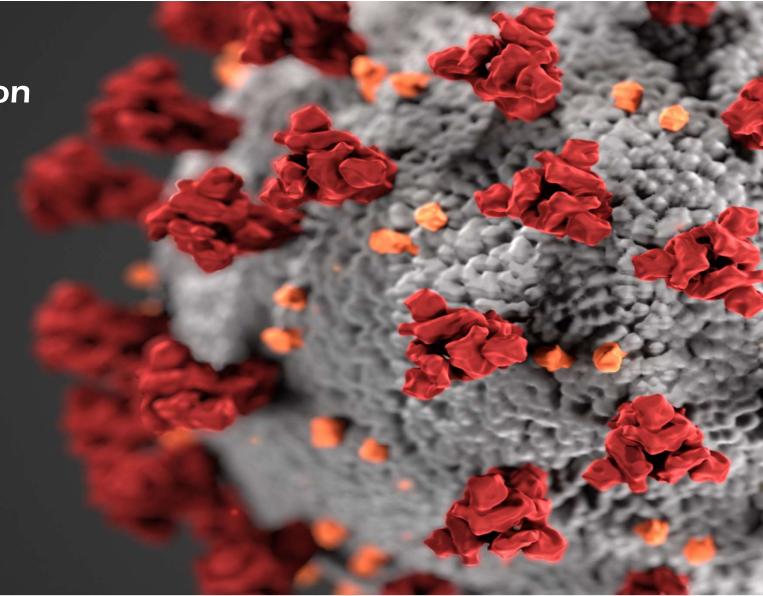
COVID-19 Decision Support System

Better Decisions Save Lives & Speed Economic Recovery



scarsin

## **Global Leader in Disease Decision Support**

# scarsin

- Markham, founded in 2002, ~30 employees
- Global scaled forecasting for complex decision making about diseases and treatments
  - Collaborate across 50 countries
  - >600 solutions in > 100 diseases
  - Make multi-billion dollar decisions
- 15+ years serving global life sciences leaders, 98% international sales
- Proven forecasting platform ready for Canada















Cardiovascular

Infectious Diseases

#### **Answered Canada and Ontario call for innovation**

Deploy a National Covid-19 Decision Support System

Scarsin 2020

#### Modeling Approach Matters!



- Next generation decision support
- <u>MUST HAVE</u> the capability to run robust scenarios at the health region level
- Scarsin is unique in its offering and is ready to help immediately
  - System has been running for months

PHAC SEIR - https://nccid.ca/phac-seir-model-on-covid-19/

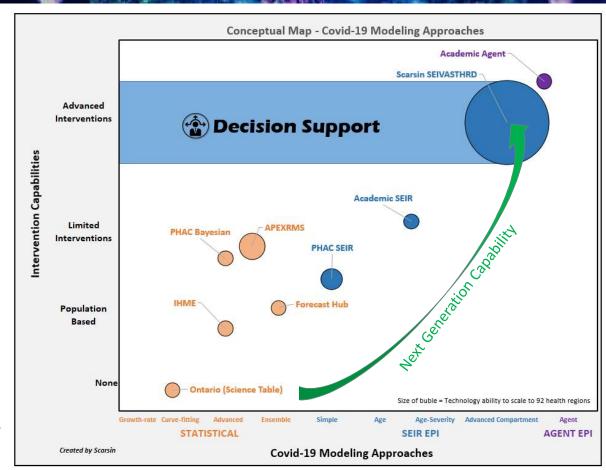
PHAC Baynesian - https://www.medrxiv.org/content/10.1101/2020.04.17.20070086v1

IHME - https://covid19.healthdata.org/canada?view=total-deaths&tab=trend

APEXRMS - https://apexrms.com/covid-19-modeling/ Ontario Science Table - https://covid19-sciencetable.ca/

Forecast Hub - - https://github.com/reichlab/covid19-forecast-hub

Forecast Hub - https://covid19forecasthub.org/#:~:text=The%20COVID%2D19%20Forecast%20Hub,globe%2C%20in%20coordination%20with%20CDC.



