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Learning from COVID equity measures to increase community resilience: case study of a rural local public health unit

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ABSTRACT

During the COVID-19 pandemic, certain populations were more likely to be infected, become ill, and suffer worse outcomes than others. Additionally, the response measures put in place to prevent viral spread had disproportionately negative impacts on certain groups of people compared to others. Local public health has a role in not only mitigating the infectious disease impacts but also those related to equity. This paper describes multi-sectoral initiatives led by a local public health agency in the district of Timiskaming, Ontario, Canada to address inequities tied to the pandemic. The authors reflect on this experience to identify opportunities for rural community actors, including local public health, to build community resilience and reduce the impact of future emergencies.

Keywords: rural, health, equity, emergency, public health, resilience

Introduction

In rural communities, we often talk of resilience in the face of emergencies. Community resilience is "the social processes…that occur within places and that are put into action by local people to collectively learn and transform toward enhancing community wellbeing and addressing the negative risks and impacts they perceive and experience as common problems" (Imperiale & Vanclay, 2021, p. 895). Enhancing community resilience requires addressing the systemic inequities (understood as unjust and avoidable socially produced inequalities that shape health) that existed before COVID-19 such as income disparity, educational attainment, and access to broadband internet. Although COVID-19 outbreaks continue to require response, we have also moved into the recovery phase of this emergency and authors compel us to resist attempting to return to pre-pandemic conditions and to instead prioritize transformation into more equitable societies (Mulligan, 2022; Van Assche et al., 2020). In rural communities, the competencies of local public health are well-suited to identifying and understanding issues of equity and catalyzing community-appropriate and collaborative responses (Public Health Agency of Canada, 2007). In this paper, we explore the experiences of a small public health agency working to address equity-related impacts of COVID-19, emphasizing the use of multiple types of learning to identify opportunities for both system transformation and community resilience.

Timiskaming Health Unit (THU) serves a population of approximately 32,000 in Northeastern Ontario, Canada, covering 15,125 km^2 (Statistics Canada, 2023). Its largest centre has just under 10,000 people, and a third of the population is over 60 years of age (Statistics Canada, 2023). The area faces high material deprivation and housing instability (Matheson et al., 2023), with a 1.5 times higher early mortality rate in the lowest socioeconomic group compared to those in the highest socioeconomic

group (Ministry of Health and Long-Term Care, 2018). Like many rural areas, three-quarters of the population report having a strong or very strong sense of community (Statistics Canada, n.d). Despite being Ontario's smallest health unit, THU is often able to use size as a strength, to nimbly change course, innovate, and evaluate new interventions.

Equity played a significant role in the COVID-19 pandemic. Various political and persistent health and social factors created disparities in people's experiences: from exposure to the virus, to treatment, to health outcomes(Public Health Agency of Canada, 2020). As framed by Bambra et al. (2021), "the pandemic has killed unequally, has been experienced unequally and will impoverish unequally" (p. XIV). The pandemic was more than a viral outbreak; it was two epidemics occurring synergistically, compounding emergencies of infectious disease and inequalities (Horton, 2020).

Across Canada the pandemic impacted substance use, mental health, food security, gender-based violence, and financial security (Public Health Agency of Canada, 2021). However, these impacts were not uniform, often exacerbated in rural communities, and often compounded by unequal access to services, including broadband internet (Agyepong et al., 2020; Allen, 2020; Kevany & O'Donnell, 2020; Mental Health Commission of Canada, 2021; Weeden, 2020).

Responding to the COVID-19 Pandemic

Various public health measures were implemented to curb the virus' spread, including travel restrictions, healthcare access changes, school and business closures, physical distancing, and limited social interactions (Canadian Institute for Health Information, 2022). Masks or other face coverings were at times mandatory, and isolation was required or recommended based on exposure or symptoms (Canadian Institute for Health Information, 2022). Compliance with public health measures can be burdensome, resulting in lost income, social isolation, or an inability to obtain necessities (Harris & Holm, 1995; Holland, 2010). In exchange for an individual's willingness to assume the burdens associated with public health measures aimed at protecting society, the principle of reciprocity places an ethical obligation on society to provide supports and resources to facilitate the individual's adherence to these measures (Holland, 2010; Upshur, 2002). In this sense, there is give and take between the individual and society (Keeling & Bellefleur, 2014). However, the burdens resulting from public health measures are not experienced equally across populations, resulting in some requiring more assistance than others to fulfill their obligations (Harris & Holm, 1995; Keeling & Bellefleur, 2014).

