



# Combining Multiple Data Sources to Produce Inclusive Official Statistics

Session - Opportunities for Using Multiple Data Sources to Enhance Major Survey Programs

The National Academies of Sciences Engineering Medicine

May 16 2022



Delivering insight through data for a better Canada



Statistics  
Canada

Statistique  
Canada

Canada

# ABOUT STATISTICS CANADA

## OUR MISSION

Serving Canada with high-quality statistical information that matters

## OUR PILLARS

- User-centric service delivery
- Leading-edge methods and data integration
- Statistical capacity building and leadership
- Sharing and collaboration
- Modern workforce and flexible workplace

*Ensuring no one is left behind*



## OUR VALUES



TRUSTWORTHY



PURPOSEFUL



CARING AND  
INCLUSIVE



CURIOUS AND  
ALWAYS LEARNING

# Data Intake and Integration - How do we get there?

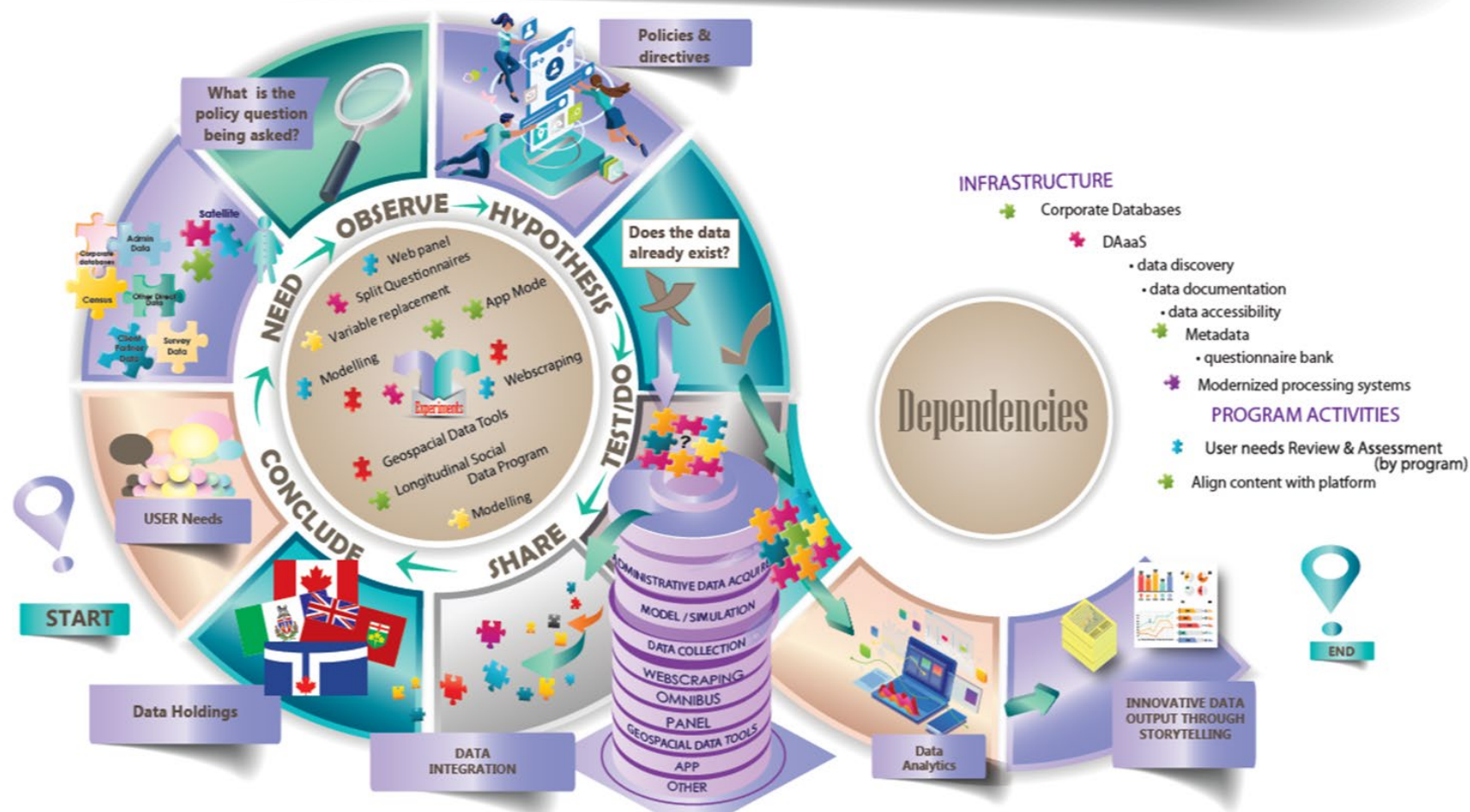
A user-centric approach to data needs

Better sharing and collaboration through strong partnerships

Leading edge methods and data integration

Whole-of-government integrated approach to collection, analysis and use of data

Modern and flexible operations



# MODERNIZING TO SERVE THE NEEDS OF A RAPIDLY CHANGING CANADA



## USER-CENTRIC SERVICE DELIVERY

Migration of datasets and workloads to Cloud

Data Analytics as a Service (DAaaS)

Research Data Centres & Virtual Data Labs

Trust Centre

Disaggregated Data

Administrative Data



## LEADING EDGE METHODS AND DATA INTEGRATION

Data Science, Analytics and Visualization

Innovation Secretariat

Enterprise Information and Data Management

Web Panel & Pulse Surveys

Nowcasting, Web Scraping and Flash Estimates



## STATISTICAL CAPACITY BUILDING AND LEADERSHIP

Canadian Statistics Advisory Council (CSAC)

Government of Canada & StatCan Data Strategy

International Leadership

Technical Assistance and Statistical Capacity Building Projects

