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MEMORANDUM

PHD-C 04-2023

Subject: COVID-19 Evaluation Report

Date: September 12, 2023

To: Regional Council

From: Dr. Azim Kasmani

On January 30, 2020, the World Health Organization (WHO) Director-General declared the novel coronavirus outbreak a public health emergency of international concern (PHEIC), the WHO's highest level of alarm. The WHO subsequently declared COVID-19 a Pandemic on March 11, 2020 and Niagara's first confirmed case of COVID-19 was reported on March 13, 2020.

The Region declared a state of emergency on March 17, 2020 and Niagara Region Public Health & Emergency Services (NRPH&ES) and Niagara Region activated Emergency Operations Centres as a place for emergency management personnel to coordinate the emergency response. The acute phase of the emergency required intensive efforts to promote and protect the health of Niagara residents, and this phase lasted well over two years.

At the direction of the Region's Acting Medical Officer of Health, NRPH&ES set out to evaluate the emergency phase of the pandemic response, in order to improve emergency preparedness and response to future emergencies. In the Spring of 2022, an environmental scan was undertaken to determine the best approach to an organizational evaluation of a multi-year public health emergency. The 'Public Health Ontario Emergency Preparedness Framework' (Kahn et al., 2020) and the corresponding National Collaborating Centres Determinants of Health document 'Measuring What Counts in the Midst of the COVID-19 Pandemic: Equity Indicators for Public Health' (Haworth-Brockman and Betker, 2020) were identified as key sources to guide the evaluation. These frameworks apply to all aspects of emergency management preparedness, contain more than 60 emergency management related indicators and were used as the basis for all staff and stakeholder engagement data collection tools.

More than 450 NRPH&ES staff, internal stakeholders from Corporate Services, Community Services, Strategic Communications and Public Affairs and the CAO, and external stakeholders from organizations such as Niagara Health, Police, Local Area Municipalities, Higher Education and others took part in this assessment, specifically focused on NRPH&ES's COVID-19 response. Feedback was gathered in the summer of

2022 through quantitative (e.g. staff surveys) and qualitative methods (e.g., 1:1 interviews, focus group discussions) and was analyzed using a variety of different methods.

The feedback obtained highlighted specific areas of good practice from an emergency management perspective: successfully managing tens of thousands of COVID-19 cases through case and contact management, implementing and managing large vaccine and pop-up clinics that served hundreds of thousands of clients, managing hundreds of outbreaks across high-risk facilities, providing outreach to priority groups and extensive population-level communications campaigns.

The feedback also highlighted opportunities for improvement. Some examples include enhanced emergency management planning activities including all relevant partners and stakeholders, more streamlined/timely communication of key decisions to affected internal and external groups, stronger engagement with the Board of Health, better organization and clearer information to staff around redeployments.

The overarching recommendation from the report was that Public Health emergency management needs to be given appropriate and dedicated time and attention routinely throughout the year. This can be accomplished through a dedicated Emergency Management Steering Committee for the Public Health department and dedicated emergency management personnel to further support and implement this crucial program. The complete report, including all recommendations, is available as an attached appendix.

Respectfully submitted and signed by

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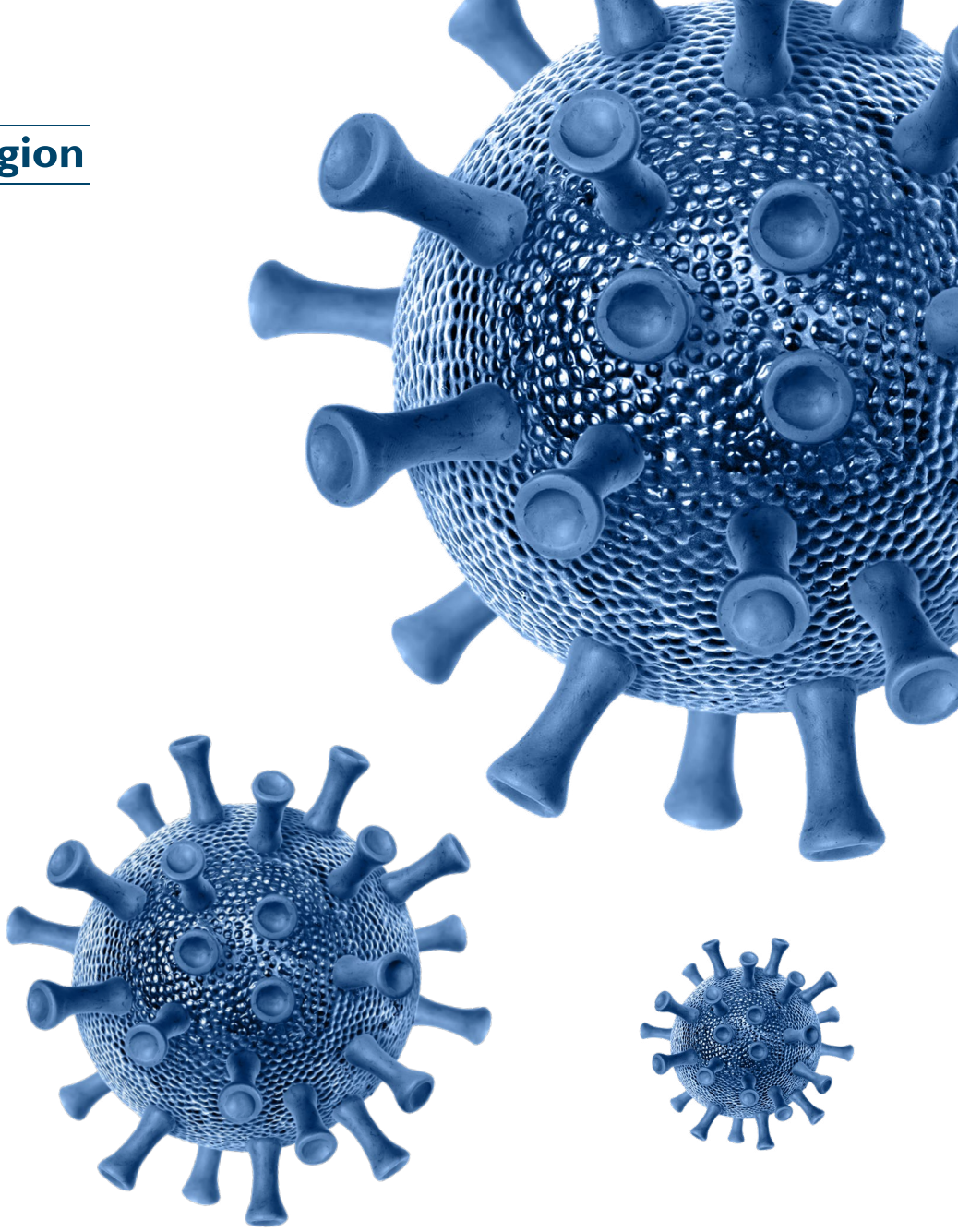
Azim Kasmani, MD, MSc, FRCPC (he/him)
Medical Officer of Health
Niagara Region Public Health & Emergency Services

