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CANADIAN
MEDICAL
ASSOCIATION

Shaping the Future of Health and Medicine

August 14, 2018

Introduction

Technology is having an impact on all aspects of Canadians' lives, changing the way we shop, work and commute. Accessing government services such as health care is also being re-shaped by technology and artificial intelligence.

These developments hold the potential to revolutionize the delivery of health care in Canada:

- Virtual care – the use of electronic means to reduce or replace face-to-face interaction;
- Big data – the ability to artificial intelligence and machine learning to analyze large volumes of different types of data
- Technological developments such as robotics, 3D printing, augmented reality, nanotechnology, the Internet of Things (connected devices) and health apps that run applications on smartphones.

The **Canadian Medical Association** commissioned Ipsos to examine the state of public opinion in Canada today as it relates to these issues.

Key Findings: Artificial Intelligence and Technology

- ❖ Six in ten Canadians say they are excited about the impact artificial intelligence will have on health care.
- ❖ Canadians overwhelmingly embrace tech and AI in health saying it could prevent some illnesses and lead to better care from physicians.
- ❖ While they support more investments in technology they do not want to see these investments happen if it means fewer doctors and nurses.
- ❖ Trust in AI derived diagnosis/treatment recommendations is higher when the system is delivered by a physician.
- ❖ Despite the support for artificial intelligence and technology in general, there are concerns around the privacy and protection of personal health data.
- ❖ Support for a greater AI and Tech role in health care is highest among: those under 35, men, university educated and parents.

Key Findings: Virtual Visits

- ❖ 7 in 10 Canadians say they would take advantage of virtual physician visits, 4 in 10 says they would do so for more than half of their physician visits.
- ❖ Most Canadians see virtual visits leading to more timely care, more convenience and better overall care.
- ❖ When it comes to virtual visits more are concerned with the potential loss of human touch and accuracy of diagnosis than they are the privacy of their personal information.
- ❖ Support for virtual visits is highest among: those who've had a virtual visit before, 18-34 year olds, heavy users of the health system (11+ visits per year) and parents.

Key Findings: Health Monitoring Devices

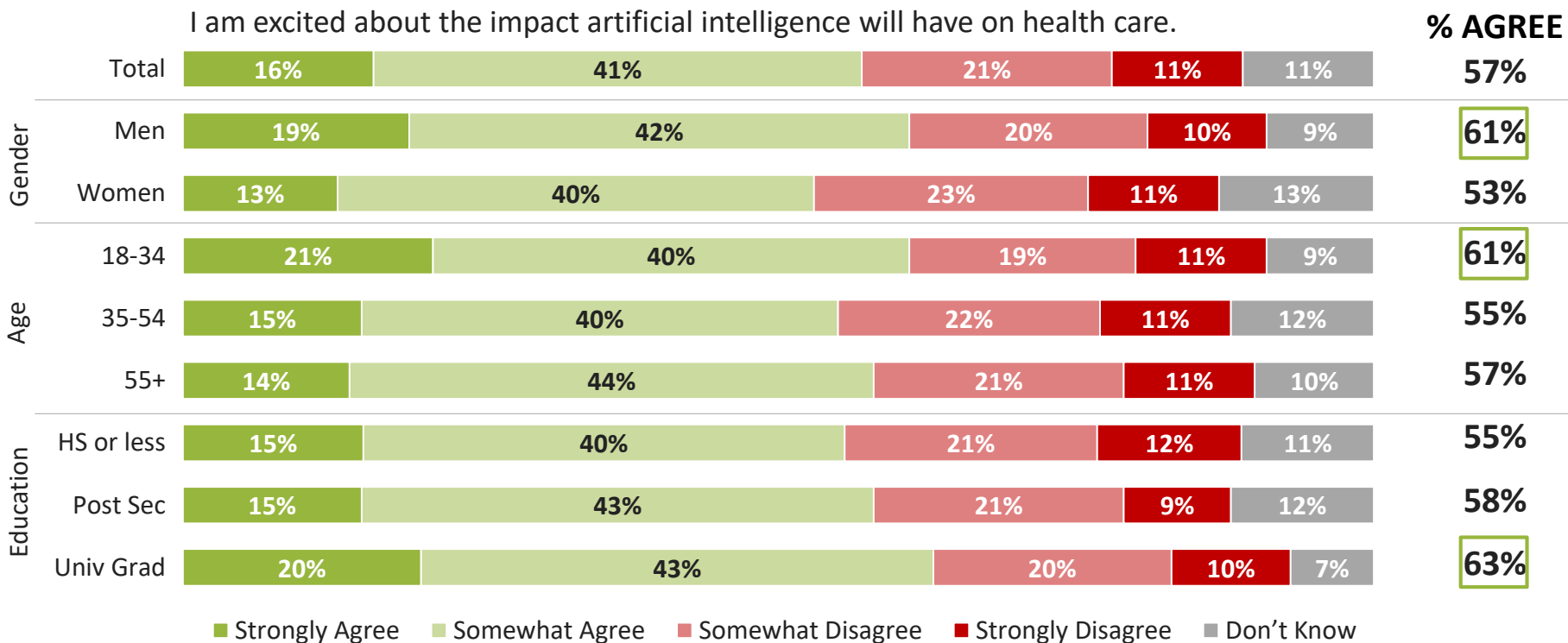
- ❖ Over half of Canadians say they are likely to use a continuous health monitoring device, 2 in 10 very likely.
- ❖ Canadians say they are more likely to use a health monitoring device if recommended by doctor or connected to a group of physicians, rather than to an AI program.
- ❖ They are also more likely to use a health monitoring device if it is paid for by the health system or if they are paid to share their health data.
- ❖ Support for health monitoring devices is highest among: 18-34 year olds, parents, and university educated. Support is lowest in Quebec; with no differences between other provinces.

