ONTARIO 360 – HEALTHCARE SUPPLY CHAINS – TRANSITION BRIEFING

Transforming health-care supply chains to produce better health outcomes and value for Ontarians

Issue

Medical error is one of the many challenges facing health-care systems around the world. It is now the third leading cause of death in North America behind only heart disease and cancer.[1,2,3] A 2004 landmark study about medical error in Canada reported more than 70,000 "adverse events" per year across the country [2], estimated to be between 3,561 and 9,143 preventable deaths in Ontario each year.[4] Since then, there has been only limited improvements in patient safety despite growing research and new safety initiatives and technologies. The incoming government should enact supply-chain traceability in Ontario's health-care system to better identify risks to patient safety and prevent adverse events.

Overview: An information problem in Ontario's health-care system

Currently, clinical environments – such as hospitals and physicians's offices – lack the infrastructure to accurately identify patients and the products used for patient care. This not only heightens risks for medical error, it also can lead to unnecessary spending and waste.

1 M.A. Makery and Michael Daniel, "Medical error—the third leading cause of death in the US", BMJ, 2016. Available at: https://www.bmj.com/content/353/bmj.i2139.
2 G. Ross Baker, Peter G. Norton and et al., "Canadian Adverse Events Study," CMA Journal, October 2004. Available at: http://www.cmaj.ca/content/cmaj/170/11/1678.full.pdf.
3 Leading causes of death. Available at: http://www.statcan.gc.ca/tables-tableaux/sumsom/l01/cst01/hlth36a-eng.htm.
4 Tom Blackwell, "Inside Canada's secret world of medical error: 'there's a lot of lying, there's a lot of cover up" National Post, January 16, 2015. Available at: http://nationalpost.com/health/inside-canadas-secret-world-of-medical-errors-there-is-a-lot-of-lying-theres-a-lot-of-cover-up.

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Some basic causes and effects of this “information gap” include:

- Patients do not have access to product information used during clinical care processes, impeding their ability to track outcomes linked to product use, report adverse events and respond to recalls;

- Providers do not have access to reports or searchable data to analyze patterns and root causes of adverse events in real time, or outcomes and trends across organizations and health systems that could prevent error or redesign processes to mitigate risk;

- Health organizations do not have the digital tools and infrastructure required to enable clinicians with automated “double-checks” and alerts (e.g., expired or recalled products) to proactively manage risks and protect patients from harm;

- Health systems do not track product performance, or undertake postmarket evaluation linked to patient outcomes, that can reveal problems early enough to prevent population-level impact and inform product design;

- Health system leaders do not have expertise in supply chain logistics and management, and this aspect of health management curricula is not well developed;

- Governments do not have policy frameworks in Canada that require global standard labels on packaging to enable traceability of products from the manufacturer to patients across health systems to ensure safety.

The upshot is we have an underdeveloped “supply chain infrastructure” from the manufacturers to the patient. This is the source of “information gap” which in turn contributes to adverse events and medical error. Ontario needs to develop the infrastructure to automate health care processes and cue

providers to the risks of unsafe products and processes in order to protect patients.[5] This is what is meant by traceability.

The need for reform

The Ontario government commissioned an expert panel to study these questions in 2016. The panel released a report and accompanying recommendations in May 2017.[6] The recommendations included, among other steps, a more integrated Ontario health-care supply chain. The government has thus far only indicated that it is reviewing the recommendations.[7] But there is a good case for moving in the direction put forward by the expert panel.

Advancing supply chain innovation across Ontario health systems would mean that patients, products, and patient care are tracked and traced to enable the following:

- Informed patient health decisions to better manage their own care, track and report their progress and health outcomes.

- Automated care processes for providers to create visibility of individual patient outcomes that can be linked to products and care processes.

- Reduced health system costs by optimizing inventory processes which reduces waste, informs procurement decisions, and achieves the best outcomes for patients at the lowest cost.

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5 Anne Snowdon and C. Alessi, "Visibility: The New Value Proposition in Health Systems", World Health Innovation Network, 2016. Available at: https://issuu.com/worldhealthinnovationnetwork/docs/full_paper_-_win_visibility_thought?e=25657717/39177387.

