

# hope for tomorrow

A Special Edition of *Tomorrow's News* >>



**Sandy Ferns**

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Get an inside look at the Tomorrow Project with the founder of the study **Dr. Heather Bryant** on

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There's never a dull moment in **Cheryl Yaremchuk's** household. See how this Tomorrow Project participant and working mother of two helps keep her family at the top of their game.

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## Faces of Tomorrow by the Numbers

Check out how Tomorrow Project participants' modifiable risk factors stack up against international standards from a major Cancer Prevention report on

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**Sandy Ferns** believes in going the distance for cancer prevention. He joined the Tomorrow Project after his wife was diagnosed with cancer. Read Sandy's story on

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As a flight attendant **Robyn Paul** has travelled to places that many of us dream of. Read about her zest for life and her connection to the Tomorrow Project on

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What does the Commonwealth Stadium in Edmonton have to do with the Tomorrow Project? Flip to page **16** to find out.

### Yesterday, Today & Tomorrow

The Tomorrow Project has come a long way since it began in 2001. Check out the progress report on page **16**.

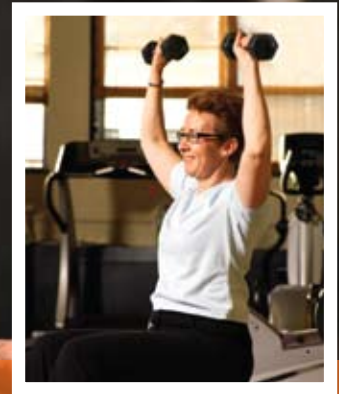
**What is a Cohort Study** and why is it important? Find out more on page **17**.



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## AN INSIDE LOOK AT THE TOMORROW PROJECT



**Dr. Heather Bryant**

We can't go through life just thinking about one disease we're trying to prevent. We're trying to develop a lifestyle that will put us at lower risk for many diseases.

*Dr. Heather Bryant working out at the ALIVE personal training facility in Calgary.*

**Dr. Heather Bryant** is the founder of the Tomorrow Project and a former Vice President of the Alberta Cancer Board. Dr. Bryant sits down with us to talk about the journey of bringing the cohort study to life and shares her Hopes for Tomorrow.

**Q Why did you think it would be a good idea to start a cohort study in Alberta?**

**A** We had a unique opportunity when the Alberta Cancer Board received some one-time funding to encourage research in five areas. One of these areas was Population Health and so we decided to develop a population feasibility study about cohorts. Not only would this study be helpful to be able to measure the health of Albertans over various points of time, but it would be a great tool to facilitate future researchers. We thought this would be a chance to really create a legacy. We wanted the Tomorrow Project to be a living, breathing thermometer of what's actually going on with health behaviours in Alberta.

**Q What challenges did you face at the start convincing people that an Alberta cohort study would be a good idea?**

**A** Everybody thought cohorts were a good idea but there was a concept that it would be very difficult to do. For example, many researchers believed that we wouldn't be able to get people to participate from all walks of life – and if we did, they believed people would not be willing to continue on and give detailed personal information. We wanted to demonstrate that they would because we believed that most people really are motivated towards trying to contribute to the understanding of what puts people at risk for poor health and what would sustain good health.

We're very pleased with the uptake of this cohort from the number of people that were originally approached. When we first started we had feasibility funding for 10,000 people and we actually got 12,000 people involved with that funding, so we were pleasantly surprised. Of those, over 90 per cent continue to be involved six to eight years later.

**Q What were your hopes for the cohort when you started it?**

**A** First of all and most importantly we hoped that it would be our opportunity to look at the causes of cancer and other chronic diseases in a new way. There are cohorts around from the past but they don't have the same access to markers that we have now (i.e. biological markers), or they are very selective groups of people. We wanted to come up with something that would add to the cohorts that currently exist. It would give us an opportunity to do some unique things like look at much better ways of measuring dietary intake as we go down the road. For our next cycle we're going to be looking more at occupational and environmental exposures than other cohorts have been able to do.

Secondly, we hoped that the study would allow us to see what's going on with the health of Albertans on a regular basis rather than wait for a cohort to mature 20 years later. So we have come up with some unique opportunities out of it already. For example, we've been able to look at prostate screening behaviours and look at who is getting prostate screening and who is not. We've been able to look at colorectal cancer screening behaviours in the same way. We have detailed reports on dietary supplement use, which we didn't have a good handle on in Alberta, and now we're looking at predictors of women who changed their use of hormone replacement therapy after the release of results of the Women's Health Initiative study. So it's really been very helpful for us to get a picture of what's going on in Alberta and as a result it's going to help us and help the Health Regions with programming.

**Q What hopes do you have for the cohort now?**

**A** We now have 30,000 people in the cohort. We hope to build it to 50,000 within Alberta and potentially to 250 – 300,000 in the country which would give us great opportunities to really come up with some answers about cancer in Canada. In Alberta, a cohort of 50,000 would provide some great opportunities to deal with chronic disease and cancer in the province.

