

OncoSim

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Land acknowledgements:

I work and raise my family in Toronto, Canada. Toronto is the traditional territory of many nations including the Mississaugas of the Credit, the Anishnabeg, the Haudenosaunee and the Wendat peoples and is now home to many diverse First Nations, Inuit and Métis peoples.

Acknowledgements

OncoSim is led and supported by the Canadian Partnership Against Cancer, with model development by Statistics Canada, and is made possible through funding by Health Canada.

Conflict of interest

Jean is an employee for the Canadian Partnership Against Cancer.

Disclaimer

The views expressed here do not represent the views of the three organizations.

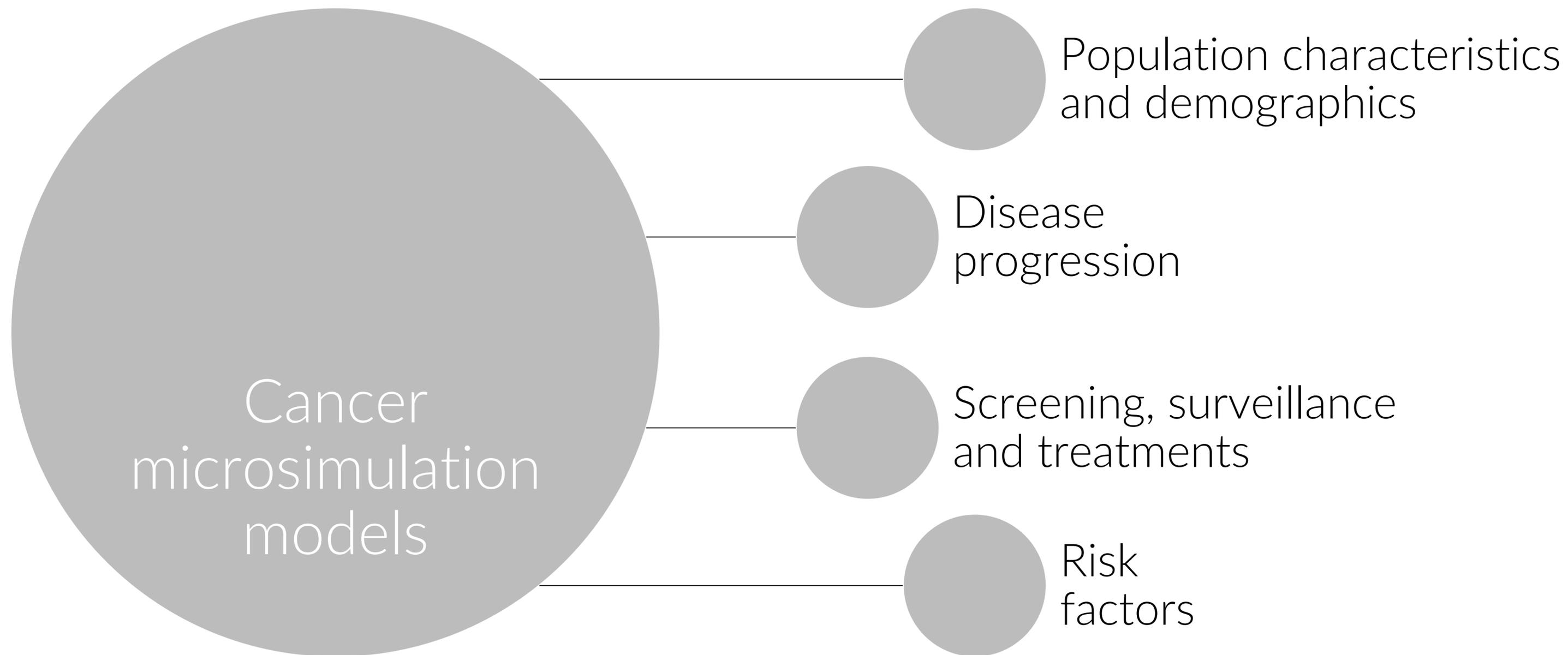
Objectives

- Cancer microsimulation models
- Overview about OncoSim
- Learnings

Significance

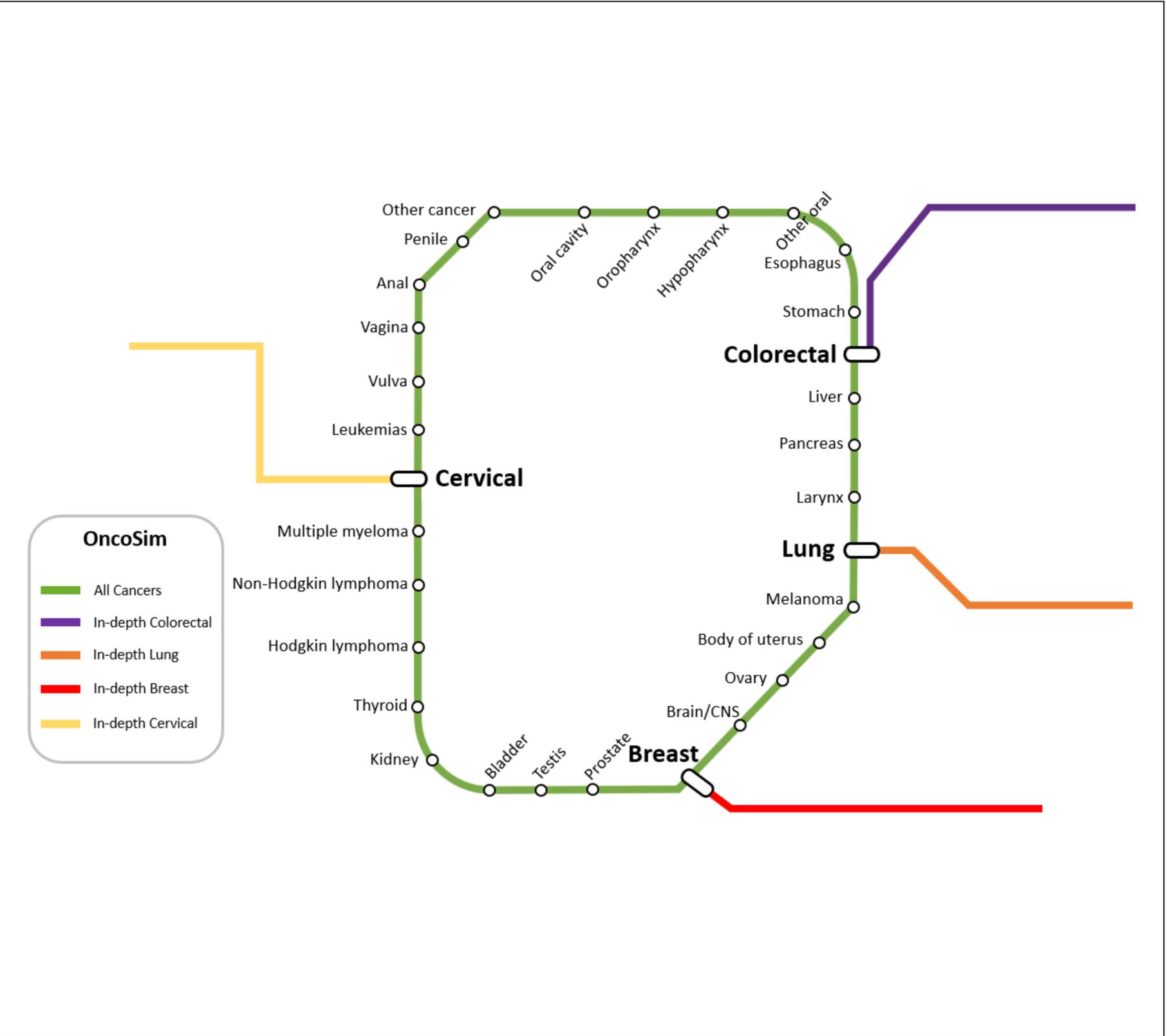
- Planning cancer services
- Need more than just clinical trials data

