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Chair

Mr. Ben Lobb

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● (1530)

[*English*]

The Chair (Mr. Ben Lobb (Huron—Bruce, CPC)): Good afternoon, ladies and gentlemen, and welcome to our committee. We're kicking off our two-meeting study of lung cancer in Canada. We have two groups here this afternoon from 3:30 to 4:30. First up we have Dr. Paul Wheatley-Price and Dr. Natasha Leighl.

You have 10 minutes, so go ahead.

The Clerk of the Committee (Mr. Andrew Bartholomew Chaplin): They're presenting as individuals, so each gets 10 minutes, but they're coordinating their presentations.

The Chair: Okay.

Just carry on. We'll tell you when to stop.

Dr. Paul Wheatley-Price (Medical Oncologist, The Ottawa Hospital Cancer Centre, As an Individual): Thank you very much, Mr. Chair, for this opportunity.

As you're aware, nearly half of all Canadians will develop cancer at some point in their lifetime and of these, lung cancer is the most common cancer in Canada. It's by far the biggest cause of cancer deaths in Canada and worldwide. In 2012, the WHO reported that lung cancer is the fifth-leading cause of mortality worldwide after ischemic heart disease, stroke, chronic obstructive pulmonary disease, and pneumonia. In Canada this year we expect over 26,000 cases of lung cancer and nearly 21,000 deaths. To put that in context, the four most common cancers in Canada are lung cancer, colorectal cancer, breast cancer, and prostate cancer, but lung cancer will kill more Canadians than those other three combined.

We don't usually think of lung cancer as a woman's cancer, but lung cancer will kill more women in Canada than will breast cancer, ovarian cancer, cervical cancer, and uterine cancer combined. In other words, it's a major cause of morbidity and mortality in this country, and as has been widely reported, the Canadian Cancer Society is predicting that overall the number of cancer cases is going to increase by up to 40% over the next 15 years, not due to an increase in individual risk but rather given an increase in the Canadian population and the aging of the population.

Unfortunately with lung cancer, the vast majority of patients are diagnosed when their cancer is already at an advanced and incurable stage. As a result of that, we see that lung cancer has one of the lowest survival rates of all cancers. Currently about 18% of patients with lung cancer survive five years after their diagnosis. That being said, there are some real grounds for optimism in the treatment of lung cancer. The first one I would bring to your attention is that lung cancer screening strategies to identify lung cancer at an earlier stage in individuals who are yet to develop symptoms may reduce lung cancer mortality by up to 20%. That would represent around 1,250 lives a year saved in Canada.

We are seeing other advances. The molecular profiling of lung cancers means that we can now identify, if you like, a genetic fingerprint of a cancer. We recognize that lung cancer is not just one disease but a myriad of a number of different subtypes and for many of those, we now have a drug that can target the particular type. A little bit later you're going to hear from Colonel Jacques Ricard, who is a physician in the Canadian Forces as well as a lung cancer patient and a beneficiary of one of these new molecularly targeted agents.

Very recently we've been hearing in the news about immunotherapy as the most exciting advance in lung cancer treatment for some years. The immune system for all of us depends on multiple checkpoints or immunological breaks, and they work to prevent your immune system from over-activating and attacking your own healthy cells. Cancer cells have learned to take advantage of those checkpoints to avoid detection by your own immune system. These new-generation immunotherapy drugs affect these checkpoints, essentially unleashing the breaks to attack the lung cancer cells. We've had some very positive news just in the last couple of weeks about a new drug that's already had FDA accelerated approval in the States and we'd like to see it coming to Canada as soon as possible.

You may hear from Dr. Pantarotto, my colleague and also a radiation oncologist, about some of the new and exciting technologies for delivering radiotherapy for very focused and precise treatments. There is optimism, but that optimism is in the context of a disease that is extremely deadly.

Dr. Leighl and I both volunteer for an organization called Lung Cancer Canada in addition to performing our clinical and academic roles. Lung Cancer Canada is a national charitable organization that aims to increase awareness, patient support, advocacy for the families of patients with lung cancer. We're hoping, and have been engaging with members from the federal government over the last year or two, to try to develop some programs.

● (1535)

That leads me to what we would like to see as a possible role for the federal government in lung cancer. We would respectfully ask the standing committee to seek ways federally to support lung cancer. For example, provide leadership in raising awareness about a deadly disease and in tackling stigma, which Dr. Leighl will talk about, while continuing to work towards a smoke-free Canada. Collaborate with organizations such as Lung Cancer Canada in developing lung cancer programs for the populations that the federal government is responsible for. You'll hear a little bit later from Dr. Stephen Lam from British Columbia about a potential screening program for veterans.

We would ask you to consider giving guidance to Health Canada, CIHR, and the Public Health Agency of Canada to provide proportionate research funding. You will hear a little bit from Dr. Leighl again about our concerns around the disproportional assistance that lung cancer receives. We would like to see Health Canada give regulatory approval to lung cancer drugs.

Anecdotally, we feel that lung cancer doesn't get the same attention as some other cancers and illnesses. We would ask you to consider using some examples from perhaps the U.S. In 2013 the high mortality cancer bill was passed. It focuses primarily on cancers with high mortality rates, primarily lung cancer and pancreatic cancer.

Those are my comments. Thank you for the time.

I'll now pass it over to Dr. Leighl.

Dr. Natasha Leighl (Associate Professor, Lung Site Lead, Division of Medical Oncology, Princess Margaret Cancer Centre, University Health Network, University of Toronto, As an Individual): Great.

Thank you so much. Paul and I are honoured to be here to address the committee. We both are medical oncologists at separate institutions. We treat lung cancer. We have an interest in the treatment of lung cancer. We also volunteer with a charitable organization, Lung Cancer Canada, devoted to supporting people with lung cancer.

As you've heard from Paul, this is a major public health problem. I want to talk a bit more about the toll this has on people who are diagnosed with lung cancer here in Canada. I also want to talk about what holds us back from progress, the very low survivorship rate, and the stigma, which I'll touch on a bit more. This results in a disproportionate amount of public support for people diagnosed with this disease and their families, and a disproportionate amount of research funding. Like Paul, I want to highlight some of the opportunities where we think this group can really help us change outcomes for people with lung cancer in this country.

Lung cancer, as you've heard, is, sadly, the number one cause of cancer in the country. I am quite competitive, but to be number one in this is difficult. Lung cancer is, sadly, far and away the leading cause of cancer-related death.

Although 80% more women die from lung cancer than breast cancer, breast cancer is the women's cancer here in this country. Over 200% more men die from lung cancer than prostrate cancer, and yet prostrate cancer is the cancer people remember on Father's Day and associate with the men in their lives. We feel this really does need to change. It's estimated by Statistics Canada that cancer remains the leading cause of death for Canadians, but lung cancer by itself causes one in fifteen deaths: 8% of Canadians who die every single year die from lung cancer. That's really second only to cardiovascular disease.

Who gets lung cancer today in Canada? Of course, we do see people with smoking histories: 15% of the patients I see smoke currently. But the vast majority, over 60%, have quit smoking at some time, anywhere from the year before diagnosis to as many as 60 years before. A growing proportion of people—in my practice it's up to 25%, and in other people's practices it's as low as 10% to 15%—were never smokers, and never had that association with tobacco.

Most people, 75%, are diagnosed as already at an incurable stage, which I think really speaks to some of the lack of early detection here in this country and some of the lack of awareness of how we can find lung cancer early.

At least half of the people I meet with lung cancer in my clinic must quit working. Only about 15% are actually able to continue to support their families. Lung cancer is a major cause of financial distress for families in this country. More than a third of patients perceive that this has a devastating impact on their family and their finances. We know that people with lung cancer—this is from a study in the U.S.—have a higher rate of bankruptcy than do people without cancer. Of all the cancers surveyed, lung cancer actually has the highest bankruptcy rate. I'm hoping you get a sense of the devastation that lung cancer inflicts not only on an individual but also on a family.

We've also learned that many of the people we diagnose with lung cancer are diagnosed too late to receive treatment. Through some work we've done and recently published, we've found that only a quarter of people diagnosed with advanced cancer are actually well enough to have some of the incredible therapies that Paul has just talked about. Again, this really speaks to the need for early detection and a shift in our mindset to how and when we diagnose this disease.

This is really a high-mortality cancer. Although the five-year survival in lung cancer has risen to 18% with a lot of effort, it's 88% for breast cancer, 95% for prostate cancer, and 65% for colon cancer. You can see the huge disparity here in survivorship alone. With low survivorship, we have a very low voice for advocacy. There's also stigma, the very common public perception that if you have a diagnosis of lung cancer, you smoked, and so you deserve it.

Some of the low survivorship is because of the late detection. I think you'll hear later from Dr. Stephen Lam about the availability of organized screening that, for those at high risk, can significantly reduce mortality potentially to a greater extent than currently existing screening programs for such things as breast cancer and cervical cancer.

This is a virulent disease. While we are making progress, it has a very high case-fatality rate. Currently, most people diagnosed do die. There's a real lack of research funding. The Charity Intelligence Canada report from 2011 suggests that only 7% of the national research funding goes to lung cancer, despite causing 27% of the cancer deaths in this country, and less than 1% of the public donations. I think that speaks volumes about the stigma.

