



# **Transforming Emergency Health Services Action Plan A Response to Demand Modelling Study**

February 5, 2016

## 1. Background: BC Emergency Health Services

Since 2010, BC Emergency Health Services (BCEHS) has been focused on becoming more integrated into the British Columbia health system, to ensure that emergency services are delivered with optimal patient care in mind. BCEHS is responsible for the delivery, coordination and governance of out-of-hospital emergency health services, and inter-facility patient transfer planning and coordination through the BC Ambulance Service (BCAS) and the BC Patient Transfer Network (BCPTN).

Currently, all calls for emergency medical services are routed to British Columbia Emergency Health Services (BCEHS), and through an intake and triage process, BCEHS dispatchers determine the level of patient acuity and what kind of skills and resources are required to respond to patient need. The information below provides some highlights of current service use and response times in BCEHS' Metro Operations areas. (Note, BCEHS defines its "Metro Operations" as Metro Vancouver, Greater Victoria and the Fraser Valley. Geographical boundaries include Lions Bay on the Sea to Sky Highway and Agassiz in the Fraser Valley, and Saanich and Sooke in Greater Victoria.)

- **6%**: estimated growth in demand per year over the next five years
- **243**: average number of patient events per day that 15 different<sup>1</sup> fire services across Metro Vancouver respond to daily
- **827**: average number of patient events per day responded to by ambulances in the Metro areas in 2014
  - **21%**: portion of patient events that are of the highest acuity
  - **37%**: portion of patient events that are of a serious but not critical nature
  - **28%**: portion of patient events that fall into the least acute category
  - **14%**: portion of patient events that are for transfers
- **10:24** minutes: The average amount of time it takes for BCEHS to respond in the Metro areas for the most critical patient events
- **9** minutes: the average amount of time BCEHS would establish as the target for response in the Metro areas to the most critical patient events 75% of the time, as per best practices established in other jurisdictions
- **51%**: the portion of times that BCEHS can currently respond in an average of 9 minutes to the most critical patient events
- **15:07** minutes: the average amount of time it could take for BCEHS to respond to the most critical patient events in 2020 if nothing is done to improve existing services

Municipal Fire Departments have been identified as "First Responders" for the most acute patients, and BCEHS dispatches the closest Fire Department in about 30% of total calls and 87% of the most acute cases. Because Fire Department resources are located throughout the community and are experiencing lower demand for fire-related services, they respond faster than ambulance services 75% of the time, and in critical incidents, such as cardiac events, can administer CPR while waiting for ambulance paramedics to arrive and take over patient care.

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<sup>1</sup> Seventeen fire services submitted data to ORH, however so as not to skew the analysis, ORH excluded data from two fire services due to very low volume.

## **2. Background: The Demand Modeling Study**

With emergency ambulance demand rising, and current resources at capacity, BCEHS needed to understand how to best deploy its resources to the benefit of patients, and provide best practice in emergency services delivery. BCEHS commissioned Operational Research in Health (ORH), an international expert in emergency response demand analysis and deployment modelling, to conduct a review of the services it provides. ORH reviewed more than 350,000 emergency responses provided by ground ambulance, in the Lower Mainland (including the Fraser Valley) and the Greater Victoria regions, and projected demand levels forward to 2020 based on forecasted population growth and demographic changes. Separately, ORH reviewed the BCEHS provincial air ambulance program, however, that report has not been finalized.

Note, the study covered the area that BCEHS defines as its “Metro Operations,” which consists of Metro Vancouver, Greater Victoria and the Fraser Valley. Geographical boundaries include Lions Bay on the Sea to Sky Highway and Agassiz in the Fraser Valley, and Saanich and Sooke in Greater Victoria. It is important to note that this area accounts for 85% of all BCEHS’ calls.

Although the study was focussed on this geographic area, many of the action items and mitigation strategies will also be applied to enhance services in other areas of the province. BCEHS has also already announced and begun implementing a community paramedicine program aimed at strengthening emergency care in rural and remote areas of the province.

