

# Help us improve survival for the one in two Canadians who are diagnosed with cancer<sup>2</sup>

Cancer poses unique health challenges; and everyone deserves access to the best possible care.



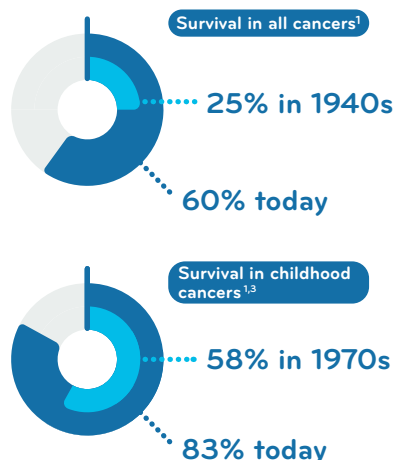
**ONE in TWO**  
will be diagnosed with  
some form of cancer.<sup>1</sup>

## More options increase survival

Continued R&D investment is a proven strategy

Available oncology molecules increased by 60% over 10 years.<sup>2</sup>

Innovations in oncology treatments have led to improvements in cancer survival.<sup>3</sup>



## Clinical trials<sup>4</sup>



Provide access for patients to innovative products

Bring leading scientists to Canada



Create skilled jobs and spin-off companies

Change the way diseases are treated



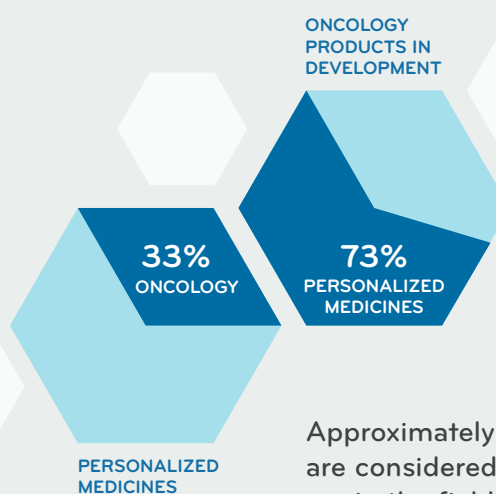
## Investment in research is making a difference

39% of all clinical trials in Canada investigate cancer treatments (for the year 2014)<sup>5</sup>; this is **more than any other therapeutic area**.<sup>6</sup>

## R&D investment leads to advances in care

**Personalized medicine ensures everyone gets the best care.**

Personalized medicine provides the promise of "getting the right treatment, to the right patient, at the right dose the first time".<sup>7</sup>



Approximately **1/3rd** of products that are considered personalized medicines are in the field of oncology.<sup>8</sup> **This third makes up 73% of all the products in development** in the area of oncology.<sup>9</sup>

## And we're not done yet...

### Companion Diagnostics

Gene Panel Testing seeks to find mutations in certain genes that may increase a person's risk of cancer.

MULTIPLE-GENE PANEL TESTS MAY BE USED TO:<sup>10</sup>



Help plan treatment



Make a prognosis



Predict whether cancer will spread or return

## Cancer treatment is changing for the better

Immunotherapy attempts to strengthen or restore the ability of the immune system to recognize and fight cancer.

### Oral Oncolytics

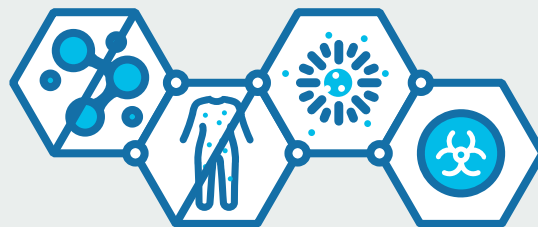


Some patients can't access major treatment centres due to their rural location.<sup>12</sup> The biopharmaceutical sector is working to make care more accessible with oral oncology agents.

### FOUR USES FOR IMMUNOTHERAPY:<sup>11</sup>

Stop or slow cancer growth

Assist the immune system to destroy cancer cells



Stop the spread of cancer to other areas of the body

Deliver toxins directly to cancer cells (e.g. radiation or chemotherapy)

Cancer vaccines stimulate the immune system to produce antibodies to fight a disease.<sup>11</sup>

They can either be used to prevent a cancer from developing (prophylactic), or treat a cancer (therapeutic).



### PROPHYLACTIC VACCINES (PREVENTION)

Prophylactic treatment helps the immune system attack viruses commonly associated with the development of cancer to prevent infection (e.g., HPV and Hepatitis B and C).



### THERAPEUTIC VACCINES (TREATMENT)

Therapeutic vaccines attack the cancer cells themselves. The vaccine would contain antigens from the cancer cells, causing the body to activate cells that attack the cancer directly or produce antibodies that attack the cancer cells.

<sup>1</sup> Canadian Cancer Statistics (2017) Canadian Cancer Society & Statistics Canada, <http://www.cancer.ca/~media/cancer.ca/CW/cancer%20information/cancer%20101/Canadian%20cancer%20statistics/Canadian-Cancer-Statistics-2017-EN.pdf?la=en>

<sup>2</sup> Sebastian Salas-Vega & Elias Mossialos (2016) Cancer drugs provide positive value in nine countries, but the United States lags in health gains per dollar spent, Health Affairs 35, no.5: 813-823

<sup>3</sup> Cancer Facts & Figures (2016) American Cancer Society

<sup>4</sup> Canada's Leadership In Clinical Trials: An Edge Worth Protecting (2015) Belinda Vandersluis [www.clinicaltrials.gov](http://www.clinicaltrials.gov)

<sup>6</sup> Canadian Coordinating Centre for Clinical Trials (CCTCC) (2017), [www.cctcc.ca/default/assets/File/CCTCC\\_CT%20Investment%20Case\\_June%202017\\_Final.pdf](http://www.cctcc.ca/default/assets/File/CCTCC_CT%20Investment%20Case_June%202017_Final.pdf)

<sup>7</sup> PhRMA (2015) Value of personalized medicine chart pack.

<sup>8</sup> FDA (2013) Paving the way for personalized medicine.

<sup>9</sup> Tufts Center for the Study of Drug Development (2015) Personalized medicine gains traction but still faces multiple challenges.

<sup>10</sup> National Cancer Institute (2017) Dictionary of cancer terms: multigene test, [www.cancer.gov/publications/dictionaries/cancer-terms/CdrID=775581](http://www.cancer.gov/publications/dictionaries/cancer-terms/CdrID=775581)

<sup>11</sup> Canadian Cancer Society (2017) Chemotherapy and other drug therapies: immunotherapy, <http://www.cancer.ca/en/cancer-information/diagnosis-and-treatment/chemotherapy-and-other-drug-therapies/immunotherapy/?region=nu>

<sup>12</sup> Schneider SM, Hess K, Gosselin (2011) Interventions to promote adherence with oral agents. Semin Oncol Nurs. 27 (2): 133-141.