So that it becomes a richer database, we hope that people continue to be engaged in the study. The feedback that we get is always very positive as participants get information back that's helpful for them. As well, we're able to engage the research community by using information from the study to answer cancer questions in addition to other health related questions.



**Q What health choices and changes in modifiable risk factors have you made in your lifestyle?**

**A** I, like a lot of women, was busy with a career and busy with a family and really didn't have a lot of time to also jam physical activity into that life. I paid the price with increase in weight and not feeling as fit. So about 10 years ago when our kids were in their early teens we all joined the YMCA. I was going out of commitment, but the kids and my husband all took to it like ducks to water. Eventually, I came to actually enjoy it as well! The kids have all grown up now but all four of us have kept it up because we found the positive benefits from exercise. And so we're there at the gym at 5:30 a.m. on weekdays and 7 a.m. on weekends.

**Q What was your motivation for making these changes?**

**A** I felt I was becoming unfit and overweight and I didn't want to go through the rest of my life that way.

I've been fortunate not to have a family history with a lot of cancer in it. But I do have a family history of cardiovascular disease and as we all know for prevention, we can't be going through life just thinking about one disease we're trying to prevent. We're trying to develop a lifestyle that will put us at lower risk for many diseases.

**Q What challenges have you faced for maintaining the lifestyle changes that you have made?**

**A** In my work, probably the biggest issue I've had to deal with is travel and the disruption to my schedule that comes with that. So I have gone through various phases of trying to figure out how to fit exercise in. When I travel for more than a few days I'll use an exercise bike at the hotel gym. If I'm gone only a day I'll take a break as everyone needs to rest a day or two a week. I also find the meals that I get when I travel very difficult to control.



**Q People who volunteer to participate in the Tomorrow Project receive no compensation for the time they spend filling in questionnaires or talking to researchers on the phone. What do you think motivates people to take part in a long-term study that may not provide them with any direct personal benefit?**

**A** I think most people want to make a contribution. I think most people who do this, do it with an understanding that it may help provide knowledge that will help their kids or themselves later in life. And I think people who participate in this project are just positive people trying to make a difference.

**Q What's your Hope for Tomorrow?**

**A** I'd like to see the Tomorrow Project established as something that truly is seen as a resource in Alberta that we would not want to be without because it gives us so much information that benefits Albertans. I do hope that the Tomorrow Project will allow us to have much more insight into the prevention of cancer, much more insight into how to position things so that people are able to live lives that are healthier and longer.

### Final Thoughts:

I think it's important for people in the Tomorrow Project to know what a major contribution they are making but also to know how positive the team is about their participation and our hopes that we provide information back to them that they find constructive and helpful. And if they have ideas about that we'd love to hear them.

## THE TOMORROW PROJECT AT A GLANCE

<b>1999</b>	Concept of the Tomorrow Project is developed by population health researchers at the Alberta Cancer Board, under the leadership of Dr. Heather Bryant
<b>September 2000</b>	Ethical approval for the first phase of the study granted
<b>October 2000</b>	First phase of random digit dialing started
<b>February 2001</b>	2,500 study information packages sent to potentially interested people identified by random digit dialing
<b>February 2001</b>	First issue of Tomorrow's News (biannual newsletter) sent out
<b>February 2001</b>	First person enrolled in the study by returning completed consent form and Health and Lifestyle Questionnaire
<b>March 2001</b>	Second wave of random digit dialing started with the goal of finding 5,000 potentially interested people
<b>October 2001</b>	Third wave of random digit dialing started
<b>November 2001</b>	Started study to determine feasibility of collecting blood from study participants: 1,140 people invited; 769 provided a sample
<b>March 2002</b>	Fourth wave of random digit dialing started
<b>May 2003</b>	Fifth wave of random digit dialing started
<b>April 2004</b>	First follow-up survey mailed to participants who had joined the study between 2001 and 2003
<b>September 2004</b>	Sixth wave of random digit dialing started
<b>June 2006</b>	Seventh wave of random digit dialing started; the largest in the history of the project. The aim of this recruitment drive was to find approximately 23,500 potentially interested people.
<b>October 2006</b>	Dr. Paula Robson takes over as Principal Investigator of the Tomorrow Project
<b>December 2007</b>	Approximately 30,000 Albertans enrolled in the Tomorrow Project
<b>mid 2008</b>	Second follow-up survey to be sent to all participants

tomorrow  
project



## WHO'S WHO IN THE TOMORROW PROJECT



There's never a dull moment in the **Yaremchuk** household. Married for 15 years **Cheryl** and her husband Ken own and operate a vending machine company in Sherwood Park. Cheryl is also a program co-ordinator for Linking Generations, a non-profit organization that brings together children in the junior high age group and matches them with seniors for biweekly visits during the lunch hour.





"It's really a rewarding job," says 42-year-old Cheryl. "It's great to see these kids interact and I have kids the same age so I know how some of them can be. Just looking at them and how nice they are with their elders, it's really positive to see."

