Evidence Brief

Creating Resilient and Responsive Mental-health Systems for Children, Youth and Families During and Beyond the COVID-19 Pandemic in Ontario

6 & 7 December 2021

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McMaster Health Forum

The McMaster Health Forum's goal is to generate action on the pressing health-system issues of our time, based on the best available research evidence and systematically elicited citizen values and stakeholder insights. We aim to strengthen health systems – locally, nationally, and internationally – and get the right programs, services and drugs to the people who need them.

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Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the evidence brief. The funders played no role in the identification, selection, assessment, synthesis, or presentation of the research evidence profiled in the evidence brief.

Merit review

The evidence brief was reviewed by a small number of policymakers, stakeholders and researchers in order to ensure its scientific rigour and system relevance.

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KEY MESSAGES

What's the problem?
We identified four factors that make it challenging to create resilient and responsive mental health systems for children, youth and families during and beyond the COVID-19 pandemic in Ontario:
1) there are many long-standing issues related to mental health systems for children, youth and families in Ontario;
2) the mental health of children, youth and families has been affected by the pandemic and the pandemic responses;
3) the pandemic highlighted new weaknesses (and exacerbated existing ones) in the mental health systems; and
4) not all assets are in place nor are they well connected to enable rapid learning and improvement.

What do we know (from systematic reviews) about three elements of a potentially comprehensive approach to addressing the problem?
To promote discussion about the pros and cons of potentially viable solutions, we have selected three elements of a larger, more comprehensive approach.
Element 1 – Using an equity-driven population-health management approach to address the new distribution of health and social needs as they appear after the worst of the pandemic

- This element aims to support health and social systems to transition from responding reactively to children, youth and families seeking mental health care to being proactive in meeting the new distribution of health and social needs of the broader population.
- We identified 11 reviews, most of which could inform the adoption of a population-health management approach for the delivery of mental health services (and how to encourage collaboration between specialty mental health services and primary mental health care), strategies to address the psychosocial issues that emerge in children and their caregivers during the COVID-19 pandemic, and factors that increase the risk of experiencing mental health disorders.

Element 2 – Supporting children, youth and families to address their ongoing mental health needs as Ontarians learn to live with COVID-19

- This element aims to optimally support the ongoing mental health needs of children, youth and families as Ontarians learn to live with COVID-19 (and other large-scale outbreaks of infectious diseases).
- We found several reviews: some about interventions to mitigate the negative impacts of the COVID-19 pandemic on the mental health of children, youth and families; some about 'wrap-around' approaches adopted in systems of care; community-based surge capacity plans for addressing mental health issues; workforce training; and the need for a responsive school curriculum to cope with the COVID-19 pandemic.

Element 3 – Building on strengths identified during the COVID-19 pandemic, and addressing weaknesses exposed, to ensure that mental health systems learn and improve rapidly (learning as we go, and learning as different groups must deal with flare ups)

- This element focuses on adopting a 'rapid-learning and improvement' approach to support mental health systems.
- We identified four systematic reviews and several descriptive case studies that were deemed to be most relevant to adopting a rapid-learning and improvement approach (some of which were directly relevant to the COVID-19 pandemic). These reviews and descriptive studies reveal some of the core features of rapid-learning systems, most often focusing on the need for robust data infrastructure.

What implementation considerations need to be kept in mind?

- While many barriers to creating resilient and responsive mental health systems may exist, perhaps two of the biggest barriers are: 1) making small and rapid changes may be perceived as challenging without larger investments in mental health services; and 2) important structural barriers that must be overcome (e.g., Ontario's privacy laws that impede the flow of information across sectors; lack of support and incentives to implement innovative systems of care).
- Windows of opportunity might include the COVID-19 pandemic itself, that has shone a spotlight on children and youths' mental health challenges, and that fostered greater (and new) collaborations and a sense of urgency to address these challenges.

REPORT

The COVID-19 pandemic is posing major and unprecedented challenges to health and social systems in Ontario and abroad.(1) The pandemic and the measures taken to respond to the pandemic have resulted in economic, social and psychological stressors that have had an impact on the mental health of millions of children, youth and families in Ontario.

This pandemic is also occurring against a backdrop of increasing mental health concerns, as well as large treatment gaps and wait times for hospital-based and community-based child and youth mental health services across the province. Indeed, mental health concerns among children and youth (defined in this brief as individuals who are age four to 25 years) in Ontario have increased, and problems with accessing treatment have been ongoing for decades.(2) Given that schools are a common setting for which children and youth receive mental health support at the promotion, prevention and early-intervention levels in Ontario, extended school closures may have exacerbated the situation.(3)

It is critical to improve the mental health of children, youth and families in Ontario, and to ensure effective strategies are in place to support those at greater risk. Future infection waves of COVID-19 will ensue, as will new pandemics. Garnering the evidence needed now will not only inform our immediate intervention efforts and mitigation strategies, but will also position the province and the mental health systems to respond more effectively and efficiently in future.

In addition, with the COVID-19 vaccine roll-out underway, it appears timely to discuss what transitioning back to 'normal' could look like, with some public-health measures still in place for the foreseeable future, and with some uncertainty around whether and how they will be lifted (or re-implemented) depending on the ongoing relationship between vaccine effectiveness and variants of concern.

Box 1: Background to the evidence brief

This evidence brief mobilizes both global and local research evidence about a problem, three elements of a potentially comprehensive approach for addressing the problem, and key implementation considerations. Whenever possible, the evidence brief summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies, and to synthesize data from the included studies. The evidence brief does not contain recommendations, which would have required the authors of the brief to make judgments based on their personal values and preferences, and which could pre-empt important deliberations about whose values and preferences matter in making such judgments.

The preparation of the evidence brief involved five steps:

1) convening a Steering Committee comprised of representatives from key stakeholder groups and the McMaster Health Forum;
2) developing and refining the terms of reference for an evidence brief, particularly the framing of the problem and three viable elements for addressing it, in consultation with the Steering Committee and a number of key informants, and with the aid of several conceptual frameworks that organize thinking about ways to approach the issue;
3) identifying, selecting, appraising and synthesizing relevant research evidence about the problem, elements for addressing it, and implementation considerations;
4) drafting the evidence brief in such a way as to present concisely and in accessible language the global and local research evidence; and
5) finalizing the evidence brief based on the input of several merit reviewers.

The three elements for addressing the problem were not designed to be mutually exclusive. They could be pursued simultaneously or in a sequenced way, and each element could be given greater or lesser attention relative to the others.

The evidence brief was prepared to inform a stakeholder dialogue at which research evidence is one of many considerations. Participants' views and experiences and the tacit knowledge they bring to the issues at hand are also important inputs to the dialogue. One goal of the stakeholder dialogue is to spark insights – insights that can only come about when all of those who will be involved in or affected by future decisions about the issue can work through it together. A second goal of the stakeholder dialogue is to generate action by those who participate in the dialogue and by those who review the dialogue summary and the video interviews with dialogue participants.

Aim of the evidence brief

This evidence brief will inform deliberations about how to create resilient and responsive mental health systems for children, youth and families during and beyond the COVID-19 pandemic in Ontario. In doing so, it mobilizes the best available evidence, as well as the insights from two panels composed of parents and youth from across Ontario, to identify: 1) the challenges in supporting the mental health of children, youth and families during and beyond the pandemic; 2) three elements of a potentially comprehensive approach to address the problem; and 3) key implementation considerations for these elements. As explained in Box 1, the evidence brief does not contain recommendations. Moving from evidence to recommendations would have required the authors to introduce their own values and preferences. Instead, the intent is for this evidence brief to inform deliberations where participants in a stakeholder dialogue will themselves decide what actions are needed based on the available evidence, their own experiential knowledge, and insights arising through the deliberations.

To draw attention to equity considerations in the framing of the problem and identification of potential solutions, the evidence brief also focuses on two perspectives: 1) children, youth and families with pre-existing physical, mental and neurodevelopmental conditions; and 2) children, youth and families from racialized communities (see Box 2, and more fully discussed later in the report). These two groups were identified by the Steering Committee of this project and by key informants who were interviewed during the process of preparing this evidence brief. They were selected because their mental health may have been particularly affected by the COVID-19 pandemic and may be affected by solutions proposed in this evidence brief. Many other groups warrant serious consideration as well, and a similar approach could be adopted for any of them.

Box 2: Equity considerations

A problem may disproportionately affect some groups in society. The benefits, harms and costs of elements to address the problem may vary across groups. Implementation considerations may also vary across groups.

One way to identify groups warranting particular attention is to use "PROGRESS," which is an acronym formed by the first letters of the following eight ways that can be used to describe groups†:

- place of residence (e.g., rural and remote populations);
- race/ethnicity/culture (e.g., First Nations and Inuit populations, immigrant populations and linguistic minority populations);
- occupation or labour-market experiences more generally (e.g., those in "precarious work" arrangements);
- gender;
- religion;
- educational level (e.g., health literacy);
- socio-economic status (e.g., economically disadvantaged populations); and
- social capital/social exclusion.

The evidence brief strives to address all children, youth and families in Ontario, but (where possible) it also gives particular attention to two groups:

- children, youth and families with pre-existing physical, mental and neurodevelopmental conditions; and
- children, youth and families from racialized communities.

Many other groups warrant serious consideration as well, and a similar approach could be adopted for any of them.

† The PROGRESS framework was developed by Tim Evans and Hilary Brown (Evans T, Brown H. Road traffic crashes: operationalizing equity in the context of health sector reform. *Injury Control and Safety Promotion* 2003;10(1-2): 11–12). It is being tested by the Cochrane Collaboration Health Equity Field as a means of evaluating the impact of interventions on health equity.

Key definitions

This evidence brief uses several key terms that need to be defined, and in some cases described (see Table 1).

Table 1: Key definitions

Term	Definition and description
Pandemic-response decisions	• Four types of decisions typically encountered by decision-makers involved with the COVID-19 pandemic response: o **public-health measures** to prevent or control COVID-19 infection (e.g., screening, vaccination, personal protection, risk stratification, outbreak management, pandemic tracking); o **clinical management** of COVID-19 and pandemic-related conditions (e.g., remote management of those with existing mental health issues, and management of pandemic-related mental health conditions); o **health-system arrangements** (including governance, financial and delivery arrangements); and o **economic and social responses** (e.g., measures taken in education, community and social services, child welfare, youth justice, and other relevant sectors) (4)
Children and youth	• Individuals age four to 25 years • Those aged 18 to 25 are considered emerging adults who are typically faced with challenging transitions (i.e., 'aging out' of children and youth services, and experiencing complex life transitions such as leaving compulsory education and finding their first job) (5) • While we recognize that the first three years of life are a period of incredible growth in all areas of a child's development (and could have experienced impacts from the COVID-19 pandemic and the measures to respond to the pandemic), evidence related to infants and toddlers (birth to three years) are considered beyond the scope of this evidence brief
Mental health	• Two inter-related dimensions of an individual's health that operate on separate continua: 1) mental well-being and 2) mental health disorders:(6) o Mental well-being refers "to one's life satisfaction, happiness, and prosocial behaviour"(6) o Mental health disorder refers to "illnesses affecting mood, thinking and behaviour, or symptoms interfering with emotional, cognitive and social function"(6) • Mental health can be affected by risk and protective factors: o Risk factors "increase the likelihood, duration and severity of mental health-disorders"(6) o Protective factors "enhance mental well-being" and decrease the impact of risk factors (6) • Mental health services for children and youth are often conceptualized as 'tiers', each tier reflecting variation in the severity, acuity, and chronicity of the mental health presentation (suggesting that those with the most severe needs should access the highest tier) (7) o Some suggest a paradigm shift to reflect that children and youth access different tiers at different times in their journey through different mental health services (e.g., a youth with a severe and chronic mental health disorder may access a primary-care setting or may be returned to primary care) o An example is the Thrive model adopted in the UK Child and Adolescent Mental Health Services (8)

Mental health systems	• The interplay of health systems (e.g., primary care, community-based mental health and addition services, specialist care) and social systems (e.g., education, community social services, child welfare, employment, youth justice) that can support the mental health of children, youth and families
Rapid-learning system	• The combination of health systems, social systems and research systems at all levels (self-management, clinical/client encounter, program, organization, regional, and government levels) that are: o anchored on the needs, perspectives and aspirations of children, youth and families; o driven by timely data and evidence; o supported by appropriate decision supports and aligned governance, financial and delivery arrangements; and o enabled with a culture of and competencies for rapid learning and improvement (9) • The focus of a rapid-learning system is to make small yet rapid changes that are centred on improving care experiences and health outcomes among children, youth and their families, at manageable per capita costs and with positive provider experiences • These changes will support the development, evaluation and implementation of resilient and responsive mental health systems
Resilience	• A dynamic process that involves a positive adaption to adversity which can alter the impact of risk factors on mental health:(6) o While resilience can be observed at the individual level (e.g., resilient children, youth and families, or resilient communities), this evidence brief focuses on fostering resilient systems
Responsive	• The capacity of mental health systems to react quickly and positively to the changing needs of children, youth and families
Social determinants of health	• Factors can have an influence on health (both physical and mental), including someone's genetics and lifestyle choices, but also where someone was born, grow, live, work and age (10) • The most commonly identified factors related to social determinants of health include: o Disability o Education o Employment and working conditions o Early childhood development o Ethnocultural background o Food insecurity o Gender o Health services o Housing o Income and income distribution o Indigenous status o Social exclusion o Social safety network o Unemployment and job security (11) • Addressing the social determinants of health is key to achieving health equity

An individual's mental health can be influenced by "risk factors" and "protective factors."(6) Risk factors can increase the likelihood of developing mental health disorders as well as increase their severity and duration.(6) On the other hand, protective factors can improve (and protect) a person's mental well-being. It is worth noting that mental health can be worked on and developed, especially by having children, youth and families capitalize on skill acquisition and competencies that can help support their capacity to be "mentally healthy." A recent rapid review identified risk and protective factors of school-aged children and youth at the individual, family, learning environment, community and societal levels.(6) (see Table 2 below)

Table 2: Protective and risk factors for the mental health of children and youth (6)

Level	Construct	Protective factors for mental health	Protective and risk factors for mental health[1]	Risk factors for mental health
Individual	Sense of self	• Feeling a sense of belonging • Having a sense of spirituality	• Self-perception • Emotions • Self-esteem • Self-efficacy • Sense of control	• Being or feeling isolated
	Skills and abilities	• Emotional intelligence • Flexibility • Participation in extra-curricular activities (e.g., sports, music, drama)	• Problem-solving skills • Social skills	• None identified in the review
	Physical health and development	• Engaging in play	• Physical health status • Readiness for school	• Negative birth outcomes
	Lifestyle	• Getting adequate amounts of sleep • Participating in physical activity	• Nutrition	• Smoking, using alcohol or other drugs • Risky sexual behaviour • Sexual orientation and related stigma
	Life events	• None identified in the review	• None identified in the review	• Stressful life experiences • Adverse childhood experiences
Family	Parental health	• None identified in the review	• None identified in the review	• Using alcohol or other drugs • Experiencing physical or mental health challenges • Caring for a family member with a disability
	Relationships and parenting style	• Having strong family support when making decisions • Having open communication • Participating in family meals	• Attachment to parents or caregivers • State of parent-child relationship	• Parental conflict • Domestic abuse or violence in the home
	Family structure	• None identified in the review	• None identified in the review	• Having a single parent or a teen parent • Having a parent who is incarcerated • Having little to no contact with a non-resident birth parent
	Home environment	• None identified in the review	• Safety and security	• None identified in the review

[1] Some factors can operate as protective or risk factors depending on the direction (whether positive or negative).

Learning Environment	Engagement with learning	• Attending preschool or engaging in preschool learning • Liking school	• None identified in the review	• Being excluded from school
	Peer relationships	• Having friends	• None identified in the review	• Having poor relationships at school (e.g., with peers, staff or teachers) • Experiencing bullying or bullying others
	Educational atmosphere	• Feeling a sense of control • Availability of extra-curricular activities	• State of student-staff relationships • School culture	• None identified in the review
	Expectations	• None identified in the review	• Feeling a sense of achievement	• Having a heavy workload • Being overscheduled • Feeling pressured to fit in or to be successful
Community	Social networks	• Participating in social networks and community	• Access to social capital • Access to social relationships and community	• None identified in the review
	Neighbourhood and built environment	• None identified in the review	• Neighbourhood safety • Urban design	• None identified in the review
Society	Socio-economic status	• None identified in the review	• Education • Income • Standard of living • Employment	• Experiencing poverty • Experiencing homelessness
	Social structure	• None identified in the review	• Social inclusion or exclusion	• Experiencing social and cultural oppression • Colonialism • War
	Equality	• Legal protection of rights • Political participation	• Level of inequality • Experiencing discrimination or stigma	• None identified in the review
	Culture	• Involvement in church, synagogue, mosque, etc.	• None identified in the review	• Media and technology use

THE PROBLEM

We identified four factors that make it challenging to create resilient and responsive mental health systems for children, youth and families during and beyond the COVID-19 pandemic in Ontario:

- there are many long-standing issues related to mental health systems for children, youth and families in Ontario;
- the mental health of children, youth and families has been affected by the pandemic and responses to the pandemic;
- the pandemic highlighted new weaknesses (and exacerbated existing ones) in mental health systems; and
- not all assets are in place nor are they well connected to enable rapid learning and improvement.

We describe each of these challenges in turn below based on data and evidence we identified from our searches, as well as from insights we identified through the key-informant interviews that we conducted during the preparation of this evidence brief.

Box 3: Mobilizing research evidence about the problem

The available research evidence about the problem was sought from a range of published and 'grey' research literature sources. Published literature that provided a comparative dimension to an understanding of the problem was sought using three health services research 'hedges' in MedLine, namely those for appropriateness, processes and outcomes of care (which increase the chances of us identifying administrative database studies and community surveys). Published literature that provided insights into alternative ways of framing the problem was sought using a fourth hedge in MedLine, namely the one for qualitative research. Grey literature was sought by reviewing the websites of a number of domestic and international organizations, such as Ontario Health, Public Health Ontario, Ontario Centre of Excellence for Child and Youth Mental Health, Children's Mental Health Ontario, School Mental Health Ontario, IC/ES, Canadian Institute for Health Information, Statistics Canada, Public Health Agency of Canada, Canadian Institutes of Health Research, the Organisation for Economic Cooperation and Development, and the World Health Organization.

Priority was given to research evidence that was published more recently, that was locally applicable (in the sense of having been conducted in Canada), and that took equity considerations into account.

There are many long-standing issues related to mental health systems for children, youth and families in Ontario

There are many long-standing issues related to mental health systems for children, youth and families in Ontario, that existed prior to the COVID-19 pandemic. Many of these challenges were reported by the 2010 Select Committee on Mental Health and Addictions,(12) and other consultations and research conducted before the COVID-19 pandemic.(2;13-14)

Among the most pressing long-standing issues, are:

- there is no "single" mental health system for Ontarians (regardless of age);
- mental health and addictions services in Ontario have long been underfunded in relation to their share of the province's disease burden (in 2015, it was estimated that it was underfunded by $1.5 billion annually), with mental health services for children and youth being particularly under-resourced compared to mental health services for adults and to child physical health;(14-15)
- existing systems focus on services for acute mental health challenges, rather than being built around promotion and prevention services;
- there is uneven access to services and large variations in service quality between providers and across regions;
- services are often not evidence based;
- there is a lack of a defined basket of publicly funded services across the full continuum of mental health challenges (although some work has been underway to address this);(16-17)
- there are significant wait times for hospital-based and community-based mental health services across the province;
- there is limited understanding among the public and providers of what services are available and where to find them (which is exacerbated by the array of services being disconnected and fragmented, some of which are publicly funded and others that are not);

- there is a lack of data across time, settings and sectors, which limits effective oversight and accountability; and
- there is a lack of coordination and communication in services across systems.

Regarding the first point, it is worth noting that efforts are underway to design, manage, and coordinate one "mental health system" for Ontarians of all ages, and ensure that programs and services are delivered consistently and comprehensively across the province. Indeed, in February 2019, the Ontario government established the Mental Health and Addictions Centre of Excellence at Ontario Health. The Center is serving as the foundation on which Ontario's new comprehensive mental health strategy launched in 2020 is built.(18) While the centre is still in its infancy, it is intended to be a single entity responsible for designing, managing and coordinating the mental health and addictions system across the lifespan.

