



Report to:	Manitoulin-Sudbury District Services Board
From:	Robert Smith Chief of Paramedic Services
Date:	May 28, 2020
Re:	Paramedic Services COVID-19 – Issue Report

Executive Summary

On March 18, 2020, the Premier of Ontario declared a State of Emergency in an effort to assist with the management of the COVID-19 Pandemic. The State of Emergency remains in place and is now extended into June 2020. Prior to this declaration, the Medical Officer of Health for Public Health Sudbury and Districts had recommended implementation of COVID-19 testing in community, and that the expertise and system design of Paramedic Services be leveraged as an effective method for this testing. Manitoulin-Sudbury DSB Paramedic Services was engaged with health system partners and established a mobile COVID-19 Response Team, capable for performing COVID-19 testing in community. As of May 13, 2020, the COVID-19 Response Team has operated for 7 weeks, and between home testing and testing at the Espanola Drive-Through site, Manitoulin-Sudbury DSB Paramedics have completed more than 300 COVID-19 tests in collaboration with Alternate testing Sites operated by Health Sciences North, Espanola Regional Hospital and Manitoulin Health Centre. In performing the community testing the team has traveling almost 14,000 kilometers.

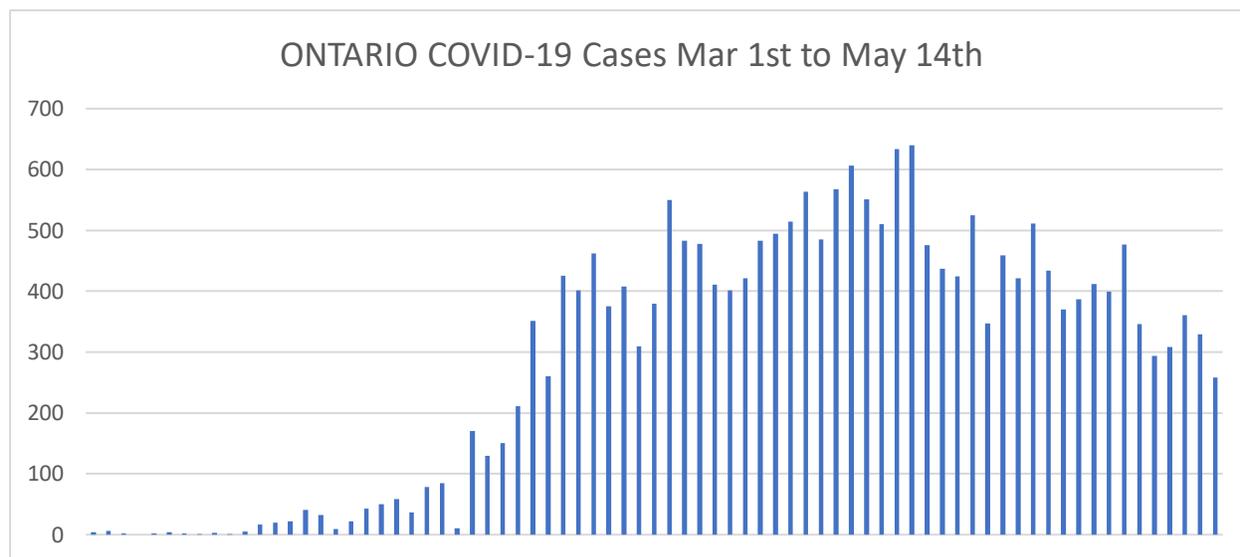
History

In late December 2019, information began to be disseminated regarding a novel coronavirus in a specific Province of China. The first evidence of disease transmission into Canada took place in late January. The disease tracing revealed that the patient had a travel history. Since that time, the number of cases of this disease, ultimately named COVID-19 has expanded worldwide to include more than 4.5 million cases at the time of this report, with 23,384 cases in Ontario. Cruz & Zeichner (2020) report that the disease has impacted more than 170 countries.

