

INFORMATION REPORT

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| TO: Chair and Members Emergency & Community Services Committee | WARD(S) AFFECTED: CITY WIDE |
| COMMITTEE DATE: May 4, 2011 | |
| SUBJECT/REPORT NO: Code Zero – EMS Monthly Report - January 1, 2011 to March 31, 2011 (HES11007) (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), directing Emergency Medical Services (EMS) to provide regular reports.

Information:

This is the third report for 2011.

Executive Summary (see Table 1)

In the first three months of the year the following demands were experienced;

- A slight decrease in the number of emergency calls; 180.3 per day (vs. 183.9 in 2010).
- An increase of 11 minutes (or 8.5%) in the average call duration (1 hour 40 minutes vs. 1hour 29 minutes in 2010) with the additional time spent attributed to the hospital interval. In the first two weeks of April the hospital interval increased by a minimum of 33% on any given day.
- 55 Code Zero Ambulance (CZA) events (vs. 94 CZA events for all of 2010). In the first 12 days of April there were 9 CZA events.

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In the first three months of the year the following performance was realized;

- The paramedic emergency response time was 11 min 1 second or less (vs. 10 minutes 15 seconds in 2010) in 9 of 10 emergency calls. The provincial target for Hamilton is 10 minutes 3 seconds.
- The average paramedic emergency response time was 6 minutes 55 seconds.
- There was an average of 25 hours of forced paramedic overtime per day (Jan* and Feb).
- There was an average of 41 missed paramedic meal breaks per day. In the first two weeks of April the average missed paramedic meal breaks is 49 per day**.

Table 1: Summary Data 2007 to January, February and March 2011

| | 2007 | 2008 | 2009 | 2010 | 2011 J/F/M |
|--|------------------------------------|------------------------------------|------------------------------------|------------------------------------|-----------------------------------|
| Frequency of Paramedic Calls | | | | | |
| Average number calls per day | 185 | 172 | 174 | 184 | 180 |
| Calls Dispatch Emergency or Urgent Request (i.e. Unconscious or Fracture Arm) | | | | | |
| % of Total Calls | 93% | 98% | 98% | 98% | 98% |
| Paramedic Time in the Hospital 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 | 62 min 45 sec |
| Code Zero Ambulance Event (CZAE) – One or less ambulance(s) available | | | | | |
| No. of CZAE | 44 | 66 | 82 | 94 | 55 (J/F/M) |
| 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 |
| Paramedic Emergency Response – First Vehicle – Provincial Target 10 min. 3 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 1 sec or LESS |
| Average time city-wide | 6 min 44 sec | 6 min 20 sec | 6 min 27 sec | 6 min 25 sec | 6 min 55 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 | 5 min 12 sec |
| Paramedic Forced Overtime | | | | | |
| Average Hours per Day | 14.6 | 18.2 | 21.6 | 22.0 | 25.0* |
| Paramedic Missed Meal Breaks | | | | | |
| Average Missed per Day | NA | 22.5 | 22.4 | 26.5 | 41** |

See Appendices A, B, and C attached to Report HES11007 for detailed results. The primary data source is the Ministry of Health and Long-Term Care (MOHLTC) and they continuously update the fields.

Reference Note: In 2000, the Hamilton Paramedics completed 158 calls per day with only 76% dispatched as emergency or urgent. The average time that the paramedics were at the hospital

was 31 minutes with the total time on a call was 67 minutes. There were no Code Zero Events; the response time was 10 minutes 12 seconds or less in 9 of 10 cases with an average response time of 6 minutes 37 seconds.