Taken together, the issues noted above have collectively contributed to fragmentation and poor coordination in mental health systems for children, youth and families in Ontario.

The mental health of children, youth and families has been affected by the pandemic and responses to the pandemic

The COVID-19 pandemic is occurring against a backdrop of increasing mental health concerns among children and youth (age four to 25 years) in Ontario. The 2021 scorecard on Mental Health and Addiction System Performance in Ontario published by IC/ES, which used data pre-dating the onset of the pandemic, revealed that **between 2009 and 2017:**

- the rate of outpatient visits for mental health and addictions care increased by 58% among youth (aged 14-17 years) and by 47% among emerging adults (aged 18-21 years), which may reflect greater needs, a greater likelihood to seek help, or both;
- the rate of emergency-department visits for mental health and addictions care increased by 90% among those aged 10-21 years, and by 75% among those aged 22-24 years (such a large increase suggesting barriers to accessing outpatient services);
- the hospitalization rate for mental health and addictions care increased by 115% among those aged 10-13 years and by 136% among those aged 14-17 years; and
- the rate of emergency-department visits for self-harm increased by 128% among those aged 10-13 years, 108% for 14-17 years; and by 72% among those aged 18-21 years.(19)

Self-reported data from Statistics Canada also revealed that the mental health of children and youth in Canada has been worsening in the past decade. In 2019, Statistics Canada reported that:

- 17% of children and youth aged five to 17 reported poor or fair mental health and 5% of children and youth in this age group reported having a diagnosed anxiety disorder;(20)
- perceptions of mental health problems vary by age and sex, with pre-pandemic data showing that more female youth reported fair or poor mental health compared with male youth.(20)

It remains unclear what has driven the sharp increase of mental health problems among children and youth in the past decade. Some have pointed to several socio-environmental changes such as the emergence of social media and the impact of the Great Recession of 2008.(21) Others pointed out that this may be the result of efforts to reduce stigma associated with mental health problems, which could have improved attitudes and knowledge.(22)

As noted at the outset of this section, these trends had already been established prior to the onset of the pandemic in March 2020 which has since affected the lives of everyone in Ontario. In response to the pandemic, the government of Ontario, like most other jurisdictions around the world, put in place a series of public-health measures to try and stop the spread of COVID-19. These measures include (but are not limited to):

- the need to wear masks in public spaces;

- physical distancing and stay-at-home orders (no longer able to freely meet with and engage with friends and family outside of the household; and reduced options for recreation and socialization);
- school closures leading to an abrupt shift to remote learning and other adaptations to regular scheduling;
- shifting to virtual health and social-care services provided to children, youth and families; and
- mandatory closure of all non-essential workplaces (many parents having to work from home or, as is the case in many instances, losing their livelihoods).

These measures have, in relatively short order, changed several aspects of people's lives in profound ways, many of which were previously taken for granted. They also had a direct impact on the risk and protective factors for the mental health of children and youth at all levels: individual, family, learning environment, community and society (see Table 2).

Evidence is increasingly emerging of the toll that living through this global pandemic has had on children, youth and families. While the full extent of impacts of these disruptions are not fully understood as they may take years to manifest, at minimum they have resulted in a situation in which all Ontarians have had to change how they live within new societal norms, almost overnight, often in ways that are acutely stressful. Table 3 below provides an overview of local and international evidence about the impact of the COVID-19 pandemic on the mental health of children, youth and families.

Table 3: Impacts of the COVID-19 pandemic

	Example of impacts
Children and youth	• An ongoing study by Statistics Canada illustrates that Ontario children and youth had diverse and evolving experiences during the pandemic. In January-February 2021, it was reported that: o 14.2% of those aged 12 to 17 indicated that their current mental health compared to their mental health pre-pandemic was **much better or somewhat better now** (a decrease from 24.15% in September 2020) o 61.3% of those aged 12 to 17 indicated that their current mental health compared to pre-pandemic was **about the same** (an increase from 58.1% in September 2020) o 24.5% of those aged 12 to 17 indicated that their current mental health compared to pre-pandemic was **somewhat worse or much worse now** (an increase from 17.8% in September 2020) (23-24) • Additional data from Statistics Canada revealed the negative impact on the mental health of youth since the COVID-19 pandemic began: o 64% of those aged 15 to 24 reported a negative impact of the pandemic on their mental health (25) o 41% of those aged 15 to 24 reported symptoms consistent with moderate or severe anxiety in the early months of the pandemic (25) • Statistics Canada is currently conducting additional surveys to document other impacts of the COVID-19 pandemic, notably on: o the use of substances, including alcohol, cannabis, opioids and non-prescription substances (26) o stigma around accessing health and social services for these problems (26) • Several systematic reviews, rapid reviews and single studies revealed new mental health disorders or worsening of pre-existing disorders among children and youth, notably: o Absenteeism from work (27) o Academic issues (27) o Adjustment disorders (28) o Anger (29) o Anxiety and depression (28-37)

	○ Eating disorders (38) ○ Fear (28;36) ○ Grief (28) ○ Isolation and social exclusion (28) ○ Possible long-term growth and developmental problems (e.g., developmental delays and cognitive impairments) (32) ○ Post-traumatic stress disorder (28;32;36) ○ Relationship problems (27) ○ Restlessness, irritability, clinginess and inattention (3;28;37) ○ Self-harm, suicidal ideation and suicide (27;35;39) ○ Sleep disturbance (34) ○ Stigma (28) ○ Stress-related disorders (3;27-29;32-33;37) ○ Substance use (27;33;39) and drug overdoses (among youth who are experiencing or have experienced homelessness) (39) ○ Violence or aggressive behaviours (40) ○ Worry and helplessness (27) **Positive impacts** • An Ontario-based study examining bullying prevalence rates revealed that Grades 4 to 12 students reported far higher rates of bullying before the COVID-19 pandemic than during the pandemic across all forms of bullying (e.g., general, physical, verbal, and social), except for cyber-bullying (where differences in rates were less pronounced) (41)
Parents	• Data from Statistics Canada show discrepancies between the perspectives of children, youth and parents regarding the mental health of children and youth (which suggests that parents may not always be aware of the mental health struggles experienced by their children, and in particular youth): ○ 52% of youth aged 12 to 17 did not have the same perceptions of their mental health as their parents (20) ○ When a difference occurred, 65% of youth rated their mental health less positively than their parents did (20) • Data published by Statistics Canada in June 2020 revealed parents' top concerns about their children during the pandemic. Many were very or extremely concerned about their children's: ○ Opportunities to socialize with friends (71%) ○ Amount of screen time (64%) ○ Loneliness or isolation (54%) ○ General mental health (46%) ○ School year and academic success (40%) (42) • The same study also revealed that parents were very or extremely concerned for their families in terms of: ○ Balancing childcare, schooling and work (74%) ○ Managing their child's or children's behaviours, stress levels, anxiety and emotions (61%) ○ Having less patience, raising their voice, or scolding or yelling at their children (46%) ○ Staying connected with family or friends (43%) ○ Getting along and supporting each other (37%) ○ Feeling lonely in their own home (30%) (43) • A Canadian study revealed that families with children younger than 18 years living at home have experienced deteriorated mental health due to the pandemic (44) • Several systematic reviews, rapid reviews and single studies revealed new mental disorders or worsening of pre-existing disorders among parents, notably: ○ Anxiety and depression (32;36)

	○ Fear (e.g., over the physical and mental health of their children, concerns over potential job loss, and arranging childcare) (36) ○ Fractured systems for responding to potential child neglect and maltreatment (45) ○ Less responsive parent-child relationships (45) ○ Stress-related disorders (32;36) **Positive impacts** • One review reported some positive benefits of the pandemic on families, including increased father involvement in caregiving (45)
Access to programs and services	• Despite substantial data gaps, the pandemic led to significant disruptions in Ontario, which may have affected educational, health and developmental outcomes (46-47) • An Ontario-based study revealed an abrupt decline in acute mental health service use immediately after the onset of the pandemic: (48) ○ The decrease in emergency-department visits for April 2020 was greatest among youth between the ages of 10 and 21 years ○ Among those aged 14 to 21 years, health service use did not return to pre-pandemic levels by March 2021 ○ Mental health and addictions–related hospitalizations among children and youth decreased by 32% (22- to 24-year-olds) to 69% (10- to 13-year-olds) in April 2020 compared to the previous year, and had not returned to pre-pandemic levels by March 2021 (except for those aged 10 to 13 years) • A report by the Canadian Institute for Health Information revealed decreases (for the period March to September 2020 compared with the same period in 2019) in emergency-department visits and hospitalizations for self-harm behaviours among children, youth and emerging adults (49) ○ A priori, such decreases may seem positive, but it is unclear whether those with moderate or acute needs where able to get the support and care that they needed • Reviews also reported a decrease in access to various programs and services despite growing mental health concerns: ○ Child-protection referrals (37) and maltreatment allegations (35) ○ Access to psychiatric emergency departments (3;35;37) ○ Pediatric emergency-department visits (3) ○ Hospital admissions (3;37)

Despite the current body of evidence focusing on the negative impacts, it is important to acknowledge that people had a wide range of experiences during the pandemic. Some evidence reveals that the pandemic (and the pandemic responses) may have brought positive changes in the short term. For example, some children and youth experiencing anxiety or bullying may have fared better during school closures.(41) Others may have appreciated the flexibility of remote schooling or working from home, and enjoyed greater involvement in caregiving as well as enhanced family cohesion.(45) Thus, some children, youth and families may be reluctant to go back to 'normal' and could be supportive of sustaining some of the positive changes brought about by the pandemic (e.g., virtual schooling and work).

In addition, it is important to acknowledge that we only have a partial portrait of the mental health challenges faced by children, youth and families during the initial waves of the COVID-19 pandemic. It is unclear how easing of public-health restrictions and returning back to 'normal' will impact them. In addition, the long-term effects on their mental health, as well as on the development of children and youth remain unknown.(50) Several systematic reviews being planned may help to shed more light on some of these issues. Among those, several reviews will examine:

- the mental health of children and youth more generally (51-54), their use of mental health services (55), and their coping strategies;(56)

- the mental health of specific groups, such as primary-education students,(57) secondary-education students,(58) university and college students;(56;59-63)
- domestic violence among couples and families and their associated mental health implications for children and youth;(64)
- the impact on vulnerable children and youth (including those with neurodevelopmental disorders, chronic illness, pre-existing mental health diagnoses and socially disadvantaged);(65)
- the impact of remote learning on the well-being of teachers and students in higher education;(66) and
- the well-being of both parents and their children, as well as parent-children interactions.(67)

The pandemic highlighted new weaknesses (and exacerbated existing ones) in mental health systems

In addition to the long-standing challenges related to mental health systems already identified in the section above, the COVID-19 pandemic has highlighted new weaknesses, while exacerbating some of those that were already creating significant challenges for children, youth and their families. Specifically, the pandemic has brought to light:

- the lack of coordination between health and social systems to support the mental health and well-being of people of all ages (and the need for policy levers to foster greater cooperation and shared accountability between organizations and across sectors);
- the challenges associated with rapidly pivoting to virtual services in health and social systems (which were so infrequently used before the pandemic and thus contributed to a lot of anxiety among service users and providers, while excluding many who do not have access to the appropriate technological infrastructure);
- the lack of resilience of health and social systems that were unable to ramp up their activities when a crisis arrives;
- a fragile 'surveillance system' for the mental health of school-aged children and youth (with school closures, it was difficult for school personnel to proactively identify those at risk during limited and online interactions);
- the lack of routinely collected and timely shared data to monitor the effects of the pandemic on children, youth and families, which made it difficult to align services to the evolving needs;
- the lack of cross-sectoral linkage of demographic, health, education and developmental administrative data that could enrich population-based surveillance and research (for example, while IC/ES is a real asset in measurement of population mental health, it does not integrate data from community mental health services or data from the education sector);(68) and
- the lack of evaluation embedded within existing interventions to support the mental health of children, youth and families during the pandemic, and into service provision more generally (while there are a lot of promising ideas, it is difficult to determine what works and in what context).

Not all assets are in place nor are they well connected to enable rapid learning and improvement

Given the unique and rapidly evolving nature of the COVID-19 pandemic, most jurisdictions took a piecemeal approach to address problems as they emerged. While the government of Ontario established mechanisms to ensure that its responses were informed by the best available data and evidence (e.g., establishing the Ontario COVID-19 Science Advisory Table), it remains challenging to do so in a context of uncertainty about how the pandemic will evolve (and the impacts of measures to prevent or control the pandemic). Therefore, some decisions have been criticized for not being aligned with existing evidence (e.g., maintaining school closures prior to the emergence of the Delta variant, despite insufficient evidence for their role in minimizing COVID-19 transmission, and insufficient consideration of the harms to children and youth).(69) This situation illustrates the importance and challenge of learning and improving rapidly, in this instance during and between waves of the pandemic, and while moving away from the pandemic towards recovery.

As outlined in the previous section of the brief, enabling rapid learning and improvement requires establishing, strengthening and connecting assets across four categories:

1. ensuring systems are patient-centred (e.g., through mechanisms that ensure children, youth and families are engaged in setting priorities, designing programs and services);
2. enabling data- and evidence-driven decision-making (e.g., through assets that facilitate the digital capture, linkage and timely sharing of relevant data, and the timely production of relevant research evidence);
3. ensuring assets are system supported (e.g., by aligning governance, financial and delivery arrangements in ways that facilitate rapid learning and improvement); and
4. establishing supportive culture and competencies (e.g., by ensuring there is 'buy-in' at all levels for rapid learning and improvement, and that key players have the right knowledge and skills to contribute to rapid learning).

We describe in greater detail the remarkably rich assets that exist in Ontario to support the establishment of a rapid-learning system in Appendix A, but some of the key features include:

- many organizations being dedicated to improve mental health care in the province, and many being dedicated to children, youth and families;
- a surge in efforts in many sectors to understand and address the impacts of the COVID-19 pandemic on the mental health of children, youth and families; and
- several key players mobilizing to develop a mental health recovery plan for children, youth and families.

Despite these assets, there are gaps in current initiatives that would make it a challenge to create linkages between them and create mental health systems that can learn and improve rapidly:

- data about patient experiences (with services, transitions and longitudinally) are often not being linked and shared in a timely way (with many organizations focused on producing one-off or annual data reports rather than many, small, immediately actionable reports); and
- alignments in governance, financial and delivery arrangements to support rapid learning and improvement are often inadequate or not yet fully in place across the different sectors that may have an impact on the mental health of children, youth and families.

Overall, better-established connections among existing assets could help to consolidate efforts to foster the creation of resilient and responsive mental health systems for children, youth and families. Yet, not all assets are in place nor are they well connected to enable this.

Additional equity-related observations about the problem

An important element of the problem that requires further discussion is how the problem may disproportionately affect certain groups. Indeed, there are growing concerns that some groups will face disproportionate challenges due to the COVID-19 pandemic (and the pandemic responses). As noted above, this evidence brief explores equity considerations from two perspectives: 1) children, youth and families with pre-existing physical, mental and neurodevelopmental conditions; and 2) children, youth and families from racialized communities. These two groups were selected, for illustrative purposes, after consultation with the Steering Committee and key informants who we interviewed during the development of this evidence brief.

Children, youth and families with pre-existing physical, mental and neurodevelopmental conditions

Those with pre-existing physical, mental and neurodevelopmental conditions have been particularly affected by the COVID-19 pandemic and the measures to respond to the pandemic, most notably:

- experiencing disruptions of 'routine' health and social services;
- facing new (or recurring) accessibility barriers to learning for students with disabilities (e.g., disruption of special-education services and challenges associated with remote learning);
- increased burden on caregivers and families (e.g., considerable stress due to the disruption of services, the growing demands placed on them, and the negative impacts of physical distancing measures); and

- lacking access to the usual protective factors that support them (e.g., a caring adult outside the home, access to their grandparents, or community activities to support skill development).(70)

Evidence shows that children and youth with disabilities (including learning disabilities) may be more vulnerable to challenges associated with remote learning. According to Statistics Canada, 58% of parents whose children had a disability reported being very or extremely concerned about the school year and their children's academic success, compared with 36% of parents whose children had no disabilities. Children with disabilities not only require a greater amount of support for school activities, but also with other daily activities.(71)

A report on emergency planning and safety for students with disabilities in K-12 education during the COVID-19 pandemic in Ontario identified several accessibility barriers to learning.(72) Some of these barriers were explicitly about mental health challenges, while other barriers may have contributed to these mental health challenges (see table 4 below).

Table 4: Barriers that have contributed to mental health challenges for students with disabilities in K-12 education during the COVID-19 pandemic (72)

Types of barriers	Examples of barriers
Organizational, policy and procedural barriers	• Inconsistent or unclear messaging from varying levels of government, health agencies and school boards • Lack of or limited access to consistent data to inform decisions (e.g., transition plans, cancellation of extracurricular activities) • Service delivery models used by government, health services, service agencies and school boards not conducive to virtual service delivery • Policies and procedures related to students with disabilities outdated, non-existent, or inflexible to accommodate this type of emergency
Barriers associated with student mental health	• Little or no coordination across agencies and school boards, insufficient support for parents with students with complex needs • Not consistently or sufficiently prepared to provide health and mental health services in a virtual setting • A flood of information and resources being presented to teachers, parents and students
Academic (learning inequities for students with disabilities)	• Virtual learning is not working for many students with disabilities
Support for secondary-school students with disabilities	• Hands on learning, skills in applicable trades and life skills were significantly diminished during COVID-19
Transitions between in-person school and virtual learning	• Student voice often forgotten in planning the transition to virtual learning
Accessible communication and technology	• Ongoing accessibility issues with virtual learning environment or platform such as no closed captions, compatibility issues with screen readers, lack of support or knowledge of accessibility features, no sign language interpretation
Training on the integration of digital technology into learning	• Gaps in digital skills, adaptation of technology to teaching and learning
Transportation	• Lack of or reduced public transportation available for students with disabilities

Children, youth and families from racialized communities

Children, youth and families from racialized communities (groups designated as visible minorities, recent immigrants and Indigenous peoples) have often faced disproportionate challenges in accessing mental health support and care before the COVID-19 pandemic. For example, studies conducted in Ontario revealed that Black youth disproportionately access mental health care through both forensic and emergency care pathways, which suggests that Black youth are not receiving care unless they are interacting with the youth-justice system or are symptomatic enough to need intensive interventions.(22) Similarly, a recent scoping review examining access to mental health care for Black youth in Canada identifies several barriers at several levels: at the systemic and organizational levels (e.g., wait times, poor access to mental health practitioners, geographical and financial barriers to care, racism and discrimination, and lack of culturally-sensitive care), as well as at the interpersonal level (e.g., stigma and mistrust of the mental health systems).(73)

The COVID-19 pandemic has most likely exacerbated the challenges faced by racialized communities. Evidence emerging from the pandemic reveals that racialized communities:

- are overrepresented among those in low income and may be more vulnerable to the social and economic impacts of COVID-19;(71)
- include children and youth living in families economically affected by the pandemic, and who are more susceptible to experience negative mental health repercussions;(74)
- include children and youth who have reported experiencing discrimination since the start of the pandemic;(71)
- were more likely to report symptoms consistent with moderate or severe generalized anxiety;(75)
- may find it more challenging to access remote learning and telehealth services with adequate devices;(71;74)
- may be at increased risk of maltreatment and interfamilial violence due to confinement; (74)
- formed a larger proportion of front-line workers (including nurse aides, orderlies and patient service associates) and other essential workers, many of whom have children at home who may be at greater risk of exposure to the virus, and may have increased stress on the household affecting the mental health of the entire family;(76) and
- have experienced higher rates of mortality due to COVID-19 (thus, more children, youth and families from racialized communities may have experienced grief and loss).(71)

Regarding Indigenous communities, a recent report published by the Public Health Agency of Canada examined how inequalities that they face have been amplified by the COVID-19 pandemic, which could lead to a higher risk of the number of COVID-19 cases and deaths.(77) The report highlighted concerns among First Nations for the mental health and well-being of Indigenous community members (including children and youth), such as:

- experiencing structural inequalities that exacerbate mental health challenges during the pandemic (e.g., lack of broadband internet access and infrastructure, lack of affordable and safe homes, lack of access and available clean usable water, food, lack of timely and culturally adapted mental health services, as well as stereotypes, discrimination, myths, and racism);
- being cut off from their cultural practices (due to public-health measures, lack of ability to travel to communities due to lockdown measures, increased fear/concern surrounding contracting the virus and the shutdown of recreational activities);
- living in close quarters, which has an impact on mental health, especially in cases of unhealthy emotional and physical situations for women, children, and LGBTQ2S+ peoples (among others); and
- experiencing mental health distress during the pandemic, which may exacerbate the risk of incarceration or suicide.