Tech and AI in Health

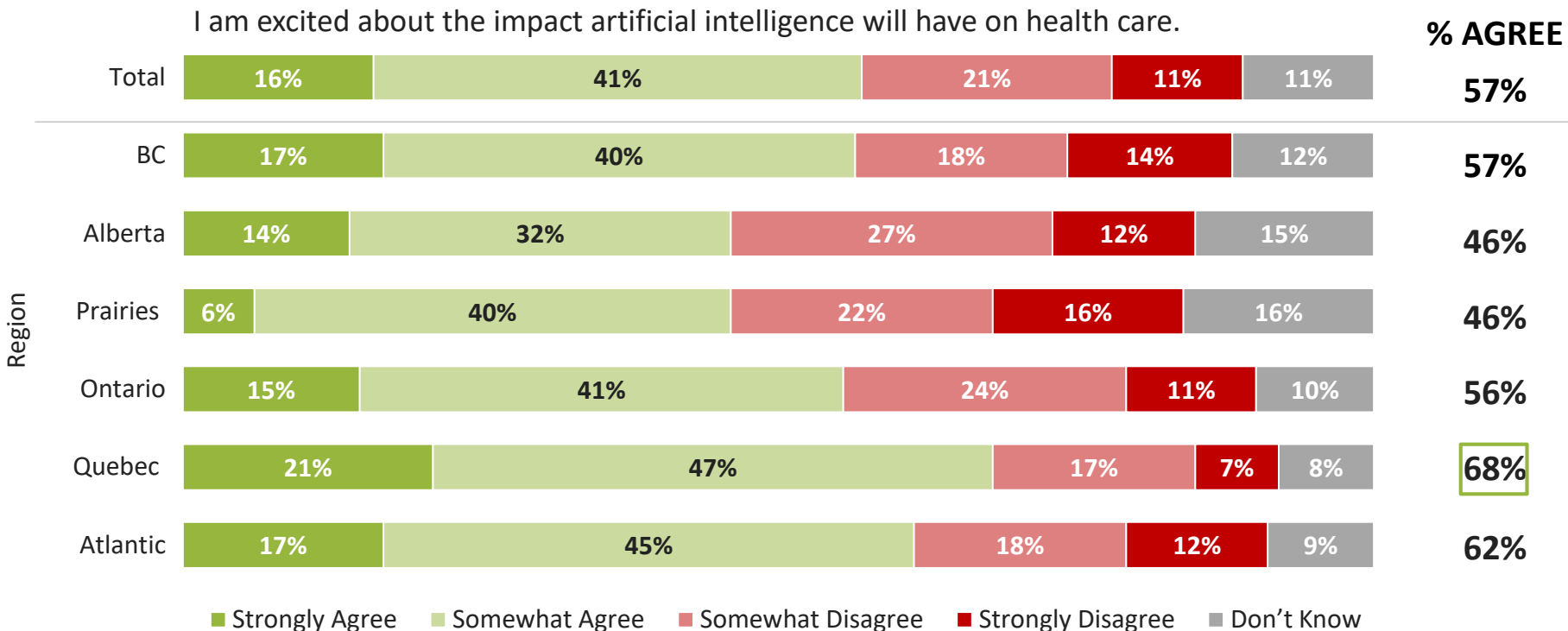
Respondents were shown the preamble below before being asked about tech and AI in health care:

Artificial intelligence is a technology that can be applied to health care. Computers can examine vast amounts of patient data faster and at a scale greater than humans to find patterns and unique opportunities to improve health outcomes for individuals.

Six in ten Canadians say they are excited about the impact artificial intelligence will have on health care



Excitement for AI is highest in Quebec, and lowest in Alberta and the Prairies



Q9 . Do you agree or disagree with the following statements?

© 2018 Ipsos. Base: All Respondents (n=2,003)

68% Significantly Higher



Canadians support more investments in technology, believing it could solve existing issues, but not if it means fewer doctors and nurses

I support more investments in technology in our health care system, but not if it means less doctors and nurses.



I think technology could help solve issues affecting our health care system such as access to care, dealing with chronic diseases, helping seniors stay at home longer, addressing the opioids crisis.



Using artificial intelligence to provide patterns and help diagnosis could be the solution we need to address the challenges of our health care system.



■ Strongly Agree ■ Somewhat Agree ■ Somewhat Disagree ■ Strongly Disagree ■ Don't Know

Canadians overwhelmingly embrace tech and AI in health saying it could prevent some illnesses and lead to better care from physicians

If I incorporate more technology into my personal health care I will be able to prevent some illnesses because they will be identified and treated early.



If I had a choice I would go to a physician who incorporated more technology like connected health devices and virtual visits into their practice.



If I incorporate more technology into my personal health care I will get better care from my physician.



If I had a choice I would go to a physician who used artificial intelligence in their diagnosis and treatment recommendations.



■ Strongly Agree
 ■ Somewhat Agree
 ■ Somewhat Disagree
 ■ Strongly Disagree
 ■ Don't Know

Trust in AI derived diagnosis/treatment recommendations is higher when the system is delivered by a physician

I would trust a diagnosis and treatment recommendation about my own health if it came from an artificial intelligence system **delivered by an physician.**



% AGREE
59%

I would trust a diagnosis and treatment recommendation about my own health if it came from an **artificial intelligence system.**



40%

I would trust a diagnosis and treatment recommendation about my own health if it came from a **system built and managed by a private technology company.**



37%

■ Strongly Agree ■ Somewhat Agree ■ Somewhat Disagree ■ Strongly Disagree ■ Don't Know

There are concerns around the proliferation of personal health data and AI

I'm worried that privacy and ethics have not been fully thought out in the implementation of artificial intelligence in healthcare.



I am concerned that someone could use my health data for purposes other than intended, for example to evaluate me for health insurance or to determine if I get a job.



