INFORMATION REPORT

TO:	Chair and Members Emergency & Community Services
COMMITTEE DATE:	September 22, 2014
SUBJECT/REPORT NO:	Hamilton Paramedic Service – Service Delivery Update September 2014 (Period January 1 through August 31) (CES14050) (City Wide) (Outstanding Business List Item)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Michael Sanderson 905-546-2424 Ext. 7741
SUBMITTED BY: **SIGNATURE:**	Joe-Anne Priel General Manager Community and Emergency Services Department

Council Direction:

On April 23, 2008, Council approved item 6(h) of the Emergency & Community Services Committee Report 08-006 (HES08006 – Resource Limitations and Hospital Emergency Depart off-Loading), which directed "That staff provide Council with monthly reports on Code Zero occurrences in ambulance calls."

Information:

As previously reported, a Code Zero occurrence is an instance where there are one (1) or less transport ambulances available to respond to emergency ambulance requests within the City. Code Zero events continue to be manually tracked and this tracking is reliant on the dispatcher recognizing the staffing levels, notification of Hamilton Paramedic Service supervisory staff, and the Hamilton Paramedic Service supervisor completing the documentation. As the tracking is manual we believe that the frequency is both historically and currently understated.

The Ministry of Health and Long-Term Care (MOHLTC) operated Central Ambulance Communications Centre (CACC) has recently committed to participating in an improved data collection program starting this fall which should assist in gathering more consistent and accurate recording of Code Zero events.

As previously reported there are three (3) primary contributing factors to Code Zero events:

(1) demand for service responses;

(2) number of ambulances available for response; and,
(3) length of time ambulances are committed to calls.

The actual frequency and average time duration of Code Zero events in hours is provided in table 1 below:

Table 1 - Frequency and Duration of Code Zero Events

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Code Zero events: Frequency of occurrence													
2012	26	15	19	10	7	16	11	26	9	9	14	32	**194**
2013	35	20	11	19	12	13	16	26	24	11	12	43	**242**
2014	24	18	25	25	12	17	12	7					**140**
Code Zero events: Average Duration (hours)													
2012	0.6	0.6	1.0	0.3	0.5	0.4	0.8	0.4	0.8	0.5	0.5	1.5	**0.7**
2013	1.4	1.5	1.0	1.4	0.9	0.7	1.7	1.2	1.3	1.2	3.0	2.1	**1.5**
2014	1.7	1.0	1.3	1.3	1.4	1.1	0.6	1.5					**1.2**

When there are no Hamilton Paramedic Service ambulances available, Emergency Response Vehicles (ERV) or qualified Supervisory staff may be utilized to respond, stabilize, and await an available ambulance for transportation to hospital.

In addition to use of an ERV to `*stop the response time clock*`, the ambulance dispatch also assigns an available transport ambulance from an adjacent municipality (primarily Halton, Niagara, Guelph, Norfolk, and Haldimand) to respond.

Contributing Factors

As previously noted there are three (3) primary contributing factors to Code Zero events: response volume, the number of transport ambulances available, and the duration of each call.

Service Demand (Event Volumes):
Event volume, representing the number of requests for ambulance service within the City of Hamilton, is provided in Table 2 below. Event volumes continue to increase and are expected to be 18.2% higher in 2014 than experienced in 2008.

Table 2 - Number of Events responded to:

	2008	2009	2010	2011	2012	2013	2014 YTD	2014 Proj
EVENTS								
Dispatched Priorities								
1 - Deferrable	876	819	768	595	432	**421**	**362**	621
2 - Scheduled	592	511	391	345	294	**196**	**114**	195
Non-Emergency INC (1 & 2's)	**1,468**	**1,330**	**1,159**	**940**	**726**	**617**	**476**	**816**
3 - Prompt	11,144	13,894	15,750	15,898	15,699	**18,047**	**11,174**	19,155
4 - Urgent	34,656	33,499	32,976	36,129	35,028	**35,760**	**20,956**	35,925
Emergency - 3 & 4's	**45,800**	**47,393**	**48,726**	**52,027**	**50,727**	**53,807**	**32,130**	**55,080**
TOTAL EVENTS (1, 2, 3 & 4)	**47,268**	**48,723**	**49,885**	**52,967**	**51,453**	**54,424**	**32,606**	**55,896**

Source: Ministry of Health and Long Term Care Ambulance Dispatch Reporting System

Approximately 99% of all calls are currently dispatched by the Ministry of Health as either a Code 3 (urgent) or Code 4 (life-threatening, lights and siren response).