● (1540)

Some of the other work we have looked at suggests that even though lung cancer funding is increasing—between 2005 and 2010 it doubled from $10 million to almost $22 million—it's still only a fraction of the $536 million that was spent on cancer research that year. Again, you can see that's only 4% for a cancer that takes the lives of more than one-quarter of Canadians who die from cancer.

I also looked at just this past year, and CIHR, the Canadian Institutes for Health Research, awarded five grants for lung cancer research, for a total investment of $230,000 per year. That's an organization with $1 billion budget to fund research on all diseases in this country. When we compare this to the situation for breast cancer, over the past five years we've seen over 500 grants for breast cancer research worth over $140 million; by contrast, for lung cancer research there were 159 grants worth $39.6 million. Again, that's a disproportionate amount of funding and support.

At Lung Cancer Canada we conducted a survey. We asked 1,600 Canadians online what they knew about lung cancer, and half of the people did know someone who had had lung cancer. Only one-third knew that it was the leading cause of cancer-related death. Again, most women thought breast cancer was the leading cause for women and prostate cancer the leading cause for men. Most people, including smokers, had not spoken to their doctor about their risk for lung cancer, and only 2% knew that there was a lung cancer awareness month, November.

The association with smoking was very well known, but as you'll hear about later, there are other important risk factors such as radon, and only 1% of the people we surveyed correctly identified that as an important cause of lung cancer, and only 7% of homeowners had had their homes surveyed for radon exposure.

Two-thirds of the people we surveyed felt that people were very responsible for what they'd done to themselves because of their smoking habit, but instead of identifying things like heart disease or even other cancers as a consequence of smoking, which we know they are, they felt that people with lung cancer were the least deserving of their support, and certainly, smokers were the least deserving of sympathy, followed by those who drink too much and overeat. Again, there seems to be this disproportionate stigma against people with behaviourally related cancers and those who have smoked, and for all of those tobacco-related diseases, including heart disease and others, the burden of the stigma really seems to be aimed at people with lung cancer.

So what about screening? About one-quarter of Canadians know that there is a screening test for lung cancer, and 90% said they would support a national screening program for those at high risk. Currently we know that screening is approved and funded south of the border, in the United States. It's been estimated by the Canadian Partnership Against Cancer that 1,250 Canadian lives could be saved every year through the introduction of screening programs. I think this really has a dramatic potential to change survivorship rates.

With that, I want to again highlight some of the priority areas in which I think this group could really help us. We need national leadership to raise awareness and to really raise sympathy, tackling stigma while still working towards a smoke-free Canada. We need a national mandate to reduce lung cancer mortality. The United States has a bill to decrease the incidence of lung cancer mortality. I think we have a similar challenge here in Canada and a similar need. Through the establishment of screening we can really change the face of this disease, change the survivorship rates, and make a major change to the progress we can make in lung cancer. We also need to have a mandate to increase national research funding to an amount proportional to the impact of this disease on our citizens, and also to increase the chance of curing more people with lung cancer here in this country.

We need our own national campaign to combat high-mortality cancers, and the highest of these is lung cancer. Thank you.

● (1545)

The Chair: Very good. Thank you very much.

Next up, from the Canadian Cancer Society are Rob Cunningham and Robert Nuttall.

Go ahead.

Dr. Robert Nuttall (Assistant Director, Cancer Control Policy, Canadian Cancer Society): Thanks.

I'm Robert Nuttall. I'm the assistant director of cancer control policy. I'll be doing the presentation, but my colleague, Rob Cunningham, a senior policy analyst with the society, will also be here for the question period.

Chair and committee members, I want to thank you for the opportunity to talk to you today about lung cancer. We're here on behalf of the Canadian Cancer Society, a national community-based organization of volunteers whose mission is to eradicate cancer and enhance the quality of life of people living with cancer.

As you've already heard, lung cancer is a significant contributor to the overall burden of cancer in Canada. It's a major concern for our organization. Lung cancer is the most common cancer diagnosed in Canada. It is expected that 26,600 new cases will be diagnosed this year. As well, as we've heard, the five-year relative survival rate for lung cancer is among the lowest of all cancers at 17%, whereas the overall survival rate for all cancers combined is 63%. This year, we expect 20,900 Canadians to die from lung cancer. As we've heard, that's more than the number who will die from breast, prostate, and colorectal cancers combined.

While these numbers are substantial, we have been seeing progress in the fight against this disease. Incidence rates for lung cancer among males have been declining since the 1980s, and the incidence rates for females have finally stopped increasing. This is a reflection of the past trends we have seen in tobacco use. However, even though smoking rates are dropping, 19% of Canadians continue to smoke.

Smoking is the leading cause of lung cancer. It's responsible for more than 85% of all cases, but a number of other factors also cause lung cancer, and these factors can also increase the risk of cancer in people who are smokers.

One of the most significant is radon. It's a colourless, odourless, radioactive gas found naturally in our environment. It's estimated that about 16% of lung cancer deaths in Canada are due to radon. That's more than 3,000 deaths a year. The health concerns from radon are primarily around radon in indoor spaces, where radon can accumulate to high levels. Health Canada has recommended an indoor radon limit of 200 becquerels per cubic metre, although it should be noted that there is no known safe level for radon.

Awareness of radon among Canadians is low. Last fall we did a survey of Canadians and found that only 32% of Canadians were somewhat or very familiar with radon. Sixteen per cent of Canadian had not even heard of it. Testing one's home is the only way to know if a home has high levels of radon. Our survey found that 96% of Canadians have not tested their homes. When asked why, the main reason, most said, was that they had never thought about it. This shows the importance of raising awareness about radon.

The society appreciates the work that Health Canada is doing to raise awareness through their support of the national “Take Action on Radon” campaign, but there are a number of additional initiatives that can take place at the federal level to minimize people's exposure to radon. These can include financial incentives, such as support to homeowners to lower radon through mechanisms such as tax credits; reviewing the radon guidelines set by Health Canada to consider whether 100 becquerels per cubic metre would be appropriate; reviewing national building codes to consider new measures for new home builds; and ensuring that public buildings get tested for radon and mitigation is undertaken when levels are above the Health Canada guideline.

Another major cause of lung cancer is asbestos. Although we no longer have operating asbestos mines in Canada, many workers continue to be exposed to asbestos currently used in products and buildings or through imported raw asbestos and asbestos-containing products. There's still more work that can be done to further reduce exposure to asbestos. This could include developing and maintaining registries related to asbestos, such as building registries that provide a public record of buildings that contain asbestos, and disease registries, so that we know how many Canadians are exposed to asbestos through their workplaces. As well, we'd like to see a phase-out of new asbestos products to ensure that for Canadians future exposures to asbestos do not occur.

In addition, there are a number of other workplace chemicals that cause lung cancer. The sectors that tend to be most affected by these chemicals include the construction and manufacturing industries. The strategies needed to protect workers will vary depending on the specific substance. However, we need workplace policies in place that strive to reduce exposures or that completely eliminate exposures whenever possible.

Another risk factor that we're paying attention to is air pollution. In 2013 the International Agency for Research on Cancer classified outdoor air pollution and particulate matter within air pollution as known carcinogens. Air pollution is a difficult term to define precisely, as it comprises many different components and a wealth of independent factors like weather fluctuations and nearby industries. There are several components within air pollution that are known to cause cancer, such as diesel engine exhaust, benzine, some volatile organic compounds, and other compounds

● (1550)

Protecting Canadians from air pollution can be done through initiatives that monitor releases, reduce emissions, and track diseases in affected communities.

Our organization is also a major organization in research funding. Last year we provided $5.1 million to fund a broad range of lung cancer and smoking-related projects across the country. Some highlights of what we're funding include research to identify genes that might make people more susceptible to lung cancer, particularly among non-smokers; a model that will provide new insights into how lung cancer starts; research on cancers due to working in the mining industry; and a new type of immunotherapy that can target a tumour's microenvironment.

There are two other projects I want to highlight. One project we're funding on occupational cancer in Canada will identify the number of cancer cases due to workplace exposures as well as the economic costs associated with these workplace exposures. The second is more of a population-based approach, looking at the number of cancers in Canada due to lifestyle and environmental factors. Both studies will give us a much better understanding of how many lung cancers in Canada can be prevented.

Your group is also interested in emerging best practices around screening and early detection. As you'll probably hear over the next couple of days, a pivotal study from the U.S. shows a 20% reduction in lung cancer mortality among people who are screened using a low-dose chest CT. The study involved more than 53,000 people between the ages of 55 and 74 who had a history of smoking. Lung cancer screening has the potential to reduce the number of cancer deaths in Canada. It also has the potential to have an impact on the costs associated with treating cancer. This will need to be weighed against the costs of implementing and running programs. Unlike other screening programs that target an entire population within a certain age range, lung cancer screening is most effective when done in a high-risk population. That will make recruitment and participation difficult.

Lastly, we know that smoking cessation is very effective at reducing lung cancer deaths. Lung cancer screening programs should aim to integrate with smoking cessation programs.