Citizens' views about key challenges related to the problem

Two citizen panels were convened virtually. The first panel was composed of 12 parents and was hosted on 12 November 2021. These parents were taking care of children with new or pre-existing problems (including, stress, anxiety, bullying, eating disorders, suicidal ideation, and special-education needs). The second panel brought together eight youth aged 12 to 17 on 20 November 2021. These youth also had similar new or pre-existing problems. All participants were from Ontario. Panellists were provided with a plain-language version of the evidence brief prior to the panels, which served as an input into deliberations.

During the deliberation about the problem, panellists were asked to share what they perceived to be the main challenges to creating resilient and responsive mental health systems. These challenges are summarized in Table 5 below.

Table 5: Summary of panellists' views about challenges

Panels	Challenges	Description
Parent panel	Mental health systems are fragile	• Parents indicated that mental health systems in Ontario are fragile, and could not be resilient and responsive to a major crisis like the COVID-19 pandemic. They generally agreed that we do not have a fundamental "infrastructure that you can ramp up when a crisis arrives." • They illustrated the fragility of the systems in various ways. For example, one parent said that "we built a house of cards" while another indicated that "you can't build a plane while you're flying it."
	Lack of timely access to mental health services	• Many parents spoke about the long-standing issue of having timely access to mental health services. • They indicated that this challenge was exacerbated by: o The lack of support to find and navigate mental health services; o Lack of access to multilingual mental health services for diverse communities; o Many silos (e.g., school boards and health system); o Many long waiting lists in community agencies; o Many professionals working in a specific domain of mental health; and o Lack of follow-up. • One parent, who is also a teacher, indicated that there are many barriers to seamless communication across professionals: "I have referred students to our school mental health counsellor, but the counsellor can't talk to me. My EA [educational assistant] can talk to me about students, but can't talk to the parents. We have lots of walls blocking teamwork and communication." • These problems were exacerbated by the COVID-19 pandemic, and many parents stopped seeking care because it felt impossible to get professional help.
	Blind referrals are the norm	• Parents generally agreed that another long-standing issue (which got worse during the pandemic) is that 'blind referrals' are the norm. People seeking care are typically left with a list of websites and phone numbers, with no coordinated support to access these services. • These blind referrals appear to be routine practice, like checking a box: o One parent said: "Everyone is checking boxes because that is their responsibility, but no one has a real solution to find help. (…) We need a real person to help find another person who can provide actual help."

Panels	Challenges	Description
		○ Another parent said: "The doctor provided phone numbers of adult mental health support and asked me to inquire about youth services."
	Limited access to affordable and robust IT infrastructure	• The rapid shift to virtual schooling and virtual care put a financial strain on many families, many of which have limited access to affordable and robust internet. • One parent mentioned having to pay hundreds of dollars per month for internet access (often unstable) because she lived in a rural area. That parent pointed out that it raised serious equity issues, because not everyone could afford this: "You need a smartphone, a monthly service plan, a good credit score, a reliable data plan, and you can't get this when you live in poverty."
	Lack of dedicated staff in school to support students' mental health	• There is an increasing need for more mental health professionals (e.g., there are few support workers in schools (e.g., counsellors, social workers, psychologists, and nurses), and given the limited personnel, there are wait times for a wide array of mental health services. • However, one parent was concerned that professionals may not be able to meet the diversity of needs of students: "The helping professions are trying to help too many different people with too many needs, and few have the time to really focus on one area of specialty and need. We're all running in every direction because we're all faced with too many calls from too many directions."
	Lack of access to publicly-funded mental health services	• While school-based services and services in community agencies are publicly funded, a few parents indicated the need to secure private counselling and therapy (for themselves and their children), and their incapacity to sustain the costs
	Lack of meaningful human contacts, despite being more digitally connected than ever	• Many parents were concerned that the shift to virtual care may not be effective to address the mental health needs of their children: ○ As one parent said: "providing a new app is not the answer, it is having a connection." ○ Another parent added: "The online presence is of zero help. To be met with a chat bot is not okay." • Many parents also pointed out that the pandemic significantly increased the time they all spent in front of a screen and on social media (and the spread of misinformation and conspiracy theories), which may have exacerbated mental health problems.

Panels	Challenges	Description
	Challenges associated with virtual schooling	• The rapid shift to virtual schooling brought a lot of challenges to students with special educational needs. For instance, many tools and apps being used were not adapted. As one parent said: "My daughter is dyslexic, and you can't really use a text-to-voice, which means two and a half hours of frustration and pain." • Some parents pointed out that virtual schooling offered a shelter from bullies, but that was only temporary. o As one parent said: "[Before the pandemic, my daughter] "faced sexual assault, bullying, and harassment" and "she did not want to go to school". [When the school made the switch to remote learning], "my daughter had the best school year because she was not bullied anymore. (…) The pandemic's effect might have saved my daughter's life, because I was home, [and] because she was away from her toxic peers." o These parents were now quite anxious about children returning to school.
	Challenges balancing work and caregiving responsibilities	• Many parents experienced distress during the pandemic, while trying to balance work and caregiving responsibilities. o As one parent said: "I have been considering taking a leave of absence over the last few months. It is too difficult as a single parent to help my kids and be employed full time at the same time." o Another parent, who is a teacher, explained how she was worried about her own mental health, as well as the mental health of her children and students during the pandemic. She indicated that the education sector is in crisis and a lot of teachers are hanging on to get through the pandemic and then they are done (early retirements or stress leaves). "We do not have the materials to build the plane while we are flying it in the tornado."
	Apprehension about 'returning to normal'	• Parents were generally cautious about the province's plan to lift all COVID-19 restriction in order to 'return to normal.' • While some thought that "our return to normal is a marketing scheme", others pointed out that "normal got us here." The pandemic was thus an opportunity to think about an overhaul of mental health systems, as well as society's values and expectations. • Some also indicated that this return to normal was generating a lot of stress and anxiety among children and parents. o One parent said: "My daughter started high school in Grade 9 and her entire high school setting has been a 'quadmester' and it's been a disaster. She is now up until 3 a.m. each night. I think school has fallen apart. I fear for how my daughter will survive the real world, especially since she literally has not attended high school." o Another parent said that she is "on guard" with her youngest daughter as she is worried about her eating habits as she is no longer at home all day.
Youth panel	Stigma associated with mental health is still common	• Youth participants discussed how stigma associated with mental health are still prevalent. This affected care-seeking behaviour. • Some were reluctant to talk to their teacher about their mental health problems for fear of academic repercussion. • While some youth participants indicated that they were quite comfortable to talk about their mental health with their parents, others

Panels	Challenges	Description
		mentioned that they had a lot of uneasy conversations. For some parents, mental health was becoming such an important issue to address that it created tension within the family. o One youth participant recalled "lots of drawn-out" and "awkward" discussions, being constantly asked if they were okay (which was not what she needed as a conversation topic). o Another youth participant was diagnosed during the pandemic and entered into a mental health and eating disorder clinic. She did therapy for a few weeks but it "felt more like a punishment."
	The pandemic reduced social interactions and redefined friendships	• Youth participants missed direct social interactions with their friends during the pandemic. • While many tried to maintain interactions using phone, social media, text messages and video apps, it was difficult to maintain these interactions as the pandemic went on (they faded out of that routine). o As one youth participant said, the pandemic shrank her circle of friends, but it revealed who her "true friends are."
	Being home, almost alone	• Many youth participants felt alone at home during the pandemic. Even those with parents at home felt that it was difficult for parents to look after and support their children while working remotely: "Everyone was busy with their own routines." • While some were able to cope with the situation, others felt hopelessness, isolation and solitude. o As one youth participant said: "My house was an isolated island." • Staying home for virtual appointments with health professionals was problematic due to the lack of privacy.
	Mixed experiences with school closures and virtual schooling	• Youth participants had different experiences about school closures and virtual schooling. • Some appreciated the flexibility of self-based and online learning, while others struggled. • Some preferred online learning because they were anxious in the school environment. • Some were particularly affected by extracurricular activities and competitive sports being stopped. The latter was a critical loss for student athletes who were at the age of being scouted by universities.
	A generation facing many global problems	• A few youth participants mentioned that children and youth are feeling increasingly anxious by a growing number of global problems, including climate change, wars and pandemics. • As one youth participant said: "[The past year the] "world was thrown into chaos. (…) The pandemic is a large factor, but there's so many other things, impending doom from climate change, wars escalating, there's just so much stress and a pandemic chucked into the mix, it was a breaking point. There's too many things going on at once."
	Seeing the world through the lens of internet and social media	• Youth participants were concerned that the pandemic forced many of them to spend too much time online. Many felt that everything was now 'filtered' by the internet and social media, which was detrimental to their mental health. o One youth participant spoke about how her cousin's self-image got worse in the pandemic: "You see the world through a lens, not a reality."

Panels	Challenges	Description
		○ Another went further: "With social media, we had more time to reflect on yourselves. I had to learn more about myself. When you keep looking at yourself, you see things that you may not like. Some people started questioning what they know about themselves. That can affect them." • They also expressed concerns about the news coverage and the spread of misinformation on social media. While some underestimated the COVID-19 pandemic, others felt as if "we are all going to die."
	Mixed feelings about 'returning to normal'	• While most youth participants were keen on resuming their social interactions, they expressed mixed feelings about 'returning to normal' and some believed we should redefine what 'normal' is: ○ One youth participant was particularly concerned about the province's re-opening being premature (especially since the COVID-19 variants of concern): "Going back [to school] in a haphazard fashion was problematic." ○ Another participant said that we should "use the pandemic as a blank canvas to reconstruct the way the world works."

THREE ELEMENTS OF A POTENTIALLY COMPREHENSIVE APPROACH FOR ADDRESSING THE PROBLEM

Many approaches could be selected as a starting point for deliberations about an approach for creating resilient and responsive mental health systems to support children, youth and families during and beyond the COVID-19 pandemic in Ontario. To promote discussion about the pros and cons of potentially viable approaches, we have selected three elements of a larger, more comprehensive approach. The three elements were developed and refined through consultation with the Steering Committee and key informants who we interviewed during the development of this evidence brief. The elements are:

1) using an equity-driven population-health management approach to address the new distribution of health and social needs as they appear after the worst of the pandemic;
2) supporting children, youth and families to address their ongoing mental health needs as Ontarians learn to live with COVID-19; and
3) building on strengths identified during the COVID-19 pandemic, and addressing weaknesses exposed, to ensure that mental health systems learn and improve rapidly.

The elements could be pursued separately or simultaneously, or components could be drawn from each element to create a new (fourth) element. They are presented separately to foster deliberations about their respective components, the relative importance or priority of each, their interconnectedness and potential of or need for sequencing, and their feasibility.

The principal focus in this section is on what is known about these elements based on findings from systematic reviews. We present the findings from systematic reviews along with an appraisal of whether their methodological quality (using the AMSTAR tool) (9) is high (scores of 8 or higher out of a possible 11), medium (scores of 4-7) or low (scores less than 4) (see the appendix for more details about the quality-appraisal process). We also highlight whether they were conducted recently, which we define as the search being conducted within the last five years. In the next section, the focus turns to the barriers to adopting and implementing these elements, and to possible implementation strategies to address the barriers.

Box 4: Mobilizing research evidence about elements for addressing the problem

The available research evidence about elements of a comprehensive approach for addressing the problem was sought primarily from three databases: Health Systems Evidence, Social Systems Evidence and COVID-END. Health Systems Evidence (www.healthsystemsevidence.org), is a continuously updated database containing more than 9,000 systematic reviews and more than 2,800 economic evaluations of delivery, financial and governance arrangements within health systems. We also ran searches in Social Systems Evidence (www.socialsystemsevidence.org), which is a continuously updated database containing more than 4,100 systematic reviews and more than 480 economic evaluations about the programs and services in a broad range of government sectors and program areas (e.g., children and youth services, community and social services, education, public safety and justice). The reviews and economic evaluations were identified by searching the database for reviews addressing features of each of the elements. We also ran searches in COVID-END (www.mcmasterforum.org/networks/covid-end/resources-to-support-decision-makers/Inventory-of-best-evidence-syntheses), which is a continuously updated database containing more than 6,000 evidence syntheses about all types of decisions being faced by those who are part of the COVID-19 pandemic response.

The authors' conclusions were extracted from the reviews whenever possible. Some reviews contained no studies despite an exhaustive search (i.e., they were 'empty' reviews), while others concluded that there was substantial uncertainty about the element based on the identified studies. Where relevant, caveats were introduced about these authors' conclusions based on assessments of the reviews' quality, the local applicability of the reviews' findings, equity considerations, and relevance to the issue. (See the appendices for a complete description of these assessments.)

Being aware of what is not known can be as important as being aware of what is known. When faced with an empty review, substantial uncertainty, or concerns about quality and local applicability or lack of attention to equity considerations, primary research could be commissioned, or an element could be pursued and a monitoring and evaluation plan designed as part of its implementation. When faced with a review that was published many years ago, an updating of the review could be commissioned if time allows.

No additional research evidence was sought beyond what was included in the systematic review. Those interested in pursuing a particular element may want to search for a more detailed description of the element or for additional research evidence about the element.

Summary of panellists' values and preferences related to the three elements

We included the same three elements in the citizen brief of a potentially comprehensive approach to addressing the problem. For the purpose of the citizen brief, the elements were re-worded to be more accessible to parents and youth. These elements were used as a jumping-off point for the deliberations, in which the facilitator prompted panellists to consider their role in supporting the adoption and implementation of the elements.

During the deliberations several values and preferences were identified in relation to these elements, which we summarize in Table 6.

Table 6: Summary of panellists' values and preferences related to the elements

Element	Values expressed by	Preferences for how to implement the element
Element 1 - Using an equity-driven population-health management approach to address the new distribution of health and social needs as they appear after the worst of the pandemic	Parent panel • Centralization versus regionalization • Excellent care experience (children, youth, family, and community-centred) • Stewardship (at the individual and population levels) • Being proactive • Trusting relationships • Empowerment • Equity/fairness	Centralization versus regionalization • Parents indicated that a population-health approach required breaking down the silos within and across organizations and sectors • They had mixed views on whether this should be achieved through greater centralization (with a central coordinating hub) or regionalization (with smaller pods connecting to a central hub) Excellent care experience (children, youth, family, and community-centred) • Parents indicated that a system that can better match the needs of its population to the appropriate services must be flexible and centred on the needs of the community • They emphasized the need for service-delivery organizations and government departments to know their populations and align programs and services accordingly • Some parents indicated that smaller regional pods (discussed above) could improve care experiences Stewardship (at the individual and population levels) • Parents called for improved stewardship at the individual and population levels to better match services to needs • They supported the idea of adding case managers or system navigators who can act as a resource to guide children, youth and families to access mental health services and regularly follow up with them as needed (*note that this is included in the role of regulated mental health professionals in schools*) Trusting relationships • Parents saw a key role for teachers and primary-care providers (e.g., Family Health Teams) in a population-health management approach, and in conducting integrated wellness checks • They focused on these actors given the trusting relationship that is already established with them

Element	Values expressed by	Preferences for how to implement the element
		Being proactive • Parents liked that a population-health management approach could focus on preventive services and a proactive outreach • This means that mental health systems would shift away from being an "incoming call centre" and transition towards being an "outbound centre" Empowerment • Parents indicated that a population-health management approach requires supporting greater empowerment • Such empowerment could focus on improving self-management skills and improving mental health literacy (e.g., educating parents on warning signs to look out for when a child may need additional support) Equity/fairness • Some parents emphasized that a population-health management approach must be equity-driven and must improve equity of access to mental health services
	Youth panel • Being proactive • Trusting relationships	Being proactive • Youth participants generally appreciated proactive approaches and outreach activities, but indicated that their preference for this approach would depend on how it was done and by whom Trusting relationships • Youth participants were generally more receptive to outreach activities being done by someone who is familiar with them and their family, such as: o Close friends o Family members o School personnel (e.g., counsellor, nurse, social worker) o Health professionals (e.g., family physician) • Several youth participants were not keen on outreach activities being done by teachers for two reasons: o They were concerned that revealing their mental health problems could have academic repercussions o They often felt that teachers may be doing this to fulfil job requirements (e.g., checking boxes) • Youth participants warned against impersonal outreach activities (e.g., mass mailing) because it felt impersonal and bureaucratic
Element 2 - Supporting children, youth and families to address their ongoing mental health needs	Parent panel • Competence/Expertise (in schools) • Excellent care experience (children, youth,	Competence/Expertise (in schools) • Parents generally focused on having more appropriately trained resources in school settings (given the amount of time school-aged children and youth are spending there)

Element	Values expressed by	Preferences for how to implement the element
as Ontarians learn to live with COVID-19	family, and community-centred)	• Several parents talked about the benefits of having a nurse at school when they were young, and hope to have providers present full-time in each school Excellent care experience (children, youth, family, and community-centred) • A few parents mentioned the need to adopt a 'wrap-around' approach to provide care for children, youth and families with complex needs (e.g., having an interdisciplinary team create, implement and monitor a care plan) • Parents discussed the need to have more case managers (or system navigators) to guide people through the process of seeking care (instead of just being handed a list of websites to check) (*note that this is included in the role of regulated mental health professionals in schools*) • Some parents also discussed the need to rethink the school curriculum, and perhaps have more flexibility in the curriculum to respond to crises (focusing on what is truly necessary - the 'knowledge blocks' – as opposed to 'cramming' the whole curriculum through virtual learning)
	Youth panel • Empowerment • Excellent care experience (children, youth, family, and community-centred)	Empowerment • Youth participants generally felt the need to be better equipped to cope with stress • They expressed the need for the school curriculum to include more self-management strategies, mindfulness training, and broader training in mental health literacy (which is currently lacking) Excellent care experience (children, youth, family, and community-centred) • Several youth participants called for more family-based or family-centred tools (as opposed to having tools developed strictly for children, youth, or parents) • They indicated that many of the challenges they have encountered during the pandemic could have been better resolved as a family • As one youth participant said: "We have developed our own tools because of COVID-19. [We need] family coping mechanisms"

Element 3 - Building on strengths identified during the COVID-19 pandemic, and addressing weaknesses exposed, to ensure that mental health systems learn and improve rapidly	Parent panel
	• Innovation
	• Excellent care experience (children, youth, family, and community-centred)
	• Empowerment
	• Equity/Fairness
		Innovation
		• Several parents called for an innovative agenda for mental health systems in Ontario, which would need to consider:
		  ○ Centralization of mental health services at the regional level (i.e., having regionalized pods connected to a central hub, which enables free access of information sharing across sectors)
		  ○ A proactive mental health service infrastructure that can be ramped up during a crisis
		  ○ Having trained response teams "on-call" in times of crises

Element	Values expressed by	Preferences for how to implement the element
		○ Revisiting the delivery of mental health care prior to the pandemic, and adjusting services based on best practices (e.g., rapid-learning and improvement model to evaluate what worked and modify accordingly) ○ An increase in funding and allocation of resources to mental health systems to support innovation Excellent care experience (children, youth, family, and community-centred) and Empowerment • Parents called for greater children, youth and family engagement to change the system and respond to new COVID-19 challenges, more specifically in: ○ Identifying new problems (or needs) ○ Co-designing programs and services (to ensure it is children, youth, family, and community-centred) ○ Implementing programs and services ○ Evaluating programs and services ○ Adjusting programs and services ○ Sharing best practices • As one parent said: "We can't have others decide the solutions, without our voices at the table. Nothing about us without us" Equity/Fairness • Some parents indicated that system leaders are responsible to proactively seek the voices of children, youth and families (especially those most at risk)
	Youth panel • Excellent care experience (children, youth, family, and community-centred) • Empowerment	Excellent care experience (children, youth, family, and community-centred) • Youth participants indicated that system leaders have a responsibility to proactively seek the voices of children and youth to bring about change to the system and respond to COVID-19 challenges Empowerment • Some suggested that children and youth should not strictly be consulted through surveys, but also through mechanisms that are more empowering: ○ Using deliberative mechanisms (like virtual panels) ○ Fostering dialogues on social media ○ Hosting school-based discussions ○ Conducting door-to-door outreach in some marginalized neighbourhoods to get feedback

Element 1 – Using an equity-driven population-health management approach to address the new distribution of health and social needs as they appear after the worst of the pandemic

The aim of this element is to support health and social systems to transition from responding reactively to children, youth and families seeking mental health care now, to being proactive in meeting the new distribution of health and social needs of the broader population.(78-79)

This element might include:

- adopting a population-health management approach in the planning for and delivery of mental health services:
  - step 1 - segmenting the population into groups with shared health and social needs and shared barriers to accessing care, for example:
    - tier 1: all children, youth and families (the focus is on population-based mental health wellness, promotion and prevention),
    - tier 2: those at risk for or experiencing mental health problems that affect functioning in some areas of daily living (the focus is on targeted prevention, early identification and early intervention),
    - tier 3: those experiencing significant mental health problems that affect functioning in some areas of daily living (the focus is on specialized consultation and assessment, intervention through short-term counselling and therapy, family capacity building),
    - tier 4: those with most severe, chronic, rare or chronic/persistent diagnosable mental health problems that significantly impair functioning in daily living, and
    - tier 5: those in significant crisis or requiring emergency attention and support,
  - step 2- co-designing care models, in-reach services ('now that you're here…. can we offer these additional free, evidence-based services?') and outreach services ('we haven't heard from you in a while…. can we help?') for each population segment,
  - step 3 - implementing the models and services in ways that equitably reach and benefit all those who need them ('mass customization at scale'), and
  - step 4 - monitoring reach and other process measures and evaluating key metrics;
- strategies to proactively identify new and emergent care needs for children, youth and families as they transition 'back to normal' (e.g., dealing with grief, loss and post-traumatic stress, separation anxiety, difficulty socializing, etc.); and
- using population-based approaches to address the broader social determinants of health (e.g., addressing financial security, food security, housing).