In commissioning the research, BCEHS was most interested in modelling and data collection that would help it develop a plan to address the resource challenges already being experienced by growing demand, and anticipated to become even more significant over the next five years, based on the 6 per cent growth in demand the ORH report projected year-over-year to 2020.

ORH delivered a report that is both detailed and comprehensive, and provides BCEHS with quantifiable and statistically reliable data that now allows BCEHS to make evidence-based, system-wide improvements, with patient outcomes in mind. The ORH report assumed that the population would grow and change, and service would be delivered as it is today, with no modifications, innovations or additional resources. That is, if nothing were done to change or improve the delivery of emergency ambulance services, the report outlines the impact on the need for resources and response times.

## **3. The Response: BCEHS Action Plan**

In response to the ORH report, BCEHS has produced this Action Plan, with the intention to develop a more detailed implementation plan over the coming months. The plan articulates a variety of strategies and actions that will be needed to improve the overall efficiency and effectiveness of emergency health services in BCEHS’ Metro areas.

This Action Plan identifies individual actions, that when taken collectively, begin to address the challenges in place today in these regions, and effectively plan for the challenges in service delivery predicted for tomorrow. BCEHS also intends to conduct additional research to model some of the proposed actions identified in this plan, to ensure they will result in anticipated and needed gains.

BCEHS is pleased with the foundation the report offers and on which it can now build a high-quality and sustainable emergency health service for British Columbians. BCEHS will work with the Ministry of Health, Health Authorities, its employee representatives and other key stakeholders, to ensure British Columbians receive high quality emergency health services and appropriate patient care.

## 4. Goal and Objectives

**BC Emergency Health Services Goal:** To continually improve the patient and provider experience

**BC Emergency Health Services Objectives:** Provide Appropriate Care; Develop Innovative Care Models; and Integrate with the Health Care System.

### **Objectives of the Action Plan for Metro Vancouver and Greater Victoria**

- Develop efficient and effective service delivery to meet existing and projected demand.
- Establish appropriate and achievable targets for emergency response times based on acuity of the patient.
- Improve emergency response times to patients overall, but particularly where response times impact patient outcomes
- Validate tactics to improve emergency response times through additional data modelling.
- Determine the additional resources that are required to address growing demand.
- Ensure British Columbians receive high quality emergency health services and appropriate patient care.

## 5. Action Plan Strategies

BCEHS has developed this Action Plan in response to the report, to avoid the “status quo” scenario painted in the ORH report (i.e. in the absence of any service-delivery changes, innovation or improvements). The Action Plan articulates five strategies that will be necessary to improve the efficiency and effectiveness of the service. These include:

- Improving performance efficiencies to reduce dispatch and mobilization response times;
- Working with stakeholders to change how BCEHS responds to calls of a minor nature and low acuity transfers;
- Working with health authorities to streamline handover of care at emergency departments and improve turn-around times for ambulances from hospitals;
- Working with government to develop a multi-year strategy for implementation of new resources; and
- Enabling innovation in the way the province delivers emergency health services.

Each of the above strategies is dependent on the others – realizing a gain in one will likely impact how much needs to be done under another strategy to meet the response time target for best practice in patient care. For example, reducing wait times of ambulance crews at hospitals to a maximum of 30 minutes would free up crew time, and in turn, reduce the number of new resources that would be necessary to meet growing demand.

## **6. Key Actions**

### **A) Improve performance efficiencies to reduce dispatch and mobilization response times**

A1) BCEHS, in conjunction with the Ministry of Health, will establish realistic response time targets based on best practice in other jurisdictions:

- 9 minutes or less 75% of the time for the highest acuity. “Highest acuity” refers to calls classified by BCEHS as “Delta/Echo,” such as cardiac arrest, drowning and not breathing, choking and other life-threatening calls.
- 15 minutes or less 75% of the time for medium acuity.