The impact of the COVID-19 virus has been specifically challenging for two main reasons. The first is disease transmissibility. This virus has been shown to be extremely virulent in the ease by which it is transmitted. Unlike some earlier novel virus epidemics such as

SARS (Severe Acute Respiratory Syndrome) and MERS (Middle Eastern Respiratory Syndrome) the COVID-19 virus is easily spread. As such, Ontario was reporting upwards of 600 new cases each day in April. To this end, a number of strategies were implemented to flatten the curve. These strategies will be examined later in this report.

The disease confirmation in Ontario progressed from small daily numbers until the first of April when the trending increased dramatically. There are a number of reasons being reported for the increase, including returning travelers, who were directed home some two weeks earlier, and winter break travel.



Prevalence of COVID-19 transmission, and fatalities within long term care and retirement homes continues to be a particular challenge. As of May 14th, 185 Long Term Care (LTC) facilities, or retirement homes in Ontario had at least one positive COVID-19 resident, or staff member, and an additional 71 facilities with resolved COVID-19 outbreak status. As of this same date, 1308 residents and 5 staff members in LTC/retirement homes had died as a result of COVID-19. This number is statistically significant as it represents more than 73% of all COVID-19 deaths in Ontario. Promislow (2020) published data revealing that mortality in the young is only 0.01%, but it expands to nearly 10% in the elderly. Ontario's mortality rate as of May 14th was 8.3% with the aged population over-represented.

In Manitoulin-Sudbury district, there have been only 5 confirm COVID-19 cases, with the 5th being reported on May 14th as a staff member in LTC.

While the risk for negative impact of COVID-19 on the young was initially thought to be extremely low, there are now a number of new reports pointing at COVID-19 as the reason for illness that is acting more systemically on children. Although children are less likely than older adults to become severely ill, there are subpopulations of children with an increased risk for more significant illness where there were underlying immunocompromising conditions (Cruz & Zeichner, 2020)

Liu, Gayle, Wilder-Smith & Rocklöv (2020) found that the transmissibility of COVID-19 is rated between 2 and 3, with a mean of 3.28, far higher than the World Health Organization

estimate. The authors did document studies that found the replication rate for COVID-19 to be an extremely infectious disease with high transmissibility.

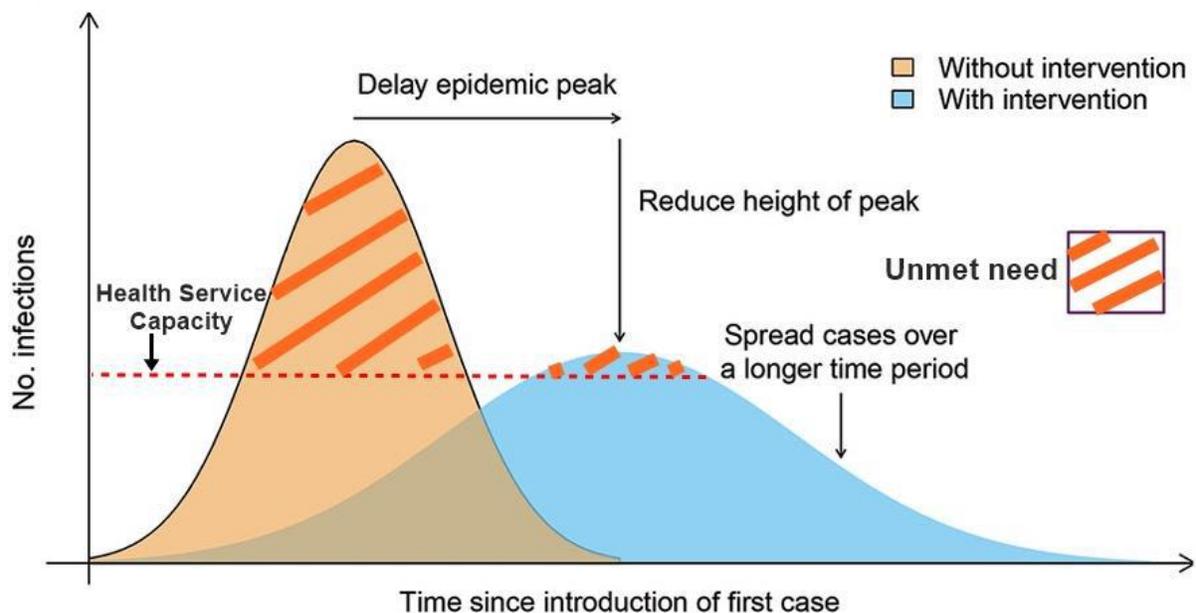
The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes. The World Health Organization (2020) has confirmed that the COVID-19 virus infects people of all ages, but that the elderly and those with co-morbidities are at higher risk for poor outcomes. Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring any special treatment.

