



INFORMATION REPORT

TO: Chair and Members Emergency & Community Services Committee	WARD(S) AFFECTED: CITY WIDE
COMMITTEE DATE: April 6, 2011	
SUBJECT/REPORT NO: Code Zero Report from January 1, 2011 to February 28, 2011 (HES11005) (City Wide)	
SUBMITTED BY: Brent Browett Director, Emergency Medical Services Hamilton Emergency Services	PREPARED BY: Brent Browett (905) 546-2424 x7741
SIGNATURE:	

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 Department Off-Loading), which directed Hamilton Emergency Services - Emergency Medical Services (HES-EMS) to provide regular “Code Zero Ambulance Events” reports.

Information:

This is the second report for 2011.

Executive Summary

There were 39 Code Zero Ambulance (CZA) events in the first two months of 2011 and projected to the end of year it would represent 240 occurrences. In 2010 there were 94 CZA events.

The two leading factors that affect the consumption of paramedic unit hours and the remaining capacity to respond to emergencies are the number and duration of calls for assistance.

In the first two months of 2011 the Paramedic Service experienced the following demands for paramedic service compared to the annual 2010 results;

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- 1% reduction in calls (no. 182.2 per day); and
- 22% increase in the duration of a call (time on task) with the additional consumption of paramedic unit hours attributed to a 25% increase in the EMS hospital time (65 minutes, 3 seconds vs. 52m, 3 seconds).

The 90 percentile paramedic emergency response time for the first two months of 2011 was 11 min, 9 seconds (vs. 10 minutes, 15 seconds of 2010). Until recently the paramedic service experienced a trend of reduced emergency response times (May 2008) coinciding with the full implementation of additional paramedic resources along with adjustments in deployment, and other operational efficiencies. The trend of improved emergency response times continued for 27 months. Since August 2010 there has been a gradual increase in the emergency response times and in December 2010, and January-February 2011 there has been a marked increase. Coinciding with the increased emergency response time there has been an increase in the: number of Code Zero Ambulance Events (see Table 1 below); hours of extended shift overtime for paramedics; and, missed meal breaks for paramedics

Table 1: Summary Data 2007 to January and February 2011

	2007	2008	2009	2010	2011 Jan/Feb
Code Zero Ambulance Events (CZAE)					
No. of CZAE	44	66	82	94	39 Jan/Feb
Average No. of Paramedic ERVs available during CZAE	2	5	7	6	7
Average No. of Ambulances in hospital for transfer of care during a CZAE	4	5	5	6	6
Ambulance in the Emergency Department for Transfer of Care					
Average elapsed time	43 min 50 sec	53 min 7 sec	51 min 20 sec	52 min 29 sec	65 min 28 sec
Paramedic Emergency Response – First Vehicle					
Average time city-wide	6 min 44 sec	6 min 20 sec	6 min 27 sec	6 min 25 sec	7 min 3 sec
Average time variation across six (6) former communities	5 min 7 sec	5 min 7 sec	4 min 36 sec	4 min 5 sec	4 min 57 sec
90 th percentile time city-wide (9 of 10 responses)	11 min 49 sec or LESS	10 min 42 sec or LESS	10 min 17 sec or LESS	10 min 15 sec or LESS	11 min 9 sec or Less

See Appendices A, B, and C attached to Report HES11005 for detailed results. The primary data source is the Ministry of Health and Long-Term Care (MOHLTC) and they continuously update the fields.

1) Code Zero Ambulance Events

The term “Code Zero Ambulance” is a term used by the Paramedic Service to identify an interval of varying duration when one (1) or less transport ambulances is available to respond to

an emergency. Typically during these events one (1) or more single paramedic Emergency Response Vehicle (ERV) remains available to provide an immediate paramedic level response, and alerts are sent to all on-duty EMS managers, supervisors, paramedics, and the local hospital officials.

From January 1, 2011 to February 28, 2011 there were 39 Code Zero ambulance events, the highest number in the history of the service for two months. During a typical event in over those two months;

- Six (6) ambulances were committed to hospital transfer of care in one (1) or more of the hospital emergency departments; and,
- Seven (7) Paramedic ERVs remained available to respond to medical emergencies.