A2) BCEHS will review call-taking and dispatch practices, and together with its staff and unions, develop, phase in and measure new processes, focusing on:

- Activation time (time from answering the call to when the ambulance is assigned)
  - One-third target reduction in time by 2020 for highest acuity calls.
- Mobilization time (time from the ambulance being assigned to the time it is mobile)
  - One-quarter target reduction in time by 2020 for highest acuity calls.

A3) BCEHS will explore the use of mixed crewing [staffing of ambulances with both an Advanced Life Support and a Basic Life Support crew member] to improve response times and Advanced Life Support availability for high acuity calls.

### **B) Work with stakeholders to change how BCEHS responds to calls of a minor nature and low acuity transfers**

B1) BCEHS will explore changing the way calls that are minor in nature are responded to, including:

- Increase the capacity of BCEHS paramedics to more effectively support patients with less serious medical conditions and avoid the need for ambulance transportation.
- Develop a triage resourcing system that is more comprehensive and complex, and more integrated with the health system, and staffed with several levels of clinical professionals to avoid the need to dispatch an ambulance and paramedics to every call.

B2) BCEHS will conduct a public education campaign about when it’s appropriate to call 911.

B3) BCEHS will evaluate an electronic patient care record (ePCR) to improve patient care, handover of care to other providers and medical record management.

### **C) Work with health authorities to reduce hospital wait times**

C1) BCEHS will work with health authorities and hospitals to improve turn-around times from hospitals and patient transfer times.

- Build on existing work with health authorities to improve transfer times and processes for high acuity patients so they can receive the specialized care they need
- Explore innovative approaches to transport patients for specialist appointments and diagnostics, freeing up ambulances and paramedics for emergency patient care

**D) Work with government to develop a multi-year strategy for implementation of new resources**

D1) BCEHS will confirm the number and types of additional resources that may be required, including additional staff, vehicles, and equipment and ambulance stations.

D2) BCEHS will pursue the deployment of Primary Response Units (PRUs) to ensure the most acute patients receive optimal care. PRUs are staffed by one Advanced Care Paramedic and do not transport patients. However, their ability to get to the patient event quickly can significantly improve patient outcomes in critical cases. PRUs would respond to patients with acute conditions, in addition to a transport-capable ambulance staffed with two Primary Care Paramedics.

**E) Enable innovation in the way the province delivers emergency health services**

**BCEHS will work with the Ministry of Health and other key stakeholders to enable the provision of alternative patient care pathways, such as:**

- Hear and Release – for non-emergency calls, medical information and guidance could be provided to the patient by BCEHS staff, with no deployment of ambulance and crew.
- Hear and Refer – medical information could be provided by BCEHS triage staff, along with referral to another resource (Social Services, Community Health or Community Paramedic for follow-up).
- Treat and Release – paramedics could be dispatched and attend the call, but would be able to advise the patient that they do not need transport to the hospital, freeing up the ambulance and crew to then attend another call.
- See and Refer – paramedics could be dispatched and attend the call, but would be able to refer the patient to another, more appropriate, resource. “Seeing” could be in-person or via telehealth technology.

## **7. Conclusion**

BCEHS conducted a demand modelling study to determine and recommend the most appropriate service delivery model that provides best practice in patient care.

This Action Plan is based on the ORH findings, and identifies a range of activities BCEHS will undertake immediately, as well as over the longer term, to achieve the targets for emergency response time standards.

The work that began in 2010 to better integrate emergency services into the health care system will continue. BCEHS also intends to work with our staff, the union, the ministry, health authorities, municipalities and others to introduce the changes required to meet both current and projected demand and improve the effectiveness of our service to patients.

Each of the activities we identify in the Action Plan, on its own, will not be enough to improve the effectiveness of service and meet future growth in demand. These activities, however, when considered collectively, will help us meet the challenges experienced today, and effectively plan for the challenges predicted for tomorrow.

Over the coming months, BCEHS will develop a detailed implementation schedule for the recommended activities, so it can introduce system-wide improvements, with the goal of improved patient experience and outcomes as the primary focus.