A number of initiatives are currently taking place across the country to help planners and decision-makers understand lung cancer screening. The Canadian task force on preventive health care is currently developing recommendations for lung cancer screening. A pilot study on lung cancer screening is currently under way in Alberta. A network convened by the Canadian Partnership Against Cancer brings together experts, including representatives from the society, to share information on the issue. This group was involved in developing a lung cancer screening framework for Canada, which is a tool used to support jurisdictions in their deliberations and/or planning for lung cancer screening. We want screening programs to exercise due diligence in assessing the impact of lung cancer screening to ensure that programs are developed in a responsible and evidence-based way.

Finally, as we've already heard, there is the stigma of lung cancer. The prevailing stigma is that lung cancer is a self-inflicted disease caused by smoking. This stigma is a common experience with lung cancer, and can result in psychological distress and lower quality of life for patients. A study of health care professionals, administrators, and not-for-profit organizations that was done in Ontario just last year found that lung cancer patients feel guilt and shame due to the stigma associated with their disease. Some participants reported that they felt lung cancer stigma resulted in reduced patient care and reduced funding for lung cancer compared with other cancers.

I want to end on something that somebody posted on our website. We have a website called CancerConnection.ca, an online peer support community for people with cancer. One woman wrote the following:

> I am a 58 year old woman who started smoking at 13 when everybody smoked and was only finally able to quit just before the lung biopsy that confirmed I had lung cancer in January 2014....I told only essential people at work because I was embarrassed and I am still grateful that I have not had to go back yet...to face the questions. In a relatively small company of less than 200 employees, in a 5-6 year period I had 5 former co-workers, all women, die from lung cancer—smokers, non-smokers, former smokers. It doesn't matter. Lung cancer is a very deadly disease....The stigma is HUGE! No one deserves cancer.

In conclusion, lung cancer is the leading cause of cancer in Canada, responsible for more deaths than breast, prostate, and colorectal cancers combined. Smoking is the greatest risk factor for cancer, but other risk factors that have a significant impact include radon, asbestos, air pollution, and a number of occupational carcinogens. Awareness of radon is low, with only 30% of Canadians somewhat or very familiar with it.

People facing lung cancer often face serious stigma. Regardless of what caused someone's lung cancer, Canadians and their families facing this horrific disease should receive as much support as possible.

Thank you very much.

● (1555)

The Chair: Thank you very much.

Up first is Ms. Moore, and I believe her questions will be in French. If you need interpretation, you can put in an earpiece to receive it.

Hon. Wayne Easter (Malpeque, Lib.): Let's hear your French, Ben.

The Chair: I would give you some French, but I'm not going to use it until July.

Voices: Oh, oh!

[*Translation*]

Ms. Christine Moore (Abitibi—Témiscamingue, NDP): Thank you, Mr. Chair.

My first questions are about cancer screening. As Mr. Wheatley-Price said, when cancer is diagnosed, it is often no longer treatable. It is actually already difficult to treat or untreatable. So only the symptoms are treated.

I have a question about screening programs. At what age and in what situations are screening tests recommended? Of course, those tests are recommended to smokers, but would it be a good idea to recommend them to welders and people who work in a more at-risk environment? Who should be the focus of the screening program? In an ideal world, of course, at what age would it be preferable to begin with those tests to make sure we identify as many people with lung cancer as possible?

[*English*]

Dr. Natasha Leighl: Thank you. That's an excellent question.

I think Dr. Stephen Lam will outline more of an answer to your question. The best evidence we have for decreasing mortality in people at risk of lung cancer is in people aged 55 to 74 with a significant smoking history, with something that we call "pack-years", such as 30 pack-years. If you smoked for 30 years at a pack per day, and if you had not quit within 15 years prior to being screened, that's the population where we know most about it. When you look at the ability to detect cancer and what's cost-effective, you might start older; you might start with a higher smoking exposure; you might also add in certain risk factors. I think Stephen will take you through some of the recommendations, but I think the age currently, at the youngest, would be 55.

There are a lot of questions, such as, ""What if I didn't smoke?", or "What about people with a family history and other occupational exposures?" Currently, the best evidence for that comes from some work done by Martin Tammemägi, a Canadian. He has published a risk calculator, which we can certainly forward to people so they can calculate their risk, but currently the best evidence is in that age group of 55 to 74 with a significant smoking history.

Paul, do you want to add anything to that?

● (1600)

Dr. Paul Wheatley-Price: I think that probably covers the main elements.

You'll be aware of the elements that are required for a successful screening program. Those include a population at risk that you can intervene with rather than just diagnosing someone earlier but not being able to change the course of their disease; we have that. There's having a test that is safe and accessible. We have that in the low-dose CT scan. You need to have an effective treatment; we have that. That's surgery, or in some cases radiotherapy for cancers caught at an early stage. The other element is that it needs to be affordable, which is—thankfully for me—your problem, not mine.

CT scans to screen the whole population would be probably unrealistic. The evidence to date is to go for the low-hanging fruit. We know that 85% of lung cancers are related to cigarette smoking, so we screen people who smoked heavily. That's where the benefits have been seen. If we can prove over the coming years that this is effective, affordable, and acceptable to the population and the public purse, then for sure, if there's good evidence, why couldn't we look to expand that to other groups?

Dr. Robert Nuttall: I think the other consideration is that when you're looking at what the right age is, the evidence from the NLST study is that with regard to the 55-to-74 age group and the 30 pack-year criteria, this is where the benefit occurs. So if you were to start, you would start there.

The other issue with over-screening, and we see this for other types of screening, is that we know there are populations where screening doesn't work. A lot of times it has to do with the fact that there are harms associated with it. If you look for something, sometimes you find something that's not cancer, but in order to rule out cancer, sometimes you have to put a person through a lot of what would be considered follow-up tests or biopsies and so on, which potentially put a person at risk for something.

So you want to minimize the harms of screening. You want to make sure you're not finding false positives, which would put somebody through unnecessary surgery or things like that, while still maximizing the benefits. It's always this balance of where you'll get the most benefit in the trade-off with the harms. I think as you look at other age groups or other risk factors, you have the potential, if you don't know there's a benefit, for maybe additional harms. I think those need to be considered in some of the studies.

[*Translation*]

Ms. Christine Moore: If a patient who underwent a CT scan for a specific problem had a reasonable risk of lung cancer, would they be advised to check their lungs at the same time?

People undergo CT scans for various reasons. Since they are already at the hospital, could it be a good idea to scan their lungs if they have a reasonable risk of cancer?

[*English*]

Dr. Paul Wheatley-Price: Well, it makes sense when you put it like that. A lot of the patients in my practice have been diagnosed with cancer at an early stage for exactly that reason.

I like to tell a story of a lady who went shopping for a turkey for Thanksgiving, and she went to one of those big commercial freezers at the back of the store. She wanted the turkey at the bottom and she fell in and she bruised her ribs. So she went to the hospital because her ribs hurt, and she had a scan and there was a lung cancer. She's been cured because it was caught at an early stage.

It's another step to say she's fallen over and she's banged her knee but she's a smoker, so if she goes to the emergency department as well as X-raying her knee they're going to scan her lungs. I'm not sure if you'd get a lot of buy-in from emergency department physicians, for example. So while when you put it the way you did, it makes sense, I'm not sure that's really the way that clinical medicine is practised. It may fall to a GP—

● (1605)

[*Translation*]

Ms. Christine Moore: I'm really sorry, but my time is up.

[*English*]

The Chair: Mr. Lizon.

Mr. Wladyslaw Lizon (Mississauga East—Cooksville, CPC): I would like to thank all the witnesses for coming here and being at the committee this afternoon.

The first question I have is for both Dr. Wheatley-Price and Dr. Leighl. I want to go back to statistics. I understand you already mentioned that the majority, or 85%, are smokers, and from what I know, in that group the numbers are more or less equal for men and women. However, in the non-smokers group, I understand that the numbers of women who get lung cancer are higher than those for men. I don't know whether my figure is correct, but I heard about 50% more women than men get lung cancer among non-smokers. I might be incorrect there.

Is there any indication as to why that is so? Have there been any breakthroughs on this issue?

Dr. Natasha Leighl: I think that's an excellent observation. Some published studies suggest, exactly as you've highlighted, that the risk of getting lung cancer in never-smoking women is twice that in never-smoking men. To date there is no conclusive evidence as to why that is. There have been some questions about estrogen and the potential of estrogen and second-hand smoke but nothing conclusive.

We do know that in patients who were never smokers, we are more likely to detect abnormalities within the cancer itself, driver genes, genes that have become abnormal and that drive cancer and then are more susceptible to therapy that targets that particular genetic abnormality. We have seen that, and there are particular kinds of abnormalities that are more common in women, such as a special mutation called the epidermal growth factor receptor.

So we don't know why, but we do see this in clinical practice.

Mr. Wladyslaw Lizon: Again with regard to statistics, in the groups that the federal government is responsible for providing health care to, which would be military, RCMP, and aboriginals, are statistics among those groups similar to those for the general public, or is there anything that we should be looking at? Is there anything alarming there?

Mr. Rob Cunningham (Senior Policy Analyst, Canadian Cancer Society): Well, I can say that for first nations at the moment, lung cancer rates have not yet reached the rates for the general Canadian population; they're actually lower. That's because historically smoking rates among first nations were lower. They're now at 57% as compared to 19% of the general population, but historically they were lower. So I can assist on that part.