Appendices

Appendix 1 COVID-19 Evaluation Report

Niagara Region



2023

Evaluation Report:

Niagara Region Public Health's Response to the COVID-19 Pandemic

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Executive Summary

Background

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At the direction of the Region's Acting Medical Officer of Health, NRPH set out to evaluate the emergency phase of the pandemic response, in order to improve emergency preparedness and response to future emergencies.

Methods

In the Spring of 2022, an environmental scan was undertaken to determine the best approach to an organizational evaluation of a multi-year public health emergency. The '**Public Health Ontario Emergency Preparedness Framework**' (Kahn et al., 2020) and the corresponding National Collaborating Centres Determinants of Health document '**Measuring What Counts in the Midst of the COVID-19 Pandemic: Equity Indicators for Public Health**' (Haworth-Brockman and Betker, 2020)

were identified as key sources to guide the evaluation. These frameworks apply to all aspects of emergency management preparedness, contain more than 60 emergency management related indicators and were used as the basis for all staff and stakeholder engagement data collection tools.

More than 450 NRPH staff, internal stakeholders from Corporate Services, Community Services, Strategic Communications and Public Affairs and the CAO, and external stakeholders from organizations such as Niagara Health, police, local area municipalities, higher education and others took part in this assessment, specifically focused on NRPH's COVID-19 response. Feedback was gathered in the Summer of 2022 through quantitative (e.g. staff surveys) and qualitative methods (e.g., 1:1 interviews, focus group discussions) and was analyzed using a variety of different methods.

Figure 1

COVID-19 Evaluation Participants

SUMMER 2022

350+
NRPH frontline staff and managers completed an online questionnaire

40+
NRPH and NR Managers and Directors took part in focus group discussions

14
1:1 interviews with NRPH and NR Senior leaders

FALL 2022

50+
external stakeholders engaged via a 'Hotwash' event

Key Findings

The feedback obtained highlighted specific areas of good practice from an emergency management perspective: successfully managing tens of thousands of COVID-19 cases through case and contact management, implementing and managing large vaccine and pop-up clinics that served hundreds of thousands of clients, managing hundreds of outbreaks across high-risk facilities, providing outreach to priority groups and extensive population-level communications campaigns.

The feedback also highlighted opportunities for improvement. Some examples include enhanced emergency management planning activities including all relevant partners and stakeholders, more streamlined/timely communication of key decisions to affected internal and external groups, stronger engagement with the Board of Health, better organization and clearer information to staff around redeployments.

Recommendations

The overarching recommendation from the report was that Public Health emergency management needs to be given appropriate and dedicated time and attention routinely throughout the year. To this end, a dedicated Emergency Management Steering Committee has been struck within Public Health, and has been tasked with coordinating, leading and implementing the recommendations presented in this report on behalf of NRPH.

1 Introduction

"Public Health can be disrupted by emergencies or disasters with serious and irreversible impacts on human health. The mandate of Public Health organizations is to protect and promote the health of populations."

– Public Health Ontario, 2022

1.1 Purpose

This report evaluates NRPH's response to the COVID-19 pandemic in order to inform future public health emergency planning and preparedness activities.

1.2 Objectives

- Gather insights from staff and stakeholders on NRPH's response to the COVID-19 Pandemic
- Evaluate quantitative and qualitative feedback and identify major themes and recommendations from an emergency management perspective
- Apply lessons learned to prepare for infectious disease outbreaks, future pandemics and/or public health emergencies

1.3 Background

Emergency Management and Public Health

Effective emergency management ensures that Boards of Health are ready to cope with and recover from threats to public health or disruptions to public health programs and services. This is done through a range of activities carried out in coordination with other community partners including evaluating a response to an emergency so that we can integrate these learnings into future plans. NRPH's emergency management work is directed by the *Ontario Public Health Standards (2021)*.

