

**Health
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February 10, 2020

Mr. Jim Pine
Special Advisor, Public Health Modernization
c/o Minister of Health
10th Floor, 80 Grosvenor Street
Toronto, ON M7A 2C4

Dear Mr. Pine,

Re: The Council of Ontario Medical Officers of Health (COMOH) Digital Health Steering Committee's response to the Provincial Public Health Modernization Consultation

On behalf of the COMOH Digital Health Steering Committee, I would like to thank you and your Ministry colleagues for the opportunity to respond to the provincial public health modernization consultation.

Public health modernization represents a unique opportunity to pursue digital transformation within the sector. This is further supported by the *Simpler, Faster, Better Services Act, 2019* for optimized digital information in the public sector and the recommendations of the *2019 World Health Organization Guideline: recommendations on digital interventions for health system strengthening*.

We look forward to hearing the findings of the public health modernization consultations.

Best regards,



Dr. Lawrence Loh
Chair, COMOH Digital Health Steering Committee Chair

CC: Helen Angus, Deputy Minister, Ministry of Health
Alison Blair, Assistant Deputy Minister and Executive Lead for Public Health and Paramedic Modernization, Ministry of Health
Dr. David Williams, Chief Medical Officer of Health, Ministry of Health

Digital Health Contributions to a Modern Public Health System

COMOH Digital Health Steering Committee submission

Ontario Public Health Modernization consultation

February 10, 2020

Background

The Council of Ontario Medical Officers of Health (COMOH) Digital Health Steering Committee appreciates the opportunity to propose information technology priorities for the public health sector that will support Public Health Modernization and the provincial Digital First for Health strategy.

Modern, distributed and intelligently connected technology can help address key challenges, particularly those identified in the Public Health Modernization discussion document. Technology solutions strengthen the public health system by optimizing the functioning, effectiveness and efficiency of programs and services. Public health modernization presents an opportunity to identify clear and complementary digital health roles for local and provincial stakeholders.

Current state

A modern provincial public health system requires technology that supports efficient and effective health information management and service delivery. At present, however, decades of underinvestment have left local public health agencies with isolated, siloed, and in some cases obsolete systems.

This current state presents numerous risks to the effective and optimal practice of public health:

- **Inefficient resource deployment:** Valuable resources are expended in information collection and processing activities instead of activities where human intervention is critical for program success (e.g. the continued use of fax machines for transmission to and from provincial databases requires clerical work and entry by local public health agencies.)
- **Continued and extensive use of non-digital solutions has significant risk:** Use of paper-based records and systems presents risks to patient safety due to unavailable records, unavoidable storage costs, difficulty in summarizing, processing and using data for programs and evaluation, and an increased risk of privacy breaches from lost records.
- **Fragmentation of solutions and information:** Absent a digital public health strategy, provincial public health information system initiatives (e.g. Panorama) have seen success in isolated modules, but the full scope of business applications have not been realized. Implementation of provincial systems have often also not incorporated local public health's functional requirements, leading public health units to retrofit medical database solutions (EMRs) or invest in building their own solution. This has resulted in solution and information fragmentation.
- **Fragmented procurement:** Less than half of public health units have an electronic medical record (EMR) system, which impedes efforts to standardize the process of gathering, storing,

and disseminating client information across public health programs and services. No processes currently support the development of criteria for selecting and procuring an EMR that optimally meet the needs of public health agencies. While new funding rules from the Ministry of Health in 2018 made costs to procure and operate EMRs a permissible expense, there is a need for leadership to guide public health agencies on procurement and implementation.

This has left the public health sector technologically behind the healthcare system, limiting digital engagement and collaboration with key sector partners like Ontario Health Teams.

The modernization of public health presents an opportunity for a new approach to digital solutions to assist public health in reducing strain on healthcare systems and ending hallway healthcare.

Key components to an approach will require:

- a defined digital strategy,
- appropriate resourcing and investment,
- information and IT standards to enable digital interoperability and collaboration, and
- the legal and policy tools to support compliance.

