

BCEHS 2020 Action Plan Addendum 2

Secondary Triage

Establishing a robust and accurate triage function is a key part of the BCEHS 2020 Action Plan strategy to mitigate demand and ensure appropriate and timely care is provided to our patients.

By offering more appropriate response and treatment options to the nearly 30 per cent of patients who call 911 not requiring a critical or urgent response, BCEHS will be better able to ensure that the 25 per cent of patients who urgently require emergency medical services will receive a rapid response within established benchmarks. It will also ensure that patients receive a more appropriate level of care and lead to less congestion in the emergency department.

Secondary triage is the use of specialized algorithms and increased clinical oversight capacity within emergency dispatch operations to assess non-urgent calls and determine the appropriate medical response needed. Secondary triage has been implemented successfully in several jurisdictions within and outside of Canada.

Secondary triage is not the same service provided by HealthLinkBC (811); it is a further clinical review of patients who have been determined by MPDS to be lower acuity and who are waiting for an ambulance to become available, allocated and dispatched. At busy times, dozens of calls can be holding, waiting for an ambulance to be identified as available and dispatched. If an ambulance has not yet been dispatched, call-takers currently call back every 20 minutes to determine if the patient acuity has changed using MPDS. Secondary triage can help to more effectively assess and reprioritize these patients if their medical needs become more urgent. This additional triage will ensure the appropriate care resource and method of transport is provided based on the caller's clinical need.

Secondary triage will also be used to better assess patients whose 911 calls have been determined non-emergencies through MPDS and are transferred through to nursing services at HealthLinkBC, but then are transferred back to ambulance dispatch.

BCEHS will begin the phased implementation of secondary triage with clinical staff embedded in dispatch operations, providing additional support to determine the appropriate response priority based on the patient's needs.

The second phase of implementing secondary triage is to work with health authority initiatives to improve access to primary care and access alternate pathways of care within the health sector and the community. Patients will be provided with care options as an alternative to an ambulance trip to the emergency department whenever clinically appropriate.

**BCEHS 2020 Action Plan
Addendum
Phase One Priorities – For Approval**

BCEHS Priority Action	MOH Strategic Priority	Budget Requirement
<p>Add capacity to reduce ambulance response times.</p> <ul style="list-style-type: none"> • Deploy 8 additional Basic Life Support (BLS) ambulances to Lower Mainland communities based on demand modelling: 4 in fall 2016 and 4 in spring 2017 * • Supplement staffing levels in Vancouver Dispatch Operations Centre <p>To add capacity in communities across the province, part of the BCEH workforce plan includes the replacement of EMRs with higher trained PCPs. This will be facilitated and phased in through the use of a special bursary fund designed to encourage rural paramedics to upgrade their skills.</p> <p>BCEHS will work with the other members of the fund advisory group to adjust the criteria of the fund to ensure</p>	<p>Provide patient-centred care</p>	<p>Ambulances = \$1.466 M Capital</p> <p>Supplies, Fuel, R&M = \$0.822 M</p> <p>80 FTE PCP = \$8.197 M*</p> <p>20 FTE EMD = \$1.701 M</p> <p>EMR/PCP Wage Delta = \$1.556 M</p> <p>Total Capital: \$1.466 M</p> <p>Total Operating*: \$12.276 M</p> <p>*Incremental to the 8 ambulances deployed in 2015/16 = \$4.117M</p>

BCEHS Priority Action	MOH Strategic Priority	Budget Requirement
<p>that a condition be added so that recipients must practice in the province for a set period of time after receiving their training</p> <p>This fund will help enable long term stability for rural communities with Community Paramedics.</p>		
<p>Improve the timeliness and quality of patient handovers by reducing off load delays at hospital emergency departments</p> <ul style="list-style-type: none"> Engage regional health authorities and select sites to standardize and streamline handovers Increase supervisory capacity and accountability to manage delays, coordinate with emergency departments, support crews and ensure crews are available to respond to calls for service 	Provide patient-centred care	20 FTE @ UC rate of pay plus leased vehicles = \$2.632 M

BCEHS Priority Action	MOH Strategic Priority	Budget Requirement
<p>Implement secondary triage for 911 calls to ensure ambulances are available to respond quickly to the most acute patient events</p> <ul style="list-style-type: none"> • All 911 calls will continue to be triaged using the existing Medical Priority Dispatch System (MPDS) • Continue to dispatch ambulances immediately for high acuity patients (e.g. Delta/Echo) • Where MPDS determines the patient is not high acuity, utilize additional standardized triage protocols to better identify patient clinical care needs and potential alternative care options. 	<p>Provide patient-centred care</p> <p>Review and Improve Acute Care Services: Reduce pressure on emergency departments</p>	<p>19.2 FTE (5 Nurse and Paramedics, 18 hr coverage) = \$2.438 M</p>
Budget Totals:	<p>Capital:</p> <p>Operating:</p>	<p>\$1.5 M</p> <p>\$21.5 M</p>

BCEHS 2020

Action Plan and Business Case

August 29, 2016

Approvals

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Version	Date	Author	Description of Changes / Comments
0.1	April 6, 2016	Nick Smith	First draft
0.2	April 21, 2016	Nick Smith	Updated with latest financial section
1.0	April 25, 2016	Nick Smith	Final draft - submitted to MoH program
2.0	June 20, 2016	Nick Smith	Revised draft based on MoH program feedback
2.1	June 23, 2016	Nick Smith	Action plan and business case tables updated to reflect MoH program feedback
2.2	August 25, 2016	Leslie White	Document updated to reflect feedback from Minister and Ministry executive

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1. INTRODUCTION

BC Emergency Health Services (BCEHS) provides emergency medical call intake and dispatch, emergency medical response and medical care, ancillary health services to help support prevention initiatives, and emergency medical and inter-facility transport by ambulance and air ambulance for residents across British Columbia – 24 hours a day, seven days a week, 365 days a year. Since 2010, BCEHS has focused on becoming more integrated into the British Columbia health system, to ensure emergency services are delivered with optimal patient care in mind.

This integration has become even more important given the Ministry of Health's strategic direction to provide more patient-centred care, and to focus on the delivery of care outside of the hospital and in the community as much as possible, and when and where appropriate. All health authorities, service providers and agencies are being asked to consider the strategic direction in the provision of services and their planning. It is what patients want, and what the overall system needs.

With emergency ambulance demand rising and current BCEHS resources at capacity, BCEHS commissioned Operational Research in Health (ORH) to conduct a review of the services it provides. ORH's research focused on Metro Vancouver and Victoria, which are together responsible for 60 percent of all ambulance calls, to give insight to the 85 percent of all ambulance calls that occur in metropolitan and urban areas across the province.

ORH reviewed more than 350,000 emergency response events, and assuming no changes in the health care system and using a certain set of assumptions, projected demand levels forward to 2020, based on forecasted population growth and demographic changes. ORH projected growth in demand of 6.1 percent year over year, which is consistent with what BCEHS has already experienced. ORH concluded that if BCEHS did nothing to change the way it responds to requests for ambulance service, it would need a 33 percent increase in Basic Life Support ambulances by 2020, which would require an additional 235 FTEs to staff the vehicles.

If BCEHS does not expand its ambulance and workforce numbers, and does nothing to address the growing demand, it is estimated that the average response time for our most critical calls would increase from the 2014 average response time of 10:24 in Metro Vancouver to 15:07 minutes by 2020.

BCEHS' response to the ORH report and their projections was the development of an Action Plan, which clearly identified that to maintain sustainable emergency health services, BCEHS would need to introduce a range of services to address patient needs, in addition to an ambulance response and transport to hospital emergency departments. This was supported by an environmental scan of similar jurisdictions, the results of which are shown in Appendix One. This implementation plan and business case provides a detailed analysis and the strategies, tactics and actions required to implement the identified targeted services over the next few years.

This plan addresses the projected increase in demand four ways:

1. Increase resources to meet high acuity calls within the standards set for response times
2. Decrease the impact of demand through the development of alternative responses to lower acuity calls, freeing up ambulances to respond to high acuity calls
3. Reduce the number of low acuity patient transfer calls attended by an ambulance to improve the availability to respond to high acuity calls

4. Reduce the amount of time an ambulance and crew experience delays in transferring a patient in emergency departments to improve the turnaround and increase availability to respond to high acuity calls.

Over a longer period of time, BCEHS will also need to develop a comprehensive, province-wide strategic plan for the delivery of all BCEHS services and resources. Operational improvements that ensure a reasonable and predictable level of Emergency Health Services throughout BC will be foundational to our future planning efforts.

2. WHERE WE ARE TODAY

2.1 Our current state

2.1.1 BCEHS emergency response data

BCEHS is one of the largest providers of emergency medical services in North America. BCEHS responds to the emergency medical needs of more than 4.4 million British Columbians across 169 communities, and attends calls for service across BC's five regional health authorities, covering nearly 950,000 sq. kms.

In fiscal 2015/16, BCEHS responded to 571,000 events – from abdominal pain to animal bites, breathing problems, burns, cardiac arrest, convulsions, falls, lacerations, mental health-related issues, stroke, vehicle accidents, traumatic injuries, and transfers between facilities, to name but a few. Eighty-five percent of these calls came from metropolitan and urban areas, with the remaining 15 percent coming from rural and remote areas. BCEHS' average cost to respond to an event is \$600, while the cost paid by the patient is \$80.

Of the 571,000 events paramedic crews attended province-wide, over 474,000 were pre-hospital (911) events and 96,000 were patient transfers. BCEHS air ambulances responded to nearly 7000 calls, with nine out of 10 of those calls being transfers between hospitals.

Of the 911 events, 25 percent, or 119,476, were for patient events that were of the highest acuity; 45 percent, or 213,748 were for a serious but not critical event; 30 percent, or 141,529, were for BCEHS' least acute category.

The 25 percent of 911 calls that were for the most life threatening, highest acuity events correspond to 'Delta' and 'Echo' classifications in the Medical Priority Dispatch System (MPDS) used by BCEHS. In 2015/16, the top reasons for these calls are:

- Breathing problems (23,558 events)
- Unconscious or fainting (20,300 events)
- Chest pain (15,771 events)

At the other end of the spectrum, the 30 percent of least urgent or lowest acuity 911 events correspond to MPDS classifications of 'Alpha' and 'Omega'. The top reasons for these low acuity calls are:

- General sickness (50,249 events)
- Minor falls (29,676 events)
- Traumatic injuries, back or abdominal pain (21,436 events)

These call patterns are largely consistent across metropolitan, urban, rural and remote regions of BC.

2.1.2 BCEHS services and resources

BCEHS is an agency of the Provincial Health Services Agency, with strategic oversight provided by the BCEHS Board of Directors. BCEHS carries out its legislated mandate in accordance with the *Emergency Health Service Act*. BCEHS' mandate was recently expanded to include urgent and ancillary health services, to help support prevention initiatives such as the integration of community paramedics into rural and remote communities.

BCEHS operates three Dispatch Operations Centres based in Kamloops, Vancouver and Victoria. These centres operate 24/7, staffed by 255 Emergency Medical Dispatchers (EMDs) and Call Takers (EMCTs). They manage the receipt of all 911 ambulance calls, and use the internationally recognized Medical Priority Dispatch System to quickly assess the severity of the patient's condition. They coordinate all 911 ambulance responses, with the most critical patients attended to first.