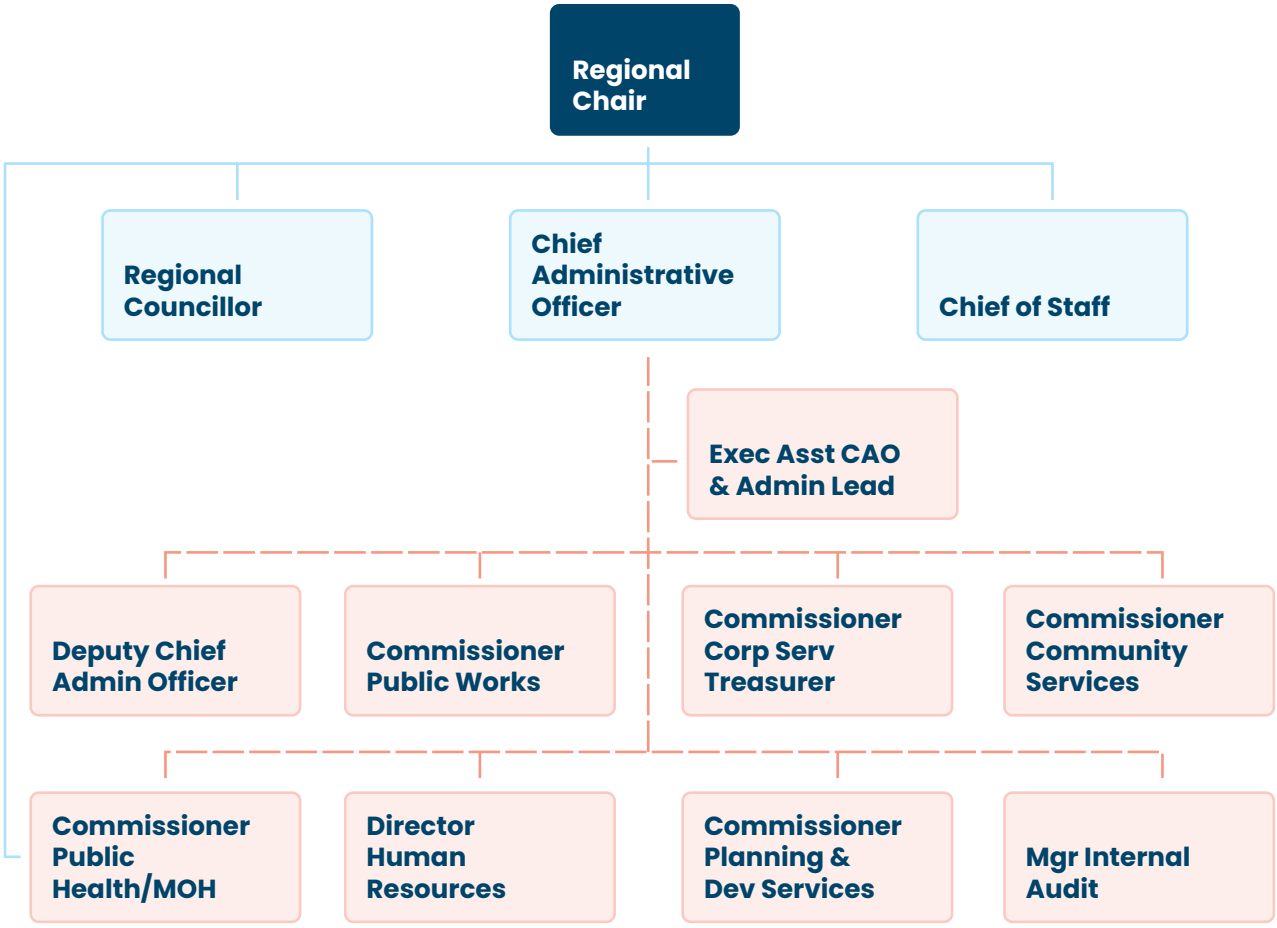
Emergency Management and Incident Management System

The Incident Management System (IMS) is used in Ontario to manage many types of incidents, whether they evolve from planned or unplanned events. IMS presents standardized organizational structure, functions, processes, and terminology. The standardized functions under IMS are Command, Operations, Planning, Logistics, and Finance & Administration. Standardized processes allow all who respond to the same incident to formulate a unified plan to manage the incident. The use of standardized IMS plain-language terminology reduces the risk of miscommunication among the many responders.

Therefore, the IMS system doctrine underpins the framework of the Emergency Operations Centre (EOC) (Incident Management System for Ontario, December 2008). EOCs are a crucial part of Emergency Management. NRPH is a member of a regional structure for municipal emergency management that aims to coordinate preparedness for emergencies. NRPH's policies define the conditions and procedures for using the IMS system and processes to coordinate activities.

Niagara's first case of COVID-19 was reported on March 13, 2020 and the Region declared a state of emergency on March 17, 2020. The Niagara Region Public Health (PH-EOC) and Niagara Region (R-EOC) EOCs were activated in early 2020 and were a place for emergency management personnel to coordinate operational information and resources WHO (2023) Emergencies (Operations). The PH-EOC was chaired by the Acting Medical Officer of Health (MOH) while the R-EOC was chaired by the Chief Administrative Officer (CAO) of Niagara Region. EOC Meetings were held 7 days a week for a significant period of the pandemic before decreasing to 5 and then 3 days a week during the latter parts of the Pandemic. Both the Acting MOH and the CAO attended Board of Health meetings regularly to provide updates.

Figure 2: Niagara Region Structure



Temporary structural changes within Public Health

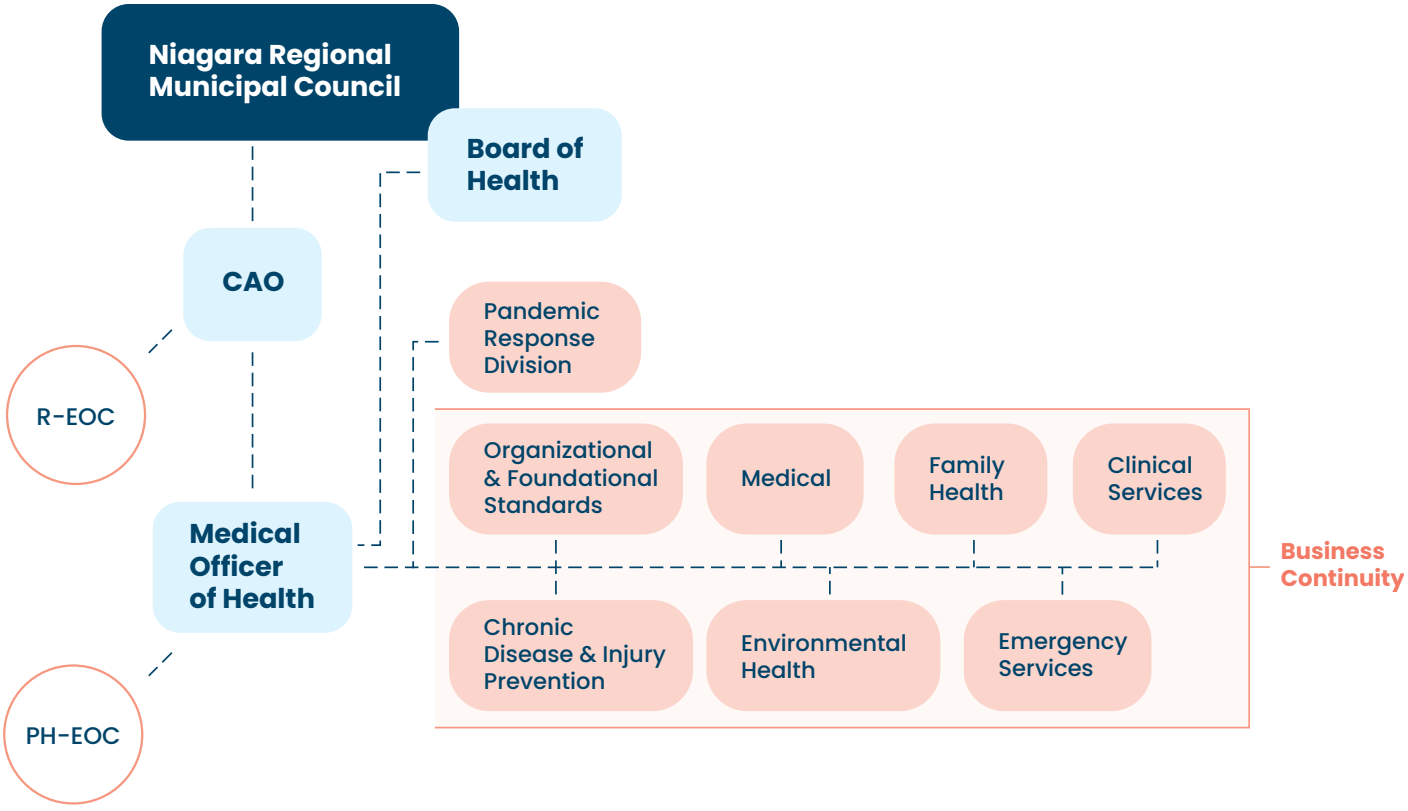
Niagara Region Public Health and Emergency Services is composed of the Public Health section and Emergency Services section. While emergency management resides in Emergency Services, this evaluation focuses on Public Health. Emergency services was not evaluated as their work differs significantly. NRPH is normally composed of six divisions - Medical, Organizational & Foundational Standards, Family Health, Environmental Health, Clinical Services, Chronic Disease & Injury Prevention - plus Emergency Services, which includes Niagara EMS. Staff with emergency management/pandemic related knowledge and skills were generally housed within the Clinical Services Division, Environmental Health Division and Emergency Services Division.

