RECOVERY, RENEWAL, AND RESILIENCE BUILDING RAPID REVIEW SYNTHESIS

Executive Summary

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Introduction

The COVID-19 pandemic has had a significant impact on the physical and mental health state of the population of York Region. The Public Health Branch's response to the pandemic involved the activation of the Health Emergency Operations Centre (HEOC), which shifted the focus of regular essential public health programs and services to COVID-19 disease surveillance; infection prevention and control; COVID-19 case management; contact follow-up; COVID-19 institutional, workplace, and school outbreak management; and COVID-19 vaccinations.

As of April 2022, the HEOC functions transitioned, and COVID-19 related work was absorbed into the Public Health Divisions which provided a more fulsome opportunity to engage in recovery and renewal. The recovery and renewal work centres on developing a plan to integrate previous public health responsibilities with the ongoing requirements of the COVID-19 response, while addressing impacts of the pandemic on York Region communities.

To support the development of a plan, a rapid review was identified as an important strategy to collect and analyze evidence from academic journals, grey literature, and expert reports from the field.

The intention of the Recovery, Renewal, and Resilience Building Rapid Review Synthesis project, in conjunction with other information sources such as population health data, After Action Review, the Partner Engaged Assessment of Community Health (PEACH) Project, is to identify priority themes to consider and inform public health strategic planning and service delivery as we move into and through the next phase of recovery and renewal post pandemic.

Methods

A rapid review methodology was used to conduct a thematic analysis and create a synthesis of findings from various sources of evidence, including cross-sectional studies, qualitative studies, and expert reports and opinions. The review protocol was registered on PROSPERO with the title *A rapid review of public health recovery, renewal, and resilience building post pandemic: a thematic synthesis of essential organizational imperatives*.

Using the PICo (Population, Interest, Context) framework the following research question was developed in collaboration with key stakeholders:

> ***What is known in the literature about what works in public health to recover, renew, and build resilience after a public health emergency?***

A search strategy was developed to identify articles from academic journals and grey literature to include in the literature review.

The strategy included date coverage from January 1, 2019, to March 18, 2022.

A. Recovery and Renewal:

The grey literature scan included search terms such as organizational frameworks, public health renewal and post pandemic covid, public health Ontario, population health impacts of the pandemic, post pandemic planning, COVID-19 demobilization, IMS emergency structure, COVID-19 public health recovery, and public health post pandemic recovery frameworks.

The following five concepts were used to explore these search terms:

- Concept #1 - COVID-19/Post-pandemic/Post pandemic
- Concept #2 - Recovery, Renewal, Resumption, Sustainability, Demobilization
- Concept #3 - Frameworks, Organizational Structure, Models, Best Practices, Guidelines, Strategies, Planning
- Concept #4 - IMS Structure/Emergency Response/Emergency Management
- Concept #5 - Public Health, Health Systems

B. Resiliency:

Search terms include organizational agility post pandemic recovery; resiliency, workforce; and organizational resiliency frameworks.

The following six concepts were used to explore these search terms:

- Concept #1 - Disasters
- Concept #2 - Resiliency
- Concept #3 - Organizations
- Concept #4 - Frameworks
- Concept #5 - Local Government/Public Health
- Concept #6 – Workforce

For more information on the search strategy see the PROSPERO Protocol.

TITLE AND ABSTRACT SCREEN INCLUSION AND EXCLUSION CRITERIA

Two librarians completed a title screen of results for relevance, before sending remaining title and abstracts to the first and second reviewers for screening.

Two reviewers completed a full text screen and critical appraisal of a 20% sample (n = 83) of the screened-in results (n = 415). The Joanne Briggs Institute's critical appraisal tools was used for this process. A third reviewer was used to resolve disagreements between first and second reviewer.

Once 80% agreement was achieved, the first reviewer completed a full text screen and critical appraisal of the remaining included articles independently (n = 332). Articles that did not meet the inclusion criteria and/or pass the critical appraisal process were excluded.

Results

The following table describes the number of articles retrieved, the number of articles removed and reason for exclusion. For more information see Appendix A: PRISMA Flow Diagram.