2) EMS / Hospital ED / Transfer of Care Time

From January 1, 2011 to February 28, 2011 the time the paramedics spend in the hospital ED transferring care was an average of 65 minutes 28 seconds (vs. 52 minutes 29 seconds in 2010, or 51 minutes 19 seconds in 2009, or 53 minutes 07 seconds in 2008, 43 minutes 46 seconds in 2007, and 32 minutes 47 seconds in 2000).

The hospital transfer of care interval appears to continue to influence the;

- paramedic emergency response times
- Code Zero ambulance events
- budget and staff relations in the following areas
 - paramedics missed meal breaks and payment for the same
 - forced overtime as the paramedic waits to transfer care at shift end
 - taxi costs to have paramedics change shift at the hospital
 - cost of disposable supplies given longer patient contact

3) Paramedic Emergency Response Time

In the first two months of 2011 the paramedic emergency response time across the city was 11 minutes 9 seconds or less for 9 of 10 patients (90th percentile), and an average of 7 minutes and 3 seconds. In 2010; the 90th percentile was 10 minutes 15 seconds OR LESS and the average response time for the City of Hamilton was 6 minutes 25 seconds.

The increase in the average and the 90th percentile paramedic emergency response time coincides with an increase in the EMS Hospital-Transfer of Care consumption of ambulance unit hours. The Paramedic Service team has been drawing on all available resources to focus available resources to mitigate these impacts.

Conclusion

The Paramedic Service does expect a gradual increase in calls for service year over year related to the aging population and some changes to the health care delivery system. What the Paramedic Service experienced in December 2010 and more so in the first two months of 2011 was a surge in demands specifically related to the duration of time spent in hospital by the paramedics. There is some evidence that this trend began to reverse itself as March 2011

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approached. In the past the Hamilton Paramedic Service would rely heavily on our neighbour Paramedic Services to assist staff in mitigating the effects of these demands; however, other neighbouring Paramedic Services are reporting similar challenges limiting their capacity to assist Hamilton.

During the past two months all our community partner agencies including the MOHLTC CACC (ambulance dispatch) and the local hospitals, along with the front line paramedics and nurses, supported by the Paramedic Service management team have made commendable efforts to maintain service to public.