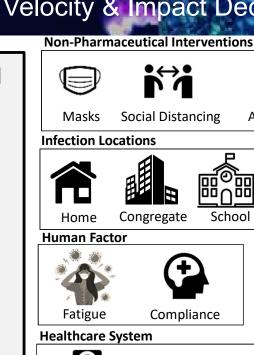
#### Scarsin Decision Support System

- Robust epidemiology model (measures patient dynamics and integrated impacts)
- Measures more than 70 different input parameters (schools, universities, community, infection transmission probability, vaccines...)
- · Capable of directly measuring the impact of interventions
- Built from the bottom up for all 34 Ontario PHU
- Supported by a robust forecasting platform and web dashboard to provide insights
- More than 9,000 hours of development being constantly updated with enhancements, fully funded by Scarsin
- Represents pandemic Best Practices to inform decision makers
- Ontario Together Fund received Scarsin Business Case on May 25, 2020, no response from the province on its status (250+ days)
- Forecasts in this report represent one potential outcome based on a series of assumptions and should not be viewed predictions
- Historical case data comes from https://covid-19.ontario.ca/data

#### Decision Support for High Velocity & Impact Decision Making













Avoidance



Lockdowns





**Pandemic Impact** 

Economy



Community

**Deficits** 



**Human Factor** 

Home







Compliance

#### **Decision Support System** enable real world dynamics

# **Healthcare System**







Staffing



**Beds** 





Mortality



Vaccine





Virus / Disease



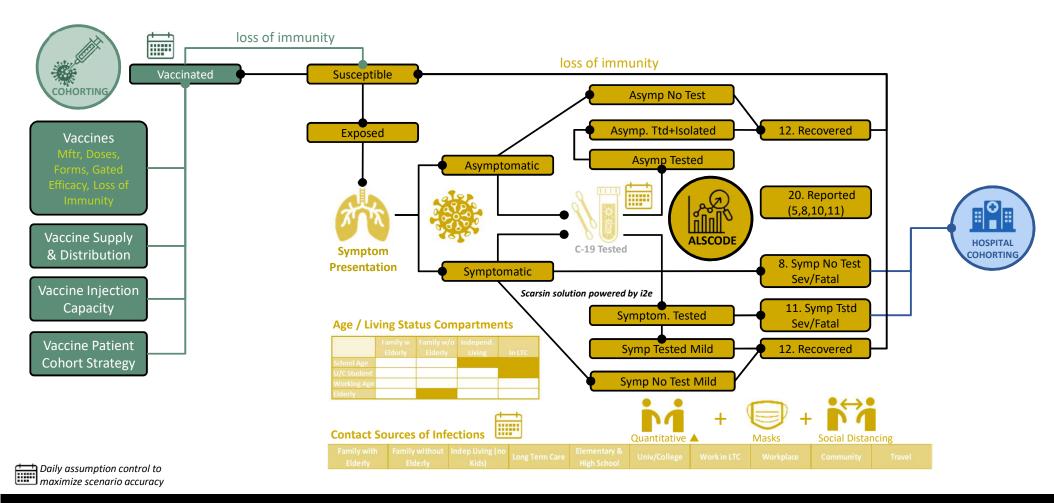




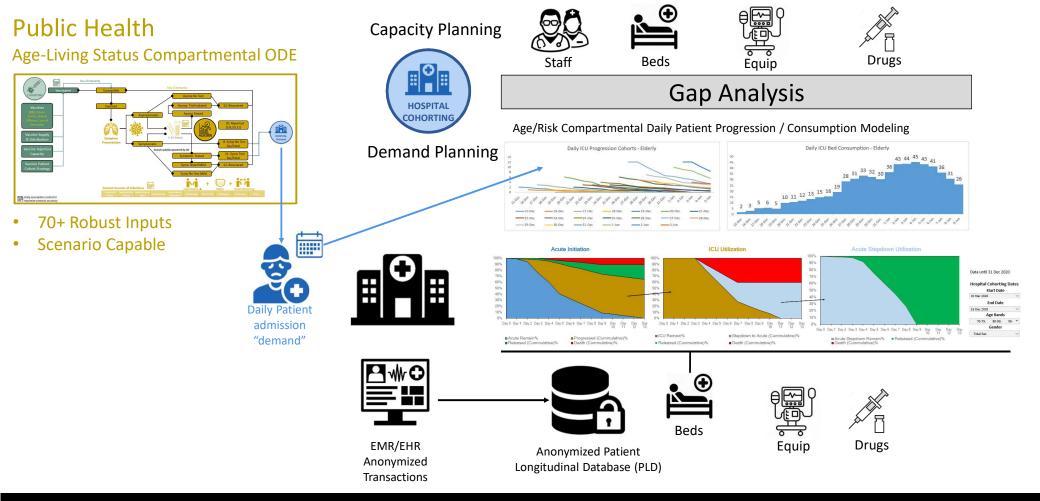


Scarsin 2020

#### **Integrated Models**



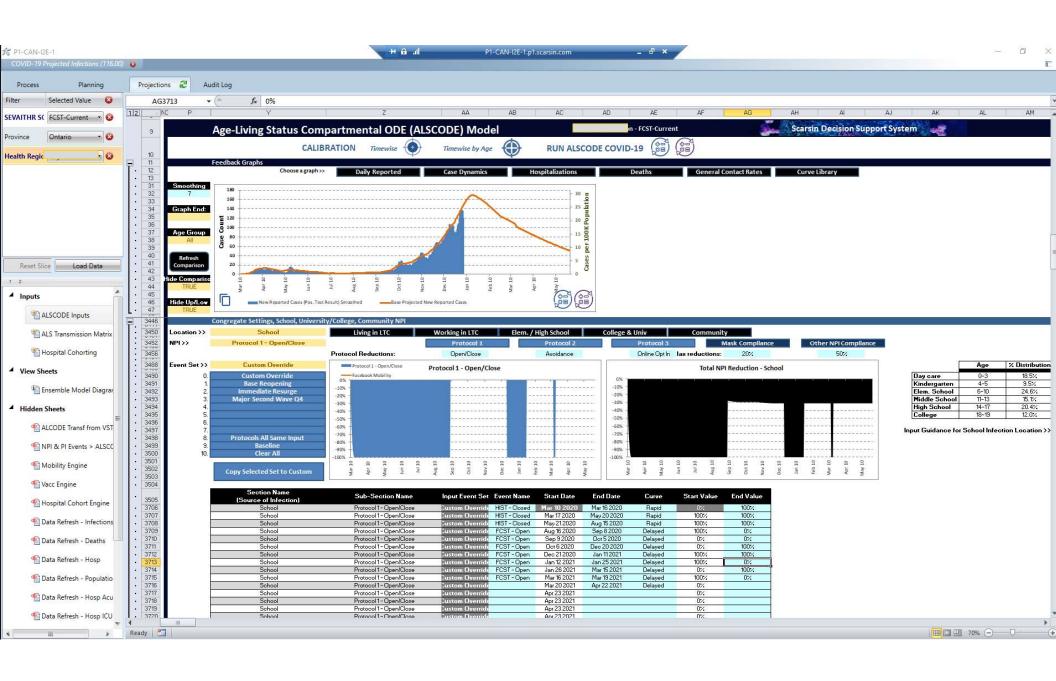
### **Detailed View of Hospital Approach**