Step	Number of Articles or Reports	Number of Articles or Reports Removed	Reason for Exclusion
1. Identification: Identification	1329	518	Duplicates and relevance

and Search Strategy			
2. Screening: Title and Abstract Screen	811	396	**Top Reasons for Exclusion** • Outside scope of local public health and/or recovery and renewal (n = 202) • Focus on COVID-19 response and/or COVID-19 history (n = 36) • Outside geographical region (n = 12) • Lack of reputable references or actions (n = 10) • Acute care focus without applicability to local public health (n = 8)
3. Eligibility: Full Text Screen and Critical Appraisal	415	244	**Top Reasons for Exclusion** • Outside scope of local public health and/or recovery and renewal (n = 64) • Focus on COVID-19 response and/or COVID-19 history (n = 56) • Lack of reputable references or actions (n = 51) • Acute care focus without applicability to local public health (n = 45) • Unable to retrieve or locate (n = 4)
4. Included: Articles Included	171		

THEMATIC ANALYSIS

Using NVivo 12 software, a thematic synthesis methodology was used for the development of descriptive themes, and the generation of analytical themes from the 171 reviewed articles that were included.

The following nine themes emerged and will be discussed in detail in subsequent sections of this report:

1. Technology and Innovation
2. Data Driven
3. Population Health Trends
4. Health Equity, Ethics, and Inclusion
5. Communication and Engagement
6. Community Resilience
7. Healthy and Resilient Workforce
8. Leadership
9. Learning Organization

Themes

TECHNOLOGY AND INNOVATION

The technology and innovation theme discusses embracing technology to enhance rapid decision making, program planning, evaluation, and service delivery. It highlights the importance of identifying barriers and challenges, while scaling up impactful innovative practices that improve outcomes.

Subthemes include **technology infrastructure, digital inclusion, social media, as well as telemedicine and virtual care.**

Ensuring **technology infrastructure** meets data collection and management needs, with the ability to be interconnected between surveillance networks across systems, will enhance evidence-informed decision making and forecasting capability in real-time.[1] By having timely and accurate access to evolving data, public health can be proactive in planning services and programs in a responsive manner. Digital innovations used over the pandemic to fill gaps in current systems for making real time decisions include use of open-source data, open-source code and sharing of data, advanced surveillance systems, artificial intelligence, novel approaches to modelling and visualization, communication with the public, the Global Public Health Intelligence Network (GPHIN), and Epidemic Intelligence.[1]

Digital inclusion is defined as the ability to access and use the internet and digital technologies for information and communication.[2] According to the United Nations, digital inclusion is a basic need and right, especially during the COVID-19 pandemic.[2] However, access and use of digital technology has not always been equitable and available to certain populations.[2-14] It is important to identify populations that may have less access to internet and digital technologies such as households in the lowest income quartile and rural communities and mitigate any barriers they may face.[4,5,9,11]

Public health could effectively use **social media** to strategically disseminate evidence informed scientific messages to the public and to counter misinformation by providing accurate and prompt information that is easy to understand, engaging and shareable to others.[8,15] The impact of social media and communication will be discussed in more details in the communication and engagement section.

When employing technology to provide **telemedicine and virtual care**, adopting a client-centred approach considering equity, digital inclusion, and social media influence are important factors when identifying and mitigating barriers to service delivery and client engagement. The National Collaborating Centre for Determinants of Health recommends five considerations to promote equitable digital health services: accessibility, safety, literacy, relevance, and affordability.[3] When engaging clients in the virtual context, it is necessary to obtain informed consent and ensure privacy when creating a virtual space for clients to feel a human connection to make their visit meaningful.[14] It is necessary to evaluate and measure the impact on access, utilization, sustainability, quality of care and safety, equity, cost, health outcomes, and unintended consequences of the program or service being provided.[16]

DATA DRIVEN

The data driven theme discusses the importance of having access to the right data to support rapid decision-making. Topics included in this section include **data quality and monitoring, data and health equity, strengthening surveillance systems, qualitative and mixed-methods research, and quality improvement tools and methods.**

Effective public health practice is based on quality evidence and comprehensive data. To ensure public health practice is rooted in science, reputable research with the ability to have data that identifies the needs of the population is essential.[1] Improving **data quality and monitoring** is crucial for identifying indicators and concerns to help plan for public health interventions while improving care and reducing costs.[1]

In considering leveraging data and data systems, it is important to understand **health equity**, particularly within the systemic socio-historical and contemporary contexts when discussing inequities.[2,4-6,8,9,11,17-22] Also, it is important to map these inequities to the social determinants of health, and to avoid harmful stereotyping and further marginalization of specific groups.[2,4-6,8,9,11,17-23] Furthermore, standards and systems are required to ensure that any sensitive data, such as race and ethnicity data is collected, stored, processed, and used in ways that are consistent, secure, and culturally safe.[2,4] Data governance policies need to outline processes to ensure privacy, ethics, trust, ownership, meta-data availability and public accountability are considered.[2,4]

