we want to have socialized medicine and we have to integrate it, yet we have multiple providers. We could reorganize to have competition in order to improve efficiencies through a multi-provider system.

The first story I want to tell you about demonstrates some of these things. It is one I got involved with in the prevention and treatment of Rh disease. Many young people today don't know what Rh disease is. It's the incompatibility between a husband or wife when they marry. If the mother is Rh-negative and the baby is Rh-positive, the mother builds up antibodies and destroys the baby's red blood cells. It was a very traumatic experience in the 1950s and 1960s. Today, young people don't know what it is.

Dr. Chown initiated some basic research in Winnipeg that was world-leading. As a pediatrician and professor at university, he was impacted by the loss of these babies and became involved in the research, initially discovering why, and then the treatment, using an Rh immune globulin, a product extracted from blood.

He helped Ortho, a Johnson & Johnson company, do the clinical trials on the first drug in the 1960s and then read about a new and better way of making this drug from a German, Hans Hoppe, in *Vox Sanguinis*.

He took this new technology, which would lead to lower cost and improved treatment, to Connaught Laboratories, which was the pharmaceutical company in Canada. They said they were not interested. Later on, when I became involved, I approached Johnson & Johnson. They said they were not interested. So Dr. Chown said, maybe we'll try it in Winnipeg. He approached me—I was a Ph.D. student—and said, "I've read this publication about a new technology. Would you be interested?" I was 23; I had never really thought about drug development. But as a chemist, I said "Why not?"

● (1635)

The Chair: Excuse me. Did you say you were a Ph.D at 23?

Dr. Albert Friesen: No, I was just finishing my Ph.D.; I hadn't quite finished.

So he had that idea. In the interview, I asked him what the future was—an idea, a publication...? He said, "What you make of it." That's what his answer was. I was fortunate to be maybe naive and somewhat optimistic, and I took it on.

We started in 1971; this is now 40-some years ago. I built the building for the researcher/manufacturer in 1973. We started on the clinical trials in 1975 and got approval in 1980—so, in nine years. That's short in today's terms, but still, it was nine years. It led to what is now Cangene, which was at 800 employees, though there are 600 now—they have downsized a bit—in Winnipeg.

It led to many other spinoffs. I've been involved since then in 17 other companies, 12 of which exist today. I think six of them are biotech associate members, and so on.

So Dr. Chown, with his vision—knowing there was a problem with babies and that there was some research out there—led to this development.

The other story is about a professor at McMaster, Dr. Harley, one of the world's leading researchers. In Canada, he did research very early on to understand why cancer cells divide—about telomeres at the end of DNA.

He worked closely with two other researchers, one in New York, and I forget where the other one was, who won a Nobel prize for this. I'm not sure why Dr. Harley didn't win a Nobel prize, but he was involved in the initial publications that led to these Nobel prizes. This was in early 1991 or 1992.

In 1993, he and his entire research team were attracted to San Francisco to lead the research in a company called Geron, which was one of the first companies in the world to work on stem cell treatments. Again, they were the first in the world. The venture capital group from San Francisco attracted his entire team. I'm not aware of any commercial ventures out of that research in Canada. It's a huge commercial venture in San Francisco.

What are the messages? What is the difference?

The Chair: You have a minute.

Dr. Albert Friesen: I have one minute?

Amgen and Genentech are among the largest biotech companies. In both cases, the science was matched with a business entrepreneur. That didn't happen in the case of Dr. Harley. Dr. Chown was entrepreneurial; I was fortunate to be entrepreneurial.

So I'm back to my main message: entrepreneurship.

The Chair: Thank you, Dr. Friesen. It's been a very interesting presentation.

We'll now go to Dr. Craig Hudson.

Dr. Craig Hudson (President and Chief Executive Officer, Biosential Inc.): Thank you.

I'm a psychiatrist. I admit that I'm over-educated, and I thank the Canadian taxpayer for paying for all of that. I have an M.D., am a psychiatrist, and for a period of time worked as an MRC commission scientist.

I was working in Stratford many years ago and wanted to find a way of treating people with chronic insomnia, which is a very common complaint. I didn't really want to use medications; I wanted to try to do it in a natural way that would fit within the chemistry of the brain, the way we're supposed to do it.

I worked with the Guelph Food Technology Centre—a centre that is now being sold off—and discovered that the pumpkin seeds in southwestern Ontario are the highest source of tryptophan. One gram of pumpkin seed protein from southwestern Ontario pumpkin seeds is equivalent to a full glass of milk. If your mother told you to have a full glass of milk, just a few little grams of the pumpkin seed would have done it.

I had to cross over the valley of death that Dr. Tyrrell has talked about: how to go from an idea to a product. I had a clever idea: I knew I had to combine it with dextrose—and that made it a patentable idea—in order to get it across the blood-brain barrier. And I had a clever wife. Those are the two attributes I had.

With that, we have grown, not to the degree of the companies you've heard about so far, but we're doubling our revenues every year. We'll be hitting $1 million this year and hopefully $2 million the year after. Most of our sales are in Europe, not so much in Canada and the U.S.