Data Stewardship



## SHARING AND COLLABORATION

Public engagement and outreach

Government Partners (city, municipal, FPT)

International

Private Sector

Civil Society

Academia and Researchers



## MODERN AND FLEXIBLE WORKPLACE

Diversity & Inclusion

Official Languages Strategy

Beyond 2020

Virtual remote workforce



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# As new data sources become available, it has helped developed the Canadian Housing Statistics Program

## Housing statistics

The screenshot shows the Housing Statistics website. At the top is the 'HOUSING STATISTICS' logo. Below it, there's a 'Find data on' section with icons for: Dwelling characteristics, Housing costs and affordability, Housing price indexes, Housing and living arrangements, Residential construction and investment, and Vacancy rates. To the right, there's a 'Key indicators' section for 'Canada' showing:
 

- Total investment in building construction** (February 2022): \$20.0 billion, 4.0% ↑ (monthly change)
- Residential buildings construction price index** (First quarter 2022): 5.6% ↑ (quarterly change)

 There's also a 'Features' section titled 'THE IMPACT OF COVID-19 ON KEY HOUSING MARKETS' with a bar chart and a table of percentage changes for Ottawa, Montreal, Toronto, and Vancouver.

New data sources, more market indicators and data visualization opportunities to identify key trends for Canadians

[Non-residential buildings construction price index](#)

(First quarter 2022)

2.6% ↑  
(quarterly change)

[Building permits](#)

(March 2022)

\$11.7 billion  
-9.3% ↓  
(monthly change)

[Average annual spending on goods and services per household](#)

(2019)

\$68,980

[New Housing Price Index](#)

(March 2022)

1.2% ↑  
(monthly change)

[Non-residential stock](#)

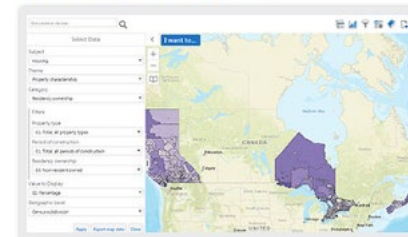
(2020)

\$2,285 billion (2012 dollars)  
0.1% ↑  
(annual change)

