

Committee of the Whole

March 7, 2019
Presented by:
Kevin Smith, Chief













Objective of COTW

Provide information to Council to assist with key decisions regarding the future of Niagara EMS as a Mobile Integrated Health system.





Agenda

- 1. Interactive displays (pre-meeting)
- 2. Service overview
 - Recent History
 - Current State
 - Future State
- 3. Discussion, questions and answers





History of Niagara EMS

- 2000 land ambulance downloaded
- 2000-2004 contract service provider (HDH)
- 2004 land ambulance brought in-house
- 2005 ambulance dispatch acquisition as 5 year Demonstration Project
- 2010 ambulance dispatch Performance Agreement with Province
- Establishment of High Performance System





High Performance System (HPEMS)

- Not measured by expense or extravagance
- Measured by <u>simultaneous</u> delivery of
 - >clinical sophistication;
 - response time reliability; and
 - > economic efficiency



Why HPEMS?

"As EMS providers, we invite the public to literally trust us with their lives. We advise the public that, during a medical emergency, they should rely upon our organization, and not any other. We even suggest that it is safer to count on us, than the resources of one's own family and friends. We had better be right..."

Jack Stout, father of HPEMS circa 1980





Level of Service Responsibility

- Every upper-tier municipality shall establish, in accordance with the Act, a response time performance plan (RTPP) for its community
- Niagara Region is responsible to establish and maintain these performance targets in a manner that best meets the needs of the community
- Current RTPP based on 2011 actual performance





Response Time Reliability Current RTPP

CTAS	Target Time (mins)	Target %	2015	2016	2017	2018
SCA	6	55				
1	8	80				
2	11	90				
3	15	90				
4	20	90				
5	30	90				





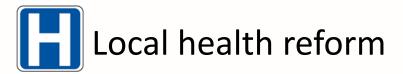
Response Time Reliability Performance Results

CTAS	Target Time (mins)	Target %	2015	2016	2017	2018	
SCA	6	55	57.72%	52.16%	60.64%	59.25%	
1	8	80	77.15%	75.37%	76.92%	76.23%)
2	11	90	84.73%	83.58%	82.48%	81.75%	ノ
3	15	90	89.91%	88.77%	85.41%	82.70%	
4	20	90	94.77%	95.34%	91.93%	89.38%	\
5	30	90	99.59%	99.29%	98.98%	98.80%	ノ

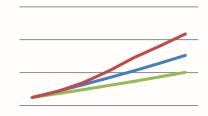




Last 5 Years



Call volume increases





12 times at Council in 4 years

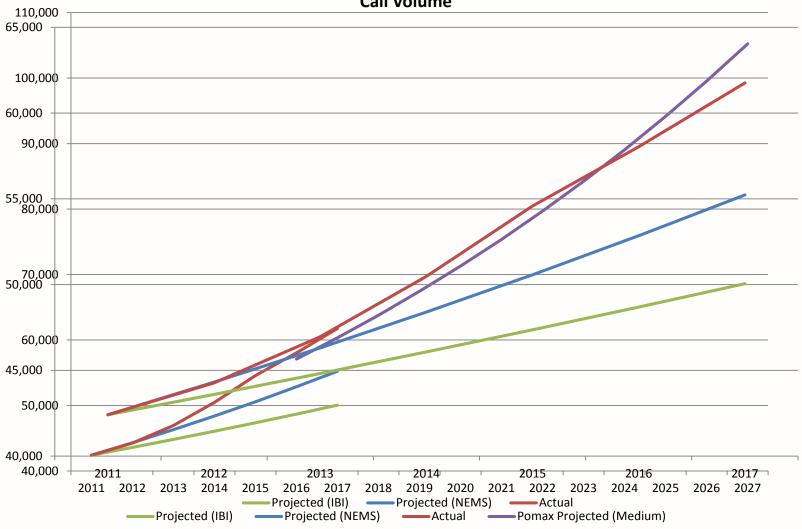
3 external system reviews







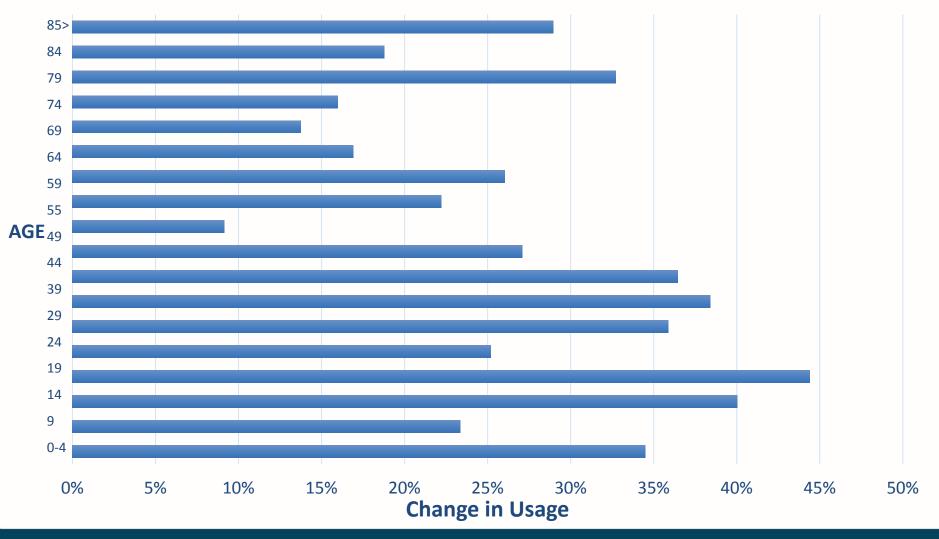
EMS Call Volume Projected vs Actual Call Volume







Change in Usage Rate by 5 Year Cohort - Niagara 2011 v 2016







The Silver Tsunami?