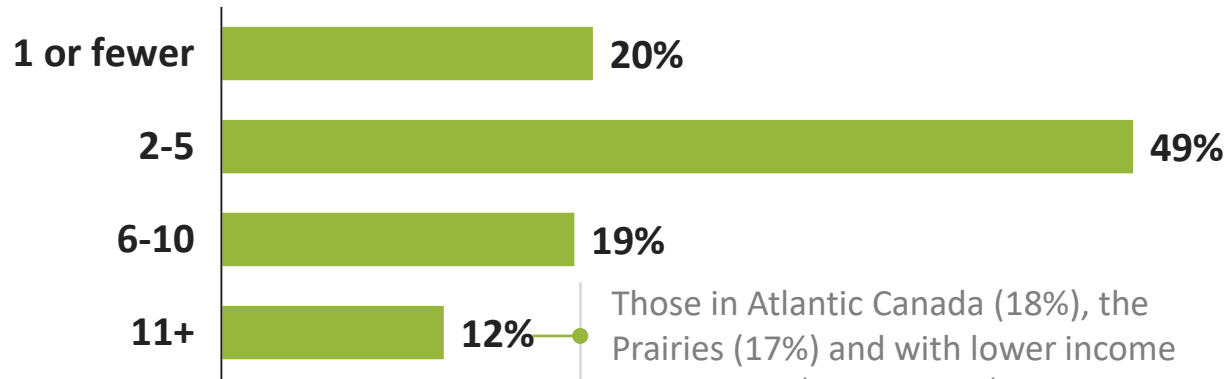
I am concerned about privacy because more and more of my personal health data is collected in an easy to share digital form.



■ Strongly Agree ■ Somewhat Agree ■ Somewhat Disagree ■ Strongly Disagree ■ Don't Know

Virtual Visits

Canadians interact with the health system an average of 6 times per year, with 1 in 10 having over 10 interactions per year



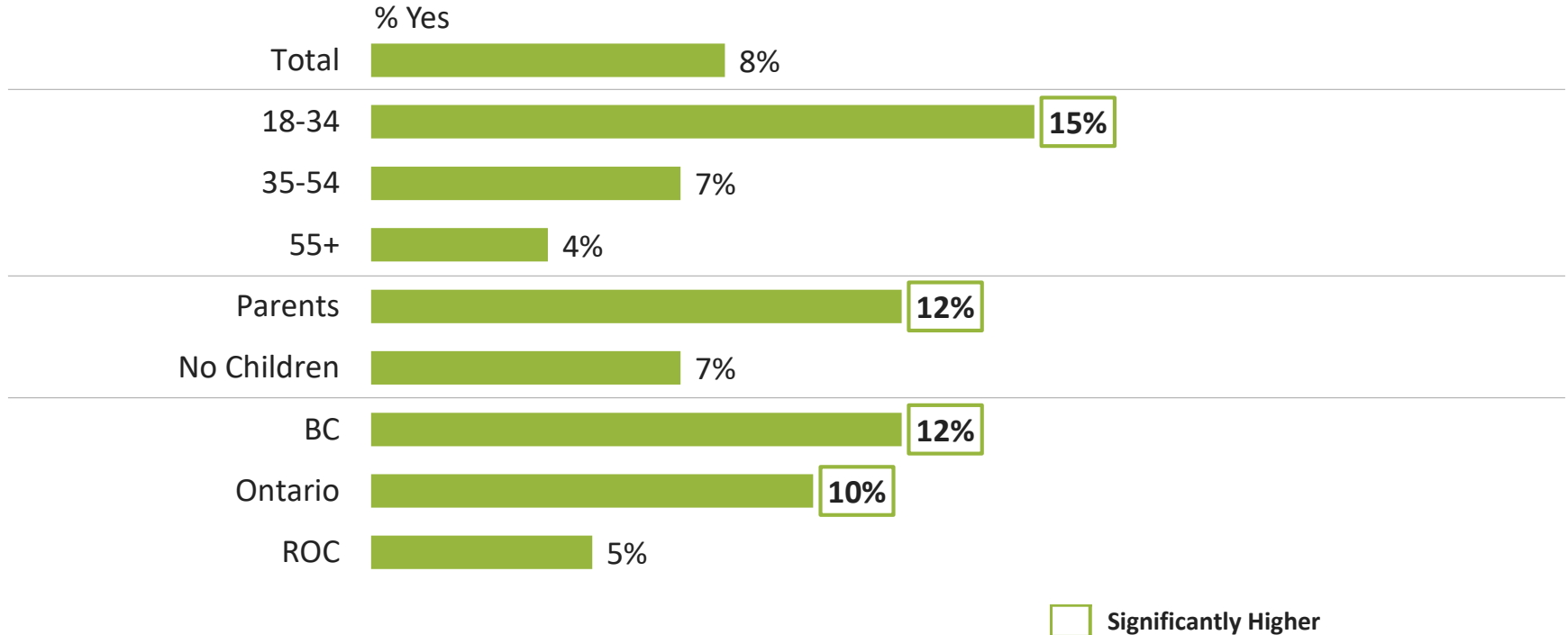
Those in Atlantic Canada (18%), the Prairies (17%) and with lower income (15% under \$40K vs. 9% \$100K+) are more likely to be heavier users of the health system (over 10 visits a year).