Scarsin 2020

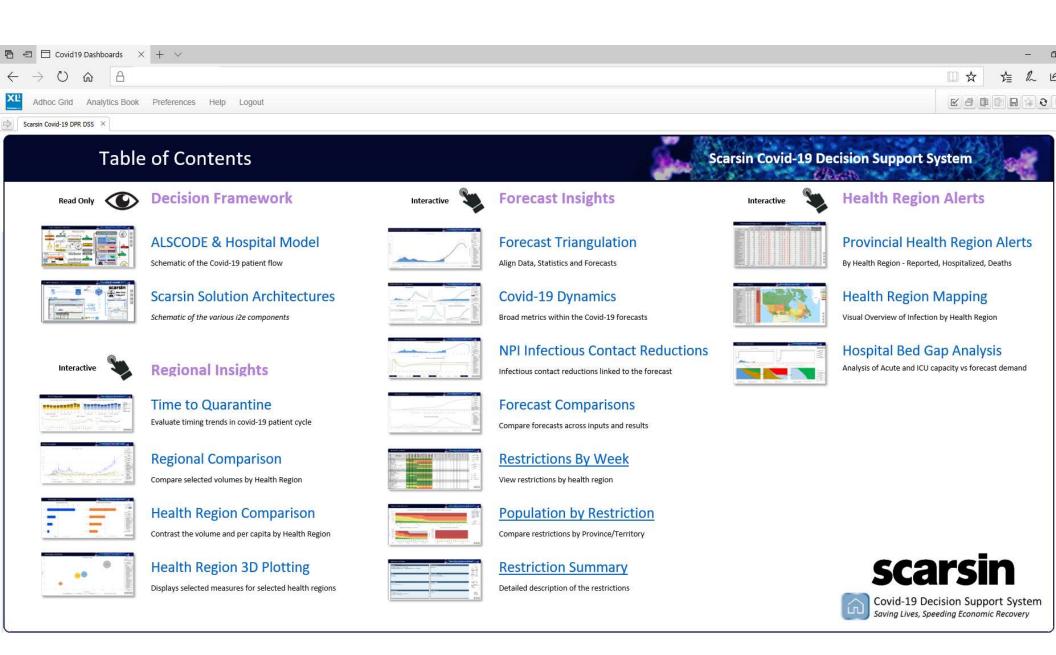


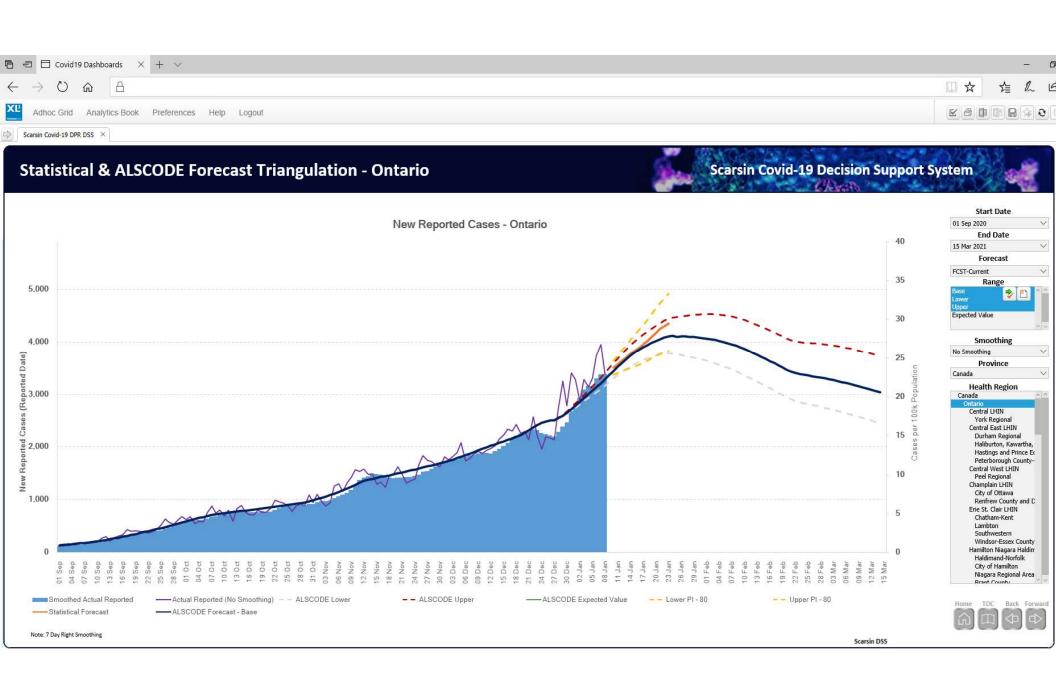


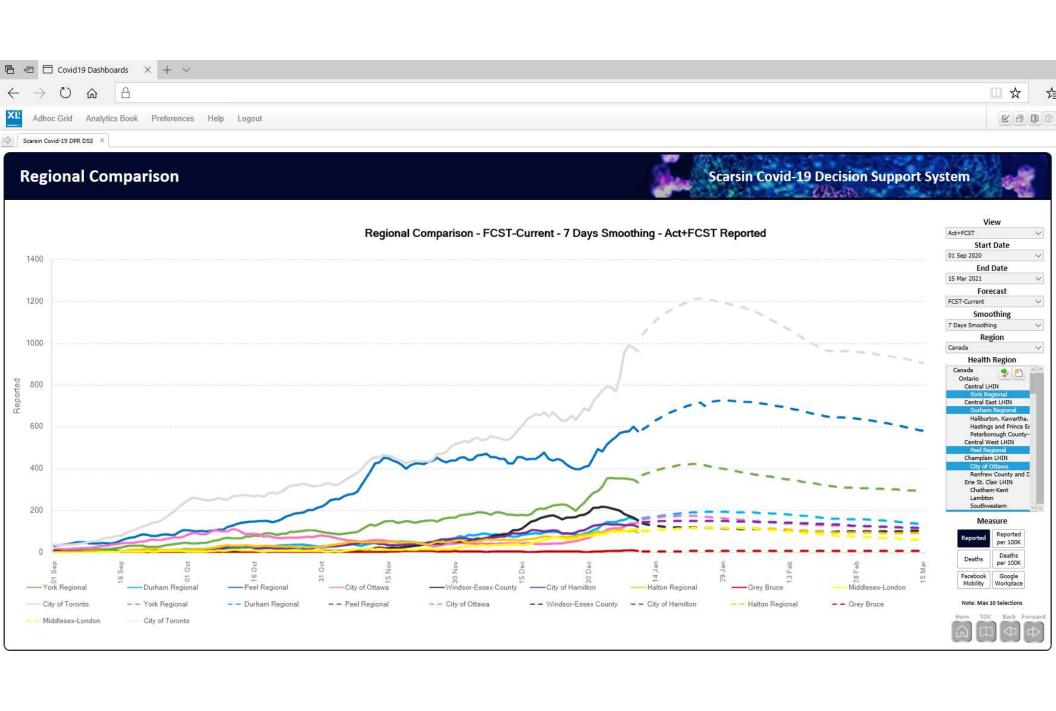


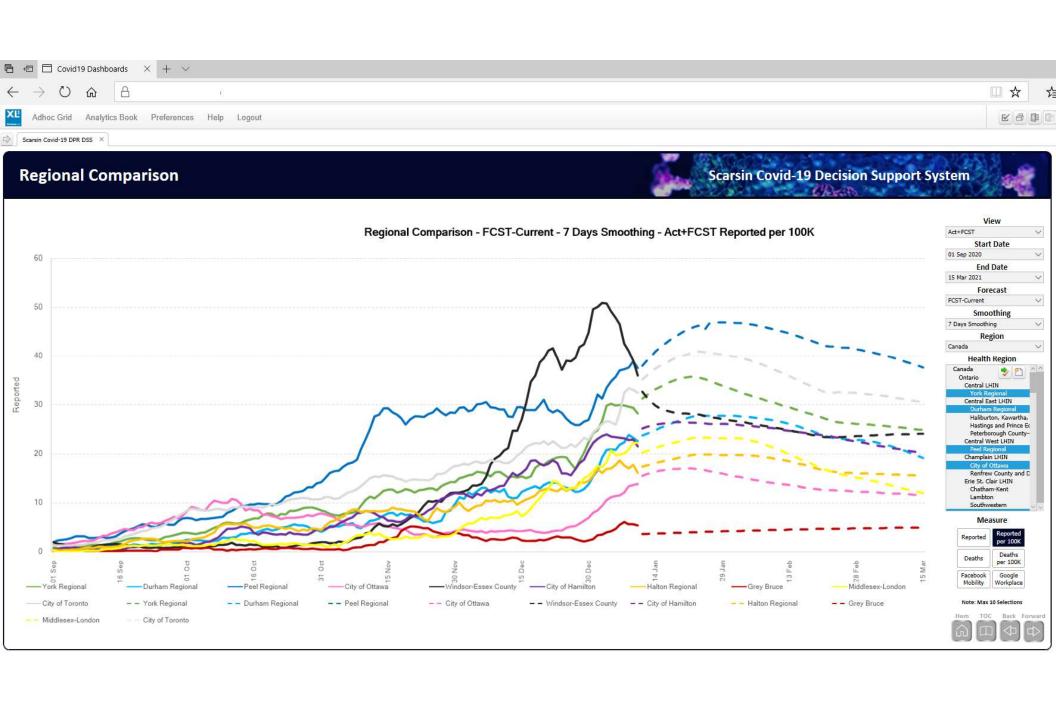
#### General Ontario Insights

- · Pre-lockdown activity acted like pouring gasoline on transmission right before lockdown
- Holiday surge is most pronounced in Ontario and Saskatchewan
- Holiday surge should work its way through the incubation and testing cycle by late January
- Lockdown impact should start to kick in for February
- Assume a lockdown until the end of February, but some PHUs will require longer
- Vaccine impact is limited in this time frame for Reported cases based on the time to immunity and scale of vaccinations
- Deeper impact of vaccinations on healthcare capacity and mortality in a separate analysis
- Additional impact to B117 increased risk in other scenarios
- Additional measures announced by the province on Jan 12 to be implemented within days