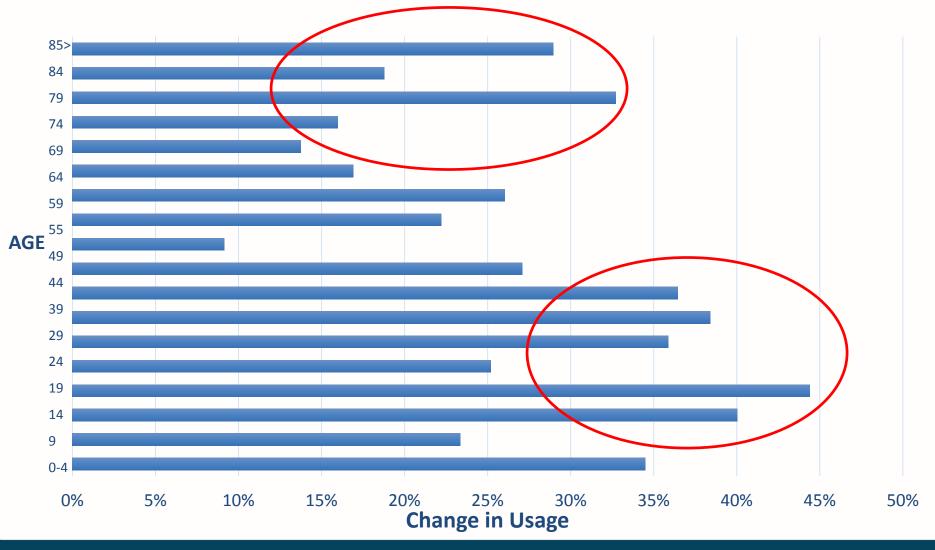
Year	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+
2015	20,488	21,925	22,672	26,572	30,485	27,282	24,694	24,212	26,076	30,113	36,534	34,503	31,229	28,564	21,782	16,148	12,599	8,409	4,811
2016	20,620	21,879	22,558	25,664	30,277	27,964	25,245	24,250	25,275	29,264	36,296	35,197	32,174	29,215	22,630	16,700	12,626	8,672	5,196
2017	20,894	21,768	22,536	25,115	29,570	28,741	25,803	24,288	24,788	28,720	35,298	35,912	33,011	28,944	24,497	17,406	12,699	8,816	5,571
2018	21,151	21,666	22,594	24,687	28,951	29,247	26,176	24,481	24,676	28,058	33,869	36,619	33,710	29,318	25,771	18,306	12,923	8,876	5,912
2019	21,390	21,553	22,710	24,282	28,327	29,482	26,703	24,817	24,597	27,404	32,491	37,081	34,304	30,162	26,644	19,172	13,255	8,894	6,249
2020	21,628	21,524	22,772	24,106	27,500	29,384	27,338	25,239	24,445	26,721	31,395	37,341	34,883	31,030	27,600	19,947	13,569	9,038	6,512
2021	21,840	21,650	22,721	24,022	26,681	29,161	27,917	25,789	24,524	25,944	30,534	37,054	35,623	31,971	28,272	20,768	14,085	9,105	6,822
2022	22,031	21,910	22,603	24,020	26,184	28,509	28,572	26,339	24,597	25,485	29,968	36,032	36,364	37,822	20,002	22,536	14,729	9,193	7,059
2023	22,186	22,165	22,494	24,107	25,802	27,935	29,027	26,708	24,822	25,388	29,306	34,600	37,099	33,556	28,510	23,770	15,541	9,393	7,239
2024	22,307	22,413	22,388	24,239	25,473	27,362	29,253	27,230	25,170	25,338	28,661	33,225	37,600	34,195	29,368	24,644	16,325	9,680	7,406
2025	22,380	22,676	22,369	24,328	25,337	26,623	29,200	27,855	25,597	25,219	28,012	32,146	37,881	34,826	30,271	25,586	17,033	9,970	7,613
2026	22,411	22,911	22,508	24,301	25,306	25,892	29,016	28,422	26,130	25,327	27,270	31,328	37,599	35,618	31,233	26,276	17,798	10,413	7,814
2027	22,396	23,117	22,787	24,205	25,351	25,448	28,447	29,063	26,668	25,434	26,849	30,788	35,603	36,392	32,125	26,207	13,403	10,942	7,989

Ontario Ministry of Finance Population Projection to 2027





Change in Usage Rate by 5 Year Cohort - Niagara 2011 v 2016







The Silver Tsunami + The Gen Y&Z

Year	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+
2015	20,488	21,925	22,672	26,572	30,485	27,282	24,694	24,212	26,076	30,113	36,534	34,503	31,229	28,564	21,782	16,148	12,599	8,409	4,811
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Top Five EMS Transports to EDs in Niagara (2013-2015)

Niagara	1	2	3	4	5
0<1 years	Resp. Distress	Seizure/Post Ictal	General Illness/ Weakness	Other Medical/ Trauma	Newborn/Neonatal
1-4 years	Seizure/Post Ictal	General Illness/ Weakness	Resp. Distress	Soft Tissue Pain/ Trauma/Edema	Other Medical/ Trauma
5-9 years	Musculoskeletal Trauma	Seizure/Post Ictal	Soft Tissue Pain/ Trauma/Edema	Behaviour/ Psychiatric	Resp. Distress
10-14 years	Musculoskeletal Trauma	Behaviour/ Psychiatric	Soft Tissue Pain/ Trauma/Edema	Syncope	Seizure/Post Ictal
15-19 years	Musculoskeletal Trauma	Behaviour/ Psychiatric	Alcohol Intoxication	Soft Tissue Pain/ Trauma/Edema	Drug Overdose
20-24 years	Musculoskeletal Trauma	Behaviour/ Psychiatric	Abdominal Pain NYD	Soft Tissue Pain/ Trauma/Edema	Seizure/Post Ictal
25-44 years	Musculoskeletal Trauma	Abdominal Pain NYD	Behaviour/ Psychiatric	Soft Tissue Pain/ Trauma/Edema	GI Problems/Pain/ Vomiting/Nausea
45-64 years	General Illness/ Weakness	Musculoskeletal Trauma	Abdominal Pain NYD	Soft Tissue Pain/ Trauma/Edema	Ischemic Chest Pain
65-74 years	General Illness/ Weakness	Resp. Distress	Musculoskeletal Trauma	Abdominal Pain NYD	GI Problems/Pain/ Vomiting/Nausea
75-84 years	General Illness/ Weakness	Musculoskeletal Trauma	Resp. Distress	GI Problems/Pain/ Vomiting/Nausea	Abdominal Pain NYD
85+ years	General Illness/ Weakness	Musculoskeletal Trauma	Resp. Distress	Soft Tissue Pain/ Trauma/Edema	GI Problems/Pain/ Vomiting/Nausea





Offload Delays aka Transfer of Care

ER delays have cost taxpayers millions: Niagara **EMS**

Waits to offload patients have increased steadily since closure of emergency at the former Hotel Dieu Hospital

