



The Ministry has conducted a number of evaluations over the last 15 years, including reviews of specific programs in the branch and head office structure. While these reviews have led to improvements, challenges with the ambulance communications delivery model persist. Deloitte was engaged in late 2016 to evaluate the current state of ambulance communications delivery in Ontario, and develop options for the optimal delivery model. This included a review of performance and human resources data, as well as a scan of communications models in other jurisdictions.

Vision for Change: Context for the Provincial Assessment

- **Patients First: Action Plan for Health Care** was released in 2015 and is focused on the ongoing commitment to put people and patients first by improving the healthcare experience
  - With the government’s commitment to provide patients with the right care, at the right time, and in the right place, there is a growing need for Emergency Health Services to evolve and align with the strategic objectives of Patients First
- Emergency Health Services (EHS) is considered a key gateway to the broader health care system and system improvements are underway to align with Patients First and other health sector reforms including:
  - A multi-year transformation strategy
  - 2017-18 and 2018-19 planned technology system improvements, including: a new triage tool, upgraded CAD, bi-directional information sharing through central integrated platforms
- **Enhancing Emergency Services in Ontario (EESO)** is a multi-year enterprise initiative that supports the strategic objectives of Patients First by proposing to *“improve and sustain quality co-ordinated care across the patient’s journey, and implement more effective medical transportation and paramedic services with all health care delivery partners and providers in Ontario”*.
- With this in mind, EESO is coordinating the EHS system transformation with a broad cross-section of service delivery components:
  - EESO vision for change is built on four key pillars of work: change, integrate, build and oversee.

Purpose of the Provincial Assessment

- The purpose of this evaluation was to develop a series of options for the optimal delivery model for land and air ambulance communications in Ontario, which:
  - Support a robust and flexible organization and delivery structure
  - Improve the patient’s journey through the health care system
  - Ensure a sustainable health care system province-wide
- There is currently work underway to reform the emergency health system. The Ministry recognized that there are **opportunities for further growth and enhancement of the current system** to better align with *Patients First* and the Enhancing Emergency Services in Ontario (EESO) Future State Roadmap, and key foundational work has begun including planning for the implementation of a new medical algorithm.



- This work undertaken to inform the report will be used to identify the next steps in the transformation of emergency health services in Ontario

Project Approach and Activities Completed



Current Model of Ambulance Communications in Ontario

Structure	<ul style="list-style-type: none"><li>• 22 Central Ambulance Communication Centres (CACCs) in Ontario, operating in a hybrid model<ul style="list-style-type: none"><li>– 11 operated directly by the Ministry of Health and Long-Term Care (Ministry), 5 operated by Hospitals, 4 operated by Municipalities, 2 locally based Ambulance Communications Services</li></ul></li><li>• CACCs communicate with 56 Paramedic Services (PS) providers across the province (50 Upper-tier Municipal services + 6 First Nations services)</li><li>• Ornge Communications Centre – dispatches air ambulance and critical care land ambulance resources</li></ul>
Funding	<ul style="list-style-type: none"><li>• The Ministry currently funds 100% of dispatch centre costs</li><li>• Funding for Municipal PS providers is split 50/50 between Ministry and Municipalities</li><li>• First Nations Paramedic Services are 100% ministry funded</li><li>• Ministry funds 100% of air ambulance and critical care land ambulance services (Ornge is provider)</li></ul>
Supportive Tools	<ul style="list-style-type: none"><li>• Computer Aided Dispatch (CAD) technology is used at all CACCs to support call taking, triage and dispatch, however varying instances of this technology are in use across CACCs</li><li>• While Medical Priority Dispatch System (MPDS) is used to triage patients at Niagara and Toronto CACCs, all other CACCs use Dispatch Priority Card Index (DPCI) II to inform prioritization of patient needs</li><li>• Ornge’s Flight Vector triages patients using a 5-point scale for acuity</li></ul>



The review included analysis of performance and human resources data, interviews and focus groups with internal and external stakeholders, and an online survey to better understand the current state and opportunities for future state. A review of communications models in other jurisdictions was also undertaken to inform key priorities and potential future state models.