The COMOH Digital Health Steering Committee has been encouraged by many of the successes of provincial initiatives such as Panorama, iPHIS and ConnectingOntario. This has included the unlocking of funding permissions for EMR costs and expenses in 2018 and Ministry interest towards developing guidelines for procurement that are appropriate to public health's mandate. We also note with interest opportunities presented by the IT planning and support review announced by the Chief Medical Officer of Health in his letter to the public health units on October 29, 2019.

A vision of the future

In presenting our recommendations, we envision a public health system in which:

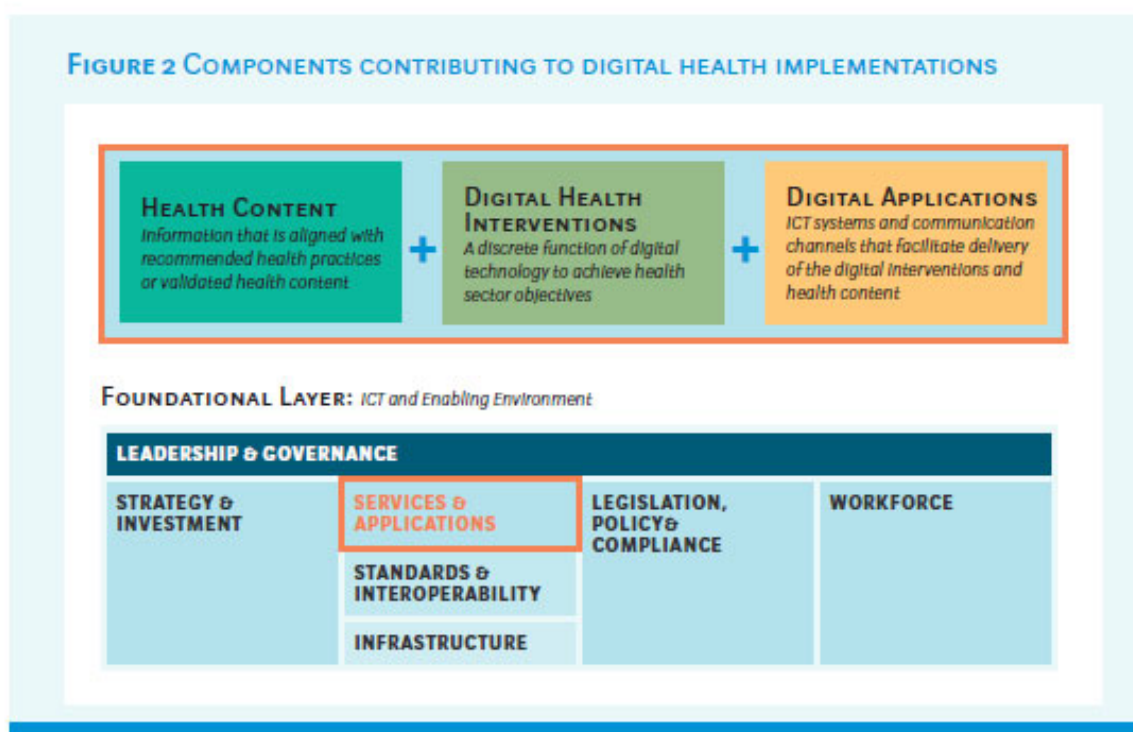
- Digital solutions are distributed, interoperable, and intelligently connected across the public health sector and other partner sectors.
- Electronic public health record systems are the basis for information sharing among public health units, provincial repositories, community partners, clients, and related agencies that provide care and social services.
- Digital solutions are deployed through coordinated approaches that
 - facilitate and contribute to efficient and effective public health practice,
 - support planning and evaluation with community partners, and
 - improve access to services and information for clients.
- Deployment of effective solutions will permit agencies to redeploy valuable resources from information processing to areas where human supports are necessary for system success.

Background to the recommendations for the Public Health Modernization consultation

Our recommendations are framed on the *2019 World Health Organization Guideline: recommendations on digital interventions for health system strengthening*¹ as a basis.