There are a few things I can share with you about the struggle I had. There really is this valley of death. You have to go from an idea to getting a product out there immediately. The first patent costs $10,000, and it's almost like gambling. You put the first $10,000 down and think, okay, I'm in. But it's then an exponential crisis of cash flow that you have entered into. Once you have that in your mind, you have to log on to revenue as quickly as possible.

That's what I did with our little thing. We took our pumpkin seeds, we found a way very quickly to develop it into a product made into a functional food, and then I hopped on a plane and buses and got it into distribution in Europe. Without that, we would not have survived.

I'd like to make a few points, if I can.

There's something wrong with the fact that I buy my pumpkin seeds in Wisconsin, and yet the original seeds came from Ontario. It's not that people don't want to cooperate; I'm working with the local farmers now to find some organic spaces in order to procure them. We need to think more clearly about manufacturers who can manufacture at a pharmaceutical level and yet have an organic, functional food. That's what I have to find, and it's really tough to find in Canada.

Then, I want to echo what Dr. Friesen said: you have to learn to be an entrepreneur. I learned the hard way, probably too late. It would be good, if we could, to teach that in medical school a little bit.

I know that this is socialized medicine. I'm not opposed to socialized medicine; I want to be very clear about that. I'm happy to have gone through a socialized university. I assure you, my bank loans would have been huge. I favour people being able to receive health care based on need rather than on ability to pay.

At the same time, doctors have to become entrepreneurial, if we're to take the ideas we have into the marketplace. There Is really not a great fit right now, in many cases, between the way doctors are trained and the way venture capitalists are trained. They are two very different and competitive ideas. Venture capital, by and large, is not patient capital, and academics are perhaps too patient, and so you have a kind of collision of cultures.

I'll leave you with that: if you could, focus on “Canadian farm” brand as really a huge brand out there—people love it in Europe. Doctors should become a little more entrepreneurial. I'll leave it at that.

Thank you.

● (1640)

The Chair: Well, how interesting; this presents a very interesting aspect of the medical and health care field.

Thank you for doing that.

We're now going to go into our seven-minute question-and-answer period.

We'll begin with Ms. Davies.

Ms. Libby Davies (Vancouver East, NDP): Thank you very much, Chairperson.

Thank you to our presenters for being here today.

Madam Chair, I'd just like to take a moment, as part of my time, to give notice of a motion that I want to put forward. The motion is as follows: That, the Committee immediately undertake a study to review Chapter 5 of 2013 Spring Report of the Auditor General of Canada: Promoting Diabetes Prevention and Control; that it hold at least two meetings on this study to hear from witnesses, including the Minister of Health; that it report its findings to the House of Commons.

This is a very major issue that's facing us. It was identified by the Auditor General. So I'd like to give notice that we will be moving that motion.

Thank you to the witnesses for giving us your knowledge and, I think more importantly, your experience, because that's what helps us understand what some of the barriers and the challenges are.

We are the health committee, but I feel like we've intersected with the economic world, as we're looking at this issue of innovation and we're looking at, as you say, translating ideas into commercial production and use. I don't feel terribly knowledgeable about it. I kind of struggle sometimes with what the continuum is and how it all works. Based on what you've told us today, though, I have a couple of questions.

Dr. Tyrrell, you mentioned—in fact Dr. Hudson mentioned this as well—the patent costs that can start at $8,000 to $10,000 and then quickly get you up to, as you say in your brief, $80,000. This is too early for the venture capital folks to become involved.

What would be a good federal response to that? Are you suggesting that we need to have some kind of agency that would actually provide grants or assistance loans, or whatever it might be, so that at least that hurdle could be gotten over? If you can't deal with that, you can't go much further, I guess.

Dr. D. Lorne Tyrrell: No, I think you're absolutely right. That is a major problem.

If you're a clinician, you may be able to finance this yourself, but a lot of the discoveries are made by basic scientists who do not have access to that kind of money.

I should have said a little more about what I did in this business. I developed the first antiviral for hepatitis B. There are 400 million people worldwide who carry hepatitis B, and hepatitis B is the commonest cause of fatal cancer in the world. We developed the first antiviral here in Canada. It is now marketed in over 200 countries, and cumulative sales are around $6 billion.

When the first patent was filed, the University of Alberta paid the patent cost for the first year. After that, we found money from family and friends to somehow patent it. That can't always go on like that.

When we partnered, I tried to set up some venture capital. There was Vencap in Alberta. They would have funded me to build a gravel pit or a restaurant, but biotech? No way.

● (1645)

Ms. Libby Davies: Can you focus, though, on what you would like to see happen in terms of...? We're going to be doing a report. What do you think the federal government should do? Should there be an agency that actually provides assistance, or is it something that you see more in the private sector?

Dr. D. Lorne Tyrrell: No, you have to get this money early, and it has to come from governments. It should be a partnership between the federal and provincial governments.

They're both saying there should be more commercialization out of universities. They cannot do it unless they come together in a partnership to say how we're going to fund the patent costs so that we can protect this and market it.

If that doesn't happen, we won't see much of this commercialization occurring that you want to see from universities.

Ms. Libby Davies: I do think that sometimes there's an interesting discussion between an idea of entrepreneurship and working in the private sector, but then there is a role for government. Sometimes I think we're led to believe that they have to be completely separate, and that if you're an entrepreneur you do it on your own. You use capital, etc.