Building blocks



ONCOSIM

- Free, web-based cancer simulation tool
- Projects health and economic outcomes and attributes them to 19 risk factors
- Currently provides high-level projections for 30+ cancer sites
- Models **breast, colorectal, lung, and cervical cancers** and related screening programs in detail

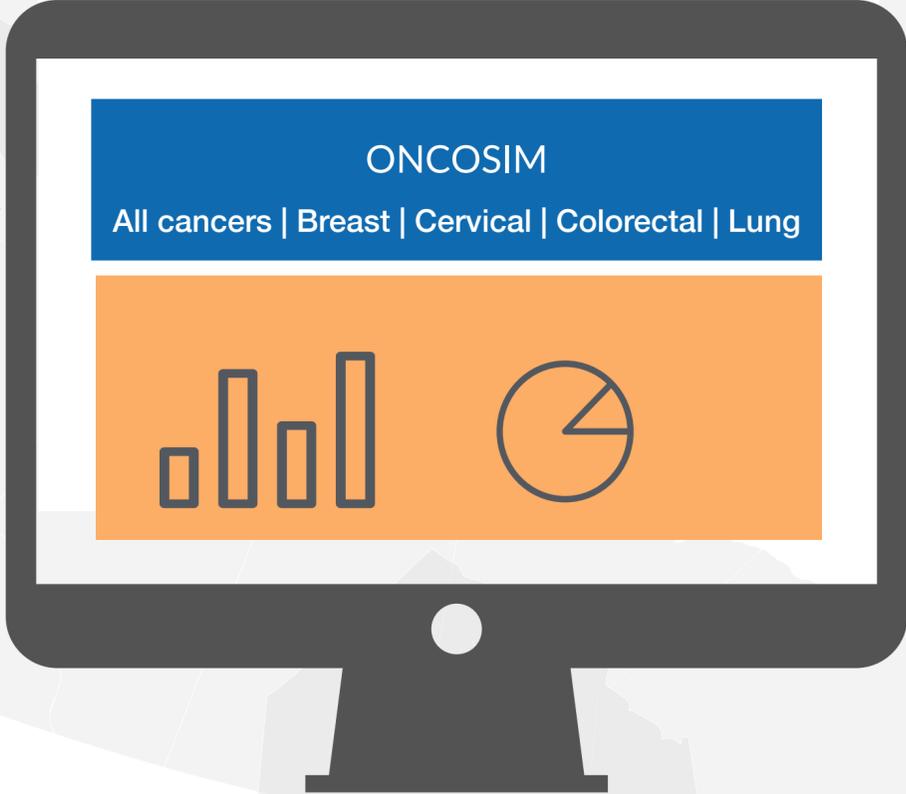


ONCOSIM

A free tool built using Canadian data collaboratively by a team of experts to advance cancer control.

Data

Inputs represent Canadian population, and reflect disease progression, treatment pathways and costs in Canada. Sources: Canadian Cancer Registry, Canadian Community Health Surveys, Stat Can Demography, healthcare admin database, etc.