BCEHS also operates the BC Patient Transfer Network (BCPTN), a provincial service that coordinates inter-facility transfers (IFT) for all Health Authorities, and ensures better communication between sending and receiving sites. BCPTN coordinates all transfers to higher levels of care, and some medium and low acuity calls that are less time-sensitive but require clinical coordination. BCPTN provides 24/7 Registered Nurse clinical oversight of IFTs, and emergency transfer physicians are also available around-the-clock to provide medical oversight, if required.

For the ambulance component of inter-facility transfers, BCEHS coordinates all patient movements through its Patient Transport Coordination Centre (PTCC). The PTCC is located within the Vancouver Dispatch Operations Centre, but serves the entire province of BC. It responds to all BCPTN transfers, the remainder of lower acuity transfers, as well as providing specialist transfers involving advanced or specialized paramedic crews, such as air and ground Critical Care Transports.

In fiscal 2014/15, BCEHS' total workforce consisted of 4474 individuals. Three unions represent BCEHS workforce: the largest, CUPE, represents paramedics and dispatchers, which make up 89 percent of the workforce. BCGEU represents five percent of the workforce, while BCNU represents four percent. Management consists of 110 positions, or two percent of the workforce.

BCEHS paramedics currently operate with different levels of training and education, depending on the role they fill. Critical Care Paramedics (CCP) and Infant Transport Teams (ITT) have the highest levels of training, followed by Advanced Care Paramedics (ACP), Primary Care Paramedics (PCP) and Emergency Medical Responders (EMR). Figure 1 provides a breakdown of staff by qualification by region and program.

	Region									Total
	Northern	Island	Interior	Fraser	Vancouver Coastal	Provincial Programs	Duty Operations	Medical Programs	Dispatch	
ACP/CCP	10	50	23	57	71	91	9	2		313
PCP	290	617	632	586	626	2	9	7		2769
EMR	134	120	150	60	43					507
Driver Only	53	22	24	13	17					129
Dispatch									255	255
Grand Total	487	809	829	716	757	93	18	9	255	3973

Figure 1: Staff Qualifications

Provincially, BCEHS operates 184 ambulance stations, with 429 Basic Life Support (BLS) ambulances staffed by Primary Care Paramedics and Emergency Medical Responders, and 28 Advanced Life Support (ALS) ambulances staffed by Advanced Care Paramedics. The full composition of the BCEHS ground ambulance fleet is shown in Figure 2 below.

Annually, 60 to 70 new ground ambulances are brought into service as replacements, and a similar number are refurbished. After being in service for four or five years, BCEHS' refurbished ambulances are reallocated to stations with lower call volumes, as a way to increase their useful lifespan.

Currently, BCEHS has contracts for six fixed-wing aircraft and four rotary-wing aircraft, staffed by 78 Critical Care and Infant Transport Team Paramedics, and deployed across five bases in Vancouver, Kamloops, Kelowna, Prince George and Prince Rupert.

	Region						Total
	Northern	Island	Interior	Fraser	Vancouver Coastal	Provincial Programs	
ALS	1	8	3	7	9		28
BLS	77	90	104	85	72	1	429
Medical Support Unit	4	3	5	3	3	2	20
Transfer	1				19		20
Critical Care Transport						7	7
Infant Transport Team						5	5
Bariatric		1				1	2
Decontamination		1				6	7
Ebola Transport						2	2
Integrated Command Unit						1	1
Emergency Management Office						7	7
Operations						1	1
Grand Total	83	103	112	95	103	33	529

Figure 2: Ambulance Unit Types

Basic Life Support ambulances are the primary response to 911 calls, staffed by Primary Care Paramedics. Advanced Life Support ambulances are targeted to the highest acuity calls to provide advanced paramedic skills on scene.

A relatively small number of ambulances in the Lower Mainland are staffed by a mix of Emergency Medical Responders and Primary Care Paramedics, and these ambulances are dedicated to scheduled patient transfer work. However, the volume of transfer requests exceeds the capacity of these ambulances, so the majority of transfers are performed by the Basic Life Support emergency fleet, completed in between attending to 911 calls.

A number of private patient transfer operators also provide non-medical patient transfers under contract with health authorities. These non-medical transfers are restricted to stable patients who do not require an ambulance resource and the skills of a paramedic team during transfers. The majority of these are inter-facility transfers between hospitals, but they also include patients being discharged from hospital who are unable to use conventional means of transportation, those requiring specialized diagnostic and treatment facilities, and patients being discharged to chronic care facilities.

2.2 Our staffing model

To respond to the challenges of demand and geography in BC, BCEHS has a number of different staffing models and shift patterns that are based on the communities we serve. In urban centres ambulances can be staffed with full-time staff. In many remote communities, where there isn't enough call volume to warrant paying for full-time staff, service is provided through 'on call' paramedics who are paid \$2 an hour to carry a pager, or crews who are paid \$12 an hour to be on standby at the ambulance station, and then paid full wages for a set number of hours each time they are dispatched to an emergency call.

Many other shift patterns exist that cover particular days of the week, or hours of the day, to match the historical demand in the area of coverage. These historic staffing models have created challenges for paramedics working on a casual basis in rural and remote locations because of the lack of income security the casual nature of their job provides, and challenges for BCEHS in terms of recruitment and retention of staff.

Within Emergency Health Services, the standard way to report on ambulance and staff availability is by production hours, which is calculated by the number of hours a given ambulance is on the road. This reflects the variations in shift patterns and on-call resources to give a more accurate representation of coverage.

In the major urban centres of the Lower Mainland and Greater Victoria, where the majority of staff are full time, the current mix of shift patterns provide a combined:

- 11,521 vehicle hours of Basic Life Support ambulances/week
- 2,520 vehicle hours of Advanced Life Support ambulances/week
- 560 vehicle hours of dedicated Transfer fleet/week.

2.3 Addition of Community Paramedicine

In 2016, to address the challenge of providing care to remote communities that can be challenging to serve, and have aging populations living with chronic and complex diseases, BCEHS introduced, and is in the process of implementing, Community Paramedicine. The program objectives are to provide appropriate health care services to elderly residents now, to avoid the need for emergency services later.

The introduction of Community Paramedicine has the added benefit of helping to stabilize paramedic staffing in these communities, providing paramedics in rural and remote locations with the opportunity for more regular, full-time employment, while bridging health service delivery gaps identified in collaboration with local health care teams. After studying communities that have successfully implemented Community Paramedicine in Canada, BCEHS established best practices for the Community Paramedicine program.

The provincial rollout of Community Paramedicine began in late April 2016, with the announcement of 73 communities that will be served by a full-time or regular part-time community paramedic. The communities were identified through a selection process that considered health service needs, BCEHS response areas, and communities with the greatest need of more stabilized paramedic staffing. It is expected that the majority of the additional 80 FTEs will be providing services in the selected

communities by April 2017. All communities with on-call paramedic service will now have at least one person providing Community Paramedicine on a part-time or full-time basis.

The Community Paramedicine program and this BCEHS 2020 plan share the wider goals of BCEHS, to provide a broader range of clinical responses that are appropriate to meet patient needs, and to stabilize the paramedic workforce. Community Paramedicine provides an effective strategy in remote communities.

3. CURRENT CHALLENGES

3.1 Increasing demand in a “one response fits all” model

ORH’s detailed analysis of demographic changes in BC projects demand growth for emergency health services as high as 6.1 percent per year through 2020¹, which matches BCEHS’ current experience.

However, this projected growth in demand does not take into consideration any actions BCEHS could take to shape public behavior by making the public aware of what events are most appropriate for 911 and ambulance response, nor does it account for any changes to the health care system in following the strategic direction, and the way BCEHS delivers its services, particularly to patients with low acuity events or low acuity patient transfers. Although the projections provide one view of the future, because of these limitations, caution needs to be exercised in relying only on these projections for planning future services.

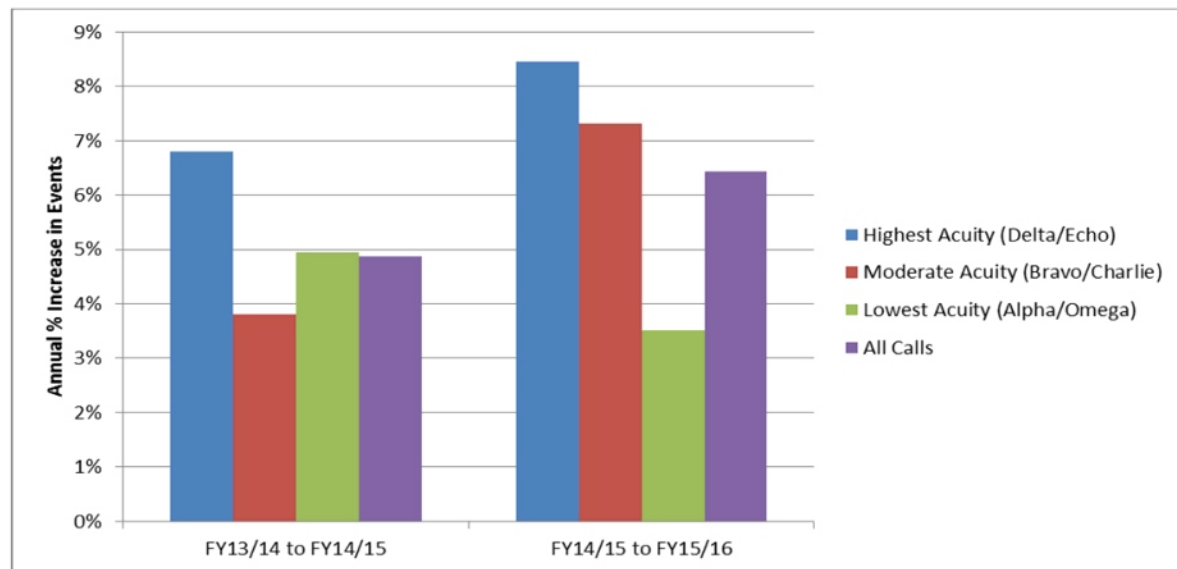


Figure 3: Historical growth in BCEHS 911 events for the province of BC

BCEHS attributes the projected increase in demand to:

- An overall increase in population size

¹ “Demand Analysis of Metro Ambulance Service Delivery” (ORH, 2015)

- An aging population, with the elderly being higher than average users of emergency services
- An increasing use of 911 services by the public due to a range of social and health system factors
- Lack of knowledge and awareness by the public of when to use 911 services and how to navigate a very complex system to access alternate clinical pathways.

As shown in Figure 3 above, over the past year, the increase in demand for BCEHS' services has been seen across all acuity levels, with the largest growth in high acuity (Delta/Echo) calls, which rose by 8.4 percent. There has been a general 6 to 8 percent increase in the most common high acuity cases (breathing problems, chest pain and unconsciousness), coupled with significant rises of 21 percent for severe cardiac arrest, and 88 percent for life-threatening overdoses. There was also a 12 percent increase in stroke events, and a 10 percent increase in vehicle accident events in this same period.

If BCEHS makes no changes to the way it provides emergency health services, by 2020, the average amount of time it would take to respond to the most critical patients in Metro areas could increase to **15:07** minutes, with only **25.6** percent of patient events seen within 9 minutes. This is a vast departure from the industry standard benchmark of **9 minutes or less in a minimum of 75 percent of events**.