But here you're clearly saying that there is a role for in effect the public sector, the state, to become involved.

Dr. D. Lorne Tyrrell: Again, Michael Houghton brought the contrast that when the University of San Francisco had an important discovery, the patent costs were covered by the university right away. Here, they cover the first year, but after that, when the real costs go up, the universities back off. It's very different.

It's surprising; I mean, the country with the biggest free enterprise in the world is the United States, but they put in government money to get people over the valley of death with the patent costs, and here, in a country where we believe in government support for many programs, we don't have that money for patenting and we don't have that money to get people across the valley of death.

So you hear how people struggle to try to get there, and most of them give up.

Ms. Libby Davies: I have one other quick question. I was interested in your point number 6, about improved access to databases and taking advantage of the publicly funded health care system. What is the barrier there? Whose databases are you talking about? Isn't that a more local issue? Again, what would the federal role be in that?

Dr. D. Lorne Tyrrell: It's a local issue, and the reason you can't get access to these databases is put up as privacy issues. Many countries have got over the privacy issues and found ways to get data unlinked with patients. Many of our organizations, our health care systems, are bureaucratic obstructionists if you try to get access to that data.

Ms. Libby Davies: Can you name a good example of where you think it is working, where generic information is being produced that helps you with research while still protecting patient privacy?

Dr. D. Lorne Tyrrell: Yes, I would say the first one was Manitoba, and the second one is probably Ontario.

Ms. Libby Davies: Are they any places elsewhere in the world?

Dr. D. Lorne Tyrrell: Certainly in Australia they've had some issues with this and they've overcome some of them. New Zealand has done the same thing. Parts of the United States—the Framingham study, for example—have been famous all over the world because they've been able to get access to the databases. You know, we have provincial databases that are fantastic if you can get access to them, but they're often protected and they say they can't give you access because of the privacy issues.

We're dealing with this in Alberta right now and trying to get better access. We have researchers who come to the province and then go outside the province to get access to the data so they can publish their work. It's ridiculous. Canada with its public health system should be leading the world in access to data and working out how we can improve the outcomes of health care.

Ms. Libby Davies: Do I have any more time?

The Chair: No, actually the time is up, but thank you for your questions, Ms. Davies.

Now we'll go to Dr. Carrie.

Mr. Colin Carrie (Oshawa, CPC): Thank you very much, Madam Chair and another exciting panel.

I wanted to start off talking to Dr. Hudson.

First, it's great to see another Waterloo graduate around the table. I want to talk about your research on natural health solutions to common psychiatric disorders, the natural source tryptophan and essential fatty acids. Since I've been here in Ottawa, I've seen a huge rise in prescriptions for antidepressants that seems to be out of control. Sleeping pills are out of control, as is pain medication and stuff like that. We heard Dr. Brindle talk about different fish oils and different botanical stuff like that.

With your product, the reason I'm really interested is that it seems we're looking at technological innovation and you're somebody who has been successful taking more of a natural type of thing and being successful getting it out there.

I was wondering what the challenges are when you're looking at venture capital to study natural health products and things along these lines or things along the lines that you would like to see being utilized a little bit more. You mentioned that physicians have to be more entrepreneurial. Maybe we could even save a lot of money if we used more natural products instead of pharmaceuticals, as well as avoid addiction issues and stuff like that. I was wondering if you could comment on the difficulty of venture capital with the natural health products.

● (1650)

Dr. Craig Hudson: I would just say do more of the same. I think Canada is actually well situated to deal with this in many ways. I think there's sort of an advertising problem, if I can say that. With the hypnotic medications we use, if you look at the February 2012 *British Medical Journal*, you'll see there's a sixfold increase in cancer in people who are using hypnotics on a regular basis. That's a significant concern.

With Canada, we have a lot of things that were really established after I got started. The natural health products registry or directorate, as part of Health Canada, I think is a great idea. Likely you could just focus more on it and get it more disciplined in its focus and get a faster time to approval. It's the approval process that is really the valley of death. It's not so much the patent costs. The patent costs are fixed and you can manage those to a certain degree, but really what you have to do is get a product on the market.

So I think Canada has a unique opportunity because of the way Health Canada could regulate this to get the product out there a little bit faster. Health Canada approval is taken seriously by many other countries—Korea and the U.K, for example. If you're approved with an NPN in Canada, you'll make it faster into the other regulatory environments. So I think just more of that would be good.

I just think the other part is the education of physicians in the way we've talked about, sort of as an entrepreneur. How are they going to raise money? They might have to raise something. It's going to be family and friends for the first part. If you go to VCs too soon, it's just not patient capital, with all due respect to any venture capitalists who might be on the panel with me. It's not always patient capital, and that's the problem. It leads to conflict and it could ruin a company.

So I would just say more of the same is needed. You're doing it well already, really. It's just focusing it and making it clearer.

Mr. Colin Carrie: Thank you very much.

My next question is for Dr. Friesen. I'm looking at your six points, and I think you're bang on. I was wondering if you could expand a little bit on the procurement policies to nurture the sector. I know that our government has been trying to lead the way in reducing red tape and looking at regulatory harmonization, and things along those lines. This has come up a couple of times. I was curious if you could expand on that for the committee, as far as recommendations are concerned. As my colleague said, we'll be writing a report. I'm curious to hear what you'd have to say about procurement.