Cheryl and Ken's two sons Nolan and Austin keep them hopping seven days a week. Both boys love sports of all kinds and are very active in hockey. They seem to be following in their father's footsteps as Ken was a professional hockey player. He was drafted by the Chicago Black Hawks and he played for the Toronto Maple Leafs. Ken also played in the 1988 Olympics for Team Canada and then in 1989 he played hockey in Europe.

Ken's hockey career in Europe exposed the family to new cultures and adventures. They lived in Italy for a year and Switzerland for 10 years, where the kids were born. While living in Europe, Cheryl definitely noticed a difference in lifestyle compared to the fast-paced culture of North America. "Life was just different," says Cheryl. "People took the time to actually enjoy life and go for a walk and spend time with family and friends."

She also found that it was much easier to maintain a healthier lifestyle. "Our fridges in Europe were half the size of what we have in North America so I would go out and shop every single day for fresh foods. Europeans didn't really use canned products too often. They would cook right from scratch and they definitely took pride in their food."



Both Cheryl and her husband monitor what their kids eat and make them aware of good and bad food choices. "My kids know how much sugar is in a can of pop," says Cheryl. "They know that brown bread is definitely the way to go and they will even order that on their own just from us having it in the house."

"If I read something in the newspaper or in a magazine I'll cut it out and make them read it, make them aware of it," says Cheryl. "I'm not saying that they don't make bad food choices at times, but for the most part, I think they're pretty aware."

Despite Cheryl's hectic schedule, she also believes in keeping fit and enjoys going to exercise classes and even taught aqua aerobics for a year. Cheryl feels strongly about finding a cure for cancer and has been a participant of the Tomorrow Project since 2001. Last year she ran in the Alberta Cancer Foundation's Underwear Affair in Edmonton.

"I've lost some aunts and uncles to cancer," says Cheryl. "If my involvement in the Tomorrow Project will help to provide some insight into this dreadful disease then I'm all for it."



### Cheryl's Hope for Tomorrow

I feel it's important for me as a Tomorrow Project participant that I'm honest with the program and share my information to definitely make a difference in somebody's tomorrow.

## FACES OF TOMORROW BY THE NUMBERS

On October 31, 2007 a major Cancer Prevention report was released by the World Cancer Research Fund and the American Institute for Cancer Research. This comprehensive report describes how cancer risk could be influenced by diet, body size and physical activity.

Following an extensive review of all relevant scientific literature, a panel of experts developed a grading system to describe how nutrition and lifestyle may affect cancer risk. Grades ranged from **convincing, probable, limited but suggestive** to **substantial effect on risk unlikely**. Based on the grading system, the panel developed a series of public health goals and personal recommendations designed to help reduce risks of cancer.<sup>1</sup>

This section of the publication illustrates how the Tomorrow Project participants stack up against the personal health recommendations from the Cancer Prevention report. Data were provided by approximately 20,000 participants of the Tomorrow Project. Questionnaires are still being received from people recruited last year, and their data will be included in future reports.

### Body Fatness

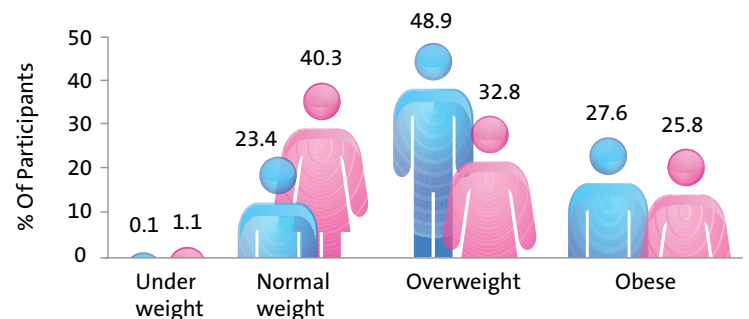
- > **Maintain body weight within the normal range from the age of 21**
- > **Avoid weight gain and increases in waist circumference throughout adulthood**

Evidence for a link between excess body fatness and increased cancer risk was judged to be **convincing** for cancers of the oesophagus, pancreas, large bowel, breast (but only in post-menopausal women), lining of the womb and the kidney. Abdominal fatness, indicated by waist circumference was **convincingly** associated with increased risks for large bowel cancer.

The best measures of body fatness are obtained using complex and costly equipment that is not portable. In a large study like the Tomorrow Project, where participants live in all parts of the province, it is simply not feasible to directly measure body fatness in everyone. Instead, body mass index is often used as an estimation. Although it is not a good indicator of fatness for some groups within the population, body mass index is used because it can be calculated very easily by dividing body weight (measured in kg) by height (measured in metres) squared.