Effective **surveillance systems** and data sharing requires a quality data system; partnership and engagement; collaboration; evidence informed decision-making; translating science into action; and monitoring and evaluation among stakeholders.[12,24] Data sources that can link into surveillance systems include electronic health information; communication traces obtained from mobile phones; digital surveillance through social media sites; use of artificial intelligence and data simulations.[15,25] New surveillance or tracking systems need to include risk assessment; integration of emerging digital health and open-source initiatives and at the same time address privacy concerns including the potential for discrimination on groups of people.[1,15]

Qualitative and mixed-methods research evidence have been underutilized in public health.[1] Public health approaches have historically been guided by Western science-based principles that do not include the knowledge and realities of all people living in Canada, like the Indigenous way of knowing that includes oral histories and storytelling. Qualitative research can provide insight through the social, cultural, and political lens by helping public health professionals understand what drives risk, how to better create community buy-in for public health initiatives, what influences adherence to public health measures, and which unintended consequences might arise from public health action.[1] Incorporating it into public health practice can add depth and context to epidemiological models and provide insights that help inform the development of interventions, which can minimize and address inequities.[1]

An additional aspect of being data driven refers to building a culture of **continuous quality improvement** (CQI) to inform decision making. Cultivating a culture of CQI refers to supporting staff and capacity-building among recipients and community members by shifting to a CQI mindset to spread and sustain CQI in the organization and throughout the community.[26]

POPULATION HEALTH TRENDS AND PRIORITY AREAS OF FOCUS

The following emerging population health trends and areas of focus have been identified in this rapid review: mental health; substance use and harm reduction; climate change; the built environment; childhood development, education, and resilience; and childhood immunizations.

Mental health affects relationships, civic engagement, work productivity, and overall wellbeing.[2] A surge of mental health issues particularly among women, children, older adults, newcomers, Indigenous individuals, individuals who identify as part of the 2SLGBTQ+ community, health care workers and other at-risk groups is expected post pandemic.[1,2,4-7,10,11,15,27-42] Factors impacting mental health include precarious employment, poor working conditions, income loss, social isolation, changing family structures and compromised coping skills.[4,10,30] Shifting mental health supports from in-person to virtual formats are not always preferred or ideal, particularly for clients who lack the technology or skills to attend virtual services.[5,10] Mitigating barriers to access, providing timely screening and referrals to community and virtual supports, and offering choices for in-person and virtual services facilitates client engagement and choice and promotes mental health and wellbeing.[4,6]

The pandemic amplified the opioid epidemic, with increased numbers of opioid-related deaths within the last two years.[4,30,43] Contributing factors include social isolation, increased unpredictability of unregulated drug supply, reduced access to healthcare services, and limited access to community-based programs that support people who use substances.[43] Training for health care providers on providing care in non-stigmatizing, respectful ways that are free from judgement and discrimination may increase uptake of services and prevent further opioid deaths.[43] It is important to work on advancing the opioid and drug strategy focusing on **harm reduction** and ensuring access to **substance use** services such as opioid agonist therapy, naloxone, and supervised consumption sites.[4,30,43]

Climate change has direct and indirect impacts on health and wellbeing with extreme weather events having far reaching implications for environmental disaster, transmissibility and prevalence of vector-borne illness and impacts on agricultural resources.[4,8,29,30,42,44] Leveraging predictive analytics to forecast adverse climate events and interventions needed while routinely incorporating a climate lens into public health work is recommended. Key areas of focus related to climate change are food security, infectious disease prevention, emergency management, air quality and the built environment.[8,30,42]

Advocating for and working with community partners to build safe and vibrant spaces that promote community connection and physical activity is important. Enhancing our **built environment** also includes accessible transportation and food systems.[4] This approach supports active living and having inclusive and safe communities.[30]

Children were greatly impacted during the pandemic. School closures, social isolation and the move to online learning have associated health risks, including physical, mental and safety harms for students.[1,37,45] Suggested ways to build resilience and help students process their experience includes promoting open empathic discussions, facilitating social reconnection, promoting discussions on coping strategies, and implementing a trauma-informed approach in schools to meet social and emotional needs of students.[4]

