



Report To: Manitoulin-Sudbury DSB Program Planning Committee  
From: Michael Maclsaac, Chief of EMS  
Date: February 26, 2014  
Re: Balanced Emergency Coverage Update – Issue Report

## **RECOMMENDATION**

That the Board accept this report as the 6-month update regarding the Balanced Emergency Coverage changes made in the EMS Deployment Plan in June 2013.

## **REPORT**

### **Purpose**

This report will provide information on the statistical information from the period of June 1, 2013 to November 30, 2013. The review will be focused on the effect of the changes to the Deployment Plan as detailed in the [Balanced Emergency Coverage \(Standbys\) - Issue Report](#) of February 27, 2013.

### **Background**

The previous report as noted above altered the way we deployed our ambulances in an attempt to greater capture the needs of the citizens within our communities with an aim of reduced response times. Again, it has to be noted that a review of 21 months' worth of data was undertaken in the preparation of the initial report. After the Report was approved, the task of redeveloping the EMS Deployment Plan began. Once altered and communicated with all stakeholders the plan went into effect June 1, 2013. We have publicly stated that we would continually evaluate the plan on regular intervals. A three-month review was performed and presented in November and now we are further reviewing data up to the 6 months mark. After this report, we will prepare a report at the 12-month mark to evaluate a full years' worth of information. From there we should be satisfied with general reviews on an as needed basis all the while maintaining a detailed review of call response times on a monthly basis.

## History

The 21 months of data comprising the initial review revealed that balanced emergency coverage in our area statistically was, for the most part, an exercise in futility with just over 92% of the standbys resulting in going back to the original station having done nothing. In circumstances where calls occurred when on standby, 4.7% of the time the call response time was improved by being on standby (favourable standby) but 3.5% of the time the call response occurred in the area where the ambulance was originally located resulting in a unfavourable response time. In summary, placing ambulances in balanced emergency coverage situations resulted in inefficient, ineffective and sometimes detrimental results nearly 96% of the time.

After the change in deployment was made, we undertook a 3-month review. The [Balanced Emergency Coverage Update Report](#) was presented to the Board in November and generally revealed the following:

- We are now experiencing less movement of ambulances combined with more positive results regarding response times.
- While both favourable and unfavourable standbys have increased, the increase in favourable standbys is at 3.1% while the increase in unfavourable standbys is at 0.6%.
- Overall, unnecessary standbys have decreased by nearly 66%.
- Since implementation, Code 8 standbys represent only 13% of all vehicle movements as opposed to 47%, which has been the average for the past 5 years.
- Finally, the overall impact of the unfavourable response is less than average for the most serious of patient with Code 4 returns making up 14% of the unfavourable responses.

## Updated General Statistics

Again, it is extremely important to understand the method of analysis. When analyzing the original plan we looked at whether it would have been better to stay at the station as opposed to proceeding to the standby location. Analyzing the new Deployment model we are looking at whether staying at our station was better than proceeding to the old standby.

While we are cognizant of its inconsistencies, utilizing the MOHLTC ADRS database is the only way to achieve this review. This is the only database that tracks “perceived” code 8 standbys. We do not have an internal method to do so. The inconsistencies of the MOHLTC ADRS database is also the reason why we delay a review of the data. As time progresses ADRS typically becomes more accurate.

Under the new deployment model, the ambulance does not move to a standby location, as often, so call numbers (and associated data) would not normally be generated. Sudbury CACC however is processing standbys while still at base which creates call data from which we can evaluate the effectiveness of this Deployment Plan. This allows us to gauge the effectiveness of the new system by seeing if these “perceived” standbys made matters more favourable or less favourable. We do not have such agreement with Sault Ste. Marie CACC nor Timmins CACC. The nature of dispatching between two different

CACC's, as is that case in our Northern stations, really would make it unfeasible to suggest the same system would be able to function in a similar manner. As such, the statistics for Chapleau, Foleyet and Gogama below reflect 100% actual standbys.

The following table mirrors the style of those created for the original and 3-month reports. Please recall that the original stats encompassed a timeframe of twenty-one months and the statistics surrounding the Code 8's reflect, as noted above, the "perceived" standbys as well as any actual standbys requiring vehicle movement.