During the COVID-19 Pandemic, a temporary Pandemic Response Division (PRD) was created and ran from 2021 to 2022. This was created to consolidate the Pandemic Response efforts to one division and to allow the

remaining divisions to focus on Business Continuity (BC) efforts. The vast majority of staff redeployments and external hires to NRPH were in support of the work of PRD. A temporary Chief of Staff position was also created to link the PH-EOC with the R-EOC and to support all PH Directors and the Acting MOH during the Pandemic.

While PRD mainly focused on case and contact management, outbreak support, vaccine-related activities, and more related to the COVID-19 response, the divisions within BC (Clinical Services, Chronic Disease and Injury Prevention, Family Health, Organizational and Foundational Standards, Emergency Services, Environmental Health) focused on maintaining all other essential public health services such as mental health, sexual health, child health, public health inspection, emergency services, youth vaccination programs, health promotion, as well as surveillance programs related to other diseases of public health significance. BC leadership also worked to ensure BC services were prioritized according to population need and were adequately staffed through hiring of new staff or repatriating staff from PRD.

Figure 3 VISUAL OF TEMP STRUCTURAL CHANGE



2 COVID by the Numbers

This section provides context around the scale of the response including, cases, outbreaks and vaccine related statistics.

Include dates – January 1st 2020 to May 31st 2022

CASES

41,228 Confirmed Cases

711 Confirmed Outbreaks

VACCINATIONS

1,080,551 Total doses administered to Niagara residents

95 Pop-up Clinics

240 days open

15 Fixed Clinics

633 days open

Note: *This doesn't include all vaccination events as some don't meet the definition of either fixed or pop-up.*

PUBLIC INQUIRIES

Chats responded to:
17,035

Calls responded to:
186,750

Chat line response rate:
83%

Call line response rate:
85%

Chat line requests:
20,532

Call line requests:
219,193

Note: Call data includes main line, physician response line and duty officer line.

The COVID-19 Pandemic required public health units across the province to scale up the number of staff supporting Pandemic work and Niagara was no exception. This was accomplished through internal redeployments and external hiring activities.

365
staff redeployed from their home roles throughout the entire acute phase of the Pandemic

275+
new external staff hired to directly support pandemic work which had impacts on HR/IT/Managers/Staff training

On average, staff were redeployed **twice**, for an **average number of 93 days each time.**

3 Results

The '**Public Health Ontario Emergency Preparedness Framework**' (Kahn et al., 2020) and the corresponding NCC Determinants of Health document '**Measuring What Counts in the Midst of the COVID-19 Pandemic: Equity Indicators for Public Health**' (Haworth-Brockman and Betker, 2020) were identified as key sources to underpin the evaluation and were comprised of detailed indicator frameworks. Also, the categories listed by the Council of Medical Officer of Health (COMOH, 2020) '**Public Health System Evaluation and lessons from the First Wave of COVID-19**' report were used to simplify the data collection process and the interpretation, theming and dissemination of results. Each of the 60+ emergency preparedness (Kahn et al, 2020) indicators were aligned to one of the COMOH themes (1) Prevention and Preparedness (2) Partnership (3) Coordination (4) Workforce and (5) Digital Solutions. Health equity indicators were woven throughout the entire COVID-19 response evaluation framework.

3.1 Prevention and Preparedness (Theme 1)

"The primary purpose of emergency planning is to mitigate loss, support response, and encourage the use of appropriate protective actions. An effective emergency plan increases the preparedness of an organization to take action to prevent an emergency from escalating into a disaster." **- Martel P, 2019**

Proactively preparing and planning for emergencies is a crucial function of local Public Health agencies and explicitly required within the Ontario Public Health Standards. Dynamic and coordinated emergency planning outlines organizational responsibilities and priorities for times when pressures are heightened, and resources may be limited.

3.1.1 Questions

- *Has Public Health developed a plan through a dynamic, collaborative process?*
- *Did Public Health invest in testing and practicing plans and processes?*
- *Did Public Health understand community risks and hazards?*
- *Did Public Health evaluate as a strategy to build resilience?*

3.1.2 Results

The Public Health response to COVID-19 required unique, unforseen mass non-pharmaceutical measures to slow the spread of disease and ensure hospital capacity was not overwhelmed. As pre-exsiting plans did not account for these scenarios, they could not be used in many instances, requiring the creation of new operational plans. Over the course of this large evaluation, it was found that NRPH's historical emergency plans, including pandemic plans, were dated and abstract in their level of detail. Although the annual review of Emergency Management plans met compliance standards, it was recognized throughout the early stages of the Pandemic that this process did not translate well to a real-world scenario, and did not help prepare staff for the realities of a full-scale emergency. Staff feedback also demonstrated that these historical emergency plans did not include tools for implementation.