NEWS Apr 11, 2007 by Paul Forsyth Niagara This Week - St. Catharines



Niagara wants answers about offload delays

Ambulances idling outside hospitals began to skyrocket in August 2016

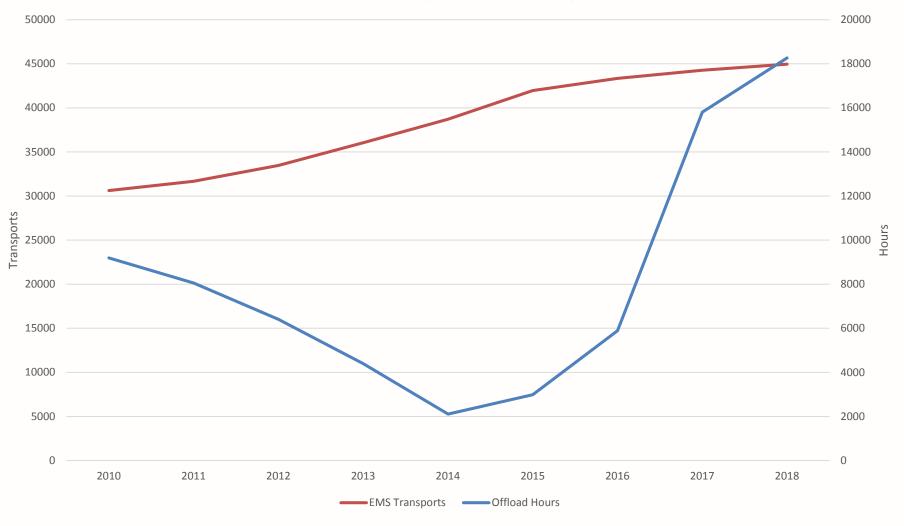
Mar 06, 2018 by Allan Benner

St. Catharines Standard





Offload hours v transport to hospital volumes







Hospital Transfer of Care Mitigation efforts

- Double-up patients
- •Fit2Sit
- Offload Nurse (MOH)
- Patient Distribution

- Lowering of stretchers
- Data sharing with NH
- Kaisan events with NH
- Weekly discussion with NH
- ✓ 2019 YTD OLD decrease of 42% compared to 2018





Reports to Council previous 4 years

- **COTW April 2014** Status of Niagara's Emergency Medical Services
- PHD 17-2014 EMS System Performance Sustainability
- PHD 17-2015 EMS System Performance Sustainability
- PHD 05-2016 Niagara EMS Master Plan
- PHD 08-2016 Master Plan Award of RFP
- PHD 19-2016 Niagara EMS Mobile Integrated Health Community Paramedic Update
- PHD 21-2016 Update to EMS System Performance Sustainability
- PHD 05-2017 Niagara Emergency Medical Services (NEMS) Pomax Master Plan Review
- PHD 17-2017 Niagara Emergency Medical Services System Design Changes
- PHD 19-2017 NEMS Resource Investment
- PHD 05-2018 Niagara EMS/Niagara Health Transfer of Care Improvement
- PHD 06-2018 Budget Amendment NEMS System Redesign Strategy





Outcome of Council Reports

- 2014 <u>Recommended</u>: 4 additional ambulances, 2 supervisor, 2 support staff <u>Result</u>: approved 2 ambulances and balance referred to 2015 budget
- <u>Recommended</u>: **2 ambulances**, 2 supervisors, 2 support staff

 <u>Result</u>: referred to 2016 budget with eventual approval for

 1 ambulance, 2 supervisors, 2 support staff, directed to conduct external review
- **2016** External Review Undertaken by Pomax
- 2017 Review recommended 2 ambulances immediately (based on 2015 data)

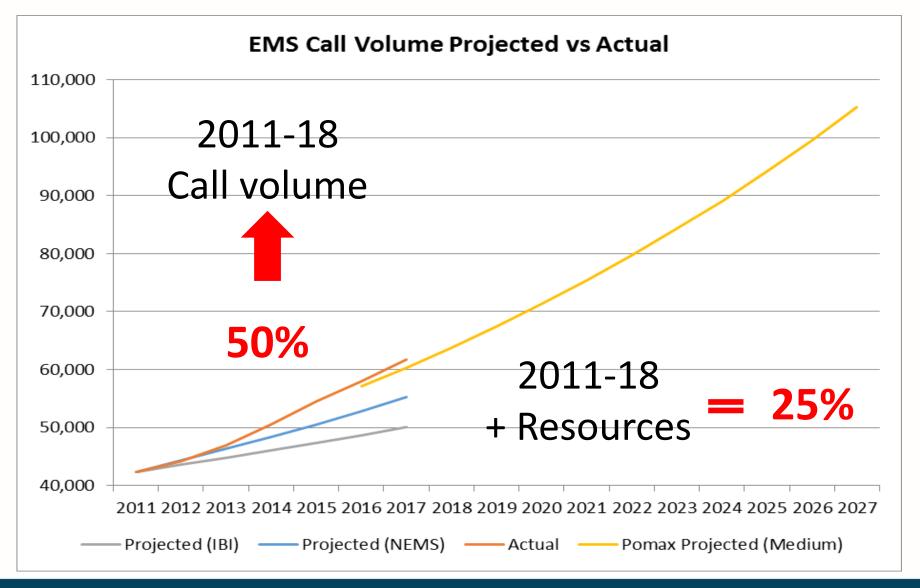
Recommend: 1.5 ambulances

Result: referred to 2018 budget with eventual approval for

1 ambulance











Gap in Resourcing

Table 33: Ambulance and Paramedic Requirement Models - 10-year Time Frame

Paramedic Enhancements Levels	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Totals
Low Growth Model 3.6% - Ambulances	2		1			1		1		1		1	7
Paramedic FTE	21.6		10.8			10.8		10.8		10.8		10.8	75.6
Supervisors		1.4		1.4		1.4			1.4		1.4		7
Emergency Response Units		- 1		1		1			1		1		5
Medium Growth Model 5.7% - Ambulances	2		1		1	1		2	1	1	1	1	11
Paramedic FTE	21.6		10.8		10.8	10.8		21.6	10.8	10.8	10.8	10.8	118.8
Supervisors		1.4		1.4		2.8		1.4	1.4		1.4		9.8
Emergency Response Units		1		1		2		1	1		2		8
High Growth Model 8.5% - Ambulances	2	1	1	1	1	1	2	2	1	2	2	2	18
Paramedic FTE	21.6	10.8	10.8	10.8	10.8	10.8	21.6	21.6	10.8	21.6	21.6	21.6	194.4
Supervisors		1.4		1.4		1.4		2.8		2.8		2.8	12.6
Emergency Response Units		1		1		1		2		2		2	9
Patient Based Model Ambulances	2					1					1		4
Paramedic FTE	21.6					10.8					10.8		43.2
Supervisors		1.4					1.4				1.4		4.2
Emergency Response Units		1					1	T			1		3