**6 times
on average**

Q2. In a typical year how many times would you say that you interact with the health system such as visit your family physician, go to a health clinic, go to a hospital, etc. to deal with a health concern (not visiting someone in care) for yourself or a family member? Base: All Respondents (n=2,003)

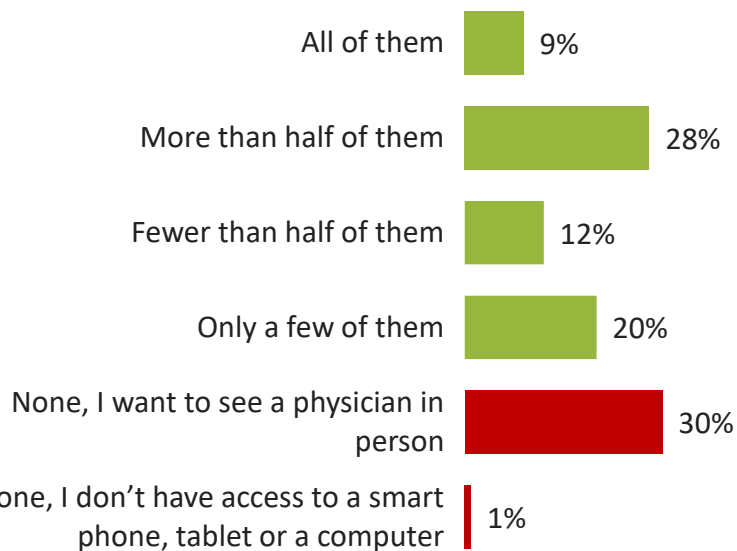
Under 1 in 10 Canadians have had a virtual visit/consultation, higher among those under 35, parents, and BC and Ontario residents



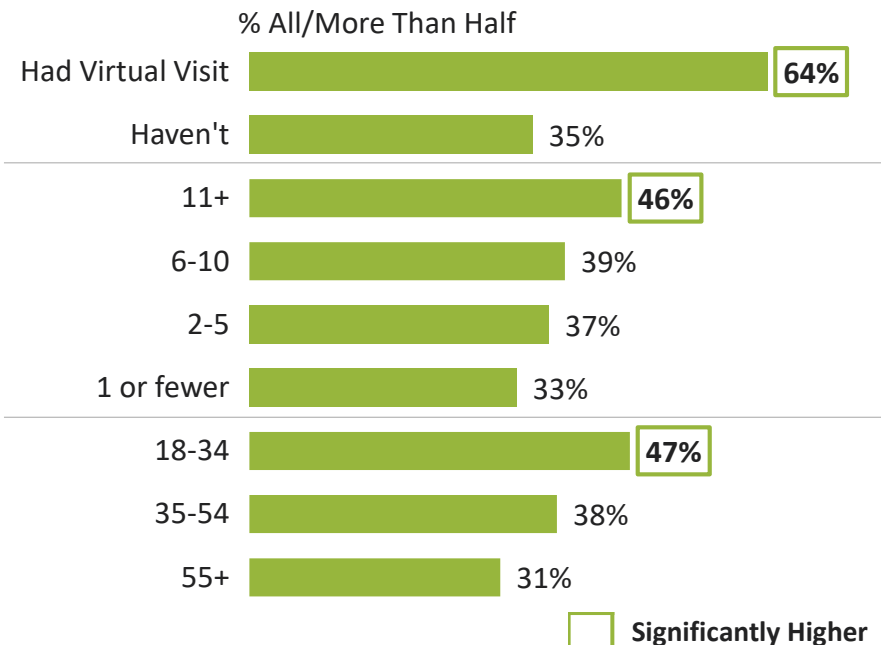
Q3. Have you ever had a virtual visit or virtual consultation, that is staying home and contacting a physician through a smart phone, tablet or a computer? Base: All Respondents (n=2,003)

7 in 10 Canadians say they would take advantage of virtual visits, 4 in 10 say they would do so for more than half of their physician visits

Those who've had a virtual visit, heaviest users of the health system and those under 35 all more likely to choose virtual visits.



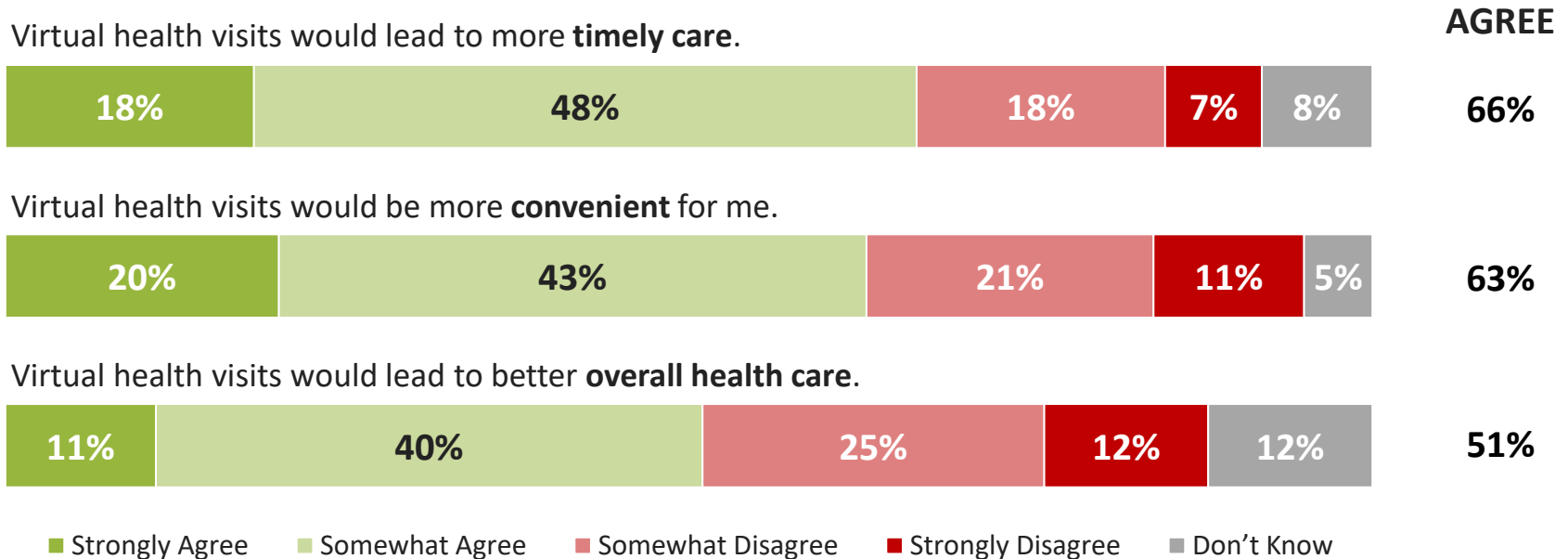
37%
All/More Than Half



 Significantly Higher

Q4. Today, if you could do these visits virtually, staying home and contacting a physician through a smart phone, tablet or a computer how many visits do you think you would choose to do virtually? Base: All Respondents (n=2,003)

Most Canadians see virtual visits leading to more timely care, more convenience and better overall care



Q5. Do you agree or disagree with the following statement?
Base: All Respondents (n=2,003)

When it comes to virtual visits more are concerned with the potential loss of human touch and accuracy of diagnosis than they are the privacy of their personal information

Virtual health visits will lead to the **loss of a human touch and compassion** in health care. **AGREE**



I don't think a diagnosis would be as **accurate** if a physician did not see me in person.