To date, provincial digital health strategies have prioritized solutions for clinical care, which has often resulted in isolated systems without intelligent connections to other sectors like public health. Together with underinvestment in the public health sector through various and successive digital health strategies, this has impeded system-wide principles development, coordination of procurement, rationalization of costs and shared standards development within Ontario's public health sector.

Current approaches have run contrary to best practices outlined in the WHO Guideline (Figure 2), which calls for a foundational layer with requisite components that enable the effective planning of digital health interventions and applications.



¹ WHO guideline: recommendations on digital interventions for health system strengthening. Geneva: World Health Organization; 2019. Licence: CC BY-NC-SA 3.0 IGO. Available at <https://apps.who.int/iris/bitstream/handle/10665/311941/9789241550505-eng.pdf?ua=1>. Accessed on 24 December 2019.

COMOH Digital Health Steering Committee recommendations

In modernizing the public health sector in Ontario, we call on the province to:

- Together with the input of public health units, lead and resource the development and implementation of a province-wide digital public health strategy.
- Strategically invest in the deployment of common digital services and interoperable applications across all pertinent areas of the public health sector.
- Prioritize the development of common data standards and terminology and deploy interoperable systems to realize the full benefits and return on investment of digital connectivity, such as integration of public health data with the provincial Electronic Health Record, OLIS and iPHIS, primary care EMR with the DHIR, workflow efficiencies and improved data quality.
- Enact legislative and policy changes in digital health that support the digital priorities and approaches of local public health agencies.

The following will present more detailed proposals to act on the key recommendations with a rationale, examples of current pain points and a vision for the future.

1. Leading and governing a province-wide digital public health strategy, together

Proposals

The COMOH Digital Health steering committee proposes:

- a) continued dialogue with the Ministry on developing a digital health governance model/structure and potential roles and functions at the provincial and local level.
- b) Establishment of a centralized secretariat, either at the Ministry or Public Health Ontario, that is dedicated to supporting the technology requirements and advancements necessary for an optimal public health digital ecosystem, including a standardized approach to data and information governance.
 - Where appropriate, regional and municipal governments may be an important stakeholder to align regional information governance frameworks.

Rationale

Leadership and governance are essential components to enable coordination, strategy and investment, standards and interoperability, infrastructure, legislation, policy and compliance and workforce capacity-building, common services and applications.

Project governance at the province performs very well when paired with strategic partnerships between the province and public health units. An example of previous success includes the provincial project steering committees for the iPHIS and Panorama projects, which included senior level health unit memberships. Once a digital public health governance model has been agreed to and implemented, the relevant body should oversee the develop of an information technology strategy for the sector that harmonizes a vision or approach to share information or

coordinate access to technology and digital tools to support public health service delivery and improve outreach, connection and collaboration with public health customers and communities.

Current pain points

- Previous engagements with public health stakeholders on provincial systems and digital initiatives were limited:
 - In development, e.g. around ISCIS, where limited involvement of public health units resulted in a system that was designed to meet provincial reporting requirements instead of supporting service delivery requirements.
 - In progression and integration, such as engagement around upgrades to the Ontario Telemedicine Network, where limited involvement of public health units resulted in the inability of certain health units to access the service for an extended period of time, which negatively impacted its ability to deliver service to clients.
- Fragmentation of standards and solution deployment. The provincial government must take a larger role in encouraging consensus and province-wide adoption of standards and solutions.
 - Current work on public health data standards undertaken by COMOH would move more rapidly with the benefit of dedicated support and resources.
 - Replacing current process where digital solutions are looked at as independent stand-alone entities often results in the introduction of technology and tools that conflict with one another, do not integrate, or interfere with service delivery and disrupt workflows.

Future state vision

A province-wide digital public health strategy could outline a collaborative, system-wide approach to planning with clear and defined roles. Provincial, regional and municipal bodies would benefit from a collaborative look at tools and digital solutions necessary to support broad, end-to-end systems planning. The strategy would include a dynamic monitoring and evaluation process to track and report on the maturity level of digital health in the public health system.