Pomax recommended staffing levels NEMS currently short 2 ambulances based on call volume only and does factor in losses due to offload delay





Gap in Resourcing

- 50% increase also impacts dispatch
- 100% funded by MOH
- No increase in System Status Controllers (SSC's)
- Business cases to MOH last 4 years denied





Human Impact

COTW April 17, 2014:

"As system capacity becomes strained from such factors as increased call volumes, more complex health conditions, hospital restructuring, and transfer of care, the effects of workload on staff to maintain the current level of care and responsiveness without increased capacity becomes a growing concern. This places a great deal of pressure on resources, including paramedics and service staff to maintain the quality of service to meet established benchmarks.

Niagara EMS has been experiencing strain on resources evidenced by paramedics facing regular periods of missed meal breaks, shift overrun, and lack of time for auxiliary duties such as cleaning and restocking and completion of critical documentation as required under legislation. Important support services such as QA/CQI, training, supervision and regulatory compliance services experience similar pressures to meet the growing demands on the service."





Human Impact

PHD 17-2014: "The decline of resources due to increased call volume places stress on people who are functioning in an already demanding occupation. This increase in workload manifests itself in forced overtime, shift overrun, missed meals, and increased sick occurrences."

PHD 17-2015: "The greatest impacts of the strained system have been on the staff. This is evidenced through increased dissatisfaction demonstrated through formal labour channels, increased health and safety concerns, increased short-term sick time and increased mental health-related incidents"

PHD 21-2016: Respecting end-of-shift overtime, meal breaks, sick claims, mental health related incidents "All of these were positively impacted by the addition of resources"

PHD 19-2017: This has impacted response times, cost of service delivery, as well as working conditions for front line staff through increased workload, more end-of-shift overtime, and increased WSIB claims.





Psychological Impact

Service	%
Α	6.3
В	5.9
Niagara	5.7
С	5.5
D	4.9
Е	3.8
F	2.5
G	2
Н	1.4
I	1.2
J	1

Jan 10, 2019

NEMS conducted a snapshot survey of comparison of other Ontario EMS services of paramedics unable to attend work in their normal or modified duties, whether it be for short duration or a lengthy, ongoing period (including those captured in the pre-presumptive language) due to a mental health illness that is occupational (WSIB) in origin





Psychological Wellness Mitigation Strategies

- ✓ Commenced formalized training on mental health wellness in 2013
- ✓ First service in Ontario to train all staff on Safe Talk
- ✓ First service in Ontario to train all staff on R2MR
- ✓ Addictions Training, self-care and coping strategies through various programs
- ✓ Survey of staff formed PTSD Prevention/Mental Wellness Plan as per Bill 163
- ✓ NEMS Plan used by Province as best practice example.
- ✓ Peer Support
- ✓ Robust Resource List
- ✓ 2019 investing \$270,000 in new resources specific to develop/implement additional mental health programs and the introduction of a Clinical Psychologist
- ✓ Continuous policy changes to manage workload/work environment





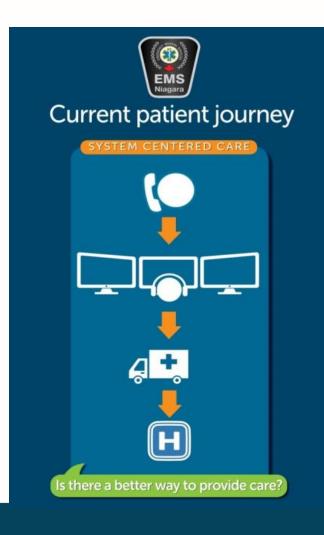
A Need to Innovate

Council has directed staff not to simply follow traditional EMS service models but actively look for innovative ways to deliver mobile health services that are not only more efficient but better meet the needs of patients

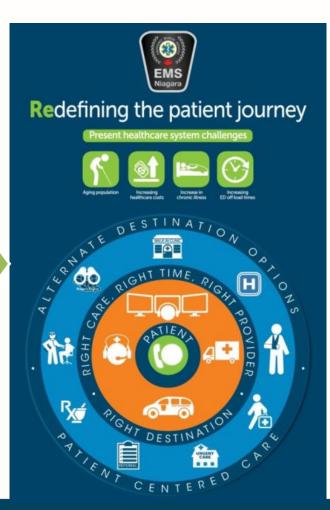




The Future of NEMS

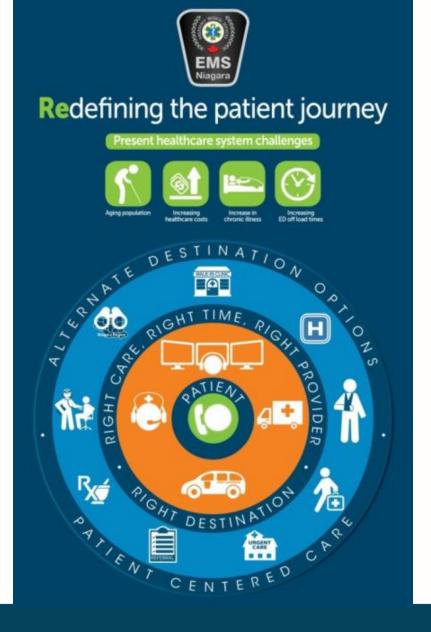


"Central to each (country's) vision is the concept of providing pre-hospital care as a system, rather than just a single service type, that can provide a flexible response to a wide with other related healthcare providers. " (Sheffield, pg. 44)



















System Transformation

- Revisit response policies
- Clinical Response Plan
- Emergency Communications Nurse System (ECNS)
- Mobile Integrated Health (MIH)
- Alternative Transport and Destination Options





Unscheduled Health Care

911

AMPDS

Scheduled Health Care

Community Paramedic

High Acuity Emergent Priority Response (clinically driven)

