Non-Urgent Patient Transportation in the North East LHIN:

An Evidence-Based 3rd Party Review & Restructuring Plan

June 9, 2014

Prepared by Performance Concepts Consulting Inc.

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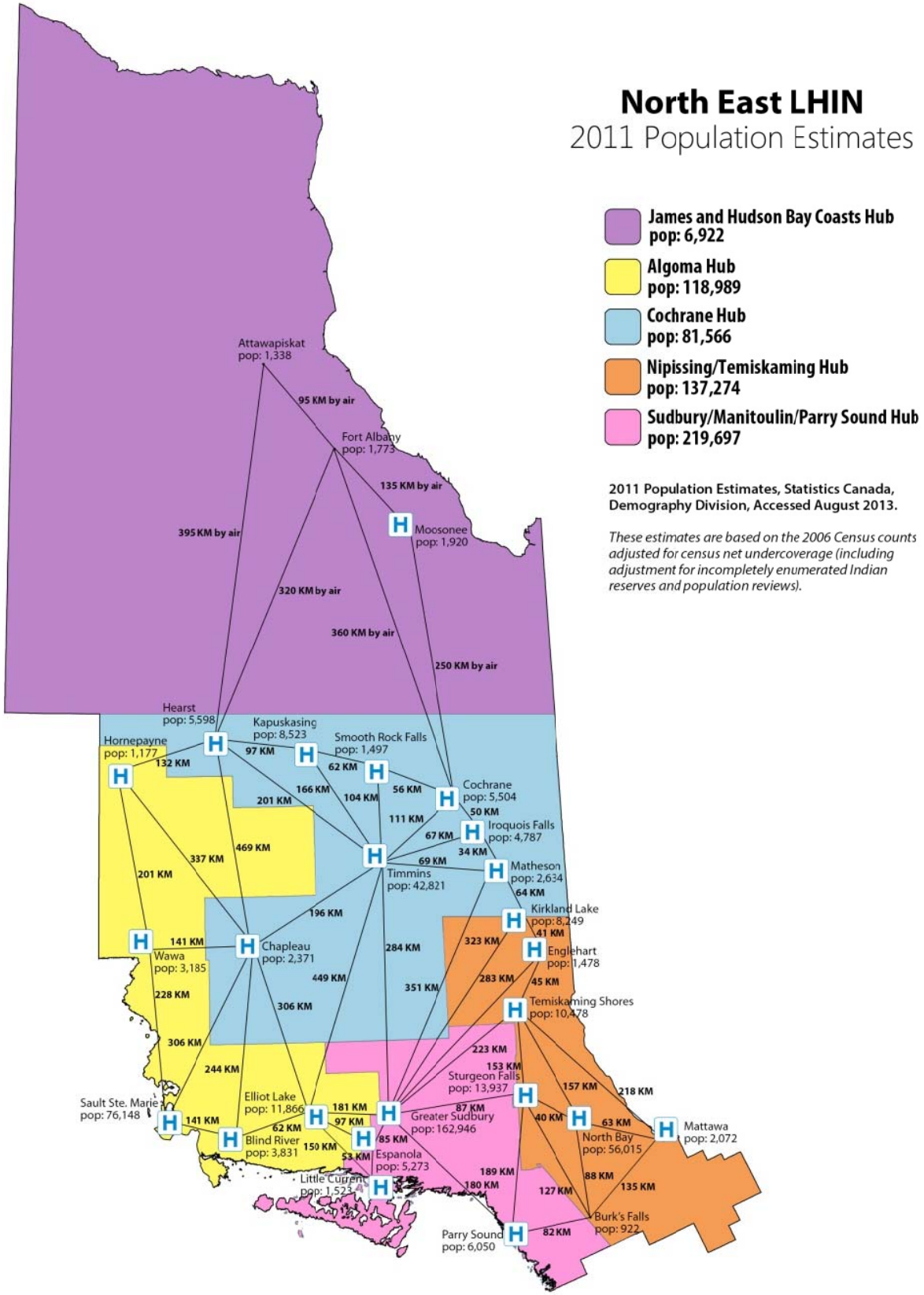
Executive Summary

A review of non-urgent patient transportation across Northeastern Ontario was begun in June 2013 by the North East Local Health Integration Network (NE LHIN) in response to concerns about the current system expressed by patients, hospitals and Emergency Medical Service (EMS) providers. The review's objective was to develop a model of transportation that provides timely, safe and cost-effective non-urgent patient transfers into and out of hospital centres in Northeastern Ontario, while safeguarding needed EMS coverage in communities across the region.