Dr. Albert Friesen: I was going to give the example but didn't have time. For example, when we got WinRho approved in 1980, the Province of Manitoba immediately switched from Johnson & Johnson's RhoGAM product to WinRho. Next was Saskatchewan, Alberta, Quebec—interestingly enough—and I think the last one was Ontario. Back then in the eighties, the provinces switched if there was a locally produced product.

There are many other examples where that could happen, but the health organizations have to look for them. There are not that many drugs now being developed in Canada, but other devices are. Another example is a Winnipeg imaging company called IMRIS, mobile MRI, which is now sold throughout the world. The last province, the last place to put one in, was Manitoba.

There isn't a mindset by the governments to do this, and part of it is because they don't recognize there are some that are locally made. There's a distance between the health buyers, and the second part of it is that they're being inundated by the sales people from Johnson & Johnson, etc., and being lobbied.

There has to be a deliberate attempt to look at procurement opportunities—and there are some. Start small and expand on them.

● (1655)

Mr. Colin Carrie: Thank you.

How am I doing for time?

The Chair: You have one minute.

Mr. Colin Carrie: Okay, the last one is for Dr. Tyrrell.

You mentioned the valley of death. We've heard that over and over again. We need to learn some lessons. You brought up the United States and its SBIR grants.

I was wondering if you could elaborate a little bit about them and what they are. You mentioned some of the challenges. In the U.S. they seem to be able to get these things going and we don't.

I notice that in the States, too, they have a system where they actually encourage people to donate to universities, angel venture capital, stuff like that, where they partner. They raise the private capital. If you know that you have private money, this is probably going to be a very good idea. Then the government climbs on board. Other people climb on board.

I was wondering if you could talk a little bit about the SBIR grants, and also what they do differently to get the private money upfront to partner.

Dr. D. Lorne Tyrrell: Of course, if you carry the product a little further on, it's easier to bring in the private money.

But let me just point out that the SBIR grants are $100,000 over the first year, and you can use that for patenting. A lot of your patenting costs are already covered by the SBIR grant.

The second phase is $1 million over two years, and you can use that for getting across that valley of death, and proof of concept and nano models, etc. The success rate of going from phase 1 to phase 2 is such that only about 30% go to phase 2, but 48% of those that have produced products on the market have a phase 2 grant. We just don't have an equivalent in Canada to get across that valley of death. That has been extremely important.

Canadian researchers are often asked to move down to the States or open an office in the States and they'll help you get an SBIR grant to help you get across that valley of death.

The Chair: Thank you, Dr. Tyrrell.

Now we'll go to Dr. Fry.

Hon. Hedy Fry (Vancouver Centre, Lib.): Thank you very much, Madam Chair.

What we're hearing from you is somewhat repetitive; we're hearing it from everyone who has come before us.

There are two issues I wanted to talk about. One of them is, how do you see government levering money for the basic scientific research, which you say is absolutely necessary, curiosity research, etc., so that you can take that and jump it to commercialization, if necessary. But sometimes it doesn't become commercialized. What is the vehicle that you see government using to do that? That's the first question.

The second question has to do with translational research and commercialization, and how the government could play a role.

There was a government program that started around 1998 with the help of people like Michael Smith, who pushed it. It was called Technology Partnerships Canada. Today, Technology Partnerships Canada only deals with widgets, things you can see, hold, feel, etc. But Technology Partnerships Canada was based on what Libby was talking about, which is that the university does the research, the university comes up with the idea, and then they twin with a commercial venture capitalist or commercial venture company and the government provides equal funding. If the government put funding in, there would be equal funding put in by a private sector investor or by a company, for instance.

Some of the best examples actually don't come out of biomedical research but come out of aerospace, such as MacDonald Dettwiler that did work on the CASSIOPE, a huge Canadian venture that is now up in space and being used by everyone. It came out of the University of Alberta, which worked with MacDonald Dettwiler and the government to partner and commercialize it. It worked. It worked very well for a while and it's no longer there.

My question is, do you think that is still a good vehicle to move forward with in terms of biomedical research? If so, do you think that the tripartite partners—the university, government, company or commercial group—could bring it together, or do you think there's another partner that should come in? Are the three partners the only solution? How do you see that?

The first is a basic research question and the second one, of course, is the one about how you see something like Technology Partnerships Canada coming back and being applied to biomedical research. This is one of Canada's biggest niches that we can excel in. Really, we should be looking at how we do that. I agree with you on that.

● (1700)

The Chair: Who would prefer to take that on?

Hon. Hedy Fry: I would open it up, because everyone seems to be on the same kind of—

The Chair: Dr. Brindle, do you want to start with that?

Dr. Ian D. Brindle: I think one of the things is that universities, particularly smaller universities, are so busy chasing undergraduate enrolment that they are then not able to put funding into basic research. I think that's one of the problems.

I think there are a lot of universities where there are not commercialization enterprises going on. I come back to the comment that was made earlier about basically making sure that you have the resources to be able to run through the process of taking an invention all the way to discovery and commercialization.

