PUBLIC HEALTH SERVICES DIVISION

REPORT TO:	**WARDEN AND LAMBTON COUNTY COUNCIL**
DEPARTMENT:	**LAMBTON PUBLIC HEALTH**
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REVIEWED BY:	**Andrew Taylor, General Manager** **Stéphane Thiffeault, Chief Administrative Officer**
MEETING DATE:	**April 5, 2023**
INFORMATION ITEM:	**After Action Review of Lambton Public Health's COVID-19 Pandemic Response and Summary of Lessons Learned**

BACKGROUND

Over the course of the last three years, with the help of strong local partnerships, Lambton Public Health (LPH) has played a leading role in Lambton County's COVID-19 pandemic response, providing critical supports and services to our community including case and contact management (CCM), immunization, community engagement, and non-COVID-19 critical public health services. Since the first cases of COVID-19 in Lambton County were reported on March 25, 2020, LPH has intently responded to the most prolonged public health emergency in recent history.

Beginning in late spring of 2022 when LPH started to transition out of its COVID-19 emergency response efforts and began recovery planning, management actively prioritized conducting an internal After Action Review (AAR) of our pandemic response to reflect and assess strengths and challenges experienced throughout the response. The lessons learned from this review will be used to improve ongoing response work and to strengthen our preparedness for future public health emergencies.

The scope of this reported portion of the AAR was internal only and focused on challenges and best practices that occurred within LPH, rather than challenges experienced by external organizations that may have impacted our services. LPH will conduct a further review in 2023 that will include key external partners and stakeholders in order to gather lessons learned from an external perspective.

The key findings and recommendations identified through LPH's AAR were summarized in the attached report, "*Progressing beyond the Pandemic: Lessons Learned from Lambton Public Health's COVID-19 Response*" (Appendix A). This report summarizes the key lessons learned from LPH's internal pandemic response in providing critical supports and services to our community.

DISCUSSION

LPH utilized the AAR framework to complete its internal review of the pandemic response. An AAR is a qualitative method used for debriefing following an emergency response; it is especially useful for breaking down long-term emergencies such as the COVID-19 pandemic and has been adapted for use in public health settings by the World Health Organization.

LPH's review looked at the five pillars of the local public health response including CCM, immunization, community engagement, emergency response coordination, and non-COVID-19 critical public health services. The objective of the review was to answer the following questions for each of the five pillars:

1. What were the most impactful best practices, and what allowed us to implement them?
2. What were the most impactful challenges, and why did they occur?
3. What actions should be taken to address these challenges, build on these best practices, and ultimately improve LPH's emergency response capacity?

The scope of the AAR was limited to challenges and best practices experienced within the organization during the peak response period of the COVID-19 pandemic (2020 and 2021). Additionally, participants were asked to focus on challenges and best practices that occurred within LPH, rather than challenges at other organizations that may have impacted LPH. This allowed participants to prioritize discussing barriers and facilitators that were within the organization's control or sphere of influence.

LPH's AAR used debrief sessions, key informant interviews, and qualitative questionnaires to engage with different groups of participants. From July to November of 2022, six debrief sessions and three key informant interviews were conducted, along with a qualitative questionnaire that was completed by selected staff.

KEY RESULTS

The following is a summary of the best practices and challenges that were identified through the AAR.

Key Best Practices Identified:

- **Implementing a previously established emergency response plan based on an Incident Management System (IMS) framework** - LPH's emergency response plan is based on the IMS framework, designed to provide timely and effective mobilization of public health staff and resources during an emergency response. The LPH plan specified IMS roles for an incident management team, and when activated, this role clarity helped to streamline decision making.
- **Developing new internal communication practices** - LPH implemented new internal communication practices to help keep pace with the pandemic's 24-hour information

cycle. Frequent, recurring team meetings, also known as "huddles", allowed for efficient information sharing and helped bring staff up to speed on new information.

- **Taking advantage of new remote work tools** – Tools to support remote work, for example, Cisco Jabber for instant messaging, Zoom and Microsoft Teams for virtual meetings, Verto for online vaccine booking, and mobile phones for communication allowed for safer working environments for staff both on-site and at home, more efficient communication, enhanced documentation of past work, and improved access to information.
- **Establishing new interdepartmental leadership roles** - Lead roles were developed to be responsible for remaining up to date with setting-specific guidance, and served as knowledge brokers to LPH staff, partner organizations, and the public. Implementing these new roles allowed LPH to improve accuracy and consistency in communication, reduce duplication of work, improve interdepartmental relationships, and strengthen external partnerships.
- **Streamlining external communications** - Examples included holding scheduled media briefings in order to limit sporadic media requests and having the Medical Officer of Health provide updates to a single County Emergency Operations Centres (EOC) with representation from each municipal group rather than liaising with each of Lambton County's municipal EOCs separately. In order to meet the community's need for local COVID-19 surveillance data, LPH established daily (and later weekly) surveillance reports on the public website.
- **Being flexible and adapting to constant change** - The COVID-19 pandemic demanded an abundance of flexibility from LPH as an organization. Willingness to adapt practices on short notice allowed LPH to meet the needs of priority populations, invest and innovate with new digital tools, and surpass hurdles that seemed insurmountable. The organizational culture shifted to one that was primed for constant change; creative problem solving was a necessity, and critical decisions were made quickly.
- **Adaptable human resources/funding infrastructure** - Unprecedented demands on public health during the COVID-19 pandemic required increased human resource capacity. This included the need for operations outside standard working hours, additional staff, additional managerial capacity, and effective utilization/ empowerment of staff. Taken together, this evolved into an innovative staffing model that could be scaled up or down as needed.
- **Relying on positive partnerships in the community** - LPH's pre-existing partnerships and goodwill with local organizations provided a solid foundation for the pandemic response. When LPH had to communicate with or rely upon these partners, many of the channels of communication were already there.

Key Challenges Identified:

- **Keeping up with demand** - Due to the uncertainty, and general nature of an emergency, community needs were often urgent. The public and community partners expected 24/7 access to, and service by, public health staff. This included demand for COVID-19 vaccines, access to LPH staff to consult or comment, and demand for information. As a result, organizational capacity was often strained, and staff reported stress and burnout.
- **Remaining up to date with changing guidance** - COVID-19 guidance documents were continuously being updated by the Ontario Ministry of Health and Long-Term Care as the COVID-19 pandemic evolved, which made it difficult for staff to keep up to date on the most current information. This made it difficult for staff to confidently relay newly updated information to partners and the public, which was an added stressor.
- **Adequately staffing and scheduling to match continuously fluctuating demand** - Adequate staffing and scheduling was a continuous challenge throughout the pandemic since these needed to match the local demand for public health services. Local demand was influenced by numerous factors outside of LPH's control, including local transmission; vaccine eligibility, delivery, and demand; and changing provincial guidance and regulations.
- **Decisions to allocate resources to pandemic response vs. core programming** - LPH management implemented its business continuity plan to redeploy staff and focus efforts on the pandemic response. As a result, most core programming was temporarily suspended. The duration of the pandemic response and consequently, the length of time other public health programming remained suspended or scaled back contributed to frustration among staff, clients, and partner organizations who wanted core services resumed.
- **Lack of pre-existing clarity on responsibilities of public health** - Understanding the roles and responsibilities of public health was a challenge that existed prior to the pandemic. This created additional challenges throughout pandemic response. For example, some perceptions that other organizations and the public had regarding the work and role of public health did not always align with the mandates of local public health units. This resulted in misunderstandings that impacted credibility and public trust.
- **Technology barriers** - While technology facilitated the functioning of a best practice (i.e., new remote work tools), it also proved to be a key challenge. In some cases, technology barriers created issues in new remote work tools, as well as pre-existing tools that resulted in decreased efficiency, staff confusion, and creation of workarounds to troubleshoot barriers.
- **Supporting clients with specialized needs** – Ensuring support for clients with specialized needs was particularly a challenge for teams whose work included vaccine or case and contact management elements. Clients with specialized needs/requests required additional support by staff, including additional time and resources.