Even if BCEHS had the resources and could recruit enough paramedics to staff the additional ambulances that the ORH report predicted would be required to meet the growth in demand, with the current pre-hospital model, where patients are taken to an emergency department for treatment regardless of acuity, emergency departments would become even more congested, resulting in even longer emergency department delays for all patients, greater offload delays for BCEHS ambulances, and a poor experience for our patients, as well as all emergency department and BCEHS staff.

In 2014, BCEHS was only able to respond to the most critical patients in 9 minutes or less in **51 percent** of events in Metro areas. Since the ORH study, this number has dropped to only **46 percent** of events. The ORH report also identified that currently, combined dispatch and mobilization times for high acuity Delta/Echo calls in Metro areas averaged 4:13 minutes, considered long compared to other similar jurisdictions.

Under the current system, where ambulances are, in principle, dispatched to every call, the increase in demand has placed BCEHS resources at, or beyond, capacity. These pressures compromise the ability for BCEHS to provide the most appropriate skills and resources for patients, and to respond quickly to emergency calls. It also creates a stressful and challenging environment for BCEHS dispatch staff and ambulance crews, leading to front-line burnout, increased sick time and overtime costs.

The approach has created system-wide issues, does not provide a high quality patient experience, can impact patient outcomes, and has the side effect of tying up BCEHS crews for long periods of time at emergency departments, unable to hand over patient care to the hospital.

On average, approximately 25 percent of emergency department patients arrive by ambulance, with the remainder coming as walk-ins. Last year, the average time taken for patient handover in the Lower Mainland was 36 minutes. When a patient handover takes more than 30 minutes and it is recorded as such by the ambulance crew, it is considered an 'offload delay'. In fiscal 2015/16, BCEHS crews spent over 23,000 recorded hours delayed in patient handovers, up from 18,000 hours in fiscal 2014/15.

3.2 Low Acuity Patient Transfers

Provincially, BCEHS carried out 96,000 patient transfer events in 2015/2016. These are requested directly by health authorities and are not linked to 911 calls. The number of events does not directly correlate to the number of patients moved, as a transfer event may involve more than one patient, where the vehicle is shared, or a single patient may be moved to multiple destinations through separate events, such as for airlifts where two ground crews and an air crew are involved. These 96,000 events related to the movement of 77,400 patients.

Patient transfers that involve moves to a higher level of care are always between hospitals and require paramedic care and ambulance transport. However, in 2015/16, BCEHS carried out 53,779 low acuity transfer events, or moves to lower levels of care, which are not within BCEHS' core mandate. Of these, 55 percent of the total, or 29,717 events, were initiated by health authorities in the Lower Mainland.

Low acuity transfers are often between hospitals, where patients need access to specific services or are moved into rehabilitation. However, 35 percent or nearly 19,000 events relate to hospital discharges and transfers to or from residential care facilities, which rarely require a paramedic level of care.

In 2008, the BC government transferred \$32 million from the BCEHS budget to health authorities to enable the use of Alternate Service Providers (ASPs) to carry out low acuity inter-facility transfers (IFTs). Health authorities now directly contract with privately-owned ASPs, and facilities can request inter-facility transfers from either their ASPs or BCEHS, based on the patient need. Clinical risk is managed through the use of a provincial algorithm to determine when ASP use is appropriate.

Following the transfer of funding in 2008, BCEHS dramatically scaled back its dedicated Lower Mainland transfer fleet. As a result, the transfer fleet is only able to respond to 43 percent of the transfer requests made to BCEHS. The remaining 57 percent are responded to using the emergency ambulance fleet, which is equivalent to nearly four, 12-hour ambulance shifts per day. This significantly impacts BCEHS' ambulance utilization and reduces the ability of these ambulances to support high acuity emergency events in a timely way.

In the strategies that follow, our initial focus will be to target alternative approaches in urban areas for hospital discharges, and also to examine the nature of transfer requests originating from residential care homes, with the aim of releasing BCEHS capacity to respond more effectively to high acuity calls.

3.3 Staffing and organization of service delivery

Broad consensus exists that the entry level to Emergency Health Services should be the Primary Care Paramedic, rather than the Emergency Medical Responder. BCEHS will work with key stakeholders and partners to make this shift over several years developing strategies to ensure EMRs wishing to upgrade their license level have appropriate access to education and training closer to home, and financial supports.

To ensure accountability to achieve the goal of reduced response times and availability, BCEHS requires increased front line management and leadership. Currently, no station in BC has full-time or regularly scheduled part-time front line leadership or supervision, because front line supervisors are also currently on-car paramedics, with limited ability to manage staff. Improving competency, local community accountability, and ensuring quality and safety will require a commitment to enhanced front line supervision.

3.4 Funding a sustainable, high quality service

BCEHS was transferred to PHSA in fiscal year 2011/12 and received \$313.4 million of funding at the end of the year for expenditures incurred. At fiscal year-end March 31, 2016, BCEHS received \$359.9 million in funding, an increase of \$46.5 million over the last four years. The funding received was to cover cost pressures for call volume increases, contracted fuel inflation and increased building occupancy costs. Additionally, base funding has been provided for benefits and WCB increases, and one-time funding for provisions for write-offs for recoveries that have yet to be recovered for emergency department delays and transfers.

For fiscal year 2016/17, additional funding has been approved of \$5.6 million for cost pressures relating to call volumes; \$1.1 million for air carrier contract increases; \$1.2 million for facilities building occupancy increases; and \$2.4 million for additional WCB benefit costs. The majority of the call volume funding increase is being primarily spent in rural areas, where BCEHS has casual and part-time employees and the funding pays for increased compensation dollars for the extra hours worked. However, within the Lower Mainland, where staff are full time, funding additional compensation and supply costs are not enough to address the capacity issues, which impact increasing response times.

A larger investment is needed for system-wide improvements to build capacity and resources to create a sustainable service that can ensure high-quality patient services and a positive patient experience. In addition to the PHSA budget committee approved items, PHSA has notionally budgeted \$8.2 million for Community Paramedicine and \$15.9 million to support strategic investments through funding from the Ministry for fiscal 2016/17.

4. BCEHS 2020: THE FUTURE OF EMERGENCY HEALTH SERVICES IN BC – ACTION PLAN

4.1 Mandate

BCEHS' mandate is to:

- provide timely emergency medical response for the critically ill and injured
- provide appropriate unscheduled healthcare for patients who are not critically ill or injured but require medical services to avoid a trip to the emergency department or a hospital admission
- provide inter-facility transport for patients who require medical care
- provide ancillary health services to help support prevention initiatives, such as the integration of community paramedics into rural and remote communities.

4.2 BCEHS 2020

BCEHS' goal: To ensure patients receive timely and appropriate access to emergency care when required, in every community across the province.

In the context of rising demand for all patient acuity levels, and to support the sustainability of the system, BCEHS has the opportunity to redesign the services it offers today, to develop alternative, appropriate and safe clinical responses for lower acuity patients. This will involve extending beyond the traditional sphere of emergency care and better aligning and integrating with primary and community care services.

4.2.1 A plan for Metro Vancouver and Victoria

BCEHS 2020 proposes several targeted activities to begin to address the need for more resources and changes to services in the shorter term – to 2020 – in the metro areas. Longer term and more extensive planning for all BCEHS services and areas will begin once this plan is underway.

In the short term, **BCEHS needs additional resources to manage increasing demand and improve performance.** The current Delta/Echo response of 46 percent of events in 9 minutes or less is well below the benchmarked target of a minimum of 75 percent in 9 minutes or less.

In parallel, **BCEHS will need to better integrate our Emergency Health Services care model into one that** supports the health system by identifying avoidable emergency department admissions wherever clinically appropriate.

If this is not done, increasing 911-demand will directly translate to increased emergency department visits. As this new approach is phased in, BCEHS will work with health authorities and primary care providers to align with their work to develop alternative care pathways for patients who do not require emergency care.

Deploying more effective technology will ensure BCEHS responds efficiently and effectively. Implementing upgrades to the Communications Centres will provide BCEHS staff with the up-to-date tools and technology they need to ensure high quality delivery of health services to patients.

BCEHS needs to concurrently improve ambulance efficiency, address staffing model challenges, and incrementally add new ambulances and an expanded workforce, along with new response strategies.

When executed, the strategies and tactics identified in this BCEHS 2020 plan will collectively increase the capacity of BCEHS and emergency departments to effectively manage growing patient volumes and changing patient needs, provide rapid response to high acuity emergency cases and timely health care services for calls of a less acute nature.

Executing these strategies will help BCEHS deliver on its key goal: To ensure patients receive timely and appropriate access to emergency care when required, in every community across the province.

4.3 For our patients

Patients who call 911 for pre-hospital care require a responsive, integrated system that delivers the right care, in the right place, at the right time. Improving ambulance response times is fundamental, especially for time-critical high acuity cases. It is also important to offer a better patient experience, to connect patients with primary and community care, provide care closer to home, and avoid the inconvenience of unnecessary emergency department visits.

For the growing population of aging patients, those managing long-term chronic conditions, and those with less acute events, a visit to the emergency department is often not the best way to meet patient needs. For people that need an ambulance to respond to a life-threatening event, it means a system that provides as timely a response as possible.

By working with the health authorities to ensure appropriate response and treatment options for the nearly 30 percent of patients in the lowest acuity category (Alpha/Omega) who call 911 and are not needing a critical or urgent response, BCEHS will be better able to ensure that the 25 percent of events that are the most urgent, will have emergency medical services available to receive a rapid response, within our established benchmark: under 9 minutes for life-threatening emergencies in urban areas a minimum of 75 percent of the time.

To help patients understand BCEHS 2020 and how they can obtain more appropriate care and assist to reduce demand on the emergency health system, we will share the story of the redesigned BCEHS services with the general public, so they understand that there may be better alternatives to transport in an ambulance to obtain the best care for their needs. Over time, patients will have other options to allow a change the way they think about and use emergency medical services.

4.4 For our workforce

BCEHS 2020 will mean enhanced roles and multiple career ladders for our workforce, which will contribute to an improved provider experience. A sustainable provincial workforce will be key to delivering the range of new services tailored to our patients' needs. It will provide expanded education programs and enhanced training for our existing paramedics, executed in consultation with BC's post-secondary institutions and in consultation and health authorities, to determine the needs of communities. And it will mean an increased number of paramedics overall to meet the growing needs of BC.

As we move away from a “one response fits all” approach to emergency medical dispatch, clinical oversight will be required to ensure the dispatch decisions we make are guided by the patients’ needs and best practices in health care.

We will begin the phased implementation of secondary triage, which will provide additional support to our dispatch staff as they determine the appropriate response based on the patient’s needs. Secondary triage can help dispatchers more effectively assess these calls and reprioritize patients if their medical needs become more urgent. This additional triage will ensure the appropriate care resource and method of transport is provided based on the caller’s clinical need.

The second phase of this improved triage is to integrate with work the health authorities are doing regarding alternate pathways of care within the health sector and the community and provide clinical advice about these options to patients as an alternative to an ambulance trip to the emergency department whenever clinically appropriate.

4.5 For our stakeholders

Working in collaboration and in alignment with others in healthcare will be integral to realizing our goal. We will need to partner with health authorities to reduce or eliminate offload delays. Reducing the time paramedics spend in emergency departments waiting to transfer the 25 percent of patients who arrive at the emergency department by ambulance is key, so ambulances can spend more time on the road responding to emergency calls in their home response area. We will continue to partner with HealthLink BC to provide service for our least acute patients, which will help decongest emergency departments, while ensuring patients receive the most appropriate care.