If I were doing virtual health visits I would be worried about the **privacy** of my personal health information.

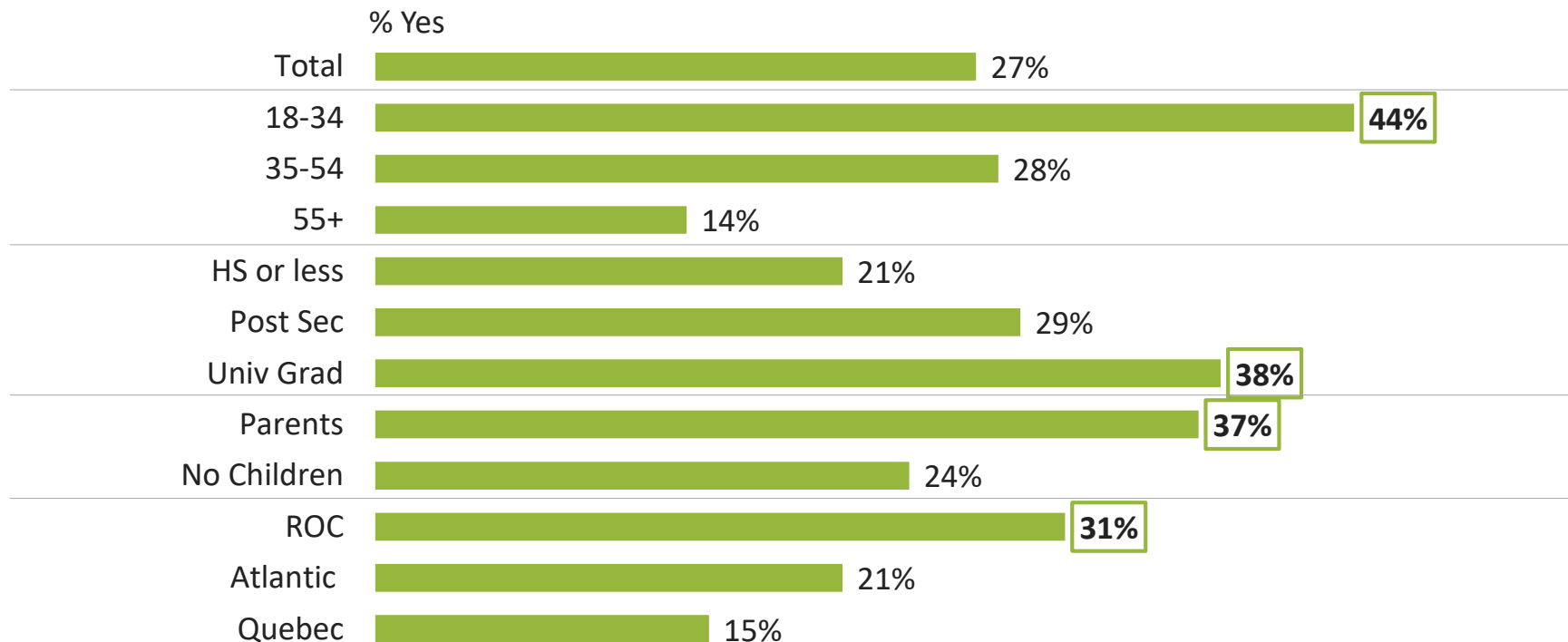


■ Strongly Agree ■ Somewhat Agree ■ Somewhat Disagree ■ Strongly Disagree ■ Don't Know

Q5. Do you agree or disagree with the following statement?
Base: All Respondents (n=2,003)

Health Monitoring Devices

One in 4 Canadians have a mobile device that monitors/improves health, higher among those under 35, university educated and parents