This review of non-urgent patient transfers had been identified as a key project in the NE LHIN's 2013-2016 Integrated Health Service Plan (under the care transitions and coordination priority). Transportation is also a key enabler of the care models and pathways (i.e. flow in and out of the region's hub hospitals) identified in the LHIN's Clinical Services Review, completed in March 2014.

A Project Advisory Committee was created in June 2013 to oversee the review, and Performance Concepts Consulting Inc. was retained (via RFP) to execute the approved project work plan.

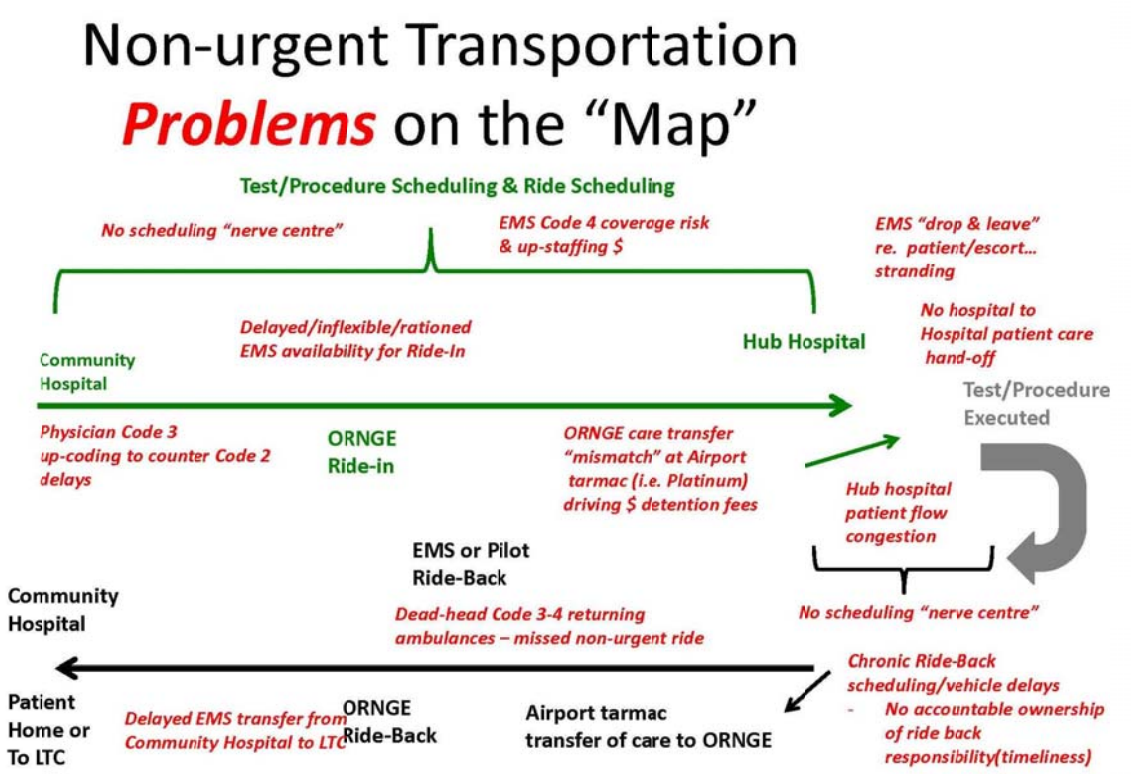
The map below illustrates the relatively long distances between hospitals, and sparse population densities, associated with non-urgent inter-facility patient transportation flows across the vast North East LHIN geography.