Another thing that I think is important is the development of a philanthropic dimension, which is perhaps the other one that you've talked about. In the last few months for a variety of reasons, I've had interactions with the Broad Institute—which I'm sure some of my colleagues are aware of, if not the rest of you. This is a joint venture through Harvard and MIT that was funded in part by the Broad family. They have a number of missions, if you will. I have them listed here. Each one has two words essentially: act nimbly, work boldly, share openly, and reach globally. Those are the criteria through which Eli and Edythe Broad mandated the growth of this institution, which is working on an enormous range of biomedical applications.

I'll leave it at that.

The Chair: Who else would like to take on that question?

Dr. Friesen.

Dr. Albert Friesen: The TPC was a very successful program. It led to a number of companies, Neurocan and others, becoming fairly successful, and a lot of products. In basic research, there are some good programs. One of the things I would very quickly say is that changing is a problem. CFI is a great program. It's a struggle to keep it going. NSERC is a good program. It has reduced funding. It has got to get more funding again. But on and off, research organizations take decades to develop. You can't cut them off and then start them up again.

The Chair: Anybody else?

Professor Tyrrell.

Dr. D. Lorne Tyrrell: The TPC program may have been replaced a little bit by the centres of excellence for commercialization and research, and I think they're going to work. But I really would echo that you've had some wonderful programs in Canada. We often put a horizon on them that says an NCE must be self-sufficient in 14 years, and we stop a number of really successful centres by saying that's the term, and it's then over. Canada needs to recognize that you don't need to keep changing. We have some great programs and we should continue to support some of those because they are very successful.

The Chair: Dr. Hudson, we have about 35 seconds, if you want to —

Dr. Craig Hudson: I would just to add that most of my investors are not institutional investors. I have farmers and dentists. I pool the money together from a bunch of people. If there were some way of protecting those people, because they're taking a significant risk when they're investing in a company like ours....

Voices: Oh, oh!

Dr. Craig Hudson: Let me tell you. A psychiatrist would.... It's really a bad idea.

Some hon. members: Oh, oh!

Dr. Craig Hudson: The chance of that being successful are not high, but fortunately in this case it is. But if there were some way of protecting those investors...because I think that's also something that's not seen, that Canadians can be entrepreneurial, that they want to invest in companies, but they need to have a way to protect themselves a little bit.

The Chair: Thank you. That's an extremely good point, and I don't think we've heard that one before, or not put in that way.

We'll now go on to Ms. Block and Mr. Lizon. I understand that you're going to be sharing your time. Who would like to begin? Ms. Block?

Mrs. Kelly Block (Saskatoon—Rosetown—Biggar, CPC): Sure.

Thank you very much, Madam Chair, and I would like to welcome all of our guests here today. It's been very informative.

I would just like to make a couple of observations on what we've heard.

I echo our chair's earlier comments when she said she had to turn and ask the clerk for some definitions, because we hear about discovery research, basic, pure, applied, translational: it can be mind-boggling when you hear all of the terms and try to figure out what we are talking about. I've heard many people talk about the need to bridge the gap between research and commercialization, and I'm assuming that's the valley of death.

Finally, I heard someone say that we needed to coordinate our regulatory pathway, and I guess that's what I want to zero in on, because I probably only have about three minutes left now. I recognize that there are probably regulatory barriers right now that keep us from being able to get to where we need to get to. I'm just wondering if any of you would like to address that issue.

● (1705)

Dr. Albert Friesen: There are two things, quickly.

One is, as I said, that it's impossible for the health protection branch to have the expertise to really do a good regulatory process of all drugs that the FDA sees. So they should coordinate and work together with the FDA and other agencies and save money.

Secondly, I just saw in the paper again today that we have 11 securities commissions across the country. There should be one. For somebody to raise the money.... I know that they've been working at it and it's been difficult to get, but that's an absolute no-brainer.

Also, coordinate the health protection branch with the FDA and the European EMA.

The Chair: Okay.

Dr. D. Lorne Tyrrell: I just have a brief comment. Another example of regulation is ethics approval for studies. Every hospital has to give an ethics approval. We have one Alberta health authority, and we should have one approval for ethics. Drug companies have moved clinical trials out of this country. It represents 3% of the world's sales, but we have such a problem with ethics and getting ethics approval in all the hospitals, by the time we get them, the studies are done. Many companies are not bothering to come to Canada any more because of the ethics issues not being well regulated. There are much better ways we could get that done.

The Chair: Mr. Lizon.

Mr. Wladyslaw Lizon (Mississauga East—Cooksville, CPC): Thank you very much, Madam Chair, and thank you, panellists, for coming here this afternoon.

Madam Chair, I will start with a question for Dr. Brindle. In your presentation you showed us a graph of how the prices of drugs were going out of control. That curve looks like a hyperbolic or parabolic shape, whatever it is, but can you maybe expand on it and just tell us what should be done, in your view, to bring it back under control? Could you maybe say a few words on this topic?

Dr. Ian D. Brindle: I think it's a real conundrum and it's not the price of drugs, but the cost of bringing a drug to market. So it's not how much—

Mr. Wladyslaw Lizon: That's correct, yes.