Some events require more than one (1) resource to respond due to the nature and type of event. Responses are a count of the number of ambulance resources assigned to respond to events. Currently the Hamilton Paramedic Service averages 1.3 ambulance resources being assigned to each event. This event to response ratio is down slightly from last year due to the reduction in use of single paramedic Emergency Response Vehicles.

Call Duration:

The average call duration reflects the time period from when an ambulance is assigned a call until the ambulance is again available for assignment, visually represented in Figure 1 below. An increase in average call duration, multiplied by an increase in the number of events and responses to those events, results in reduced ambulance response availability.

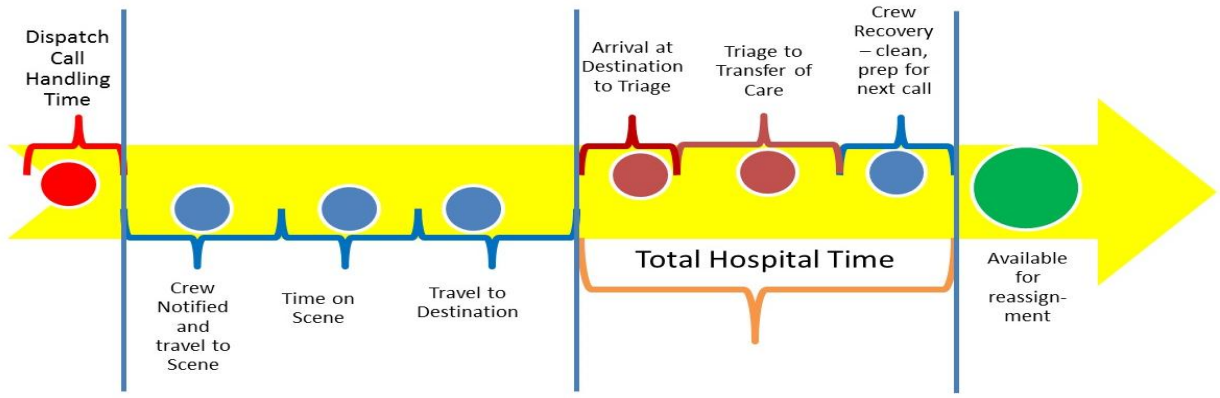

Figure 1: Typical time periods in an ambulance call

Call duration, or time on task, does not include any travel time to return to station or to an assigned coverage area, nor does it include any administrative tasks such as standby availability, documentation activities, meals or breaks.

As is represented in Table 3 (below) the total average call duration has increased by 12 minutes, or 13%, since 2008.

Table 3 - Average Call Duration (Time On Task)

	2008	2009	2010	2011	2012	2013	2014
Time-on-Task	1:29:34	1:28:13	1:29:58	1:39:27	1:31:29	1:36:13	**1:41:08**

The longest portion, currently 62%, of the average call duration for Hamilton Paramedic Service continues to be the time period from arrival at the receiving hospital through clearing the hospital after getting the required equipment available for another response.

The majority of time spent by ambulance crews at hospital is the time it takes to transfer care (TOC) of the patient to hospital staff. Delays in TOC are usually referred to as "offload delay". While the time spent at hospital by paramedic staff continues to be a significant issue, we continue to work closely with our partners at Hamilton Health Sciences and St. Joseph's Healthcare to improve the process. Hospital representatives at the Joint Operations Committee Executive have indicated that establishing a preliminary target for improvement was likely to have the best impact.. Accordingly the preliminary TOC target agreed upon for this year is that nine (9) out of 10 ambulances will have TOC occur within 60 minutes of arrival. As that target is achieved there is a commitment to continue improvement activities to match peer comparators provincially.

Most recently a series of process improvement meetings and experimentation with St. Joseph's Hospital has resulted in an improvement of approximately 8% for this time measure. The Hamilton General and Juravinski Hospital are also close to achieving this interim goal.

The Hamilton Paramedic Service Transfer of Care tracking software has also been revised to improve data consistency for measurement and evaluation, and our front line supervisory escalation processes for long offload delays have been modified.

While we are seeing improvement in the TOC process year to date, we have recorded that TOC takes longer than two hours for about 8% of patients. In the first seven (7) months of the year offload delays longer than four (4) hours after arrival at the hospital occurred a total of 290 times which is just over 1% of ambulance arrivals.

The modification to our supervisor offload delay escalation action process, combined with an enhanced supervisory presence at hospitals to support staff in the management of longer delays, is intended to deal with these longer delays.