As of this issue report, there are no specific vaccines for COVID-19, and WHO reports that a vaccine is likely 12 to 18 months from widespread viability. As such, current treatments for COVID-19 are supportive (Jiang, Deng, Zhang, Cai, Cheung & Xia, 2020)

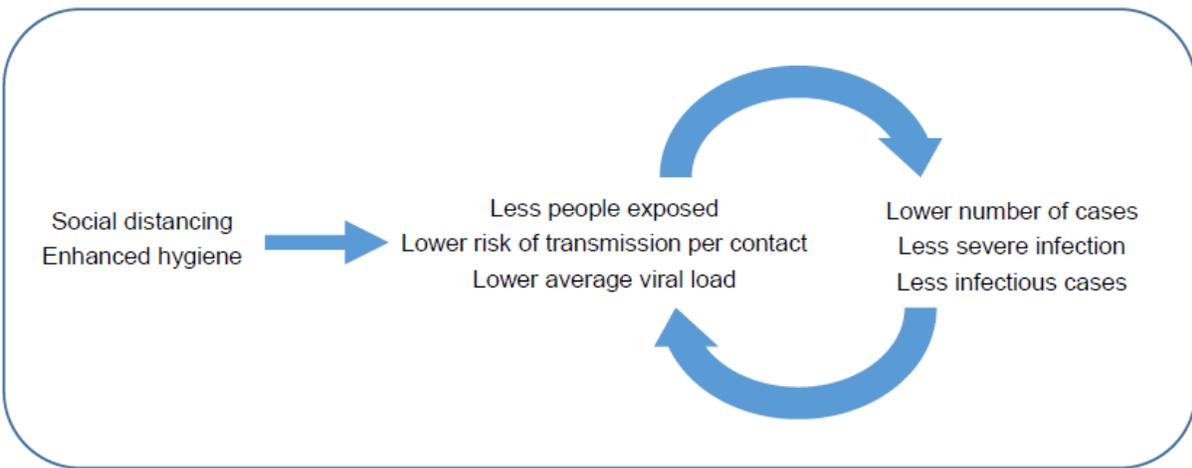
Mitigation Strategies

Efforts to manage the impact of COVID-19 spread, or to flatten the curve have been put in place across all parts of society. This term describes efforts to slow down transmission of the COVID-19 virus in order to hold the disease incidence below the maximum capacity of health systems. Below is a diagram that demonstrates the flattening process (Dalton, Corbett & Katelaris, 2020). The diagram shows the health care capacity is a fixed line. Where the number of cases of COVID-19, at any period of time exceeds this capacity, patient outcomes are poor, because there is a limited capacity to assist them. By flattening the curve, the number of cases is kept below the maximum health system capacity, and patient outcomes are improved. High unmet needs were seen in both China and more recently Italy. Ontario has reported significant success in flattening the curve, and as such has been able to manage acute case loads more effectively.