- **Working with clients during challenging situations** – For LPH teams whose work included vaccines or case and contact management elements, there were particularly challenging circumstances encountered. Staff working in these areas reported frequently encountering angry/ frustrated clients exhibiting uncooperative behaviour. This resulted in added stress on staff, which had negative effects on mental health.
- **Negative impacts on staff mental health** – The negative impacts on staff mental health working through the COVID-19 pandemic was a common theme mentioned by almost every team at LPH. Negative impacts included additional stress, frustration, loss of motivation, and burnout.

Recommendations Summary

The following is a summary of the key recommendations derived from the results of the AAR that will be used to improve ongoing response work and strengthen our preparedness for future public health emergencies. The recommendations are not listed in any order of importance. Specific initiatives to achieve these recommendations are listed in the AAR report.

1. **Prioritize post-pandemic mental health supports for staff**
   - Staff in all sessions discussed the acute and chronic mental health impacts of working in public health during the COVID-19 pandemic, as well as the importance of peer and organizational support.

2. **Improve communication and transparency within LPH**
   - Consistent and efficient internal communication was identified as a challenge.

3. **Continue to break down organizational silos**
   - Collaborating across service areas during pandemic response was a strength identified in several debrief sessions. It was recommended that this continues in recovery and regular programming.

4. **Continue to engage in continuous planning and evaluation with the goal of increasing organization flexibility and effectively adapting to change**
   - It is important to take advantage of our lessons learned and apply them to future pandemic preparedness planning and advancing regular programming.

5. **Continue to refine scheduling and staffing practices for future pandemic response, and for periods when increased capacity is needed for regular programming (e.g., influenza clinics)**
   - Scheduling and staffing were common challenges identified through several pillar sessions.

6. **Continue to protect physical and mental safety of our LPH workforce**

- Staff mostly reported feeling safe and supported by management when implementing boundaries for physical and mental safety. It was identified that this support should continue in future emergencies.

7. **Continue to explore ways to evolve services to better support Lambton County residents. Support growing the community's knowledge of local public health.**
   - It was identified that sharing LPH's role in supporting the community provides more insight to how LPH operates and assists in managing expectations.

8. **Build on new and existing partnerships**
   - LPH developed strong community partnerships during the pandemic; these relationships should be maintained for delivery of core public health services and be available for future public health emergencies.

FINANCIAL IMPLICATIONS

The Ministry of Health (MOH) acknowledges that public health units continue to incur extraordinary costs associated with the COVID-19 pandemic. To date, the province has provided 100% funding to offset eligible COVID-19 related expenditures. The province expects all Boards of Health to continue to take all necessary measures to respond to COVID-19 in their catchment areas while continuing to maintain critical public health programs and services.

CONSULTATIONS

The Medical Officer of Health, General Manager, LPH Managers and staff were consulted, as necessary in the preparation of this report.

STRATEGIC PLAN

The mandatory Infectious Diseases Prevention and Control and Public Health Emergency Preparedness Programs are consistent with the principles and values identified in the County of Lambton Strategic Plan. These programs encourage Lambton's residents to care for one another and support the value of Lambton County as a healthy community. Lambton Public Health's mission is to promote and protect the health of Lambton County's citizens, including the prevention of disease.

CONCLUSION

Lambton Public Health's AAR provided an opportunity to reflect and assess strengths and challenges experienced throughout the pandemic response. Through the AAR, LPH was able to gain valuable insight on strengths and lessons learned throughout the pandemic response. Actionable recommendations for future programming and pandemic

preparedness were derived from the results of the debrief sessions. These findings are integral as LPH moves forward and shifts its work from COVID-19 response into recovery.

Next steps are intended to engage with our partner organizations and stakeholders to secure input and feedback on LPH's pandemic response efforts. Staff will report back to the Board of Health (County Council) once these survey results are available. Using this approach will help LPH to evaluate, learn, improve, and better prepare for future public health emergencies.

APPENDIX A

Progressing Beyond the Pandemic

Lessons Learned from Lambton Public Health's COVID-19 Response

On behalf of:

Lambton Public Health
The County of Lambton

February 2023

Lambton Public Health

After Action Review Report: Summary

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Acknowledgments:

The After-Action Review Team would like to thank Crystal Palleschi, Jessica Zehnal, Jennifer Beaubien, Rhonda Galler, Matthew Butler, Donna Schmidtmeyer, Kevin Churchill, and Michael Gorgey for consultation and support provided during the developmental phases of this project. Thanks also to Jennifer Renaud for technical support and notetaking, and to Daniel MacDougall, Hannah McInnis, Jessica Dobroski, and Jay VanKlinken for their contributions to the COVID-19 pandemic timeline that was used during engagement with participants. The team would like to thank Andrew Taylor, General Manager, Public Health Services Division, County of Lambton, and Dr. Sudit Ranade, Medical Officer of Health (2012-2022) for their guidance and support of the After-Action Review. Finally, the team would like to thank the staff of Lambton Public Health for their contributions to the local COVID-19 response and reflections that were foundational to the After-Action Review.

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Foreword

Lambton Public Health (LPH) fulfilled a tremendous responsibility to the Lambton community during the COVID-19 pandemic. We rearranged our operations to meet emerging needs, we worked with and guided organizations from every sector - health care (long-term care, hospitals, primary care and allied health providers), education (public and private school boards and post-secondary institutions), industries and other workplaces, governments (municipalities, our Board of Health, the province and the federal government), and answered daily calls from the public and media to address their questions about COVID-19. We worked to ensure access to COVID-19 testing and vaccination for rural, remote, and First Nations populations. We delivered the largest vaccination effort in recent times to administer one, then two, then three and more doses of COVID-19 vaccine quickly, safely, and efficiently to every age group and population as they became eligible.

There are many global learnings from this pandemic, including:

1. we are all connected to each other (even to people we've never met around the world),
2. our pre-existing vulnerabilities are made worse by pandemics and other stressors,
3. we need to champion our strengths as communities and our ability to collaborate with each other,
4. conversations in which people can disagree are important, but they only work if they are grounded in civility and respect for each other, and
5. being healthy is about much more than having health care – it involves our social, material and psychological/spiritual worlds.

Many parts of the pandemic were outside of LPH's control – the federal and provincial responses, the flow of information (or misinformation) on social

media and other media channels, and the wider effects of the pandemic on our social and physical health. As part of a more focused learning exercise, LPH is delving into the pandemic response – specifically those parts that were operationalised by or within the control of our organization. We followed a protocol for an After-Action Review, which involved consultation with many of our staff to understand what worked well and what could have been different. This report synthesizes our findings, and we hope to use them so we can learn and improve our response for future public health events. If other organizations are interested in an After-Action Review, please contact us and LPH would be happy to assist you with the process steps.

It has been a privilege to be a part of this team, and I congratulate everyone at LPH on their hard work, dedication, and compassion through the pandemic.

Dr. Sudit Ranade
Medical Officer of Health (2012-2022)

Introduction

Over the course of the last two and a half years, the COVID-19 pandemic has tested the capacity and demonstrated the importance of local Public Health Units (PHUs) across Ontario. On March 25, 2020, the first cases of COVID-19 in Lambton County were reported and LPH staff began responding to the most prolonged public health emergency in recent history. With the help of strong local partnerships, LPH played a leading role in Lambton County's pandemic response, providing critical supports and services to our community. At the highest level, these supports can be categorized into **five pillars of the local public health response (Figure 1).**

01 Case & Contact Management (CCM)

A team responsible for following up with local cases of COVID-19 and their contacts via phone within 24 hours of their positive test result. Staff provided guidance on isolation requirements, declared outbreaks, collected data, and supported other organizations in interpreting COVID-19 guidance from the Ministry of Health.