Another factor to consider is catch-up for **childhood routine immunizations**. Strategies identified to provide catch-up include appointment-based catch-up programs held at a public health office or community location and having additional providers (such as physicians, nurse practitioners, additional nurses) available and trained to provide catch-up immunizations.[46,47]

HEALTH EQUITY, ETHICS, AND INCLUSION

Health equity, ethics, and inclusion refers to using an ethical and inclusive approach to support diverse populations and reduce health inequities. This includes having diverse voices at decision-making tables, building community and equity into public health decision making processes, taking a population health approach and cross-sectoral and cross-jurisdictional action.[1] Areas of focus for this theme include income and food insecurity, housing insecurity and homelessness, gender, family and gender biased violence, stigma and discrimination, and indigenous health.

Income and food insecurity refers to being worried about running out of food and missing meals or going without food.[4,5,30] There are linkages to food insecurity and adverse health outcomes, including poor mental health and increased hospitalizations for acute and chronic health conditions.[1,48]

Housing insecurity and homelessness - individuals experiencing under-housing, precarious housing, or those living in unsupportive family environments, like 2SLGBTQ+ youth, may be forced into homelessness during or after the pandemic.[5] Recommendations to address homelessness and housing insecurity include prioritizing safe, accessible, and affordable housing as well as ensuring access to safe cooling and warming spaces as needed.[4,5]

Gender has been described as a social construct of roles and systems that are assigned to men and women, with social norms dictating gender-based opportunities and limitations in access to resources like employment, health care, and safety.[9] Women face inequities in terms of power and access to material resources, which impacts their ability to recover from a disaster.[9] It is important to prioritize the needs of women during recovery.[2]

Family and gender based violence - physical distancing, pandemic closures, and self-isolation requirements may have provided additional risks for those who experience family violence including intimate partner violence, child maltreatment and elder abuse.[1,4,7,44,49] Recommendations to promote homes free of violence includes raising public awareness of available services geared towards providing a safe place for those to escape violence; ensuring necessary support and programs are open, accessible, and adequately resourced; and providing training for essential workers on detecting the signs of violence.[5]

Stigma and discrimination - stigma starts by labeling differences and negatively stereotyping people; it causes a separation between “us” and “them,” which is reinforced by differential power dynamics in society.[42] People who are stigmatized are devalued and subjected to discrimination and unjust treatment, which leads to disadvantages and inequitable health and social outcomes.[42] Discrimination is a form of stigma that is enacted, which is based on religion, race, ethnic origin, gender, or sexual orientation.[42] It can lead to marginalization and the differential treatment of a person, which can shape risks and opportunities that impact health.[50] Stigma can lead to adverse health outcomes as it reduces access to and quality of protective resources and health services, increases the risk of chronic stress and poor coping responses, and puts stigmatized people at higher risk of assault and injury.[42]

To address stigma and improve health and well being of the population, it is important to prioritize the perspectives of individuals with lived experience of stigma and discrimination and implement culturally safe service delivery, including trauma- and violence-informed approaches to health and social services.[4,42]

Indigenous health - colonization disrupted Indigenous approaches and systems for health, medicine, and wellbeing.[1] There are intergenerational impacts of colonialism that continue to affect the health and wellbeing of Indigenous Peoples including experiences of systemic racism; breaking family and social structures; dismantling traditional ways of knowing; cutting off connections to the land; barriers to high-quality, accessible, and relevant health services; and ongoing challenges to self-determination.[1,29] Public health challenges facing Indigenous peoples include COVID-19, and higher rates of health conditions compared to non-Indigenous populations such as tuberculosis, sexually transmitted and blood-borne infections, overdoses, mental health challenges, and dental caries.[29]

Article 23 of the United Nationals Declaration on the Rights of Indigenous Peoples states that Indigenous peoples have the right to determine and develop priorities and strategies for exercising their right to development.[51] Health-related self-determination ensures that Indigenous, First Nations, Inuit and Métis (FNIM) populations can design, deliver, and manage their own health programs and services through Indigenous self-governance and supportive fiscal arrangements.[29] Self-determination is an important determinant of health and wellbeing among FNIM communities and is key to closing health gaps between Indigenous and non-Indigenous populations.[1] Within urban settings, public health programs and services must work with local Indigenous health and social service agencies to determine what is needed for each community and to understand how to leverage community strengths.[29]

COMMUNICATION AND ENGAGEMENT

Communication and engagement strategies refer to collaborating with teams, partners, and communities to promote trust through open and clear communication, transparency, reflection, and accountability to the communities that public health serves.[1] Topics in this theme include infodemic, promoting trust, effective communication (indicators and barriers), engaging community stakeholders, and indicators for effective collaboration. Please also refer to community engagement in the community resilience section of this document.