What is a population-health management approach?

Many mental health systems partners are focused on responding reactively to those now seeking care from their organization (see the smallest of the three 'curves' in the top part of Figure 2 below). Population-health management involves broadening their focus to include being proactive in meeting the needs of the entire population for which they're accountable (see the middle of the three curves) and expanding their 'toolkit' to include both:

- 'in-reach' services, which means proactively offering evidence-based services that can support the mental health of children, youth and families, anytime they are 'seen in' or 'touched by' the health and social systems (within reason); and
- 'outreach' services, which means proactively connecting with those who are not seeking care now (or have not been 'seen' or 'touched' for some time) and again proactively offering evidence-based services (like those in point above) in a coordinated way, and removing barriers to accessing these services.(78)

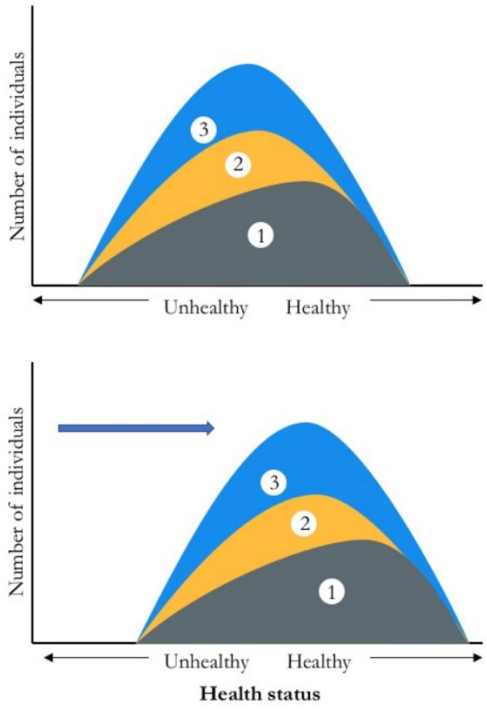
The key differences for many mental health systems partners will be:

1) proactively and opportunistically offering evidence-based services to those now seeking care from their organizations (in-reach);
2) connecting with and supporting those who aren't (outreach);

3) using a person-centred approach that helps children, youth and families – using a comprehensive array of services that fit their needs (e.g., mental health care and special education) – to set and achieve health goals that are appropriate for them; and
4) all partners will need to coordinate care within and across organizations.

The goal is to shift the whole population curve from unhealthy to healthy (compare the lower part of Figure 2, with more healthy people, to the upper part) and to do so in a way that respects each person's autonomy.

Figure 2: 'Curve' that mental health systems are attempting to shift rightward (adapted from (80))



1- Those seeking care
2- Population that should be the focus on both in-reach and outreach approaches
3- Entire population of the community that would be affected by population-based approaches

We provide a brief summary of the key insights from the citizen panels in Table 6. A summary of the key findings from the synthesized research evidence is provided in Table 7. For those who want to know more about the systematic reviews contained in Table 7 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix B1. We provide below a brief summary from the systematic reviews that we identified.

Key insights from systematic reviews

We found eight systematic reviews that could inform the adoption of a population-health management approach for the planning and delivery of mental health services, each of the several reviews address the core features of population-health management,(81) the role of assessment tools (or risk stratification tools) to get a more fulsome picture of individual and population health needs,(82-83) the return of investment from population health management programs,(84) quality-improvement strategies in outpatient mental health care for children and youth,(85) and factors that encourage collaboration between specialty mental health services and primary mental health care.(86-88).

We found one systematic review that could inform the identification of new and emergent care needs for children, youth and families as they transition 'back to normal'. This review identified interventions to reduce psychosocial issues in children and their caregivers during the COVID-19 pandemic.(89)

Lastly, we found one systematic review that could inform the use of population-based approaches to address the broader social determinants of health. One of these reviews identified factors that have an impact on the risk of onset of mental health disorders.(90)

Table 7: Summary of key findings from systematic reviews relevant to Element 1 – Using an equity-driven population-health management approach to address the new distribution of health and social needs as they appear after the worst of the pandemic

Category of finding	Summary of key findings
Benefits	**Adopting a population-health management approach** • An old review found some evidence of effectiveness of quality-improvement strategies in outpatient settings for children and adolescents with mental health problems, but the evidence on strategies focusing on educational materials, meetings and outreach was inconsistent and inconclusive (85) • An old and low-quality review examining evidence-based mental and behavioural-health-disorder interventions in primary care for children and adolescents suggested that interventions were most effective if: o They were delivered in a clinical setting o They targeted a specific higher-risk youth group (except for infancy) rather than everyone in the clinic (86) **Strategies to proactively identify new and emergent care needs** • A recent review examining interventions developed over the course of the COVID-19 pandemic to reduce psychosocial issues in children and their caregivers found that Cognitive Behavioural Therapy, solution-focused brief therapy, Training for Awareness Resilience and Action (TARA), as well as online peer support groups were effective among pediatric populations in reducing: o Involuntary social isolation o Symptoms of anxiety, depression, and PTSD (89)
Potential harms	• None identified
Costs and/or cost-effectiveness in relation to the status quo	**Adopting a population-health management approach** • An old review revealed a return on investment from using a population-health management approach (coming from savings due to preventive measures causing less care utilization), but the exact magnitude of the return varies (for example, findings ranged from $1.65 for each dollar invested after four years, to a return of $6 for each dollar invested after one year of intervention) (84)
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	• Uncertainty because no systematic reviews were identified o Most reviews found were not specific to children, youth or family mental health services. Thus, uncertainty remains about the conclusions of those reviews. • Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review o None identified • No clear message from studies included in a systematic review **Adopting a population-health management approach** o An old and low-quality review on the effectiveness of interventions in primary care for child and adolescent mental health issues found little evidence that training primary-care and community staff, or treatment delivered by them, was effective at changing behavioural outcomes, and that consultation-liaison approaches may influence referral behaviour of primary-care staff (86)
Key elements of the policy option if it was tried elsewhere	**Adopting a population-health management approach** • A recent review evaluating the scope and strengths of the Healthy Days survey, a survey instrument developed by the U.S. Centers for Disease Control as a measure of

	health-related quality of life, determined that there is strong literature support for the use of the survey among comparative populations, and that Healthy Days measures have been used in assessment tools by health organizations in the U.S. to get a more fulsome picture of individual and population health needs and to allocate health resources (82) • A review found that the most frequently used risk-stratification tools in primary care were: Adjusted Clinical Groups (ACGs), the Charlson Comorbidity Index (CCI), and the Hierarchal Condition Categories (HCC) o The ACG tool was preferred in the European context because of its very wide range of indicators for risk stratification and the efficient prioritization of sub-populations for tailored care interventions (83) • An old and low-quality review examining evidence-based mental and behavioural health disorder interventions in primary care for children and adolescents suggested that interventions were most effective if: o Mental health counselling training amongst providers was limited o Time constraints limited clinician's ability to deliver prevention services (86) • That same review also found that a collaborative approach through a supportive environment of leadership is important for the sustainability of a collaborative service model, and recommended strategies to build service linkages in primary mental health care that focused on providing support through organizational planning, training of care providers, and outcome monitoring (86) **Using population-based approaches to address the broader social determinants of health** • A recent review found several social determinants of mental disorders that must be measured and tracked longitudinally: o Economic factors (e.g., income security, housing, employment) o Neighbourhood factors (e.g., infrastructure, safety, community-level socio-economic deprivation) o Environmental factors (e.g., natural hazards, industrial disasters, armed conflict) o Social/cultural factors (e.g., social cohesion, access to social capital, and social class) (90)
Stakeholders' views and experience	• None identified

Element 2 – Supporting children, youth and families to address their ongoing mental health needs as Ontarians learn to live with COVID-19

Future infection waves of COVID-19 will ensue, as will new pandemics. The second element aims to optimally support the ongoing mental health needs of children, youth and families as we learn to live with COVID-19 (and other large-scale outbreaks of infectious diseases).

This element might include:

- examining what is known about interventions to mitigate the negative impacts of the COVID-19 pandemic on the mental health of children, youth and families;
- adopting a "wrap-around" approach in systems of care for children, youth and families;(91)
- developing community-based surge capacity plans for mental health;
- training the workforce in all relevant sectors in virtual, culturally adapted, trauma informed, and strength-based strategies to support children, youth and families; and
- exploring the need for a responsive school curriculum to cope with the Covid-19 pandemic (e.g., blended learning, asynchronous and synchronous online learning, and land-based programming).

We provide a brief summary of the key insights from the citizen panels in Table 6. A summary of the key findings from the synthesized research evidence is provided in Table 8. For those who want to know more about the systematic reviews contained in Table 8 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix B2. We provide below a brief summary of the key insights from the systematic reviews that we identified.

Key insights from systematic reviews

We found six systematic reviews (27;39;89;92-94) and two reviews being planned (95-96) that could inform interventions that can mitigate the impact of pandemic response on children, youth and families.

We also found three systematic reviews that could inform the adoption of a "wrap-around" approach in systems of care.(97-99)

While there is an extensive literature on improving hospital surge capacity, we only found one systematic review that could inform the development of community-based surge-capacity plans. This review examines what is known about health systems' 'surge capacity.'(100)

We found 18 systematic reviews about training workforce in all relevant sectors in virtual, culturally adapted, trauma informed, and strength-based strategies to support children, youth and families.

Lastly, we found three reviews that could inform how to develop a responsive school curriculum to cope with the COVID-19 pandemic.(101-103) There is also an increasing body of policy-relevant documents that have been published about the state of education during the pandemic and the need to reinvent learning environments.(104-119)

Table 8: Summary of key findings from systematic reviews relevant to Element 2 – Supporting children, youth and families to address their ongoing mental health needs as Ontarians learn to live with COVID-19

Category of finding	Summary of key findings
Benefits	**Interventions to mitigate the negative impacts of the COVID-19 pandemic** • A recent review identified effective mental-health interventions for community-based children, adolescents and adults during the COVID-19 pandemic: (92) o Guided internet-based psychological interventions

	○ Lay- or peer-delivered interventions (especially for vulnerable populations, such as the elderly and those with pre-existing medical conditions) ○ Evidence about the effectiveness of social support-based interventions was mixed, but there were no trials of interventions specific to children and adolescents identified • A recent review found that multi-component interventions were effective to support the mental health of young people experiencing homelessness during the COVID-19 pandemic, so that they could feel socially included and transition into stable housing (39) ○ These effective multi-component interventions included: ▪ Mobile outreach ▪ Combining mental health services with meals, personal care items and art supplies • One review examining interventions for mitigating the psychological impacts of the COVID-19 pandemic found that promoting social/community support, and systems-based approaches were effective to: (89) ○ Enhance caregiver emotional stability ○ Improve parenting competences **Adopting a "wrap-around" approach** • A recent review found that the wrap-around approach was effective for children and adolescents with serious emotional disorders (particularly for youth of colour), and that compared to usual care, it resulted in overall effect sizes that were similar to those of evidence-based psychological treatments at a lower service cost (97) **Training the workforce in all relevant sectors** • A review found the following benefits of cultural appropriateness and gatekeeper suicide-prevention training programs for Indigenous communities: (120) ○ Increase in knowledge, ○ Self-efficacy ○ Intentions to provide help among those who completed the training program • Two reviews found that mental health training provided to non-mental health professionals improve their responses, perceptions, and ability to recognize mental health problems (121-122) • One review on engaging mental health service users in training students can: (121) ○ Improve the students' interpersonal skills ○ Improve students' attitudes toward mental health ○ Help students' practices to become more holistic and person-centred • Several reviews identified training models that are beneficial to improve mental health professionals' knowledge, skills and beliefs: ○ Attending workshops ○ Consultation following ○ Mental health first aid training ○ Mental health education programs including supervised clinical experience, role play, and case scenarios) ○ Web-based training **Responsive school curriculum to cope with the Covid-19 pandemic** • A recent and moderate-quality review examining multi-tiered approaches to trauma-informed care in schools revealed: (101) ○ Positive improvements in student academic achievement and behaviour. ○ Reduction in depression and PTSD symptoms in students ○ Increased self-perceived knowledge and confidence of staff • A recent and moderate-quality review examining the effectiveness of interventions adopting a whole-school approach to enhancing social and emotional development revealed significant but small improvements:(102)

	○ Social and emotional adjustment ○ Behavioural adjustment ○ Internalising symptoms • The same review found that whole-school interventions were not shown to impact on academic achievement (102)
Potential harms	• None identified
Costs and/or cost-effectiveness in relation to the status quo	**Adopting a "wrap-around" approach** • A recent review found that the wrap-around approach was effective for children and adolescents with serious emotional disorders (particularly for youth of colour), and that compared to usual care, it resulted in overall effect sizes that were similar to those of evidence-based psychological treatments at a lower service cost (97)
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	• Uncertainty because no systematic reviews were identified ○ None identified • Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review ○ None identified • No clear message from studies included in a systematic review **Interventions to mitigate the negative impacts of the COVID-19 pandemic** ○ A recent review found mixed evidence about the effectiveness of social support-based interventions for community-based children, adolescents and adults during the COVID-19 pandemic (92) ○ A recent review examining virtual care solutions found limited findings about evidence-based self-guided apps and websites for youth managing chronic pain and mental health issues, as well as virtual solutions involving a mental health professional and the ability of health professionals to share information (94) **Training the workforce in all relevant sectors** ○ One review found mixed findings about patient satisfaction for those who were treated by mental health professionals with communication-skills training in comparison to those who were treated by professionals without the training (123) ○ An old review concluded that the available evidence on interprofessional education at the time was not robust enough to provide clear mental health and addictions policy recommendations (124) ○ Mixed results were found in two reviews on the effects of healthcare provider training in depression care on patient outcomes **Developing community-based surge-capacity plans for mental health** ○ One systematic review revealed mix findings regarding the definition and application of surge-capacity plans in health systems (100) **Responsive school curriculum to cope with the Covid-19 pandemic** ○ A recent low-quality review about strengths-based positive schooling interventions (i.e., integrating students' well-being as a focus of the learning environment) found mixed but promising impacts on student well-being and positive emotions (103)
Key elements of the policy option if it was tried elsewhere	**Training the workforce in all relevant sectors** • One review identified key elements of mental health training programs for health professionals: (125) ○ Curriculum should be based on challenges in the trainee's daily routines and implementing knowledge into the trainee's routine work practices ○ Involvement of experts in the program's development ○ Approaches that are learner-centred, interdisciplinary ○ Have flexible timing ○ Enrolment of experienced participants ○ The use of e-learning • One medium-quality review revealed that training programs for primary-care providers in children and youth mental health should better incorporate: (126) ○ Provider knowledge and skills ○ Patient perspective **Interventions to mitigate the negative impacts of the COVID-19 pandemic** • A scoping review proposed a framework for children's physical and mental well-being

	during pandemics that consisted of four main components (each with their own gauging measures that collectively can assist parents in meeting the demands for being a role model to children against pandemic risks): (93) ○ Physical activity ○ Psychological status ○ Nutritional status ○ Recovery practices • A review found that behavioural health consultants working in integrated primary care require knowledge of both mental and physical health conditions in order to provide first-line interventions (127) • A review on task-shifting approaches to mental health care delivery in low resource settings in high-income countries demonstrated that telemedicine may be useful for health providers sharing tasks for patients in rural areas with severe mental health illness, but more direct contact opportunities with specialists may be preferred by patients and providers (128)
Stakeholders' views and experience	• None identified

Element 3 – Building on strengths identified during the COVID-19 pandemic, and addressing weaknesses exposed, to ensure that mental health systems learn and improve rapidly

The COVID-19 pandemic has created a rapidly evolving context. There have been daily changes in the epidemiological situation, as well as new and emerging evidence about COVID-19 and variants of concern, the potential effectiveness of various types of interventions to respond to the pandemic, and their impacts on the population. Mental health systems may benefit from adopting an approach that allows them to learn and improve rapidly (during and between waves of COVID-19) in order to respond to the mental health needs of children, youth and families.

This third element focuses on adopting a "rapid-learning and improvement" approach to support mental health systems. Rapid-learning systems have seven characteristics within which related assets can be developed and subsequently 'linked up' to support iterative cycles of learning and improvement. These characteristics are:

1) engaged children, youth and families;
2) digital capture, linkage and timely sharing of relevant data;
3) timely production of research evidence;
4) appropriate decision supports;
5) aligned governance, financial and delivery arrangements (which corresponds to 'incentives' and 'legislative, regulatory and policy or other enablers');
6) culture of rapid learning and improvement; and
7) competencies for rapid learning and improvement.(9;129)

Supporting a rapid-learning and improvement approach could be operationalized by:

- being centred on children, youth and families,
  - engaging them in co-design processes to ensure that programs and services are person-centred, and
  - elevating the voices of the most vulnerable groups to ensure that programs and services operate from an equity, human rights, and social-justice perspective;
- driving the learning and improvement cycles using data and evidence (e.g., creating centralized platforms to share data and evidence across agencies, sectors and ministries, and sharing insights about the use of mental health interventions);
- supporting changes through aligned system arrangements by changing system arrangements that limit the ability to adopt, evaluate and incorporate mental health support for children, youth and families, such as,
  - governance arrangements (e.g., shared accountability across health and social systems, collaborative decision-making arrangements),
  - financial arrangements (e.g., financial incentives to foster cross-sectoral collaboration), and
  - delivery arrangements (e.g., in-reach and outreach services, stepped-care model); and
- building competencies and a culture for rapid-learning and improvement cycles (such as through a learning collaboratives).