02 Immunization

Composed of two teams that were responsible for prioritizing high-risk populations as identified by Ontario's Ministry of Health. The immunization teams worked with partners such as primary care providers to increase access, and provide one-on-one education regarding COVID-19 vaccines and vaccine safety.

Fixed-site Clinic Team - Worked with partner organizations to immunize Lambton County residents against COVID-19 at mass clinics.

Mobile Team - Provided the vaccine to groups and individuals who experienced barriers to attending a clinic.

03 Community Engagement

Four key functions fell within the Community Engagement pillar. These included:

Vaccine Call Centre - A team of LPH staff that worked to book COVID-19 vaccine appointments for people who live or work in Lambton County, especially those who were unable to book appointments online. This team created a booking process that was accessible and equitable, explained eligibility requirements, updated immunization records, and referred callers to alternate options for COVID-19 vaccines in the community (e.g., pharmacies, primary care offices) when required.

Liaison Team - Staff who engaged with community members and partner organizations via phone calls, emails, and website updates to interpret public health guidance, provide responses to inquiries and complaints, and connect clients to the appropriate resources and services. Enforcement of the Reopening Ontario Act was also a responsibility of this team, alongside other community partners.

Communications - A team responsible for coordinating communication of important public health messages to the general public, elected officials, specific agencies, and priority populations. This team collaborated with knowledge experts to deliver accurate and timely information tailored to different audiences. These messages were distributed using multiple media platforms such as radio, social media, the LPH website, and media relations.

Epidemiology - Staff who monitored and reported on: the prevalence, incidence, and mortality of COVID-19 in Lambton County; the status and capacity of local systems supporting the pandemic response; the number of immunizations given in Lambton County, and community vaccine coverage. This involved developing and regularly updating tailored reports on these topics to public health professionals, partner organizations, elected officials, and the public. Other responsibilities included working to protect the personal health information of COVID-19 cases and immunization clients, and continuously monitoring and improving data quality.

04 Emergency Response Coordination

LPH's **Incident Management System (IMS)** group was responsible for coordinating and resourcing the organization's emergency response rapidly and efficiently. In addition to response coordination within LPH, this also included liaison with municipalities, school boards, the Ministry of Health, Public Health Ontario, and other important agencies as necessary.

05 Non-COVID Critical Public Health Services

A small number of staff were responsible for providing modified access to critical public health programs, including: harm reduction, sexual health services, health inspections and the Healthy Babies, Healthy Children program.

Figure 1: Pillar Objectives

Introduction

Thanks to high vaccination rates and the success of antiviral medications, among other factors, Ontarians have recently been encouraged to learn to live with COVID-19 by the Ministry of Health. In March of 2022, Ontario's Chief Medical Officer of Health issued a number of changes to directives, including less restrictive case and contact management guidance outside of high-risk settings. These changes offered local PHUs some capacity to begin returning to core public health programming while maintaining key pandemic functions such as vaccine clinics and outbreak management. During this time, LPH prioritized bringing staff together to reflect on the challenges experienced and the best practices implemented throughout the pandemic. As an organization, collecting these lessons learned is the first step in strengthening our preparedness for future public health emergencies.

This report summarizes LPH's greatest challenges and most innovative best practices during the pandemic, as told by the LPH staff who worked to keep our community safe. To compile this report, LPH conducted an **After Action Review (AAR)** (1). An AAR is a qualitative method for debriefing following an emergency response; it is especially useful for breaking down long-term emergencies such as the COVID-19 pandemic, and has been adapted for use in public health settings by the World Health Organization (1). According to Public Health Ontario, this type of review "allows stakeholders to reflect on shared experiences and perceptions of a response, and work together to identify what worked well, what did not work, why, and areas for improvement." (2).

The objective of this review was to answer the following questions for each of the five pillars of the local public health response:

1. What were the most impactful best practices, and what allowed LPH to implement them?
2. What were the most impactful challenges, and why did they occur?
3. What actions should be taken to address these challenges, build on these best practices, and ultimately improve LPH's emergency response capacity?

Methods & Materials

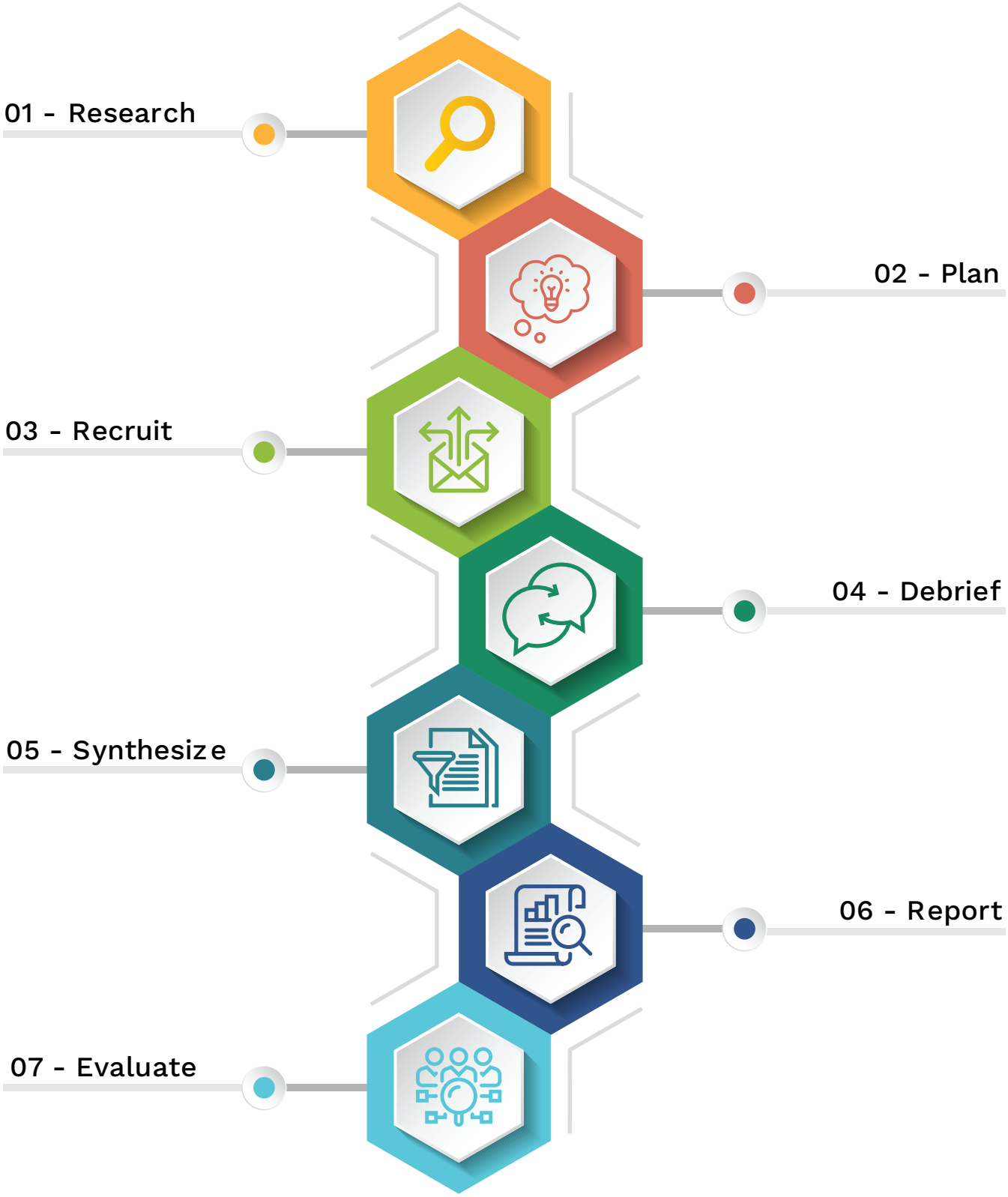


Figure 2: Methodology

Methods & Materials

RESEARCH & PLANNING

LPH formed an internal team responsible for planning and executing a COVID-19 pandemic evaluation project. The AAR was selected as the most appropriate evaluation framework based on its suitability for long-term emergency response and availability of guidance specific to public health emergencies. While planning, the AAR team referenced Public Health Ontario's Rapid Review on Best Practices for Conducting In- and After Action Reviews as part of Public Health Emergency Management (2), the World Health Organization's (WHO) "Guidance for After Action Review" (1), and Mathematica's COVID-19 After Action Review Toolkit (3).