We will also continue and/or expand piloting transporting patients to non-emergency department destinations, where appropriate, as currently happens for some patients with mental health or addiction challenges who are taken directly to a specialist assessment centre at VGH. And we will work with health authorities to transfer responsibility for low acuity patient transfers to services within their control.

We will create a joint BCEHS/CUPE Liaison Group to enable ongoing consultation and input from our workforce into the plan. We will invite our municipal partners and First Responders to build on the relationship we have already formed through the Regional Administrative Advisory Committee (RAAC), to address priority issues, such as the role and scope of First Responders, clinical oversight and training, liability and consent agreements.

4.6 For government

The activities in BCEHS 2020 are designed to help achieve the Ministry of Health priorities and patient-centred care. The work to achieve BCEHS 2020 will be underpinned by ongoing research and evaluation. This enables BCEHS to remain a learning organization that focuses on continual improvement, regularly reviews and learns from international best practices, and continues to enhance patient care and patient experience across the province.

We recognize that every decision we make must deliver solid value and have accountability for the resources invested.

5. BCEHS 2020: THE PATH FORWARD – IMPLEMENTATION PLAN

5.1 Strategies and tactics

To address the challenges identified in this document, BCEHS 2020 proposes to phase in a range of improved service approaches into the delivery of emergency health services in British Columbia. As we execute the BCEHS 2020 plan in the coming years, we will continue to engage our workforce and our unions to deliver the redesign of emergency health services.

5.1.1 For our patients

STRATEGY 1: Ensure clinically appropriate ambulance response to the most acute, life-threatening events, while providing less urgent but appropriate care for critical events through a range of new services

BCEHS needs additional resources to manage increasing demand and improve performance. This requires BCEHS to:

- Invest strategically in new resources to increase BCEHS capacity, adding new ambulances and dispatchers to manage greater demand
- Divert resources away from business that does not align with the BCEHS mandate, to focus existing capacity on emergency response
- Maximize our capacity by dispatching critical calls faster, reducing time spent at hospital, and working to keep ambulances available in their response areas.

At the same time, to ensure a sustainable healthcare system, BCEHS must develop alternative responses to 911 calls. If this is not done, increasing 911 demand will directly translate into increased emergency department visits. By meeting a patient's need effectively without dispatching an ambulance, or without transporting the patient to hospital, BCEHS can improve the patient experience, reduce system pressures and increase the availability of ambulances to respond when needed.

This strategy recognizes that all these factors are linked under the goal of making more ambulances available for emergency response, and includes the following specific tactics:

- A. Add capacity through the incremental addition of Basic Life Support (BLS) ambulances
- B. Reduce time required to mobilize ambulances on high acuity calls
- C. Improve the timeliness and quality of patient handovers
- D. Align with the health authorities to implement bypass protocols
- E. Be judicious in responding to low acuity calls
- F. Reduce the number of low-acuity inter-facility transfers and transfer requests to residential addresses

Appendix Two shows possible locations for additional Basic Life Support ambulances based on demand modelling. The most appropriate locations will be validated through this work.

STRATEGY 2: Educate the public about the new approach to emergency medical services

Shaping public demand for emergency health services by providing the public with the information they need to make wise choices in engaging with the health care system appropriately, will, over time, reduce low acuity requests for emergency ambulance service. The public can be engaged as an ally in reducing the pressure on emergency services, providing they understand the alternate clinical pathways available to them, and those pathways are available and accessible.

The public is currently largely unaware of the role they can play to reduce pressure on the system, and public education and awareness efforts can result in enrolling the public's support and diverting low acuity calls to the most appropriate health care service. Specific tactics for engaging and informing the public include:

- A. Tell the story of a redesigned BCEHS
- B. Educate the public about the appropriate use of 911

STRATEGY 3: Improve operations

To enable paramedics and dispatchers to work efficiently and effectively requires a supporting technology strategy. BCEHS will strategically invest in IT and telephony solutions that enhance the patient experience, streamline work for our staff to enable them to focus on patient care, and help better match resources to demand. To do this, BCEHS will implement a provincial telephony solution that connects our three Dispatch Operations Centres in Vancouver, Kamloops and Victoria, to better balance workload and resourcing across the Centres and improve our call answer times.

5.1.2 For our workforce

STRATEGY 4: Develop and maintain a sustainable workforce to deliver patient care services

The role of Paramedicine is changing rapidly from public safety-oriented First Responder to that of an integrated part of the health care system, with the skills and scope to provide a range of mobile health services. BCEHS will engage in planning to ensure we have the right people with the right skill sets to meet future needs. Workforce planning includes alignment with strategic directions of BCEHS, a current state analysis of workforce and identification of gaps based on an understanding of operational requirements now and for the next five years, and the development of education and training plans to meet strategic needs.

This strategy will rely on the following tactics:

- A. Implement initiatives to stabilize the workforce
- B. Provide enhanced training and education to build internal capacity and career ladders, and to recruit and fill vacancies
- C. Enhance operational front line leadership

5.1.3 For our stakeholders

STRATEGY 5: Engage with external stakeholders

It is next to impossible to make system-wide changes to the way emergency health services are provided without engaging other members of the service delivery continuum. BCEHS 2020 recognizes that stakeholder engagement will be critical to our success – with our unions, health authorities, emergency departments, municipalities, First Responders and our government partners.

Our strategy is to be transparent with our stakeholders and to ensure our workforce is engaged in the plans related to training and skills upgrading. Tactics will include:

- A. Engage stakeholders to help develop sustainable, evidenced-based resource allocation of EHS and First Responders

5.1.4 For government

STRATEGY 6: Be accountable for the resources invested

BCEHS' strategy is to conduct ongoing research and evaluation on the proposed actions identified in BCEHS 2020, to ensure they result in anticipated gains, to make alterations as appropriate, and that they provide value for the money being invested by government. Tactics will include:

- A. Ensuring research and evaluation is core to all work streams.

5.2 Action Plan

The table that follows provides the strategies and tactics presented above, with the addition of milestones and specific actions that will be implemented over the next three years. The Milestones and Actions are broken down by year of delivery.

Strategy 1: Ensure clinically appropriate ambulance response to the most acute, life-threatening events, while providing less urgent but appropriate care for critical events through a range of new services

Tactic: Add capacity through an incremental number of Basic Life Support (BLS) ambulances		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> Deploy 4 new BLS units, 12 hours per day, to target the periods of highest 911 demand in the Lower Mainland 	<ul style="list-style-type: none"> Expand 4 BLS units (from Year 1 from 12 hours) to 24 hours coverage per day Deploy 2 further BLS units, 12 hours per day, to target the periods of highest 911 demand in the Lower Mainland (location to be determined through process in Year 1) 	<ul style="list-style-type: none"> Ensure all 6 BLS units from Years 1 & 2 are operating 24 hours per day Deploy 2 further BLS units, 12 hours per day, to target the periods of highest 911 demand in the Lower Mainland
<ul style="list-style-type: none"> Additional 336 ambulance hours per week above baseline by end of Year 1 	<ul style="list-style-type: none"> Additional 840 ambulance hours per week above baseline by end of Year 2 	<ul style="list-style-type: none"> Additional 1,176 ambulance hours per week above baseline by end of year 3
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
Develop a staffing plan to identify the recruitment strategy and training requirements to enable deployment of 8 new BLS units across three years Recruit new paramedics to staff initial 4 BLS units	Continue to recruit new paramedics to staff incremental BLS units	Continue to recruit new paramedics to staff incremental BLS units Expand the hours of operation of new BLS units to match recruitment success
Procure 6 new vehicles for delivery in March 2017, (to meet need for Year 1 and 2 deployments)	Procure two further BLS units to meet need for Year 3 deployment	
Establish a transparent deployment planning process, in consultation with key stakeholders <ul style="list-style-type: none"> Review constraints and level of investment required related to station facilities Analyze the performance impacts of different options using the ORH modeling software 		

Tactic: Reduce time required to mobilize ambulances on high acuity calls		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> Based on a review, set a target to reduce times for Delta/Echo calls from call answer to vehicle mobile 	<ul style="list-style-type: none"> Set a target to further reduce times for Delta/Echo calls from call answer to vehicle mobile 	<ul style="list-style-type: none"> Set a target to further reduce times for Delta/Echo calls from call answer to vehicle mobile
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
<p>Immediately supplement current staffing levels in the Vancouver Dispatch Operations Centre (VDOC) to manage the increased volume of calls being experienced in the current state</p> <ul style="list-style-type: none"> Recruit and train 10 FTE of Emergency Medical Dispatchers 	<p>Continue expansion of VDOC to meet current demand increases</p> <ul style="list-style-type: none"> Recruit and train an additional 10 FTEs of Emergency Medical Dispatchers (to bring total to 20 FTE above baseline) 	
<p>Conduct thorough review of dispatch processes to identify strategies for improving activation times (from call answer to vehicle assigned)</p> <ul style="list-style-type: none"> Implement process improvements in our Dispatch Operations Centres through the introduction of LEAN methodology Trial new policies and procedures in the Vancouver Dispatch Operations Centre to streamline call flow for high acuity events 	<p>Continue to introduce lean process improvements in our Dispatch Operations Centres to reduce activation times for Delta/Echo calls</p>	<p>Develop and implement standard work and quality improvement cycle in our Dispatch Centres to continually improve activation times</p>
<p>Actively monitor response time performance through an Operational Dashboard</p>	<p>Develop a plan to reduce mobilization times for paramedic ambulance crews on the street for Delta/Echo calls (from vehicle assigned to vehicle mobile)</p>	<p>Continue to implement approaches with ambulance crews on the street to reduce mobilization times for Delta/Echo calls</p>

Tactic: Implement a Treat and Discharge program to divert patients from emergency departments		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> Pilot a Treat and Discharge program to deal with lower acuity calls 	<ul style="list-style-type: none"> Apply pilot model to three urban communities (one response vehicle per community) 	<ul style="list-style-type: none"> Expand Treat and Discharge program to a total of 12 response vehicles
		<ul style="list-style-type: none"> 450 ambulance hours per week of Treat & Discharge vehicles by end of Year 3
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
Create an appropriate regulatory framework to enable Treat and Discharge	<p>Recruit three full-time Advanced Care Paramedics (ACPs) to operate in three pilots</p> <p>Continue to operate three pilots until the end of the year</p>	<p>Recruit twelve full-time ACPs to expand the Treat and Discharge program</p> <p>Recruit a Clinical Supervisor role to monitor and oversee the program</p>
<p>Develop a plan to use ACPs to provide Treat and Discharge services</p> <ul style="list-style-type: none"> Identify scope of service and clinical skills profile for ACP Community Paramedics Focus initially on those patients that require medical attention but are not severe enough to warrant a rapid ambulance response 	Refine strategy for patient populations, scope of service, care guidelines, policies and procedures and education requirements based on prototype community experience	Monitor and evaluate the effectiveness of the program and expand accordingly
<p>Engage community stakeholders in identification of pilot location</p> <ul style="list-style-type: none"> Develop a plan for three pilots including locations, staff, education programs and stakeholder engagement 	Engage community stakeholders in selection of future expansion locations for Treat & Discharge program	
<p>Establish education program for ACP treat and release Paramedics</p> <ul style="list-style-type: none"> Identify learning needs for ACP to function in this capacity 	Complete training activities	Transition on-going learning plans to Clinical Supervisor role