We provide a brief summary of the key insights from the citizen panels in Table 6. A summary of the key findings from the synthesized research evidence is provided in Table 9. For those who want to know more about the systematic reviews contained in Table 9 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix B3. We provide below a brief summary of the key insights from the systematic reviews that we identified.

Key insights from systematic reviews

We identified four systematic reviews and several descriptive case studies that were deemed to be most relevant to adopting a rapid-learning and improvement approach. In addition, the McMaster Health Forum also completed two rapid syntheses and a provincial stakeholder dialogue (including the development of an evidence brief), which we used to inform this element.(9;129-130) The first rapid synthesis and stakeholder

dialogue focused on creating a rapid-learning health system in Ontario, and the other rapid synthesis focused on creating rapid-learning health systems in Canada.

The most recent rapid synthesis (from December 2018) was focused on creating rapid-learning health systems in Canada.(9) While the findings are too detailed to report in full here, three high-level points, directly from the report, are worth noting:

- the list of assets is remarkably rich for health and social systems in Ontario, (see Appendix A) but there are a number of notable gaps such as data about patient experiences often not being linked and shared in a timely way to inform rapid learning and improvement;
- mental health conditions will be the focus of sustained efforts to create rapid-learning health systems in several Canadian jurisdictions; and
- some strong connections have been made among assets, although frequently the connections among sets linked to a single characteristic of rapid-learning health and social systems (not among assets linked to many different characteristics), and rarely were the connections made explicitly to support rapid learning and improvement.

The first systematic review examined attempts to adopt the rapid-learning system paradigm, with an emphasis on implementation and evaluating the impact on current medical practices.(131) The review identified three main themes to adopt a rapid-learning health system:

- clinical data reuse (i.e., building learning systems by extracting knowledge from geographically distributed data collected in daily clinical practice);
- patient-reported outcome measures (i.e., using patient reporting mechanisms for collecting health-related quality indicators); and
- collaborative learning (i.e., using peer specialists for both capturing the indicators of healthcare delivery and encouraging changes through support and pressure).(131)

Two reviews examined the ethical issues that can arise in a rapid-learning system, notably issues in determining the fine line between care and research, issues around informed consent and ethical oversight, and possible conflicts between current data-management practices, regulations and the goals of a rapid-learning system.(132-133) One of the reviews identified the following strategies to address such ethical issues:

- establishing clear and systematic policies and procedures to determine which rapid-learning system activities require ethical review, how data sharing and data protection should be handled, and how to inform patients in routine and systematic ways about the learning system;
- training and guidance for ethics committee members to learn how to apply ethical principles in the context of learning health-system activities, and for researchers to learn about ethics guidelines; and
- simplified ethical review and consent process to make it easier for learning-system activities to be conducted, including implementing a dedicated ethical-review process and streamlining the consent process.(132)

The third review examined how rapid-learning systems across multiple continents and settings can generate measurable improvements at the patient, provider, organizational, system and research levels.(134) Some of the core features of these systems are:

- being built on data (e.g., electronic medical records, linked data, clinical registers);
- having strong partnerships (e.g., community of practice networks, academic health science centre partnerships, medical collaboration or commercial operations);
- generating a shared vision across stakeholders;
- having agreed principles and governance;
- implemented systems and processes to enable iterative sustainable improvement; and
- using longitudinal benchmarking with outcomes readily available to patients, clinicians and health services at the point of care.

The last review examined the literature on the evolving field of rapid-learning systems.(133) It reveals that the literature primarily focuses on the information technology capacity of rapid-learning systems (more specifically the technical processes to reuse data collected during the clinical processes and embedding analysed data back into the system), rather than on human and organizational factors.

Key insights from descriptive studies

We also found several descriptive case studies. Among those, a few recent descriptive studies can also inform the operationalization of rapid-learning systems in the context of the COVID-19 pandemic. The first study examined how the Scottish Health and Social Care system adopted a rapid-learning and improvement approach to address the key challenges presented by the pandemic.(135-137) Their approach needed to be flexible and responsive to people's diverse and emerging needs. It aimed to capture learning on both what was done and how it was done, and consisted of three steps: 1) testing, evaluating, and sharing; 2) understanding and adapting; and 3) assessing and sustaining. Their experience with implementing a rapid-learning and improvement approach highlighted the importance of trusting relationships, the role of communities; and the importance of technology-enabled services.

Two descriptive studies highlighted the need to support data-driven systems (and the required infrastructures) to support rapid local, regional, national, and international responses to the pandemic (and future pandemics).(138-139) They provide several insights and recommendation, including:

- identifying and filling technology gaps,
  - the need for a systems approach driven by high-quality standardized data from all relevant sources, and
  - the need for highly advanced artificial intelligence to enhance learning capabilities;
- pursuing collaborative design of data-sharing requirements and transmission mechanisms (e.g., global data standards and terminologies to support research);
- fostering multidisciplinary approaches to facilitate cross-domain learning capabilities; and
- supporting multi-institutional and multinational collaboration to share experiences, expand learning capabilities and coordinate activities.

Other descriptive studies examined the implementation of regional data-driven systems to address the pandemic (e.g., the COVID-19 Evidence Support Team in Saskatchewan),(140) learning collaboratives (e.g., the 'meta-learning community' to support collaborative work in Michigan),(141) and initiatives to rapidly scale up and spread the use of telehealth services to face the disruption of services caused by the pandemic.(142-143)

Table 9: Summary of key findings from systematic reviews relevant to Element 3 – Building on strengths identified during the COVID-19 pandemic, and addressing weaknesses exposed, to ensure that mental health systems learn and improve rapidly

Category of finding	Summary of key findings
Benefits	**Adopting a rapid-learning and improvement approach** • A review exploring the effects of learning health systems on patient care and service delivery outcomes identified several benefits: (134) o Long-term tracking of care allowed for changes in patient data to be captured (e.g., wait times, post-operative outcomes, remission, and polypharmacy) o Patients were able to track and manage their own health, and provide additional health information during clinician-patient interactions that informed a national registry with population health data o Time savings gained from learning health systems allowed for automatic transferring of data, increased adherence to evidence-based clinical guidelines, the efficient identification of patients for care and clinical trials, and increased vaccination and colorectal cancer screening

	○ In terms of research development, learning health systems allowed for participation in comparison effectiveness trials and identification of adverse drug effects with reduced burden on patients, health services and research teams during trial data collection (134)
Potential harms	**Adopting a rapid-learning and improvement approach** • One recent low-quality review identified 67 ethical issues that can arise in a rapid-learning health system within the following four phases: (131) ○ Risk of negative outcomes as a result of designing activities ○ Ethical oversight of activities can lead to a conflict between current oversight regulations and learning systems ○ In conducting activities there is the risk of misguided judgments regarding when and how participants should be notified and asked for consent ○ Implementing learning can create challenges in timeliness, transparency and unintended negative consequences from implementation
Costs and/or cost-effectiveness in relation to the status quo	• No cost-related information was identified
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	**Adopting a rapid-learning and improvement approach** • One low-quality systematic review examined attempts to adopt the learning-health-system approach, with an emphasis on implementation and evaluating the impact on current medical practices, and found minimal focus on evaluating impacts on healthcare delivery (132) • Kaiser Permanente Washington developed a logic model as a foundation to evaluate the impacts of rapid-learning systems (144)
Key elements of the policy option if it was tried elsewhere	**Adopting a rapid-learning and improvement approach** • One systematic review of 272 studies on the bibliometric trends of learning health systems identified 15 common terms and 11 frequently discussed keywords from the included studies, and suggests that there are ethical concerns in determining whether the line between clinical care and research exists, and also that a majority of literature primarily focused on the information technology capacity of learning health systems, rather than on human and organizational factors (133) • A series of case studies summarized in one of the rapid syntheses documenting the implementation of rapid-learning health systems showed a number of key factors influencing implementation, including: ○ Meaningful stakeholder engagement, partnership and co-production ○ Robust data infrastructure ○ Leadership-instilled culture of learning ○ Strategic and operation assistance required to support the development of care competencies ○ A clear set of performance and quality measures required to evaluate the development and implementation of rapid learning (9) • The Scottish Health and Social Care system adopted a rapid-learning and improvement approach, which consisted of three steps: 1) testing, evaluating, and sharing; 2) understanding and adapting; and 3) assessing and sustaining (135-137) • The Indiana Learning Health System Initiative is a new multi-institutional, collaborative regional rapid-learning system initiative that establishes a foundational governance structure, sets goals and strategies, and prioritizes projects and training activities (145)
Stakeholders' views and experience	• None identified

IMPLEMENTATION CONSIDERATIONS

A number of barriers might hinder our capacity to implement the three elements, which needs to be factored into any decision about whether and how to pursue any given element. Potential barriers exist at the levels of individuals, providers, organizations (e.g., schools and other organizations delivering health and social care) and systems. Perhaps two of the biggest barriers are: 1) making small and rapid changes may be perceived as challenging without larger investments in some areas (e.g., mental health services being chronically underfunded); and 2) important structural barriers that must be overcome (e.g., Ontario's privacy laws that impede the flow of information across sectors; ensuring that OHIP payments continue to support tele-mental health; lack of support and incentives to implement innovative systems of care).

Other potential barriers are summarized in Table 10 below.

Table 10: Potential barriers to implementing the elements (based on research evidence, and input from Steering Committee members and key-informant interviews)

Levels	Element 1 – Using an equity-driven population-health management approach to address the new distribution of health and social needs as they appear after the worst of the pandemic	Element 2 – Supporting children, youth and families to address their ongoing mental health needs as Ontarians learn to live with COVID-19	Element 3 – Building on strengths identified during the COVID-19 pandemic, and addressing weaknesses exposed, to ensure that mental health systems learn and improve rapidly
Individual (including children, youth and families)	• Some families may be concerned about the stigma attached to mental health problems, and about the possible harm that may result from the disclosure of their mental health problems (e.g., involving the child-welfare system) • Some children, youth and families may not be familiar with school-based services and other services available in the community	• Some families may be concerned about the stigma attached to mental health problems, and about the possible harm that may result from the disclosure of their mental health problems (e.g., involving the child-welfare system) • Some children, youth and families may not be familiar with school-based services and other services available in the community	• Individuals may be hesitant to engage in system-wide coordination efforts for which understandable data, research and decision supports are not available, or for which they are not supported to develop appropriate competencies (e.g., to understand ways to align governance, financial and delivery arrangements) • Meaningful engagement requires significant commitment (e.g., time and other resources), which can be challenging given an individual's health state
Care provider	• Some care providers may be hesitant to engage in outreach services given the lack of capacity to meet current needs of those seeking care	• Some providers may be reluctant (or lack the skills, time, or knowledge) to empower people to openly share their care needs	• Some care providers who are already overburdened with work may have limited time to engage in rapid learning and improvement
Organization	• Some organizational leaders may be hesitant to provide outreach services given the lack of capacity to meet current needs of those seeking care	• None identified	• Some organizational leaders often work within a competitive culture that does not value actively sharing insights with, learning from and celebrating the success of other organizations (or from other sectors)

			• Some organizational leaders could view this element as one that requires substantial investment in terms of infrastructure and analytic capacity • Making small and rapid changes may be perceived as challenging without larger investments in some areas (e.g., mental health services being chronically underfunded)
System	• Some system leaders may be hesitant to embrace a population-health management approach without: o Near-real time, longitudinally linked, cross-sectoral client records that provide the data analytics, as well as the digital solutions required to deliver and improve care o Collaborative governance with a strong primary-care foundation o Integrated funding envelope with funding flowing to partners based on contributions	• Systems of oppression continue to operate at structural levels in health and social systems, and in society more broadly (e.g., systemic racism, sexism, classism, colonial values) may still affect care-seeking behaviours	• Some system leaders may not be willing to relinquish control over the governance, financial and delivery arrangements that would allow rapid learning and improvement to thrive • Some system leaders may lack the competencies to meaningfully engage, and chart a common direction for, stakeholders drawn from across sectors and populations • Legislation around personal-health information may restrict the sharing of information and data collection across sectors • There is a lack of support and incentives to implement innovative systems of care • Making changes in the system (even small and rapid changes) may be perceived as challenging, especially if no large investments are made in some areas (e.g., mental health services being chronically underfunded) • There are many silos within the health and social systems that are hard to break down, but also across the relevant sectors (silos that may be reinforced by competing priorities that may be hard to reconcile) • Rapid-learning systems are often created and maintained by single institutions or healthcare systems (as opposed to by multi-institutional, collaborative, and cross-sectoral initiatives) (145)

On the other hand, a number of potential windows of opportunity could be capitalized upon (Table 11), which also need to be factored into any decision about whether and how to pursue one or more of the elements.

Table 11: Potential windows of opportunity for implementing the elements (based on research evidence, and input from Steering Committee members and key-informant interviews)

Type	Element 1 – Using an equity-driven population-health management approach to address the new distribution of health and social needs as they appear after the worst of the pandemic	Element 2 – Supporting children, youth and families to address their ongoing mental health needs as Ontarians learn to live with COVID-19	Element 3 – Building on strengths identified during the COVID-19 pandemic, and addressing weaknesses exposed, to ensure that mental health systems learn and improve rapidly

General	• The COVID-19 pandemic has shone a spotlight on children's and youth's mental health challenges (which may have contributed to the de-stigmatization of such challenges)
	• The pandemic fostered greater (and new) collaborations and a sense of urgency that could be leveraged
	  o Several organizations in mental health and addiction across Ontario are calling for a fully funded mental health and addiction wait-times strategy (Everything is not OK)
	  o Several researchers, provider organizations, and other stakeholders have been working on the development of a mental health recovery strategy for children and youth in Ontario
	• The Ontario COVID-19 Science Advisory Table has played a key leadership role since the beginning of the pandemic, and such leadership could be leveraged to push the agenda forward
	• Mental health has been identified as a pillar in the 2021 federal election (146)
	• A Summit on Children and Youth Mental Health organized by the Ontario Public School Boards' Association is scheduled for 2022 (147)		

Element-specific	• Population-health management is at the heart of the Ontario health system's 'biggest transformation in a generation' (the creation of Ontario Health Teams)
	  o Four OHTs of the first 29 OHTs selected children and youth with mental health problems as one of their priority populations and have established working groups focused on improving metrics for this population
	  o The Rapid-Improvement Support and Exchange (RISE) providing support to OHTs to implement a population-health management approach (including, coaches,
		• Some regions have developed wrap-around models of care that could be leveraged (e.g., WrapAround Hamilton, Skylark Toronto, and Wraparound Northumberland)	• The COVID-19 pandemic showed that we can bring about change rapidly
			• Recent developments have created an opportunity for a dramatic scale-up in rapid learning and improvement
			• Canada-wide moves to this framework in provincial and territorial health systems (and hopefully through pan-Canadian health organizations)
			• Provincial, national and international work led by several groups to inform this movement towards rapid-learning health (and social) systems (e.g., Ontario's Rapid Improvement Support and Exchange, B.C. Academic Health Sciences Network, Canadian Health Services and Policy Research Alliance's Learning Health System Working Group)
			• Whole-of-government approaches are increasingly being used to work across portfolio boundaries

	learning collaboratives, webinars) • Ontario has important assets in co-designing health and social programs and services, which is a key component of a population-health management approach, for example: o McMaster University's Co-Design VP Hub with the aim to facilitate partnership formation, advance methods of co-design with structurally vulnerable populations (e.g., families of children with disabilities, individuals with mental health challenges, Indigenous communities), and enable knowledge-sharing o Ontario Health Teams are increasingly moving towards co-designing models of care (148) o Trillium Health Partners (THP) is using a co-design approach to develop bundled care pathways and is developing a standard co-design approach for use in all such work in future o Ontario SPOR SUPPORT Unit supports patient-oriented research and research co-production		to achieve shared goals and integrated responses to pressing health and social issues (and thus could facilitate stakeholder engagement across sectors), for example: o Ontario is redesigning its child and family services system, and the first pillar of the strategy emphasizes the need to enhance child, youth and family well-being across ministries and human-services sectors (149) o Shkaabe Makwa plays a key role in connecting with First Nations, Inuit and Métis communities and service providers across the province with a focus on: 1) building relationships and collaborative partnerships; 2) providing training to support workforce development; 3) advancing culturally relevant systems initiatives; and 4) improving practice through research and knowledge exchange • There is an opportunity to leverage many existing initiatives to engage children, youth and parents: o We Matter communicates to Indigenous youth that they matter, and create spaces of support for those going through a hard time while fostering unity and resiliency

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APPENDIX A

Appendix A1: Assets and gaps in mental health systems for children, youth and families in Ontario

Characteristic	Examples	Mental health systems receptors and supports	Research-system supports
Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences	1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values)	• The Provincial System Support Program published Fostering meaningful engagement of persons with lived experience at the systems level • The Ontario Centre of Excellence for Child and Youth Mental Health has created standards for family and youth engagement, and The New Mentality initiative also offers a workbook for youth engagement • A number of resources exist with respect to the engagement of peers within organizations: o The Ontario Peer Development Initiative represents peer-led and consumer/survivor organizations in Ontario, and provides peer support training o Addictions and Mental Health Ontario published a report on best practices in peer support o The Provincial System Support Program offers a workbook for organizations seeking to engage peers • Resources related to engaging specific populations include: o The Shkaabe Makwa initiative, based at the Centre for Addiction and Mental Health, fosters partnerships between mental health and addictions services and First Nations, Inuit, and Métis communities, and supports culturally relevant initiatives o EENet's community of interest in racialized populations shares resources related to and carries out projects related to the mental health of racialized populations in Ontario • Mental health and addictions hospitals are required to have Patient and Family Advisory Councils (PFACs) to help set direction for their organizations and to involve patients in developing their Quality Improvement Plans • Provincial organizations involve people with lived experience in their work: e.g., 1) Ontario Peer Development Initiative; 2) New Mentality (for youth); 3) Family Association for Mental Health; 4) Parents for Children's Mental Health; 5) Mood Disorders Association of Ontario; and 6) Schizophrenia Society of Ontario	• Evidence Exchange Network (EENet) maintains a panel of people with lived experience to steer its efforts to create and share evidence to build a better sub-system • The 'Ontario Perception of Care Tool for Mental Health and Addictions' provides a standardized way of gathering client feedback on the quality of care received in community and hospital settings • A partnership among Addictions and Mental Health Ontario, Canadian Mental Health Association and HQO (through the Excellence through Quality Improvement Project, EQIP), as well as a DeGroote School of Business research group, have been actively using co-design principles in their work • Many researchers engage people with lived experience as members of their research team or as key partners in their research • Gaps may include: engaging people with lived experience in research is still not consistent (it is often dependent on the values of individual researchers) or systematic (it is often dependent on existing relationships)

Characteristic	Examples	Mental health systems receptors and supports	Research-system supports
	f) research (e.g., engaging patients as research partners; eliciting patients' input on research priorities) g) Build patient/citizen capacity to engage in all of the above	• Resources, such as 'Strengthening Your Voice,' are available to support people with lived experience to become engaged in the sub-system • Gaps may include: no requirements or incentives for co-design of publicly funded programs and services; no mandated PFACs in community-based organizations or explicit requirements or incentives for them to progressively strengthen their approaches to patient engagement; people with lived experience are not always well prepared to participate confidently in system- and policy-level conversations; no supports for organizations about how to approach or document patient engagement when their client base is comprised of many individuals who are involuntary patients, patients with a substitute decision-maker and patients whose care is under treatment orders from the courts or Ontario Review Board; and no explicit process for reconciliation when the input of people with lived experience conflicts with research evidence, provider perspectives or policy direction	
Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)	1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share 'local' data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient decision-making and provider,	• Several organizations have launched surveys to collect data about the impact of the COVID-19 pandemic on mental health (e.g., Statistics Canada and the Mental Health Commission of Canada) • The Mental Health and Addictions Leadership Advisory Council developed recommendations for a data strategy for the provincial mental health and addictions system, and proposed in its final report performance indicators that include patient experience • The Mental Health and Addiction Quality Initiative has developed quality indicators for mental health and addictions hospitals (and these hospitals have access to utilization data through the IntelliHEALTH system) • Project documented wait times for mental health and addictions services, beginning with the four mental health and addictions hospitals and supported by the Centre for Addiction and Mental Health's Provincial System Support Program and Cancer Care Ontario • A standardized tool has been developed to collect information about care experiences: Ontario perceptions of care tool for mental health and addictions (OPOC-MHA) • Additional measurement tools have also been developed (or applied) in an Ontario context:	• None identified