Pre-Pandemic, the Niagara Region Emergency Management team led most training and practice of general emergency plans for the Regional corporation, although NRPH undertook some public health specific divisional preparedness activities. For example, there was a strong focus on emergency preparedness within two NRPH divisions, Environmental Health & Clinical Services, through training as well as inspection tools and supports. Feedback obtained during this evaluation identified that emergency preparedness responsibilities and activities were not cohesive pre-Pandemic and continue to remain fragmented across NRPH and the Region. A wider cross-section of NRPH staff had not been consistently included in such exercises, leading to organizational knowledge gaps.

The ability to change plans and adjust to changing needs of any emergency, due to evolving science, direction from the Ministry, or other changes in the situation was noted as a very necessary skillset from an emergency response perspective, but one which was not included pre-Pandemic within emergency preparedness training and scenario planning.

An emergency risk analysis is a process to identify, assess and prioritize the potential hazards and impacts that could affect the organization,

community or environment and the technical term for this is a Hazard Identification and Risk Assessment (HIRA). Although risks and hazards to the broader community were well understood by NRPH throughout the Pandemic, a defined risk analysis framework was not formally integrated into emergency preparedness documents and planning activities. Throughout the Pandemic, NRPH worked diligently with internal and external partners to ensure that the unique needs of certain population groups, including underserved and marginalized groups, were considered. NRPH demonstrated this by integrating health equity considerations into emergency planning and operations throughout the Pandemic, but on reflection this could have been more cohesively integrated across all prevention and planning functions.

Ongoing evaluation is an effective part of any emergency response, and small informal evaluations were undertaken throughout the Pandemic, including within daily huddles, small quality improvement initiatives and some vaccine clinic evaluations. However, plans and processes for regular self-assessment and evaluation were not embedded into NRPH Emergency Management plans before or during the Pandemic.

3.1.3 Recommendations

- Undertake a comprehensive review and update of historical Emergency Plans, including Pandemic plans, in order to incorporate learnings from the COVID-19 Pandemic
- Undertake comprehensive hazard identification and risk assessments (HIRA) across NRPH to feed into Emergency Management plans
- Ensure NRPH leaders undertake risk management training as it pertains to Emergency Management
- Draft plans for commonly encountered emergency scenarios, including plans for all stages of the emergency response
- Create emergency plans, training and exercises in collaboration with relevant internal and external partners
- Include representation from all NRPH divisions in yearly Emergency Management training and exercises
- Include a self-assessment process/evaluation across Emergency Management activities

3.2 Partnerships (Theme 2)

"Emergencies are managed first at the local level – for example, by first responders such as medical professionals and hospitals, fire departments, the police and municipalities."

- Government of Canada, 2022

Partnerships and strong networks enable a collaborative and coordinated approach to emergency management. This approach also provides access to expertise across a range of hazards and impacts. Community engagement allows for authentic consideration of community risks, assets, values and facilitates transparency.

3.2.1 Questions

- *Did Public Health develop relationships, partnerships and strong networks?*
- *Did Public Health understand and engage with the community?*

3.2.2 Results

Pre-existing NRPH emergency plans were not developed in collaboration with external partners and therefore did not necessarily reflect their views or needs. External stakeholders also stated within their feedback that collaborative emergency management planning and testing, including pandemic plans, could have been strengthened across the entire health sector within Niagara. While mutual aid agreements existed with health sector network partners that described how resources would be shared during an emergency, these did not include sharing of staff.

Niagara Region's Emergency Management team maintained the Niagara Region Emergency Contact Directory and had a mechanism in place for contacting all network partners through email. NRPH had strong working relationships across various community sectors and throughout the pandemic established new meaningful relationships with many priority populations. For example, NRPH demonstrated early engagement with the Niagara Indigenous Community and Long-Term Care Homes in addition to maintaining mostly strong relationships with migrant workers, school boards, higher education institutions and primary care providers. Furthermore, Pandemic work between NRPH and Community Services allowed NRPH programs and services to better

engage with priority populations and continue to build on these successes.

However, NRPH lacked the capacity to sustain consistent communication and engagement with all community partners. Some staff reported that certain relationships were damaged as a result, while others stated that our community partners believed that NRPH did an exceptional job throughout the Pandemic.

Among many external partners and the general public, there was often confusion around NRPH's role versus the roles of the hospitals and the province. The majority of public health restrictions, guidelines and orders, as well as vaccine prioritization decisions, were issued by the Province, often with tight deadlines, which created communication and operational challenges for NRPH. As the local face of public health in Niagara, NRPH was often the recipient of frustration and questions surrounding provincial decisions, an experience shared by many other public health units. Prioritization of COVID-19 vaccine recipients is an example where there was significant frustration directed at NRPH, even though decisions were mostly made at the provincial level. However, at times, Niagara provided local direction that diverged from the Province. This understandably led to some confusion among residents and businesses, translating into communication and operational challenges for NRPH.

There also were difficulties in the navigation of the NRPH's relationships with Regional Council and other elected officials. This was especially true with regards to public health orders issued at the local level, with Council and others feeling that Public Health's decision-making process lacked transparency and proper communication. Over the course of the Pandemic and in response to these relationship challenges, several committees were struck by Niagara Region and NRPH to improve two-way communication and build positive relationships with partners. Key senior members of NRPH staff also worked closely with Regional councillors and the Chief Administrative Officer to ensure questions and concerns were being addressed in a timely manner. The Acting MOH provided regular updates to Regional Council and committees through a variety of methods, including presentations with question-and-answer sessions.

In terms of public communication, NRPH created and endorsed general public educational campaigns throughout the Pandemic to educate the public on COVID-19 generally as well as messaging for those at higher risk of morbidity and mortality from the disease. NRPH also engaged with and responded to the general public using a variety of other methods such as a call centre, email, live chat, interpretation services, social media and online and print media articles.