<ul style="list-style-type: none"> Adapt JIBC curriculum as required for treat and release Paramedics. 		
Identify necessary modifications to RAP to direct calls to clinical assessment function for Treat and Discharge response	Review requirements to provide optimal alternative care for lower acuity calls based on standardized symptom-based protocols	Refine working model of ability to dispatch treat and release Paramedics

Tactic: Improve the timeliness and quality of patient handovers		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> Introduce additional BCEHS supervisory capacity at sites where offload delays are common, or where there are specific triage processes that can be used to improve clinical handover of patients 		
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
<p>Engage with regional health authorities and with individual emergency departments to select sites for BCEHS supervisory staff support</p> <p>Prioritize sites where offload delays are common</p>	<p>Apply learnings from year one pilots to hospital emergency department handovers</p>	<p>Continue to apply learnings to hospital emergency departments</p>
<p>Supervisors to:</p> <ul style="list-style-type: none"> Investigate ways to standardize and streamline patient handoffs in hospital emergency departments Support crews in reducing offload delays through active coordination with emergency departments 	<p>Develop front line leadership capacity and accountability for the management of offload delays and to keep crews available for calls</p>	
<p>Engage paramedic crews to better record reasons for offload delays</p>	<p>Engage with regional health authorities to investigate the drivers behind offload delays and jointly plan effective interventions</p>	<p>Develop handover protocols and working practices to create sustainable practices and enable scalability across all hospital sites</p>

Tactic: Implement bypass protocols		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> Establish formal presence on regional health authority emergency department planning groups 		
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
Continue to fully utilize existing bypass protocols	Engage health authorities and hospital sites to identify potential for expanding the range of bypass protocols	In partnership with each regional health authority, identify strategies to expand range of bypass protocols

Tactic: Improve response to low acuity calls		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> Establish project team to develop secondary triage capacity and pilot concept 	<ul style="list-style-type: none"> Implement initial scope of secondary triage based on learnings from pilot studies Establish agreement with HealthLink BC to extend range of low acuity calls to be diverted from 911 	<ul style="list-style-type: none"> Implement full scope of secondary triage function Implement full scope of call diversion to HealthLink BC
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
<p>Align Medical programs and Dispatch to enhance clinical oversight into the triaging of calls and the timeliness of the response</p> <p>Recruit Clinical Practice Lead</p>	Establish a Collaborative Practice Leaders group to support advances in clinical care by paramedics and inter-professional practice	Monitor and evaluate patient outcomes from triage processes to enable continuous improvement and refinement of clinical decision making

<p>Recruit project team to design and develop concept of secondary triage</p> <ul style="list-style-type: none"> Nurse lead, Paramedic lead, Project Manager 	<p>Develop implementation plan for secondary triage</p> <ul style="list-style-type: none"> Evaluate effectiveness of pilot studies Determine initial scope of operations and strategy to scale up clinical and geographic scope <p>Recruit initial staffing for secondary triage function based on planning work and pilot studies</p>	<p>Expand secondary triage function to full operational scope</p> <p>Project transition to operations</p>
<p>Develop protocols for secondary triage function and the 'Treat and Discharge' program, taking into consideration patient choice and social factors</p>	<p>Implement initial protocols to focus on</p> <ul style="list-style-type: none"> Treat and Discharge program Calls passed to 911 from 811 Following up with patients experiencing long ambulance wait times 	<p>Implement protocols to provide support to paramedics in the field, and to support alternative care for lower acuity patients based on symptom-based protocols</p> <p>Monitor and evaluate effectiveness of protocols</p>
<p>Establish IT project team to design and plan for integrating secondary triage function within Dispatch Operations Centres</p>	<p>Implement IT solution, including new workstations, telephone lines, call queues and interactive voice response configurations</p>	<p>Complete implementation of IT and telephony solutions for secondary triage function</p>
	<p>In partnership with HLBC build a foundation for expanded use of 811</p> <ul style="list-style-type: none"> Implement robust call transfer processes between BCEHS 911 and HealthLink BC 811 Identify the full range of calls that can be safely passed to 811 for clinical advice Establish protocols for calls that are passed from 811 to 911 due to the need for immediate care Continue to monitor HealthLink BC trials using physicians on 811 calls to reduce number of emergency department visits 	<p>Implement protocols to pass an expanded range of 911 calls to 811 based on clinical assessment</p> <p>Monitor and evaluate the handover process with HealthLink to enable continuous improvement and refinement of clinical decision making</p>

Tactic: Reduce the number of low-acuity inter-facility transfers and transfer requests to residential addresses		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> Develop policy to incrementally reduce transfers of patients discharged from hospital back to urban residential addresses 	<ul style="list-style-type: none"> Develop policies and strategies to incrementally reduce low-acuity transfer requests from residential addresses, starting with long-term care facilities Develop policy to identify and screen out inter-facility transfer requests that are appropriate for ASPs 	
<ul style="list-style-type: none"> Implement policy and reduce low acuity transfers by 20 percent 	<ul style="list-style-type: none"> Implement policies to continue to decrease the number of inappropriate low acuity inter-facility and residential address transfers by 20 percent per year 	<ul style="list-style-type: none"> Continue to decrease the number of inappropriate low acuity transfers by 20 percent per year
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
Work with health authorities to develop strategies to discontinue inappropriate ambulance requests for hospital discharges to urban addresses, starting with long-term care facilities	Continue to work with health authorities to develop strategies to better meet the needs of long-term residential care patients, integrating approaches with Treat & Discharge and alternative destinations to avoid emergency department visits	Reinforce policies and communicate progress with stakeholders
Establish a working group with health authority representatives to identify areas of the provincial Alternate Service Providers algorithm for refinement and clarification	Work with health authorities to develop a plan to ensure all appropriate low acuity inter-facility transfer requests are made directly to Alternate Service Providers	

Strategy 2: Educate the public about the new approach to emergency medical services

Tactic: Tell the story of a redesigned BCEHS		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> Develop a communications and engagement strategy to support the BCEHS 2020 vision 		
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
	Develop a public education campaign to share the BCEHS 2020 story with the general public, including: <ul style="list-style-type: none"> Master narrative, key messages and Q and A document Messages through the BCEHS website Speaking opportunities Social and mainstream media Earned media strategy 	Inform the public of who should call 911 and for what reasons Continue to raise public awareness on how best to engage with 911 for emergency health services
Collaborate with stakeholders, CUPE, other First Responder organizations	Partner with health authorities and other potential stakeholders, such as E-Com and CUPE 873, on initiatives to raise public awareness about how best to access the care you need	

Tactic: Educate the public about the appropriate use of 911		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> Develop a communications plan that provides information to the public to support behavioral change in the way they engage with emergency health services 	<ul style="list-style-type: none"> Conduct public polling research 	

Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
	Share the story of the changes the public can expect to Emergency Health Services and why and how these changes will benefit them	Through public polling, determine the degree to which information sharing is resonating with the public. Shape narrative and messages based on public polling results
	Share the story of what the public can do differently when experiencing a low acuity event Provide information to the public on alternative clinical pathways	Evaluate success of communications strategy and change strategy as required

Strategy 3: Improve operations

Tactic: Deploy technology strategically		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
		<ul style="list-style-type: none"> New provincial call systems in operation
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
Establish IT project team to design and plan for a provincial telephony solution to support Dispatch Operations Centres	Implement IT solution, including conversion of digital networks to IP networks and replacement of telephony switches	Complete implementation of provincial telephony solution

Strategy 4: Develop a sustainable workforce to deliver the service

Tactic: Implement initiatives to stabilize the workforce		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> Implement immediate stabilization plan to address the growing demand for services 	<ul style="list-style-type: none"> Develop a workforce strategy for BCEHS Define future paramedic standards and a paramedic career map 	<ul style="list-style-type: none"> Develop a phased implementation plan to achieve provincial workforce sustainment
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
Engage with CUPE 873 to develop a sustainable workforce strategy	Make Primary Care Paramedic the entry level standard and a more attractive career choice <ul style="list-style-type: none"> Develop a plan to support Emergency Medical Responders (EMRs) to upgrade to Primary Care Paramedics(PCPs) through more accessible training opportunities over 5 years 	Continue to Implement the plan to support PCP as the entry level standard
Examine the option of scheduled breaks for paramedics in urban centres	Develop multiple career ladders for BCEHS emergency medical staff <ul style="list-style-type: none"> Enhance roles for paramedics through the implementation and expansion of Community Paramedicine 	Investigate mixed Critical Care/ Advance Care and BLS staffing models for both air and ground services to better meet the needs of specialized patient populations

Tactic: Provide enhanced training and education to build internal capacity and career ladders, and to recruit and fill vacancies and new roles		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
	<ul style="list-style-type: none"> Complete a Training and Education plan Establish new seats for PCP entry to practice with Advanced Education based on the workforce plan 	<ul style="list-style-type: none"> Post- employment training is aligned with entry to practice deliverables

Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
Develop a plan to expand education programs to meet the need for more paramedics, in consultation with Advanced Education and current post-secondary institutions (JIBC)	Further expand education programs to meet the need for more paramedics, in consultation with Advanced Education/ and current post-secondary institutions (JIBC)	
Invest in HR capabilities to support future recruitment and retention needs		

Tactic: Enhance operational front line leadership		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> New locations for full-time paramedic supervisors confirmed and roll-out strategy defined 	<ul style="list-style-type: none"> Full-time paramedic supervisors in post 	
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
<p>Develop a strategy to introduce full-time paramedic supervisor positions to oversee a specified geographically defined area, to improve ability to manage off load delays and direct ambulances</p> <p>Develop Front Line Supervisor training around leadership and management skills</p>	<p>Recruit full-time paramedic supervisor positions</p> <p>Train leaders to take on new role</p>	Implement the new roles