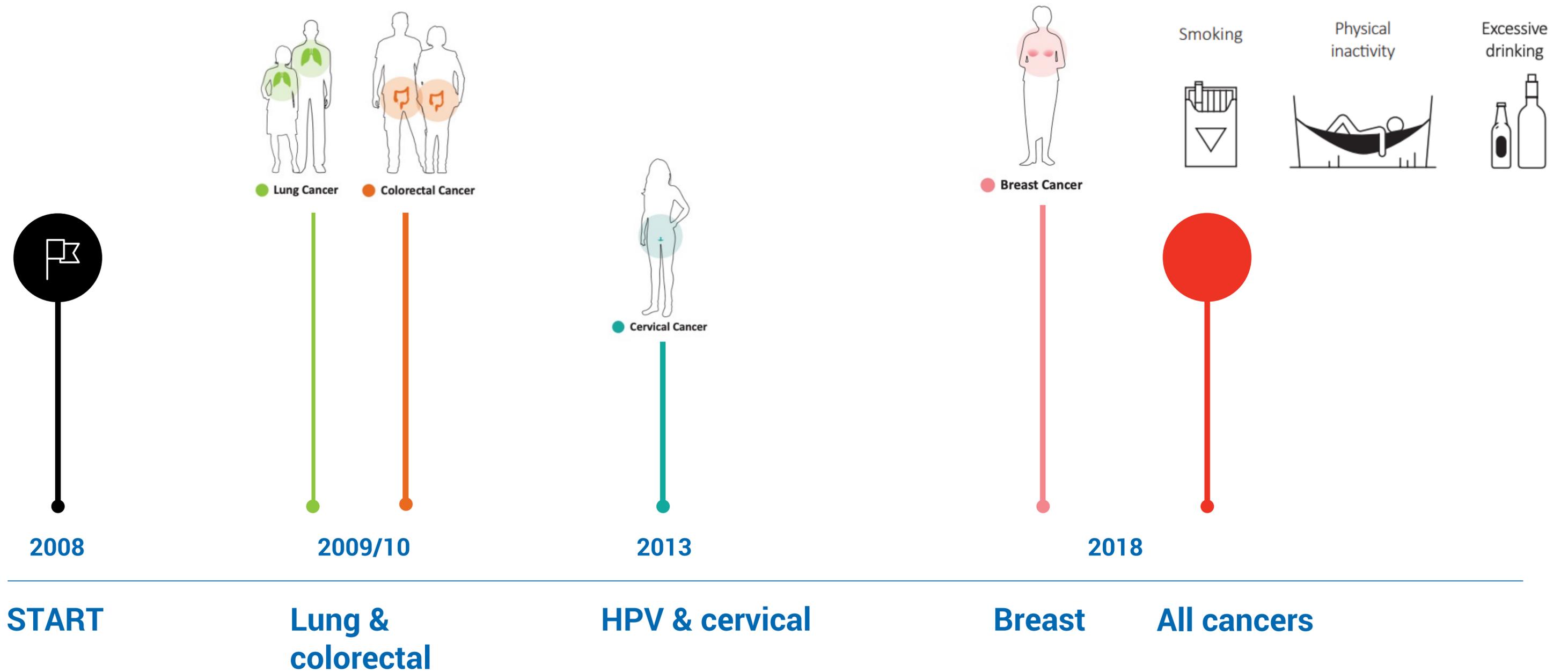


Insights

OncoSim projects provincial and national-level estimates: # eligible for screening, # screening tests, # colonoscopies, # biopsies, cancer incidence, mortality, costs, etc.

Users can modify the existing inputs and assumptions to answer questions.

ONCOSIM is 15 years old!



ONCOSIM IN NUMBERS

A free tool built using Canadian data collaboratively by a team of experts to evaluate cancer control strategies