Summary of Changes in Demands and Impacts

The number of ambulance calls and the duration of those calls are the two leading factors that determine the consumption of paramedic unit hours and the remaining EMS capacity to respond to medical emergencies in the community. By May 2008 the Paramedic Service was achieving continuous emergency response time improvements coinciding with the full implementation of 2007 Council-endorsed resource enhancements and other operational efficiencies. The response time performance continued to improve for the next 27 months despite the increased time paramedics spent in the hospital emergency departments and some increases in call volume. In the last quarter of 2010 and the first quarter of 2011 there was an overall increase in the EMS time in the hospital coinciding with increases in; the emergency response times; Code Zero Ambulance Events; extended shift overtime for paramedics; and, paramedic missed meal breaks (see Table 1 and Appendix C).

Detailed Review

1) EMS / Hospital ED / Transfer of Care Time

In the first three months of 2011 the average time that the paramedics spent in the hospital ED to transfer care was 62 minutes 45 seconds (vs. 52 minutes 29 seconds in 2010; 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
 - 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 as a result of longer patient contact time

2) Paramedic Emergency Response Time

In the first three months of 2011 the paramedic emergency response time across the City was 11 minutes 1 second or less, for 9 of 10 patients, with some recovery in March. In 2010; the 90th percentile was 10 minutes 15 seconds or less. The 2011 paramedic emergency response time increase coincides with an increase in the EMS Hospital-Transfer of Care time.

3) Code Zero Ambulance Events

The term “Code Zero Ambulance” Events is a term used 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. In the first three months of 2011 there were 55 Code Zero Ambulance Events. During a typical CZA event;

- 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.

Conclusion

Over the last 10 years the Paramedic Service has observed a continuous increase in the duration of time that the paramedics spend in the hospital emergency department and a gradual increase in the number of calls for service. In addition, where previously ~30% of the EMS calls received were categorized as a low acuity deferrable response, today 98% of the calls are dispatched as an urgent or an emergency response and the paramedics are immediately deployed. Overall the Paramedic Service is facing continuous challenges to maintain the performance achievements recorded in 2008, 2009 and into 2010.

During the past three months the various community partner agencies including the MOHLTC CACC (ambulance dispatch) and the local hospitals, along with the front line paramedics and nurses, supported by the respective management teams have made commendable efforts to maintain public safety.