Dr. Ian D. Brindle: So it's not how much the public pays, but rather how much the drug company pays to basically bring that drug onto the market. Because of the regulatory framework, because of the fears of the drug companies and, to some extent, because of the way that drugs are chosen to go to market, there are some difficulties. For example, people my age are taking 10 milligrams of Lipitor every day. The drug companies love people like me because I take 10 milligrams of Lipitor every day.

So there are those drugs that have payback. There are other drugs that don't, and I think there's a distraction that can come from this because, thank goodness, my cholesterol is being controlled by Lipitor every day. But as I mentioned, there are other therapies, and maybe our pumpkin seed therapy, compared with the cost of Lipitor and so on, is better.

I think the costs of developing drugs will continue to be high because of the regulatory framework and, certainly, I agree that duplicating the efforts of the FDA to approve things just puts a barrier in the way of progress.

But I'd come back to what I said before. You're doing this balance between the cost of drugs, which is continuously going to be high because of that regulatory framework, and the cost of hospital treatments and various other medical treatments. We're basically playing a sort of red queen game, where you have to run as fast as you can to stay in the same place. Those are the problems that we're facing. That's why I think that preventative medicine may be a way to go, so that we can eliminate the need for some of these drugs.

The Chair: One more minute.

Mr. Wladyslaw Lizon: Dr. Hudson, with your pumpkins and pumpkin seed idea, you mentioned that you have to bring them now from Wisconsin. Why is that?

● (1710)

Dr. Craig Hudson: I had to find an organic source of the pumpkin seed, and I'm working on that now, but in order to get the best price, the highest margins basically, I should sell an organic product into the natural health market. So I have to find certified organic farmland where people will grow pumpkin seed, and it takes a number of years for that to happen. So I'm working with some local farmers now to make that happen, but it will take many years to develop that kind of market.

Mr. Wladyslaw Lizon: Are you suggesting that we're running out of organic land?

Dr. Craig Hudson: Not at all. The concern I have is that farming in Canada is very good and very productive but they grow a lot of low-margin crops. They grow a lot of corn. Again, they don't make a lot of money from that.

What I would want people to think about is that you can grow a high-value crop and make a higher margin on it, but you've got to protect it with technology and intellectual property. The sorts of things we think about with drugs, we should be thinking about with functional foods. There's a more rapid time to market. We narrow the valley of death. There are higher margins for our crops and, really, Canadian farmers are seen as very good farmers throughout the world. If I told you I were buying pumpkin seeds from China, you would have some suspicions. You might, I don't know. Maybe you would. But if I tell you I'm buying pumpkin seeds from southwestern Ontario, you would feel pretty secure in eating them.

That's what I'm saying. We don't do enough of that.

The Chair: Thank you, Doctor. Very good comments. Very good questions.

We're now going into our second round of questions and time is going quickly. They're five minutes each, and we're going to begin with Dr. Sellah.

[*Translation*]

Mrs. Djaouida Sellah (Saint-Bruno—Saint-Hubert, NDP): Thank you, Madam Chair.

I want to thank all of our guests. I have learned a great deal. What you said about pumpkin seeds alone has taught me something. I will eat them a lot.

Mr. Friesen, I was reading your presentation. I'm interested in the sixth item, where you talk about reorganizing the health care system to fit the current and future reality by retaining the one payer. However, you suggested that this should be done by opening up, organizing and regulating a multi-provider system, and you gave MPIC as an example—

[*English*]

The Chair: Excuse me, Dr. Sellah. If you'll just pause for moment, we have a translation difficulty and I want everybody to be able to hear you.

Are we okay now? Thank you.

Dr. Sellah, please continue.

[*Translation*]

Mrs. Djaouida Sellah: I'll take it from the top.

Mr. Friesen, I was just saying that I have read your presentation. Under the sixth item you put forward for improving the system, you suggested reorganizing the health care system to fit the current and future reality by retaining the one payer, but by opening up, organizing and regulating a multi-provider system. Then you provided the example of MPIC.

Could you tell us more about the MPIC example? In addition, I would like to know what you mean by “the one payer”.

I will ask my second question right away.

I was really surprised to hear that it was difficult to access other provinces' databases. However, some witnesses have told us that Canada was a land rife with pilot projects, that there were many best practices and that the goal was to make all Canadian provinces benefit from those practices. And here I'm being told that the data is not accessible. I am wondering why.

[*English*]

The Chair: Who would like to begin to answer those in-depth questions?

Dr. Friesen.

Dr. Albert Friesen: I can address the MPIC or the single payer. The single payer is the same organization that's paying now, the Department of Health, which is supported by the federal government. So they have provincial and federal support. That's the single payer. I think in that way you can regulate, but as for a multi-provider system, there is some of that already, but I don't hear it widely referred to as such. That's why I very quickly in my presentation said that you have companies providing diagnostics and so on. They're commercial companies.

In the case of the Manitoba Public Insurance Company, MPIC, it's the lowest-cost, most efficient insurance provider in North America, because you have competition in providing services, and it's controlled and regulated by Manitoba Public Insurance. I think that model could work in the health care system to provide competition. One of the problems in the hospitals is that the hospital organizations are not structured to incentivize efficiencies. We have doctors who do their thing, etc., so by introducing a multi-provider.... Now, there are multi-hospitals. Suppose they were competitive; hospitals would very quickly find a way of providing an incentive organization to reduce cost.