Characteristic	Examples	Mental health systems receptors and supports	Research-system supports
	organization and system-wide rapid learning and improvement)	○ Ontario common assessment of need (OCAN): a standardized tool used in the community mental health sector to identify initial need and track change over time ○ The Global appraisal of individual needs (GAIN) system is used to assess needs, inform treatment, and measure change in addictions treatment • Gaps may include: Mental Health and Addiction Quality Initiative is still paper-based and not 'real time' (and other data may only be submitted quarterly); wait-times project is led by an organization outside the sub-system (Cancer Care Ontario) and data are not 'real time' or yet publicly available; no consistent definition of wait times, restraint and other key indicators; no consistent standards for what types of 'people with lived experiences' data to collect and how; data for those obtaining care in community-based organizations (although some are being collected through an IC/ES pilot), for children (although those for 13 key performance indicators about children and youth services are being aggregated centrally through a pilot) and to support equity analyses are particularly under-developed; many organizations don't have the staff and infrastructure to analyze and present locally contextualized data to support learning and improvement, although this is improving through initiatives like EQIP; and MyPractice reports are only sent to those who subscribe to them	
Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations	1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research-ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers	• Centre for Addiction and Mental Health's Provincial System Support Program, Evidence Exchange Network (EENet), Centre of Excellence for Child and Youth Mental Health, and School Mental Health Ontario each synthesize, curate and share research evidence in their respective areas with individuals at all levels through a variety of mechanisms • Data and research findings from available reports can be used to understand the burden of mental health and addictions issues in the province as well as shared needs and barriers to care: ○ Evidence on current mental health-system quality and performance can be found in: ▪ Ontario Health (Quality) 2015 report Taking stock: A report on the quality of mental health and addictions services in Ontario, and 2019 Measuring up reports ▪ IC/ES' reports Mental health and addiction system performance in Ontario: A baseline scorecard and Mental health of children and youth in Ontario: A baseline scorecard ▪ Ontario Child Health Study's reports	• COVID-END maintains a repository of 'best evidence syntheses' for all types of decisions being faced by those who are part of the COVID-19 pandemic response, including syntheses related to mental health • The Canadian Institutes of Health Research worked with partners to invest in Canadian COVID-19 research with dedicated funding for specific topics, including addressing the mental health and substance-use challenges facing Canadians during the pandemic • IC/ES launched a mental health and addictions sub-system performance scorecard, which provides baseline data on provincial quality indicators (client-centred, timely, safe, effective, efficient and equitable) • Some mental health and addictions hospitals (e.g., Waypoint) collaborate with local agencies to jointly set research priorities

Characteristic	Examples	Mental health systems receptors and supports	Research-system supports
		▪ Canadian Institute for Health Information's report Common challenges, shared priorities • Gaps may include: few organizations have explicit arrangements to ensure access to supports for conducting rapid-cycle evaluations or to find and use research evidence; and no distributed research-ethics infrastructure to support rapid-cycle evaluations	• Gaps may include: lack of timely access to data, lack of centralized patient-experience data and community-based organization data, and limited capacity for linkage of these data, limits the ability of researchers to use existing data to answer relevant questions; and limited research in community-based organizations and for children and youth, and lack of a centralized platform for researchers seeking partners for such research
Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks	1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as a) patient-targeted evidence-based resources b) patient decision aids c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works	• The Mental Health and Addictions Centre of Excellence aims to improve mental health and addictions care for children, youth and adults by establishing a central point of accountability and oversight for mental health and addictions care; creating common performance indicators and shared infrastructure to disseminate evidence and set service expectations; standardizing and monitoring the quality and delivery of evidence-based services and clinical care across the province; and providing support and resources to Ontario Health Teams as they connect people to the different types of mental health and addictions care they need • The Ontario Telemedicine Network offers remote access to specialist care and consultation, including for patients in Indigenous communities, and also offers evidence reviews of technology-based self-management supports for addictions and mood and anxiety disorders • Project ECHO aims to build capacity for evidence-based care for complex patients through interdisciplinary, expert-led digital knowledge-sharing networks on specific conditions and themes, including child and youth mental health • Resources related to coordinated care for mental health and/or addictions include: o A brief outlining models of coordination between primary care and mental health and addictions services from EENet o A rapid review of evidence on care coordination for individuals with complex or severe mental health and/or addictions issues from EENet o An evaluation of coordinated access mechanisms in the mental health sector from Addictions and Mental Health Ontario o A report on innovative practices in care coordination for people with mental health and addictions issues from Ontario Health (Quality)	• None identified

Characteristic	Examples	Mental health systems receptors and supports	Research-system supports

		• Resources related to transition-aged youth include:
		  ○ The Centre for Excellence in Child and Youth Mental Health's recommendations for improving transitions between child and adult mental health care
		  ○ An EENet brief on models of mental health care for transition-aged youth, including campus mental health and integrated service centres
		  ○ Recommendations from the Mental Health and Addictions Leadership Advisory Council for developmentally appropriate youth addictions services
		• Ontario Centre of Excellence for Child and Youth Mental Health has developed papers on care pathways for early childhood mental health, and for integration between primary care and community-based mental health services
		• Children's Mental Health Ontario conducted a survey on barriers and facilitators to integrated mental health care for children and youth
		• School Mental Health Ontario has developed resources to support mental health promotion and prevention, and care pathways to higher-intensity services, within the school system
		• The New Mentality initiative published youth-led recommendations for improved transition care, anti-oppressive practice, expanded access in rural, remote, and northern communities, and partnering with youth
		• All four mental health and addictions hospitals are taking steps to standardize order sets and care pathways
		• The Centre for Effective Practice offers clinical tools outlining best practice in primary care for a number of mental health conditions and addictions, including youth mental health
		• The Ministry of Health offers guidelines for mental health promotion targeted at boards of public health
		• The Centre for Addiction and Mental Health developed mental health-promotion guides for specific populations, including children and youth
		
		• Gaps may include: no individualized feedback is sent to front-line providers about their performance – on its own, in comparison to relevant peers or in comparison to recommendations for optimal care	

Aligned governance, financial and delivery arrangements: Systems adjust who can make	1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join	• Ontario's Roadmap to wellness identifies a core-services framework with services outlined by level of need	• None identified

Characteristic	Examples	Mental health systems receptors and supports	Research-system supports
what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and improvement at all levels	up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 9) Mechanisms to identify and share the 'reproducible building blocks' of a rapid-learning health system	• The former Ministry of Children and Youth Services published program guidelines and requirements for child and youth community mental health core services • The Ontario Centre of Excellence for Children and Youth Mental Health has published guidance for governance specific to the child and youth mental health sector • The Centre for Innovation in Campus Mental Health offers a toolkit for developing relationships between community mental health service agencies and campus mental health services • Mental health and addictions hospitals are now required to prepare, share and report on Quality Improvement Plans, and have some joint planning groups that can be harnessed to support rapid learning and improvement (e.g., CEO forum, forensic directors group) • Gaps may include: governance of the sub-system is effectively distributed across the government ministries that fund parts of it (health, child and youth services, education and justice), although lead agencies in 33 geographical service areas are attempting to provide more integration for children and youth services; regulatory colleges do not emphasize competencies for rapid learning and improvement among mental health and addictions professionals; financial arrangements often reinforce silos, which pose challenges for rapid learning and improvement; community-based organizations are not required to prepare, share and report on Quality Improvement Plans; and no mechanism for health and research systems to jointly set learning and improvement priorities or to fund initiatives to address them	
Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability	1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from 'failure'	• Mental health and addictions hospitals have created the Mental Health and Addictions Quality Initiative, which supports regular meetings of the CEOs to undertake joint initiatives aimed at improving quality • Gaps may include: most mental health and addictions organizations do not have a culture of embedding rapid learning and improvement in their operations (or of supporting collaboration across professions or 'silos' and across data analytics, decision support, quality improvement and research groups); and many mental health and addictions organizations have faced a great deal of change in a short amount of time	• None identified

Characteristic	Examples	Mental health systems receptors and supports	Research-system supports

Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely	1) Public reporting on rapid learning and improvement
	2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership)
	3) In-house capacity for supporting rapid learning and improvement
	4) Centralized specialized expertise in supporting rapid learning and improvement
	5) Rapid-learning infrastructure (e.g., learning collaboratives)
		• Thirteen key performance indicators have been developed for Ministry of Health-funded child and youth mental health services, with 11 of these indicators included in the 2015 IC/ES scorecard
		• Ontario Health (Quality) has developed quality indicators to accompany its quality standards relating to mental health and addictions care
		• The Provincial System Support Program (PSSP) coordinates the Evidence Exchange Network (EENet), which includes an online resource database, as well as a team of knowledge brokers
		• The Ontario College of Family Physicians offers collaborative mentoring networks for primary-care doctors on various themes including mental health, to enhance quality of care in these areas
		• In 2017, the Mental Health and Addictions Leadership and Advisory Council developed a report containing system-level recommendations, including key areas for improvement and future indicators
		• The government of Ontario is working with the Canadian Institute for Health Information to support public reporting on six pan-Canadian indicators by 2022 (current status available here)
		  ○ Hospitalization rates for problematic substance use
		  ○ Rates of repeat emergency departments and/or urgent-care-centre visits for a mental health or addiction issue
		  ○ Rates of self-injury, including suicide
		  ○ Wait times for community mental health services, referral/self-referral to services (provided outside emergency departments, hospital inpatient programs and psychiatric hospitals)
		  ○ Early identification for early intervention in youth ages 10-25 (to be defined)
		  ○ Awareness and/or successful navigation of mental health and addictions services (self-reported; to be defined)
		• The Provincial System Support Program, based out of the Centre for Addiction and Mental Health with regional offices across the province, offers implementation supports to help programs and communities put best practices into action
		• The Ontario Centre of Excellence for Child and Youth Mental Health's Quest: Quality improvement initiative will offer tailored quality-improvement coaching to select organizations
			• Training workshops are offered by many organizations (e.g., Mental Health Council of Canada and SickKids) to support researchers and knowledge-translation practitioners, often for those in the mental health sub-system or other domains where 'evidence-based programs' are rolled out, to gain competencies in knowledge translation
			• Many mental health and addictions researchers don't have a sufficient understanding of program, organization, sub-system and government contexts to support rapid learning and improvement at these levels

Characteristic	Examples	Mental health systems receptors and supports	Research-system supports
		• School Mental Health Ontario supports implementation of mental health initiatives in school settings • The Centre for Effective Practice offers academic detailing to support the implementation of evidence-based care in primary-care settings (and includes a specific focus on mental health and addictions care) • The Excellence through Quality Improvement Project (E-QIP) provides quality- improvement coaching to community mental health and addictions organizations • Addictions and Mental Health Ontario, Canadian Mental Health Association, and Ontario Health (Quality) have been collaborating on the Excellence through Quality Improvement Project to enhance the ability of community-based organizations to understand and apply quality-improvement methods • The Centre for Addiction and Mental Health's Provincial System Support Program and the Centre of Excellence for Child and Youth Mental Health have developed tools, resources and training on effective implementation approaches • Gaps may include: lack of agreement about the competencies needed (e.g., data literacy, co-design, scaling up and leadership) and which are needed in all organizations versus in more centralized support units; and lack of learning collaboratives and other elements of the infrastructure needed to support rapid learning and improvement	

APPENDIX B

The following tables provide detailed information about the systematic reviews identified for each option. Each row in a table corresponds to a particular systematic review and the reviews are organized by element (first column). The focus of the review is described in the second column. Key findings from the review that relate to the option are listed in the third column, while the fourth column records the last year the literature was searched as part of the review.

The fifth column presents a rating of the overall quality of the review. The quality of each review has been assessed using AMSTAR (A MeaSurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial, or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered "high scores." A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1): S8.

The last three columns convey information about the utility of the review in terms of local applicability, applicability concerning prioritized groups, and issue applicability. The third-from-last column notes the proportion of studies that were conducted in Canada, while the second-from-last column shows the proportion of studies included in the review that deal explicitly with one of the prioritized groups. The last column indicates the review's issue applicability in terms of the proportion of studies focused on mental health systems. Similarly, for each economic evaluation and costing study, the last three columns note whether the country focus is Canada, if it deals explicitly with one of the prioritized groups and if it focuses on mental health systems.

All of the information provided in the appendix tables was taken into account by the evidence brief's authors in compiling Tables 1-3 in the main text of the brief.

Appendix B1: Systematic reviews relevant to Element 1 – Using an equity-driven population-health management approach to address the new distribution of health and social needs as they appear after the worst of the pandemic

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
Adopting a population-health management approach to the delivery of mental health services	Comparing varying definitions of population-health management (81)	This scoping review included 18 articles and compared varying definitions of population-health management. The majority of studies identified three key goals for population-health management, including improving population health, improving quality of healthcare services, and reducing cost growth. With respect to population-health-management activities, a majority of studies provided a definition that specified a target sub-population, patient care, health promotion and prevention, and monitoring an evaluating results. None of the definitions discussed the quality-improvement processes or the Triple Aim Assessment which encompasses health improvements, quality of care, cost and intervention content. This review concludes that a comprehensive understanding of the term population-health management is needed to better compare evidence and that further evidence is needed on population-health-management initiatives that take place over multiple settings long term.	2015	N/A	0/18	Not specified in detail	Not specified in detail
	Evaluating the scope and strengths of the Healthy Days survey instrument for measuring population health (82)	Health-related quality of life (HRQOL), which is a multidimensional concept that encompasses measuring physical, mental, emotional, and social functioning of individuals, is often used to provide a more holistic view of overall health. This paper evaluates the existing literature on the use of "Healthy Days", a survey instrument developed by the U.S. Centers for Disease Control (CDC), as a measure of HRQOL. The survey questionnaire consists of four questions that ask individuals about how they perceive their own health. A systematic review of the scope and current use of the Healthy Days survey found that there is strong literature support for its use to measure HRQOL among comparative populations. As a survey instrument, it has demonstrated validity and reliability, is simple and easy to administer, incorporates individuals' perspectives on their health, produces meaningful results, and can be tracked over time. However, most study outcomes were based on secondary sources of existing data, indicating that there may be barriers to access of primary-source Healthy Days data.	Not specified in detail	N/A	Not specified	0/110 Studies that focused on populations younger than 18 years old were excluded	Not specified in detail

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		In terms of data collection and analysis, large survey samples are needed for a population-level assessment. Stratified random sampling may be a suitable approach to capture survey samples, but adjustments may be needed in response to possible oversampling or non-responses. Analysis methods discussed in the study that can be used to evaluate survey results include general linear modelling, zero-inflated negative binomial (ZINB) regression modelling, boot-strapping, and decision-tree regression. Healthy Days measures have broad public policy implications. They have been used in assessment tools for Medicare health, women's health, and county-level health outcomes. Given its proven strength as a measurement tool, Healthy Days continues to be used by organizations to get a more fulsome picture of individual and population health needs in order to allocate healthcare services appropriately and efficiently.					
	Assessing the return of investment from population-health-management programs across varying intervention periods (84)	This review aimed to assess the financial impact and direct healthcare cost savings of population-health-management programs. Five studies were included in this review. Return of investment for population-health-management programs ranged across studies. One study assessed program impact for two intervention years and found a 1:1 return of investment. One study found a return of $6 for each dollar invested following one year of intervention. Two studies found cost to increase for participants, as compared to those who did not participate. The remaining two studies found a break-even return of investment following two intervention years and a $1.65 return of investment for each invested dollar after four years. Limitations of this review include insufficient data to make a conclusive statement about the return of investment from population-health programs. However, the review does suggest that return of investments can be expected after one year of investment with nominal returns after two years, and significant returns following three or more years. The authors of this review suggest additional research to comprehensively calculate the return of investment for population-health-management programs.	2004	N/A	Not specified	0/5	Not specified
	Assessing the performance of risk stratification tools	The aim of this study was to assess the performance of risk stratification tools used in primary healthcare settings. Based on the described performance of the tools, the researchers recommended the risk	September 2019	N/A	Not specified	0/16	0/16

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
	used in primary healthcare settings (83)	stratification tool was best suited for usage in the Dutch primary-care system. Sixty-one articles were included, from which 31 different stratification models were identified. The different models were compared based on frequency of use, performance in primary care, and statistical diagnostic validity. Adjusted Clinical Groups (ACGs), the Charlson Comorbidity Index (CCI), and the Hierarchal Condition Categories (HCC) were found to be the most frequently applied models. ACG is a model designed by Johns Hopkins University to measure comorbidity, and can be used to predict hospitalization, utilization costs, and emergency-department visits. Data sources include electronic health records, insurance claims, health-status surveys, and disease registries. The CCI model, originally developed in 1987, is now used to make not only mortality predictions but also hospitalizations, emergency-department visits, future healthcare utilization, and population morbidity. The population is categorized into six groups based on the presence of comorbidities and chronic conditions. The HCC model was developed by the Centers for Medicare and Medicaid Services to adjust capitation payments for individuals at higher risk by using patient demographic data and ICD diagnosis codes used by all American healthcare providers. Patients are categorized into 70 condition categories and given a risk score. The study's results demonstrate that risk stratification tools are suitable for usage in the European context. While all of the models mentioned focus on similar utilization outcomes, the ACG uses a very wide range of indicators for risk stratification and allows for the efficient prioritization of sub-populations for tailored care interventions. The ACG was recommended as the best model for use in the Dutch primary-care setting.	Articles from Jan 2007 to August 2019 were reviewed				
	Examining the effectiveness of quality-improvement strategies in outpatient mental health settings (85)	This study evaluated the effectiveness, implementation, and dissemination of quality-improvement strategies in outpatient settings by healthcare practitioners, organizations or systems that provide mental health services to children and adolescents with mental health issues. A total of 17 studies were included that tested the overall effectiveness of 16 strategies. There were 12 studies (11 strategies) that had at least one outcome with a low-for-benefit rating. The majority of strategies had at least some evidence of effectiveness, but there was inconsistent evidence on	2016	10/11	1/9	9/9	9/9

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		strategies with educational materials, meetings and outreach. There were concerns with some studies about poor reporting and failure to report key details of the study strategy. The review highlights that the current state of evidence does not give health administrators and clinicians a definitive understanding of the best methods for introducing evidence-based practices into clinical settings successfully. More evidence is needed to fill the gap between potential and achieved outcomes in the context of finite resources allocated for mental health patient encounters.					
	Identifying factors that encourage collaboration between specialty mental health services and primary mental health care (86)	Collaboration between primary care and mental health services can help to improve clinical and organizational outcomes. The aim of this study was to assess the effectiveness of linkages in primary mental health care based on the international literature. A primary mental health care linkage was defined as a two-way process connecting two or more clinical mental health care services in which one part of the linkage must involve a primary healthcare provider. From the 30 studies included in the study's narrative and thematic review, factors defining clinical level linkages included equal involvement of all relevant parties in the development of service arrangements, active joint practitioner communication, a receptive partnership culture that encouraged collaboration, and a communication process to enable monitoring of operations for patient care. At the organization level, the study found that a collaborative approach through a supportive environment of leadership is important for the sustainability of the collaborative service model. However, the formation of partnerships is likely insufficient to address organization-wide barriers. Based on the review findings, five strategies were recommended for policymakers and service directors to build service linkages in primary mental health care: 1) provide support for integration at the organizational level; 2) facilitate problem solving and joint clinical planning; 3) jointly develop local care guidelines through a common planning process; 4) provide training, support and supervision for primary-care and mental health staff; and 5) provide evidence of outcomes to service partners.	2009	1/9	3/30	Not specified in detail	Not specified in detail
	Assessing the effectiveness of interventions for pediatric mental	This systematic review examined the evidence on the effectiveness of interventions for child and adolescent mental health issues and the interventions designed to address them in primary care. The studies reviewed were focused on the effectiveness of educational interventions	1999	3/9	0/26	26/26	0/26