Appendix A
Appendix B
Appendix C

HAMILTON - EMERGENCY MEDICAL SERVICES

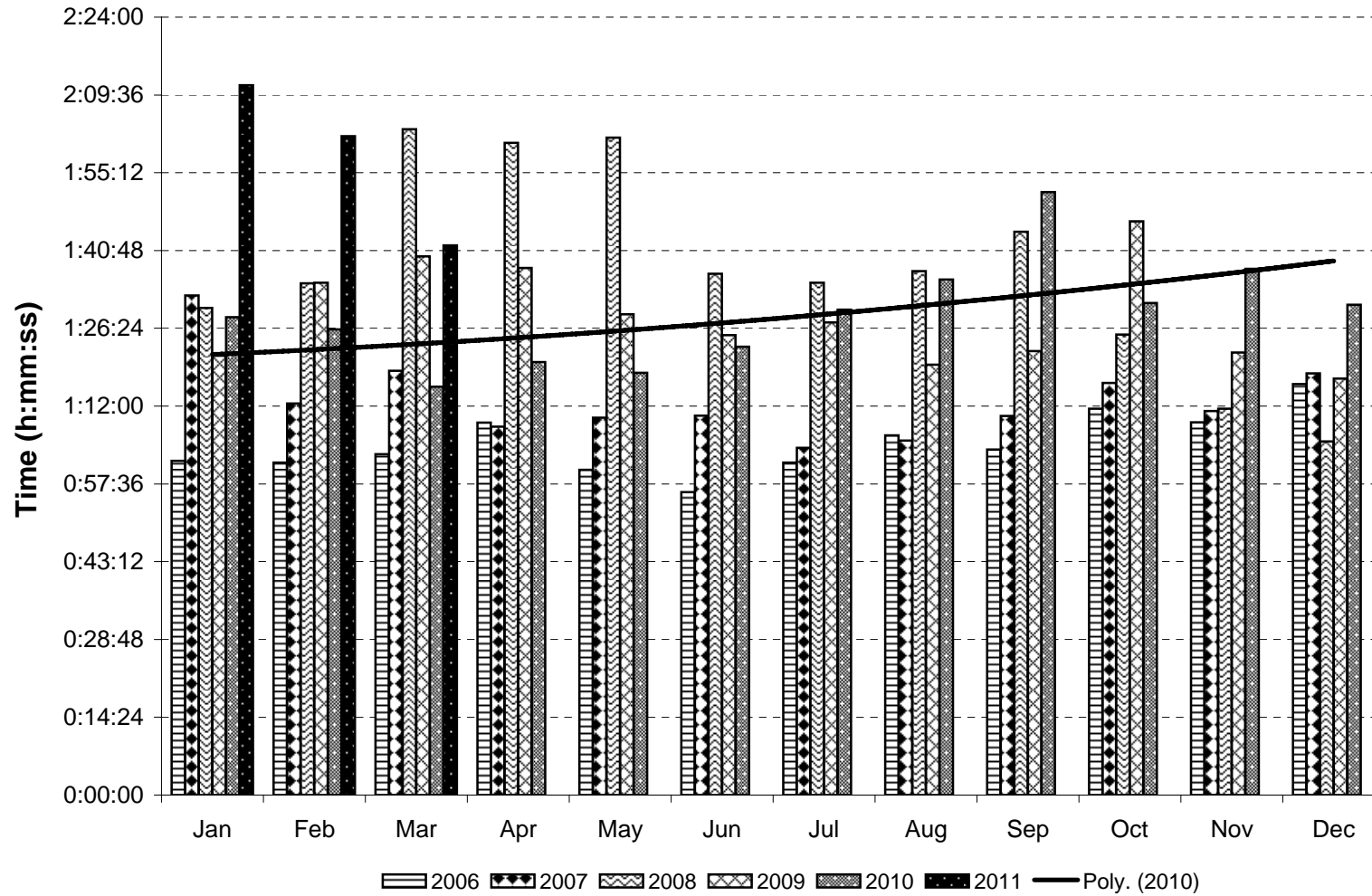
Code Zero Ambulance Events and EMS-Hospital Emergency Department Time

| | 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 | 16 | | | | | | | | | | 55 |
| 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 | 1:21:20 | 1:34:51 | 1:39:42 | 1:37:33 | 1:28:59 | 1:25:08 | 1:27:29 | 1:19:41 | 1:22:10 | 1:46:13 | 1:21:54 | 1:17:05 | |
| 2010 | 1:28:28 | 1:26:14 | 1:15:34 | 1:20:08 | 1:18:09 | 1:23:01 | 1:29:52 | 1:35:27 | 1:51:36 | 1:31:04 | 1:37:24 | 1:30:47 | |
| 2011 | 2:11:23 | 2:01:57 | 1:41:44 | | | | | | | | | | |