Key Highlights of the Current State

Performance Management and Monitoring

- Select **process-related performance metrics** are tracked annually and publically-reported on the Ministry site, with a **common benchmark** across all CACCs
- Reported **performance metrics are currently based on CTAS scores**, which are assigned after the paramedic has responded to a call, rather than based on priority assigned by ambulance communications officers
- The **MPDS triage tool** is used at Toronto and Niagara CACCs, while all others use **DPCI II**, leading to challenges in comparing performance across CACCs

Leadership and Structures

- The **distribution of CACCs** across the province enables each centre to be familiar with the practices of local municipality and service providers and tailor services to meet the nuanced needs of communities
- There is variation in delivery models and standardization of practices across CACCs including **different interpretations of policy and use of technology**, which leads to challenges in integrating CACCs and thus a fragmented system
- Sizes of CACCs and associated **volumes of calls received varies significantly** across Ontario – staffing for potential needs and minimum staffing requirements lead to inherent inefficiencies in smaller regions

Infrastructure, Technology Requirements

- All CACCs have **CAD technology in place** allowing them to dispatch the closest vehicle to the caller
- Although all CACCs currently used the same CAD platform, they each use **different instances** of it, which results in an inability to achieve an integrated system as CACCs are not able to communicate with each other through their CADs
- Re-routing calls in the event of an emergency at one CACC is initiated through a **manual process of calling the telecommunications company** to notify them, which poses significant risk in an emergency or power failure

People and Roles

- Regional centres foster **strong interpersonal support** amongst peers and between front line staff and management
- All CACCs have at least one CACC Manager and Operations Manager, however the **span of control is variable across CACCs** and **Managers are not staffed 24/7**, which has implications for performance management
- Centralized training** is provided to ACOs, with **CACC-specific training** designed and provided by each individual CACC
- Deployment plans** are developed in collaboration with individual Paramedic Services and can be **variable between CACCs**

Health Care System Integration Points

- A number of **parallel call systems exist** in Ontario including 811 and TeleHealth Ontario presenting opportunities for integration of services and appropriate triaging to the right resources
- CACCs work with other organizations for the **provision of air ambulance and inter-facility transportation services**, however fragmented communication systems and unclear processes for communication lead to a number of challenges in the efficiency of these relationships

Summary of Jurisdictional Review for Ambulance Communications



- All jurisdictions reviewed had a **single governance entity** for oversight of ambulance dispatch
  - Current dispatch models establish **government as the overall oversight body** with only municipalities, hospitals, or private companies operating as direct service providers
  - For jurisdictions with contracted out services (i.e., USA and Nova Scotia), **performance based contracts** with penalties and incentives are used to ensure accountability, with **regular reviews of performance** allowing for evidence-based decision making and evaluation of service providers
- Use of a **standardized triage system** across all dispatch centres is common in most jurisdictions
- Jurisdictions with **CAD to CAD compatibility** have 'borderless' dispatch allowing dispatch of resources from neighbouring communities and seamless back-up in the event of a system failure
  - Advanced telecommunication systems automatically re-route calls when dispatch centres are not able to receive calls
- Many jurisdictions have moved to an **expanded role of ambulance dispatch centres** where low acuity calls are referred to existing community resources
  - Built-in referral criteria during triage for low acuity calls can optimize use of existing healthcare resources
- Clear criteria and roles for use of air ambulance and inter-facility transfers to streamline processes and ensure clear accountability in emergency health services system
  - Use of **integrated communication systems between service providers** to enable prompt and clear sharing of relevant patient information and performance data
- Advanced **management reporting systems** enable centralized capture of employee data and shift reports, with real-time updates to managers on performance at multiple levels

Recommended Key Priorities for Transformation

An understanding of current state and review of practices across six jurisdictions informed the development of three model options for the future of ambulance communications delivery in Ontario. The guiding principles provided a framework for the key priorities, which provide direction to shape the future of ambulance communications, regardless of the stage of transformation. These priorities will allow the Ministry to build upon improvements in technology systems and the EESO multi-year transformation.

