Leveraging Research and Data in Evidence-based Decision Making – The City of Vaughan COVID-19 Response
Overview

- Background
- Key issues
- Data and Analytics, Research and Lessons Learned Teams
- Data Insights
- Lessons Learned
Emergency Operations Centre

A place where uncomfortable people perform uncomfortable roles making difficult decisions with little and/or unreliable data.
Background

• Began monitoring the emergence of the virus in early January 2020
• Regular reports issued to Council and Senior Management pre-declaration
• Vaughan became the hotspot in York Region (and still is!)
• Declared an emergency March 17, 2020
• Pivot from in person services to virtual platforms

| Recreation | Automation of manual finance processes |
| Libraries  | Automation of Employee Records         |
| Council Meetings | Virtual staff training              |
| Development Applications Portal | Land use planning consultations       |
| Green bins/blue boxes | Virtual business consultations |
Disciplined.
Responsible.
Measured approach.
Key Issues

• Pandemic does not have a visible component
• Multiple sources of data being accessed daily
• Speed of new developments
• Data dashboards not showing the analysis we needed/wanted
• How to answer the why are we a hotspot question
• The degree of impact on City
• Collecting lessons learned in a timely manner
Specialized Teams

• Data and Analytics Team
  • Experts from across multiple departments
  • Data Architect, data analysts, GIS experts, strategic planning experts
  • Mandate – Build a dashboard with all COVID related data and analytics to assist in City-wide decision making and locational intelligence.

• Research Team
  • Librarians
  • Gather and summarize information on responses, vaccines, new treatments, emergency issues, etc. from across the globe, Canada, the Provinces using credible sources
Specialized Teams

• Lessons Learned Team
  • Strategic planning analysts
  • Unbiased, not directly involved in the response
  • Mandate is to conduct debriefings and surveys of the Emergency Management Team, Members of Council and staff at set intervals to gather feedback on
    • What are we doing well
    • What could we do better
    • What changes do we need to make
    • Work from home feedback
    • What supports do staff need
    • Innovations
Data Platforms

- QlikView
- Talend
- nPrinting
- Environics PRIZM
- ICES
- Insights for ArcGIS
Data Insights

- Case surges related to specific events and weather conditions

Temperature Correlation – extreme heat and cold drove people indoors an increased cases resulted.
Data Insights

All Vaughan Cases by Community: Reported from 12 February 2020 to 10 Feb 2021

Estimated Onset

Vaughan New COVID-19 Cases First Wave and Second Wave

Total Cases Change Past 14 Days: Date Reported

Change Total Vaughan
Institutional
Non-Institutional
1%
<table>
<thead>
<tr>
<th></th>
<th>Feb 11, 2021</th>
<th>Feb 10, 2021</th>
<th>Difference</th>
<th>Change %</th>
</tr>
</thead>
<tbody>
<tr>
<td>York Cases</td>
<td>26,927</td>
<td>26,811</td>
<td>116</td>
<td>0.43</td>
</tr>
<tr>
<td>York Deaths</td>
<td>495</td>
<td>488</td>
<td>7</td>
<td>1.43</td>
</tr>
<tr>
<td>Vaughan Cases</td>
<td>11,344</td>
<td>11,294</td>
<td>50</td>
<td>0.44</td>
</tr>
<tr>
<td>Vaughan Deaths</td>
<td>202</td>
<td>199</td>
<td>3</td>
<td>1.51</td>
</tr>
</tbody>
</table>

Note: York Region posts case data at 1700 hrs. Vaughan has 417 active cases, 66 in hospital. There are 10 institutional outbreaks.
Data Insights - Trends

Weekly Vaughan cases for the last 4 weeks

14-day rate of change for Vaughan (Jan 1 - Jan 14 vs. Jan 15 – Jan 28) is -27.31%

28 trend bar chart (blue = low, red = high)

Weekly cases for the last 4 weeks for each Vaughan community

28-day trend graph (blue = low, red = high)

14-day rate of change for Vaughan is -27.31%

Maple & pending neighborhood has seen the largest 14-day rate of change at -36% and -41% respectively
Locational Intelligence

Notes: Positivity FSA Mapping | January 17 to 23, 2021

‘Highest Test Positivity by Postal Code FSA’ mapping displays the recent and trending positivity of local and neighbouring FSAs. Positivity refers to those individuals who are tested positive for COVID-19, given as a value per 100,000 population or percentage.

FSA is the Forward Sorting Area, which refers to the first three characters of a postal code. Data source: ICES COVID-19 Dashboard
• Approximately 45% of staff are WFH
• Approximately 35% of staff cannot WFH but are essential and on the front-line
• Approximately 7% of staff cannot work from home and are not essential to the front-line (predominately School Crossing Guards, VPL and Recreation casual/ part-time community centre staff).
• Implementation and improvement of OCIO technology may have increased certain department’s ability to WFH between March and October, and have remained consistent through year end
VPL has enhanced their offerings through a variety of means including a greater virtual presence.