Throughout the pandemic, a concurrent **infodemic** occurred. An infodemic is defined as an excessive amount of information about a problem that makes it difficult to identify a solution, which can spread misinformation, hampering an effective public health response, and creating mass confusion and distrust.[2,44] The infodemic along with distrust in scientific expertise, can undermine public health messaging, adherence to public health measures, and public health response efforts in times of emergency.[1,4,8] The infodemic is a health literacy challenge that impacts health outcomes and disproportionally impacts certain groups.[17] For this reason, **earning trust** through open and clear communication, transparency, reflection, and accountability to the communities that public health serves are essential to public health action.[1] Processes to monitor the media, including social media to identify rumours and correct misinformation is essential.[49]

The recovery and renewal periods will need to focus on building and promoting public trust with the scientific community, while selectively and consistently identifying and countering myths and misinformation with scientific evidence, public health priority actions, and public health key messages.[4,30] **Effectively communicating** and improving access to rapidly changing data and information presented in an accurate empathic way to diverse audiences, including public and key stakeholders, needs to include multiple languages and the use of multiple modalities such as websites, social media, dashboards, epidemiology reports, and targeting messaging campaigns.[30]

Engagement and effective collaboration with key stakeholders should include mechanisms for connecting and cooperating with network partners, providing education to the public to raise awareness regarding relevant community risk preparedness, and building relationships with the community that represent the public.[49] Public participation needs to become a foundational part of the design, delivery, and monitoring of services to promote trust, transparency and accountability and ensure that public health activities remain connected to the concerns of clients and their local communities.[1,9,10,17,30,44,52-56] It is important to have key stakeholders involved early in the planning cycle and part of the evaluation of the intervention, so they can provide insights that will help shape the plan from the start.[30,52-54,56] This will help address usability, and the community needs and priorities that are important for promoting health equity.[9,16,30,52-54,56-58]

COMMUNITY RESILIENCE

Community resilience is a community's ability to adapt to a change in circumstances and challenges.[7,9,49] It is the ability to preserve, recuperate, maintain functioning, identify needs as they evolve, and apply the necessary resources to address those needs (e.g., financial, social, labor force, skills, etc.[7,9,49] Other important concepts that are linked to community resilience are social cohesion, social capital, social belonging, community engagement, and community-based participatory action research.

Social cohesion affects relationships between individuals and communities and their local, regional, and national levels of government.[9] Social cohesion is at the heart of a resilient society, particularly those that are built using the values of transparency, inclusion, accountability, and respect.[4]

Social capital is a set of shared values that allow individuals to work together effectively to achieve a common purpose. It is the degree of interpersonal relationships and connectedness that communities rely on for nongovernment aid during a crisis.[9,59] Social capital is an important consideration for long-term recovery, as it affects the ability of local community groups to identify community vulnerabilities, marginalized groups, priorities, and appropriate solutions that could be more relevant and feasible than those proposed by national or regional government bodies.[9]

Social belonging is one of the most important psychosocial strategies to promote resilience and enhance recovery, growth, and adjustment after a crisis.[60] Social belonging has also been associated with decreases in loneliness, depression, anxiety, pain, sleep disruption, hypertension, fatigue, cognitive dysfunction, and suicide, as well as a reduced likelihood of early mortality.[60] The importance of connecting deeply with others and creating a sense of belonging has been highlighted during the pandemic, particularly with COVID-19 restrictions related to physical distancing.[60]

Community engagement centers around respect for lived experience, individual and community priorities, and diversity of the public in balance with the mandate and interests of those holding government positions.[9] Community engagement and strong social networks are key for identifying priorities and solutions that are more likely to be appropriate, sustainable, and supported by the affected community, which may exceed the scope of a public health intervention.[9]

Community-based participatory research is an effective and powerful approach to minimize health inequities in communities, particularly for those in marginalized groups.[61] It is a community centered approach ensures that research is relevant to the needs of the community, while ensuring that knowledge and resources are equally shared.[61] This approach emphasizes the importance of shared decision making and leverages community strengths, local knowledge, and community values.