● (1715)

The Chair: You have less than a minute left for the second question.

Does anybody want to address Dr. Sellah's second question?

Dr. D. Lorne Tyrrell: I'll just say that access to data is always held up by the privacy issue. Some provinces go to the privacy issue as a barrier to access to data, I think, and other provinces have found ways around this. I think we should be working across the country to make access to data so we can improve the system across the country. It's a very important part of health research. Saving costs is getting best practices across the country, and access to data is very important for that.

The Chair: Dr. Brindle, would you like to make a comment?

Dr. Ian D. Brindle: Yes, just a very quick point.

I agree with Dr. Tyrrell. I think there's a certain balkanization of health care records, which does make it very difficult. The e-health scandal in Ontario is an example of that, which I think is a problem that the provincial government is struggling with. If you need an example of how that's not working very well, that's certainly one of those cases.

The Chair: Thank you very much, Dr. Sellah.

We'll now go to Mr. Lobb.

Mr. Ben Lobb (Huron—Bruce, CPC): Thank you, Madam Chair.

I want to thank everybody for taking the time to come today. I know you're all very busy and this likely represented a day or so out of your work day. Thanks again for taking the time.

Dr. Hudson, I've followed your progress here for a number of years. One of the reasons I think it's important you're here is that you're doing this in real time, so you can share with the committee some of the ups and downs. You're outline was good, but it doesn't really tell us what you've been able to achieve. Maybe you could tell our committee some of the different places you've been able to get a patent or a trademark, how you went about it, and how you learned how to do it, because it's not easy.

Dr. Craig Hudson: A fair answer to your question is that it's not easy, and I didn't know how to do it. I really didn't know. I was lucky to get a good patent agent early on.

I think there's an important distinction between the trademarks and the patents: the patents are going to expire, whereas the trademark is forever. That's one of the advantages of having a Canadian product, where you put the mark on it and you just keep driving that trademark. When I'm selling into Germany or Denmark or Sweden or Norway, or wherever I sell the product, the label always looks the same. That really comes from the aspirin story, where aspirin never had a patent. It was acetylated salicylic acid. But what they drove home was the notion of a patent.

I think that's one of the advantages of a natural health market—people tend to trust a brand. But in the pharmaceutical market, though they'll sometimes trust a brand, they're more apt to move over to a generic drug when it's offered to them. One of the advantages of staying within that more narrow natural health market is that I'm building a brand that will last beyond my patents. Even though I'm not that old, my patent will expire in about eight years, and then that's $1.5 million gone. So I need to continue evergreening the patents, but also developing a strong brand. That's something I had to learn the hard way. Again, I was fortunate to have a very good patent agent who took me through that process early on.

● (1720)

Mr. Ben Lobb: One of the other things I want to touch on, which I think is important as well, is the entrepreneurial spirit that's required. What is also unique in your story is that you didn't develop this in your parents' garage when you were 19. You had your practice established, had your family, and you were still able to do it. So you're able to juggle many things at one time.

How do you do that? What are the lessons learned for other professionals who have a good idea, but because of their busy schedules, never step forward to develop it?

Dr. Craig Hudson: That's an important point. I think it was Dr. Friesen's point as well. You have to have that entrepreneurial spirit well developed by the time you walk into your medical practice. Really, all medical doctors are entrepreneurs to one degree or another. If Dr. Friesen's model comes in, we'll be a lot more entrepreneurial and competitive.

That sort of thing has to be learned, and either you do it well or you do it poorly. If you don't know how to do it, it will be a disaster. There are so many examples of doctors investing in housing, apartments, or other things they know nothing about. They have extra cash and they throw it away. Still, if we focus on the medical school training, incorporating the idea of a natural health product not being the poorer cousin to a pharmaceutical one, I think we have an opportunity, a venue, by which people can take things to the market.

The reason I worked so hard clinically was that I had to. Basically, I had to keep paying the bills at home. I couldn't tell Mrs. Hudson I was going to take a year or two off to do this. It was more out of necessity than anything else. But I really enjoyed the clinical practice and I enjoy the entrepreneurial stuff as well.

Mr. Ben Lobb: I don't want to presuppose what's in our report, but you talked about the approval process, about doing everything possible to make sure it's a good, efficient regime. At the front end, we're trying to innovate and develop new ideas, and all of a sudden these ideas start to mature. But when it's time to go through the regulatory process, that's where the bottleneck is. You may have spent all the money at the front end, without fixing the issues. I hope that's a component in our report. We want to make sure, for people such as yourself, that when you've taken the product all the way through, you aren't waiting for 10 years to have it approved.

The Chair: Thank you very much for the very good questions, Mr. Lobb, and for the good answers.

We'll now go to Dr. Morin.

[*Translation*]

Mr. Dany Morin (Chicoutimi—Le Fjord, NDP): Thank you, Madam Chair.

My question is for Dr. Hudson.