Body mass index was calculated for Tomorrow Project participants who reported their height and weight on the Health and Lifestyle Questionnaire. The normal range for body mass index is 18.5 to 24.9.<sup>2</sup> The other body mass index classifications are: underweight (less than 18.5); overweight (25.0 to 29.9); obese (greater than or equal to 30.0).<sup>2</sup>

### Male and female participants in each Body Mass Index category



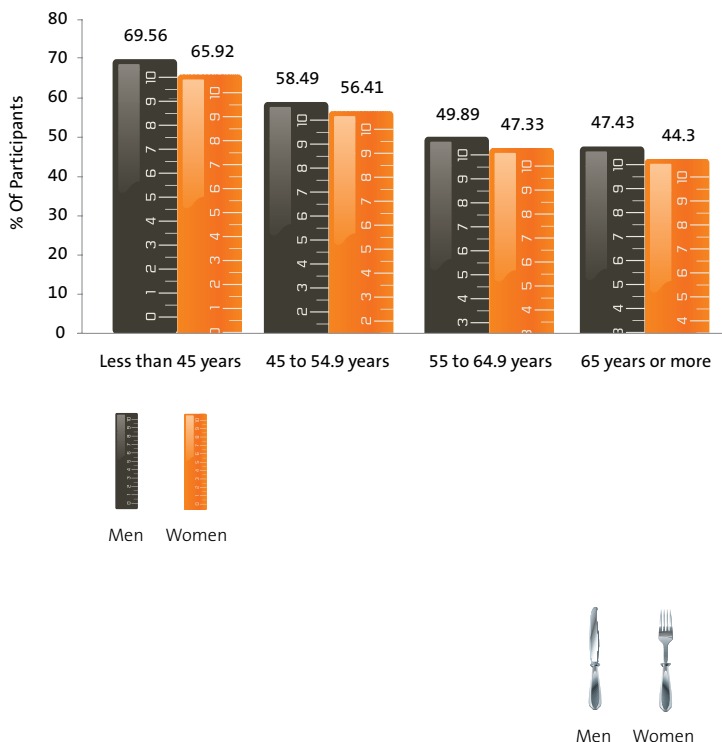
Grades ranged from *convincing, probable, limited but suggestive* to *substantial effect on risk unlikely*.

Significantly more Tomorrow Project women than men achieved the recommendation of maintaining body weight in the normal range.

Health Canada recommends normal ranges for waist circumference in Canadian adults: men should maintain a waist circumference of less than 102 cm (about 40 inches), and women of less than 88 cm (about 35 inches).<sup>3</sup> For Tomorrow Project participants, waist circumference is the abdomen measurement reported on the Health and Lifestyle Questionnaire.

In contrast to body mass index, there were few differences in the number of men and women who had a waist circumference in line with the recommendations. However, more people in the younger age groups met the recommendation compared with the groups aged over 55 years.

### Participants in each age group complying with recommendations for waist circumference

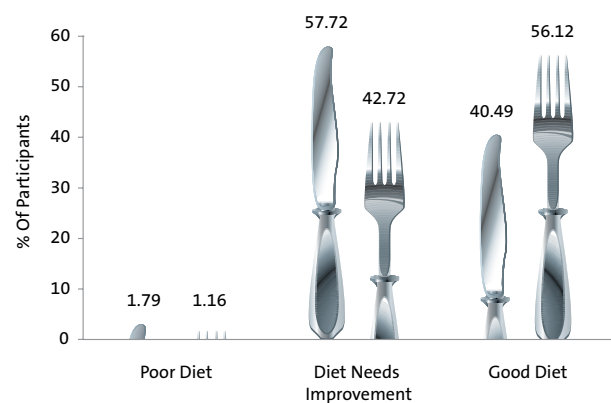


### Healthy Eating

- > Consume energy dense (high calorie) foods sparingly
- > Avoid sugary drinks
- > Consume 'fast foods' sparingly, if at all
- > People who eat red meat should aim to consume less than 500 g a week, with very little, if any, to be processed
- > Eat at least five portions/servings of a variety of non-starchy vegetables and fruits every day
- > Eat relatively unprocessed cereals (grains) and/or legumes with every meal
- > Limit refined starchy foods

Most foods provide us with energy (calories), but the same volumes or weights of different foods can contain more calories than others. The term 'energy dense' refers to foods that contain a lot of calories in a relatively small weight or volume. For example, one cup of maple syrup contains 840 calories, while one cup of reduced fat chocolate milk contains only 190 calories.<sup>4</sup> In other words, maple syrup is much more 'energy dense' than reduced fat chocolate milk. Consumption of energy dense foods and sugary drinks has been linked with increased likelihood of weight gain.

### Male and female participants in each Healthy Eating Index category







In general, people who follow dietary guidelines such as Canada's Food Guide<sup>5</sup> would meet many of these healthy eating recommendations. Using the responses on the Diet History Questionnaire, a Healthy Eating Index was calculated for the Tomorrow Project participants. The index is a score that reflects how well Canada's Food Guide is followed. It takes into account the number of servings eaten from each of the four food groups (vegetables and fruits, grain products, milk and alternatives, meat and alternatives), whether there is variety in the diet, and the amount of fat, saturated fat, cholesterol and sodium consumed. The score ranges from 0 to 100. Scores of 50 or less indicate that the diet is poor; scores between 50 and 80 indicate that the diet needs improvement; and scores over 80 suggests that the diet is healthy and varied.<sup>6</sup>

Using the Healthy Eating Index criteria, very few Tomorrow Project participants reported dietary habits that were defined as **poor**. However, significantly more women than men reported that they consumed a good diet.