HEALTHY AND RESILIENT WORKFORCE CULTURE

Healthy and resilient workforce culture refers to fostering a healthy work environment that supports mental health and resiliency of the public health workforce. The pandemic has negatively impacted the mental health of the healthcare and public health workforce, with public health workforces reporting increasing levels of burnout as a result of the prolonged nature of the pandemic.[1,2,7,22,24,28,30,34,39,40,44,62-77]

Topics of this theme include mental health (impact and supports); social support; self-care; stigma in organizations; diversity, equity, and inclusion; safe and flexible work environment; organizational policy; and organizational resilience.

Many public health staff are struggling with their **mental health** and wellbeing because of sustained uncertainty, health risks, exhaustions, challenging workloads, and cumulative exposure to critical and stressful events for the duration of the pandemic.[30,63] Individual and team level interventions include education and training, specifically mental health interventions and peer and social support.[13,22,23,34,62,64,65,72,78-84]

Social support can be used to mediate stress and burnout among health care workers.[34] Interventions to connect staff to peers, whether through mentorship or a buddy system have been used and are recommended.[13,22,23,54,62,64,71,72,78-81,83,84]

Self-care is an important coping skill for staff to have. Having staff available to remind people to take care of themselves is an essential task.[33] It is also important for leaders to model self-care and help seeking behaviours to others.[33]

Stigma in organizations can manifest through stigmatizing language, making assumptions, breaching confidentiality, using unnecessary precautions, stigmatizing rules and policies, and denying care and access to programs and services.[42] Having training targeting conscious and implicit bias; implementation of cultural safety and cultural humility models; safe and inclusive physical environments; and workforce diversity initiatives are some of the interventions that can help reduce stigma.[42]

It is crucial to nurture workforce **diversity, equity, and inclusion** through recruitment drives for underrepresented staff, professional mentorship programs, projects to improve workplace equity, and effective processes for reporting discrimination.[1] The recovery and renewal periods are a good time to ensure equity and inclusion is part of the new normal in the workplace.[63]

To support the **safe and flexible work environment** for staff it is important to have organizational and management strategies that include staffing, safety, workload management, prevention and prioritization, communication, effective leadership, and workplace cohesion.[62] Ensuring a safe work environment includes providing adequate PPE, ensuring safe infection practice and control on-site, and flexible options to work from home.[19,62,65] In a remote or hybrid work environment, one important consideration is ensuring an equal sense of opportunity and inclusion for those who are working remotely and in-person.[77] Safety also includes creating supportive environments for people to obtain adequate rest periods; accommodating staff who have childcare or other caregiving needs; setting reasonable workloads which includes adequate staffing and resources; not requiring people to work extended hours; and providing compensation for overtime and flex time if this occurs.[62]

Interventions at the **organizational policy** level include strategic pandemic preparedness policies and ensuring occupational health policies are supportive of staff health and wellbeing.[62] Normalizing allocating institutional funding for mental health supports and incorporating stigma reduction strategies into mental health programs is important.[62]

A key part of a healthy and resilient workforce is **organizational resilience**. It is the ability to survive a crisis and thrive in a world of uncertainty, it is influenced by factors such as leadership and culture, networks and relationships, and readiness to change.[85,86] Organizational resilience is comprised of two factors: planning and adaptative capacity.[85,86] Resiliency indicators for planning include planning strategies; stress testing plans; effective partnerships; proactive posture; and unity of purpose.[85,86] Resilience indicators for adaptive capacity include breaking silos; staff engagement; leveraging knowledge; innovation and creativity; decision making; situational awareness; leadership and internal resources.[85,86]

LEADERSHIP

During the recovery and renewal period it is important for leaders to demonstrate human-centred skills that enhance human connections, trust, support, authenticity, empathy, care and compassion, shared purpose, transparent communication, and emotional intelligence.[63,77] Additional leadership characteristics found in literature include being effective and responsible; compassionate and engaged; responsive and agile; celebrating success; engaging in regular communication; staying informed; reassessing and reviewing; and building leadership of others through coaching.