Mr. Wladyslaw Lizon: Okay.

My next question is about prevention. What should the public know about how to prevent lung cancer? We've heard about smoking and radon gas. Is there anything else in our diet? When you assess patients, are you looking at family history? Is it relevant? Is it not relevant?

Also, I know that time is limited, so therefore I'm going to ask the following question on early detection. I understand that the technology is available. Working with the national framework, there is a pilot project in Alberta that was mentioned and is being done. Once the patient is detected with a very early stage of cancer, what do you do? Do you intervene or not intervene? I've heard that sometimes early detection does not necessarily mean early intervention. How do you deal with it?

Dr. Paul Wheatley-Price: On the first question about what should we do with respect to the general public, because smoking is still the dominant risk factor, any strategy that does not include efforts to reduce cigarette smoking will have only marginal impacts. We can educate about radon and some of the measures about asbestos, but ultimately, to make a big impact, I think we still have to focus on cigarette-smoking cessation programs, maybe taxation, and advertising smoke-free zones. My understanding is that a smoke-free Canada is not quite where we want it to be, and there are some provincial differences.

Ultimately, I think smoking is probably still the place where I would target.

● (1610)

Dr. Natasha Leighl: To follow up on that, as I think we've already heard from the Canadian Cancer Society team, in addition to smoking cessation, assessing for a risk from radon and radon exposure and measures to decrease asbestos and other workplace exposures I think are very important.

You are absolutely right. There are other factors. Family history is important. I think this is the challenge for researchers. If, with your help, we can screen those at highest risk and really change the burden of this disease, the next step for us is to try to focus on those patients with family histories. Can we get a better understanding similar to what we have in breast and ovarian cancer, colon cancer, and some of these other family syndromes?

We've already learned that there are some specific gene abnormalities. For example, this EGFR gene that I mentioned can be hereditary. Once we are able to target the largest population of those at risk, I think we can then take a systematic approach at looking at these other risk factors, particularly in the never-smokers and people with no apparent risk. I think it's a huge area of research interest, and yes, family history and potentially genes are related to lung cancer risk.

Mr. Wladyslaw Lizon: How much time do I have, Chair?

The Chair: You have 30 seconds.

Mr. Wladyslaw Lizon: Thirty seconds? That's enough to ask a short question.

We're talking about smoking. In the home where I grew up, nobody smoked, but every smoker who came to our home smoked at home. Therefore, people of my generation were all exposed one way or the other to second-hand smoke. Do you have any comment on this?

Mr. Rob Cunningham: For non-smokers, second-hand smoke exposure causes lung cancer. That's one of the reasons why we need to continue efforts to reduce exposure to second-hand smoke as part of the overall effort to combat lung cancer.

Also, once cancer is detected, it's very important, as part of excellent treatment, to provide smoking cessation assistance. Whether a person with cancer smokes or not affects their survival rate. The 2014 U.S. Surgeon General's report had an extensive evidentiary review for the first time of how important not smoking is to cancer survivorship.

Mr. Wladyslaw Lizon: Should people of my generation get tested at a certain age?

Dr. Natasha Leighl: As I think you'll hear from Stephen Lam, I think people of certain generations should be assessed for their lung cancer risk. If your risk is high enough, you should be considered for a lung cancer screening program. We do have the knowledge and the expertise here in Canada across the country to conduct outstanding life-saving lung cancer screening. I really hope that it's one of the things this group can help us develop.

The Chair: Thank you very much.

Mr. Easter.

Hon. Wayne Easter: Thank you, witnesses, for your presentations.

I can tell you that these statistics—80% more women die from lung cancer than from breast cancer and 200% more men die from lung cancer than from prostate cancer—were shocking to me. Those are shocking facts based on the publicity out there on breast and prostate cancers.

With regard to one of the key causes of lung cancer, smoking, how are we doing in Canada? I'm from Prince Edward Island and I see more young people smoking than I did a few years ago. I have no statistics or anything. I don't know. How are we actually doing especially in terms of young people smoking? One of the things I hear is that flavoured tobacco products are in fact potentially enticing youth to smoke. What's your view on that?

Mr. Rob Cunningham: We are making progress at reducing youth smoking but a lot of work remains to be done. Every month more teenagers begin smoking. It's not just cigarette smoking. It's also these flavoured products. There are also cigarillos, water-pipe tobacco smoking, and smokeless tobacco. I know that in P.E.I. a bill has just been introduced to ban flavoured tobacco. Six provinces have done that. You know, we would support a ban on all flavoured tobacco including menthol across Canada. We have a lot more work to do. There are still 37,000 Canadians dying each year because of smoking and 5.7 million Canadians who smoke. There's a whole range of measures that can be taken. Australia has plain packaging as do Great Britain and France. Ireland will have it next May. Funding to Health Canada for its efforts to reduce smoking among youth can be increased. There are cessation programs and enforcement. It's a comprehensive approach. We're making progress, but a lot more remains to be done.

● (1615)

Hon. Wayne Easter: I think the reality is that if you can target young people and prevent them from starting to smoke, that's where the efforts have to be made. I look back to my own time in school, in high school, when if you didn't smoke, you were on the wrong side of societal favour. That's changed immensely, but I still see too much of it.

You're basically suggesting that we ban menthol and flavoured tobacco products, and I know they've moved on that in my province.

On early detection, you mentioned that there is a screening program in place in the United States. What has the experience been under that program? Do you have any idea of the cost? We have a public health care system here, so you have to look at the cost as an investment more than just as a cost. Can you comment on that?

Dr. Natasha Leighl: Sure. I might start since I might have been the guilty party who introduced that.

This is where Canada has the potential advantage over the U.S. The U.S. has not formalized a program, but it is paying for screening, which is covered as a Medicare benefit. So whether or not you organize a program depends on the centre that's offering the screening. Screening can be offered in your local community centre or you could have a van that goes around and offers screening. You don't necessarily have to tie outcomes, to cost-effectiveness, to quality, and to smoking cessation. What we've tried to do with CPAC, the Canadian Partnership Against Cancer, and the lung cancer framework is to set something up so that we are able to track statistics and outcomes. We are able to measure how many of the population at risk were able to get in, to actually have screening adherence rates, and also to tie this to smoking cessation.`

In terms of cost-effectiveness for the large U.S. randomized study, where no matter how early you found the cancer there was still a mortality benefit to treating it, the incremental cost-effectiveness ratio, which is a measure of benefit compared to cost was—and forgive me since I'm approximating here—somewhere between $83,000 and $86,000 U.S. per quality-adjusted life year gained. I'm happy to provide the committee with a reference and the paper for that. However, that is in the U.S. health care system. The way they have done that differs from the way our pan-Canadian study was done and from the way the framework is proposing that we do screening. So, cost-effectiveness estimates from Ontario from ICES that were commissioned by Cancer Care Ontario are as low as $43,000 or less per quality-adjusted life year. Again, depending on the interval of screening and the level of risk, your cost effectiveness impact can really change. So, yes, it will cost money. Could there be a way to introduce cost-effective screening by choosing your population and the follow-up? Yes, we think there is something within a reasonable estimate of cost-effectiveness.

Hon. Wayne Easter: Coming back to the early detection, what can be done both federally and provincially to enhance early detection? I hear too many stories. In fact, I was talking to a husband this morning whose wife had died and who had waited for a year before she could get into our hospital system. Would it have made a difference? We don't know.

What can be done to enhance the early detection, and operations if needed, in these kinds of matters from a policy perspective at the governmental level?

Dr. Paul Wheatley-Price: I think it may be best to ask that question again in the next hour when Dr. Stephen Lam will present from British Columbia.

About a year and a half ago we started some discussions with MP Lizon and Senator Ogilvy and some physicians across the country about screening programs in the populations that the federal government is responsible for. We're just starting to put together a proposal for a screening program among veterans. Dr. Lam is really the person who can give the most detail about that.

● (1620)

The Chair: Thank you very much.

Mrs. McLeod.

Mrs. Cathy McLeod (Kamloops—Thompson—Cariboo, CPC): Thank you, Chair.

First, before I start, thank you to the witnesses.

Also, as the other committees are winding down, I do want to say to my colleague, Mr. Lizon, who's been very passionate about this issue, and to all the health committee, that from what we're hearing I think this is a very important issue for us to spend a little bit of time on and, hopefully, in the next Parliament this work can get picked up and maybe there will be some significant movement forward.

It's interesting, because you talked about the 96% who really didn't have much of a clue about radon, and I am embarrassed to say I am probably one of them. Then my colleague was talking about Sparwood. I guess they did a research study there, which is a terrible place in the country in terms of radon levels. Then we looked in the interior of British Columbia, but I saw that Kamloops has lots of clay, so I guess I'm okay.

Could you talk a little bit more, because I think it's important for the blues of this meeting, about that whole issue around radon, radon testing, and mitigation measures.

Dr. Robert Nuttall: Yes, I can take that one.

In our Canadian geology, basically we sit on a whole bunch of rich natural resources, one of them being uranium. Uranium contributes most of the emissions of radon gas. We have geology maps that target where we have areas of high uranium and areas where we don't. Those give you a good proxy to areas that have high radon levels, but one of the major points, though, is really around how your house is built.