- Over 600 virtual sessions have been held (predominately Children Programs) resulting in over 69,000 participants.

In the past 300 days:

- Registered on library platforms that enable digital downloads of e-books etc.: 6,761
- Weekly average of Hoopla and Overdrive items borrowed: 5,907
- Borrowed weekly through curbside pickup: 16,977
- Digital magazines borrowed: 24,236
- Magazine collection / titles increased due to demand: 3,700
- Pressreader – access to digital versions of newspapers – was consulted: 47,000
• Park amenities re-openings; Facility re-openings; recreational services/programs
• Provincial reporting – (first interim report has been provided to the Province)
• Coordinating with York Region and the Province for targeted messaging to workplace clusters
• Coordinating with York Region and Province on setting up a mobile testing clinic for COVID-19 and vaccine clinics
• Inform Council – Triple R Committee reports, presentations to Mayor and interim reports (3) were viewed by Council
• Second wave / second restart planning and response
Research Sources & topics over time:

- Country benchmarking and second wave
- Provincial re-openings
- Vaccine and scientific research
- Protests/demonstrations
- Mental Health and Inequality
- Variants
Highlighted countries that were doing particularly well and those who were hit hard with first wave - benchmarking

• Tracked re-openings
• Many countries have seen outbreaks in their most vulnerable populations
• Notable outbreaks have happened in church gatherings, social gatherings and workplaces
• Countries that have relaxed many restrictions at the same time have made it difficult to determine what have caused the rise in cases
• The second wave in most countries has been spread by young people, generally under 40
• Lag time between Europe/Asia and Canada was 3 to 6 weeks
Lessons Learned

10 MAIN THEMES

- Emergency Response
- Communications
- Emergency Management Processes & Procedures
- Recovery / Return to Work
- Health & Safety Direction
- Resilience & Adaptability
- Alternative Work Arrangements
- Innovation, Newly Generated Processes & Process Improvements
- Teamwork & Collaboration / Flattened Organizational Hierarchy
- Technology
Lessons Learned

• Emergency Management Specific – 35 recommendations to enhance our capacity
  • Business Continuity Planning
  • Emergency Plans and Procedures
  • Training and Exercises
  • Resources
  • Policy

• Daily Operations – 43 recommendations made
  • 28 completed
  • 13 in progress
  • 2 under review
Lessons Learned

• Staff survey identified need for more mental health and work from homes
  • Resources rapidly implemented that are ongoing

• Past exercises and training helped team respond confidently

• Data and Analytics, Research and Lessons Learned Team will be added to the Emergency Plan

• Implemented 161 innovations and process improvements
Lessons Learned

• Attitude towards work from home changed
• Support from senior management for data and analytics/research and lessons learned was essential
• Collected key performance metrics on non-emergency operations – “City building despite the pandemic
• Pandemic planning assumptions
**Challenges**

### Data Challenges

- Data incorrectly posted
- Side of desk function
- Locating the appropriate data contact
- Not consumable
- Data cleaning
- Delays in receiving the data
- Lack of consistency
- Data is not catalogued

### Research Challenges

- Finding free and credible sources that were in English
- Access to academic level databases or news monitoring databases
- Sheer amount of information available
- Interpreting scientific information
STAKEHOLDER VIEW

Public Works
The EOC Data and Analytics team assisted in our parks reopening strategy. With guidance, protocols, and information from Province combined with statistics specific to Vaughan we were able to make an informed, methodical strategy towards re-openings of amenities within parks.

Development Planning
The EOC reports help to understand the relationships with other Departments in the Portfolio. The data collected will inform the implementation of inter-departmental initiatives.

Human Resources
"helped HR pivot and centralize our data collection around the impacts of COVID-19 early on..... helped us consolidate our information and optimize the use of Teams to share data and ensure that everyone from OCHRO has easy access to current information... helped us create initiatives (i.e. focusing on wellness, HR directives, telework toolkit etc.), prepare for any risks, and helps us understand the impacts of our decisions. In reviewing our data for COVID, it has also initiated many data clean-ups and process reviews."

Economic Development
Data collected has been used for frequent reporting, including those to Council and externally in our response efforts.

Corporate Communications
The data collection process has encouraged centralized and consolidated communications tracking efforts. It has provided an overview of communications efforts across the entire department from media products to design products that are delivered to support departmental initiatives, as well as content for Mayor and Members of Council to share with constituents through their social media and eNews platforms.