Literature suggests that being an **effective leader** is important to mitigate concerns around mental health and resilience.[62] An effective leader does this by providing acknowledgement and recognition of the work and efforts made by staff, being visible and engaging with frontline staff, and being aware of staff concerns and needs.[62]

A **responsible leader** is someone who values staff members as stakeholders who bring unique perspectives and experiences to provide information on how to maintain motivation and wellbeing of a team.[87] They make it a priority to maintain strong moral and social relationships with staff members that are based on care, justice, accountability, and recognition.[77]

A **compassionate leader** demonstrates integrity and presence by being aware of their thoughts and behaviours, while understanding that their actions can influence the experiences of others who they work with, their organization, and communities.[77] One way to provide compassion is by actively **engaging** with employees and caring for their needs.[62,63,77,87]

A **responsive leader** listens to teams, communities, and evidence; while responding quickly and intentionally to address changing needs.[63,77]

Agile leaders can serve as facilitators and coaches by supporting teams in making sure they have the resources they need, while assisting them to navigate any conflicts and challenges that arise.[77]

Positive leadership behaviours during recovery and renewal also include recognizing and acknowledging staff on their dedication and resilience, while **celebrating** their achievements.[63] In addition, **regular and clear communication** from leaders will help reduce confusion and distress among staff members.[62,63] Leaders need to **stay informed** using reliable sources of information and **reassess** priorities and provide direction as conditions evolve.[63] Regular assessment of priorities is

needed to ensure that the needs of the local population are addressed, to prevent priorities from being overlooked, and groups from being underserved.[63]

One way to build leadership is through coaching. **Coaching** can be used to help create more authentic leaders, whether formal or informal, by helping leaders raise their own awareness on their values and motives, while helping them understand other's values and motives, and to create alignment to engage and empower others.[77] Coaching can help leaders create a safe space to feel grounded and reflective; navigate challenges, crises, and competing priorities; expand a one's consciousness; see blind spots and biases; expand one's capacity; and enable transformation of thinking and behaviour.[77]

LEARNING ORGANIZATION

A learning organization is an organization that is skilled at creating, acquiring, and transferring knowledge, while modifying behaviour to reflect new knowledge and insights.[88] It is an environment where individuals at all levels can propose new ideas and innovate spontaneously, within appropriate boundaries.[63] Components of a learning organization include learning from experience; the creation of a workforce development plan; and reviewing public health competencies, skill set, and training.

Learning from experience is important to prepare for future emergencies (e.g., personnel, resources, protocols, contingency plans, coalitions, and training).[63] Preparing includes reflection, lessons learned, and debriefs with individuals, teams, and organizations as a whole. It is crucial that lessons learned are explored through multisource anonymous feedback from stakeholders like frontline staff, community partners, and the public.[63] Debriefing after a pandemic is necessary to assist with individual and organizational agility, resilience, emergency preparedness, and future emergency responses.[63] Documenting the lessons observed from the pandemic is critical and applying corrective action to implement and sustain recommendations is necessary to demonstrate that lessons learned were acted on.[89] Ways to learn from past experiences include conducting a hotwash, debrief, and/or an After-Action Review (AAR).[88,90-92]

Another component of a learning organization is the **creation of a workforce development plan**. It is estimated that 40% of public health professionals plan to retire within the next decade.[93] The high workforce turn over will require public health units to monitor knowledge, skills, and competencies in their workforces, while developing and implementing workforce development plans.[93] To create a workforce development plan, an accurate assessment of workforce skills, competencies, and training needs need to be conducted.[93] A workforce development plan will help plan for surge capacity across public health to support a range of emergency responses.[1] It will also help ensure that public health professionals have a strong foundation of public health competencies and skill set.[1]

Public Health Competencies, Skill Set, and Training - the public health workforce needs to recognize and utilize the full scope of practice and the skills and competencies to the greatest extent possible.[1,24,93] Public health core competencies are interdisciplinary knowledge, skills, and attitudes essential to public health practice.[1] These core competencies include public health science, data assessment and analysis, policy and program planning, intervention implementation and evaluation, collaboration and partnerships, advocacy, diversity and inclusiveness, communication, and leadership.[1]