Station	Total Code 8's	Favourable	Unfavourable	Total Calls on Stby	Plus Minus	% Call on Stby	% Favourable Stby	% Unfavourable Stby
Chapleau	2	0	0	0	0	0.0%	0.0%	0.0%
Foleyet	4	0	0	0	0	0.0%	0.0%	0.0%
Gogama	4	0	0	0	0	0.0%	0.0%	0.0%
Killarney	11	0	0	0	0	0.0%	0.0%	0.0%
Noëlville	167	13	3	16	10	9.6%	7.8%	1.8%
Hagar	236	11	10	21	1	8.9%	4.7%	4.2%
Espanola	213	28	10	38	18	17.8%	13.1%	4.7%
Massey	302	15	15	30	0	9.9%	5.0%	5.0%
Gore Bay	228	18	8	26	10	11.4%	7.9%	3.5%
Mindemoya	377	40	7	47	33	12.5%	10.6%	1.9%
Little Current	439	29	26	55	3	12.5%	6.6%	5.9%
Wikwemikong	20	3	2	5	1	25.0%	15.0%	10.0%
<b>New Totals</b>	<b>2003</b>	<b>157</b>	<b>81</b>	<b>238</b>	<b>76</b>	<b>11.9%</b>	<b>7.8%</b>	<b>4.0%</b>
<i>Old Totals</i>						<i>8.2%</i>	<i>4.7%</i>	<i>3.5%</i>
<i>3 Month Total</i>	<i>1108</i>	<i>86</i>	<i>45</i>	<i>131</i>	<i>41</i>	<i>11.8%</i>	<i>7.8%</i>	<i>4.1%</i>

The overall data at the 6-month mark is encouraging. To see pretty well the same breakdown as at the 3-month mark indicates a consistency in the call volumes within the different communities. This provides for an interesting analysis, which will be part of a subsequent review.

### Specific Data Analysis

Chapleau, Foleyet, Gogama, and Killarney have no data regarding favourable or unfavourable responses. There were 15 standbys performed during the 3-month period and only six within the second 3 months. These six are most likely due to depleted resources and requests to the Field Superintendents to allow the standby.

For the remaining eight EMS stations further analysis can be done bringing the evaluation to a more granular level. Highlighting the areas of concern and areas of improvement and evaluating the current model directly against the former model can shed more light on this deployment change.

## Hagar & Noëlville

These two stations in Sudbury East have differing responsibilities. Noëlville does not move to a standby location and Hagar does move to standby at the Noëlville station when the Noëlville ambulance is on a call taking them to a hospital.

### Hagar Station

- 236 total standbys
  - 47 staying at the Hagar station
  - 186 moving to the Noëlville station
  - 3 at West Arm
- 11 favourable from the following standby locations:
  - 3 Hagar
  - 8 Noëlville
- 10 unfavourable from the following locations:
  - 1 Hagar
  - 9 Noëlville
- The 10 unfavourable calls occurred in the following areas:
  - 5 St. Charles
  - 2 Markstay
  - 2 West Nipissing
  - 1 Kukagami
- The end result of the 10 unfavourable responses were as follows:
  - 6 were cancelled calls
  - 2 involved Code 3 patients
  - 1 patient refused transport
  - 1 involved a Code 4 patient

### Noëlville Station

- 167 Standbys
  - 162 staying at the Noëlville station
  - 5 moving to the Hagar station
- 13 favourable
  - all while at the Noëlville station
- 3 unfavourable
  - all while at the Noëlville station
- The 3 unfavourable occurred in the following areas:
  - 1 St. Charles
  - 1 Warren
  - 1 West Nipissing
- The end result of the 10 unfavourable responses were as follows:
  - 2 were cancelled calls
  - 1 patient refused transport

Furthermore, a review of the Sudbury East area would reveal the following for current standby location vs. former standby location

Station	New Deployment			Old Deployment		
	Favourable	Unfavourable	Actual Movement	Favourable	Unfavourable	Actual Movement
Hagar	11	10	186	10	11	236
Noëlville	13	3	5	2	14	167
Total	24	13	191	12	25	403

## Espanola & Massey

For the Espanola and Massey Stations the data can be further detailed as below. Espanola and Massey are stations paired by geography in our Deployment Plan. Neither station regularly performs standbys.