MIH Focused Cohort Follow-up

Low Acuity Non-Emergent



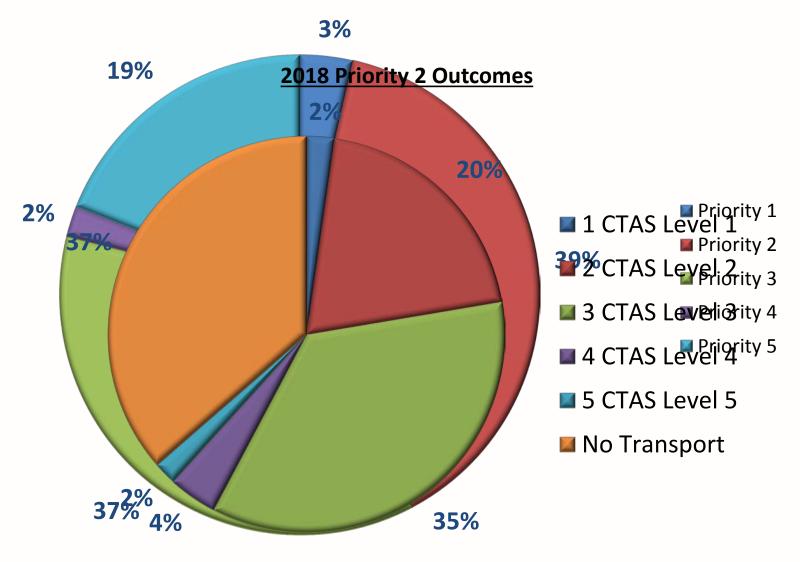
Secondary Triage

MIH Response



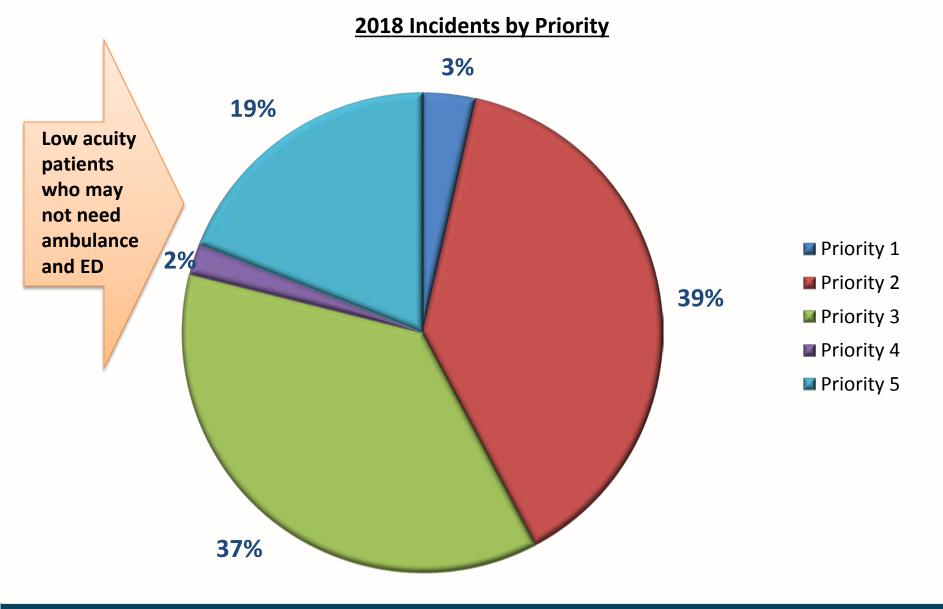


2018 Incidents by Priority









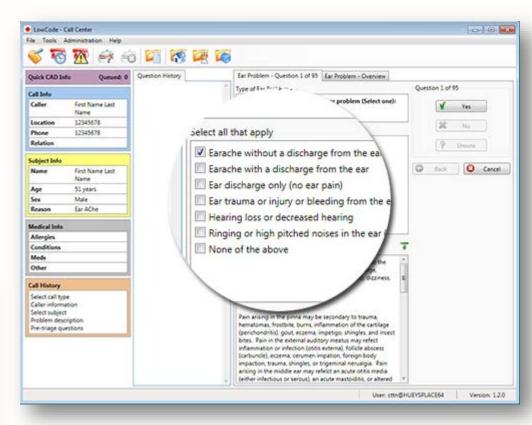




ECNS - LowCode

- Secondary triage for low acuity patients
- Completed research (Omega Project)
- Alternate care pathways
- Planning for implementation Q2 2019















Multidisciplinary Response

MHART - Mental Health & Addictions Response Team

-paramedic with mental health nurse

(in kind from NH, WMFHT & Quest CHC)











Multidisciplinary Response

- MHART Mental Health & Addictions Response Team

 paramedic with mental health nurse
 (in kind from NH, WMFHT & Quest CHC)
- FIT Falls Intervention Team
 - -paramedic with Occupational Therapist (secondment with HDS)





Multidisciplinary Response

- MHART Mental Health & Addictions Response Team
 - -paramedic with mental health nurse (in kind from NH, WMFHT & Quest CHC)
- FIT Falls Intervention Team
 - -paramedic with Occupational Therapist (secondment with HDS)
- CARE Community Assessment & Referral Team
 -paramedic with system navigator (provided by LHIN)

Community Paramedicine (100% funded by LHIN)

- Paramedic with rostered patients
- High volume users of EMS and hospital
- Integrated with community resources





Additional Community Initiatives

- Collaboration to provide medical oversight at Consumption and Treatment Service with Positive Living Niagara (PLN) - 100% funded by PLN
- Community Paramedic visits to the Out of the Cold Supper Program 7 days/week
- Paramedic @ Regional Essential Access for Connected Healthcare Niagara (REACH) Clinic - funded by the LHIN in a multi-disciplinary team of Physician, NP's delivering primary care at the Southridge and Booth Shelters in St.Catharines
- Expanding Care by Paramedics to Palliative Care Patients Feasibility Research Study - Collaboration with CPER, LHIN - Results of this will be passed onto Provincial Study group in order to help guide provincial expansion of Paramedic Palliative Care models - cost is within budgeted dollars