In Ontario, financial aid (e.g., sickness benefits, wage subsidies, grants, and loans) was offered by the federal and provincial governments. THU complemented these measures by tailoring initiatives to meet local needs and strengths. These initiatives included policy advocacy, evidence briefs, developing and distributing resources and tools, supports to local health and social services systems, and community engagement. In March 2020, THU convened a group of community agencies to identify populations at risk of being disproportionately affected by the pandemic and to determine and develop responses. The group met regularly, sharing client needs, community resources, and funding opportunities, and becoming a catalyst for initiatives. They established a dedicated webpage for pandemic-related support, took part in a rapid review of public health measures' impact on low-income individuals, and provided free cloth masks.

To address testing barriers, they coordinated mobile swabbing teams, sought funding for and supplied plexiglass retrofits to taxis and non-profit transportation, such as city buses and vehicles operated by social service organizations, and disseminated evidence-informed public facing information about infection prevention and control specific to drivers and passengers. To address concern about transmission outdoors and on playground equipment, THU provided municipalities with evidence-based guidance, outdoor signage, and resources for creating safe public spaces. With increasing summer temperatures and access to indoor public spaces still limited, rapid evidence briefs and public communications were created for property owners and municipalities to support them in providing indoor cooling spaces while reducing the risk of viral transmission. With rising opioid incidents, THU advocated to local opioid agonist treatment clinics to better support clients who were isolating and potentially using alone.

Recognizing digital disparities, THU partnered with a local business and with social service providers to offer free technology access and advocate for improved broadband connectivity. THU launched the Connexions Timiskaming Connections (CTC) volunteer line, matching community needs with volunteers. As community spread of the virus increased, the CTC line became a mechanism through which they could provide more services.

THU staff used an informal equity screen during case management, promoting the CTC line. For people needing to isolate due to a COVID-19 exposure or positive test but experiencing barriers to do so, THU resourced and provided shelter, food, clothing, links to pharmacies, tobacco, and harm reduction. Staff worked with other housing and shelter providers to support transition out of isolation. When vaccines arrived, they used local data to plan mass clinics and, through partnership, offered free rides to and from clinics for those in need.

In addition to tailoring some of the above initiatives to local Indigenous communities, THU staff and leadership collaborated with Indigenous community leaders to co-plan, promote and deliver vaccine clinics. They also provided tools and human resources to support Indigenous community-determined approaches to screening, case and contact management, and implementation of control measures.

After five waves of the pandemic, volunteer requests declined, leading to a pause in the CTC line in April 2022. Over two years, THU staff connected 77 volunteers with 162 direct service requests. Staff distributed 2350 cloth masks at twelve mask depots, retrofitted seventeen vehicles, supplied seventy-five public signs, and provided digital devices or Internet service to 401 people. A strength of this menu of supports is that they were locally tailored; other communities may have required different

interventions. Table 1 outlines THU's initiatives during the pandemic and the equity-related dimensions of exposure, treatment, and/or impact (Public Health Agency of Canada, 2021) that each initiative addressed.

Table 1 Equity interventions implemented during the COVID-19 pandemic, March 2020-April 2022

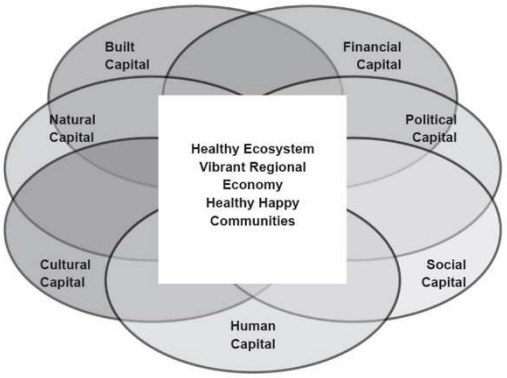
Interventions	**Equity Dimension Addressed**		
	Exposure to virus	Treatment | Susceptibility	Impact of Measures
Provincial and Federal Policy Advocacy			
Paid sick days	•		
Food insecurity			•
Broadband internet access	•		•
Local Evidence Briefs			
Safer access to outdoor public places	•		•
Safer public transportation	•	•	•
Lower risk use of cooling rooms	•		•
Resources and Tools			
Mask depots	•		
Digital divide project	•		•
Isolation supports	•		•
Free transportation for vaccinations		•	
Testing outreach program		•	
Physical dividers in public transportation	•		
Local Health and Social Services Collaboration			
Community Health Equity Collaborative Table	•	•	•
Advocacy for local harm reduction program support			•
Screening tool to identify intimate partner violence			•
Community Engagement			
Connexions Timiskaming Connections Line	•	•	•

Identifying Root Causes

The above needs for support came from deeply rooted issues like social isolation, insufficient social support networks, lack of broadband access, inadequate income, insufficient sick leave policies, and poor access to transportation. Despite Canada being a leader in knowledge on the social determinants of health, inequities in wealth and income are growing (Burkinshaw et al., 2022), which negatively impacts all of society (Wilkinson, 2011). Solutions to these types of issues involve provincial and federal policies that equalize access to education, income, safe environments, and a culture that is willing and ready to make these policies a reality.