Strategy 5: Engage with stakeholders

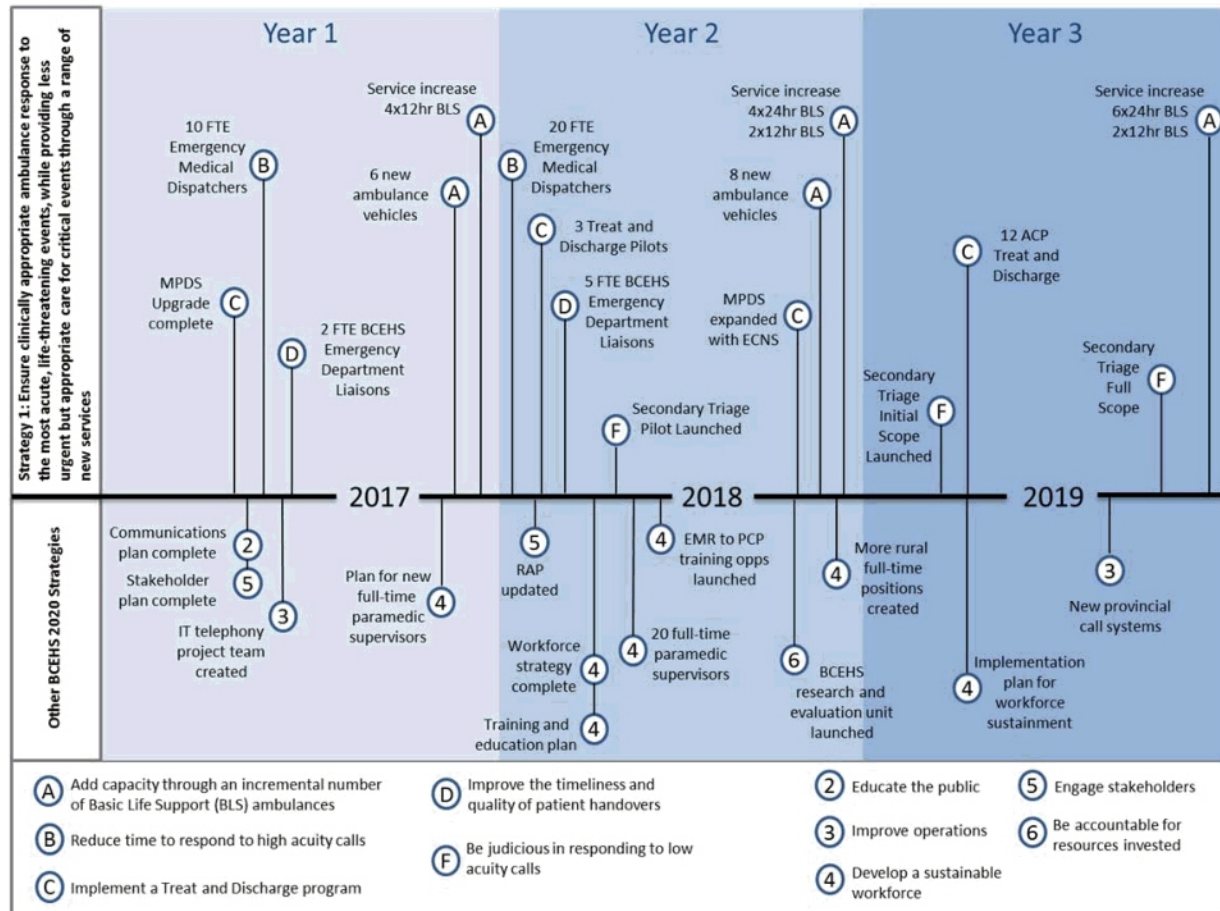
Tactic: Engage stakeholders to develop sustainable, evidence-based resource allocation of EHS and First Responders		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
<ul style="list-style-type: none"> Develop stakeholder engagement and management plan 	<ul style="list-style-type: none"> Updated Resource Allocation Plan agreed with stakeholders 	<ul style="list-style-type: none"> Quarterly status update consultations held with key stakeholders
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
<p>Engage stakeholders in the review and refinement of the Resource Allocation Plan</p> <p>Create a Joint BCEHS/ CUPE Liaison Group to enable on going consultation and input into BCEHS 2020</p> <p>Continue to meet with the existing Regional Administrative Advisory Committee (RAAC) of municipal partners and First Responders to address priority issues</p>	<p>Engage existing stakeholders in a regular process of consultation and feedback of service, and new and emerging demand</p> <p>Work with our Unions to ensure that the appropriate agreements are developed to balance the need for new resources with the flexibility to provide resources in new ways</p>	

Strategy 6: Be accountable for the resources invested

Tactic: Ensure research and evaluation are core to all work streams		
Year 1 Milestones:	Year 2 Milestones:	Year 3 Milestones:
	<ul style="list-style-type: none"> Establish a BCEHS research and evaluation unit 	<ul style="list-style-type: none"> Define research, knowledge transfer and uptake processes
Year 1 Actions:	Year 2 Actions:	Year 3 Actions:
<p>Utilize modelling further to evaluate future scenarios to inform business planning.</p> <p>Update the BCEHS version of the ORH software model on a regular basis with up-to-date data</p> <p>Formalize the concept and structure of a BCEHS research and evaluation unit</p>	<p>Implement the structure of the BCEHS research and evaluation unit</p> <p>Establish the goals and practices of the unit</p>	<p>Refine planning and program development based on research and evaluation results</p>

5.3 Timeline

This timeline shows the principal deliverables of the BCEHS 2020 plan over the three year implementation period. Deliverables are described as the cumulative change from the current state baseline (e.g. 4 units in Year 1 followed by 2 further units in Year two is shown as 4 units in Year 1 and 6 units in Year 2).



6. REQUIREMENTS AND EXPECTED OUTCOMES

6.1 Requirements

As an integrated part of the BC healthcare system, any changes to the delivery of emergency health services require a system level response and support from a wide range of stakeholders. The BCEHS 2020 plan depends upon the broader health system context and a number of key requirements.

	Requirement	Linked to Tactic
1	Ministry of Health (MoH) to increase BCEHS operating funds over the next three years, as described in this Business Case to: <ul style="list-style-type: none"> • Add 70 FTE of paramedics (10% increase) • Add 20 FTE of emergency medical dispatchers (8% increase) • Add 12 FTE 'treat and discharge' paramedics • Add 20 FTE full time paramedic supervisors 	1-A 1-B 1-C 4-C
2	By July 2016, MoH and PHSA to approve capital expenditure for new ambulances, to enable procurement of 6 vehicles in 2016/17 and 2 vehicles in 2017/18	1-A
3	CUPE 873 to engage with BCEHS in consultation regarding: <ul style="list-style-type: none"> • Strategies to create a more sustainable workforce • Creation of new Advanced Care Paramedic positions to support the Treat and Discharge program • An option of structured breaks for paramedics 	4-A 1-C
4	MoH, PHSA and CUPE 873 to support a workforce strategy for BCEHS to ensure a professional service with attractive career options and sufficient recruitment to meet the needs of patients and the organization. All parties to understand the operational and funding impacts of implementing the workforce strategy	4-A 4-B
5	MoH and BCEHS to complete a regulatory framework that enables BCEHS to implement the BCEHS 2020 vision, and to implement policies that handle 911 calls through alternative care pathways	1-C 1-E 1-F 1-G
6	MoH and PHSA to provide funding required to introduce clinical staff and IT infrastructure to establish a Clinical Communication Centre that enables dispatch operations to make effective, evidence-based clinical judgments around patient care	1-C 1-E 1-F 1-G

7	MoH and PHSA to invest in a provincial telephony solution to connect the three BCEHS Dispatch Operations Centres in Vancouver, Kamloops and Victoria, to better balance workload and resourcing across the Centres, and improve our call answer times	3
8	MoH, PHSA and BCEHS to continue to invest in electronic Patient Care Records to support patient care and enable more advanced care planning	3
9	MoH and health authorities to introduce accountability for hospital emergency departments to receive patients from paramedics in a safe and timely way, for BCEHS to introduce 5 FTE BCEHS Patient Flow and Handoff Liaisons at key sites to monitor and facilitate handover processes	1-D
10	MoH and health authorities to ensure facilities use ASPs appropriately. All parties to agree to refine and update the provincial transportation algorithm as required to reduce ambiguity, and ensure in urban areas that BCEHS can focus on emergency response	1-G
11	MoH to ensure HealthLink BC has sufficient funding and capacity to accept an increased volume of calls from 911, and encourage HealthLink BC's efforts to minimize the number of patients requiring transport to hospital (e.g. MD trial)	1-F
12	MoH and health authorities to increase BCEHS engagement with health system planning at emergency, primary, community and facilities levels to ensure impacts of ambulance services are understood, BCEHS can match 911 patients to the most appropriate services in their area, and BCEHS can update its operations and facilities plans to exploit shared opportunities	1-C 1-D 1-E 1-F 4-A 4-B 5
13	Municipal and First Responder stakeholders to engage with BCEHS to develop sustainable, evidence-based resource allocation including: <ul style="list-style-type: none"> • Locations for new ambulances • Communities for Treat and Discharge programs • Use of First Responder resources 	5
14	MoH and BCEHS to develop a provincial media and communications strategy to increase public awareness of the changes to emergency health services	2

6.2 Expected outcomes

The BCEHS 2020 program will deliver a range of system-wide benefits, including;

- Enhanced patient care and patient experience
- A more responsive emergency health system that is better aligned with the priorities of the ministry and the health authorities
- An emergency health system that is driven by clinical triage and assessment to provide the most appropriate care for each patient
- Improved capacity within the emergency health system to manage increasing demand, and to respond rapidly to time-critical events
- A more sustainable emergency health system, with increased capacity to resolve emergency calls without the need for significantly more ambulance resources
- Where appropriate, provision of care closer to home, or without transport to hospital, to offer an improved patient experience
- A reduction in the number of avoidable emergency department admissions, freeing up valuable health authority and BCEHS resources
- Support and integration with health system strategies to move care away from expensive emergency department and hospital medical beds, towards primary and community care solutions

7. PERFORMANCE MEASUREMENT

- Reduce the number of times an ambulance is sent on a low acuity call by 20 percent year-over-year
- Reduce the number of times an ambulance is used for a low acuity inter facility transfer by at least 10 percent, year-over-year
- Increase the number of lower acuity patients seen by urban Community Paramedics that would have otherwise meant a transport to the emergency department
- Increase the number of production hours an ambulance is available within its response area
- Improve response times to most urgent patient calls

8. BUSINESS CASE

The following table summarizes estimated costs to implement and sustain the strategies, tactics and actions that BCEHS has proposed. Strategy 2, 5 and 6 are not seen to require incremental costs. BCEHS will also look for internal synergies where possible in executing the tactics and actions that support the identified strategies.

Strategy 1: Ensure clinically appropriate ambulance response to the most acute, life-threatening events, while providing less urgent but appropriate care for critical events through a range of new services					
Tactic:	Cost Classification	Year 1 Forecast:	Year 2 Forecast:	Year 3 Forecast:	Steady State
Add capacity through an incremental number of Basic Life Support (BLS) ambulances (see note 1)	Comp	\$ 8,088,764	\$ 16,358,380	\$ 18,398,381	\$ 19,004,718
	Non Comp	\$ 1,070,329	\$ 1,247,674	\$ 1,413,122	\$ 1,503,368
	Total Operating	\$ 9,159,093	\$ 17,606,054	\$ 19,811,503	\$ 20,508,086
	Total Capital	\$ 1,099,542	\$ 366,514	\$ -	\$ 209,437
Reduce time to respond to high acuity calls	Comp	\$ 1,096,856	\$ 1,745,120	\$ 1,690,271	\$ 1,648,162
	Non Comp	\$ 59,774	\$ 59,322	\$ 59,162	\$ 58,156
	Total Operating	\$ 1,156,630	\$ 1,804,441	\$ 1,749,433	\$ 1,706,318
Implement a Treat and Discharge program to divert patients from emergency departments	Comp	\$ 65,755	\$ 427,483	\$ 1,511,283	\$ 1,466,458
	Non Comp	\$ 117,288	\$ 96,798	\$ 311,971	\$ 310,900
	Total Operating	\$ 183,044	\$ 524,280	\$ 1,823,253	\$ 1,777,358
	Total Capital	\$ -	\$ 250,000	\$ -	\$ -
Improve the timeliness and quality of patient handovers	Comp	\$ 72,295	\$ 646,070	\$ 646,070	\$ 630,732
	Non Comp	\$ 5,486	\$ 14,615	\$ 14,455	\$ 14,088
	Total Operating	\$ 77,781	\$ 660,685	\$ 660,525	\$ 644,820
Implement bypass protocols	Comp	\$ -	\$ -	\$ -	\$ -
	Non Comp	\$ -	\$ -	\$ -	\$ -
	Total Operating	\$ -	\$ -	\$ -	\$ -
Be judicious in responding to low acuity calls (see note 2)	Comp	\$ 678,127	\$ 2,086,957	\$ 3,073,722	\$ 2,714,211
	Non Comp	\$ 222,699	\$ 288,869	\$ 494,182	\$ 476,935
	Total Operating	\$ 900,826	\$ 2,375,826	\$ 3,567,903	\$ 3,191,146
	Total Capital	\$ 750,000	\$ 2,500,000	\$ 1,250,000	\$ -
Reduce the number of low-acuity inter-facility transfers and transfer requests to residential addresses	Comp	\$ -	\$ -	\$ -	\$ -
	Non Comp	\$ -	\$ -	\$ -	\$ -
	Total Operating	\$ -	\$ -	\$ -	\$ -