2. Investment and Capacity-building

Proposals

The public health system would benefit from Ministry investment and support in the following areas:

- a) Ongoing centralized coordination and technical support for digital solution integration, including a provincial data warehouse to link service usage information;
- b) Rationalization and alignment of different digital solutions and systems, preferably into a public health information system;
- c) Implementation of those systems for public health units that do not yet employ them;

- d) Investment in upgrades or replacement of provincial repositories;
- e) Development of common applications to support public health processes that are not yet supported by a digital solution;
- f) Planning for capacity-building to ensure digital health literacy is embedded in the workforce, including professionals in information and communication technologies and as a part of current staff capacities. Capacity-building should include an approach to advancing digital health literacy among the public as well;
- g) Consistent digital supports for emergency management and mass immunization would help with timely records for events such as a mass outbreak.

Rationale

A provincial role in centralized coordination would support the use of data and digital solutions in streamlining the public health sector.

The province should explore the adoption of a common public health information system for tracking/reporting of public health information, inclusive of population health and health promotion interventions as well as clinical and professional documentation. Coordinated procurement with a vendor for local digital solutions on behalf of all local public health agencies would eliminate interoperability issues within the sector. This approach reflects the recommended cost-efficiency strategy of Ernst and Young's 2018 line-by-line review with regards to procurement and standardization of products². A provincial data warehouse could pool data from across the public health system to better understand the dynamic patterns of needs and interventions.

The province could also lead the development of interoperability data standards to enable data sharing across public health units and with the broader health care community. For digital innovations, a coordinated strategy is needed for exploration, knowledge exchange or implementation of technology and digital health tools that focus on public health interventions including mobile apps, public health portals and other client communication applications building on the success of ICON. Digital health literacy for the workforce and the public should be advanced as a part of the approach to adoption and management of technologies.

Current pain points

- Provincial direction has been to continue or expand on the use of provincial systems while locking some of them from further changes or updates. For example, in 2016, the Ministry informed public health units with dental programs to procure a third party dental clinic management system highlighting that OHISS would be "sunsetting." In 2019, public health units with dental programs were told to continue using OHISS, but only for the Ontario Seniors Dental Care program. Upgrades to OHISS would create significant time savings for public health staff through updated forms and connections to EMRs.

² Ernst & Young, 2018. Managing Transformation, A modernizing action plan for Ontario. Page 37. Available at: https://files.ontario.ca/ev_report_2018_en.pdf. Accessed on February 7, 2020.

- To overcome the gap in local public health functional requirements that might be integrated in a public health information system, EMRs are added to workflows on top of existing provincial systems leading to duplication of effort in procurement among public health units and duplicate entry of information among the digital systems (local and provincial).

Future state vision

Moving into the future, investments into common digital services and interoperable applications must support efficient and effective public health practice; and, enable partnership among and between entities in the public health and the health care systems across the province.

3. Standards and Interoperability

Proposals

The public health system would benefit from Ministry support in the following areas of standards and interoperability:

- a) Developing data standards for population health, health promotion interventions and enforcement in a public health information system.
- b) Developing additional data standards at the clinical level to support client transitions between public health units and the health care system.
 - Facilitating interoperability between local systems and key provincial systems and repositories (such as the Ontario Laboratory Information System - OLIS) and sustaining current integration points between provincial IT assets, such as Panorama and iPHIS.
- d) Facilitating interoperability / integration of information systems between different public health units.
 - Integrating relevant public health information, such as immunizations or clinical visit outcomes, into a provincial Electronic Health Record for each individual patient.
- e) Enabling data access beyond public health unit boundaries for local planning, management of resources and service delivery. For example, provincial support for the Ontario Seniors Dental Care program should include access by public health units to demographic information and application decisions by the province for improved service to clients.
- h) Provincial guidance on Digital Infrastructure Planning to support public health units with day-to-day as well as long-term planning decisions and help evaluate internal and external proposals in the digital realm (e.g. back office digital systems)

Rationale

Data standards and interoperability are critical foundations for data sharing to support integrated care, particularly in public health, to unlock high-value data for evidence-informed decision making, program and service evaluation, innovation and population health improvements by public health and other community and health system stakeholders. These benefits are particularly salient given the limited resources to devote to informatics work.