North East LHIN
2011 Population Estimates
James and Hudson Bay Coasts Hub
pop: 6,922
Algoma Hub
pop: 118,989
Cochrane Hub
pop: 81,566
Nipissing/Temiskaming Hub
pop: 137,274
Sudbury/Manitoulin/Parry Sound Hub
pop: 219,697
2011 Population Estimates, Statistics Canada, Demography Division, Accessed August 2013.
These estimates are based on the 2006 Census counts adjusted for census net undercoverage (including adjustment for incompletely enumerated Indian reserves and population reviews).
Attawapiskat
pop: 1,338
95 KM by air
Fort Albany
pop: 1,773
135 KM by air
395 KM by air
Moosonee
pop: 1,920
320 KM by air
360 KM by air
250 KM by air
Hearst
pop: 5,598
Kapuskasing
pop: 8,523
Smooth Rock Falls
pop: 1,497
Hornepayne
pop: 1,177
97 KM
132 KM
62 KM
166 KM
104 KM
56 KM
Cochrane
pop: 5,504
201 KM
111 KM
50 KM
Iroquois Falls
pop: 4,787
67 KM
34 KM
337 KM
469 KM
69 KM
Timmins
pop: 42,821
Matheson
pop: 2,634
201 KM
64 KM
Kirkland Lake
pop: 8,249
196 KM
41 KM
141 KM
Wawa
pop: 3,185
Chapleau
pop: 2,371
284 KM
323 KM
Englehart
pop: 1,478
449 KM
351 KM
283 KM
45 KM
228 KM
306 KM
Temiskaming Shores
pop: 10,478
306 KM
223 KM
244 KM
153 KM
Sturgeon Falls
pop: 13,937
157 KM
218 KM
Sault Ste. Marie
pop: 76,148
Elliot Lake
pop: 11,866
181 KM
87 KM
141 KM
97 KM
Greater Sudbury
pop: 162,946
40 KM
63 KM
Mattawa
pop: 2,072
62 KM
Blind River
pop: 3,831
150 KM
85 KM
North Bay
pop: 56,015
53 KM
Espanola
pop: 5,273
189 KM
88 KM
Little Current
pop: 1,523
180 KM
127 KM
135 KM
Burk's Falls
pop: 922
Parry Sound
pop: 6,050
82 KM

The review's stakeholder engagement and execution process consisted of the following components:

- 1:1 interviews with management and frontline staff representing all 25 hospitals and 8 EMS providers in the NE LHIN region, which consists of five geographic transfer "hubs";
- Three rounds of hub-wide consultations with community and secondary/tertiary hospitals;
- Three data driven non-urgent transfer "summit meetings" with the 8 EMS Chiefs covering the North East;
- Working session with the 5 Northeastern Ontario Central Ambulance Communication Centres (CACCs);
- Ongoing Project Advisory Committee evaluation of findings and potential restructuring scenarios;
- Final report with system restructuring recommendations provided to the LHIN CEO in June 2014.

The review's stakeholder consultations and EMS data modeling were used to conduct a non-urgent transportation situation analysis and construct a patient journey "map" – emphasizing current system performance problems requiring restructuring solutions. The system problems "map" appears below.



Beyond stakeholder qualitative feedback, the review also incorporated extensive quantitative data modeling undertaken by Performance Concepts using the EMS Electronic Patient Care Reporting system (ePCR). Detailed modeling (using 2012 data) informed the review's restructuring recommendations. Modeling reports included the following:

- EMS/Non-EMS non-urgent transfer volume mapping of IN/OUT transfer flows by hospital service delivery Hub;
- EMS mean patient transfer duration (minutes per transfer by Hub);
- EMS transfer outputs (transfer hours delivered by Hub);
- EMS 12-hour daytime "peak" service busyness (utilization rate by ambulance base);
- EMS overlapping emergency/non-urgent calls (by ambulance base/coverage zone);
- LHIN-wide patient escort costing/potential restructuring savings estimates

Highlights of the transfer flow data modeling across the LHIN are contained in the following figures. The first figure documents IN/OUT non-urgent transfer volume flows by the five transfer hubs in the region. The second figure sets out “long-haul” vs. “short-haul” duration non-urgent transfer hours delivered by hub.