Strategy 2: Educate the public about the new approach to emergency medical services	
Tactic:	It is anticipated that these costs can be absorbed by the existing budget and operations
Tell the story of a redesigned BCEHS	
Educate the public about the appropriate use of 911	

Strategy 3: Improve operations					
Tactic:	Cost Classification	Year 1 Forecast:	Year 2 Forecast:	Year 3 Forecast:	Steady State
Deploy technology strategically	Comp	\$ 152,286	\$ 565,440	\$ 478,343	\$ 51,194
	Non Comp	\$ 17,368	\$ 15,710	\$ 368,210	\$ 353,881
	Total Operating	\$ 169,655	\$ 581,150	\$ 846,553	\$ 405,075
	Total Capital	\$ -	\$ 1,750,000	\$ 1,750,000	\$ -

Strategy 4: Develop a sustainable workforce to deliver the service					
Tactic:	Cost Classification	Year 1 Forecast:	Year 2 Forecast:	Year 3 Forecast:	Steady State
Implement initiatives to stabilize the workforce	Comp	\$ 6,294	\$ 8,392	\$ 303,737	\$ 1,557,388
	Non Comp	\$ 237	\$ 214	\$ 214	\$ 36
	Total Operating	\$ 6,531	\$ 8,606	\$ 303,951	\$ 1,557,424
Provide enhanced training and education to build internal capacity and career ladders, and to recruit and fill vacancies and new roles	Comp	\$ 658,498	\$ 913,091	\$ 487,006	\$ 380,744
	Non Comp	\$ 35,523	\$ 496,426	\$ 485,016	\$ 476,777
	Total Operating	\$ 694,020	\$ 1,409,517	\$ 972,022	\$ 857,521
Enhance operational front line leadership	Comp	\$ 55,296	\$ 2,016,863	\$ 2,016,863	\$ 1,951,214
	Non Comp	\$ 2,080	\$ 690,225	\$ 690,065	\$ 688,497
	Total Operating	\$ 57,376	\$ 2,707,088	\$ 2,706,928	\$ 2,639,711

Strategy 5: Engage with external stakeholders	
Tactic:	It is anticipated that these costs can be absorbed by the existing budget and operations
Engage stakeholders to develop sustainable, evidenced-based resource allocation of EHS and First Responders	

Strategy 6: Be accountable for the resources invested	
Tactic:	It is anticipated that these costs can be absorbed by the existing budget and operations
Ensure research and evaluation are core to all work streams	

	Cost Classification	Year 1 Forecast:	Year 2 Forecast:	Year 3 Forecast:	Steady State
Total for all Strategies and Tactics	Comp	\$ 10,875,346	\$ 24,769,362	\$ 28,607,243	\$ 29,404,993
	Non Comp	\$ 1,530,828	\$ 2,909,892	\$ 3,836,435	\$ 3,882,645
	Total Operating	\$ 12,406,174	\$ 27,679,254	\$ 32,443,678	\$ 33,287,638
	Total Capital	\$ 1,849,542	\$ 4,866,514	\$ 3,000,000	\$ 209,437

Note 1: Included in the costs are the steady state costs for the 8 BLS ambulances deployed in fiscal 2015/16.

Note 2: Further work is required to validate the staff mix and coverage for the secondary triage function. High level costing based on a total of 19 FTE's providing 18 hours coverage per day (two overlapping 10 hour shifts) and 0.2 FTE EPOS Physician oversight have been used to provide a rough order of magnitude, based on current best estimates of staffing levels.

Costs for project support and learning have been allocated to the cost of each initiative, prorated based on estimated budget. For clarity this is shown in the table below, but these costs are already included in the totals above. The PMO budget will support two project managers, one business analyst, one data analyst, a change management specialist and project coordinator. There are also two learning positions to assist across the project to establish training needs, and once the project team stands down, there will be continued need for a data analyst and the learning resources.

	Cost Classification	Year 1 Forecast:	Year 2 Forecast:	Year 3 Forecast:	Steady State
PMO Budget	Comp	\$ 668,044	\$ 890,725	\$ 890,725	\$ 97,600
	Non Comp	\$ 25,128	\$ 22,728	\$ 22,728	\$ 3,788
	Total Operating	\$ 693,172	\$ 913,453	\$ 913,453	\$ 101,388
Learning Positions:	Comp	\$ -	\$ 175,470	\$ 175,470	\$ 175,470
	Non Comp	\$ -	\$ 8,376	\$ 7,576	\$ 7,576
	Total Operating	\$ -	\$ 183,846	\$ 183,046	\$ 183,046
Total PMO and Learning		\$ 693,172	\$ 1,097,299	\$ 1,096,499	\$ 284,434

The most significant investment is in the workforce. However, it will also be necessary to invest capital expenditures for system-wide improvements to ensure that the technology can support operations and with the increase of the fleet, there needs to be a constant reinvestment for replacement vehicles.

There is significant lead-time for purchasing new ambulances. BCEHS has limited windows of opportunities with the manufacturer to place orders. Based on the next manufacturing cycle, an opportunity exists to place an order in July 2016, which would then result in production/delivery in March 2017. As such, with the car deployment, the ambulance purchases for Year 2 are in Year 1 to indicate the lead-time, and Year 3 costs appear in Year 2.

Income Statement Style Presentation:

Summary of Operating Costs (\$ 000's):

	Year 1 2016/17	Year 2 2017/18	Year 3 2018/19	Steady State
Strategic Initiatives:				
Labour (comp & benefits)	\$ 10,875	\$ 24,769	\$ 28,607	\$ 29,405
Non Labour				
Consulting Fees	\$ 336	\$ 245	\$ -	\$ -
Med/Surg Supplies	\$ 294	\$ 387	\$ 444	\$ 473
Fuel	\$ 201	\$ 636	\$ 675	\$ 695
R&M	\$ 188	\$ 243	\$ 280	\$ 298
Leasing Costs (non BLS vehicles)	\$ 66	\$ 317	\$ 509	\$ 509
Prof Development / Education	\$ 54	\$ 530	\$ 555	\$ 565
Software maintenance	\$ 43	\$ 43	\$ 863	\$ 863
Other	\$ 349	\$ 510	\$ 511	\$ 480
Total	\$ 12,406	\$ 27,679	\$ 32,444	\$ 33,288
Capital	\$ 1,850	\$ 4,867	\$ 3,000	\$ 209

Assumptions	
1	The financial costing has been completed using current year dollars with zero inflation and zero escalations
2	Potential loss of revenue for emergency department delays will be minimal and offset by efficiencies in the system
3	Initial training costs for intake of new staff will be offset by recruitment lags of new hires in the first three years. Ongoing maintenance training costs for staff have been included in steady state costs
4	Costing for additional FTE's are direct costs only (computer and minor supplies where applicable). Additional office space costs are currently being assessed to determine if they can be absorbed within existing footprints. The space impact from additional cars will be dependent upon final deployment and may require capital investment at stations.
5	BLS ambulances will be capital purchases (due to the specialty requirement to outfit) and other vehicles will be leased.

9. CONCLUSION

BCEHS 2020 provides a plan to redesign and reimagine the way emergency health services are delivered in Metro Vancouver and Victoria over the coming years, and lays the foundation for the development of a strategic plan to address emergency health service needs province-wide.

It is a bold plan that at its core, transforms response to 911 calls, ensuring that timely emergency response is available to patients of the highest acuity, and alternative pathways to care is available to patients of the lowest acuity who are not best served by an ambulance and hospital visit.

The foundation on which BCEHS 2020 has been built is evidenced-based research that shows that demand for emergency services will continue to grow every year for the foreseeable future, at the same time the percentage of high acuity events is also increasing.

To reduce the sheer number of additional ambulances and emergency health responders that would be required to meet this growing population and growing demand, BCEHS 2020 will work with the health authorities to ensure alignment and integration on a range of new clinical pathways, decreasing the use of BCEHS ambulances for low acuity patient transfers; upgrading the education and skills of the current workforce; and introducing front line management to better manage patient flow.

BCEHS 2020 has used best practices in other jurisdictions as a base for the development of innovative ways to ensure BC residents have the highest quality of emergency care available to them. BCEHS has established a benchmark in response time to the highest acuity events of 9 minutes or less, a minimum of 75 percent of the time. While a challenging target to reach given today's average response time of 10:24, and achieving the 9 minute target in only 46 percent of events, BCEHS 2020 offers the strategies, tactics and actions that can result in achieving this metric.

BCEHS' goal to ensure patients receive timely and appropriate access to emergency care when required, in every community across the province – will be achieved through the execution of BCEHS 2020.

BCEHS recognizes that it cannot achieve high quality patient outcomes and patient experience without engaging with key stakeholders – our unions, regional health authorities, municipalities, First Responders and our workforce. We welcome these partners to help BCEHS realize the redesign of emergency health services for the benefit of all British Columbians.

10. APPENDICES

10.1 Appendix One: Environmental Scan

Many other jurisdictions are facing the same issues of rising demand for pre-hospital services and pressures on emergency departments. In 2013 in the UK, the Chief Medical Officer of NHS England, Sir Bruce Keogh, conducted a review² into urgent and emergency care making a series of recommendations for improvement. He noted that “Firstly, an ageing population with increasingly complex needs is leading to ever rising numbers of people needing urgent or emergency care. Secondly, we know that many people are struggling to navigate and access a confusing and inconsistent array of urgent care services provided outside of hospital, so they default to A&E (emergency department)”

Health systems are recognizing the need to invest in primary and community services to provide the right care, in the right place, first time. Alternatives to emergency departments, such as urgent care centres and minor injury units have been established to reduce system pressures. Telephone services and telehealth initiatives have been used to provide clinical advice, out-of-hours access to GP care, and wider geographical reach.



Figure A1: The 5 Step Care Model developed by the Welsh Ambulance Service NHS Trust (WAST) to provide an integrated response in partnership with Local Health Boards (LHBs), directing patients to the best care option across telephone, primary and emergency (A&E) services

² “Transforming urgent and emergency care services in England: End of Phase 1 report” (Urgent and Emergency Care Review Team, UK, 2013)

Globally, Emergency Health Services are recognizing their broader role within the health system, to provide better care alternatives for patients and to manage demand on emergency departments and other areas of the healthcare system³. They are increasingly helping patients by providing a gateway to services with a focus on self-care and referral pathways. Using multi-disciplinary teams, EHS providers are delivering high quality care over the phone, and by training paramedics in delivering care at the scene they are avoiding ED visits.