Connections among people, termed "social capital", have societal value (Putnam, 2001) and were an important contributor to the initiatives described above. We believe that social capital enabled the creative, often after-hours collaboration among health unit staff, the desire of people to support their fellow community members, and the linkages among organizations that led to such collaborative projects. There are many types of capital in a community, each contributing to social well-being, as seen in Figure 1 (Emery & Flora, 2006). However, we have experienced a societal shift that prioritizes material wealth above other types of capital (Van der Leeuw, 2018). Our pandemic experience suggests that investing specifically in social and human capital is crucial to achieving resilient communities.

Figure 1 Community capitals framework—adapted from the original as depicted in Emery & Flora, 2006



Effectively investing in social and human capital, however, requires community learning, which can be understood on three levels: single-loop (e.g., continuous quality improvement), double-loop (questioning our approaches), and triple-loop (open to transformative change) (Lauzon, 2017). All three levels are essential for enhancing processes, reevaluating assumptions, and transforming the systems guiding our work (Lauzon, 2017; Pahl-Wostl, 2009). Encouraging this type of learning enables us to make changes that reduce vulnerability to future disruption.

The initiatives discussed above emerged from a community-driven desire to assist one another, quickly evolving through cross-sector collaboration, even with the private sector, to mobilize support during the pandemic. Focusing on social capital and multi-level learning will build on this success to enhance both readiness for significant policy changes and the capacity to address existing disparities.

Future Directions

As the COVID-19 pandemic shifts to endemicity (again, while continuing to respond and mitigate), addressing inequities is vital. This involves self-reflection as an institution, nurturing social capital, building healthy public policy, and revisiting the emergency management cycle to incorporate equity-focused approaches into disruptive events and community-based recovery efforts.

Reflect on our role as an institution

A community-serving institution should be aware of its influence and how it supports individuals (Russel, 2022). The initiatives described above pushed THU staff to think creatively, enhance

existing partnerships, develop new ones, manage risks, try to communicate effectively, and provide support while respecting people's dignity. This approach fostered team unity and community pride among staff and embedded the organization in the community in new ways. THU staff learned the importance of incorporating equity and well-being into infection prevention and control decisions, which they are actively integrating into recovery efforts.

Public health units in rural areas have a unique ability to listen and respond, serving their communities' distinct health and wellness needs, considering local social and cultural factors. Health and well-being are primarily cultivated locally, and rural communities excel in fostering connections, flexibility, and continuous learning. Indeed, in her 2021 report, Canada's Chief Public Health Officer reinforced the importance of community involvement to achieve health equity and strengthen locally relevant public health (Public Health Agency of Canada, 2021).

While THU's response could have been strengthened by amplifying the voices of and supporting activities led by those facing these pandemic challenges, public health measures and institutional factors created barriers to such engagement. Also, the approach to evidence reviews inadvertently reinforced existing power structures by using a knowledge base to which not all people have equal opportunity to contribute and whose framing often fails to consider the influence of power (Gaventa & Cornwall, 2015). This emphasizes the need for leadership and organizational practices that prioritize diverse community voices.

Work across sectors to foster social capital

It is crucial to acknowledge that we all play a role in shaping health. This begins with reflection and dialogue, wherein we can uncover our assumptions, values, and beliefs, and collaboratively find ways to make positive change (Lauzon, 2017). For instance, local public health can foster cross-sector collaboration: local governments shape policy, urban planning, and service provision, while local organizations and private sector actors also impact health through prevention efforts. Individuals, too, contribute by supporting one another.

Aim for higher level policy shifts

Because inequalities can harm overall well-being and affect even the most well-off, reducing inequities benefits the entire community (Wilkinson, 2011). At the local level, we can influence various health determinants, but access to these determinants often depends on provincial and federal level policies. Efforts to prevent and address vulnerability involve advocating for policies that enhance access to education and income, as well as promoting healthy environments to ensure optimal living conditions for everyone. Local public health's optimal role in this multi-level governance context, however, is unclear. They are well positioned to articulate local needs and identify locally appropriate solutions to policy-makers, yet are rarely able to gauge the efficacy of such advocacy work.