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
	health problems in primary care and improve primary-care staff skills in addressing mental health problems (87)	with primary-care or community staff, treatment by primary-care or community staff, treatment by specialist staff in primary care, or consultation-liaison approaches. Findings of the study demonstrate that there was little evidence that training of primary-care and community staff, or treatment by them, was effective at changing the behavioural outcomes of children. This is because the studies that were included in the review did not specifically measure impact on children's behaviours. Studies on specialist staff treatment suggests that it is superior to routine primary care, but because most of the studies did not use random allocation, their results are only suggestive. Consultation-liaison approaches may influence referral behaviour of primary-care staff, according to some preliminary evidence. Given the limited evidence, this review should be used to influence priorities for future research. High-quality studies are needed, especially on economic evaluations in this area.					
	Identifying pediatric mental and behavioural-health-disorder interventions in primary care, their efficacy and key characteristics (88)	This systematic review aimed to identify evidence-based mental and behavioural-health-disorder interventions in primary care for children and adolescents. Nineteen interventions were identified from 28 included studies. Most interventions used several strategies, including one-on-one counselling by telephone or online and interactive group sessions. Findings suggested that interventions were most efficacious if they were in a clinical setting and target a specific higher-risk youth group (outside of infancy) rather than everyone in the clinic. Primary care was found to be a critical entry point for interventions, but it was rarely the sole intervention entry point. Findings also suggested that time constraints limited clinicians' ability to deliver prevention services, and that clinical personnel may not be adequately trained in mental health counselling. None of the interventions included in the review systematically assessed the clinics' response to program implementation, indicating a need for more research in this area. The study concludes that although over half of the interventions identified produced health benefits beyond the usual primary care, there is still a gap in prevention programs in primary care that are efficacious that the authors encouraged primary-care providers and public-health researchers to fill.	2017	5/9	0/28	28/28	0/28

Identifying new and emergent care needs for children, youth and families as they transition 'back to normal'	Identifying interventions to reduce psychosocial issues in children and their caregivers during the COVID-19 pandemic (89)	This systematic review identified interventions aimed at reducing psychosocial issues, developed over the course of the COVID-19 pandemic, in children and their caregivers. Eleven study protocols were included, with nine studies exploring digital interventions and two studies exploring face-to-face interventions. Study protocols with child-based interventions aimed to address anxiety and emotional issues, whereas study protocols with system-oriented approaches addressed outcomes such as stress, depression, self-efficacy, family conflict, communication and relationships. This review found that Cognitive Behavioural Therapy was a widely recognized intervention for anxiety with significant efficacy in reducing symptoms of anxiety, depression and PTSD in pediatric populations. Solution-focused brief therapy and TARA were two other interventions found to have significant efficacy. Several study protocols also aimed to reduce family stress and improve parenting skills, noting parental inflexibility and parenting stress as a factor for increased COVID-19-related stress. Online peer support groups were additionally identified as a strategy to address involuntary social isolation, a factor noted as a key contributor in the onset of mental disorders throughout the pandemic. This review supports the feasibility, acceptability and efficacy of web-based mental health interventions, but several limitations were cited including: 1) limited privacy due to self-isolation quarantine requirements; 2) chaotic home environments; and 3) limited access to suitable technology and internet connection. This review additionally identified equity concerns surrounding disparities accessing telehealth services and emphasized universal and equal provision of telehealth. The review concludes that all interventions currently aim to modify behaviour surrounding mental disorders, and that interventions that use structural prevention and promotion approaches are needed in the context of the prevention.	2020	N/A	2/11	11/11	0/11

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
Using population-based approaches to address the broader social determinants of health	Identifying factors that impact risk of onset of mental health disorders (90)	This systematic review aimed to develop a conceptual framework for the social determinants of mental disorders parallel to the sustainable development goals and to review evidence pertaining to these determinants. A total of 289 studies were included in this review. This review found several economic, neighbourhood, environmental and social/cultural factors that have an impact on the risk of onset of mental health disorders. Key economic factors that were found to have an impact on mental health include income security, debt, economic assets, food security, employment, housing, recessions and financial strain. Neighbourhood factors include infrastructure, safety, community-level socio-economic deprivation, recreation opportunities, crime, community violence, social cohesion and urbanicity. Environmental factors include natural hazards, industrial disasters, armed conflict, displacement, and ecological disasters. Social and cultural factors include education, social cohesion, access to social capital, and social class. This review provides several recommendations for policy action, including: 1) creating strong indicators to track social determinants of mental disorders and mental health status of populations; and 2) development of robust longitudinal studies in low-to-middle income settings that evaluate social determinants of mental health.	Not specified	N/A	Not specified	Not specified	Not specified

Appendix B2: Systematic reviews relevant to Element 2 – Supporting children, youth and families to address their ongoing mental health needs as Ontarians learn to live with COVID-19

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
Interventions that can mitigate the impact of pandemic response	Examining interventions to improve the psychosocial effects of the COVID-19 pandemic on children (89)	Children and adolescents are at a vulnerable stage in their life and should be paid special attention to with regards to mental illness prevention and mental health promotion. This review examined 11 protocols for interventions that can mitigate the psychosocial impacts caused by the COVID-19 pandemic and similar epidemics, as well as associated control measures, for children, their caregivers and/or families. The examined protocols included child-based interventions that mainly address anxiety and emotional issues and system-oriented interventions that assess direct and indirect outcomes, such as stress, depression, family conflict, and child well-being. All parent-oriented interventions use a system-based approach by which children's well-being is positively influenced by enhancing caregiver emotional stability and parenting competence. The most widely used intervention type was Cognitive Behavioural Therapy. Preventive approaches such as reducing stress and promoting social/community support were also used. This review demonstrates the limited evidence on psychosocial interventions for children in response to the COVID-19 pandemic, as no completed studies could be identified. Since a high burden of mental health impacts are expected during and in the aftermath of the COVID-19 pandemic among youth, there is a need for pragmatic mental health management interventions that can address the specific challenges faced by children and adolescents.	2020	N/A	2/11	9/11	0/11
	Examining the effectiveness of COVID-19 mental health interventions among community-based children, adolescents and adults (92)	Scalable mental health interventions to address COVID-19 mental health are needed. These can include self-help interventions, group-based interventions, or peer-support interventions. This review synthesizes evidence on the effectiveness of mental health interventions for community-based children, adolescents and adults. The review examined nine randomized controlled trials and found that self-guided internet-based psychological interventions may be an effective strategy against mental health challenges during the	2020 **Searches updated weekly*	8/10	1/9	3/9	0/9

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		COVID-19 pandemic. However, they are likely not as effective as in-person or guided internet-based therapies and may not be appropriate for people with severe illness. Lay- or peer-delivered interventions may be a particularly effective strategy for vulnerable populations, such as those of old age or pre-existing medical conditions. Evidence is mixed regarding the effectiveness of social support-based interventions via video-based communication, online discussion groups and forums, or telephone. No trials of interventions designed specifically for children or adolescents were identified. Feasible interventions that can be delivered to a large number of people are needed to address community mental health implications of COVID-19 that will likely persist beyond the pandemic. While community-based mental health interventions have demonstrated effectiveness, additional trials are needed, particularly to address the unique needs of children and adolescents.					
	Examining ways to mitigate risks and optimize positive change (93)	During the pandemic, children and parents are more disconnected from their support systems. This may cause them to experience health risks and challenges. Parents can function as a role model for children and the defense of the family against pandemic risks. This scoping review explored the challenges that children have faced during the COVID-19 pandemic as well as the impact on their mental and physical health. A number of challenges were identified for children during lockdown. Keeping children in a restricted environment can impede healthy growth and development. The pandemic can also have an impact on children's physical activity behaviours, screen time, and sleep patterns. Parents' stress or anxiety was found to influence their children's behaviours. A framework for children's physical and mental well-being balance during pandemics was proposed, which can help ease the parent's role and demands for being a role model. The framework consists of four main variables – physical activity, psychological status, nutritional status and recovery practices. Children's "physical well-being" can be gauged by weight, height, and level of weekly activity. "Psychological status" is gauged by the level of emotions, attitudes and behaviours relevant to the surrounding environment. "Nutritional status" can be measured by the portion of protein,	Not reported	1/9	Not reported	Not reported	Not reported

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		carbohydrates and fat consumed weekly. Lastly, an effective "recovery period" must be present within the daily routine, which includes getting enough sleep, breaks, and relaxation. More research must be done with regards to modification of the framework for differences in gender, level of child fitness, and family socio-economic status. Further research is also recommended regarding what motivates a family to apply this framework during times of uncertainty.					
	Examining interventions to support the mental health of children and adolescents amidst COVID-19 (27)	It has been demonstrated that pandemics are precursors to mental health decline. This rapid review looked to evaluate: a) the impact of the pandemic/epidemic on children's and adolescents' mental health; b) the effectiveness of interventions employed during the current and previous pandemics to promote children's and adolescents' mental health; and c) to identify knowledge gaps in these contexts. Of the 18 articles identified from the review, the most reported outcome was the negative effect on psychological health, which the researchers measured as anxiety, depression, fear, stigma, and post-traumatic stress symptoms. It was also found that control measures such as school closures, physical distancing, quarantine, isolation and threats of infection are associated with depression and anxiety disorders among children and adolescents. No studies were found regarding interventions to promote the mental health of children during the COVID-19 pandemic. However, the use of community psychosocial programs to improve mental health capacity, and nurse-led mental health and psychological support services during the Ebola epidemic demonstrated positive impacts. This knowledge synthesis highlighted the significant impact of the pandemic on the mental health of children and adolescents. It shows how age-specific coping strategies, particularly educational interventions providing pandemic information, are needed to target the unique mental health needs of children and adolescents. Efforts should also be made to help children and adolescents establish a consistent routine through school closures. Further research must be done to explore effective mental health strategies for children and adolescents within the specific context of the COVID-19 pandemic.	2020	6/9	2/18	18/18	0/18

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
	Examining interventions to support young people who are experiencing or have experienced homelessness (39)	The aim of this knowledge synthesis was to explore real-world evidence on promising mental health and substance-use practices utilized by front-line providers working during the COVID-19 pandemic with young people who were experiencing or had experienced homelessness. There is a need to understand what individual-level practice adaptations used during the pandemic may help to meet the mental health and substance-use needs of young people who are experiencing or have experienced homelessness. However, the response must consider the broader societal context in which youth find themselves. Youth most commonly report accessing mental health services though online supports (63%), followed by hospitals (42%) and emergency shelters (36%). There is an emphasis on phone/virtual practice given the current public-health measures. This may have negative implications for those who prefer/depend on in-person supports. Combining mental health services with things like meals, personal care items and art supplies can help to facilitate social inclusion among people who are experiencing or have experienced homelessness. Mobile outreach has been identified as a promising intervention for youth experiencing homelessness; however, reviews on mobile outreach interventions specific to this population have not been identified in the peer-reviewed literature. Multi-component interventions that incorporate aspects of case management, mental health and peer support, need to be included in transitions into stable housing to attain community benefits. If youth are being diverted from the shelter systems, it must be ensured that they have the social and economic supports needed to thrive in the broader community.	Not reported	N/A	Not reported **Canada is a focus of overall report*	Not reported	Not reported
	Examining virtual care solutions for youth and families to mitigate the impact of the COVID-19 pandemic on pain, mental health, and substance use (94)	This mixed-methods knowledge synthesis consisted of a rapid systematic review and a scoping review aimed at identifying virtual-care best practices and solutions for pain, mental health, functioning, and substance use for youth under 18 years and their families with pre-existing and new onset pain. The findings were used to inform an evidence and gap map (EGM) that was created to guide stakeholders in creating solutions to address these issues by mapping all of the virtual care solutions currently available across a stepped-care continuum.	2020	N/A	Not specified	105/105	Not specified in detail

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		The completed EGM was informed by data from 105 articles, 56 apps, 16 websites, and eight innovations generated from a call for emerging virtual-care innovations that address youth mental health, substance abuse, and functioning in Canada. Data was extracted based on key concepts and recommendations, as well as relevance to five stepped-care levels ranging from self-guided (level 1) to real-time specialist interaction (level 5). The review found that most virtual-care solutions were applicable to youth from childhood to adolescence with any chronic pain condition, and that psychological strategies for pain education, relaxation, and behavioural pain management were numerous. However, most self-guided apps and websites for youth managing chronic pain and mental health did not provide rigorous scientific evidence, and less than 5% of virtual-care solutions addressed accessibility issues for web content. Also, there was little ongoing individual or group therapies led by a mental health professional, and the ability of health professionals to share information was limited by a lack of integration of electronic medical records. Only a moderate number of virtual-care solutions were found to engage parents, and support for siblings of youth with pain was limited. The development of the EGM in this document can be a useful tool to support the integration of stepped-care models for mental health and pain.					
	Examining interventions for the mental health impacts of infectious disease epidemics and major incidents on children and young people (95)	Protocol					
	Examining interventions to mitigate the negative impact of disasters on children's mental health (96)	Protocol					
Adopting a "wrap-around"	Measuring the effectiveness of a wrap-around approach for	This study aimed to conduct a meta-analysis of the effect of the wrap-around approach on outcomes and service costs for youth with serious emotional disorders (SED). The wrap-around	2019	N/A	Not specified	17/17	0/17

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
approach in systems of care	coordinating care for children and adolescents with serious emotional disorders (97)	approach is structured around implementing a plan of care for youth with SED involving a team of caregiver and family support, and consisted of four phases: engagement, plan development, implementation, and transition. The review of 17 peer-reviewed and grey literature found that the wrap-around approach was associated with positive outcomes overall for youths with SED, and that the overall effect sizes of wrap-around on outcomes for youths were similar to the mean effect sizes found for evidence-based psychosocial treatments when compared to usual care. Given the significant reduction in the use of institutional and residential care from the wrap-around approach, results of the study also suggested lower service costs for youths served by wrap-around when compared to usual care. Study findings also suggested that the wrap-around approach may result in more positive outcomes for youth of colour compared to white youth.					
	Reviewing publications on the wrap-around strategy for youths with complex behavioural health needs (98)	A comprehensive literature review was conducted to identify wrap-around-related publications that were published between 1986 and 2014. A total of 206 documents were included that focused on defining and advocating for the use of wrap-around as well as implementation issues. Across the timeframe, an equal number of empirical and non-empirical publications were produced. Findings revealed that empirical publications defining and advocating for wrap-around were continuously produced over the years, but robust papers examining the effectiveness of wrap-around for different populations of focus were very limited. There was only one study included that provided evidence of cost-effectiveness of wrap-around, indicating that more controlled studies are needed on the cost outcomes for wrap-around. A handful of studies identified community-based and outcomes-based principles as being most significantly associated with positive outcomes; effective teamwork in wrap-around was also found to improve functioning and goal attainment. Lastly, the review revealed a limited number of studies on methods of implementation support for wrap-around programs.	2015	N/A	Not specified	0/206	Not specified in detail
	Examining literature on the wrap-around approach (99)	This narrative review identified the full scope of wrap-around outcome studies between January 1986 and February 2008. Thirty-six included studies provided encouraging evidence of the positive	Not specified	N/A	Not specified	36/36	Not specified in detail

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		impact of the wrap-around approach on youth. However, the majority of these studies had methodological limitations (e.g., no direct comparison between two interventions), highlighting the need for more studies on wrap-around with rigorous method design and appropriate comparison groups. Many studies also provided incomplete data on participants and inclusion criteria. Additional studies are needed on the impact of wrap-around on the lives of children and family.					
Developing community-based surge-capacity plans	Examining what is known about health systems' "surge capacity" (100)	This systematic review identified the full scope of studies concerning the consistency and utility of conceptualizations of health systems' surge capacities and their components. Surge capacity is the ability to prepare for, and cope with, "surges" or sudden large-scale escalations in treatment needs, often due to natural hazard events or pandemics. A total of 186 peer-reviewed articles published before October 28, 2011, were reviewed. The concept of surge capacity is important for the study of health systems' disaster and pandemic readiness and response, and is relevant for public-health interventions and investments. Much of the research identifying and conceptualizing the components of surge capacity has developed in isolation. The lack of consensus regarding the definitions and applications of key terms related to surge capacity has led to a lack of clarity and a lack of well-developed measurements and metrics. Future research in this field should focus on generating robust conceptual and analytical frameworks and developing new data collection and methodological approaches. Another key area for future research is the addition of a temporal dimension, which allows surge timelines to be explicitly understood to involve phased impacts. Finally, the research on surge capacity to date has focused primarily on high-income countries, while most surge-generating events occur in low- and middle-income countries.	2011	4/9	Not specified	Not specified	Not specified
Training workforce in all relevant sectors in virtual, culturally	Examining the need for a culturally tailored gatekeeper-training intervention program in	This systematic review identified six articles, comprising five studies with the aim of determining the cultural appropriateness and effectiveness of current gatekeeper suicide-prevention training programs within international Indigenous communities. Gatekeeper training teaches specific groups of people to identify others at high	2016	5/10 (AMSTAR rating from McMaster	1/6	6/6	Not specified

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
adapted, trauma-informed, and strength-based strategies to support children, youth and families	preventing suicide among Indigenous peoples (120)	risk for suicide and refer them to treatment. The results of this review indicate a significant increase in knowledge, self-efficacy and intentions to provide help among those who completed training. No studies evaluated the effect on suicide attempts, and only one study aimed to increase cultural awareness by developing a culturally informed and tailored intervention model. One study identified was an RCT, which trained participants who were themselves at a higher risk of suicide. The results of this study showed a trend to increased suicidal ideation in participants receiving the training, which suggests that it may be necessary to screen participants prior to gatekeeper training to minimize such risk. Although uncontrolled evidence suggests that training may be a promising suicide intervention in Indigenous communities, further RCT evidence is required to determine the effectiveness of these training programs.		Health Forum)			
	Examining the effectiveness of educational interventions for healthcare professionals for 21st-century practice (150)	This systematic review identified 22 studies with the aim of synthesizing the current knowledge regarding the quality and effectiveness of educational interventions to train healthcare professionals about chronic care. The results of this study generally indicate that the educational intervention made a meaningful difference for their learners. Common measurements of educational impact included learner self-report of participation in decision support, delivery-system design, and establishing patient– provider shared self-management goals. There are several limitations to this systematic review. Variability between learners led to difficulties in study standardization. Additionally, only two studies measured patient and learner outcomes, making it difficult to infer a meaningful impact on the quality of patient care derived from these educational interventions. Overall, the findings suggest a handful of promising approaches supported by modest evidence. Future research should focus on gaps in educational research such as program consistency, execution and outcome development. More explicit determination of the association between educational outcomes and patient outcomes is needed.	2014	8/9 (AMSTAR rating from McMaster Health Forum)	0/22	1/22	Not specified
	Examining the implementation of mental	This qualitative synthesis identified 22 studies with the aim to review the qualitative evidence on the views and experiences of	2016	8/9	0/8	Not specified	Not specified

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
	health training programs for non-mental health trained professionals (122)	non-mental health professionals receiving mental health training, and the barriers and facilitators to training delivery and implementation. The findings of this review demonstrate that following mental health training, individuals' response, perceptions and ability to recognize mental health problems may change. Evaluations of training should include a qualitative component to ensure that these impacts can be measured. However, the quality of the included literature was variable, making it difficult to evaluate the outcomes of training. Methodological weaknesses and issues with reporting were commonly identified in included studies. Based on the study's findings, a number of suggestions for organizations to consider when providing mental health training were made.		(AMSTAR rating from McMaster Health Forum)			
	Examining communication-skills training for mental health professionals working with people with severe mental illness (123)	This review identified one randomized controlled trial which was designed as an exploratory pilot study. The result of this study indicates that patient satisfaction with treatment did not differ between the patients who were treated by mental health professionals with communication-skills training (CST) when compared to patients who were treated by mental health professionals with no specific training (NST). The results also indicated no significant difference in the mental state scores of the patients between the CST group and NST group. Due to the small sample size and exploratory nature of this randomized controlled trial, it is difficult to draw robust conclusions on the treatment effect. Future research should include more and larger-scale studies to collect evidence on the effectiveness of clinical communication training.	2016	9/9 (AMSTAR rating from McMaster Health Forum)	0/1	Not specified	Not specified
	Examining training approaches and outcomes in evidence-based interventions for mental health (151)	This systematic review identified 76 publications with the aim of assessing how different therapist training models affect their knowledge, beliefs and behaviours. A lack of effective therapist training is a major barrier to the delivery of evidence-based interventions (EBIs). The result of this review indicates that therapist knowledge and attitudes towards evidence-based interventions improve after attending workshops, however, workshops alone are unlikely to increase the use of EBIs. Consultation following training is more effective at improving competence and intervention use. This review expands upon previous work in the area of online training. The result of this review indicates that more straightforward EBIs can be taught with comparable outcomes using online or in-person training, but more complex EBIs could benefit from being taught in person. Future	2018	5/9 (AMSTAR rating from McMaster Health Forum)	2/76	Not specified	Not specified