For a number of years, the UK has been trialling alternative care models for pre-hospital emergency patients. In 2011, the National Audit Office conducted a review of these approaches to analyze the health system benefits⁴. The report acknowledges that the ambulance sector has limited influence over the volume of calls it receives, but it can influence the ultimate resolution of those calls at three critical points – resolving calls with no ambulance dispatch (“Hear and Treat”), resolving at the scene without the need to transport to another provider (“See and Treat”), and conveyance of patients to a non-ED destination (“Alternate Destinations”). This report suggests that ‘*potential benefits in the region of £185m per annum*’ were achievable across the UK health system by the introduction of these three initiatives.

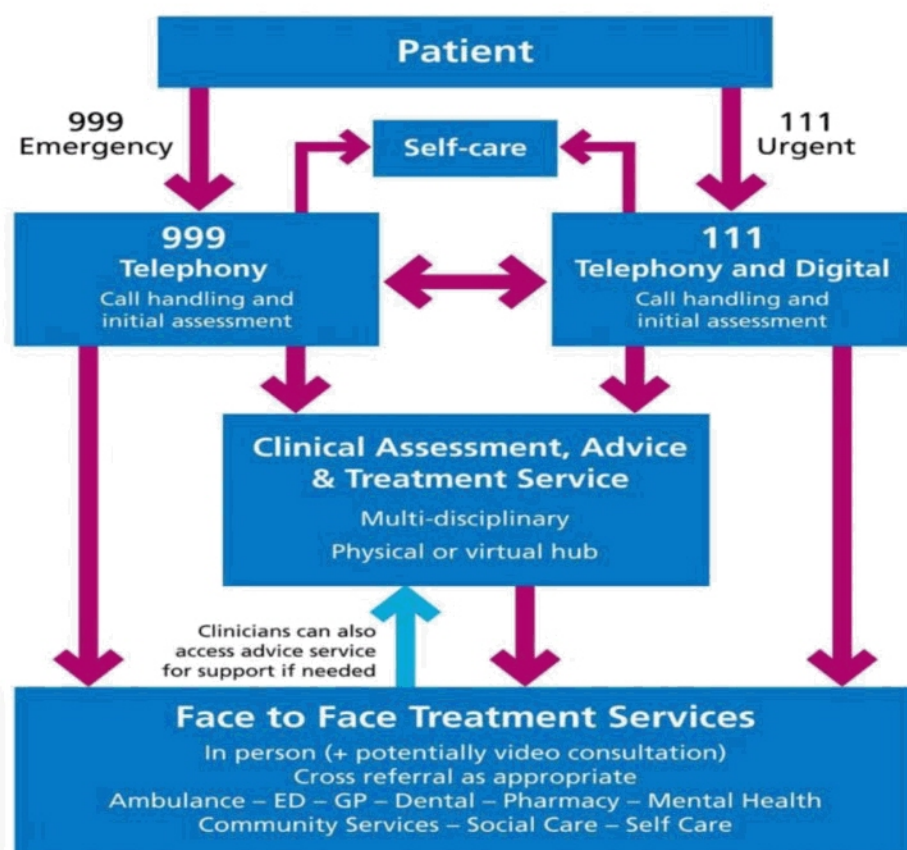


Figure A2: An integrated care model for pre-hospital care, showing the links between emergency calls (999, equivalent to 911) and non-emergency calls (111, equivalent to 811), and the provision of clinical assessment and advice services (Health Pathways, Canterbury, New Zealand, 2008)

³ “The London Ambulance Service 5-year strategy 2014/15-2019/20”

⁴ “Transforming ambulance services – National Audit Office review” (Deloitte, 2011)

Since 2011, English Ambulance Services have published data on calls resolved through this expanded range of clinical responses. Some examples include;

- In April 2011 4.5% of all calls were resolved without the need for ambulance transport and by December 2015 this had risen to 10% of all calls
- The number of patients transported to a place of treatment has dropped from an average of 400,855 per month (June 2011 to March 2012) to an average of 390,351 (April to December 2015), even though call volumes had increased

This shows that the new clinical model has been effective in neutralizing the 3%-5% annual growth in demand experienced in England over this 4 year period, with a greater percentage of calls resolved through telephone services and 'treat and release' approaches.

The Welsh Ambulance Service Trust reports a similar picture in their 2015 Annual Report;

- 11.8% of all incidents were treated at scene with no transport required
- 6.7% of callers were referred to an alternative provider
- Only 62.2% of all incidents result in the patient being taken to an ED

New Zealand has also developed an integrated care model for EHS that recognizes a range of care options. The New Zealand model (see Figure A2 above) is based around the use of a Clinical Hub to provide clinical assessment, advice and support to treatment providers.

Establishing a Clinical Hub enables a clear process for emergency (e.g. 911) callers and non-emergency (e.g. 811) callers to be triaged and directed to the most appropriate level of care. It also supports providers in the timely delivery of appropriate treatment to prevent avoidable ED admissions. This model again reinforces the need for close partnership working between EHS and the local healthcare providers to develop alternate pathways, for example for patients with mental health issues, minor injuries or alcohol misuse.

In Nova Scotia, where demand has been steadily increasing at 4% per year, the introduction of a Clinical Hub has had significant system impact. As well as mitigating demand for low acuity calls through care planning for CTAS level 4/5 patients, the Clinical Hub provides support to front line paramedic staff, including community paramedics.

Nova Scotia recognized that the transfer of elderly patients from long term care facilities to hospital was a significant burden on the system and did not provide a positive experience for patients. Through targeted use of 'extended care paramedics' through a structured 'treat and release' program, Nova Scotia has managed to reduce the number of transfers of patients seen in residential care by 77% within 2 years.

To effectively implement these new ways of working, Nova Scotia needed to invest in new clinical skills, upgrade call centre technology to support the new work of the Clinical Hub, implement new PCR charts, and develop a staffing strategy to ensure all paramedic roles could be filled and skills kept current.

BC HealthLink have very recently been running an 811 MD Triage project, where an emergency physician has been embedded within the Nurseline service. Calls that are triaged by the HealthLink nurses as requiring care now (a “Red” call) are transferred to the physician to speak with the caller and provide direct advice.

With physician coverage from 08:00-24:00 7 days a week, covering just the VCH area, results from the first 2 weeks of operation show;

- 811 physicians field 20-25 calls per day
- ED referrals from 811 were reduced by approximately 66%
- 80% of Red calls have been deflected away from the ED, with many avoiding the need for any further physician contact

This change in 811 could translate into a reduction in ED visits (just in VCH) of approximately 6-7,000 patients per year. This pilot project shows that the concept of using secondary triage to provide clinical advice to 911 callers could yield significant system benefits in BC.

10.2 Appendix Two: Possible locations for additional Basic Life Support ambulances based on demand modelling

Year One	Year Two	Year Three
Surrey, North Vancouver Delta Maple Ridge	Port Moody / Port Coquitlam / Coquitlam (Riverview grounds)Vancouver Richmond (North) New Westminster	Two ambulances at Burnaby Buller Station— slated to open in 2017

These locations have been identified by considering the relative impact on response times, as predicted by the demand modelling study.

Since the study was completed, BCEHS has deployed 8 additional ambulances across the communities of Surrey, Langley, Abbotsford and North Vancouver. BCEHS will confirm the final deployment sites based on further modelling and an assessment of station capacity, to maximize impact on response times, especially for communities with below average response to high acuity Delta / Echo calls.

NEWS RELEASE

For Immediate Release
2017HLTH0045-000508
March 8, 2017

Ministry of Health

Province to fund more ambulances and paramedics to improve emergency response

VICTORIA – The Ministry of Health is adding \$91.4 million in additional funding over the next three years for emergency health services.

This targeted investment will mean faster ambulance response times and support expanded care from paramedics and dispatchers.

In addition, the Province will also provide \$4 million in immediate additional funding for necessary equipment, including carbon monoxide monitors, stretchers, safety kits and visibility gear.

“British Columbians in emergencies rely on the skills provided by paramedics, dispatchers and other staff with BC Emergency Health Services,” said Health Minister Terry Lake. “Today’s funding supports their front-line efforts, increasing capacity in both urban and rural areas through a combination of innovations and new resources that allows us to develop a more comprehensive approach to enhancing emergency care throughout B.C.”

With this funding lift, BCEHS will implement a strategy focused in three areas:

- Improving emergency response in both rural and urban regions, with additional ambulances, paramedics and dispatchers;
- Supporting new initiatives to enhance rural and remote services to create better access to primary and community-based care; and
- Introducing provincewide innovations and improvements to support how BCEHS responds to calls.

“It’s important to understand the answer to meeting the needs of our growing and aging population is more than just adding more paramedics, dispatchers and ambulances,” said BCEHS Executive Vice President, Linda Lupini. “This investment will also fund provincewide innovations that will help us continue to transform the delivery of emergency health care services throughout B.C and create a sustainable model for the future.”

To make needed improvements to ambulance response times in some urban areas, BCEHS will add six additional ambulances, to be stationed in the Lower Mainland, along with additional resources in the Interior. These are on top of the 10 additional ambulances put on the road in the Lower Mainland last year. Locations are still to be finalized.

An additional 80 staff will be added over the next year, including 60 paramedics and 20 dispatch staff, as well as additional supervisory positions to support front-line paramedics with timely response. Work is also underway to evaluate the addition of some single-paramedic SUVs, which are proving effective at supporting ambulance response during the current opioid

overdose crisis.

To improve rural services, BCEHS will expand the capacity of air ambulance service in the northeastern part of the province, add more permanent part-time and full-time paramedic positions and offer enhanced training and roles for paramedics. Specific allocations and locations are still to be determined.

In addition, BCEHS will also complete the final phase of the implementation of the province's new community paramedicine program into 73 communities. Under community paramedicine, paramedics provide patients with increased access to health-care services to help them manage their health. These services are provided within paramedics' scope of practice, in partnership with local health-care providers.

More stable paramedic staffing in rural areas will also be supported by a newly negotiated universal hourly wage effective April 7, 2017, which will result in a pay increase for many front-line employees including part-time paramedics, who often work in smaller communities. This is in addition to the \$91.4 million being announced today.

As a result of the new funding, two provincewide innovations will be undertaken to help provide better and more appropriate patient care and make better use of ambulance resources in the community and reduce emergency room visits. BCEHS will add advanced care paramedics and other clinical staff in dispatch to provide 911 callers with more specialized triage assessments, to better identify the urgency of a caller's condition and ensure patients get the right care, while reducing demand for non-urgent ambulance responses. Some paramedics will also receive additional training that will allow them to treat patients on the scene when they don't need to go to the hospital. Currently paramedics responding to a 911 call typically transport the majority of patients to hospital.

By the third year, this new investment will bring the BCEHS annual budget up to \$441 million dollars a year, an increase of approximately eight per cent over its 2016/17 budget. These investments are made possible through a budget increase to the Ministry of Health under Budget 2017, which provides a total of \$4.2 billion in additional funding for the ministry over the next three years.

Learn more:

See what community paramedicine is: <http://www.bcehs.ca/our-services/programs-services/community-paramedicine>

For more information on the Ministry of Health's strategic priorities: <http://www2.gov.bc.ca/gov/content/health/about-bc-s-health-care-system/health-priorities/setting-priorities-for-bc-health>

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