2000+

Individuals/organizations
contributed



50+

Organizations and networks
across Canada have used
OncoSim



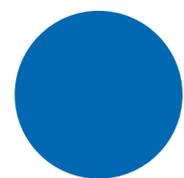
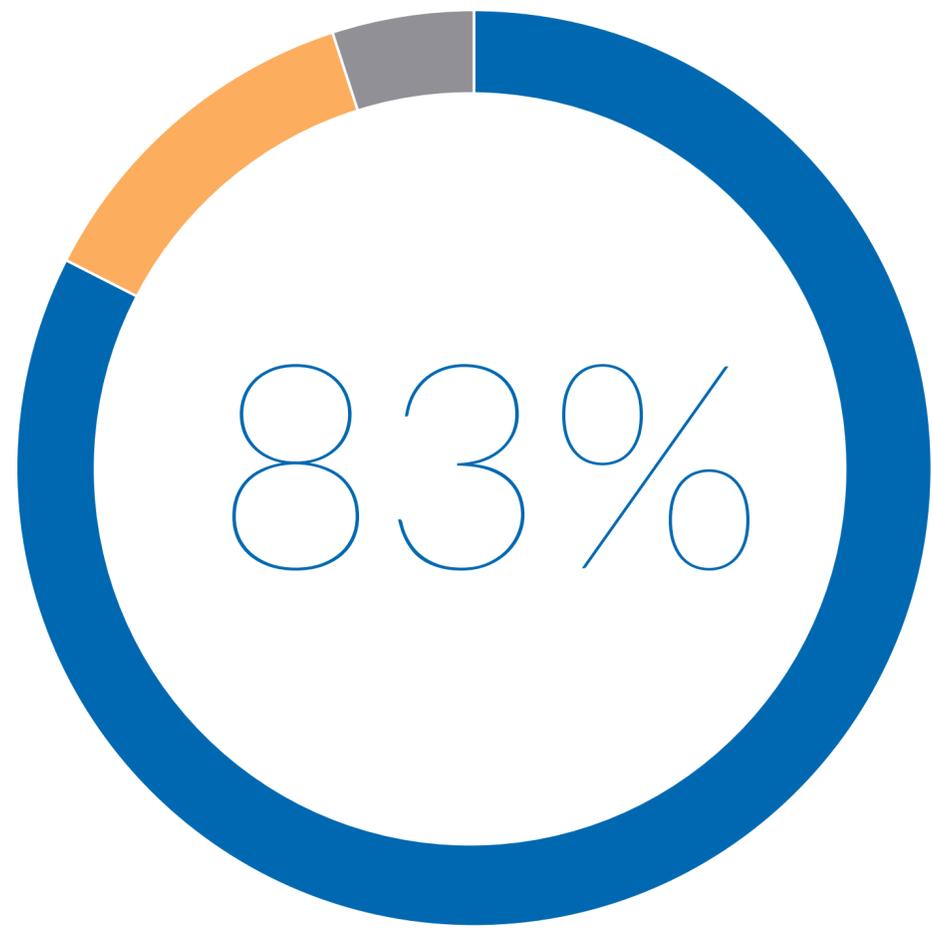
4000+

Reports, papers, technical
briefs, conference abstracts
have used OncoSim



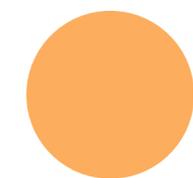
Topics (2022)

Screening, prevention, cancer projections



Screening

- Clinical guidelines
- Implementation planning
- Business case
- Screening backlog