Source Data: MOHLTC ADDAS for 90th Percentile

Updated: 14 Apr 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 | Mar |
|---|---------------|---------------|---------------|-------------------|--------------|--------------|--------------|
| EMS CALL VOLUME | | | | | | | |
| EMS Calls Dispatched Priorities | | | | | | | |
| Non-Emergency Calls(1 & 2's) | 1,471 | 1,422 | 1,223 | 164 | 67 | 35 | 62 |
| 3 - Urgent | 13,164 | 16,502 | 18,882 | 4,360 | 1,604 | 1,353 | 1,403 |
| 4 - Life Threatening | 48,160 | 45,739 | 47,022 | 11,706 | 4,226 | 3,471 | 4,009 |
| Emergency Calls Priority 3 & 4's | 61,324 | 62,241 | 65,904 | 16,066 | 5,830 | 4,824 | 5,412 |
| TOTAL CALLS (1, 2, 3 & 4) | 62,795 | 63,663 | 67,127 | 16,230 | 5,897 | 4,859 | 5,474 |
| EMS Patients Transported with High Return Priority (Criteria: PickupUpperTier=38) | | | | | | | |
| Transported Life Threatening (Priority 4) | 3,854 | 3,900 | 3,840 | 908 | 288 | 279 | 341 |
| 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 | 190 | 185 | 196 | 187 |
| 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 | 11:01 | 10:54 | 11:27 | 10:39 |
| HES EMS Response Time - Average (T₂_Notified-T₄_ArriveScene) First Unit | | | | | | | |
| City of Hamilton (amal.) | 06:20 | 06:27 | 06:25 | 06:55 | 06:57 | 07:11 | 06:37 |
| - Ancaster | 08:23 | 08:03 | 08:01 | 09:13 | 09:29 | 09:21 | 08:49 |
| - Dundas | 05:56 | 07:30 | 06:13 | 06:40 | 06:47 | 06:58 | 06:20 |
| - Flamborough | 10:53 | 10:30 | 10:30 | 11:38 | 11:19 | 11:43 | 11:24 |
| - Glanbrook | 09:46 | 09:18 | 09:33 | 10:00 | 10:00 | 10:06 | 09:50 |
| - Hamilton | 05:47 | 05:54 | 05:58 | 06:26 | 06:29 | 06:41 | 06:09 |
| - Stoney Creek | 07:29 | 07:15 | 06:58 | 07:07 | 07:21 | 07:13 | 06:42 |
| OTHER EMS TIME STATISTICS | | | | | | | |
| Avg. Chute Time (Notified-Enroute) | 01:11 | 00:54 | 00:56 | 00:56 | 00:55 | 00:58 | 00:56 |
| Avg. Time-on-Task (Enroute-ClearDest.) | 1:28:40 | 1:27:20 | 1:28:53 | 1:40:17 | 1:43:52 | 1:41:40 | 1:35:18 |
| Avg. Scene Time (ArriveScene-DepartScene) | 17:01 | 17:39 | 17:57 | 18:38 | 18:36 | 18:36 | 18:42 |
| EMS-Hospital Off-load/Transfer of Care Time (All Return Codes) | | | | | | | |
| Transfer of Care Monitor - All Calls | | | | | | | |
| Average (Arrive-End of ToC) | 0:49:35 | 0:53:55 | 0:53:49 | 1:06:27 | 1:08:55 | 1:08:48 | 1:01:37 |
| EMS-Hospital ED Time | | | | | | | |
| 90 th percentile | 1:35:14 | 1:27:31 | 1:28:00 | 1:57:03 | 2:11:23 | 2:01:57 | 1:41:44 |
| Average (Arr_Dest-ClrDest) | 0:53:07 | 0:51:20 | 0:52:29 | 1:02:45 | 1:07:02 | 1:03:30 | 0:57:44 |
| EMS OPERATIONS | | | | | | | |
| Hours spent in ED (Emerg. calls) | 29,338 | 29,109 | 30,548 | 8,937 | 3,421 | 2,677 | 2,839 |
| Hours spent on Calls (Emerg. calls) | 50,339 | 50,764 | 53,369 | 14,684 | 5,501 | 4,404 | 4,779 |
| % Task Time spent in ED | 58% | 57% | 57% | 61% | 62% | 61% | 59% |
| Total street hrs (incl. overruns) | 350,657 | 367,315 | 373,782 | 90,136 | 31,658 | 27,790 | 30,688 |
| Street Hours/Day | 961 | 1,006 | 1,024 | 1,002 | 1,021 | 993 | 990 |
| All Patients transported, all return priorities | 40,426 | 41,371 | 41,885 | 9,861 | 3,575 | 2,944 | 3,342 |

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

Updated: 14 Apr 2011

Note: ^a refers to Jan-Mar 2011;