When considering vegetables and fruit, the panel judged that eating greater amounts of non-starchy vegetables would **probably** decrease risks of developing cancers of the mouth, pharynx, oesophagus and stomach. Greater fruit intake would **probably** decrease risks of developing cancers of the mouth, pharynx, larynx, oesophagus, lung and stomach.

This recommendation is also in line with Canada's Food Guide.<sup>5</sup> Current scientific opinion suggests that the recommendation should be met by eating a variety of different coloured fruits and vegetables, including dark green and orange vegetables daily. The number of servings that Tomorrow Project participants consume each day was calculated from the responses to the Diet History Questionnaire. For the purposes of this report, white potatoes are not included in servings of fruit and vegetables.

Approximately half of the participants in the Tomorrow Project reported that they met the recommendation for fruit and vegetable intake. Significantly more women than men met the recommendation (58% vs. 51%).



## Physical Activity

- > **Be moderately physically active, equivalent to brisk walking, for at least 30 minutes every day**
- > **As fitness improves, aim for 60 minutes or more of moderate, or 30 minutes or more of vigorous, physical activity every day**

Evidence for a link between higher levels of physical activity and decreased cancer risk was judged to be **convincing** for large bowel cancer. The panel also found that more physical activity was **probably** linked to decreased risk of developing breast cancer (but only in post-menopausal women) and cancer of the lining of the womb.

Moderate and vigorous physical activity levels are defined by the amount of energy that is used to perform a specific activity. All of the Tomorrow Project participant responses on the Physical Activity Questionnaire are assigned a value for energy use called a metabolic equivalent (MET).<sup>7</sup> Moderate physical activities have values from 3 to 6 METs and include carpentry, gardening, brisk walking, golf and dancing. Vigorous physical activities have values greater than 6 METs and include baling hay, carrying heavy loads, shovelling, doing aerobics, running and cross-country skiing.

About 85 per cent of participants in the Tomorrow Project reported that they achieved the recommendation for moderate physical activity – in other words, the majority of people reported that they did at least 30 minutes of moderate activity every day.

## Alcoholic Drinks

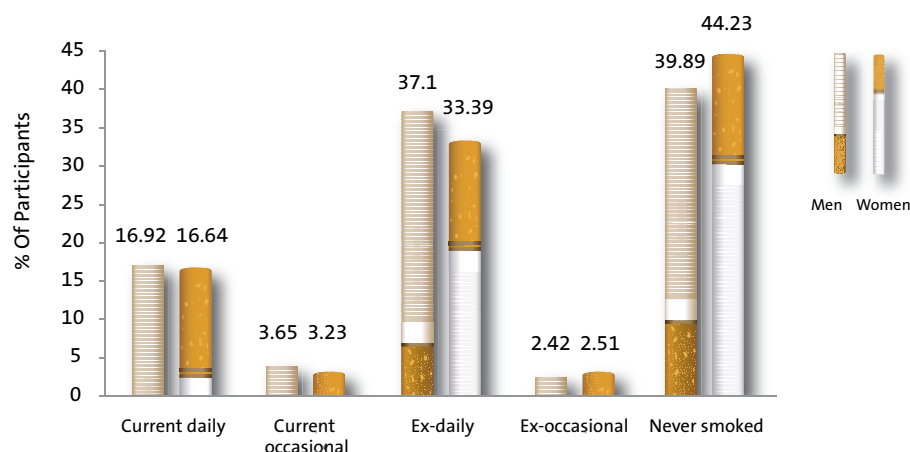
- > **If alcoholic drinks are consumed, limit consumption to no more than two drinks a day for men and one drink a day for women**

The panel from the Cancer Prevention report judged that there is **convincing** evidence to link higher consumption of alcohol with increased risk of cancers of the mouth, pharynx, larynx, oesophagus, breast, and large bowel (in men).

The recommendation concerning alcohol covers all alcoholic drinks including beer, wine and liquor. A drink is one bottle or glass of beer, one 5 ounce glass of wine, or one drink containing 1.5 ounces of liquor. If the recommendation were based only on the evidence around reducing risks of developing cancer, the consumption of alcoholic drinks should be avoided altogether. The recommendation, as it stands, takes into account the fact that moderate alcohol consumption may have a protective effect for coronary heart disease. The total number of alcoholic drinks consumed per day by Tomorrow Project participants is calculated using the responses on the Diet History Questionnaire.

About 87 per cent of participants achieved the recommendation for alcohol intake. There were no significant differences between men and women.