You can be in an area with low levels of uranium, but still some uranium, and if your house is poorly built, over time those levels are going to accumulate. You can be in an area with low levels of uranium, but your home, because of the way it's built, will have high levels of radon, whereas you can be in an area that has high levels of uranium, but your house is a good build. A lot of the building codes have a radon mitigation strategy, and there are sump pumps that you can put into your basement so that the air that comes in is vented out—anything coming up from the ground gets vented out. Even if you just open your windows, you can actually get a lot of the radon circulating and moving out.

That's really where it's important. We need to have all the homes tested. Even if the geological map of your area shows that it's a low uranium area, your home itself could have high levels of radon. You can't even look at your neighbour's house. Your neighbour could have a nicely built house that doesn't have much in the basement, has good ventilation, and has low levels of radon. It's very important to target those homeowners and get that individual testing.

There are strategies, though. We did use the Health Canada survey. They sent out 18,000 radon test kits across the country. They found regions that have a lot of homes with high levels of radon, more than you would expect. We can use that. The Canadian Cancer Society, the Canadian Lung Association, and Health Canada are doing targeted strategies in those areas. The interior of British Columbia is one area. There are some areas in Manitoba. Those are communities where there are strategies. You can do it on a community-by-community basis. Sometimes you have to choose the communities you go into first. You can use geological maps or these radon maps.

What we're really focused on is that if we had everybody testing their homes, with 100% test rates and we knew exactly what to do, then we would need people to take action. Some people might cite.... The test itself is relatively inexpensive. Some charities offer it for free. It could be $30 if you buy it from a hardware store. The cost is from what you need to do to get rid of the radon. It could be a simple cost: you need a professional to come in and really look at it. The cost of mitigating it is a potential barrier, but because we have so few people doing it, we don't know how much of a barrier it is right now. The Canadian Cancer Society and our offices are trying to get as many homeowners testing regardless of where they live.

● (1625)

Mrs. Cathy McLeod: So the test is a simple kit. Who is able to analyze the results and look at the home? Is it a home inspector who is pretty good at coming in if you have some worrisome results?

Dr. Robert Nuttall: There are actual professional radon mitigators. Health Canada provides a directory of all the licensed mitigators across the country.

For our work and what we do, if people come back with a test result of over 200 becquerels per cubic metre, we direct them to Health Canada to follow the process for how you find the right mitigator and who in your region can do it. There are still a lot of capacity gaps in the area of professional mitigators. Our B.C. office has been involved in co-sponsoring training programs to increase the number of people who are licensed mitigators.

As we promote awareness and have more people getting tested, we're going to find more people with high levels, and there's going to be more of a demand for mitigators. I do think that's another area where there's a potential opportunity for federal oversight of the training and for ensuring that more people are licensed and trained to be able to know what's wrong with the house and what needs to be done to resolve it.

Mrs. Cathy McLeod: You talked earlier about an awareness program that we've undertaken. Maybe you could describe that a little better.

Dr. Robert Nuttall: There's a Take Action on Radon network that has a lot of support from Health Canada, the Canadian Lung Association, and the Canadian Cancer Society. There's also a group, the Summerhill group, but I can't remember what they do. Again, they're a community awareness and environmental initiatives group. We come together to talk about those strategies we're doing and learn from each other.

Health Canada runs programs. They run testing programs. Some groups run community education programs. We can share resources, and it's a good way to not have four different groups that are involved in it doing four different things. We can work together. If B. C. is where we're heavily involved but not so much in Saskatchewan, in Saskatchewan the Canadian Lung Association is doing a lot. It helps us prioritize our own work and where we need to put our efforts and where we don't. I think that kind of an approach really wouldn't have happened without Health Canada convening that group and bringing the stakeholders together.

The Chair: Thank you very much.

To our panel guests, thank you for taking the time today to appear before our committee. You're welcome to stay or go, or do whatever you have to do, while we set up our next panel.

Thanks again.

● (1625)

(Pause)

● (1630)

The Chair: We're back. We have more guests this hour.

Can the individuals appearing by video conference hear us okay?

Dr. Diana Ionescu (Oncological Pathologist, Department of Pathology, BC Cancer Agency, As an Individual): Yes.

Dr. Stephen Lam (Chair, Lung Tumour Group, BC Cancer Agency, As an Individual): Yes, we can hear you very well.

The Chair: Okay. We'll have you folks go first by video conference.

After that, we have some guests here who will present. Then we'll open it up to questions and answers.

Go ahead in Vancouver.

Dr. Stephen Lam: Good afternoon, Mr. Chairperson and members of the health committee.

I'm Dr. Stephen Lam from the BC Cancer Agency. Thank you for the opportunity to present to you the current status of lung cancer screening in Canada.

As Dr. Natasha Leighl pointed out earlier, lung cancer screening using low-dose CT scans can reduce lung cancer mortality, reducing the proportion of people dying of lung cancer, by 20%. These are heavy former or current smokers between the ages of 55 and 74. It should be noted that more than 50% of the lung cancer patients we see now are former smokers. These are the people who have listened to our advice, have stopped smoking already for a number of years, and yet have come down with lung cancer. Lung cancer screening will offer the opportunity to reduce the mortality. As Dr. Leighl also pointed out, even in the United States lung cancer screening is cost-effective. On average, the cost is $81,000 per quality-adjusted life years gained in the U.S. In Canada it can be cheaper.

The next thing is that not only can we reduce lung cancer mortality by screening, but screening also shifts the proportion of people from advanced cancer to early cancer, what we call stage I and stage II lung cancer, which can be amenable to treatment with surgery with curative intent. Without lung cancer screening, three-quarters of the patients with lung cancer present with advanced disease and are mainly suited for palliative treatment. But with lung cancer screening, with low-dose CT, we can shift the proportion to the opposite direction so that three-quarters of people have the early stages of the disease, stages I and II, amenable to curative surgery.

A study we conducted in Canada, a screening study from coast to coast, from Vancouver to St. John's, Newfoundland, was supported by the Terry Fox Research Institute, the Canadian Partnership Against Cancer, and Lung Cancer Canada. In this study, we found that if we treat people who have screen-detected stage I and stage II lung cancer, we can actually save $14,000 over two years versus treatment of advanced cancer, stage III and stage IV, by chemotherapy, radiotherapy, or both.

Now, not only can we reduce lung cancer mortality, but we can also save money by reducing the symptom burden. A study in Ontario showed that people who presented with clinical lung cancer have moderate to severe symptoms of loss of appetite, shortness of breath, lack of well-being, and fatigue in over half of the patients. Another third have significant pain, anxiety, or drowsiness, and one-quarter will have depression. If we can find the cancer early, we can reduce the symptom burden.

Another thing is that patients with clinically diagnosed lung cancer utilize hospital resources at a very high rate. Within three months prior to diagnosis, about 40% of them show up at the hospital emergency department. Within three months before their death, three-quarters actually showed up at hospital emergency because of symptoms. Again, we can reduce the proportion of people who utilize hospital resources.

There are four Canadian innovations that would put us onto the world leadership map in terms of lung cancer screening. We have a very innovative electronic web-based lung cancer prediction tool that allows us to identify who would benefit from lung cancer screening. For the ones who come to the screening program, we have a calculator that allows us to determine which spots or nodules on the CT scan need attention, through repeat imaging or biopsies, and to determine how often we should do follow-up CT scans. We have developed a very innovative surgical tool that allows the surgeon to remove small parts of the lung quickly and precisely to treat early cancer. The fourth innovation is a genomic signature that allows us to tell which cancer is aggressive and may benefit from additional chemotherapy after surgery.

Another innovation is computer technology that allows us to automatically highlight abnormal spots and help radiologists make recommendations regarding the management of spots detected on CT scans.

In summary, lung cancer screening allows us to shift from palliative treatment to curative treatment. We can reduce the symptom burden associated with advanced lung cancer diagnosed without screening. We can also transform lung cancer care.

● (1635)

The federal government can help us to improve lung cancer care and improve the outcome of lung cancer patients by funding low-dose CT screening programs—for example, for federal employees like veterans and the RCMP. For those who live in more remote areas, such as our first nations people who live in sparsely populated areas, we can use mobile CT, or combine smoking cessation with lung cancer screening, depending on the age group of the population.

Finally, the federal government can help us by facilitating implementation of screening at the provincial level—for example, through the Canadian Partnership Against Cancer. We now have a Canadian lung cancer screening network that is supported by CPAC and funded by the federal government.

I think I will stop there to answer any questions you may have.

The Chair: Thank you.

Dr. Ionescu, do you have a presentation as well?

Dr. Diana Ionescu: No. I submitted a brief for you, which in a way is a supplement to what I will talk about.

The Chair: Okay. Do you also have a statement to make?

Dr. Diana Ionescu: Yes.

The Chair: Go ahead, please.

Dr. Diana Ionescu: Mr. Chairman and members of the health committee, I would like to thank you for the opportunity to talk to you today about the role of pathology and laboratory testing in the diagnosis and treatment of lung cancer, a subject about which I am very passionate.