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		research should focus on improving training outcome measurement, identifying key elements of training, and improving the cost-effectiveness of training.					
	Examining the effects on knowledge, stigma, and helping behaviour of mental health first-aid training (152)	This systematic review identified 18 trials with the aim of evaluating whether mental health first aid (MHFA) training improved mental health first aid knowledge, recognition of mental disorders and beliefs about effective treatments. The result of this review indicates a small to moderate improvement at post-training and up to six months later. However, the effects at up to 12-months follow-up were less clear and require further replication. MHFA training improved knowledge about mental health problems, with effects persisting up to a year after training. Accurate identification of a person with a mental health problem and perceived confidence in helping that person persisted up to six months. Additionally, there were small reductions in stigmatizing attitudes towards those with mental health problems as a result of the training. Only two studies in this review examined the effects of MHFA training beyond six months. Future research should focus on the effects of MHFA training beyond six months as the persistence of effects in the longer term is unclear.	2017	8/11 (AMSTAR rating from McMaster Health Forum)	2/18	Not specified	Not specified
	Examining service-user involvement in interpersonal skills training of mental health students (121)	This review identified 10 studies published between 1990 and 2010 with the aim to assess the quality of existing evidence on teaching involving people who have experienced mental health problems (service users) on the ability of mental health students (interpersonal skills students) to communicate. The result of this review indicates that service-user teaching that contains interpersonal skills teaching is acceptable and of value to students in terms of developing skills, changing attitudes and increasing empathy. When service users teach interpersonal skills students, the attitudes and practices of students become more holistic, and person-centred. However, students are concerned that service users are not representative of the wider experience of service use. Finally, this review found that seeing service users in a context that disrupted traditional power relations is of value to students in generating a more reflective and empathic approach to practice. Future research should include criteria that clearly defines the dimensions of interpersonal skills. Standardized instruments, and clear and specific aims and methodologies should also be included.	Not reported	6/10 (AMSTAR rating from McMaster Health Forum)	0/10	Not specified	Not specified
	Examining the effects of interprofessional	This review identified eight studies published between January 2001 and August 2017 with the aim to describe the effects of interprofessional education (IPE) on undergraduate healthcare	2017	4/9 (AMSTAR rating	1/8	Not specified	Not specified

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
	education in mental health practice (153)	students' education outcomes, compared with conventional clinical training in mental health. The results of this review indicate that mental health students responded well to IPE, especially in terms of more positive attitudes towards the contribution of other professions and increased knowledge of skills in collaboration. However, no substantial evidence of changes in behaviour or organizational practices were found. The impact of IPE on patient outcomes remains unclear in this review. The results of this review also indicate that IPE in mental health care may improve educational outcomes for students. The reviewed studies have numerous shortfalls such as insufficiencies in the reporting of methods and discussion of limitations, uncertainty in the long-term effects of IPE, and poor descriptions of the evaluated IPE interventions. Future studies should establish preconditions for undergraduate IPE and ensure appropriate support, design and evaluation of IPE interventions.		from McMaster Health Forum)			
	Evaluating training programs for primary-care providers in child/adolescent mental health (126)	This review identified 16 Canadian studies with the aim of analysing capacity-building initiatives in child/adolescent mental health care for primary-care practitioners. The result of this review indicates that there are a variety of initiatives being undertaken in Canada. A strength of these shared or collaborative care programs was that they also focus on increasing the capacity of primary-care physicians to provide mental health care. However, more rigorous evaluation methodology and the implementation of objective, standardized assessments of provider knowledge and skills is needed. Additionally, the inclusion of patient outcomes needs to be expanded beyond assessment of diagnosis and pharmacotherapy. Finally, patient perspectives need to be included in evaluation designs to ensure that their needs are being met when implementing training programs for primary-care physicians.	Not reported	5/10 (AMSTAR rating from McMaster Health Forum)	16/16	Not specified	Not specified
	Examining mental health education programs for generalist health professionals (154)	This review identified 25 studies with the aim to review and synthesize research evidence on mental health education programs (MHEP) that have been designed to develop the knowledge, skills and attitudes of general health professionals (GHPs). The results of this review indicate that knowledge, skill and attitudinal improvements in GHPs post-MHEP were generally shown in included studies. The results also indicate that MHEP that included supervised clinical experience, role play, and case scenarios were	Not yet available	6/9 (AMSTAR rating from McMaster Health Forum)	2/25	Not specified	Not specified

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		more effective. Consideration of the social, political and economic environments that MHEP are to be delivered in is needed.					
	Examining the effects of interprofessional education on mental health providers (124)	This review identified 16 studies with the aim of updating previous work by describing the effects of interprofessional education (IPE) on mental health providers delivering adult mental health care. The results of this review indicate that the evidence for IPE is not strong enough to provide clear mental health and addictions policy recommendations. Additionally, there is growing evidence to support the need for and benefits of involving patients in the planning, implementation and evaluation of IPE programs for mental health. Inadequately described methods and measurement tools, along with incomplete information about the IPE program description made it difficult for definite conclusions about the benefits of IPE to be drawn. Future research should include qualitative studies which provide contextual information required to understand factors that have an impact on the effectiveness of IPE activities on educational outcomes.	2007	5/9 (AMSTAR rating from McMaster Health Forum)	0/16	Not specified	Not specified
	Examining how to plan and implement successful mental health educational programs (125)	This review identified 78 publications consisting of 76 independent interventions published from 1989 to February 2017. The aim of this review was to systematically examine the literature about mental health training programs designed for healthcare professionals in order to identify the relevant factors associated with their effective implementation. The result of this review indicates that effective interventions were associated with the use of learner-centred and interactive methodological approaches, a curriculum based on challenges in the trainee's daily routines, the involvement of experts in the program's development, the enrolment of experienced participants, interdisciplinary group work, flexible timing, the use of e-learning, and the implementation of knowledge into the participants' routine work practices. Future research should include follow-up assessments in order to observe the persistence of any gains.	2017	5/10 (AMSTAR rating from McMaster Health Forum)	5/78	Not specified	Not specified
	Examining task-sharing approaches to improve mental health care in rural and other low-resource settings (128)	This review identified 55 studies with the aim of learning from task-shifting approaches to mental health care delivery in rural areas of high-income countries in order to offer insights on promising approaches to task-sharing mental health care in low-resource settings of the US. The results of this study indicate that telemedicine to support the delivery of care to rural areas shows great promise. Telehealth may help providers share tasks for those with more severe mental illnesses, but patients and providers may prefer more direct contact opportunities with their specialist. The	2013	3/9 (AMSTAR rating from McMaster Health Forum)	0/55	Not reported in detail	Not specified

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		idea of self-care, where tasks are shifted to the patient to complement health services, is also discussed in this review. This review raises several logistical questions including questions about barriers, technology, the best approaches for differing mental health conditions, patient retention, and training for providers. Future research should address these questions.					
	Examining if GP training in depression care affects patient outcomes (155)	This review identified 11 randomized controlled trials published from 1999 onward with the aim of providing an updated overview on the effects of general practitioner training in depression care on patient outcome. The studies published on this topic yielded heterogenous results. A potential reason for the lack of consistency is that sample selection plays a major role in assessing treatment effects. This review found small effect sizes in studies including patients with new-onset depression, while finding no effects in studies including patients with chronic depression. Additionally, guideline implementation should be combined with provider training to achieve enhanced care for depression. A potential methodological weakness of the included studies is that outcomes of symptomatology were the primary focus. Effectiveness of treatments for depression is shown to increase with depression severity, therefore, the effect sizes shown could be moderated by baseline depression severity.	2011	6/10 (AMSTAR rating from McMaster Health Forum)	1/11	Not specified	Not specified
	Examining training intervention for healthcare staff to improve psychological practice skills (156)	This review identified 24 studies published from 2009 to 2014. Training is defined in this review as "the systematic development of attitude, knowledge, skill, and behaviour patterns required by an individual in order to perform adequately a given task or job." The aim of this review was to investigate the method of training that is the most effective in teaching psychological practice skills to mental health practitioners (MHPs). The types of training evaluated in this review were group individual and web-based. Overall, each type of training had a positive impact on skills among MHPs. Therefore, the choice of training may be influenced by other factors such as the availability of trainers and trainees. The studies included in this review varied in terms of type and content of training, trainee profession, skills, length, type of patients and patient outcomes. Thus, more targeted and controlled studies are needed to provide more nuanced understandings.	2014	5/10	Not specified	Not specified	Not specified
	Examining healthcare-team training programs	This review identified nine studies with the aim of evaluating the international evidence on healthcare-team training programs aimed	2014	N/A	1/9	Not specified	Not specified

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
	aimed at improving depression management in primary care (157)	at improving the outcomes of patients with depression. Seven out of nine included studies reported a statistically significant reduction in depression levels of patients when compared with the control groups. However, due to the multi-component nature of the interventions used to manage depression, it is not possible to isolate and measure the specific contribution of the training programs alone. A weakness found in the included studies is the absence of physician-level reporting, resulting in a lack of baseline assessment of physicians. The authors of this review pose the question "How can the evidence obtained in high-income countries be implemented in the heterogenous context of LMICs?" as a topic for future research.					
	Examining how to prepare the workforce for integrated healthcare (127)	This review identified 68 articles, of which 19 were randomized controlled trials, with the aim to identify the physical health diagnostic categories that are essential for behavioural-health consultants to know in integrated care, the screening tools behavioural-health consultants need to utilize, and the evidence-based intervention skills that are necessary. The result of this study indicates that behavioural-health consultants working in integrated primary-care settings will require knowledge of both mental and physical health conditions. Screening for physical and mental health conditions was common in integrated primary-care locations and an essential component of a behavioural-health consultant's knowledge content. The specific screening tools were not identified. Interventions in this setting were found to be brief, action-oriented, first-line interventions. These interventions would require knowledge in psychopharmacology and levels of specialty mental health care. Further research is required to identify methods to develop knowledge/skills in the workforce.	2015	3/10	Not reported	Not specified	Not specified
	Examining the effectiveness of simulation in psychiatry for initial and continuing training of healthcare professionals (158)	Protocol					

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
Exploring the need for a responsive school curriculum to cope with the Covid-19 pandemic	Examining multi-tiered approaches to trauma-informed care in schools (101)	This systematic review identified 13 studies implementing three or more tiers of school-based support and training for childhood trauma. The three tiers include universal preventive screening (Tier 1) and more targeted approaches (Tiers 2 and 3). The studies reported positive improvements in student academic achievement and behaviour. A reduction in depression and PTSD symptoms in students and increased self-perceived knowledge and confidence of staff was found. There were several discrepancies across the studies regarding what constituted Tier 1 compared to Tier 2 and 3 interventions. Many studies did not integrate findings within the existing school-wide mental health networks. A reason for this is that these studies focused on teacher training and student outcomes within already at-risk populations. Additionally, many studies failed to evaluate outcomes of teacher training and outcomes on other stakeholders such as parents. Future research should focus on greater consistency in research methods and interventions, which could improve the evidence and potentially the uptake of trauma-informed approaches in schools.	2018	4/9 (AMSTAR rating from McMaster Health Forum)	0/13	13/13	0/13
	Examining the effectiveness of interventions adopting a whole-school approach to enhancing social and emotional development (102)	This review examined a total of 50 RCTs and quasi-experimental studies with the aim of examining the effectiveness of whole-school interventions on a range of social, emotional, behavioural and academic outcomes. Comprehensive interventions of higher quality produce larger effect sizes across most outcomes examined. However, there was no significant impact on academic achievement. These interventions are also the most difficult to	2017	6/11 (AMSTAR rating from McMaster Health Forum)	3/50	11/50	0/50

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		implement due to the substantial planning, support and infrastructure required. Moderator analysis suggests that interventions implemented and evaluated in the U.S. were more effective in enhancing participant's social and emotional adjustment. A reason for this could be the increased levels of district and national supports for social and emotional learning in the U.S., as compared to other countries. Another moderator analysis revealed improved outcomes when the interventions were implemented collaboratively with the wider community. Limitations of this review include low-quality assessment ratings in some studies and publication bias. Future research should focus on implementation and the identification of essential components of whole-school interventions.					
	Exploring what is known about strengths-based positive schooling interventions (103)	This scooping review identified 13 studies, of which 10 are quasi-experimental, two are randomized controlled interventions and one awhole-school case study. The aim of this review was to systematically review and map the strength-based positive schooling interventions that have been conducted on adolescent students. The results of this review indicate that strength-based positive schooling interventions produce promising positive outcomes in student well-being and positive emotions. The results of this review also indicate that interventions implemented by teachers as well as interventions involving other stakeholders, such as parents, resulted in positive changes. However, more robust evidence is needed for the impact of incorporating other stakeholders and for interventions carried out in other ethnicities and populations. Some mixed results were found in the studies analysed in this review. A potential reason for this could be the varying degrees of treatment fidelity between groups within studies and between studies. There is also no consistent model of strength-based positive schooling that was implemented across studies. Future research should focus on interventions designed for targeted populations, the maximum threshold of positive outcomes, and on the long-term effects of interventions.	2018	2/9 (AMSTAR rating from McMaster Health Forum)	0/13	0/13	0/13

Appendix B3: Systematic reviews relevant to Element 3 – Building on strengths identified during the COVID-19 pandemic, and addressing weaknesses exposed, to ensure that mental health systems learn and improve rapidly

Element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
Rapid learning and improvement	Examining attempts to adopt the learning health system paradigm, with an emphasis on implementations and evaluating the impact on current medical practices (131)	The review examined a total of 32 documents (a range of reports, scientific publications and other related grey literature), which included 13 studies, in order to examine the attempts to adopt the learning health system paradigm. A learning healthcare system is driven to generate and apply the best evidence for collaborative healthcare, while focusing on innovation, quality, safety and value. Patients are a major factor in this model of health provision, given the emphasis on collaboration and collective decision-making. This review examines the attempts to implement this model of medicine. The results of this review indicate that there has been very little action in terms of implementing learning health systems, despite a great deal of interest. It is possible that there is great trust placed in the learning health system without proper assessment of impact. This may have contributed to the low number of studies qualifying for inclusion in the review. A major focus should be placed on assessment and reporting, considering that many attempts to adopt this system of health have been attempted and not reported. Existing frameworks for assessing medicine applications can be used to assess the efficacy of learning health systems. Further, reporting of the evaluation of these systems must be comprehensive. Lack of consistency across studies diminishes quality and effectiveness, and makes it difficult to assess outcomes. Taken together, the learning health system paradigm must be of central focus to researchers moving forward. While the central tenets of this approach are supported by researchers, there is a lack of assessment. The impact of such a system must be evaluated in order to boost adoption.	2015	3/10 (AMSTAR rating from McMaster Health Forum)	0/13	Not reported in detail	0/13
	Examining the spectrum of ethical issues that is raised for stakeholders in a learning health system (132)	The review examined 65 studies in order to determine the spectrum of ethical issues raised for stakeholders in a "learning healthcare system".	2015	1/9 (AMSTAR rating from	Not reported in detail	Not reported in detail	65/65

Element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		A learning healthcare system embodies an approach for integrating clinical research and clinical practice, in order to address problems of effectiveness and efficiency in the healthcare system. In such a system, knowledge generation should be embedded so that health systems can learn and grow. However, this blend of research and practice raises ethical dilemmas such as confidentiality and consent. This review aimed to summarize pertinent ethical issues in order to guide decision-making among healthcare professionals and policymakers. The ethical issues arising in learning healthcare systems can be broken down into different phases. In the phase of designing activities, ethical issues include the risk of negative outcomes that may result from activities that are not academically rigorous. As well, it is possible that stakeholders will not engage with this stage, which can affect trust and support in a learning activity. In the ethical oversight of activities, confusion surrounding ethical obligations and regulations can hinder progress. In conducting activities, the involvement of participants can lead to ethical difficulties with consent and data management. In implementing learning, main difficulties arise in changing practice efficiently, maintaining transparency, and reducing unintended negative consequences. The distinction between "research" and "practice" often creates ethical confusion, as many learning healthcare activities do not fit this dichotomy. Strategies to cope with these ethical problems include implementing policies and procedures, providing training and guidance for ethical committee members, and streamlining ethical-review processes. The rights of individuals must be protected as healthcare quality improves. Future research should focus on clarifying these ethical dilemmas and contribute to improving the quality of healthcare.		McMaster Health Forum)			
	Exploring the benefits of learning health systems on a patient, provider, organizational and systems levels (134)	This review aimed to explore the effects of learning health systems data hubs on healthcare outcomes, as well as process and delivery of healthcare services. Twenty-three studies were included in this review.	2019	N/A	2/23	Not specified	Not specified

Element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		This review reported several benefits in the context of patient outcomes, clinician-patient interactions, organization and systems-level performance and research development. With respect to patient benefits, long-term tracking of care captured decreased distress, decreased post-operative outcomes, increased patient remission, shorter wait times for treatment following referral, and decreased polypharmacy among cancer patients. Patient questionnaires were used by clinicians to record clinically elevated symptoms and provide appropriate referrals and care. In relation to clinician-patient interactions, learning health systems allowed patients to track and manage their own health, and provided additional evidence for evidence-informed clinical care. In some studies, data was publicly reported to a national registry as clinical research evidence to further improve population health. Regarding organizational and system-level performance, time savings were noted in that learning health systems allowed for automatic transferring of data, increased adherence to evidence-based clinical guidelines, and increased vaccination and colorectal cancer screening. Collaborative platforms that bridged across providers and organizations also enabled the efficient identification of patients for appropriate care, clinical trials or follow-up. In two included studies, improved patient satisfaction, improved population health screenings, improved education and patient engagement were reported as long-term effects. With respect to research development, learning health systems allowed participation in comparison effectiveness trials and identification of adverse drug effects. Learning health systems also enabled adherence to data-based guidelines and the collection of data for trials with reduced burden on patients, health services and research teams. Electronic medical records, linked data and clinical registers were pinpointed as key components to learning health systems. Other key components included strong partnerships, shared stakeholder					

Element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on mental health systems
		vision and understanding, agreed principles and governance, longitudinal benchmarking and patient tracking, long-term feedback to patient, clinician and health services, and processes to allow for improvements. This review concludes that learning health systems can range in size and that individual systems can be linked to other learning health systems.					
	Exploring key topic areas and trends across the literature focused on learning health systems (133)	This review aimed to identify key topic areas and bibliometric trends of learning health systems. A total of 272 studies were included. This review found 15 common terms used across most included studies in defining learning health systems: improvement, patient, data, continuously, knowledge, practices, delivery, research, evidence, process, generate, clinical, new, best and integral. Best care at lower cost: The path to continuously learning healthcare in America, a report published by the Institute of Medicine, was the most commonly cited publication across studies when defining learning health systems. With respect to key topic areas, this review found 11 keywords frequently discussed by included studies on learning health systems: learning health systems, healthcare sciences and services, humans, electronic health records, quality improvement, research ethics, medical informatics, delivery of healthcare, general and internal medicine, research and oncology. This review suggests that a majority of literature primarily focuses on the information technology capacity of learning health systems, rather than on human and organization factors. The review additionally identified ethical concerns in determining whether the line between clinical care and research exists, and where structures need to be placed to ensure informed consent.	2020	N/A	22/272	Not specified	Not specified

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