Revisit the emergency management cycle

The emergency management cycle consisting of prevention, mitigation, preparedness, response, and recovery phases, provides a framework to achieve these goals (Government of Canada, 2022). These phases are interconnected but often isolated within and between actors. In Ontario, municipal emergency responses are governed by provincial legislation (Emergency Management and Civil Protection Act, 1990) that leads them to focus on large-scale, short-term hazards while ignoring social dimensions of risk, undermining a community's ability to foster resilience (Imperiale & Vanclay, 2021). Learning from SARS and COVID-19, we appreciate the need to combine outbreak response with health promotion, community development, and policy efforts that address environmental and socioeconomic determinants of health (Haworth-Brockman & Betker, 2020). The recovery phase of the cycle offers an opportunity to lay the groundwork for future mitigation and prevention efforts.

An equity-focused approach to emergency management is not novel (Spence et al., 2019) and there are tools available to help (e.g., Sendai Framework (UNDRR, 2015)), which emphasize understanding risk in multiple dimensions, strengthening governance, and investing in resilience. New frameworks and indicators specific to public health emergency preparedness and response, including equity indicators, have emerged in recent years, and can now be applied in practice (Haworth-Brockman & Betker, 2020; Public Health Ontario, 2020). THU embedded an Equity Lead within its Incident Management System to link initiatives identified in this paper with other local pandemic-related decision-making. However, literature calls to question the appropriateness of this style of command-and-control structure for complex emergencies and emphasizing their negative impact on equity (Imperiale & Vanclay, 2021), suggesting a need to consider alternatives.

THU's work with First Nation communities aimed to adhere to principles such as relationships, listening with humility, trust, respect, self-determination, and commitment. Consistent with findings from local research (Talking Together to Improve Health Research Team, 2018, 2020), we believe these principles should also be considered in future initiatives, to promote community wellbeing and to minimize the impact of future disruption.

During the pandemic, various recovery frameworks like the Just Recovery Principles (Just Recovery, 2022), 2020 Declaration on Resilience in Canadian Cities (Keesmat, 2020), Green New Deal (MacArthur et al., 2020), as well as recommendations from the Canadian Rural Revitalization Foundation (Canadian Rural Revitalization Foundation, 2021), and the public health sector (Mulligan, 2022; Public Health Agency of Canada, 2020, 2021; Public Health Ontario, 2022), have emphasized transformation, sustainability, reconciliation, intersectionality and equity. Integrating these principles into both emergency management and ongoing operations can help public agencies to support community resilience.

THU continued to collaborate with the Community Collaborative, maintaining a community-centred approach to pandemic recovery. They completed an evaluation report on the CTC line to inform its potential upkeep by someone other than local public health and other potential equity related interventions. Additionally, they are supporting a research project exploring the

experience of rural communities in Northern Ontario to identify ways in which they can better navigate future disruptions, be they from infectious disease, climate change or economic instability.

Local public health units are mandated to work with others on emergency management, health equity, public policy, the built environment, climate change, chronic disease prevention, injury prevention, and wellbeing (Government of Ontario, 2021). This mandate enables them to collaborate with local governments and organizations across all phases of the emergency management cycle. These insights underscore the importance of using comprehensive health promotion strategies to address social vulnerabilities that exacerbate the impact of emergencies.

Conclusion

We propose that reflection and connection are key to fostering resilient communities and achieved by each of us actively reflecting on our experiences, strengthening ties, and supporting those around us. Whether related to extreme weather, infectious disease, or economic fluctuations, change is something communities will always need to navigate and the more that is done now to prevent disparities that are unjust and harmful to individuals, families, organizations, communities, and society, the better off we will be.

Thoughtful reflection following a drawn-out emergency response can foster change that contributes to this resiliency. This local public health unit's equity-related experiences during the COVID-19 pandemic leads them to reflect on the role of their institution, how they might strengthen and build new connections at the local level, to explore their role within the complex policy landscape, and to consider assumptions behind the emergency management cycle. As a public institution, local public health agencies are driven to impactfully serve the public to the best of their ability. We invite others to share their perspectives and experiences, some collective reflection to help us be impactful stewards for the public good.

Data Availability
No new data were created or analyzed during this study.

Contribution Statement
Conceptualization: AM, WH, KSM; original draft: AM, WH; review & editing: AM, WH, KSM, LD.

Conflict of interest
AM, WH, and KSM are, or have recently been, employed by Timiskaming Health Unit. LD has no conflict of interest to declare.

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