## Housing Market Indicators



## Housing Data Viewer

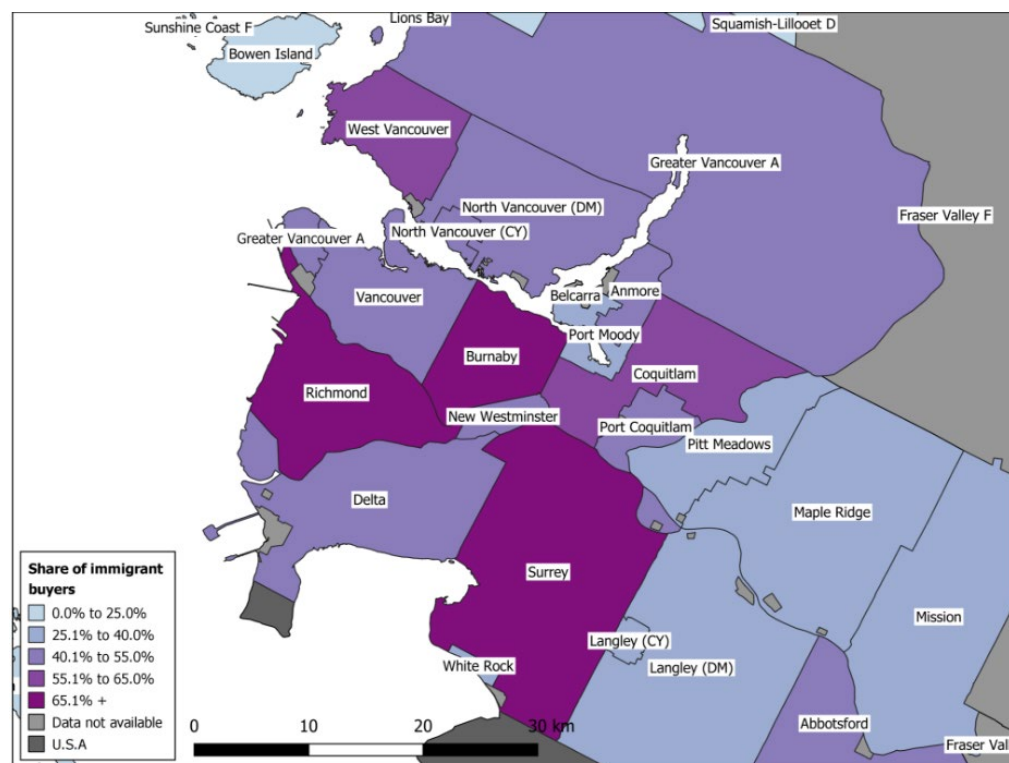


The [Housing Data Viewer](#) is an interactive visualization tool that allows users to explore and compare housing data, create graphs and export content.

## Questions are evolving and at Statistics Canada we are able to evolve our capacity as well

The Canadian Housing Statistics Program is able to explore:

- Income and home price differences by sex and family type
- The number of buyers as part of a sale
- Overview of first time home buyers and income
- Incomes and sale prices of properties purchased by immigrants



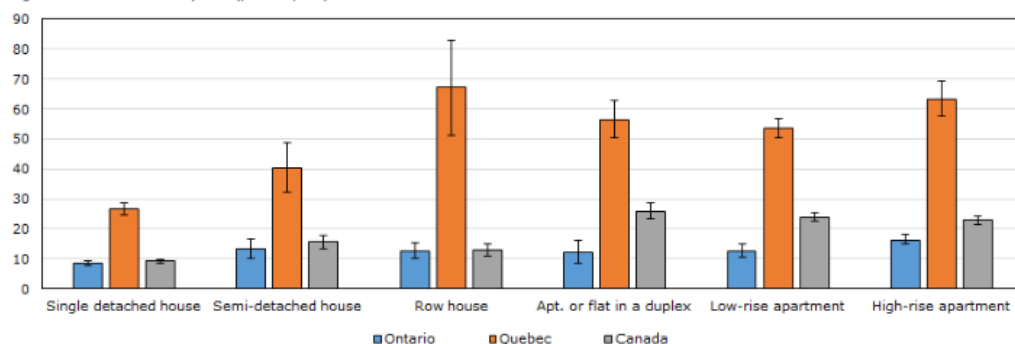
Source: Statistics Canada, Canadian Housing Statistics Program (CHSP).