### Male and female participants grouped by smoking status



## Tobacco

### > Do not smoke or chew tobacco

This recommendation is from the 1997 version of the Cancer Prevention report and was not updated in the 2007 report. Tobacco use is estimated to cause about one-fifth of all cancer deaths worldwide, equalling about 1.2 million deaths in 2002.<sup>8</sup>

According to responses on the Health and Lifestyle Questionnaire, Tomorrow Project participants were classified as daily smokers, occasional smokers, former daily smokers, former occasional smokers or never smoked.

Approximately 20 per cent of participants in the Tomorrow Project were classified as current or occasional smokers of cigarettes. The good news is that approximately 40 per cent of men and 35 per cent of women used to smoke daily or occasionally, but had quit. There is evidence to suggest that quitting smoking, even in middle-age can reduce cancer risk.<sup>9</sup>

## Further Reading

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8. World Health Organization and International Agency for Research on Cancer (2003). World Cancer Report. Lyon: IARC Press.
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Fresh from Glasgow, Scotland, **Sandy Ferns** arrived in Canada in 1967 at the ripe age of 24 in pursuit of adventure and career advancement. “When I came to Canada I thought Expo 67 was a welcoming party for me,” jokes Sandy. “It was a wonderful year to come over here during Canada’s centennial.”



**WHO'S WHO** IN THE TOMORROW PROJECT



Through his job as a credit administrator, over the years Sandy has travelled to Toronto, Grande Prairie, Whitehorse, Vancouver and Calgary. After 35 years in the business Sandy retired and moved to Taber, Alberta with his wife Ann five years ago.

As a member of Taber's Recreation Board and District Soccer Board, Sandy likes to keep active. He is also a qualified soccer referee and tennis coach and is an avid jogger. Both Sandy and his wife go to the gym together almost daily. "There's a lot of peer pressure going on in our house, it certainly keeps us going."

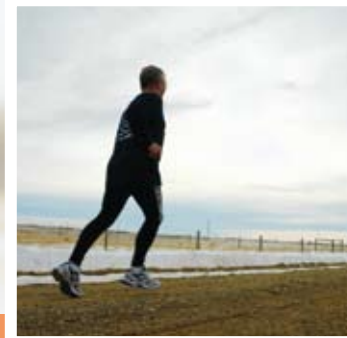
Sandy is motivated to stay fit and healthy as his father died of a coronary thrombosis and Sandy himself has high blood pressure and cholesterol which are both currently under control. He also wants to stay healthy for his two daughters and granddaughter, with another on the way. "I just believe in being fit and having a good diet," he says. "It's the old story if I look after myself I have a better chance of survival than if I go out and hit the bars every night."

Over the last 30 years, Sandy has run 11 half marathons in Calgary and Vancouver but now generally limits himself to three or four 10 K runs a year. "My goal each year is to run my age," says Sandy. "At 64, If I can run a 10 K at my age then that's good enough for me."

When Sandy's wife, Ann had to have her left kidney removed due to cancer in 1991 it was a difficult time for the Ferns family. "There was no question that was a troublesome time," says Sandy. "It's the sort of thing that never happens to you or your family and then all of a sudden you come home from work one day and you're hit between the eyes with this realization that it does hit you, it does affect every person. And probably it's only going to be sooner or later that it comes right home to your own roost."

Ann has been cancer free ever since but it left an impact on Sandy and in 2006 he joined the Tomorrow Project study. "I couldn't help thinking that this had to stop, something has to be done and if I could help in any way, let's go for it."

"We've always lived with a good diet," says Sandy. "But after going through the Tomorrow Project survey questions, I find that it has definitely made me more aware of what I should and shouldn't do."



### Sandy's Hope for Tomorrow

We find a cure. I think it's just that simple.

It's not just going to be a cure for one type of cancer, but it's cancer in general.

## YESTERDAY TODAY & TOMORROW

The goal of the Tomorrow Project is to enrol 50,000 adults from all over Alberta, to participate in a long-term study that will help answer some of the questions about the causes and effects of cancer in our society. By the end of 2007, the Project was well on the way toward reaching that goal, and had enrolled almost 30,000 people. By the end of 2011, we anticipate enrolling another 20,000 people.

### How do people become participants in the Tomorrow Project?

When planning the Tomorrow Project, it was important to build a cohort of people that represented the adult population in Alberta as much as possible. This approach contrasts with some of the more famous cohort studies that enrolled only female nurses (i.e. Nurses' Health Study), or male doctors (i.e. British Doctors' Study), or people living in a particular community or town (i.e. Framingham Heart Study).

The challenge with this approach was identifying people who would be invited to take part. After exploring many options, it was decided that a telephone-based method, known as 'random digit dialing' would be the most effective way to find potential participants. Using this method, phone numbers in Alberta are randomly generated by computer, and then dialed by individuals to find adults aged 35 to 69 who have never been diagnosed with cancer. Those people are then asked to consider joining the study. As soon as the Tomorrow Project office receives names and addresses of potentially interested people, the process of enrolment begins.