### Espanola Station

- 213 standbys
  - 186 staying at the Espanola station
  - 14 moving to the Little Current Station
  - 9 moving to Manitoulin East Airport
  - 9 moving to the Massey Station
  - 3 moving to Moore's Corner
  - 1 moving to Whitefish Falls.
- 28 favourable
  - 21 staying at the Espanola Station
  - 3 at the Massey station
  - 3 at the Little Current Station
  - 1 at Manitoulin East Airport
- 10 unfavourable
  - all while remaining in Espanola
- The 10 unfavourable occurred in the following areas:
  - 6 Sagamok
  - 3 Massey
  - 1 Serpent River
- The end result of the 10 unfavourable responses were as follows:
  - 4 involved code 3 patients
  - 2 involved code 4 patients
  - 2 involved code 1 patients
  - 1 patient refused transport
  - 1 was a cancelled call

### Massey Station

- 302 standbys
  - 286 staying at the Massey station,
  - 14 moving to the Espanola Station
  - 1 to Wikwemikong
  - 1 to Gore Bay Station

- 15 favourable
  - all while remaining in Massey
- 15 unfavourable
  - 13 staying at the Massey Station
  - 2 moving to the Espanola Station
- The 15 unfavourable occurred in the following areas:
  - 10 Espanola
  - 1 Baldwin
  - 1 Massey
  - 1 Sagamok
  - 1 Nairn Centre
  - 1 Whitefish Falls
- The end result of the 15 unfavourable responses were as follows:
  - 5 involved code 3 patients
  - 4 were cancelled calls
  - 3 involved code 4 patients
  - 3 involved code 1 patients

Furthermore, a review of the Espanola and Massey stations would reveal the following for current standby location vs. former standby location

Station	New Deployment			Old Deployment		
	Favourable	Unfavourable	Actual Movement	Favourable	Unfavourable	Actual Movement
Espanola	28	10	46	17	21	213
Massey	15	15	16	13	17	302
Total	42	25	62	30	38	515

### **Gore Bay & Mindemoya**

For the Gore Bay and Mindemoya Stations, the data can be further detailed as below. Gore Bay and Mindemoya are stations paired by geography in our Deployment Plan. Neither station regularly performs standbys.

#### **Gore Bay Station**

- 228 standbys
  - 203 staying at the Gore Bay station
  - 12 in M'Chigeeng
  - 8 at Moore's Corner
  - 2 moving to the Mindemoya Station
  - 1 in Burpee
  - 1 in Little Current
  - 1 in Spring Bay
- 18 favourable
  - 15 staying at the Gore Bay Station
  - 2 at Moore's Corner
  - 1 in Burpee

- 8 unfavourable
  - all occurred while staying in the Gore Bay Station
- The 8 unfavourable occurred in the following locations:
  - 5 Mindemoya
  - 2 M'Chigeeng
  - 1 Assiginack
- The end result of the 8 unfavourable responses were as follows:
  - 4 were cancelled calls
  - 4 involved code 3 patients

#### Mindemoya Station

- 377 standbys
  - 106 staying at the Mindemoya station
  - 95 moving to the Little Current Station
  - 80 at Manitoulin East Airport
  - 34 moving to the Gore Bay Station
  - 39 moving to the Wikwemikong Station
  - 13 moving to the Espanola Station
  - 3 at Moore's Corner
  - 3 in M'Chigeeng
  - 3 in Manitowaning
  - 1 in Spring Bay
- 40 favourable
  - 6 staying in the Mindemoya Station
  - 11 at the Wikwemikong Station
  - 11 at the Little Current Station
  - 6 at Manitoulin East Airport
  - 6 at the Gore Bay Station
- 7 unfavourable
  - 3 unfavourable while staying in the Mindemoya Station
  - 2 at Manitoulin East Airport
  - 2 at Little Current Station
- The 7 unfavourable occurred in the following areas:
  - 2 in Gore Bay
  - 2 in Wikwemikong
  - 1 in Mindemoya
  - 1 in Sandfield
  - 1 in M'Chigeeng
- The end result of the 7 unfavourable responses were as follows:
  - 2 involved code 1 patients
  - 2 involved code 3 patients
  - 2 were cancelled calls
  - 1 involved a code 4 patient

Furthermore, a review of the Gore Bay and Mindemoya stations would reveal the following for current standby location vs. former standby location.

Station	New Deployment			Old Deployment		
	Favourable	Unfavourable	Actual Movement	Favourable	Unfavourable	Actual Movement
Gore Bay	18	8	25	6	20	228
Mindemoya	40	7	271	37	10	377
Total	58	15	396	43	30	605

### Little Current & Wikwemikong

For the Little Current and Wikwemikong Stations the data can be further detailed as below. Little Current and Wikwemikong are stations paired by geography in our Deployment Plan. Neither station regularly performs standbys.