**Comprehensive performance management:** Setting relevant benchmarks for clinical and service performance targets, advanced management reporting systems, and a dedicated decision support/business analysis team

**Clear service expectations and accountability:** Established service expectations and performance based contracts and an appropriate governance structure to support this

**Integrated technology and information management practices:** integration of technology between dispatch centres, paramedics, and other related services, as well as provincial standard for triage technologies and integrated approach to information management

**Focus on HR management and standardization across sites:** Standardization of policies and procedures across CACCs, advanced HR management practices, and formal accreditation by a recognized entity

**Collaboration with partner organizations and existing structures to enhance emergency health services:** clearly defined roles for partner organizations and a future vision to include integration with the broader healthcare system





### Potential Future State Models for Ambulance Communications

In order to achieve optimized and integrated ambulance communications in Ontario, we propose a continuum of transformation, where each model builds on elements of the previous model(s). Depending on the provincial direction of the communications ecosystem, as well as broader initiatives in health transformation, the Ministry can use this framework as a guide to a potential phased implementation of ambulance communication models.

	Option 1 – Existing Dispatch Model Transformation	Option 2 – Regional Dispatch Model	Option 3 – Centralized Dispatch Model
Description of Model Options			
Overall Considerations	<ul style="list-style-type: none"> <li>Implementation activities for the <b>Key Priorities for Transformation</b> are required in all model options</li> <li>Future model will be <b>one, holistic interconnected system</b> that fosters coordinated collaboration with stakeholders across the emergency health services ecosystem</li> <li>Consideration must be given to the <b>future vision and capabilities required</b> to support the vision</li> </ul>		
Unique Elements	<ul style="list-style-type: none"> <li>Maintenance of 22 land ambulance dispatch centres</li> <li>Current CACC boundaries and relationships with paramedic services</li> <li>Current relationship with air services provider remain in place</li> <li>Single or hybrid operation model</li> </ul>	<ul style="list-style-type: none"> <li>Regional centres for ambulance dispatch that may align with relevant patient flow patterns</li> <li>Current relationships with air services provider remains in place</li> <li>Single or hybrid operational model</li> </ul>	<ul style="list-style-type: none"> <li>Centralized dispatch services for land and air, with back-up site redundancies built-in</li> <li>Single operational model</li> </ul>
Model Implications			
Implications related to Guiding Principles	<ul style="list-style-type: none"> <li>✓ Existing backup contingency in the case of system failures as a result of multiple centres</li> <li>✓ With the focus on transformation within the existing dispatch model, required changes will be easier relative to the other model options</li> <li>• Inability to achieve economies of scale, as the number of centres will remain unchanged</li> <li>• More challenging to employ system status management with many centres</li> <li>• While processes and practices can be optimized and standardized across sites, this will require significant effort due to the large number of centres</li> <li>• Different dispatch centres for land and air will require increased coordination for complex transports</li> <li>• Due to the limited organizational changes, it may be challenging to seamlessly position for further system integration opportunities</li> </ul>	<ul style="list-style-type: none"> <li>✓ Trend towards achieving great economies of scale with fewer centres; efficiencies gained through consolidation of sites as minimum staffing levels are no longer required due to critical mass being achieved</li> <li>✓ Easier to employ system status management with fewer centres</li> <li>✓ Existing backup contingency in the case of system failures</li> <li>✓ Aligns with the movement in other jurisdiction around consolidation</li> <li>✓ With fewer regional centres, the Branch is better positioned for further system integration opportunities</li> <li>• Different dispatch centres for land and air will require increased coordination for complex transports</li> <li>• Changes to organizational structures and staffing will require robust planning and efforts</li> </ul>	<ul style="list-style-type: none"> <li>✓ Model enables achievement of great economies of scale with efficiencies gained through consolidation of sites System status management can be implemented in a seamless way with a centralized model</li> <li>✓ Aligns with the movement in other jurisdiction around consolidation</li> <li>✓ Implementation of future system integration opportunities may be easier with a common operational leadership</li> <li>✓ Consolidated land and air dispatch will support enhanced coordination for complex transports</li> <li>• Challenge to ensure sufficient backup contingency with potential system failures and the ability to manage overflow</li> <li>• Changes to organizational structures and staffing will require robust planning and efforts</li> </ul>
Implications related to Key Priorities for Transformation and Operational Considerations	<ul style="list-style-type: none"> <li>• Significant effort and resources required to monitor and audit KPIs across 22 centres</li> <li>• With technology improvements underway with EESO transformation strategy, triage of calls, bi-directional information sharing, and reporting will be enhanced across all model options</li> <li>• Operational considerations: Current workforce, call patterns, and back-up contingency plans continue; depending on other regional/provincial transformation initiatives underway, the Ministry may need to explore impacts to current boundaries to align with integration opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Consolidation of communications centres will increase the likelihood of success of standardized performance monitoring, in addition to less complicated oversight for performance based contracts</li> <li>• Less comprehensive knowledge of local communities, however opportunity to tailor centres to meet needs of geographical region</li> <li>• Operational Considerations: The Ministry will need to conduct an assessment on the size and physical capacity of the current centres, to support discussions on siting options. Consolidation to fewer centres will have an impact to the workforce in smaller communities, though potential technology supports could allow for future virtual workplaces</li> </ul>	<ul style="list-style-type: none"> <li>• Consolidation of air and land communications centres will increase likelihood of success of standardized performance monitoring, in addition to greater efficiencies through consolidated decision support</li> <li>• Consolidation of centres will provide an opportunity to revisit and standardize policies and procedures across all centres, and reinforce HR management practices to build capacity in leaders</li> <li>• Consolidation of air and land communications centres aligns with the future vision of integration with other services and the broader health system</li> <li>• Operational Considerations: The Ministry will need to conduct an assessment on the size and physical capacity of the current centres, to support discussions on siting options.</li> </ul>