Although not always obvious to the patients and the public, pathologists are on the front line of cancer prevention and screening. My colleague Dr. Lam just presented to you some data about lung cancer screening. When a nodule is identified radiologically in the lung and there is a clinical and radiological suspicion that it may be cancerous, the nodule is sampled through biopsies and sent to pathology for microscopic examination.

Pathologic examination has been the gold standard for diagnosis of cancer for over a century. A screening program for lung cancer without a pathology diagnosis is like a detective story without a final answer.

Since I started working as a consultant pathologist and as a lung pathologist at the BC Cancer Agency in Vancouver approximately nine years ago, my role in lung cancer has changed dramatically. This change occurred around 2007, and it was due to the discoveries of drugs effective for only certain molecularly defined tumour types, for treatment that we now call “targeted therapy”. Medical oncologists require increasingly specific information about each individual lung tumour for treatment decision-making. In fact, drugs are developed with molecular tumour characteristics in mind. “One treatment fits all” is no longer the standard of care, and we are personalizing treatment for each lung cancer patient.

One of the most exciting parts of my daily work is testing tumours to identify the best treatment for the right patient at the right time. These tests, which predict tumours' response to a drug, are known as companion diagnostic tests. We are looking to identify characteristics of the tumour, or biomarkers, at a molecular level, and therefore these tests are also known as biomarker tests. Companion diagnostic tests help tailor treatment and provide better patient stratification, response prediction, and treatment monitoring. Companion diagnostic testing is a relatively new concept, but it is not specific to lung cancer. Usage of such tests is only going to increase in the era of personalized medicine, and they are already available for patients with other types of cancers.

One of the pioneer biomarkers in oncology, which we have been testing for in pathology since the early 1990s, is a tumour's receptor for estrogen. We are testing for this particular biomarker in all breast cancers with significant clinical impact. One of the most moving statements I have ever heard was from a young mother, a non-smoker diagnosed with lung cancer. She said she wished she had breast cancer, because at least then society would care.

There is so much we can learn from all the great work that breast cancer research has done over time in biomarker testing, but we need your help to ensure that we have the infrastructure and continuous support for other types of cancer research being done in our country.

In Canada the landscape of biomarker testing in lung cancer has been developed since 2009 by multidisciplinary national groups of medical oncologists and pathologists who have worked together to develop and implement a testing strategy for Canadian lung cancer patients. We took into consideration not only scientific results but also the economical reality of our health care system, and we have been very successful. This national approach to testing is simple and elegant, and it makes us, as Canadian lung physicians, proud to be able to collaborate with each other and with health care authorities in this way, and to see our work being cited by academic and private testing centres around the world.

For lung cancer in Canada, we currently clinically test for two biomarkers called EGFR and ALK to identify patients who will respond to several targeted therapies. I respectfully submitted data about my biomarker testing in lung cancer in Canada in a brief sent to your attention and for your review.

● (1640)

Additional drugs with companion diagnostic tests will soon be available for lung cancer patients, and that includes immunotherapy drugs. It is of very high importance that we have a testing system in place in the laboratories to be able to identify these patients efficiently and accurately. This shows once again the increasing importance of pathology in the lung cancer care team.

Given the fast advances in personalized medicine in lung cancer and its clinical impact on the survival and quality of life of our patients, we need to look at drugs and companion diagnostic tests as one entity and support these programs together scientifically, financially, and politically.

I would like to thank you for the opportunity to talk to you today.

The Chair: Thank you very much.

We're going to move along here to our guests here: Dr. Jason Pantarotto and Dr. Jacques Ricard.

Would you like to go first, sir?

● (1645)

Dr. Jason R. Pantarotto (Radiation Oncologist, Chief of Radiation Oncology, The Ottawa Hospital, As an Individual): Thank you for having me here.

My name is Jason Pantarotto. I'm the head of radiation oncology at the University of Ottawa and the Ottawa Hospital. I'm here as an expert in the treatment of lung cancer with radiation. Also, I've been involved in the provincial Cancer Care Ontario system, and I can speak to that in a my role as regional lead for radiotherapy for eastern Ontario in the Champlain LHIN, the local health integrated network of 1.3 million people. Further to that, I'm involved in a significant effort at the Ottawa Hospital to address lung cancer wait times. I'll speak to some of the challenges there.

I thought I would reserve my comments for this afternoon to the four components of the resolution passed by the committee.

In terms of the main causes of lung cancer beyond smoking, I think the speakers today have addressed many of those, but I want to make further comments and address as well some of the questions brought up in the last hour.

There are several agents, both man-made and natural, that can cause lung cancer. Many of the industrial agents used in the last 100 years can be inhaled, but frankly, it's difficult to assess the risk of each individual agent. There is clear evidence gathered over the last several decades that agents such as asbestos, diesel fuel, silica dust, and arsenic, whether breathed in or ingested, can cause lung cancer specifically, but there is a latent period of many years between exposure and the actual development of lung cancer.

The findings often show that the insults from these agents work synergistically with the effects of cigarette smoking. Therefore, you see higher rates of lung cancer in smokers rather than non-smokers, given the same exposure. For many industrial exposures, with the effect of cigarette smoking and the fact that it was really so prevalent over the last 60 or 70 years—so many people smoked—it's really quite difficult to tease out the actual impact of many industrial toxins that are out there.

Specific to radon, which of course is not an industrial agent but, as we've heard today, a naturally occurring substance in the earth's crust caused by the natural breakdown of uranium, personally I believe that Health Canada has very good documentation that can be found on their website, but with my patients, and even with my colleagues and my friends and neighbours, radon testing is really not a priority for the general population.

In fact, you can ask yourselves this: how many of you have had your own homes tested for radon? If not, why not? I suspect we have a number of good answers. I think costs are one of the barriers, and if it's a struggle to get people to put four dollars' worth of batteries into a smoke detector, then how do we get people to perform a test, whether it's $99 or $30 or what have you, plus all the things that potentially might need to be done to your home? If there is a synergistic effect between radon and cigarette smoking, then in fact for those populations who smoke more, which typically are those with reduced socio-economic status or less education, their barriers to access or to perform radon testing and then do something about it are arguably even higher.

Moving on to fundraising challenges, there is a general lack of awareness of how prevalent and serious lung cancer is, even amongst health care professionals. With few survivors and hence few advocates to promote research programs, we really haven't been able to get significant fundraising programs to the levels observed for other cancer types. Then again, smoking rates are higher in those segments of the population that I just mentioned, those with a reduced socio-economic status, and historically those groups have not been able to do a good job advocating for themselves, for obvious reasons.

With respect to research related to the causes of lung cancer for men and women, I think there are a number of established causes, cigarette smoking being by far and away number one on that list. I see a lot of research being done on the treatment of lung cancer, which we've heard a little bit about today, and also in terms of prevention and effective screening.

I think screening is key, but it has to be an effective screening program. In Ontario and various other jurisdictions across Canada we have established screens for cancers such as breast cancer, cervical cancer, and colorectal cancer, but if we look at the latest data for Ontario, of eligible women from 2011 to 2013, 62% underwent screening for cervical cancer. For the same period, 59% of eligible women underwent screening, and for colorectal cancer it was much lower, in the range of 30%, despite the fact that colorectal cancer is the number two cancer killer, if you will, in Canada. It's number two of course, with lung cancer being number one. All of that data comes from the Cancer System Quality Index, published by the Cancer Quality Council of Ontario.

● (1650)

To finish off, the emerging best practices for screening was the last item in the resolution. I think we've heard a lot of good information today about how there is some firm evidence behind performing low-dose CT scanning in high-risk populations. I think when you have a screening program, there's a lot of depth there that needs to be addressed. There's accreditation of each facility and the staff that works within them, database management, a recall system for suspicious nodules because you're going to find all sorts of things once you start looking, surveillance clinics, and then of course access to timely lung biopsy. Integration is key.

In Ottawa and the Ottawa area, which has a fairly affluent and well-educated population, according to 2011 data, the time from having an abnormal CT scan to getting treatment for your lung cancer was 117 days for the 90th percentile. That's in Ottawa and that's the story all across the country for various reasons. When you get into some of these other populations, they have a tougher time getting screened once a screening system is set up and a tougher time getting biopsies. That time is even longer.

I just want to finish off in terms of the segments of the population that fall under the jurisdiction of the federal government: aboriginals, the military, incarcerated individuals, and the RCMP. There is evidence in some subgroups of the aboriginal population that smoking rates are high. For the population in Nunavut, and specifically this comes from studies from Professor Kue Young at the University of Alberta, indigenous populations that live around the Arctic Circle in various countries have higher lung cancer rates than do pretty much everyone else in the world. The aboriginal population in Canada specifically seemed to have even higher rates.

Similarly in notable journals like *Cancer* there is published evidence—though I didn't find any Canadian evidence—that there are higher rates of lung cancer amongst veterans in the American military and Australian military, and that if they get lung cancer, there is a higher likelihood they will die from the disease. I would not be surprised if we saw similar results if studies were performed on the Canadian veteran population, or if they have been performed and I just don't know about them. I would not be surprised if we saw exactly the same thing.

I'll leave it at that, because I believe I'm out of time.

The Chair: Thanks very much.

Dr. Ricard, go ahead.

Dr. Jacques Ricard (As an Individual): Thank you, Mr. Chairman.