### By the numbers...

Since the study started, 60,372 potentially eligible people, identified by random digit dialing, agreed to receive more information about the study in the mail



= sold out seating capacity of the Commonwealth Stadium in Edmonton, the largest permanent capacity stadium in Canada

In the largest ever recruitment wave undertaken in 2006 and 2007, 732,761 dialing attempts were made on 155,693 telephone numbers to obtain names and addresses of 23,930 people who were willing to receive more information in the mail.

Number of recruitment dialing attempts = 732,000 (Population of Alberta in 1931)



Since the study started, 29,807 people enrolled in the study by returning a consent form and a completed Health and Lifestyle Questionnaire



= close to the entire population of the territory of Nunavut (Statistics Canada, 2006 Census of population)

In total, 89,409 questionnaires have been completed so far, filling 468 cardboard bankers' boxes, taking up 13.8 cubic metres of space

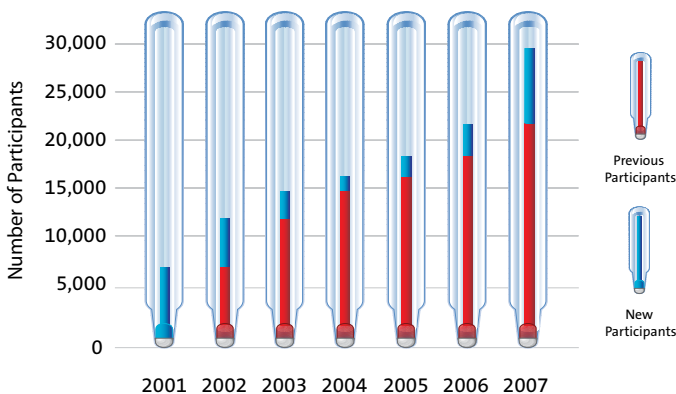
= enough to fill a mid-sized moving truck



To date, approximately 273,000 newsletters have been sent to participants



= the number of visits Canadian residents make to Hawaii each year



## COHORT STUDIES

### What is a cohort study, and why is it important?

A cohort study follows people for several years until some of them develop the disease or condition being studied. Differences between the people who develop disease and those who do not are investigated. This is a valuable method of collecting data because the risk of developing certain diseases as people get older is affected by their lifestyle when they were younger.

The Tomorrow Project is a cohort study that aims to explore how environment and genetic factors interact to influence cancer risk in the population.

When studying the causes of cancer, 'environment' is a broad term that includes diet; physical activity; sun exposure; use of tobacco; use of alcohol; exposure to chemicals in air, water, soil; types of work performed; places of residence; proximity to industrial sites, etc. With genetic factors, evidence suggests that some people have alterations in their genes that might make them more or less susceptible to the cancer-causing effects of certain environmental exposures.

Much more needs to be learned about how environment and genetics interact over time to impact cancer risk. A cohort study is recognized as the best way to obtain this information. In the study design, people who do not have cancer are selected at random from the population, and invited to participate in a long-term study. On enrolment, participants typically provide information about their health and lifestyle. At various points during the study, they may be asked to provide biological samples, like blood or urine, as well as updated health information. Analysis of biological samples provides insight into genetic factors, as well as other specific exposures that cannot easily be obtained using questionnaires. Eventually, the layers of data built up over time are analyzed to determine how differences in behaviours or exposures can help explain why some people in the cohort develop cancer, and others do not.

The great value of a cohort study is that it can assess multiple behaviours and exposures at multiple times *before* a cancer diagnosis is made – minimizing the risk of results being distorted by people's memories of past events. Obtaining clues about how to prevent cancer is the ultimate goal of cohort studies like the Tomorrow Project. It is widely recognized that learning how to prevent cancer in the first place will be the most effective way of reducing the burden of this disease on society.

### Other Cohort Studies

#### Framingham Heart Study

The Framingham Heart Study is a cohort study that began in the town of Framingham in the United States in 1948, and continues today. The original purpose of the study was to determine the causes of heart disease. Many of the study's findings are now considered common knowledge, but were groundbreaking when they were first published. In the first three decades of the study, Framingham researchers demonstrated that high blood pressure (1957), high cholesterol (1957), smoking (1962), obesity (1967), and diabetes (1974) were all associated with increased risk of developing heart disease. In fact, the Framingham researchers coined the term 'risk factor' to describe how various conditions were related to the likelihood of developing disease.

The Framingham Study was one of the first large studies to make the direct connection between lifestyle and risk of disease. As a result, we learned that risk factors for heart disease can potentially be modified by making beneficial lifestyle changes to diet and physical activity. This knowledge has helped physicians and other health professionals to make recommendations aimed at reducing disease risk, rather than relying on treating the disease once it was diagnosed.

Participants who volunteered their time over the course of the study have contributed greatly to the understanding of the causes of heart disease, and have likely helped save millions of lives.

For more information, see <http://www.framingham.com/heart/>

#### British Doctors' Study

In 1951, a group of researchers in Great Britain sent a questionnaire to all registered male physicians in the country asking them about their smoking habits. Almost 35,000 doctors filled out the original questionnaire, and follow-up surveys were sent to participants in 1957, 1966, 1971, 1978, 1991 and 2001.