#### Little Current Station

- 439 standbys
  - 283 staying at the Little Current Station
  - 113 moving to the Espanola Station
  - 22 in M'Chigeeng
  - 5 moving to the Gore Bay Station
  - 5 at Moore's Corner
  - 4 at Whitefish Falls
  - 3 moving to the Wikwemikong Station
  - 2 moving to the Massey Station
  - 1 in Walden
  - 1 moving to the Mindemoya station.
- 29 favourable
  - 11 staying in the Little Current Station
  - 13 on standby at the Espanola Station
  - 3 while on standby in M'Chigeeng
  - 2 while on standby at Moore's Corner
- 26 unfavourable
  - all occurred while staying in the Little Current Station
- The 26 unfavourable occurred in the following areas:
  - 16 in Wikwemikong
  - 3 in M'Chigeeng
  - 2 in Espanola
  - 2 in Assiginack
  - 2 in Mindemoya
  - 1 in Sheguindah
- The end result of the 7 unfavourable responses were as follows:
  - 9 were cancelled calls
  - 8 involved code 1 patients
  - 4 patients refused transport
  - 4 involved code 3 patients
  - 1 involved a code 4 patient

## Wikwemikong Station

- 20 standbys
  - 4 on standby at Moore's Corner
  - 4 on standby at Manitoulin East Airport
  - 5 moving to the Little Current Station
  - 3 moving to the Espanola Station
  - 3 in M'Chigeeng
  - 1 moving to the Massey Station
- 3 favourable
  - 2 while on standby at the Little Current Station
  - 1 while on standby at Moore's Corner
- 2 unfavourable
  - both occurred while being on standby at the Little Current Station
- The 2 unfavourable both occurred Wikwemikong
- The end result of the 2 unfavourable responses were as follows:
  - 1 involved a code 3 patient
  - 1 involved a code 4 patient

Furthermore, a review of the Little Current and Wikwemikong stations would reveal the following for current standby location vs. former standby location.

Station	New Deployment			Old Deployment		
	Favourable	Unfavourable	Actual Movement	Favourable	Unfavourable	Actual Movement
Little Current	29	26	156	31	24	439
Wikwemikong	3	2	20	2	3	20
Total	32	28	176	33	27	459

## Total Analysis

Below is a grand total review of what occurred under the new deployment model vs. what would have occurred under the old deployment model. A summary from the 3-month mark and 6-month mark is shown

	New Deployment			Old Deployment		
	Favourable	Unfavourable	Actual Movement	Favourable	Unfavourable	Actual Movement
3 month	86	44	375	63	67	1091
6 month	157	81	825	118	120	1982

This 6-month review reaffirms that information of the 3-month report. Favourable responses still outnumber unfavourable ones under the current model. A predicted account of what would have occurred under the old deployment model shows a system where the division of favourable and unfavourable responses is almost 50/50.

Lastly, a breakdown on the return priority of the calls that occurred in an unfavourable response will highlight the actual needs of the patient who has experienced a possible extended response time. The return priorities in those situations reveal the following:

- 35% of the calls were cancelled prior to the ambulance arriving on scene
- 27% of the calls were Code 3 returns
- 19% of the calls were Code 1 returns
- 11% of the calls were Code 4 returns
- 9% of the calls the patient refused treatment and transportation

## **Conclusion**

At the 6-month mark, the change in deployment has shown much benefit. The statistics after 3 months were truly overwhelming in their success. It was predicted that there would be a beneficial impact on responses but not to the extent that we have experienced. As we have moved to full implementation discussions with Sudbury CACC, the largest ambulance dispatch centre in our area, have shown no real negative impacts. The paramedics are getting accustomed to the response criteria and are seeing merit in not being left on the side of a road for hours at a time on standby.

We have witnessed 157 favourable responses in conjunction with 81 unfavourable responses due to our new deployment plan. Predicting what would have occurred under our old deployment model we would have seen 39 less favourable responses with also 39 more unfavourable ones. That is a swing of 78 responses out of a total of 238 that have been better served by the new system.

All the while experiencing better responses our ambulances are moving far less. So not only has this been an effective change, it has also been an efficient one. We are now experiencing less movement of ambulances combined with more positive results regarding response times.

Finally, the overall impact of the unfavourable response is less than average for the most serious of patient with Code 4 returns making up 11% of the unfavourable responses. The overall average we would expect for a code 4 return is 15-20% of our code 4 dispatched out calls.

So far, the changes in the EMS Deployment Plan have worked out better than predicted and are consistent at the first two review points. Monitoring of this system will continue and changes can be implemented at any point where there is an overall detriment to the citizens within our communities.