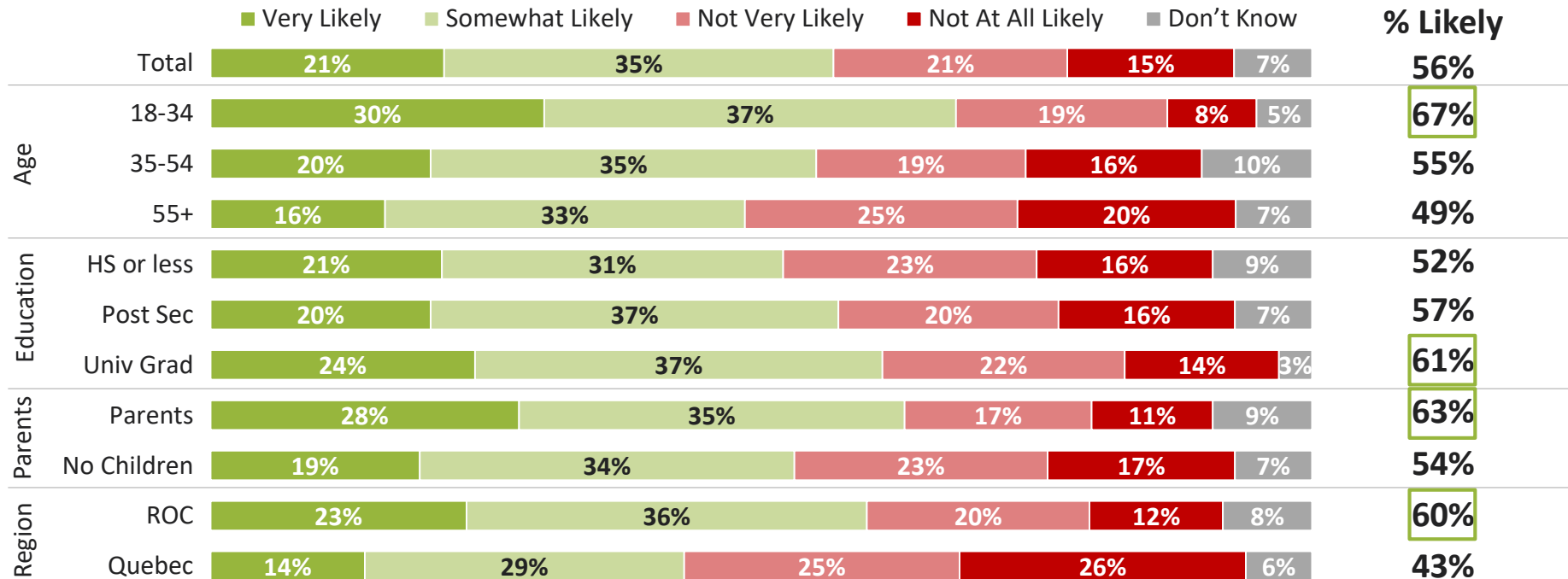
Significantly Higher

Q6. Do you have a mobile device (FitBit, Apple Watch, etc.) or an app that you have downloaded to help you monitor and improve your health? Base: All Respondents (n=2,003)

Respondents were asked: How likely would you be to take advantage of a mobile device that would measure your health status on a continuous basis – meaning 24 hours/7 days per week. It would measure all your key vitals, detect the presence of toxins in your environment and create a personal warning system for you when things are out of the normal range?

Over half of Canadians say they are likely to use a continuous health monitoring device, with 2 in 10 very likely

Higher likelihood among 18-34 year olds, parents, university educated; lowest in Quebec



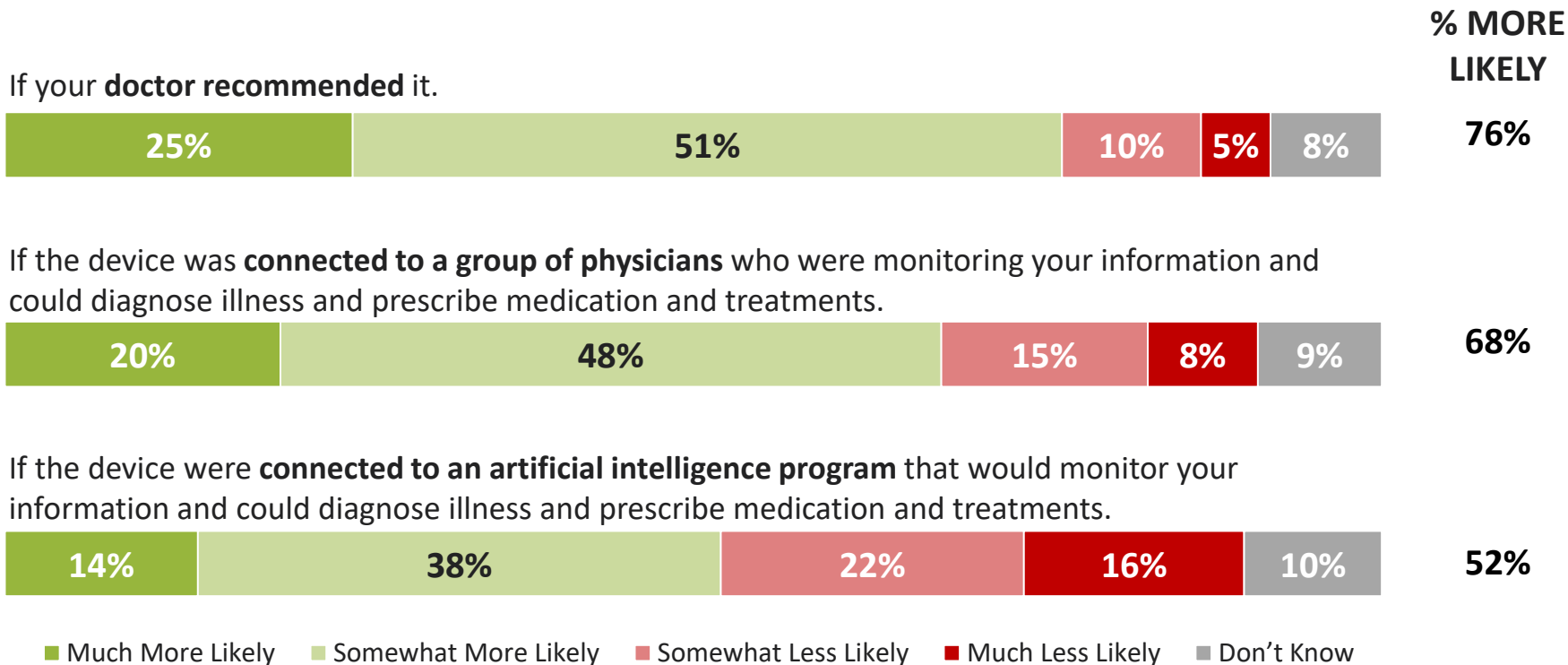
Q7. How likely would you be to take advantage of a mobile device that would measure your health status on a continuous basis – meaning 24 hours/7 days per week. It would measure all your key vitals, detect the presence of toxins in your environment and create a personal warning system for you when things are out of the normal range?