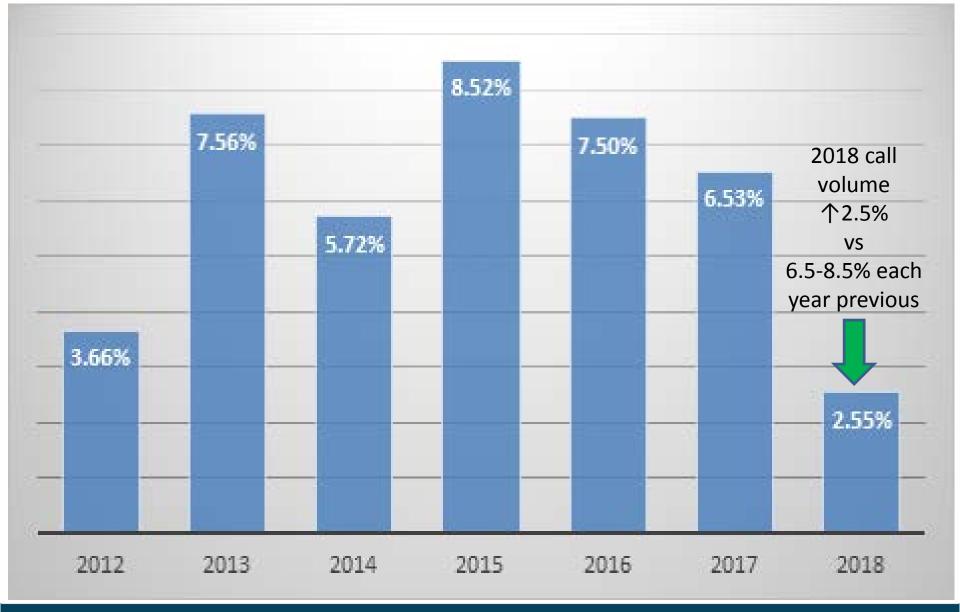


Alternate Transport





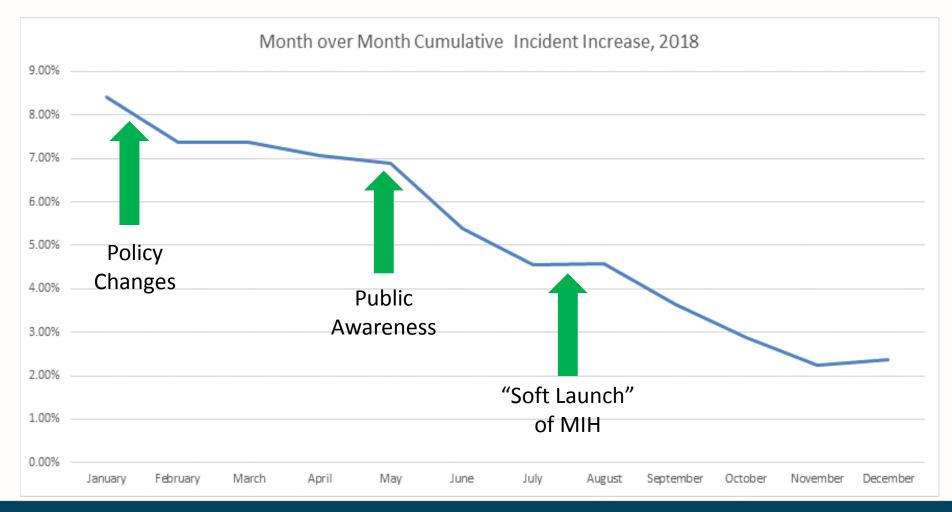








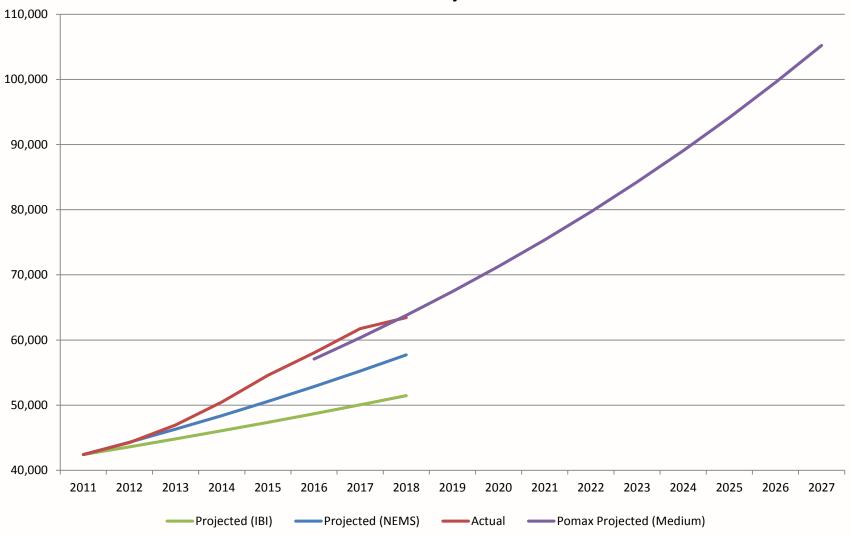
Early Outcomes







EMS Call Volume Projected vs Actual







Early Results

- ✓ 2018 2.8% volume increase compared to 6.6% yearly average from 2011-2017
- √ 5% reduction overall of mental health transports to hospital to ED despite a 7% increase in mental health calls coming into our communication centre
- ✓ increase of 0% in calls for falls and a 2% decrease in transports to ED - the previous year saw an increase of 9% in falls
- √ 0% increase of calls for general unwell patients but an overall decrease in transports to ED of 6% for this cohort





Clinical Response Plan (CRP)

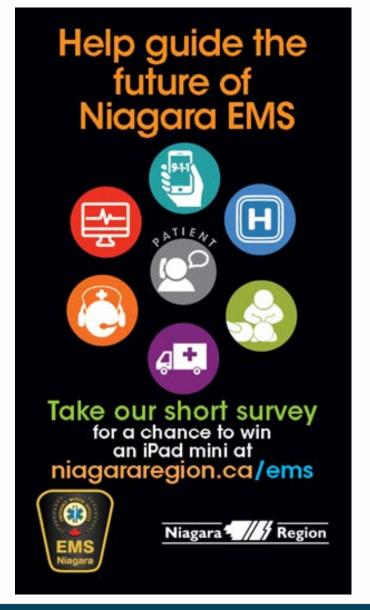
Priority	Time Dependency	Determinant Level Typically Includes*	Resource/Response Plan Could Include*	Alternative Response Options*
	Critical	Echo, Delta	PCP Transport Unit	ACP Transport Unit
1	Immediate Lights/Sirens		MIH Teams Allied Agencies Citizen Response	
2	Emergent Lights/Sirens discretionary	Delta, Charlie	ACP Transport Unit	PCP Transport Unit
3	Urgent No Lights/Sirens	Charlie, Bravo	PCP Transport Unit	ACP Transport Unit
4	Less Urgent No Lights/Sirens	Bravo, Alpha	MIH Unit MIH Unit	MIH Unit PCP Transport Unit
5	Non Urgent No Lights/Sirens	Bravo, Alpha, Omega	Clinical Advisor MIH Unit	PCP Transport Unit
*	While this provides a guide		vary by individual determinant, assessmen s outcome data	t of skills demand and