Figure



The two main efforts in place to flatten the curve are physical distancing, and effective hygiene. Hygiene can easily be managed through regular hand washing with soap and water for at least 30 seconds, use of sanitizers with an alcohol content greater than 60%, and regular cleaning of surfaces with cleaners are simple methods to help eliminate germs. Additionally, people should cough or sneeze in a manner that prevents spray (in the sleeve/elbow). These processes work to eliminate the virus. The second and method being used to flattening of the curve is physical distancing. This concept is central to limit the spread of the virus but requires changes in behaviour. The curtailing social contact among healthy individuals is central to efficacy. Individuals can lower the risk of infection by reducing contact with other people. People can avoid public spaces, unnecessary social gatherings, and large events. Other measures include working from home where possible, meeting virtually, and avoiding public transit. Additionally, people should maintain a minimal distance of at least 2 metres from others and avoid physical contact with others. The chart below demonstrates the efficacy of social distancing in reducing disease transmission.



Fong et al (2020) found that an effective social distancing program to help prevent disease transmission, but it must be implemented early. Dalton, Corbett & Katelaris (2020) added further research to demonstrate that physical distancing helps to prevent disease transmission through reduction of a person's contact risk.

Manitoulin-Sudbury DSB staff have activated Pandemic planning to include both increased hygiene through education and placement of products that allow for increased compliance. Staff have also implemented plans that ensure physical distancing when possible through remote work schedules and limiting staff density in workplaces. Where such processes are not possible, such as with Paramedic Services, strategies have been implemented where patients are routinely reverse isolated, screening is completed on every call, use of personal protective equipment (PPE) has been mandated and start of shift staff screening has been implemented and is being monitored. These strategies have been demonstratively positive in helping to protect staff and the public. While the service has had approximately 15-20 staff tested for COVID-19, there have been no positive cases, and no occupational exposures.

DSB staff have also limited potential exposure risk to the most vulnerable members of the public by suspending Community Paramedicine Clinics and Seniors Luncheon sessions.

The rationale for this decision was specific to the need for physical distancing, and the reality that this population are the most at risk. CP programs, including referral home visits have remained available.

In Chapleau, in-deployment Paramedics are working with the health system to help maintain physical distancing through the delivery of medications from the local Pharmacy. At risk citizens are able to arrange for the Paramedics to pick up the prepared medications, and drop them to the client, allowing these people to maintain isolation.

COVID Response Team

As has previously been shared with the Board, Paramedic services has in place a COVID-19 response team that consists of 6 paramedics divided into 3 teams. These teams receive referrals for home testing deemed appropriate by Approved Alternate Testing Sites in Espanola, Manitoulin, and Sudbury East. The team also performs drive-through testing in Espanola. The team was operationalized following discussion with Public Health Sudbury and District, Ontario Health-North, the MOH Emergency Health Services Branch and hospital partners. In the first seven weeks, the team has performed more than 300 tests for our citizens.

Most recently, the community of Wiikwemikoong requested that paramedic services submit a plan for a dedicated COVID Response Team of Paramedics should that be required. The submission was forwarded for consideration, and subsequent meetings were held with Indigenous Services Canada. DSB staff wait for formal responses to this discussion.

Financial Impact

The financial impact of the COVID-19 Pandemic on DSB operations including Paramedic Services is multifaceted. There are costs directly related to the expensing and replacement of PPE items. There are increasing costs for these items directly related to supply chain issues. A surgical procedure mask that pre-pandemic had a unit cost of \$0.20, most recently cost \$2.00. Contract rates with established vendors have been lost due to inventory reduction, meaning that logistics staff must source items with vendors not under contract. The increased costs associated with significant increased product utilization has had resulted in substantial costs.

The DSB answer to requests to develop and deliver COVID-19 Response in community has direct financial impact as these Paramedics operate outside of the 911 deployment model. This design is necessary to ensure safety for both the public and Paramedics.