The public health system has experienced the benefits of provincial data standards operationalized through provincial assessment/documentation tools including the Panorama

Guidance document, PHO Disease investigation Tools, PHO IPAC Checklists, HBHC Screen etc. The benefits include:

- Efficient and standardized assessment and documentation provincially, translating to consistent client experiences
- Consistent data capture, translating to more robust surveillance efforts and data-driven decision making to improve client outcomes

Current pain points

- Lack of interoperability of OLIS with iPHIS requiring substantial rekeying of information which can be in the order of 100,000 reports each year at a large public health unit.
- Unnecessary duplication of effort: Staff are forced to double and sometimes triple document information between local and provincial databases which impacts workload and could pose a potential risk for conflict of information if it is not accurately documented in each system. Duplicate entry is an issue for many public health mandated programs including vaccine preventable diseases, infectious disease client labs and large outbreak investigations, oral health, naloxone distribution, child health programs involving ISCIS, and in some cases, the tobacco information system.

Future state vision

Data standards and interoperability can enable information-sharing for proactive and coordinated responses or to fuel innovation. For example, the collaboration with Ontario Health Teams could include digital connections to prevent infectious disease spread. As one step in this direction, the pilot project to integrate EMR immunization data with the provincial Digital Health Immunization Repository (DHIR) should continue to accelerate towards broader adoption. Further, the province should make immunization information from the DHIR available to healthcare providers via ConnectingOntario.

Digital investments by public health units or key partners, such as municipalities, could be leveraged as a foundation to support local innovation. For example, Smart Cities technologies could support inter-sectoral public services to resolve complex issues such as food security, social inclusion and pedestrian safety.

4. Legislation, Policy and Compliance

Proposal

The COMO Digital Health Steering Committee proposes that the Ministry consider:

- Leveraging policy and legislation to ensure adherence to standards in the public health system;
- Inclusion of public health perspectives in enacting digital health legislation and policy changes.

Rationale

An important lever to implement a Digital Public Health Strategy will be relevant legislative and policy changes to ensure compliance to standards and interoperability across systems. For example, ensuring accountability links between planning/funding and adherence to standards.

Pain points

- Procurement policies of individual local public health agencies can conflict with a provincial will to rationalize and align digital health solutions (e.g. EMR)
- Varied interpretation of the Personal Health Information Protection Act (PHIPA) is a barrier to consistent application across the public health system.

Opportunity for the future

The anticipated update to PHIPA provides an opportunity to consider the public health perspectives and input. For example, further discussion is needed to understand if Ontario Health Card Number collection may support continuity of care between the public health and health care sectors balanced with privacy risks.

Conclusion

Investing and acting on these recommendations would support the achievement of the anticipated outcomes of Public Health Modernization as follows:

Stated outcomes of Public Health Modernization	COMOH Digital Health Steering Committee recommendations
Better consistency and equity of service delivery across the province	Provincial leadership and resources would help ensure that all public health agencies have access to a public health information system or a common set of digital tools that enable information sharing and meaningful reporting for service delivery improvements. Public health data standards and standardized documentation forms would contribute to equitable and consistency of service; and, allow comparison between services.
Improved clarity and alignment of roles and responsibilities between the province, Public Health Ontario and local public health	Provincial leadership on procurement, data standards, and interoperability among the province, Public Health Ontario with support for local public health input through groups such as the COMOH Digital Health steering committee would avoid duplication of efforts, appropriately resourced roles and establish pathways for data sharing.
Better and deeper relationships with primary care and the broader health care system to support the goal of ending hallway health care through improved health promotion and disease prevention	Interoperability and data standards discussions with public health and health care stakeholders to accelerate the appropriate inclusion of public health information into a client's electronic health record or through a common public health information system. This would provide a platform for the local public health agencies to receive information from primary care and the health care system. This collaboration would support disease prevention, enforcement work, and health promotion at the individual or population-level to end hallway health care.
Improved public health delivery and the sustainability of the system.	Resources and a common public health information system or set of applications would improve public health delivery through the efficiencies gained by implementing and optimizing digital solutions with centralized supports.