SCOPE

AARs typically focus on several pillars, which are broad categories for emergency response functions such as Case and Contact Management or Surveillance (3). Pillars for this review were identified through discussion with managers, supervisors, and the Medical Officer of Health. The five pillars of LPH's review include Case and Contact Management (CCM), Immunization, Community Engagement, Emergency Response Coordination, and Non-COVID Critical Public Health Services.

The scope of the AAR was limited to challenges and best practices experienced within the organization during the peak response period of the COVID-19 pandemic (2020 and 2021). Additionally, participants were asked to focus on challenges and best practices that occurred within LPH, rather than challenges at other organizations that may have impacted LPH. This allowed participants to prioritize discussing barriers and facilitators that were within the organization's control or sphere of influence.

FORMAT

The WHO offers four AAR formats to accommodate varying numbers of participants and locations, resources available, and the complexity of the emergency that is under review. LPH's review was a Mixed-Method AAR (1) that used debrief sessions, key informant interviews, and qualitative questionnaires to engage with different groups of participants:

1. **Debrief Sessions** - Interactive meetings that used facilitated group exercises to guide a team of up to 12 participants to reflect on the emergency, and come to a consensus about the top challenges and best practices. These in-person sessions were three and a half hours long, including breaks, and were co-facilitated by two AAR team members. Participants were provided with the slide deck in advance so that they could choose to do some independent reflection prior to the session. Facilitators guided participants through the following five exercises. Exercises B through E were conducted twice per session - once for best practices, and once for challenges.

FORMAT

1. **Debrief Sessions (continued)**

   A. **Pandemic Timeline** - An exercise to help participants recall events that occurred during the pandemic, and place them in time. A large printout of a graph showing the local COVID-19 incidence rate over time, alongside descriptions of several key events was created. Participants used sticky notes to write down events they remembered, and spoke to them as they placed them on the timeline. Events included those relevant to public health work in general (e.g., changes in guidance or vaccine eligibility) and also those specific to teams and individuals (e.g., creation of the vaccine call centre, memories of learning a new system for the first time). This exercise served to help with participant recall.

   B. **Best Practice/Challenge Brainstorm** - Participants were asked to brainstorm their team's best practices and challenges during the pandemic. Facilitators helped the group to identify the top three-to-five most impactful challenges/best practices, and then had the group identify the impacts of each.

   C. **Impact Mapping** - Participants were given a blank graph with four quadrants, and asked to place each of the top challenges and best practices from Exercise B on the graph. The Y axis showed level of impact, and the X axis showed LPH's level of control. For best practices, the X axis read: "LPH can maintain this best practice" on one end, and "LPH can build on this best practice" on the other. For challenges, the X axis read: "LPH can't fix it (difficult)" on one end, and "LPH can fix it (easy)" on the other.

   D. **Fishbone Diagram** - Challenges and best practices that were ranked as high-impact and more within LPH's control in Exercise C were prioritized for root cause analysis using a fishbone diagram (3). For each challenge, participants were asked to consider potential causes, and place the causes within six categories: tangible, people, economic/external, managerial, organizational, and information/technology. Where possible, facilitators continued to ask "why" each cause occurred, tracing the causes of the causes.

   E. **Final Recommendations** - At the end of each session, facilitators summarized the top best practices/challenges, their impacts, impact/control ranking, and potential causes. Participants were asked to verify this information and add anything that may have been missed. Finally, participants were asked to provide recommendations for how LPH can address challenges and build on best practices to improve future emergency preparedness. Recommendations could be shorter-term (things LPH should do now), or longer-term (things LPH should work towards, or do in a future public health emergency).

2. **Key Informant Interviews** - Individual meetings where co-facilitators used an interview guide to ask the participant to reflect on the same questions posed in exercises B through E in the debrief sessions. These interviews were 1.5 hours long on average, and took place in-person or virtually, depending on availability. Participants were provided with the interview questions and pandemic timeline in advance and were encouraged to do independent reflection prior to the interview.

3. **Qualitative Questionnaire** - An online, self-reported questionnaire with open-ended questions that mirrored those used in debrief sessions and key informant interviews.

Debrief sessions were conducted for each response area with a team of at least four people (Figure 3). For smaller teams, key informant interviews were used. A qualitative questionnaire was used to engage with staff who were responsible for the continuation of Non-COVID Critical Public Health Services.

Methods & Materials

Figure 3: Pillars of the Local Public Health Response and Debrief Method

Methods & Materials

RECRUITMENT

LPH staff were invited to participate in the AAR via a brief online recruitment questionnaire that was distributed by the Strategic Priority Manager, along with a Frequently Asked Questions document. This voluntary questionnaire asked staff to select which pandemic response area(s) they were a part of, provide their availability, and identify any accessibility needs that they had. It was open for nine working days (July 13 to 25, 2022), and supervisors were asked to remind their teams to participate.

MATERIALS

The AAR team developed all project materials based on existing guidance for conducting an AAR. These materials are listed in the Appendix and are available upon request. Slide decks for debrief sessions and key informant interviews were the main tool used by facilitators to guide participants towards consensus. In addition to introductory information on the project's purpose and scope, the slides contained interactive elements (e.g., fishbone diagrams) that facilitators would fill in based on the group's direction; this allowed participants to see the results in real time, and confirm that facilitators were interpreting the discussion accurately. Slides for exercises B through D were adapted from the WHO's guidance on AARs, and Mathematica's COVID-19 After Action Review Toolkit (3). Exercises A and E and their respective slides were developed by LPH's AAR team. Debrief sessions and interviews were audio-recorded and transcribed.

The recruitment questionnaire, qualitative questionnaire for Non-COVID critical public health services, and a confidential feedback form were programmed into CheckMarket, a cloud-based survey platform (4). The pandemic timeline was created in Power BI (5), and printed on large poster paper. Other project materials in Table 1 were created using Google Drive (6).

SYNTHESIS

Resulting challenges, best practices, and recommendations from each debrief session, interview, and questionnaire were transcribed and summarized. Session notes and audio-recordings/transcriptions were reviewed to ensure that all relevant context was captured in the summary. When staff engagement was complete, results were reviewed for common themes and recommendations. Themes that were identified across multiple pillars are presented in this summary report. The overarching recommendations provided at the end of this report were created both by AAR participants, and the AAR team.

Overview of Key Results

Best Practices	Impacts
01 Implementing a previously established emergency response plan	• Provided role clarity • Streamlined decision making • Improved response time • Improved internal communication
02 Developing new internal communication practices	• Increased efficiency • Reduced duplication of work • Expedited training and information sharing • Fostered positive team morale
03 Taking advantage of new remote work tools	• Created safer working environment • Improved access to information • Allowed for better documentation of work
04 Establishing new interdepartmental leadership roles	• Improved accuracy and consistency in communication • Reduced duplication of work • Enhanced interdepartmental relationships • Strengthened external partnerships
05 Being flexible, and adapting to constant change	• Allowed LPH to respond to local context • Improved ability to meet needs of higher-risk populations
06 Relying on positive partnerships in the community	• Increased response capacity • Strengthened existing partnerships
07 Having an adaptable human resources/funding infrastructure	• Improved coverage and capacity • Allowed for scaling in response to demand • Facilitated interdisciplinary teamwork • Decreased pressure on supervisors

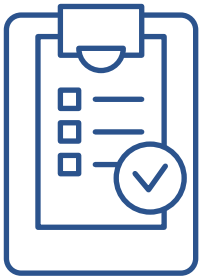
Figure 4: Key Results - Best Practices Summary

Key Results

From July to November of 2022, six debrief sessions and three key informant interviews were conducted, along with a qualitative questionnaire that was completed by 10 staff. In total, approximately 40 LPH staff participated in the AAR. This report presents a summary of the central themes that were brought forward by multiple pillars during staff engagement.