Niagara EMS Community Perception Survey









Targeted Regional Overview







Survey Distribution Strategy

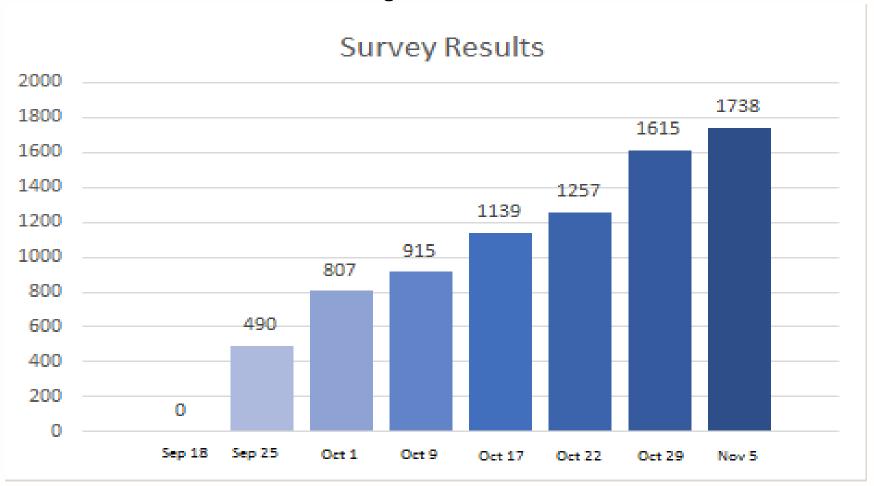
- Wallet card and poster distribution
- Targeted mail out to existing EMS users
- Distribution of survey details through Advisory committee and subcommittee networks
- Presentations
- Social Media







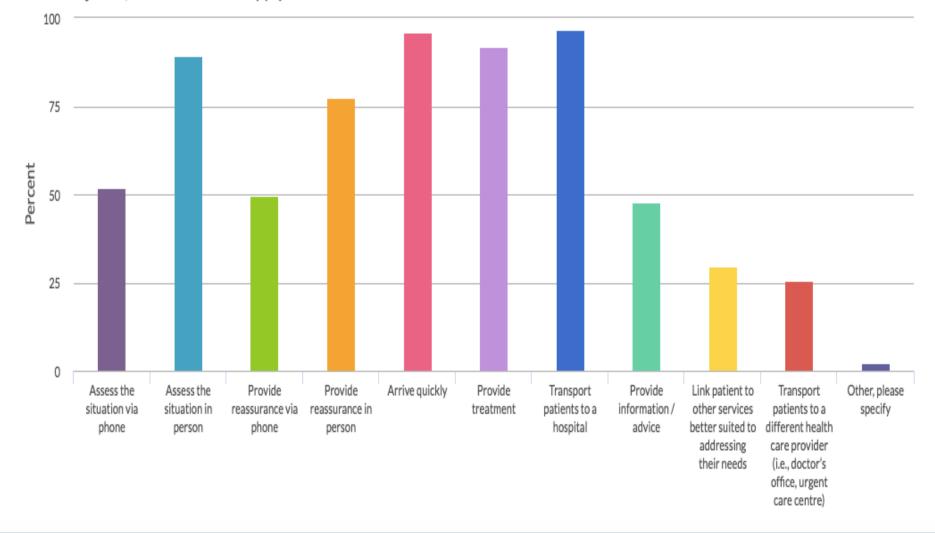
Responses







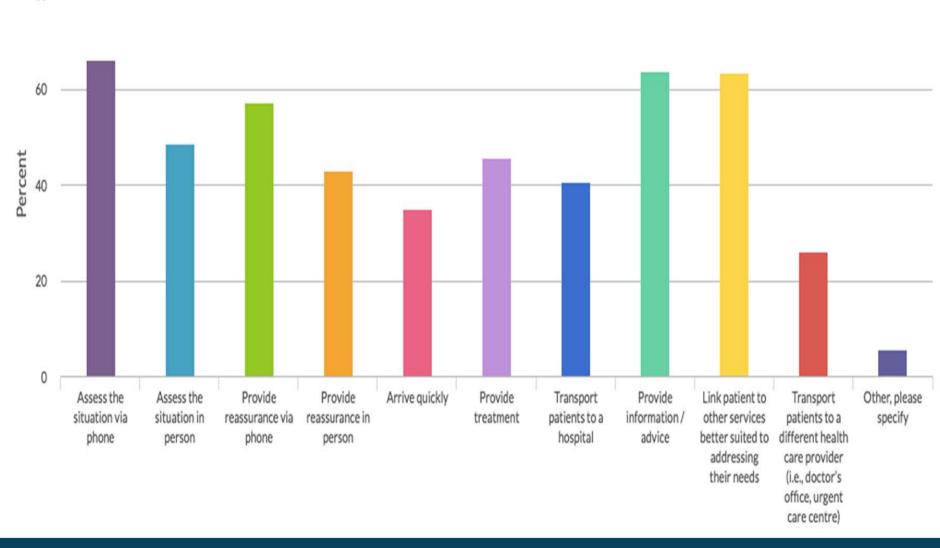
2. What is the role of EMS in URGENT medical situations (e.g. major blood loss, head injury, loss of consciousness, chest pain, traffic accident injuries)? Choose all that apply.







3. What is the role of EMS in NON-URGENT medical situations (e.g. flu, sprained ankle, broken arm, etc.)? Choose all that apply.





80



prioritise patier Clinical Response Model "went live" on May 30, 2018. need of care

This press release was publish Welsh government

People who need immediate receive the highest-priority i time possible from the Wels under changes being outline Government.