Appendix A
Appendix B
Appendix C

HAMILTON - EMERGENCY MEDICAL SERVICES

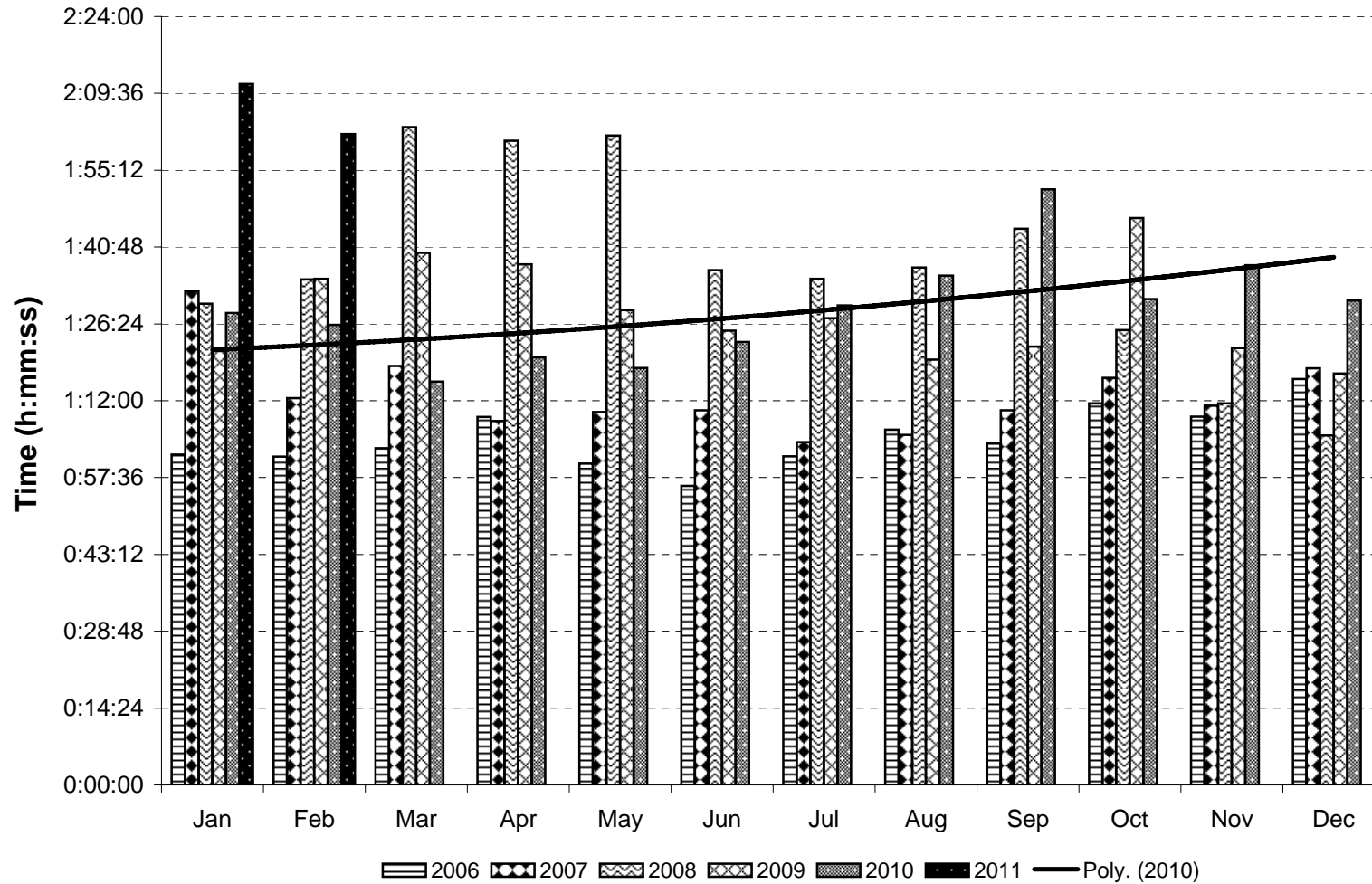
Code Zero Ambulance Events and EMS-Hospital Emergency Department Time

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Code Zero Ambulance Events - One or less Ambulances Available for Emergency Response in Hamilton													
2006	Data tracking began in May			→	1	0	0	3	1	3	0	5	13
2007	10	5	7	0	2	4	4	3	1	0	0	8	44
2008	0	8	10	3	17	5	12	16	6	6	8	4	95
2009	1	10	12	13	6	7	9	7	2	8	5	2	82
2010	6	9	9	3	7	7	12	6	10	4	11	10	94
2011	23	16											39
EMS Hospital ED Time - Arrive Hospital ED to Ambulance Clear Hospital ED (90th percentile)													
2006	1:01:53	1:01:33	1:03:06	1:08:58	1:00:12	0:56:04	1:01:34	1:06:34	1:03:57	1:11:32	1:09:01	1:16:03	
2007	1:32:30	1:12:30	1:18:31	1:08:11	1:09:52	1:10:13	1:04:16	1:05:36	1:10:11	1:16:17	1:11:06	1:18:03	
2008	1:30:10	1:34:43	2:03:16	2:00:45	2:01:43	1:36:29	1:34:51	1:36:59	1:44:15	1:25:15	1:11:32	1:05:29	
2009	01:21:20	01:34:51	01:39:42	01:37:33	01:28:59	01:25:08	01:27:29	01:19:41	01:22:10	01:46:13	01:21:54	01:17:05	
2010	01:28:28	01:26:14	01:15:34	01:20:08	01:18:09	01:23:01	01:29:52	01:35:27	01:51:36	01:31:04	01:37:24	01:30:47	
2011	02:11:23	02:01:57											