Business Process Improvements

An understanding of current state and review of practices across six jurisdictions informed a gap and opportunities analysis, which informed the following Business Process Improvements for further investigation, to evolve ambulance communications in Ontario:

Performance Management and Monitoring	1	Enhance relevant performance targets that are reflective of activities associated with CACCs
	1.1	Ensure alignment of metrics to evolving models of care
	2	Enhance CACC and Ornge OCC performance metrics or scorecards
	2.1	Review reports generated today and cease reporting on areas that are not relevant
Leadership and Structures	3	Advance analytic reporting to generate additional insights based on current data
	3.1	Consider updating or investing in technology infrastructure and analytics tools to enhance reporting
	4	Improve the Quality Assurance framework/program to drive performance and quality in the service model
	5	Investigate opportunities to pursue accreditation for emergency dispatch communication across all CACCs and OCC from a recognized, international organization
Infrastructure, Technology Requirements	6	Review current accountability frameworks and enhance service and performance expectations and monitoring
	7	Procure a standardized electronic triage system across all CACCs, in alignment with 2017-18 and 2018-19 system improvements
	7.1	Procure a triage system with an advanced algorithm to assign priority status that reflects patient needs
	8	Implement technology to allow seamless transition of calls to mitigate system or switch failure across all CACCs and Ornge's OCC
	9	Implement advanced dispatch technology functionality that aligns with the future model of services
	9.1	Consider standardizing CAD instance across CACCs to enable effective sharing of information
	9.2	Implement a system to enable two-way communication with PS mobile data terminal and CAD system, thus enabling a combined rich data set of EPCR and CAD data, in alignment with proposed 2017 system improvements

People and Roles	10	Focus on enhancing an engaged culture within the CACCs
	10.1	E.g., establish annual in-person meetings, webinars, social media sites, SharePoint sites, and/or blogs to support regular engagement, encourage connecting with other regions and sharing lessons learned, formal certification of ACOs through accreditation process, increased support for Supervisors and Managers to improve management skills and abilities
	11	Explore models that can support management functions 24/7
	11.1	Consider cross-coverage models across CACCs, and unionized vs. non-unionized environments
	12	Examine current education practices to determine changes that may be required to increase adoption of training (e.g., alternate approaches, peer-based learning models)
	13	Advance HR management practices
Health Care System Integration Points	13.1	Consider implementing an electronic scheduling system to better track staff utilization and inform predictive scheduling
	13.2	Stronger focus on development of leadership, succession and retention management using informal/formal methods
	13.3	Conduct a review of staff utilization – particularly attrition, sick time, and overtime – to better understand drivers; this may include collection of quality data to conduct analytics
	14	In alignment with <i>Patients First</i> and EESO, establish a future vision of pre-hospital care to inform the roles and responsibilities of CACCs
	14.1	Consider other referral options for the public for low acuity calls
	15	Explore model options to strengthen the communication and coordination of critical care transport
	16	Identify expanded support or guidance that ACOs can provide to patients and families to improve outcomes, as well as the patient experience