Best Practices

A best practice is a response activity which was implemented during the emergency under review, and improved performance or had a notable positive impact on the response (1). Across the organization, LPH staff identified these as the top best practices implemented during the pandemic:



Implementing a previously established emergency response plan

As per the requirements of the Ontario Public Health Standards for emergency management, LPH maintained a detailed and up-to-date emergency response plan to ensure 24/7, timely, integrated, safe, and effective response to and recovery from emergencies with public health impacts. This plan is based in a framework known as Incident Management System or IMS (7), designed to provide timely and effective mobilization of public health staff and resources in the event of an emergency. The LPH plan specified IMS roles for an incident management team, and when activated, helped to streamline decision making. The plan was also supported by several tabletop exercises that occurred prior to the COVID-19 pandemic. LPH made adaptations to the system in an effort to improve efficiency. For example, in late 2020, most staff were re-deployed into one of three response areas (CCM, immunization, community engagement). Each response area adapted elements of IMS to facilitate their own decision making, rather than relying on a single IMS team for the whole organization.

Developing new internal communication practices

Teams across LPH implemented new internal communication practices to help keep pace with the pandemic's 24-hour information cycle. One practice that LPH adopted from IMS principles was the use of brief but frequent, recurring team meetings in order to share information and plan activities. These meetings, sometimes called "huddles", allowed for efficient information sharing. They also made it easier to bring new staff, or staff assigned to multiple response areas, up to speed, and fostered positive team morale. In addition, staff reported informally debriefing together during difficult times to provide valuable peer support. Other best practices that improved internal communication were developing internal "cheat sheets" to summarize guidance and procedures, hosting virtual all-staff meetings to share information, and posting regular updates to the LPH intranet. Some AAR engagement sessions found that maintaining internal communication that kept pace with new information was still difficult, even with these new practices. However, there was agreement that they had a positive impact by increasing efficiency and reducing duplication of work.

Key Results

Taking advantage of new remote work tools

Regular team meetings were made possible by new tools that allowed the majority of LPH staff to work remotely. These tools included: Basecamp for project management, Cisco Jabber for instant messaging, Zoom and Microsoft Teams for virtual meetings, Humanity for scheduling, a dedicated digital phone line for operating the Vaccine Call Centre, Verto for online vaccine booking, new provincial databases for management of medical records, Google Drives for live collaboration, and staff email and mobile phones for communication. Remote work tools were also used to interview and onboard new staff remotely during the start of the pandemic. LPH was able to leverage many of these remote tools because of a new County policy that permitted remote work, and the County's information technology (IT) resources. In almost every debrief session and interview, LPH staff cited the impacts of these tools. Impacts included a safer working environment for staff both on-site and at home, more efficient communication, enhanced documentation of past work, and improved access to information. Notably, there were no workplace COVID-19 outbreaks at LPH throughout the pandemic, even while some staff had to continue working in-person.

Establishing new interdepartmental leadership roles

Teams at LPH established new roles to help streamline key functions and communications. For example, the Case and Contact Management Team and the Liaison Team each assigned a staff person to lead engagement with settings/partner organizations that interacted regularly with public health, such as long-term care homes and schools. These leads were responsible for remaining up-to-date with setting-specific guidance and serving as knowledge brokers to LPH staff, partner organizations, and the public. When parallel roles were created across teams (e.g., a health promoter and public health nurse each serving as the School Lead on their own team), LPH could meet the setting's needs more efficiently. Implementing these new roles allowed LPH to improve accuracy and consistency in communication, reduce duplication of work, improve interdepartmental relationships, and strengthen external partnerships.

Key Results

Being flexible, and adapting to constant change

There were many instances when the COVID-19 pandemic demanded flexibility from LPH as an organization and LPH staff individually. The organization's ability to adapt practices on short notice allowed LPH to meet the needs of priority populations, invest and innovate with new digital tools, and surpass hurdles. The organizational culture shifted to one that was prepared for constant change; creative problem solving was a necessity, and critical decisions were made quickly. An example of flexibility at the individual level comes from the mobile vaccination team, where staff met people where they were at - visiting clients' homes across Lambton County to ensure that they had access to the COVID-19 vaccine. This required a significant amount of planning and preparation, and also a willingness to change the plan on a daily basis if it meant that just one more person could get the vaccine.

An example of flexibility at the organizational level was the MOH's willingness to make exceptions to provincial guidance where it was deemed best for the community. LPH made the decision to immunize staff at local schools in advance of the official eligibility date, based on their level of occupational risk, and the organization's positive relationships with school boards that enabled mass pre-registration of this group. The cultural shift towards flexibility and rapid cycles of change is a best practice that the majority of best practices in this review are dependent upon.

Relying on positive partnerships in the community

Across engagement sessions, participants confirmed that LPH's pre-existing partnerships and goodwill with local organizations provided a solid foundation for the pandemic response. In part, LPH is advantaged here due to its status as a smaller health unit and being a division within the County of Lambton. Many local public health employees have longstanding partnerships with important stakeholders in other divisions of the County, long-term care homes, school boards, primary care providers, and more. When LPH had to communicate with or rely upon these partners, the channels of communication were already there. Furthermore, many community organizations donated time and services to further enhance the response and provide the best support possible to the community.

Key Results

Adaptable human resources/funding infrastructure

Another best practice that was identified was the adaptability of human resources infrastructure and innovative management. The pandemic placed unprecedented demands on public health which required increased human resource capacity. This included the need for operations outside standard working hours, additional staff, additional managerial capacity, and effective utilization/empowerment of staff. Taken together, this evolved into an innovative staffing model that could be scaled up or down as needed. LPH implemented a 7-day work model at the pandemic's inception to address community needs. Correspondingly, staff stated that management on-call structure expanded to support weekend and holiday operations. A pool of temporary staff were hired in preparation for vaccine rollout during the summer of 2020, and additional, already-trained communications staff were seconded from other County divisions or contracted for short periods. Staff noted that part-time staff were also able to work outside their standard allotment of hours (28 hours/week or less) to participate in the 7-day work model. Specialized staff were empowered to serve as leads for specific response areas, while all staff collaborated to contribute their skill set to the pandemic response. As the pandemic evolved, so did LPH's staffing needs. In the long-term, LPH needed to stabilize scheduling and return to a 5-day work model. Staff highlighted that this shift from a 7-day operation to a 5-day operation (plus on-call capacity) occurred at the right time, and that management adapted throughout the pandemic, becoming better able to anticipate future staffing needs.

The adaptability of human resources infrastructure and innovative management was supported by provincial changes to electronic charting tools; flexibility, support and memorandums of understanding with unions from the beginning of the pandemic (i.e., before legislative requirements were imposed); and sustainable funding/resources through the province, community partners (i.e., donating staff time), and LPH's connection to the County of Lambton (i.e., LPH did not have to worry about borrowing funds and resources like some other health units that were not integrated with their municipality). Impacts included increased capacity to appropriately scale in response to demand, increased sustainability/ability for staff to continue moving forward, facilitation of interdisciplinary work (i.e., greater respect and understanding of different professionals' scope of practice), effective use of staff (i.e, everyone could be involved), decreased strain on supervisors (from utilizing specialized staff), decreased the need to reactively train staff, and decreased pressure.