	IN	OUT	Difference
Sudbury EMS	1,941	2,844	-903
Platinum	712	1,963	-1,251
Sudbury Total	**2,653**	**4,807**	**-2,154**
North Bay	**731**	**1,099**	**-368**
Sault	**584**	**1.210**	**-626**
Timmins	**1,686**	**2,178**	**-492**
New Liskeard	**455**	**489**	**-34**
Total	***6,109***	***9,783***	***-3,674***

	2012 Total Code 1-2 Transfer *Output Hours* Delivered by EMS	2012 EMS Code 1-2 “Long” Transfer *Output Hours* That Could Be Replaced	2012 EMSCode 1-2 “Short” Transfer *Output Hours* Where Replacement Not Necessary
Sudbury	**6,477 Hours of Output (Total)**	**4,357 Hours of “Long” Transfer Output (Replaceable)**	**2,120 Hours of “Short” Transfer Output**
N Bay	**1,727 Hours of Output (Total)**	**939 Hours of “Long” Transfer Output (Replaceable)**	**788 Hours of “Short” Transfer Output**
Sault	**1,910 Hours of Output (Total)**	**1,015 Hours of “Long” Transfer Output (Replaceable)**	**895 Hours of “Short” Transfer Output**
Timmins	**4,910 Hours of Output (Total)**	**3,510 Hours of “Long” Transfer Output (Replaceable)**	**1,400 Hours of “Short” Transfer Output**
New Liskeard	**1,392 Hours of Output (Total)**	**1,211 Hours of “Long” Transfer Output (Replaceable)**	**181 Hours of “Short” Transfer Output**
Total	***16,416 Hours of Output (All hubs)***	***11,032 Hours of “Long” Transfer Output (Replaceable)***	***5,384 Hours of “Short” Transfer Output***

Additional data modeling and analysis conducted by Performance Concepts explored key risk factors associated with i) EMS system "peak" busyness (12-hour daytime utilization rates) and ii) frequency of overlapping emergency and non-urgent calls within a given ambulance base's coverage zone. The following evidence-based modeling conclusions are compelling:

- Across the LHIN, there is a clear separation of non-urgent transfers into "short haul" & "long haul" duration categories for purposes of system restructuring.

- Long-haul non-urgent transfers represent significant Code 4 EMS response risk. The result is eroded EMS response times & unsustainable levels of system busyness at certain ambulance bases.

- Overlapping Code 1-2 & 3-4 calls are creating frequent coverage breakdowns at certain bases. At these bases, EMS units are drawn out of response zones creating a "zero available units" problem characterized by unacceptable response times.

- Short-haul non-urgent transfers do NOT create risk of drawing EMS units out of response zones. There is no compelling reason why EMS and contracted providers cannot continue to deliver these local transfers with existing fixed resources.

The review's in-depth qualitative stakeholder consultations and evidence-based data modeling have together delivered a rigorous situation analysis that has yielded the following *overall system performance conclusions*:

- The current non-urgent transportation system is not sustainable from a patient care or financial perspective for community hospitals. However, significant financial savings are possible with successful restructuring.

- The current non-urgent transportation system is a major problem creating patient flow blockages at hub hospitals.

- The patient escort model of "care and control" is not sustainable for community hospitals unless transportation becomes far more reliable in/out of hub hospitals.

- Non-urgent transportation system reliability improved significantly when the LHIN pilot projects were implemented in 2013.

- The system needs a permanent, non-ambulance solution for long-haul transfers in the North East.

System Restructuring Recommendations

The review's non-urgent transportation restructuring recommendations are organized into the following categories:

1. New Operational Model
2. Hospital-Based Business Process Improvements
3. Leadership, Policy & Decision-Making
4. System Funding
5. Stakeholder Communications

1. New Operational Model

New Operational Model recommendations will create two distinct service delivery channels for short-haul versus long-haul non-urgent transfers. EMS services across the LHIN, and non-EMS transfer resources in Sudbury and North Bay, will continue to deliver short-haul transfers that fall within their existing coverage zones. Long-haul non-urgent transfers will be delivered via a route-based model with scheduled legs serviced by multi-patient vehicles. The proposed legs and vehicle configurations are as follows (note – these are bi-directional routes):

ROUTE LEGS	Route Length	Vehicle Load	Forecast Service Hours
1. Elliot Lake to Espanola	95km	Dual Stretcher	M-F 8 hours (2,080 annual hours)
2. Mindemoya to Little Current to Espanola	91km	Dual Stretcher	M-F 8 hours (2,080 annual hours)
3. Espanola to Sudbury Corridor	70km	3-4 stretcher	M-F 12 hours (3,120 annual hours)
4. North Bay to Sturgeon Falls to Sudbury	129km	3-4 stretcher	M-F 12 hours (3,120 annual hours)
5. Kapuskasing to Smooth Rock Falls to Timmins	166km	3-4 stretcher	M-F 12 hours (3,120 annual hours)
6. Timmins to Matheson to Iroquois Falls to Cochrane	224km	3-4 stretcher	M-F 12 hours (3,120 annual hours)
7. New Liskeard to Englehart to Kirkland Lake to Matheson	195km	3-4 stretcher	M-F 12 hours (3,120 annual hours)
8. Blind River to Thessalon to Sault Corridor	145km	Dual Stretcher	M-F 8 hours (2,080 annual hours)