- Immigrants mainly purchase properties in metropolitan areas
- Immigrants represented 35.2% of buyers in B.C, 10.1% in Nova Scotia and 8.4% in New Brunswick
- In British Columbia, immigrants represented almost half of all buyers in the Census metropolitan area

## Linking administrative data sets allows us to provide analysis and key trends across industries that have a direct impact to Canadians and livelihoods

**Age-standardized COVID-19 mortality rates in Canada, Ontario and Quebec between Jan 1 and July 4, 2020, by private dwelling types**

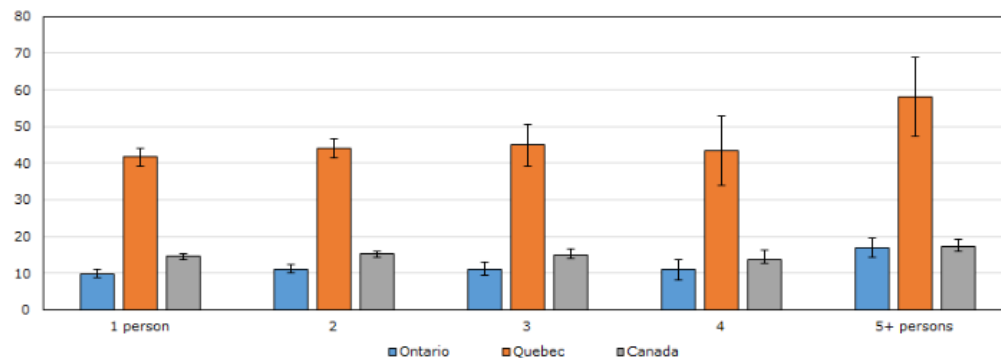
age-standardized mortality rate (per 100,000)



Source: Integrated Provisional Vital Statistics—Death Database linked to the 2016 Census.

**Age-standardized COVID-19 mortality rates in Canada, Ontario and Quebec between Jan 1 and July 4, 2020, by household size**

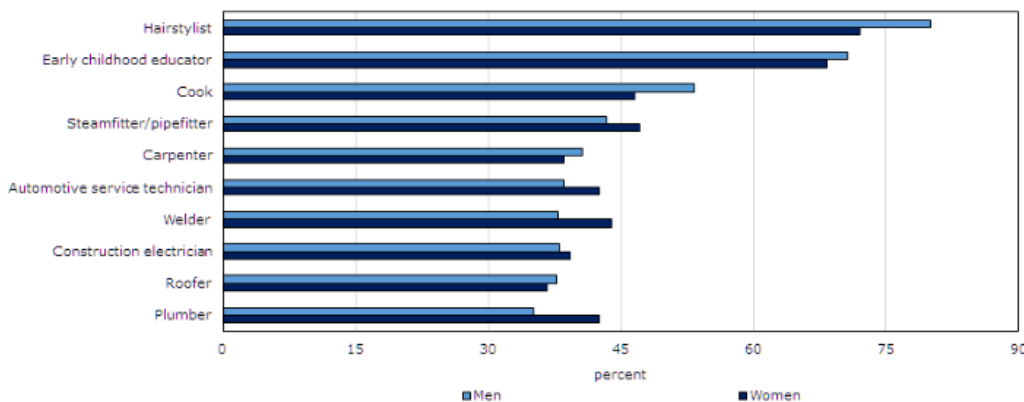
age-standardized mortality rate (per 100,000)



Source: Integrated Provisional Vital Statistics—Death Database linked to the 2016 Census.

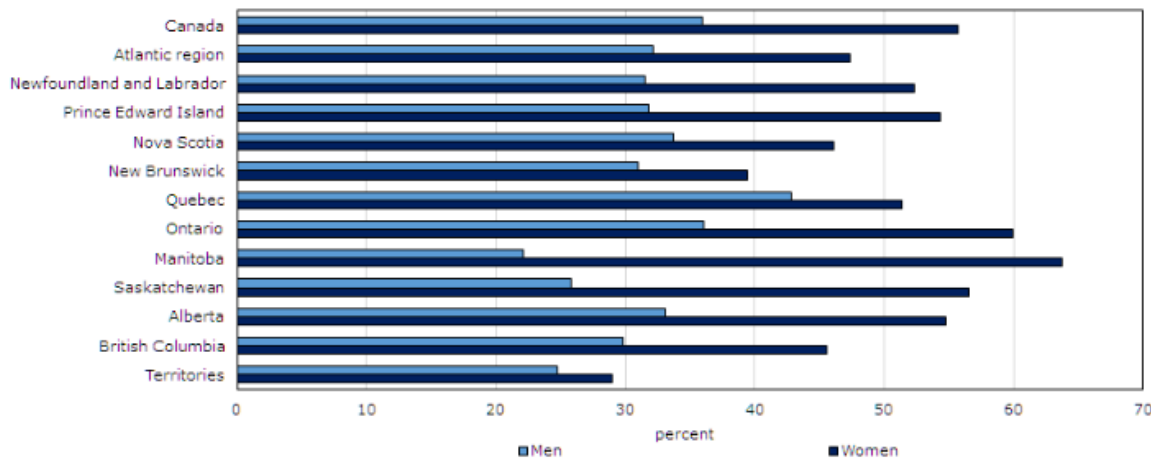
# Integrating administrative sources, programs and data bases allowed us to examine the interventions of the government and its socio-economic impacts throughout the pandemic