Ladies and gentlemen, thank you for listening to me. I'm not sure what I can bring to this except maybe put a human face to the statistics you've heard. If I hear one more time about the survivability rate, I think it will be a single malt scotch evening for me, because my chances are not very good, are they? But they are still there—those chances.

I'm Colonel Jacques Ricard. I'm a medical officer, as we call it in the forces. I'm a physician, a general practitioner, and I have 33 years of service.

About a year and a half ago, as I was doing my physical fitness test, I felt a lot of pain in my back. The next day I couldn't get up. I thought it could have been a herniated disk or something. We started the process to get it tested, with the usual MRI to see if it was herniated disk. I got the MRI in July. The doctor came to see me, and he said it was not a herniated a disk, but cancer. He went to the next step, to try to find out where it came from. The CT scan showed it was from the lung. It was quite a surprise for me, because I am one of those non-smokers.

Initially you have to deal with the emergency stuff, radiotherapy for the spine and everything. I met Dr. Wheatley-Price for the medical oncology to see if there was a treatment for it.

When you're told that there is no cure, you start asking yourself, well, why isn't there a cure? When you're at stage IV, and you actually present so late that no surgery can be contemplated, you need to go through palliative care, if you like.

I did the radiotherapy. I was asking myself, what did I miss that would have made a difference in catching this at the early stage? I didn't miss anything. You know, you have a cough or something in the morning, and you think it's probably from the medication you're taking for hypertension, because one of the side effects is coughing. You have a little bit of rib pain, and you think it's costochondritis. You have a reason, an explanation, for just about every little symptom you have. When you do show up for that back pain, it's too late.

It's funny, because we have to go through all our annual physical medical examinations. I had a colonoscopy at the age of 50. I had a colonoscopy at the age of 55. I had the PSA for prostate, the blood test. My wife had a mammogram. My daughter had a pap smear. But nothing gets done for the lung part of it. There is so much reliance on the patient to themself to identify in their own body that there's something wrong and to show up and be tested for it, and then it's too late if you're trying to catch it in the patient.

I do believe there needs to be a way to identify people before they have symptoms, because when they have symptoms it's much too late. We have all those screening processes like that... I didn't have any symptoms at all to warrant the colonoscopy. I didn't have any symptoms at all to warrant the prostate. They were offered to me.

This brings me to the treatment. I'm one of the lucky ones, because I did have a biopsy. Being a non-smoker, I was told that there was a higher chance that I would have one of those mutations they were looking for, the ALK or the EGFR. You have to wait about a month before you get the results.

When the results came in, I was told I had a 50% chance of being positive. I was positive for EGFR, so I was one of those lucky ones —lucky unlucky ones—who could actually get the targeted therapy with medication that you take once a day and that gives you a very good quality of life. It's not chemotherapy and it's not radiotherapy. But this only puts a handbrake on the disease. For the last 10 months, I've been taking this medication and I haven't changed. My disease is stable, and I'm working part time, and everything looks the same. But the disease is still there. The CT scan shows the same things in my lungs and in my spine and in my pelvic area.

Now we have to rely on somebody to find a cure for something that I was told, a year ago, there is no cure for. But maybe in two years, or three years, maybe I will be told that we have a cure now for exactly what I have. The funding for the screening program would help somebody like my kids, and the funding for the research program would help somebody like me.

● (1655)

I'm really hoping that we can make a lot of progress if we invest a lot of money in this very lethal disease, with its very specific characteristic, if you like, of very often being identified too late to have a surgical cure.

Thank you.

The Chair: Thank you very much.

To get through our rounds before the votes, I think we'll have to do five-minute question-and-answer sessions.

Mr. Rankin, go ahead, sir.

Mr. Murray Rankin (Victoria, NDP): Thank you.

Thanks to all of the witnesses for their really stimulating testimony.

I have a short amount of time left for questions. I think I'd like to start with you, Doctors Lam and Ionescu, if I could, because I was really taken by your testimony about the effect of low-dose CT scanning in high-risk populations.

Dr. Lam, I was particularly struck by what you referred to as I think the four “innovations”. I was having a little trouble understanding it as I put that together with your first idea of an electronic lung cancer predictive tool. You said it was very advanced, and then you talked about the genomic signature.

Dr. Ionescu, you talked about the two biomarkers that are particularly appropriate for lung cancer.

Were you talking about similar things? Or was the biomarker analysis different from the electric predictive tool or the genomic signature that you, Dr. Lam, were talking about? Maybe you could explain that to me.

Dr. Stephen Lam: Maybe I'll go first.

The lung cancer risk predictor is to identify which of the current or former smokers would develop lung cancer or harbour an early lung cancer that could be detected by low-dose CT. It is based not only on smoking history, but on things like age, educational level, body mass index, family history of lung cancer, and a number of other barometers. It's something we can use on an iPad or an electronic medical record. The patient can answer a few questions within about 5 to 10 minutes and then we can determine the lung cancer risk.

This is just to see who would benefit from low-dose CT screening. The biomarker that Dr. Ionescu talked about is for people who already have lung cancer, in order to find out which of the targeted therapies they would benefit from.

● (1700)

Dr. Diana Ionescu: If you would still like me to answer my part of the question—

Mr. Murray Rankin: Yes.

Dr. Diana Ionescu: —it would be that what Dr. Lam was referring to as the genomic signature of lung cancer, anything that has to do with genomics, with DNA testing or molecular testing, is done in pathology.

The first step is the diagnosis of lung cancer, which doesn't really require any of this genomic testing. However, we are now asked in pathology to subclassify lung cancers based on their genomic signature, on what type of biomarkers each tumour has that can either prognosticate the cancer's behaviour or predict the response to treatment. Those are predictive markers.

We currently do not test for any prognostic markers. We do test for the two, EGFR and ALK, which are predictive in regard to treatment response.

Mr. Murray Rankin: Dr. Lam and then Dr. Pantarotto, you both made reference to aboriginal communities and the high rate of smoking, particularly to Nunavut as the lung cancer hot spot of the planet, if I'm understanding properly. Dr. Lam then suggested that one of the things that could be done was mobile CT scans, with a smoking cessation program, both of which of course could be done by the federal government.

I wonder if you could talk a little more about that, because you did start your testimony, Dr. Lam, by talking about the cost of these screening devices. I'd like to get a sense of whether either of you have given any thought to this issue of just how much it would cost to do such a thing as you recommend.

Dr. Stephen Lam: We know from the pan-Canadian lung cancer screening study that the cost of screening one person per year is about $225. When we go to more remote communities such as those of the first nation people, because they're very sparsely populated it's very difficult for them to go to a large city to get a CT scan done.

One solution is to do what the Japanese have been doing for over a decade. It's to do a mobile CT scan. In the same scanner, we can screen for lung cancer and use the same CT scan to diagnose other diseases without the patient travelling to a major medical centre. In the same mobile units, we can have counsellors to help people to stop smoking.

I want to mention that we can now have technology to feed the CT scan into software to display what the lung looks like if you have COPD or emphysema, as well as to show whether the patient has calcification of the coronary artery. These are very potent visual images to show people what their health status is and, if people are still smoking, would facilitate smoking cessation.

The Chair: Thank you very much.

Mr. Wilks.

Mr. David Wilks (Kootenay—Columbia, CPC): Thank you very much.

Dr. Ionescu, I wonder if you could talk a little more about the two biomarkers you test for. You referred to them as EGFR and ALK. What are they exactly and what do they do?

Dr. Diana Ionescu: Historically we used to classify lung cancer into two large groups called small cell carcinoma and non-small cell carcinoma. We did that for over 50 years, I think, because we had only two groups of treatments for these two particular types of lung cancers.

Now we are learning that approximately 54% or 55% of lung cancers, especially the subtype called adenocarcinoma, have some mutations, some genomic changes, that are called driving mutations, the ones that drive the behaviour of the cancer. One of the most common ones is EGFR. This is a receptor on the surface of the tumour that changes the behaviour of the tumour cells to make them divide uncontrollably and therefore be more able to grow and to metastasize.

We test for this particular EGFR biomarker because several groups of drugs called EGFR tyrosine kinase inhibitors have been developed and are available on the market, including on the Canadian market, for lung cancer patients, but only for those who present this particular mutation.

Testing for EGFR and ALK is completely different. The testing is done at different levels. For example, EGFR mutation testing is a molecular test. It's a test that looks at the DNA signature of the tumour, at the EGFR gene, to identify this particular mutation that makes the tumour more susceptible to certain drugs.

ALK or ALKi, which is a rearrangement in the tumour's genomic signature, is identified in the laboratory through completely different types of tests that we call immunohistochemistry and fluorescence in situ hybridization.

One aspect I would like to bring up, which I think will be of interest to this committee, is the fact that the drug that helps the patients with ALK rearrangement, called crizotinib, was first approved in the United States by the FDA for patients who have the ALK rearrangement only according to this particular fluorescence in situ hybridization test. Now, this is a highly specialized test. It is expensive. It is time-consuming, and it requires technical and professional expertise. Knowing that you cannot really screen a large number of lung cancer patients to identify a relatively small number of them—we're talking about 5% of lung cancer patients—who have this ALK rearrangement, in Canada we worked together at the national level to design a type of testing that used immunohistochemistry as a screen, followed by confirmation through this more specialized fluorescence in situ hybridization or FISH test. This particular exercise allowed us to screen using a much faster and less expensive test like immunohistochemistry to identify the 95% negative patients, and to confirm only the 5% positive ones using the more expensive test. This is a type of testing that later on was also implemented in other countries like Japan and France and many other European countries that really took into consideration the balance between the scientific reality and the reality of their health care system.