New system fo matches resources to patient needs ambulance ser



BC Emergency Health Services has implemented a new process for dispatching paramedics, ambulances and other resources to patients. The aim is to get to the most life-threatening calls faster, while at the same time improving the experience for patients who don't require transport to hospital.

riorities piloted





be piloted by the Scottish

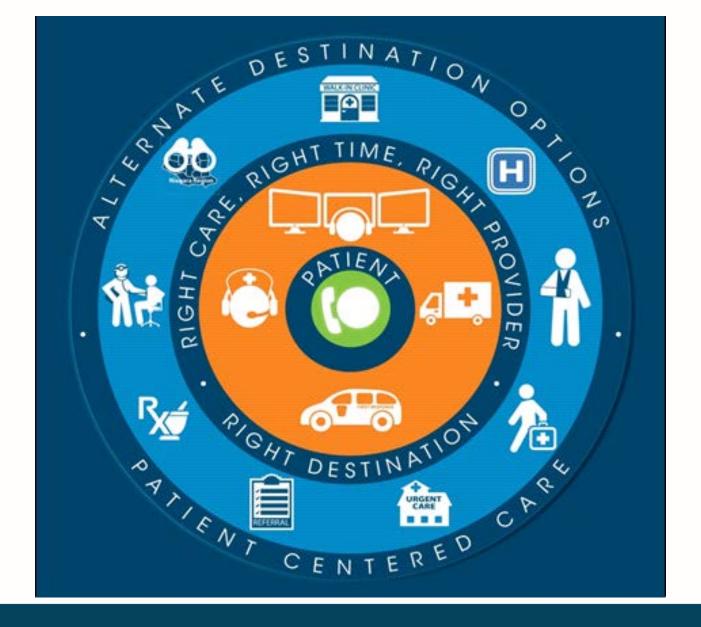
tised to concentrate on "immediately

its target to respond to 75% of

ng certain types of chest pains or

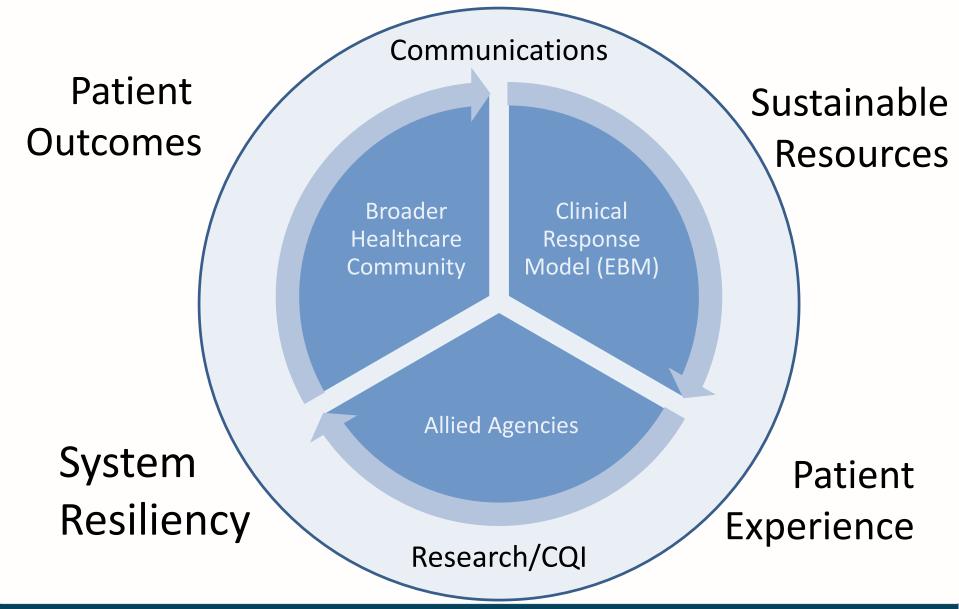
















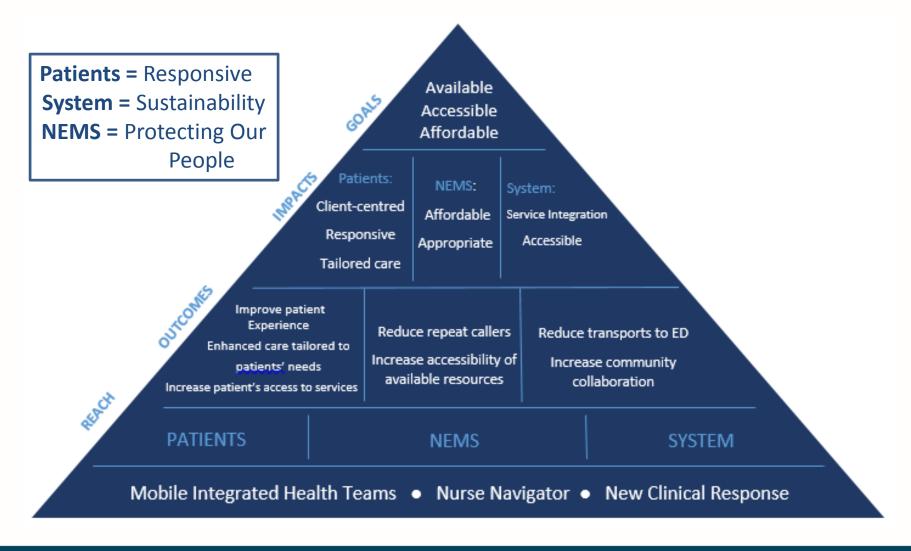
Stakeholders & Partners

- NEMS Paramedics & SSC's
- Community Services
- Public Health
- Niagara Health
- LHIN
- Welland McMaster Family Health
- Smithville Family Health
- Regional Fire Coordinator
- NRPS
- Bridges Community Health

- Community Patient Advocate
- Health Links
- Centre for Paramedic Education & Research
- Centre de Santé
- NEMS Medical Director
- NEMS CP Medical Director
- University of Sheffield
- Brock University
- McMaster University
- Ministry of Health



NEMS Outcomes Framework







Moving Forward

- PHD 07-2019 Response Time Performance Plan (March 19th)
- Launch of Clinical Response Plan and Emergency Communications Nurse System (June/July)
- Economic Evaluation (McMaster University)
- Sustainability Plan for 2020 and beyond
- Facility Plan Update







Thank you