In late April, the MOH requested that paramedic Services submit actual COVID-19 related costs for the period through the end of March, and predicted costs for the duration of the year. The costs assessed and the document was submitted for the DSB, and for the Wiikwemikoong apportionment. The charts are included below.

Corona Virus Protection Total Costs Estimation & Accumulated Expenditures

COVID-19 Related expenses	March 15 to 31st 2020 (\$000s)	Projected Spend April to December 2020 (\$000s)
Personal Protective Equipment (PPE)	5,047	29,981
Respirators	9,924	3,050
Training	-	-
Equipment/Materials/Supplies	2,642	13,970
Incremental salaries (or overtime) for front-line staff	25,079	153,738
Other		
Subtotal - supplies, equipment and labour	42,692	200,739

COVID-19 Related Initiatives

COVID Response Team as part of the approved Alternate Testing Site programs for Health Science North, Espanola Regional Hosp, and Manitoulin Health Centre	March 15 to 31st 2020 (\$000s)	Projected Spend April to December 2020 (\$000s)
Personal Protective Equipment (PPE)	4,345	3,911
Respirators	939	8,447
Training	7,933	
Equipment/Materials/Supplies	2,642	13,970
Incremental salaries (or overtime) for front-line staff	12,227	393,117
Other	2,607	46,926
Subtotal - initiatives	30,692	466,370
Grand total	73,384	667,109

Corona Virus Protection Total Costs Estimation & Accumulated Expenditures

COVID-19 Related expenses	March 15 to 31st 2020 (\$000s)	Projected Spend April to December 2020 (\$000s)
Personal Protective Equipment (PPE)	761	4,520
Respirators	1,496	460
Training	-	-
Equipment/Materials/Supplies	398	2,106
Incremental salaries (or overtime) for front-line staff	3,781	23,176
Other		
Subtotal - supplies, equipment and labour	6,436	30,261
COVID-19 Related Initiatives		
COVID Response Team as part of the approved Alternate Testing Site programs for Health Science North, Espanola Regional Hosp, and Manitoulin Health Centre	March 15 to 31st 2020 (\$000s)	Projected Spend April to December 2020 (\$000s)
Personal Protective Equipment (PPE)	655	590
Respirators	141	1,273
Training	1,196	
Equipment/Materials/Supplies	398	2,106
Incremental salaries (or overtime) for front-line staff	1,843	59,262
Other	393	7,074
Subtotal - initiatives	4,627	70,304
Grand total	11,063	100,565

Implications in Northern Ontario

The impact on the COVID-19 Pandemic on Northern Ontario is unique due to lower population density, reduced access to health care facilities, and social determinants of health.

The fact that the population of remote Northern Ontario is more spread out means that the ability to quickly access patients for activities such as COVID-19 testing is far more challenging. At the outset of this Issue Report, the total distance traveled by the COVID-19 response team was documented. It is a metric that helps to express the challenge of health care delivery in Northern Ontario. The capacity identified symptomatic for residents to travel significant distances to obtain COVID-19 testing is of particular issue. The use of Paramedics to assist in resolving these issues is beneficial.

Conclusion

DSB staff have continued to follow the COVID-19 Pandemic progression, implementing strategies to mitigate its impact on the public, patients, and employees. Paramedic Services continues to deliver public safety programs while collaborating with health system partners and multiple tiers of Government to ensure public needs are met.

Financial impact of the Pandemic is being felt across departments, but staff continue to work to establish capacity to continue to ensure safety. To this end, staff hope to receive direction to help focus on options for continued service delivery.

Recommendation

The Manitoulin-Sudbury DSB Board of Directors accepts this report and endorses the earlier submission to the Ministry of Health capturing actual and projected COVID-19 cost to Paramedic Services.

References

- Cruz, A. T., & Zeichner, S. L. (2020). COVID-19 in children: initial characterization of the pediatric disease. *Pediatrics*.
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- Promislow, D. E. (2020). A geroscience perspective on COVID-19 mortality. *The Journals of Gerontology: Series A*.
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