Overview of Key Results

Challenge	Impacts
01 Keeping up with demand	• Strained organizational capacity • Increased staff stress and burnout • Impacted staff ability to disconnect from work • Contributed to staffing/scheduling challenges • Decreased client satisfaction contributed to public frustration
02 Remaining up-to-date with changing guidance	• Created challenges in being able to provide accurate and consistent information • Allowed for spread of misinformation and outdated information • Increased staff stress and burnout
03 Adequately staffing and scheduling to match continuously fluctuating demand	• Caused duplication of work • Increased client and staff frustration • Prompted irregular working hours and working with minimal coverage
04 Balancing resources between pandemic response and core programming	• Resulted in temporarily suspending most core programs • Increased frustration among staff, clients, and partner organizations • Resulted in population health issues that were not addressed
05 Managing expectations of the roles and responsibilities of public health	• Created confusion for partner organizations and clients • Led to inconsistencies in response activities across Ontario public health units • Allowed for spread of misinformation, and loss of credibility

Figure 5: Key Results - Challenges Summary

Summary of Key Results

Challenge	Impacts
06 Adapting to new technology	• Decreased efficiency when technology malfunctioned • Generated confusion and training challenges for staff • Required decision making that was responsive, rather than pre-planned
07 Supporting clients with specialized needs	• Required increased time and resources • Sometimes delayed access to services • Ultimately led to improved accessibility of services
08 Working with clients during challenging situations	• Contributed to burnout and negative mental health impacts among staff • Led to staff being more guarded, impacting quality of service
09 Negative impacts on staff mental health	• Added stress and frustration • Contributed to burnout and loss of motivation

Figure 5: Key Results - Challenges Summary

Key Results

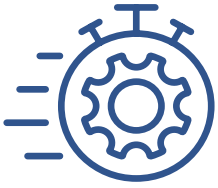
Challenges

A challenge is a job, duty or situation that is difficult because you must use a lot of effort, determination, and skill in order to be successful (1). Across the organization, LPH staff identified these as the top challenges experienced during the pandemic:

Keeping up with demand

Each team at LPH echoed that keeping up with demand was one of the most challenging aspects of the pandemic. This included demand for COVID-19 vaccines, access to LPH staff to consult or comment, and demand for information. The public and community partners expected 24/7 access to, and service by, public health staff. This resulted in a loss of boundaries and the ability for staff to recharge or take breaks from work. Requests were being fielded both professionally and personally. Staff also felt incapable of taking time off because meetings were scheduled every day, meaning that any time away from work would result in missing out on important information and creating additional work to catch up on when they returned. Specialized positions had limited or no back-ups to provide coverage, and therefore these positions experienced additional pressures. As a result, organizational capacity was strained, and staff reported stress and burnout. This challenge was also ranked as one that the organization had less control over; the magnitude of the COVID-19 pandemic was unprecedented in our lifetime. Due to the uncertainty - and general nature - of an emergency situation, community needs were often urgent. While the amount of demand was difficult to control, staff identified multiple ways that the organization adapted to meet the demand. Some of these strategies included increasing capacity by hiring additional temporary staff, developing the Liaison Team to respond to the large number of inquiries, and streamlining access to information through media briefings, web updates, and regularly scheduled surveillance reports.

Remaining up-to-date with changing guidance



Similar to keeping up with demand, remaining up-to-date with changing guidance was an external stressor. COVID-19 guidance refers to changes to federal regulations, provincial guidance related to case and contact management, outbreak definitions, and lockdown measures, as well as training materials and technical updates on new tools and databases, changes to vaccine eligibility or handling requirements, and more. Guidance documents were frequently updated on a weekly basis, and many did not follow a regular update schedule. Most often, local public health units were not made aware of upcoming changes and learned at the same time as the public, leaving no time to prepare. This made it difficult to confidently relay newly updated information to partners and the public. Furthermore, provincial guidance often changed on Friday afternoons, meaning that working hours had to be amended to answer incoming inquiries and complaints.

Key Results

Adequately staffing and scheduling to match continuously fluctuating demand

Adequate staffing and scheduling was a continuous challenge throughout the pandemic as this needed to match the local demand for public health services. This was a common challenge identified by most teams. Local demand was influenced by numerous factors outside of LPH's control, including local transmission, vaccine eligibility, delivery, and demand, and changing provincial guidance and regulations. This resulted in client and staff frustration, negative effects on staff mental health (e.g., stress and burnout), negative public perception, and duplication of work. While LPH hired more staff to increase capacity, staffing increases proved insufficient to meet public demand. Staff redeployment and irregular hours (i.e., after hours, weekends, and holidays) also contributed to stress. Further, the lack of notice from the province about upcoming changes such as expanded vaccine eligibility meant that staffing could not easily be adjusted (i.e., time was required to hire and train new staff, and providing surge capacity by reassigning schedules or increasing staff hours created rework). Adequate staffing and scheduling was therefore noted as something that LPH has limited control over due to the aforementioned external factors.

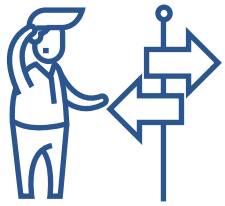
Balancing resources between pandemic response and core programming

Responding to the urgency of the COVID-19 pandemic was the main priority for LPH. LPH management implemented its business continuity plan to redeploy staff and focus efforts on the pandemic response. This left little capacity for other core programming. The duration of the pandemic response and consequently, the length of time other public health programming remained suspended or scaled back, contributed to frustration among staff, clients, and partner organizations. Some staff tension occurred as a result of changing work priorities (e.g. COVID related work compared to regular programming) and associated demands. LPH also felt pressure from partner organizations to resume core services. The focus on the pandemic contributed to a shadow pandemic where unrelated health issues were not addressed with the suspension of "regular" core services.

Key Results

Managing expectations of the roles and responsibilities of public health

Creating clarity around the roles and responsibilities of public health was a challenge that existed prior to the pandemic. This created additional challenges throughout pandemic response. For example, other organizations and the public had certain perceptions of the work and role of public health. These perceptions did not always align with the mandates of local public health units resulting in misunderstandings that impacted credibility and public trust.



A contributing factor to the lack of clarity of public health's role, specific to pandemic response, was due to the ambiguity in provincial guidance and legislation. This led to confusion around enforcement responsibilities of different organizations and created misunderstandings about the mandate of public health versus the mandate of other organizations. The ambiguity of the guidance led to differing interpretations of the rules and created confusion and inconsistencies in responses across the public health unit regions. For example, at times mask requirements differed amongst regions. This created confusion and sometimes negatively affected the credibility of the organization. Significant resources were required to educate and explain the differing rules and guidelines. Ultimately, this challenge reinforced the confusion around the understanding of the role of public health in the healthcare system.

Adapting to new technology

While technology facilitated the functioning of a best practice (i.e, new remote work tools), it also proved to be a key challenge. Technology barriers created issues related to misuse of technology (e.g., privacy breaches), staffing factors (e.g., limited training for new staff), technology malfunctioning/unavailability (e.g., remote access limitations), inefficient systems (e.g., fax, paper documents, and associated manual processes) and set-up requirements (e.g., 2-factor authentication). This resulted in decreased efficiency, staff confusion, creation of workarounds to troubleshoot barriers, and staff use of personal devices and accounts. This led to policies, contracts, and decision-making frameworks being created ad-hoc instead of relying on pre-existing procedures and infrastructure to leverage in times of need, which has important legal and IT implications.

Key Results

Supporting clients with specialized needs

Another common challenge across teams was supporting clients with specialized needs, particularly for teams whose work included vaccine or case and contact management elements. Clients with specialized needs/requests required additional support by staff, including additional time and resources. Such accommodations included medical needs at clinics (e.g., mask exemptions and needle anxiety), accessibility (e.g., language barriers and physical accessibility considerations for clinics), technology needs, vaccine documentation requests (e.g., for individuals without a green Ontario health card, or for travel-related purposes with little advance notice). This challenge was noted as something LPH has little control over, however that staff were able to learn how to better support specialized needs as the pandemic evolved as they experienced more of these types of requests.