Offload Nurse Funding:
The MOHLTC restricted grant funding, has covered 100% of the cost of providing additional nursing staff at hospitals to take over responsibility for incoming ambulance patients, for several years, with significant increase in funding in the past two (2) years. Funding for this year has not yet been approved. If approved, the funding application for the 2014-15 MOHLTC fiscal year will provide the equivalent of staffing of one (1) nurse 24 hours a day, seven (7) days a week, at each of the Hamilton General, Juravinski, and St. Joseph's Emergency Departments. Funding approvals are expected shortly.

Available Ambulances:
In early January, the Hamilton Paramedic Service reduced the number of single person emergency response vehicles (ERV) in order to increase the number of staffed transport ambulances. A total of 12 full time paramedics were moved from ERV assignments to transport ambulance staffing. This reduction in ERV coverage provided an increase of three (3) transport ambulance shifts per day. Two (2) of these shifts were allocated to days and one (1) was allocated to nights.

In late March, Council approved funding for an additional transport ambulance 24 hours a day, seven (7) days a week. This increase was put into effect in April 2014 with one (1) additional 12 hour shift for days and for nights.

Table 4: Peak number of staffed vehicles per day

	2013		Jan 2014		Apr 2014	
	Staffed Transport Ambulances	1 Person Emergency Response Vehicles	Staffed Transport Ambulances	1 Person Emergency Response Vehicles	Staffed Transport Ambulances	1 Person Emergency Response Vehicles
Day Shift	21	7	23	4	24	4
Night Shift	12	7	13	4	14	4

As previously noted, service demand volume has increased 18% since 2008, and the average duration of calls has increased 13% over the same period. While the increase in available staffed ambulances to respond to these pressures does assist, it has not provided sufficient staffed ambulances to adequately resolve either the Code Zero issue or to improve response time performance.

From an employee wellness perspective, directly related to the three (3) key metrics of resources, volume, and call duration, one (1) of the measures utilized over time has been the ability to provide paramedics two (2) half-hour meal breaks in a 12 hour shift.

The frequency of claimed missed meal breaks continues at approximately 1,100 per month and we will be continuing efforts to improve this.

Response Time Performance

Response time is the time period from when a Hamilton Paramedic Service ambulance or ERV is first notified of a potentially life threatening emergency call (Code 4) by the MOHTLC CACC until the first ambulance resource arrives at the scene of the incident. It does not include the time it takes for the MOHLTC CACC to assess the call request, determine which resource should be assigned, and the actual assignment of the call. Ambulance response time is directly related to the availability of an ambulance resource to respond to an incident within the desired time frame.

The originally established city-wide response time benchmark for a paramedic resource to be on scene of a life-threatening emergency call was 10 minutes and 3 seconds (10:03) from when the call was assigned to the crew 90% of the time.

This year to date, the MOHLTC CACC records indicate that our first ambulance resource arrived on scene in 12 minutes and 4 seconds (12:04) or less nine (9) times out of ten. Approximately 80.4% of the responses were within the original benchmark of 10:03.

Of further concern, our analysis of the MOHLTC dispatch records shows increasingly long responses to calls categorized by the MOHLTC CACC as "Prompt" or "Code 3". These emergency, but not life threatening, calls constitute 27% of the total events we respond to. The MOHLTC defines calls in this category as "*a call that should be performed without delay (serious injury or illness e.g. stable fracture)*". Our actual experience is that for at least 10% of the "Prompt" calls an ambulance does not arrive until an hour or more has elapsed.

Conclusions

Hamilton Paramedic Service, and our front line paramedics and supervisors, continue to make commendable efforts to protect the public safety needs of Hamilton's citizens. With an average of 193 responses to 153 events per day we successfully treat and transport 40,000 patients a year to hospital. Our work in doing this is supported and assisted by allied agencies including the MOHLTC CACC, the hospitals, and most notably the Hamilton Fire Department and Hamilton Police Service.

We have had significant preliminary success in the implementation of LEAN value stream mapping and process improvement activities with St. Joseph's Healthcare and are working with our hospital partners and the MOHLTC CACC to extend and sustain the time improvements that have been realized. Reduction of transfer of care time, and

the total ambulance time at hospital remains essential to minimizing required staffing resource increases.

We anticipate continuation of the MOHLTC Offload Nurse Funding initiative will help mitigate against ongoing offload delays, and are continuing to work with our paramedics, and our partners at Hamilton Health Sciences and St. Joseph's Healthcare, in the implementation of that program to improve transfer of care times.

The combination of increased demand for ambulance responses and longer call durations continues to place a compounded pressure on the ability of the ambulance service to respond in a timely manner as well as our ability to meet our obligations to our paramedic employees. Staff anticipate further discussion during the 2015 budget deliberations if our analysis shows additional resources are required.