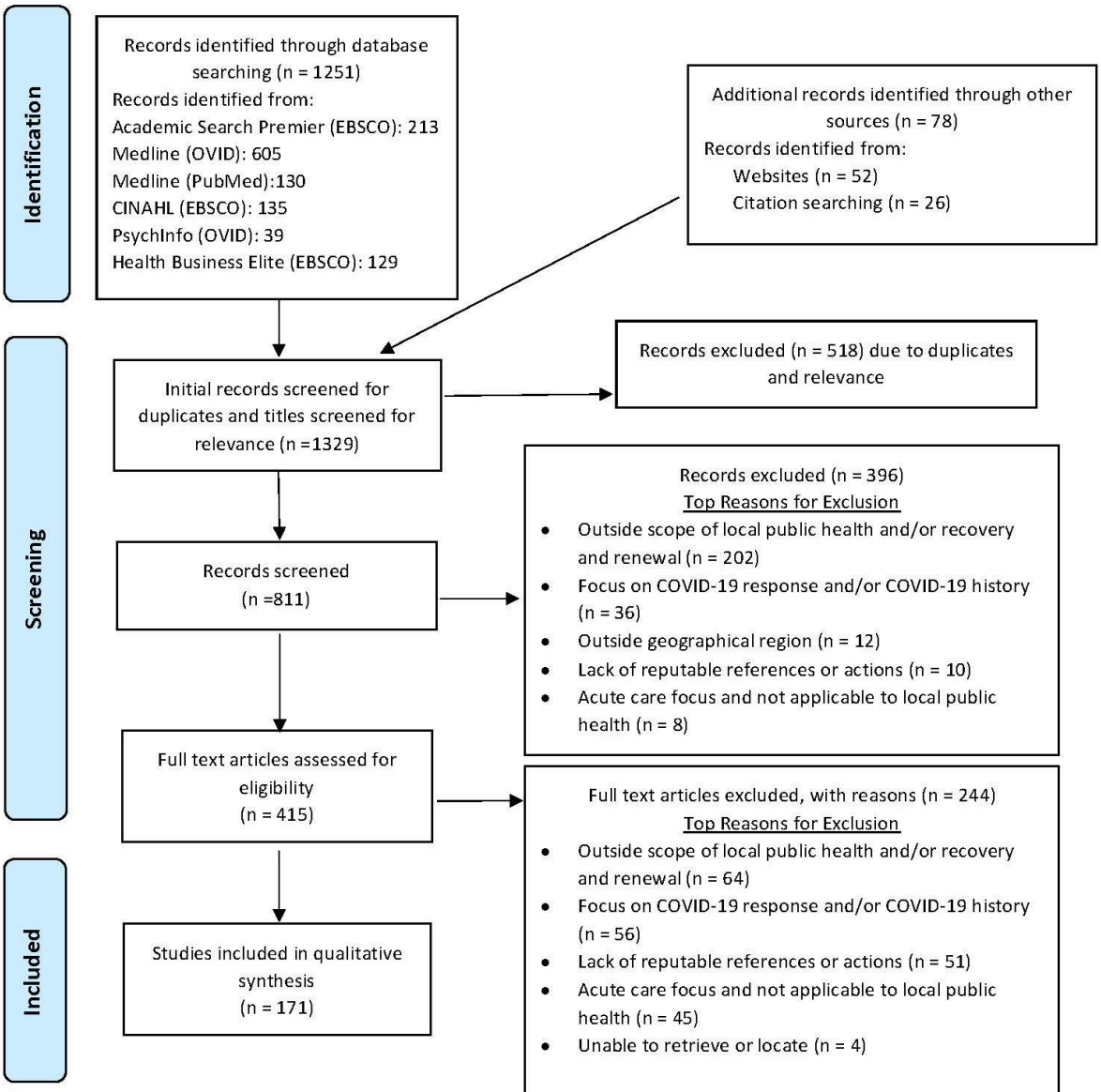
The public health role evolved during the pandemic, which created additional competencies such as working in complex government systems, collaboration for intersectoral action, healthy public policymaking, ecological determinants linked to climate change, Indigenous health, leadership across

disciplines and in the political sphere, etc.[1] It is necessary to regularly review, evaluate, and validate the core competencies for public health professionals with respect to the demands of current and future public health work, and create training plans accordingly.

Conclusions and Next Steps

The public health landscape and priorities will continue to shift as we recover from the COVID-19 pandemic. This review has highlighted the importance for public health to acknowledge the following topics when planning for recovery and renewal: technology and innovation; being data driven; current population health trends; incorporation of health equity, ethics, and inclusion lens; communication and engagement; community resilience; components of a healthy and resilient workforce; leadership; and adopting a learning organization approach. It is also important to include sustainability planning for future public health work and priorities in the renewal and recovery phase. As public health strategic planning will begin in the near future, this report provides valuable insights, and highlights priorities to consider as we build back together.

Appendix A: PRISMA Flow Diagram



PRISMA Flow Diagram adapted from Page, M.J., McKenzie, J.E., Bossuyt, P.M. *et al.* The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

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