Base: All Respondents (n=2,003)

 Significantly Higher



Canadians say they are more likely to use a health monitoring device if recommended by doctor or connected to a group of physicians, rather than to an AI program



Canadians say they are more likely to use a health monitoring device if it is paid for by the health system or if they were paid to share their health data

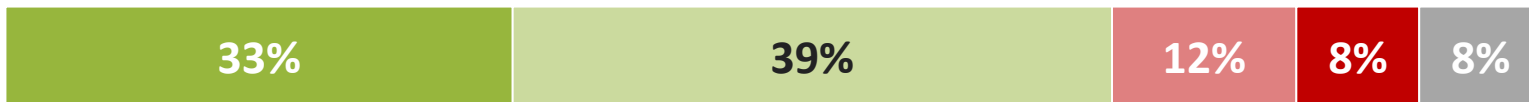
If the device was paid for by the health system.



**% MORE
LIKELY**

81%

If you were paid \$1000 per year for using the device on a 24/7 basis & sharing your info (*without personal identifiers*) with health researchers & administrators.



72%

■ Much More Likely ■ Somewhat More Likely ■ Somewhat Less Likely ■ Much Less Likely ■ Don't Know

Q8. For each of the following please indicate if it would make you more likely or less likely for you to take advantage of a health device that would measure your health status on a continuous basis. Base: All Respondents (n=2,003)

Option to share health info with physician and ability to check health history better drivers of use than virtual visits and sharing data with researchers

If you could choose an option to share your health information with your physician so they could better advise you on your health.

**% MORE
LIKELY**



If you could check your current health status and your complete health history through your smart phone, tablet or computer anytime you wanted to.



If the device also allowed for virtual visits/consultations with your physician/other health professionals to discuss the best ways to improve or maintain your health.



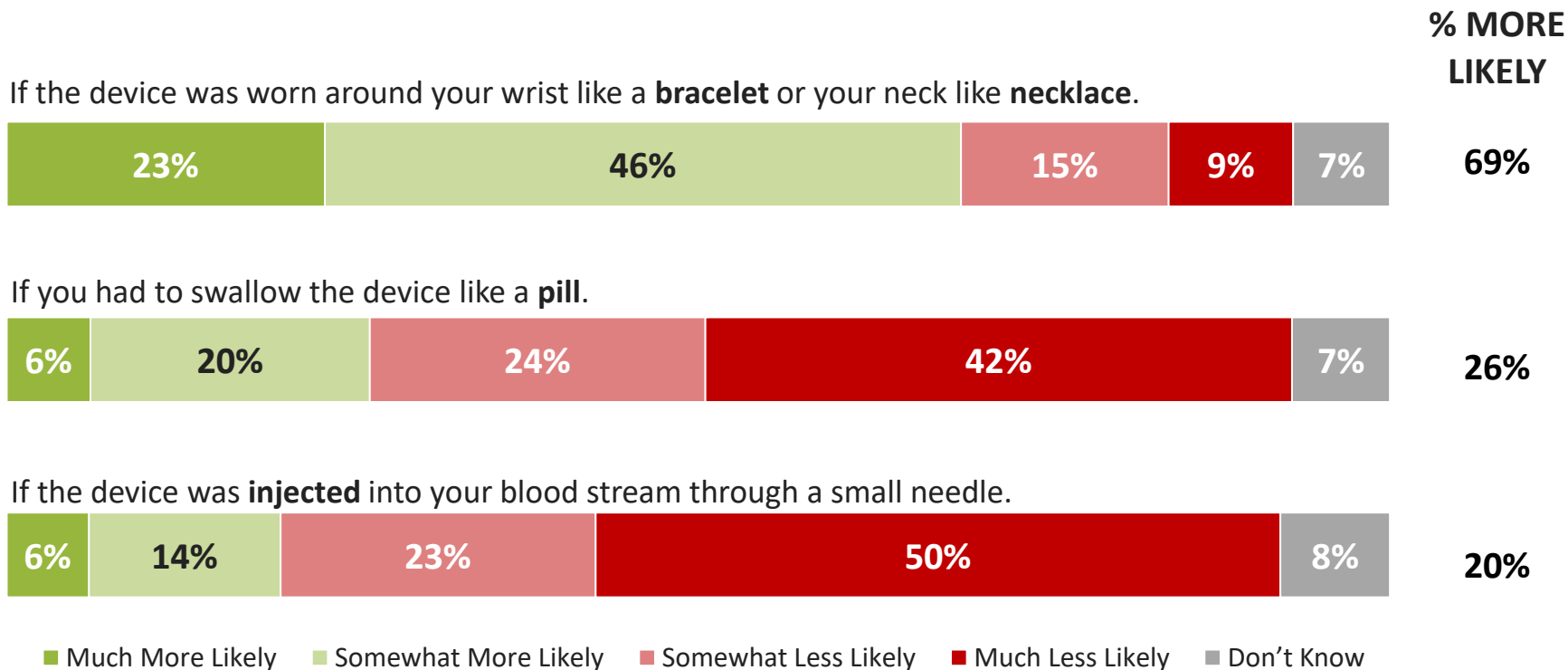
If you knew your data (*provided completely anonymously and used in aggregate*) might be shared with health researchers to develop new treatments.