● (1705)

Mr. David Wilks: Thank you very much.

Dr. Diana Ionescu: Did I answer your question?

Mr. David Wilks: Well beyond my understanding.

Voices: Oh, oh!

Dr. Diana Ionescu: Sorry.

The Chair: Mr. Easter.

Hon. Wayne Easter: Thank you, Chair.

Thank you to all the witnesses on this panel.

I'd like to start with you, Dr. Ricard. Thank you for the reality check. You make a potent point, I think, on the need for funding for research and early detection methods. I can't help but think that in your occupation you would likely be one who would be getting regular checks. That is so different from many in society, who don't get regular checks.

From your experience, or from having gone through what you've gone through, is there anything that you think governments can do, or the health system can do, that would make a difference in earlier detection?

● (1710)

Dr. Jacques Ricard: Thank you very much.

You know, I'm in Ottawa, and my health care is given to me by the federal government but we are referred to the civilian side for a lot of the testing. I was in exactly the right place at the right time to get second-to-none care. There was intervention immediately at the Ottawa General, with radiotherapy at 2 o'clock in the morning. You show up in the afternoon, and by 2 a.m. you're getting your first treatment.

Not everybody in Canada can get that, sadly. It is very important that everybody has access to the same quality of care I had—although, even then, the chances are not on my side.

It has to be a program that says, for instance, we will not just look at the fact that you want to have testing. We will have a program, a policy, that says if you're between 55 and 74 and you have been a smoker, we think you are a high-target population and will tell you that you need to have this test done. That way, everybody who can be detected early will be. People themselves won't have to come forward and say “I think I have a little thing here”, “I'm coughing blood”, or something like that.

If it has to come from the population, from the patient, to themselves identify that they have an issue, I don't think it will work that well. It's like self-examination for breast cancer; it's fantastic, but things are missed if you don't do it right. If you have a test that exists, the low-emission CT, and you apply it to people who you know are at risk, then these are, in army terms, high-value targets in effects-based operations.

Hon. Wayne Easter: Thank you for that answer.

Dr. Pantarotto, you mentioned that in Ottawa, going from an abnormal CT scan to really getting into the system for treatment takes 117 days, I think. I can tell you that's far, far, far better than it is in a lot of regions in this country. I can name my own, Prince Edward Island, as one. We finally just put a second shift on CAT scans, and we've been fighting for that for years.

First, what has to be done and what can be done by governments to reduce those wait times much more?

Second to that, I said in an earlier question that I see it as an investment. I think if you get early detection and early treatment, your expenditures within a public health care system will be a heck of a lot less.

Perhaps you could respond to that.

Dr. Jason R. Pantarotto: Thank you very much for the question.

I completely agree with you. It's far better for the patient if we discover early-stage disease. Our cure rates are much higher; there are better outcomes with earlier-stage disease, and it's cheaper. It's cheaper to treat someone when they have early-stage disease and they're cured. All the costs that go with advanced disease or metastatic disease are avoided. Those costs are tremendous. Forget about the oncologist's cost. Forget about the chemotherapy or radiotherapy costs. It's the costs of visits to the family physician, the emergency departments, the drain on home care. These patients can be quite ill.

To come back to your main point, the role for governments, I think we have to mention prevention. That's key. There's prevention in terms of smoking cessation and there's a lot of literature and a lot of educated smart people around who know a lot about smoking cessation strategies that can work. There's also radon testing and reduction and the idea of having a mandatory test. Should I be able to buy a house without knowing what the radon levels are in that particular house? There should be some sort of registry perhaps, because unless people are forced to do it, I don't think people are going to do it.

Then there's screening, and we talked a lot about screening. The screening needs to be integrated. I think there are a lot of great ideas. For example, we could have a mobile CT scanner. We have to think through all the steps that go with screening. If you find something, it's no good unless we can get a needle into, and we can do a biopsy. Who's going to do that biopsy? If I live in Rankin Inlet and the mobile CT comes to town and they scan me, that's great. There's a higher likelihood that I'll actually participate. But if they find something and it needs to be biopsied, now I need to fly to Ottawa or Montreal, so we need to think that through. Things needs to be integrated, because one doesn't work without the other.

The need for integration is a key finding from our assessment over the last two years in terms of lung cancer wait times in the Ottawa region. In the health care system we don't do a great job of talking to each other from primary care to tertiary care to palliative care and survivor care.

● (1715)

The Chair: Doctor, the bells are ringing here.

Mr. Young, go ahead and ask some brief questions.

Mr. Terence Young (Oakville, CPC): Thank you, Chair.

Thank you, everyone, for your time today.

Dr. Ricard, I want to especially thank you for your courage in coming in and telling us your story today. It's extremely helpful. Thank you.

Dr. Lam, 28% of our young people in grades 7 to 12 smoke marijuana. Some of them will become regular users. At least 5% will become addicted.

We've heard on this committee that marijuana can cause psychosis and schizophrenia in young people and damage the prefrontal cortex of their brains. We know that marijuana has more known carcinogens than tobacco does, but it's very difficult to tie evidence of marijuana use to lung cancer because marijuana users also smoke tobacco. They either roll it together and smoke it at the same time or they smoke it alternately.

What role do you think the regular use of marijuana would play in causing lung cancer?

Dr. Stephen Lam: There is a suspicion that marijuana smoking can also increase the risk of lung cancer, but as you pointed out, it's very difficult to provide evidence for that because people smoke different types of marijuana and the number of joints they smoke also varies from day to day. It's very hard to quantify the amount they smoke in comparison with something like the number of cigarettes.

I have bronchoscoped a number of people who smoke marijuana. They have tremendous inflammation in their bronchial tubes and it leads me to think that they must have caused damage to promote lung cancer.

This is something we need to do more research on to decipher the exact problem with long-term smoking of marijuana.

Mr. Terence Young: Thank you.

Do you think it's likely that marijuana can cause lung cancer?

Dr. Stephen Lam: Yes. Some studies have suggested that marijuana can cause lung cancer. People have now smoked marijuana long enough that we'll start to see an impact of that smoking.

When I went to university in Toronto in the 1960s, people were starting to smoke marijuana at that time. Now it is 40 or 50 years later and I think more people smoke it and we will see a gradual increase in the problem in terms of lung cancer risk.

Mr. Terence Young: Thank you very much.

Dr. Pantarotto, I read about this device called a "CyberKnife", which is a non-invasive machine with a robotic arm for high doses of radiation targeted at tumours. It looks to me like they're only available in Ottawa, Montreal, and Hamilton.

I represent Oakville. I would like to know if you know why this device is not available at Princess Margaret hospital or in the part of the country I live in.

Dr. Jason R. Pantarotto: We have a CyberKnife here in Ottawa. As you said, it's a robotic unit that gives focused beams of radiation to small targets in the body. In fact, that technique has been a major step forward in the treatment of stage one lung cancer in those patients who, for whatever reason, cannot have an operation.

The answer to your question is that this form of radiation or that technique can be delivered with other machines. In fact, even though we have a CyberKnife in Ottawa, of the 170 patients we treated in the last calendar year with that technique, we actually did not treat them on a CyberKnife. We treated them on another technology that does a very nice job for lung cancer.

Mr. Terence Young: Is it just as good?

Dr. Jason R. Pantarotto: Yes.

● (1720)

Mr. Terence Young: Thank you.

Do I have any more time, Chair?

The Chair: You have about a minute.

Mr. Terence Young: Thank you.

Dr. Ionescu, I was fascinated to hear about the identifying biomarkers and drugs that target cancers. What is the promise of these kinds of treatments for lung cancer patients in the long term?

Dr. Diana Ionescu: As a pathologist, I do not see patients directly, as you know, but just based on the number of phone calls I get from the medical oncologists and their increasing interest in these biomarkers, I think this is their bread and butter. I really think this is the standard of care. I think that as we learn more about lung cancers, we are only going to see more and more drugs in targeted therapy and biomarkers as companion diagnostic tests.

I mentioned previously—and I submitted this in my brief—that if you think of one of those pie charts, we know the type of oncogenic drivers for about 54% or 55% of lung adenocarcinomas. We have the other 46% or 45% to research, and hopefully we can identify biomarkers and drugs that will really work for the patients—and not only in improving their overall survival, but also their quality of life. Indeed, without actually seeing the patients every day, what's important to me is their quality of life. I have learned from my medical oncologist colleagues that they no longer send their patients home by saying, "I'm sorry, but there is nothing I can offer you." They can actually say to their patients that they can go home with an oral pill, they can swallow that particular pill for several months, and their prognosis and quality of life will be better. They can say, "We know you're going to live longer with your disease."

The Chair: Thank you very much. The bells are ringing, and I don't want to get in trouble with the whip's office, so we're going to have to conclude our meeting.

Thank you to the doctors.

We'll see you later. The meeting is adjourned.