Source Data: MOHLTC ADDAS for 90th Percentile

Updated : 22 Mar 2011

Hamilton Emergency Medical Services 2006-2011 EMS Hospital Time in Emergency Department (90th Percentile)



Data Source: ADDAS

**HAMILTON EMERGENCY MEDICAL SERVICES
GENERAL STATISTICS**

	2008	2009	2010	2011 ^a	Jan	Feb
EMS CALL VOLUME						
EMS Calls Dispatched Priorities						
Non-Emergency Calls(1 & 2's)	1,471	1,422	1,223	102	67	35
3 - Urgent	13,164	16,502	18,882	2,957	1,604	1,353
4 - Life Threatening	48,160	45,739	47,022	7,694	4,225	3,469
Emergency Calls Priority 3 & 4's	61,324	62,241	65,904	10,651	5,829	4,822
TOTAL CALLS (1, 2, 3 & 4)	62,795	63,663	67,127	10,753	5,896	4,857
EMS Patients Transported with High Return Priority (Criteria: PickupUpperTier=38)						
Transported Life Threatening (Priority 4)	3,854	3,900	3,840	566	288	278
EMS RESPONSE TIMES						
CACC Response (MOHLTC Dispatch) Provincial Standard is 120 seconds or less for 90th percentile						
Seconds (T ₀ _TimeZero-T ₂ _Notified)	179	189	181	191	185	196
HES EMS Response - Provincial Standard is 10:03 or less for all of Hamilton 90th percentile (T₂_Notified-T₄_ArriveScene) First Unit						
City of Hamilton (amal.)	10:42	10:17	10:15	11:09	10:54	11:27
HES EMS Response Time - Average (T₂_Notified-T₄_ArriveScene) First Unit						
City of Hamilton (amal.)	06:20	06:27	06:25	07:03	06:57	07:11
- Ancaster	08:23	08:03	08:01	09:25	09:29	09:21
- Dundas	05:56	07:30	06:13	06:52	06:47	06:58
- Flamborough	10:53	10:30	10:30	11:32	11:19	11:43
- Glanbrook	09:46	09:18	09:33	10:03	10:00	10:06
- Hamilton	05:47	05:54	05:58	06:35	06:29	06:41
- Stoney Creek	07:29	07:15	06:58	07:17	07:21	07:13
OTHER EMS TIME STATISTICS						
Avg. Chute Time (Notified-Enroute)	01:11	00:54	00:56	00:56	00:55	00:58
Avg. Time-on-Task (Enroute-ClearDest.)	01:28:40	01:27:20	01:28:53	01:42:54	01:43:53	01:41:42
Avg. Scene Time (ArriveScene-DepartScene)	17:01	17:39	17:57	18:36	18:36	18:36
EMS-Hospital Off-load/Transfer of Care Time (All Return Codes)						
Transfer of Care Monitor - All Calls						
Average (Arrive-End of ToC)	00:49:35	00:53:55	00:53:49	01:08:52	01:08:55	01:08:48
EMS-Hospital ED Time						
90 th percentile	01:35:14	01:27:31	01:28:00	02:06:52	02:11:23	02:01:57
Average (Arr_Dest-ClrDest)	00:53:07	00:51:20	00:52:29	01:05:28	01:07:03	01:03:32
EMS OPERATIONS						
Hours spent in ED (Emerg. calls)	29,338	29,109	30,548	6,098	3,421	2,677
Hours spent on Calls (Emerg. calls)	50,339	50,764	53,369	9,904	5,500	4,404
% Task Time spent in ED	58%	57%	57%	62%	62%	61%
Total street hrs (incl. overruns)	350,657	367,315	373,782	59,448	31,658	27,790
Street Hours/Day	961	1,006	1,024	1,008	1,021	993
All Patients transported, all return priorities	40,426	41,371	41,885	6,517	3,574	2,943

Source: ADDAS Data Warehouse, Transfer of Care, EMS Scheduling.

Updated: 4 Apr 2011