In two instances (West Parry Sound and Chapleau) where dedicated long-haul route-based transfer resources are not warranted due to volume, consideration should be given to an EMS up-staffing envelope to deliver the long-haul patient transfers.

The New Operational Model will also feature the following:

- One or more CACCs to dispatch long haul non-urgent transfer vehicles – as well as traditional ambulance resources when appropriate (i.e. short haul EMS, dead head returns);
- New information technology tools to coordinate ride scheduling with test/procedure scheduling.

2. Hospital–Based Business Process Improvements

Recommendations concerning Hospital–Based Business Process Improvements focus on eliminating the current system of community hospital-funded staff escorts accompanying non-urgent patients to hub hospitals for tests/procedures (i.e. continuity of patient care and control). Leveraging process improvement insights gained from a 2013-14 North West LHIN pilot project currently underway at the Thunder Bay Regional Health Sciences Centre, hub hospitals in the North East LHIN will phase in staffed patient holding areas to provide basic care to non-urgent patients arriving from community hospitals. Beginning with a pilot project recommended to occur in 2015, the use of community hospital patient escorts should be reduced and then eliminated over time. Patient escort savings at community hospitals will be tracked, and will be used to offset hub hospital holding area costs.

3. Leadership, Policy & Decision-Making

Recommendations concerning Leadership, Policy & Decision-Making Model/Tools focus on establishing a multi-stakeholder, permanent Non-Urgent Transportation Leadership Working Group to lead the implementation and oversight of the new system across the North East LHIN. Recommendations also address the need for improved data management practices/standards within the non-urgent patient transportation system. Improved data management will, in turn, support recommended performance monitoring and target setting toolkits.

4. System Funding

System Funding recommendations would see the creation of a new LHIN-wide non-urgent transportation funding model defined as follows:

- EMS providers will continue funding "short-haul" non-urgent patient transportation within their existing approved budgets;
- Hub hospitals that currently fund non-urgent transfer services (i.e. HSN and NBRHC) will continue to do so for short-haul patient transfers;
- New funding will be directed to providers of the new scheduled long-haul transfer routes (likely selected via RFP). Additional funded vehicle hours of long-haul patient transfer service will be added to the North Bay transfer car and the Sudbury EMS non-ambulance community flow car. EMS up-staffing funding is also recommended to support: Parry Sound EMS predominantly "south bound" non-urgent transfer patterns outside the LHIN; and Manitoulin-Sudbury EMS transfers in and out of Timmins from Chapleau.
- Operational savings from all affected health care partners associated with non-urgent patient transportation restructuring should be considered for reallocation/reinvestment where appropriate.

5. Stakeholder Communications

Recommendations concerning Stakeholder Communications will improve stakeholder understanding of the review's change management agenda, and secure buy-in to the necessary restructuring actions. The recommendations outline communications strategies/messages that should be implemented for a variety of key target audiences (e.g. the public, community and hub hospital physicians, hospital administrative and front-line staff, EMS providers, CACCs, ORNGE).

Implementation of Change/Restructuring

The review sets out a three-year critical path for implementing change/restructuring. The critical path implementation activities are categorized as Do NOW (Year 1), Do SOON (Year 2) and Do LATER (year 3).

Do NOW work focuses on establishing the new decision-making and system management units – the Leadership Working Group, the Coordinating Centre, the possible long-haul transfer provider RFP, and a dedicated project management resource to drive the non-urgent transportation restructuring agenda forward.

Do SOON work addresses the start-up challenges of the new operational model, including phased implementation of transfer legs and execution of capital improvements for hub hospital transfer patient holding areas. Budget development, data management reforms, and performance target development will also fall into this timeframe.

The Do LATER period will feature the final roll-out of hospital business process changes around staffed patient “care and control” holding areas expected to generate significant savings in community hospital patient escort costs.