Prevention

- Tobacco control
- Physical activity
- Healthy eating
- Alcohol



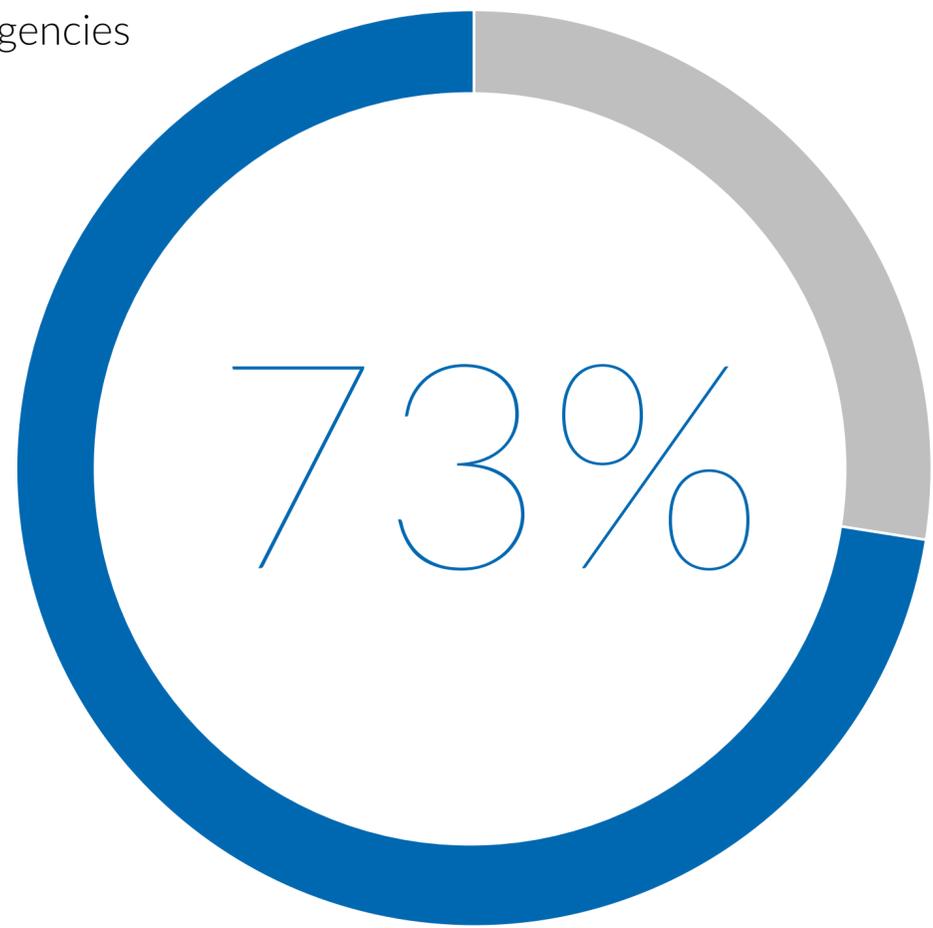
Forecasting

- Canadian Cancer Statistic report
- Economic burden of cancer
- Future cancer incidence, prevalence, deaths, costs