Percentage of those who received the Canada Emergency Response Benefit among journeypersons certified in selected trades, by trade and sex



Sources: Registered Apprenticeship Information System, 2008 to 2019; and Canada Emergency Response Benefit administrative file.

Percentage of journeypersons who received the Canada Emergency Response Benefit, by jurisdiction of certification



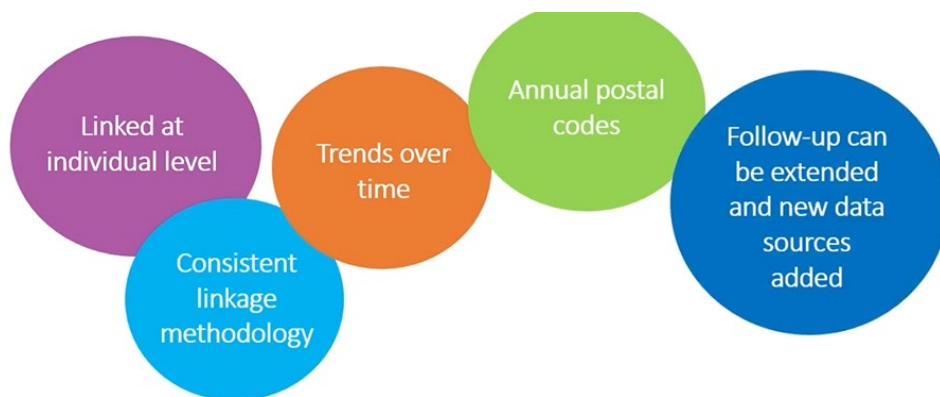
Sources: Registered Apprenticeship Information System, 2008 to 2019; and Canada Emergency Response Benefit administrative file.



# The Canadian Census Health and Environment Cohort (CanCHECs)

100

The CanCHECs are population-based datasets that include the non-institutional population at time of census linked to different health outcomes. Currently, these outcomes include mortality, hospitalization and cancer.



On the one hand, national administrative health databases contain detailed information about a person's health outcomes but little information about the actual person beyond basic demographic data. On the other hand, the long-form census databases contain detailed socioeconomic and ethnocultural information about individuals in the Canadian population, but have little to no information about their health.

## CanCHEC data sets can provide insights on multiple industries and purposes

### Population groups

Immigrant  
First Nations,  
Métis, Inuit  
Visible minority



### Socioeconomic status

Education  
Income  
Occupation  
Housing



### Exposures

Air pollution  
Ultraviolet  
radiation  
Greenness



# STATISTICS CANADA PROTECTS YOUR PRIVACY

## BALANCING SOCIETAL NEEDS FOR DATA INSIGHTS AND THE PROTECTION OF YOUR PRIVACY

### MODERN STATISTICAL NEEDS



Collecting data for statistics is more than a century old and keeps evolving. In our Digital Age, your information needs are growing, and new data sources offer new possibilities for information.



### COLLABORATION

Statistics Canada is working with experts from businesses and academia from around the world as well as the Office of the Privacy Commissioner to develop new statistical methods based on necessity and proportionality.



### NECESSITY

Statistics Canada is mandated to produce data for Canada —data that is essential for governments, municipalities, businesses small and large, and individuals like you. The agency measures our society, economy, and environment.



### PROPORTIONALITY

When we plan surveys, our experts work to balance the volume and sources of data with the need to reduce the response burden on you, all while maintaining protection of your privacy.



### A NEW FRAMEWORK

The new framework expands on these principles, which have always guided Statistics Canada. It assesses proportionality and data sensitivity, and ensures statistical values, such as the protection of privacy and confidentiality.