Earlier, you talked about ordinary Canadians—such as farmers or other ordinary citizens—who want to encourage Canada's innovative start-up companies. It's important to help them. I agree that interested and capable entrepreneurs should be encouraged. People do need to have certain skills to become entrepreneurs and go into business. Those companies need Canadians' support. I am a proud Canadian, and I like buying Canadian products.

I was thinking of the people who invest in your company or in other similar innovative businesses. Do you think it would be a good idea for the government to create a tax credit to encourage people to invest in funds that help innovative Canadian companies?

[*English*]

Dr. Craig Hudson: Yes, that was where I was going with that. That is how I would view it, that people take the risk and then they get some sort of government protection, if I can put it that way, or some tax advantage for doing it. But they have to significantly risk their money. Unfortunately, there are all these different strategies by which people risk their money but they don't really risk it. So they—

[*Translation*]

Mr. Dany Morin: I will let Mr. Tyrrell answer, but I just want to make a quick comment.

The good news is that this program did exist, but the government decided to pull it this year. Labour-sponsored funds were investing in Quebec businesses. I am referring to initiatives like the QFL Solidarity Fund, which invested in Quebec companies such as Dermolab Pharma, an R & D lab; GLyPharma Therapeutic, an R & D company for medication in oncology supportive care; and Milestone Pharmaceuticals Inc., a pharmaceutical company specializing in cardiovascular diseases.

So those labour-sponsored funds were investing in Canadian or Quebec companies, and the investors who wanted to encourage those companies and buy Canadian products received a 15% tax credit. Yet, the government decided to eliminate that tax credit.

Do you think that the government should not only reverse its decision, but also expand that measure and perhaps even encourage other Canadian funds that may be even more specialized in the area of innovative start-up companies?

● (1725)

[*English*]

The Chair: I think you had a comment, Dr. Tyrrell, and then we'll continue with Dr. Morin's question.

Dr. D. Lorne Tyrrell: I have a very quick comment.

Mining is a risky business, oil and gas is a risky business, and when they got started, there were flow-through tax credits to help encourage people to put money into those. That's how they really got their start in Canada.

Biotech is a long-term, risky business as well. It has never enjoyed the same type of support from venture capitalists, and venture capitalists have never gotten the same types of breaks as those investing in mining and oil and gas.

Dr. Albert Friesen: I would very strongly support the idea of tax incentives for investors, but it's a bit more complicated than that. In these labour-sponsored funds in Manitoba, Quebec, and other provinces, they gave tax credits to the private sector. Now some of the private sector investors didn't know what they were investing in, and so they misunderstood the risk factor. There was a communication gap. One has to prepare the tax incentive programs very quickly.

There have been tax incentive programs since the 1970s in Canada, but the rules have changed because of abuse and so on. Recently, the SR and ED program, which is a tax incentive program, was reduced. It's been a very important part of incentives for the private sector to invest, and I think it should continue, but rules and regulations have to reviewed from time to time so there's not an abuse.

The Chair: Thank you very much, Dr. Morin.

I have a couple of instructions and information I have to give to the committee. We're finished our list, so I will bring this to a close. We want to particularly thank you for coming today and giving this information to us. It's extremely valuable, and your expertise means a lot to every member on the committee.

As far as the committee is concerned, I would like to remind you that you will get the report on technological innovation the afternoon of Monday, the 27th. On the 28th, we have agreed not to have a formal committee meeting with witnesses, because I would suggest that this time needs to be spent going over that report. On Thursday, we will come back, examine that report, and make our comments on it, as well as deal with the motion, if you so choose, that Ms. Davis brought today.

With that, Ms. Davis.

Ms. Libby Davies: I just have a question on the process. When you say we won't meet formally on Tuesday, are you suggesting that we're meeting informally or that we're just meeting in our own groups?

The Chair: As we talked about previously, the committee had agreed that it would be nice to have that time for each of the members from all sides of the House to be able to sit down together with their people and examine the report. You will have it on Monday afternoon, so you will have opportunity to read it Monday afternoon and evening. I don't know how many pages it is.

I want to tell you about this report. It's completely confidential and will not be sent out via e-mail. It will be sent to members only. It will be sent as numbered documents in hard copy only. You need to know that.

Ms. Libby Davies: I have a follow-up question.

Thank you for clarifying that. That's what I understood for Tuesday. I just wanted to make sure.

At the Thursday meeting, rather than jumping into page 1 and starting to go through what we all anticipate will be a very big report, I do believe that it would be very helpful if we spent that Tuesday meeting—in camera of course—just hearing the analysts give us an overview. That way we could have a more general discussion about how they organized it and how it flows. I think it would be a mistake for us to jump in at page 1 and ask if we agreed with it or recommendation 1, or whatever. I think we need to have a general discussion with the analysts, because it is going to be so big.

● (1730)

The Chair: Of course, that will be what we will do before we go into the report.

Ms. Libby Davies: Yes, because there might be some overall changes besides individual recommendations. There might be some shifts. I don't know; I don't want to prejudge it.

The Chair: No. That's perfectly fine, Ms. Davies. Don't get alarmed. I think we'll be okay that way.

Are you all agreed with that? Good.

I would like to thank you again for coming, and we look forward to bringing you the report when it's finished and tabled.

The meeting is adjourned.