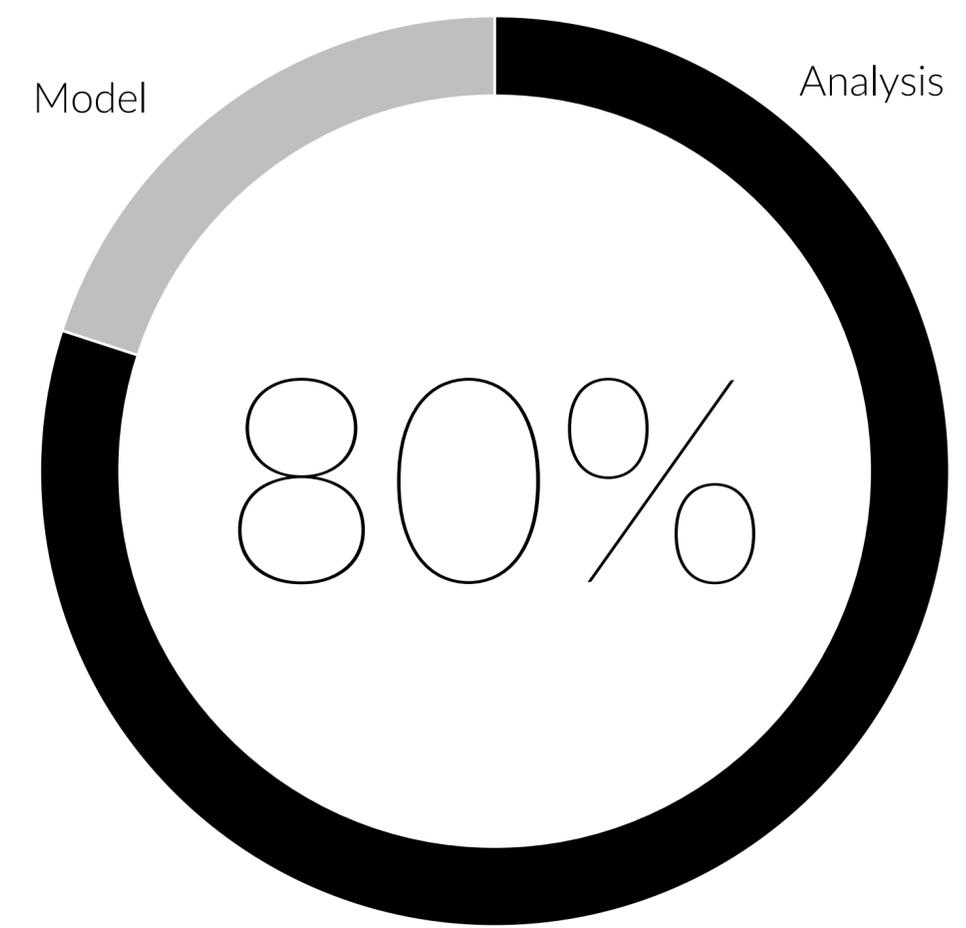
40 requests completed in 2022

Most requests are non-research
Most requested analysis support

Provincial cancer agencies
National networks
Not-for-profits



Research grants



Model

Analysis

WHAT IS IMPORTANT TO US?

TRUSTED

Validity and acceptance among policy makers and scientific community.

RESPONSIVE

Responsive to policy makers' needs; build upon existing work to provide timely evidence to support different jurisdictions.

COLLABORATIVE

Work together with end users to produce relevant evidence to inform policy decisions.

Building and supporting OncoSim

Content experts



User interface



IT infrastructure



User support



Documentations



Marketing



Product management



Informing policy decisions

GOVERNANCE

The Canadian Partnership Against Cancer and Statistics Canada lead the ongoing maintenance of OncoSim.

1

DESIGN

Technical working groups include clinical and methods experts meet regularly to advise on model design and analyses.



OPERATION

The Partnership supports users, with help from Statistics Canada and others, to keep the web tool running.

2

3

DEVELOPMENT

Statistics Canada leads the model development and analyzes data to populate model. The web platform is built and maintained by another organization.

STRATEGY

The Partnership prioritizes model development/revisions and knowledge dissemination efforts based on inputs from various partners, such as the cancer screening networks and policy makers at cancer agencies.

4

Current focus

1. Adding/updating data continuously
 - Process for regular updates & efficient calibration methods
2. Aligning with other efforts
 - Canadian Cancer Statistics
 - Statistics Canada data portal and modelling platform
 - Tobacco control
3. More collaborations
 - Matthew Warkentin's R-library (pre-conference workshop)
 - CISNET



Key Learnings

Key takeaways

What can we learn from this?

Policymakers want to use analytic tools like OncoSim.

Key ingredients for success:

1. Support
2. Partnership
3. Long-term commitment

Why NOT?

Why don't we always have models that answer different questions?

A flexible model that answers many questions is by default complex and can be

1. Resource intensive to build
 - Can't decide what assumptions to simplify
2. Challenging to maintain
 - As models get become more flexible over time to accommodate different use case, they also become more complex
3. Complicated to use
 - Too much details in some areas & not detailed enough to answer some questions
 - Need expert guidance to ensure appropriate use

When?

When to consider building a model that answers different questions?

1. Big decisions that affect many people

- Population-based cancer screening programs can affect millions of people in Canada every year
 - >12 million people eligible for colorectal cancer screening in Canada every year

2. Potential for reusing the model

- Healthcare policies are not often made at the same time across provinces/territories due to varying priorities
- Need to revisit policies due to emerging data
 - New tests, follow-up and surveillance pathways

What?

What to consider when building a model that answers different questions?

1. Appropriate partners
 - Do the organizational mandates align?
 - Is there a conflict of interest?
2. Sustainability
 - Long-term resources to maintain the tool
3. Potential long-term impact
 - How best to maximize the impact?
4. How to work with users?
 - Designing for and guiding appropriate use
 - Working with stakeholders



"Alone we can do so little, together we can do so much."
--*Helen Keller*

Thank you.

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