Working with clients during challenging situations

Challenging situations arose when clients rejected public health guidelines, isolation requirements, or vaccine mandates. This theme was predominantly referenced by teams whose work included vaccine or case and contact management elements. Clients subsequently directed anger and frustration towards LPH staff, negatively impacting staff mental health. This challenge was noted as one that LPH has little control over, however LPH has the ability to prepare for these situations by providing additional training to staff on how to handle these situations.

Negative impacts on staff mental health

Negative impacts on staff mental health was a common theme mentioned by almost every team. These impacts included additional stress, frustration, loss of motivation, and burnout. While negative impact on mental health was not noted as a key challenge directly, mental health was consistently listed as an impact for the top challenges identified by teams. Negative impacts on staff mental health could be proactively addressed by identifying root causes of challenges identified by teams. Staff noted that LPH had varying levels of control over these issues.

Discussion

Strengths

While conducting the debriefing sessions, several strengths were identified. As mentioned, the purpose of the AAR was to evaluate and reflect on LPH's COVID-19 pandemic response. The WHO adapted the AAR process to relate to public health. The WHO AAR guideline provided a structured review process that helped to ensure rigour was maintained throughout the debriefing process. The debriefing sessions were planned, organized, conducted and evaluated by an AAR dedicated planning team. The planning team was interdisciplinary and included staff from across the organization. This included staff from various service areas as well as staff at different management levels (ranging from front line to upper management). This meant the team had an internal perspective with a ranging knowledge base of LPH pandemic operations. This background knowledge was beneficial when planning the staff debrief sessions as the team was aware of how pandemic response was structured and the responsibilities and expectations at the local public health level. It also allowed the team to tailor debrief session activities based on functions of each area. The facilitators on the AAR team directly engaged with all response teams in order to gain their first hand insight. All staff were provided an opportunity to indicate their interest in participating, the majority of staff who indicated interest were accommodated to participate in at least one AAR debriefing session.

While the main purpose of the AAR was to reflect, and assess to better prepare for ongoing response work and future public health emergencies, it was also an opportunity for staff to come together and unpack the events throughout the pandemic. The AAR debrief sessions provided a space for staff to connect, reflect, and share similar experiences with one another. Staff indicated through an informal AAR evaluation that while the debrief sessions brought up a lot of emotions related to the challenges and frustrations that arose throughout the pandemic, overall it provided some closure and positively contributed to their mental health.

Discussion

Limitations

There were limitations identified throughout the AAR debriefing process. While there were advantages that the AAR team was composed of internal staff, this can also be seen as a limitation. For example, while it was stated during each session that the information shared in the session would remain confidential within the debriefing group, having internal facilitators within the organization presents a potential conflict of interest. Internal facilitation by LPH staff and having supervisors contribute in debrief sessions may have compromised participants' willingness to speak freely. The AAR team worked to mitigate this limitation by offering an anonymous feedback and evaluation form to all participants, where they could provide additional information that was not shared in-session.

Non-response bias is also a potential limitation. Not everyone from each response team participated, thus it is possible that the feedback offered by individuals who chose to participate may significantly differ than that of those who did not. In addition, staff turnover was a limitation of the review. There were several staff who assisted with pandemic response who either retired or left LPH to pursue other opportunities, potentially resulted in some perspectives not being captured. This means that the debriefing sample is only representative of the group of people who chose to participate and that there were some perspectives at LPH that were not included.

Based on the WHO AAR guidance, one day is usually allocated for each debriefing session. However, In order to feasibly conduct debrief sessions with each response team, half-day debriefing sessions were conducted (1). This was due to the limited capacity of staff to participate and the capacity of the AAR planning team. Since staff were busy either continuing to work on COVID-19 response or resuming regular programming, most staff would not have been able to allocate an entire day to the debrief.

Recommendations

The tables that follow identify recommendations based on the key results identified throughout the AAR engagement sessions. The recommendations listed below are not displayed in order of importance. It is important to note that several of the recommendations could be rated in multiple categories (e.g. short term, long term, etc.). Each recommendation was rated based on the best fit possible. The terms identified in the table are described below.

Short-Term: To be achieved within the timeframe of LPH's current strategic priorities (2022 to 2024).

Long-Term: To be achieved within the timeframe of LPH's next strategic plan (2025 and on).

Feasibility: Recommendations that are within the organization's ability to implement, and that do not pose significant financial or capacity barriers are rated as high feasibility. Recommendations that depend on actions outside of LPH or that may incur significant costs are rated as medium feasibility. Recommendations with low feasibility were not made.

Recommendations

01

Prioritize post-pandemic mental health supports for staff

Staff in all sessions discussed the acute and chronic mental health impacts of working in public health during the pandemic, as well as the importance of peer and organizational support

Recommendation	Term	Feasibility
Conduct an updated psychological health and safety assessment (Guarding Minds @ Work (8)).	Short	High
Explore and implement evidence-based workplace mental health interventions (starting with PHO synthesis titled: COVID-19 – Strategies Adaptable from Healthcare to Public Health Settings to Support the Mental Health and Resilience of the Workforce during the COVID-19 Pandemic Recovery (9)) at the organization and management level.	Short	Medium
Support recommendations from the LPH Psychologically Healthy Workplace Group.	Short	Medium
Incorporate regular staff check-ins (individual and team-based).	Short	High
Offer public health mentorship opportunities for staff.	Long	Medium
Create a workplace “buddy system” (10) to build mutually supportive connections and emotional support. While this “buddy system” is crucial during high-stress periods, it is important that this system is well-established before these high-stress periods.	Short	Medium
Offer staff further informal opportunities to talk about the pandemic and provide peer support.	Short	Medium

Recommendations

02 Improve communication and transparency within LPH

Consistent and efficient internal communication was identified as a challenge

Recommendation	Term	Feasibility
Implement regular all-staff meetings to share updates to organizational/administrative information.	Short	High
Explore new methods for rapidly communicating time-sensitive information with multiple teams at the same time.	Long	High
Consider implementing brief, recurring team or project “huddles” to informally share information, problem solve, and foster team connection.	Short	High
Develop a policy or best practice document for use of remote work tools (e.g., specify a single instant message service for the organization).	Short	High
Establish new inter-departmental leadership roles (similar to subject leads during COVID response). Review current organizational structure and existing lead roles (e.g., knowledge broker role) and determine the best way to leverage these roles. Train additional staff to provide coverage when capacity is limited.	Short	High
Develop internal training resources and an established/known process for accessing and utilizing these resources: Assign staff designated time to regularly update user cheat sheets/staff user manuals (e.g., Salesforce programs - CCM & COVax).	Short	High
Promote more transparent decision-making and open communication in order to encourage staff to continue innovating/proposing new ideas.	Short	High

Recommendations

03

Continue to break down organizational silos

Collaborating across service areas during pandemic response was a strength identified in several debrief sessions. It was recommended that this continues in recovery and regular programming.