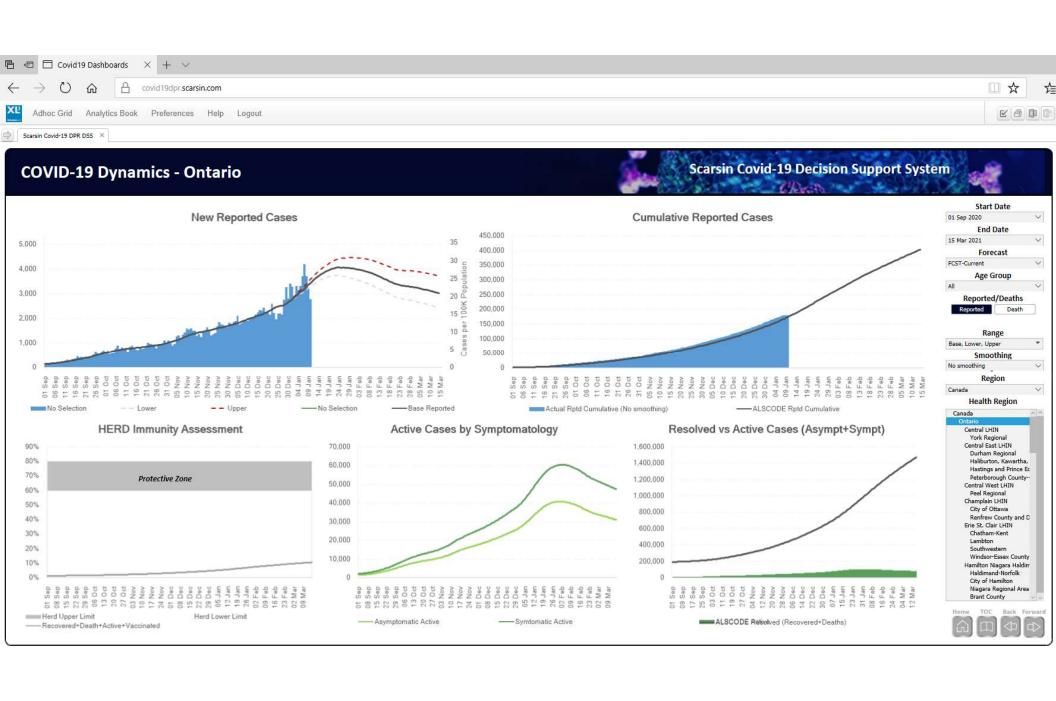


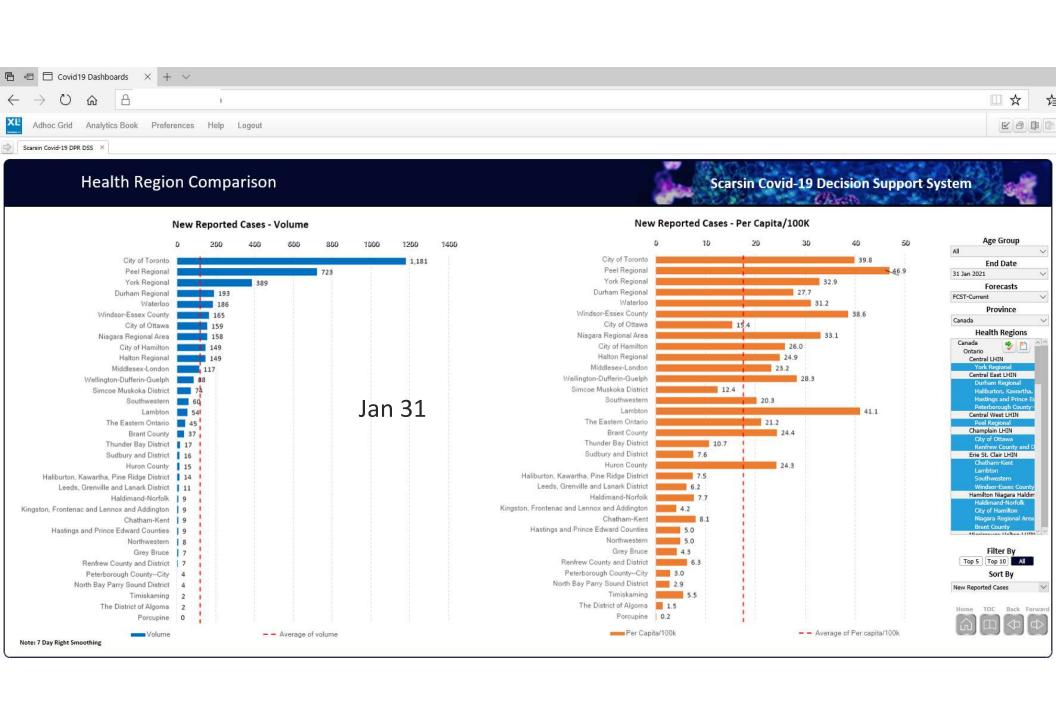