■ Much More Likely ■ Somewhat More Likely ■ Somewhat Less Likely ■ Much Less Likely ■ Don't Know

Q8. For each of the following please indicate if it would make you more likely or less likely for you to take advantage of a health device that would measure your health status on a continuous basis. Base: All Respondents (n=2,003)

Most people would prefer a health monitoring device that is less invasive



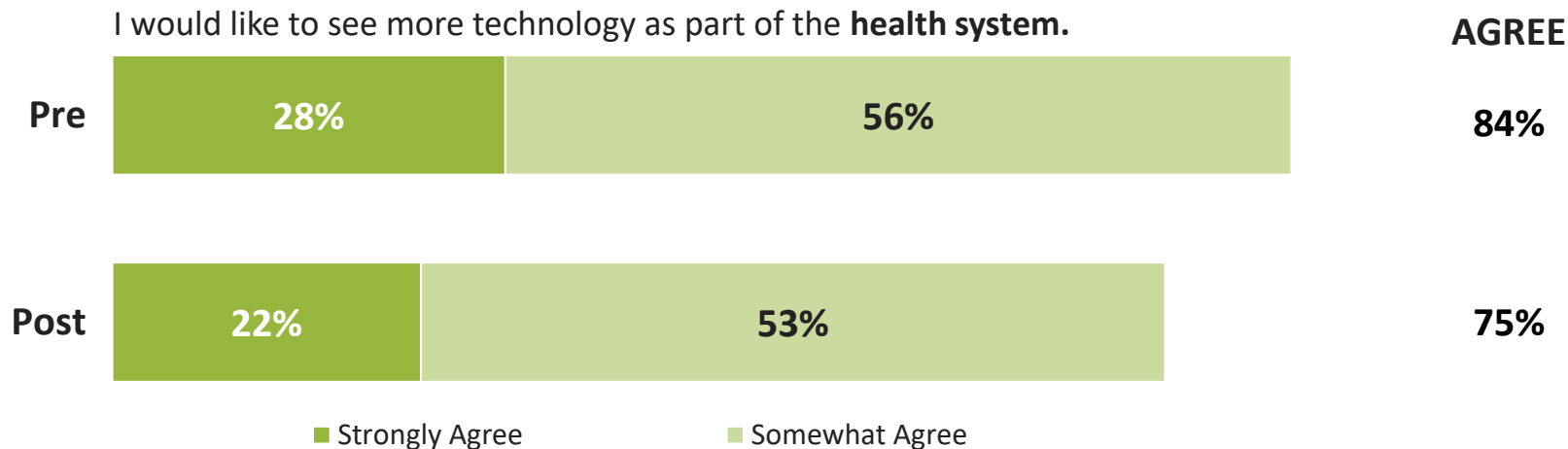
Q8. For each of the following please indicate if it would make you more likely or less likely for you to take advantage of a health device that would measure your health status on a continuous basis. Base: All Respondents (n=2,003)

Pre-Post Support for Greater Tech in Health Care

Respondents were asked agreement to the questions below at the beginning of the survey and then again at the end of the survey to measure the impact of being exposed to statements on the potential concerns and benefits of tech and AI in health.

- *I would like to see more technology as part of my personal health care.*
- *I would like to see more technology as part of the health system.*

Appetite for more tech in the health system declines after exposure to issues, but still 3 in 4 desire more



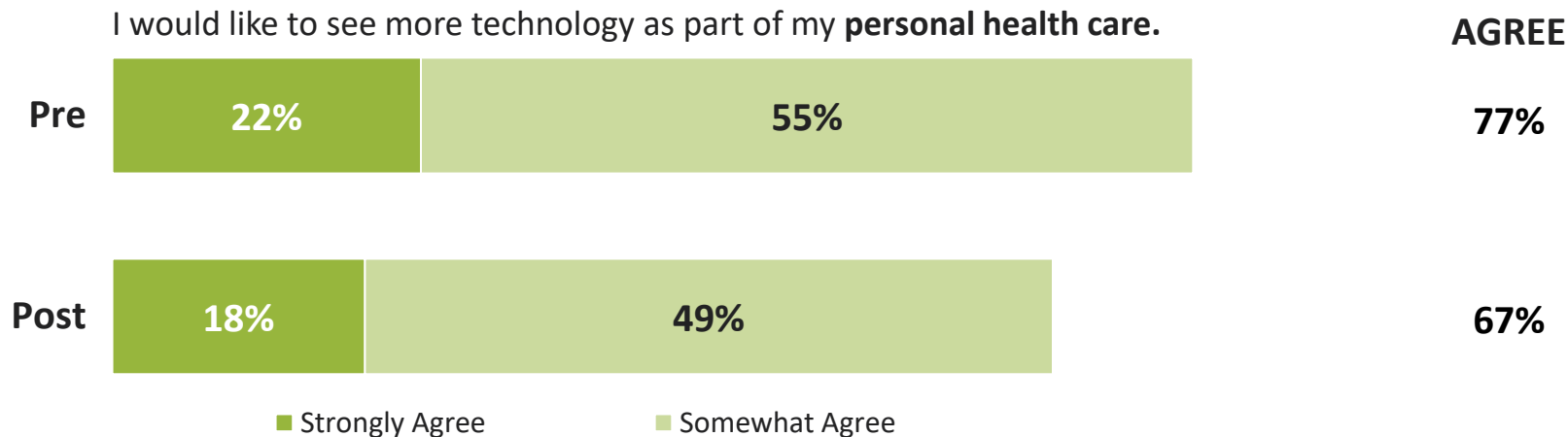
Who declined the most post-exposure?

- Lower education (-22% HS or less, -11% HS, -5% post-secondary, -4% university)
- Alberta (-12%) and Quebec (-10%), smallest in Prairies (-3%)

Most likely to *strongly* agree post-exposure

- 18-34 year olds (29% vs. 21% 35-54, 19% 55+)
- Men (28% vs. 17% women)
- University grads (27% vs. 20% high school)
- No regional differences

Desire for more tech in personal health care declines after exposure to issues, but still 2 on 3 desire more



Who declined the most post-exposure?

- Lower education (-19% HS or less, -11% HS, -5% post-secondary, -7% university)
- Ontario (-11%) and Quebec (-10%), smallest decline in Alberta (-4%)

Most likely to *strongly* agree post-exposure

- 18-34 year olds (24% vs. 13% 55+)
- Men (23% vs. 14% women)
- University grads (22% vs. 15% high school)
- Parents (23% vs. 17% no kids)
- No regional differences

Methodology

Methodology



Canadians 18+



10-minute survey run on Ipsos' iSay Panel



May 16-18, 2018



2,003 completed surveys
Credibility interval +/-2.5%



Survey data weighted by:

- Gender
- Age
- Region
- Education