3.2.3 Recommendations

- Integrate insights and recommendations from key partners into future emergency plans
- Perform regular cooperative emergency management planning activities for a variety of scenarios with relevant external partners
- Ensure NRPH's role is made clear to key partners during emergencies
- Review and evaluate relevant Mutual Aid Agreements with relevant partners, and ascertain how to update and incorporate such agreements into future emergency management planning
- Assign a mid-senior level role dedicated to act as the point person for identifying and coordinating responses for priority populations inequitably impacted

3.3 Coordination (Theme 3)

"Emergency management roles and activities are carried out in a responsible manner at all levels of society in Canada. Legal and policy frameworks and other arrangements establish guidelines and standards to ensure that due diligence is exercised, and accountability is respected in the conduct of emergency management activities. Emergency management responsibilities in Canada are shared by Federal, Provincial and Territorial governments and their partners…."

- An Emergency Management Framework for Canada

3.3.3 Question

- *Does Public Health have an integrated structure, partnerships, and accountabilities with clear leadership?*

3.3.4 Results

Niagara Region's Emergency Management team is situated within the Emergency Services division and has connections with other emergency management practitioners across Niagara and beyond. However, prior to the Pandemic there was limited health sector emergency management

coordination across Niagara or with close neighbours. While NRPH does have regular meetings and collaboration with other local public health units on other topic areas, the existing NRPH emergency plans do not interlock with the other stakeholders for multi-jurisdictional response.

The response to COVID-19 created immediate financial challenges for many Public Health Units across the Province. As part of Niagara Region, NRPH had the ability to apply and access Regional reserve funding from fall of 2020 until COVID-19 funding reimbursement came through from the province in 2021, which led to additional stability in response and supported the creation of the PRD Division. NRPH also had a dedicated program financial specialist and was supported by the corporate procurement team to help navigate the financial reporting and procurement related to the COVID-19 response.

The Incident Management System (IMS, 2023) is Ontario's official integrated emergency response methodology and is known by leaders across the Region. In response to COVID-19, the PH-EOC was activated in a limited capacity in January 2020, which then increased to a full-scale activation in March 2020. The R-EOC was also activated in March 2020. The presence of two EOCs within the same organization led to confusion at times, unnecessary duplication and diverged from emergency management principles.

While the temporary PRD (figure 2) did help to focus pandemic related resources, it caused a staffing imbalance between Business Continuity (BC) divisions and PRD operations which led to tensions, staff disengagement and morale issues across the department. Internally there were noted challenges with the communication of priorities, decisions and strategic direction by the Senior Leadership Team, particularly in earlier stages of the Pandemic. These were reoccurring themes across the staff survey and staff focus group responses.

It should be noted that coordination, collaboration and engagement did improve between BC and PRD over the course of the Pandemic, with better connections and in-depth consideration of broader impacts. Many staff also noted that there was a heightened degree of collaboration and integration between BC divisions, which increased the efficiency and overall impact of their work.

3.3.3 Recommendations

- Clarify key roles and decision authority during an emergency and provide education/training to NRPH leadership, the Corporate Leadership Team and key partners, including the Board of Health, on EOC structure, scope, responsibilities and leadership competencies
- Update emergency management plans and undertake emergency management exercises with key partners to ensure vertical and horizontal multi-jurisdictional response to emergencies
- Identify the conditions and processes for using the IMS structure for different types of emergency scenarios
- Create a streamlined process to communicate decisions to staff and stakeholders during an emergency

3.4 Workforce (Theme 4)

"Today's health emergencies are increasingly complex. We live in a globalized, urbanized and connected world where people, vectors and goods are constantly on the move. These movements amplify the threats to our health from infectious hazards, natural disasters, armed conflicts and other emergencies wherever they occur. Past crises have taught us that even the most qualified personnel require continued learning to respond safely and effectively to these 21st century threats. We need a ready, willing and able workforce – a workforce for excellence – that can be called upon to help save lives, reduce disease and suffering, and minimize socio-economic loss to affected communities and countries."

– Training for emergencies, WHO, 2023

3.4.1 Questions

- *Did Public Health ensure dedicated resource capacity and mobilization capacity?*
- *Did Public Health develop and support knowledgeable staff and resilient staff?*

3.4.2 Results

From a workforce perspective, many NRPH staff valued the new opportunities afforded to them during the Pandemic, reporting that they were able to expand their skillsets and grow professionally through new roles required during the pandemic response. When staff were asked to rate their overall experience supporting NRPH's COVID-19 response, 64 per cent of staff selected "Excellent" or "Good." Additionally, 79 per cent of staff respondents indicated that if they were given the opportunity, they would opt to support a COVID-19 response again. Staff were asked what they enjoyed most about working to support Pandemic work and the top three themes include: supportive co-workers (30 per cent), meaningful to help with Pandemic efforts (28 per cent) and teamwork (28 per cent). Operational teams used good practices for staff recognition and communication through daily huddles. Staff also noted that there was a heightened degree of collaboration and integration between NRPH non-Pandemic divisions, which increased the efficiency and overall impact of their work. The Acting MOH was seen to be present and made NRPH frontline staff feel well supported.

Early vaccine clinics in 2021 as well as vaccine clinics for Indigenous communities were also viewed as a highlight of the Pandemic response by all levels of staff. Many NRPH staff reported high morale and positive feedback from clients, which had a positive impact on staff. There was an effort to ensure dedicated resource and mobilization capacity across many groups who face systemic barriers. For example, NRPH staff went out to a variety of congregate settings, addiction centres, homeless shelters and detention centres to support infection prevention and control, case and contact management and vaccination efforts.

Through the Pandemic, temporary logistics staff were hired to successfully support and coordinate supply procurement, inventory management, storage and dispensing procedures. Although pandemic supply inventory was tracked pre-Pandemic across multiple program areas within Public Health, there was no central repository documenting these physical resources. Permanent solutions for the centralized documentation and storage of emergency/pandemic supplies remains outstanding. As was the case with many organizations, some of the available stock was expired at the beginning of COVID-19 and staff procuring supplies reported that it was extremely challenging due to global supply chain issues.