6 Healthcare Sector Supply Chain Strategy Expert Panel, Advancing Health-Care in Ontario: Optimizing the Healthcare Supply Chain – A New Model, Submitted to the Government of Ontario, May 2017. Available at: http://www.health.gov.on.ca/en/pro/ministry/supplychain/docs/advancing_hc_supplychn_expert_panel_may2017_en.pdf.

7 Letter from the Hon. Eric Hoskins and Hon. Tracy MacCharles, "The Ontario Healthcare Sector Supply Chain Strategy," Ministry of Health and Long-Term Care, May 15, 2017. Available at: http://www.health.gov.on.ca/en/pro/ministry/supplychain/minister_memo.aspx.

- Evidence of value and outcomes linked to products informs industry to support regulatory requirements, and opportunities for product innovation.

- Evidence across the continuum of care regionally, provincially, nationally and globally inform governments decisions on investments and policy to improve heath system performance.

- Visibility enables health system leaders to identify the best outcomes and value to strengthen quality, safety and performance.

Evidence of Impact

The World Health Innovation Network conducted three empirical case studies to examine supply chain infrastructure in health systems with the goal of mobilizing knowledge and evidence of impact of supply chain infrastructure across jurisdictions.[8,9,10] Case studies were undertaken in (1) Alberta Health Services (AHS), (2) National Health Service (NHS) in Britain, and (3) Mercy Health System in the US. These case studies create the first empirical evidence of the system level impact of implementing supply chain traceability using GS1 global standards. The case studies revealed the following key findings.

Leadership: All three cases identified the need for government and/or executive leadership to drive implementation at scale.

Inventory Savings: Although patient safety was a primary driver of the strategy, the economic impact and significant cost savings generated

8 Anne Snowdon "The Impact of Supply Chain Transformation in Health Systems: Alberta Health Services, Canada," World Health Innovation Network, 2018. Available at: https://issuu.com/worldhealthinnovationnetwork/docs/final_for_release_ahs_case_feb_14_9.
9 Anne Snowdon, "The Impact of Supply Chain Transformation in Health Systems: National Health Service, England," World Health Innovation Network, 2018. Available at: https://issuu.com/worldhealthinnovationnetwork/docs/final_for_release_nhs_case_feb_14_8.
10 Anne Snowdon, "The Impact of Supply Chain Transformation in Health Systems: Mercy Health, U.S.," World Health Innovation Network, 2018. Available at: https://issuu.com/worldhealthinnovationnetwork/docs/final_for_release_mercy_case_edit_f.

momentum and support for implementation. AHS and NHS realized significant inventory savings ranging from a 4:1 to 8:1 return on investment. Mercy reported cost savings of over $1 billion as a direct outcome of optimizing and transforming supply chain processes across its health system.

Clinical Time: Each organization reported significant labour cost savings achieved by supply chain infrastructure reducing time required by clinicians to manage supply processes.

Integration: Supply chain team integration into clinical programs engaged clinicians in product procurement decisions to ensure only the safest products that achieve greatest value are used in care.

How to Move Forward

The incoming government should therefore focus on building this supply-chain infrastructure in order to address the information gap in Ontario's health-care system. The following steps should be taken to move in the direction of the Healthcare Sector Supply Chain Strategy Expert Panel's recommendation for an integrated supply chain.

1. Create policy and regulatory frameworks that require the adoption of global standards to enable traceability of care processes and patient outcomes.

2. Invest in technological infrastructure in clinical care settings to automate supply chain management in order to reduce waste, automate recall, and generate significant savings.

3. Establish a province-wide product registry that holds accurate and up-to-date data on all health-care products to support tracking and traceability, automate reporting of patient safety, and reduce adverse events.

4. Build health system leadership capacity and expertise in supply chain transformation by leveraging the expertise and experience of strategic supply chain leadership demonstrated in other sectors, such as the grocery, retail pharmacy, travel and automotive industries.

5. Design and implement measurement frameworks and supply chain scorecards for ministries of health and accreditation organizations to measure progress, impact and outcomes of supply chain transformation.

6. Align Canadian, U.S. and global supply chain policies, regulations and legislation to streamline regulatory processes and maintain Canada's viability as an international trading partner.

Adverse events and medical error in Ontario's health-care system can be reduced through creating greater system-wide visibility of patients, products, and care. Requiring, enabling and scaling supply chain infrastructure based on GS1 global standards will improve health outcomes and deliver better value for Ontarians.

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