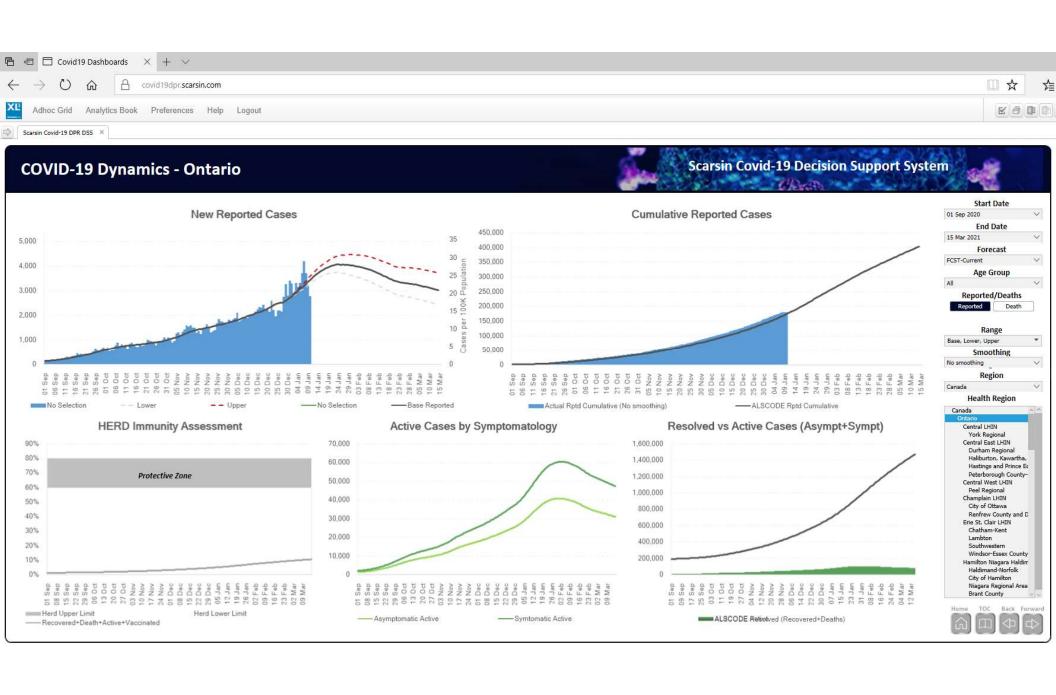


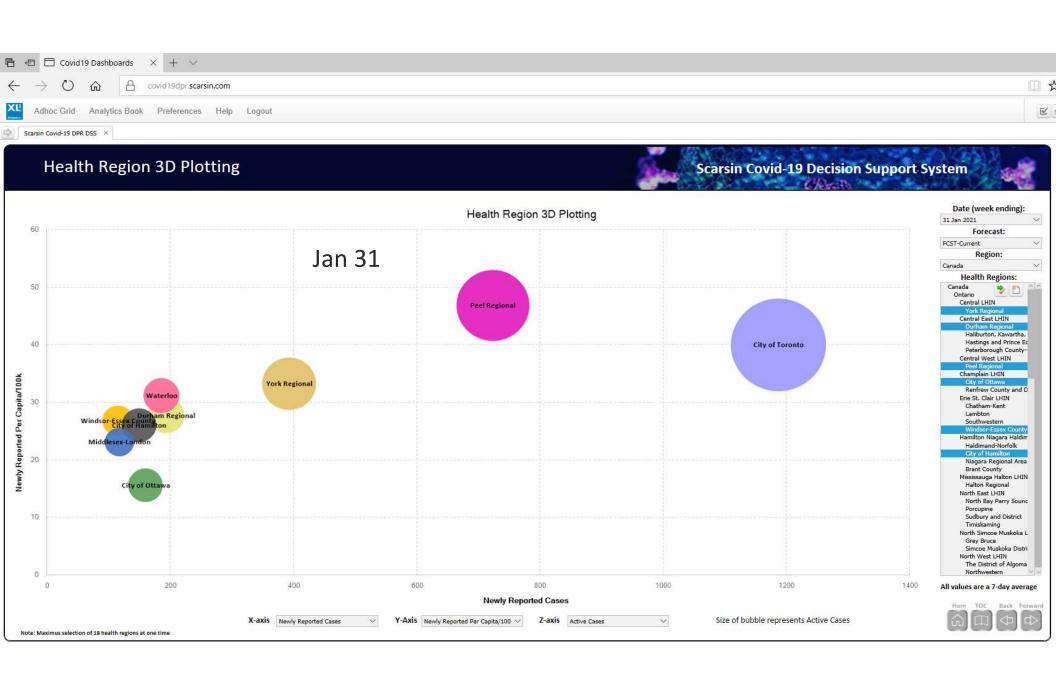


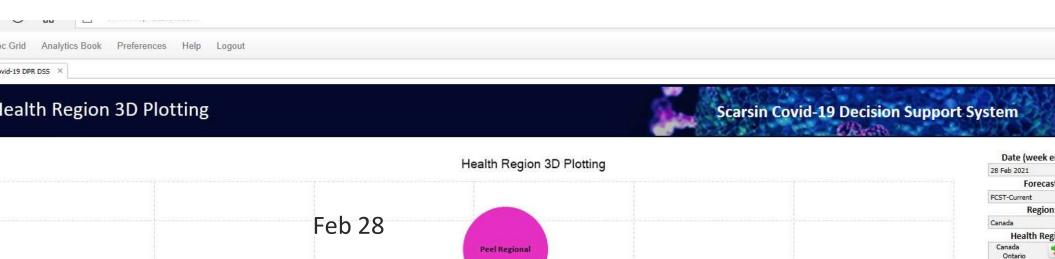












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