From an education perspective, not all staff had the opportunity to undertake relevant emergency management training before or during the pandemic. Prior to the pandemic, a review was undertaken and a decision

was made to adopt a 'just-in-time' training approach to emergency management for nursing staff. This was found to work well in ensuring newly redeployed staff were adequately prepared for COVID-19 related work. However, some staff felt that their knowledge and skills were not utilized through redeployment even though significant staffing challenges existed. Feedback from both BC and PRD sources stated that there were also occasions when it was felt that redeployed staff were retained for too long within PRD in anticipation of another case surge at the detriment of BC operations. PRD managers reported instances where staff were very reluctant to being redeployed, causing tensions. Communication to staff was unclear on how redeployments and positions were being created and rolled out across the department, or how these would impact their home divisional work. This led to frustrations with the perceived lack of transparency.

Staff reported that COVID-19 related sick time policies provided assurance to them that their safety and the safety of clients was prioritized. When asked what they disliked about working to support the COVID-19 response, staff responses reflected high stress levels and overwork. Factors included Ministry mandated Christmas Day vaccine clinics, checking emails late at night for updates, especially late Friday evening Ministry emails, late/evening/weekend Ministry meetings, and the idea that it was a badge of honor to work 24/7. This became more normalized as the Pandemic went on and staff reported feeling burnt out.

3.4.3 Recommendations

- Review and address gaps within corporate policies and procedures with regards to Emergency Management to promote staff health and wellbeing, and to prevent burnout
- Ensure NRPH leaders model appropriate behaviours in terms of working long hours and email etiquette i.e. sending work emails after hours
- Mandate relevant Emergency Management training and education for all levels of staff within NRPH to ensure emergency management competencies and skills are better distributed across all divisions
- Identify electronic documentation/tracking solution for emergency management related physical resources and advocate for permanent accountability and storage for emergency resource management
- Create clear process and guidance resources on redeployment and repatriation for leaders and staff
- Communicate redeployment/repatriation information as quickly and

transparently as possible in future scenarios

3.5 Digital Solutions (Theme 5)

Public health surveillance is the continuous, systematic collection, analysis and interpretation of health-related data. An effective disease surveillance system is essential to detecting disease outbreaks quickly before they spread, cost lives and become difficult to control (*Surveillance in emergencies*). Communicators must adapt messages based on the rapidly changing status of the threat to public health. To move the target audience towards actions to protect families, communities, and nations in an emergency, communicators need strategies and tactics for creating effective messages (*Communicate in emergencies*). During an emergency, situations can change quickly, requiring coordination between surveillance activities and communication for internal planning and priority setting, as well as external communications.

3.5.1 Questions

- *Did Public Health have timely information to provide situational awareness and guide action?*
- *Did Public Health have a strategy to deliver clear, consistent messaging across networks and the public?*

3.5.2 Results

During the Pandemic, NRPH's presence on social media and official website provided timely, reliable and accurate information to the public. Staff reported that the Acting MOH showed exceptional leadership in terms of public and media engagement.

However, there were times where local NRPH guidelines differed from Provincial guidelines, which caused confusion among certain partners and the general public.

The response to the COVID-19 pandemic provided significant learnings that can be applied to overall surveillance efforts, including enhanced data science and engineering knowledge within the team, as well as the use of dashboards to track data in almost real-time. These learnings have been applied to new surveillance initiatives including for the Canada Summer Games (2022) dashboards. The informatics and analytics team also increased their knowledge in the areas of data governance, privacy and data quality by working with large new Ministry databases and having

expert advice from the Niagara Region Health Information Manager and Privacy Advisor.

From an equity perspective, although NRPH surveillance systems in case and contact management and COVax include health equity stratifiers, these were not mandatory fields, which resulted in poor data collection and made the data unusable to support planning efforts in regard to priority populations. This made the communication of appropriate health messaging a challenge. Furthermore, NRPH communications strategies have not typically included plans for ensuring cultural competency or sensitivity to impacted communities and this needs to be addressed.

Due to the new data sources available, and with corresponding new data agreements encompassing privacy and legal considerations, information and data sharing practices were sometimes slow and not streamlined. This negatively impacted NRPH's ability to share data in a meaningful way with health system partners.

Other feedback included that while members of the R-EOC received regular data updates and had access to dashboards and daily data updates, they reported they would have preferred information on what should be actioned in response to the data.

3.5.3 Recommendations

- Evaluate current information and data sharing processes with relevant organizations and develop policies/procedures to support timely surveillance and sharing
- Incorporate equity questions for our clients within our Electronic Medical Record and Health Assessment data where possible and use these equity data to make informed decisions with regards to service provision for priority populations.
- Through the Council of Medical Officers of Health, advocate for consistent equity indicators to be included within Ministry databases.
- Work with the Region's Strategic Communications and Public Affairs team to ensure message consistency and/or coordination with relevant network partners
- Review all forms of communication with the public to ensure that groups who are not digitally or technologically literate have access to timely and relevant information throughout an emergency
- As part of the Information Governance Strategy, enhance digital and data literacy competencies in senior leaders to ensure solid foundational knowledge in data driven decision making during an emergency

4 Conclusion

> *"Given all of that, the burden of the pandemic we experienced in Canada was probably lower than many other countries, and it was probably related to the engagement we had with things like vaccination and the restrictions that were experienced here."*
>
> **– Razak, 2022**

NRPH undertook a comprehensive approach to the evaluation of the COVID-19 Pandemic response. This evaluation was underpinned by Public Health-specific emergency management frameworks and allowed NRPH to complete an in-depth review across a broad set of indicators encompassing readiness, response and recovery.

It is evident from this report that the response to the management of COVID-19 required a huge effort across all of NRPH. The Pandemic was an unprecedented emergency event, with the acute phase lasting well over two years. NRPH specifically, and Niagara Region overall, played a crucial role in promoting and protecting the health of the public. NRPH led many key interventions which were overwhelmingly successful in their implementation.

Insights from more than 450 internal staff and external stakeholders, were gathered, collated, themed and summarized. While survey and focus group respondents outlined difficulties and negative experiences with aspects of the NRPH COVID-19 response, there were also many instances of positive feedback which were highlighted throughout this report.