Three years after the first questionnaires were sent out, the research group published their early findings: mortality from lung cancer increased as the amount of tobacco smoked increased. Over the 50 years of the study, researchers continued to demonstrate that smoking tobacco increased risk of developing lung cancer, as well as other chronic diseases. On a more positive note, they also found that quitting smoking by the age of 50 cut the increased risk of lung cancer in half, while quitting by the age of 30 avoided almost all of the increased risk.

The British Doctors' Study was the first study to show a direct relationship between smoking and lung cancer risk. The efforts of researchers and participants provided valuable information, not only on the long-term health risks associated with smoking, but also on the health benefits of quitting smoking.

For more information, see <http://info.cancerresearchuk.org/news/archive/pressreleases/2004/june/38863>

<http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=15213107>

To discover more interesting findings from other cohort studies, log on to the Tomorrow Project's website [www.thetomorrowproject.org](http://www.thetomorrowproject.org) and click on 'About the Study'



Prior to joining Air Canada, Robyn worked for an oil company in downtown Calgary. "I would sit at my desk on the 24<sup>th</sup> floor and watch the planes go by. As I sat there for hours on end I realized that an office environment really wasn't for me."

Robyn's work has taken her to such distant lands as Japan, Germany, England, Hawaii, Mexico, Australia, Jamaica and various other Caribbean islands. Whenever she has layovers in the same cities she doesn't find it boring or tedious. "I love talking to the locals, in fact my crew knows that I usually do my own thing because I march to the beat of a different drummer."

I like to go explore. I always talk to the concierge and find out a new area to go to. If I take a train or take the Tube in London, I go somewhere and get off and have this new adventure."

And that's the zest for life that this effervescent 49-year-old Calgarian brings to all her endeavours...even as she approaches the major milestone of turning 50. "I'm really looking forward to it," says Robyn. "Every decade it's been a growth and a new chapter in my life, but not without some difficulties and trials. It's such a learning experience – being in the school of life gives you opportunities each day to reach new horizons and try new things, discover new foods, see new parts of the world and learn a new language."

I don't mind how I'm aging gracefully with the grey hair and wrinkles, that's the way it is."

Some of us dream of flying to Europe or escaping to the Caribbean during the harsh Alberta winters. Well it's all in a day's work for **Robyn Paul**. Robyn has been flying with Air Canada for 28 years as a flight attendant, and loves every minute of it. "Well I say I pack my bags and go to Europe for dinner. In the meantime I serve my passengers some food. But it's really not work, it's so wonderful," says Robyn.



## WHO'S WHO IN THE TOMORROW PROJECT

When she's not flying, you can find Robyn in her kitchen poring over cook books, chopping up fresh fruits and vegetables preparing healthy meals with some upbeat music in the background. She also enjoys cross-country skiing, walking, running and cycling in Fish Creek Park. Robyn was involved in Air Canada's volunteer charity *Dreams Take Flight* for 13 years. The charity raises money to take terminally or chronically ill, mentally or physically challenged children to Disneyland once a year.

Robyn's compassion for children was one of her motivating factors for joining the Tomorrow Project. A young girl who lived in Robyn's community needed a bone marrow transplant and so Robyn joined a bone marrow transplant organization in hopes that she could help. "Especially with my involvement with *Dreams Take Flight*, I felt compassionate towards this 6-year-old girl," says Robyn. "And when the Tomorrow Project came out I thought perhaps this will affect children as well because they're not exempt from cancer, so I joined so I could have a little bit of involvement with finding answers and trying to help."

Robyn has an uncle who is a cancer survivor but she has also lost relatives to pancreatic and ovarian cancer. Cancer has also touched her professional life as Robyn knows of many flight attendants who either have breast cancer or are breast cancer survivors.

Since joining the Tomorrow Project in 2003, Robyn has more awareness of the importance of healthy eating, rest and exercise. She follows Canada's Food Guide and drinks at least three litres of water a day which she finds helps with jet lag.



### Robyn's Hope for Tomorrow

With the amount of attention and research that cancer is getting, it's likely that a cure will be found within our lifetime.

I'm inspired to stay in the project. If there's enough love and care out there to continue with the Tomorrow Project it just might happen.



## THANK YOU

The principal and co-investigators of the Tomorrow Project would like to thank the staff for their tireless efforts of pioneering and managing this long-term study and seeking innovative ways to gain insight into cancer prevention.

Many thanks to the Alberta Cancer Foundation for the ongoing funding of the Tomorrow Project. The Foundation provides considerable support to many programs of cancer research across the province. The Foundation also raises funds and accepts donations to enhance patient care, support cancer prevention programs, and provide a financial assistance program for patients in need.

For more information, visit the Alberta Cancer Foundation website: <http://donate.albertacancer.ca>



In this special edition of **Tomorrow's News**, the staff of the Tomorrow Project wish to thank all those who have participated in the study over the years. Your contributions are helping to create a valuable resource and legacy for cancer researchers. We could not do this without your continued support and input.

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