Recommendation	Term	Feasibility
Do work throughout pandemic recovery in partnership with other services within LPH.	Short	High
Encourage inter-departmental collaborations for projects that complement one another.	Long	High
Provide staff with opportunities and tools (e.g., public health rounds and beyond) to share ongoing projects	Short	High

04

Continue to engage in continuous planning and evaluation with the goal of increasing organization flexibility and effectively adapting to change

It is important to take advantage of our lessons learned and apply them to future pandemic preparedness planning and advancing regular programming

Recommendation	Term	Feasibility
Revise the LPH Emergency Response Plan based on results of local, regional, and provincial reviews. Include short-, medium-, and long-term objectives for different stages of the pandemic response. In addition to scheduling, described below, consider changes in reporting and communication practices, overarching organizational goals, and mental health priorities (e.g., counteracting burnout is more important in later stages while setting boundaries/ expectations is more important in earlier stages), etc.	Short	High
Support and encourage local partner organizations to develop their own pandemic plans to enhance ability to provide a coordinated community response.	Long	Medium
Share LPH AAR findings with other organizations as external COVID-19 response evaluations take place.	Short	High
Implement practices that allow for continuous evaluation of successes and challenges of programming. Act on results of evaluation to evolve and adapt to change.	Long	High

Recommendations

05

Continue to refine scheduling and staffing practices for future pandemic response and when increased capacity is needed for regular programming (e.g., flu clinics)

Scheduling and staffing were common challenges identified through several pillar sessions

Recommendation	Term	Feasibility
Explore new ways to be able to assign more staff to service areas where increased capacity is needed (e.g., how can we efficiently deploy temporary staff on short notice?)	Short	Medium
Create contingency plans for increased staffing needs in various scenarios in advance of future pandemics.	Long	Medium
Document scheduling best practices used for clinics during the pandemic (e.g., a clinic with X number of appointments requires X number of nurses/staff). Include the estimated amount of time required to hire and train new staff.	Short	High
Explore ways to better utilize staff (e.g., dietitians, dental staff, health promoters, etc.) that have the skillset to learn how to support areas where additional capacity is needed (e.g., CCM team).	Short	High

Recommendations

06 Continue to protect physical and mental safety of LPH staff

Staff mostly reported feeling safe and supported by management when implementing boundaries for physical and mental safety. It was identified that this support should continue in future emergencies

Recommendation	Term	Feasibility
Provide clear boundaries that clients must respect (e.g., respectful behaviour), and support staff in holding clients accountable for respecting boundaries.	Short	High
Provide staff with ongoing training related to responding to complex situations. This includes: • Training related to improving empathy and supporting specific needs of clients (e.g., trauma-informed care) • Non-violent crisis intervention training: Provide staff with skills to mitigate escalating situations where clients are becoming agitated or violent.	Short	High
Develop an emergency response plan for the organization to address political/civil unrest, (e.g., public protests, threats, or demonstrations).	Short	High

07 Continue to evolve services to better support Lambton County residents. Support growing the community's knowledge of local public health.

It was identified that sharing LPH's role in supporting the community provides more insight to how LPH operates and assists in managing expectations

Recommendation	Term	Feasibility
Capitalize on increased visibility and educate Lambton residents on roles and responsibilities of local public health units.	Long	High
Expand public reporting on program activities and surveillance of chronic and infectious diseases.	Short	High

Recommendations

08 Build on new and existing partnerships

LPH developed strong community partnerships during the pandemic; these relationships should be maintained for delivery of core public health services and be available for future public health emergencies

Recommendation	Term	Feasibility
Develop a formal strategy for building and maintaining relationships between LPH as an organization and community partners (e.g., entering partnership agreements, designating key contacts based on job position).	Long	Medium
Develop partnerships that would enable LPH to borrow skilled professionals from other organizations and County divisions to assist with pandemic response.	Long	Medium
Continue to build on established relationships with provincial ministries. Advocate for improved communication with local public health, especially related to changes in guidance (e.g., advanced notice of updates, consultation on potential changes, designated contacts, etc.).	Long	Medium

Conclusion

Lambton Public Health's AAR was an opportunity to reflect and assess strengths and challenges experienced throughout the pandemic response. The AAR planning committee engaged in team discussions with LPH staff and was able to gain valuable insight on strengths and lessons learned throughout pandemic response. Actionable recommendations for future programming and pandemic preparedness were derived from the results of the debrief sessions. These findings are integral as LPH moves forward and shifts its work from COVID-19 response into recovery.

LPH's AAR planning team appreciates the time and thoughtful discussions that LPH staff contributed to the project. The findings from this report will inform future program and organizational planning and development.

Glossary

After-action Review (AAR)

An after-action review (AAR) is a qualitative or mixed-methods review conducted after the end of an emergency response, with the goal of identifying challenges, best practices, gaps, and lessons learned (1). AARs involve structured facilitated discussions to critically and systematically reflect on shared experiences and perceptions of a response, and work together to identify what worked well, what did not work, why, and areas for improvement (3).

Case and contact management (CCM)

Case investigation and contact tracing, a core disease control measure employed by local public health units, is a strategy for preventing further spread of COVID-19 (11). The Health Protection and Promotion Act requires that each public health unit in Ontario collect information about people with diseases of public health significance (reportable diseases), including COVID-19, in their jurisdiction and report it to the Ministry of Health (MOH) (12). This information is used for local, provincial and national surveillance.

Case management includes a public health unit's initial interaction with a positive case, the investigation to determine how they may have acquired COVID-19, and the identification of all close contacts (12).

Contact tracing is the process of reaching all individuals who have had close contact with someone who has tested positive for COVID-19 during the infectious period (12). Contact tracers inform individuals who are at risk of contracting the virus , provide education and support, and and instruct them on appropriate public health measures (E.g., self-isolation, monitoring their symptoms and getting tested) (12).

Fixed-site clinic

A fixed-site clinic is a space where immunizations are administered to clients in a single designated location, and the site remains open for more than one appointment date. The site can accommodate a large number of clients at one time.

Lambton Public Health (LPH)

Lambton Public Health (LPH) is a Public Health Unit in Ontario that serves all residents of Lambton County. LPH provides public health programs, services, and policy development to meet their needs, and to promote the positive health and well-being of our community.

LPH delivers mandated programs and services under the Ontario Public Health Standards and regulated by the Ontario Health Promotion and Protection Act.

Programs include but are not limited to:

- Reproductive, sexual and dental health, healthy babies and child development
- Cancer, heart disease, substance abuse, tobacco use and injury prevention
- Protection from communicable and infectious disease, and environmental risks

Glossary

Ministry of Health (MOH)

The Ministry of Health is a Government of Ontario ministry responsible for coordinating Ontario's health care system (13). It provides funding to the health system and monitors, evaluates, and reports on the health system and health of Ontarians.

Strategic directions and priorities for both health care and public health are determined based on the above. To help achieve this, the ministry develops and enforces legislation, regulations, standards, policies and directives (13).

Mobile vaccine team

A mobile vaccine team provides immunizations to individuals in the community who are experiencing barriers to receiving a vaccine at a fixed-site clinic. The mobile team may provide immunizations at congregate living settings, private homes, remote rural locations, and a wide variety of other locations where individuals encounter barriers to access. The mobile vaccine team is made up of LPH nursing staff, a supervisor, and at times certified professionals from outside organizations (e.g., paramedics).

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Appendix

Table 1: Project materials and purpose

Material	Purpose	Audience
Recruitment Questionnaire	Invite staff to participate in the AAR	All LPH staff
AAR Frequently Asked Questions	Provide project information to LPH staff	All LPH staff
Consent Form	Ask participants to consent to audio-recording of sessions, detail storage and security of audio files	Debrief session & key informant interview participants
Slide Deck - Debrief Session	Guide participants and facilitators through exercises	Debrief session participants
Slide Deck - Key Informant Interview	Guide participant and facilitators through exercises & interview questions	Key informant interview participants
Pandemic Timeline	Generate discussion on key pandemic events and when they occurred, refresh participants' memories	Debrief session & key informant interview participants
Qualitative Questionnaire - Non-COVID Critical Public Health Services	Ask participants questions derived from exercises completed in debrief sessions and key informant interviews	LPH staff who engaged in Non-COVID critical public health service work during 2020 or 2021
Thank You Letters	Thank participants for their time, explain next steps, invite to complete confidential feedback form	Debrief session & key informant interview participants
Confidential Feedback Form	Ask participants to evaluate the session, and provide any information they did not share during the debrief session or interview	Debrief session & key informant interview participants
Notes Template	Structured template for detailed notetaking during debrief sessions and key informant interviews	Notetakers and facilitators
Facilitator Script	Provide speaking notes for facilitators to reference as needed	Facilitators
Facilitator Checklist	Ensure facilitators have all required materials at the beginning and end of each debrief session	Facilitators

Please contact LPH-Epi-Eval@county-lambton.on.ca to access project material templates

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