Lessons learned from this Pandemic response have already been integrated into planning and operational processes. Most significantly NRPH has struck an Emergency Management Committee to help steer and implement the remainder of the recommendations from this report. NRPH also has dedicated Emergency Management personnel offering consultation and support to the roll-out of these recommendations. This will strengthen our emergency preparedness for future responses within Niagara.

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5 Appendix – Methods

5.1 Environmental Scan

An environmental scan was undertaken to determine the best approach to an organizational evaluation of a multi-year NRPH Emergency. The '**Public Health Ontario Emergency Preparedness Framework**' (Kahn et al., 2020) and the corresponding NCC Determinants of Health document '**Measuring What Counts in the Midst of the COVID-19 Pandemic: Equity Indicators for Public Health**' (Haworth-Brockman and Betker, 2020) were identified as key sources to underpin the evaluation and were comprised of detailed indicator frameworks.

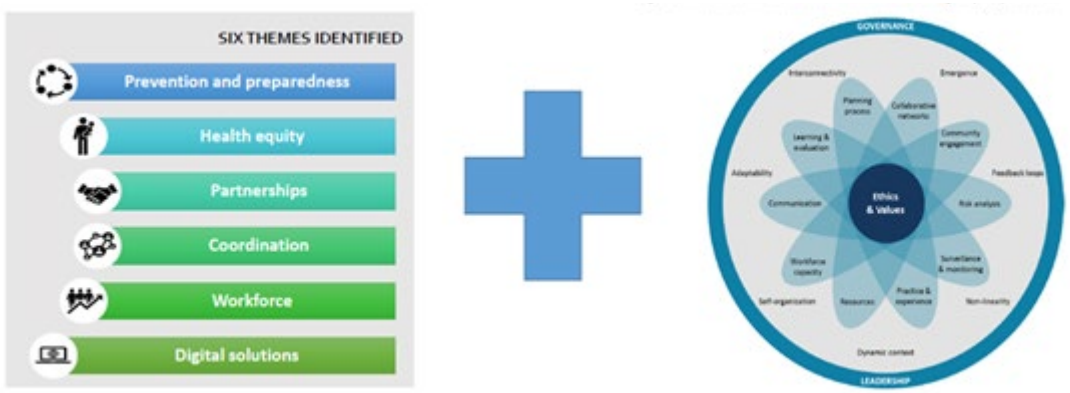
With an upstream orientation, these frameworks apply to all aspects of emergency management, include an equity lense to emergency preparedness, and promote resilience in the public health system. The framework identifies 11 essential elements (with 60+ indicators) and how they interact as a complex adaptive system and it applies to all aspects of emergency management, **encompassing readiness, response and recovery**.

5.2 Final Evaluation Framework

While the Kahn et al (2020) and the Haworth-Brockman and Betker (2020) documents were deemed to be exceedingly useful in obtaining in-depth granular information in relation to emergency preparedness; it was also felt that it would be difficult to provide high level themes to simplify the overarching results and recommendations.

Therefore, the categories listed by the Council of Medical Officer of Health (COMOH, 2020) '**Public Health System Evaluation and lessons from the First Wave of COVID-19**' report were used to simplify the data collection process and the interpretation, theming and dissemination of results. Each of the 60+ emergency preparedness (Kahn et al, 2020) indicators were aligned to one of the COMOH themes (1) Prevention and Preparedness (2) Partnership (3) Coordination (4) Workforce and (5) Digital Solutions. Health equity indicators were woven throughout the entire COVID-19 response evaluation framework.

Figure 4



5.3 Data collection and analyses

A variety of quantitative and qualitative methods were used to obtain feedback from key stakeholders.

More than 350 Public Health staff completed a survey, which gathered both quantitative and qualitative feedback from mainly frontline staff and managers. Quantitative results were analysed using Excel whereas qualitative feedback from the staff survey were thematically analysed using NVivo software. NRPH&ES staff that supported COVID-19 Pandemic work were also explicitly asked to fill out survey sections that reflected the area of Pandemic work that they supported (Case & Contact Management, Outbreak Management, Call Centre, Mass Immunizations, Analytics & Planning or Logistics), with an overall section at the end. Survey questions were grouped into four themes:

- Roles & Responsibilities
- Training & Onboarding
- Lead Support
- Communication

Focus group discussions were held with key Public Health Managers (n = 2 focus groups with approximately 6 individuals per group) with wide ranging exposure to both Pandemic and Business Continuity operations during the Pandemic using questions derived from the final framework i.e. combination of COMOH and PHO frameworks. A further 4 focus groups were held with Corporate Stakeholders with representation from IT, Finance, Procurement, HR, Corporate Communications, Emergency Management, etc. and each of these groups had approximately six individuals per group. The same PHO and COMOH frameworks were also used to underpin these

focus group discussion questions, and a facilitator with a note taker guided the session, moderated the discussion and documented the interactions. Qualitative feedback from each of these focus groups were thematically analyzed and results synthesized to identify overarching themes.

One-on-one interviews were held with all members of the Senior Leadership Team (n = 12) using the PHO and COMOH frameworks who were asked to rank the indicators from the PHO framework on a five-point scale to obtain thorough Emergency Preparedness insights.

One-on-one interviews were held with the CAO and the Commissioner of Community Services and these questions were also aligned to the PHO/COMOH frameworks.

Finally, when the Niagara Region Emergency Management team undertook a COVID-19 Hotwash, large feedback session with stakeholder representatives (n = 50+ individuals) from across the health and emergency sectors within Niagara and across the neighboring Region (e.g. Hamilton) in October of 2022; the COVID-19 Evaluation team worked with Emergency Management to facilitate multiple focus group discussions on the day, gather feedback and record all of the content. Public Health specific qualitative feedback from this particular event was also themed and incorporated into this report.

In an effort to obtain insights into some crucial HR and Administrative functions, redeployment and hiring data were extracted from the HR Database (Peoplesoft) to identify counts of hiring, redeployments and repatriations throughout the duration of the acute phase of the Pandemic. This was undertaken to obtain an appreciation of the burden of hiring/redeployments/repatriations on HR/Administrative and IT professionals specifically. For example, redploying current staff and hiring new staff required intensive support from HR, administrative professionals and IT for interviews, technical training and onboarding.

Overarching quantitative and qualitative results from each sources listed above, were distilled and synthesized to identify overarching results and recommendations.

Niagara Region

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