Capital Zone Emergency Services Council "CZESC"

Quarterly Report

Quarter 2 (April to June 2015)

With focus on the Emergency Department of Dartmouth General Hospital and Collaborative Emergency Centres of Tri - Facilities

nova scotia health authority

IWK Health Centre

DALHOUSIE UNIVERSITY

EHS Emergency Health Services

Introduction

Emergency Medicine is the medical specialty dedicated to the diagnosis and treatment of unforeseen illness and injury. It includes the initial evaluation, diagnosis, treatment, and disposition of any patient requiring expeditious medical, surgical, or psychiatric care <1>. Thus, the operationalization of "Integrated Networks of Emergency Care" is inherently interdisciplinary and interdependent upon multiple in-hospital and Health System wide structures and processes.

In alignment with the NSHA/IWK/EHSNS commitment to patient safety and with the Better Care Sooner standards (as well as with recommended national ED quality reporting guidelines) this quarterly report focuses on Key Process Indicators, and outcomes when available, to help drive the CQI imperative and to improve care to the patients and populations that we serve.

Emergency Medicine	**Unforeseen** **Unscheduled**	**Predictable** **Schedulable**
CTAS 1, 2, 3	• Often described as "real" emergencies 97% of fixed costs of ED to meet population burden of acute illness and injury<4> • Does include exacerbations of chronic problems	• "avoidable" CTAS 3 (ED as safety net) - frail elderly with no acute event or problem - partial diagnosis requiring further work up - chronic condition requiring follow up or has predictable clinical course
CTAS 4, 5	• ***DO NOT*** cause ED overcrowding<2,3> • Very low marginal cost to see in ED<4,5> • 9/10 most common successful lawsuits in EM	• "inappropriate" ED visits (ED as gate keeper) - Medication refill - "sick note" for work or school - Queue jumping to see specialist

1. ACEP definition of Emergency Medicine: http://www.acep.org/Content.aspx?id=29164
2. MYTH: Emergency room overcrowding is caused by non-urgent cases - October 2009 Canadian Health Research Foundation Myth Buster of the year series
3. The Effect of Low-Complexity Patients on Emergency Department Waiting Times Schull MJ, Kiss A, Szalai JP. Ann Emerg Med. 2007 Mar;49(3):257-64, 264.e1. Acad Emerg
4. **THE COSTS OF VISITS TO EMERGENCY DEPARTMENTS** ROBERT M. W ILLIAMS , M.D., .PhD (N Engl J Med 1996;334:642-6.)
5. Emergency Medical Care: 3 Myths Debunked, Huffington Post. Leigh Vinocur, M.D. Director of Strategic Initiatives at the University of Maryland School Medicine.

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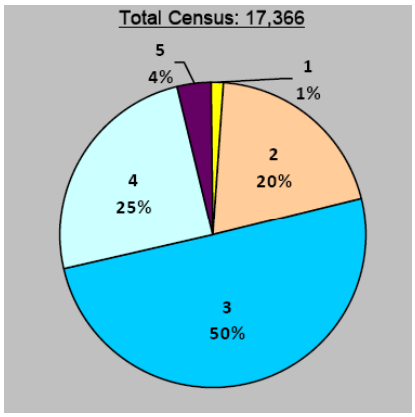
Demand

Census – Halifax Infirmary ED

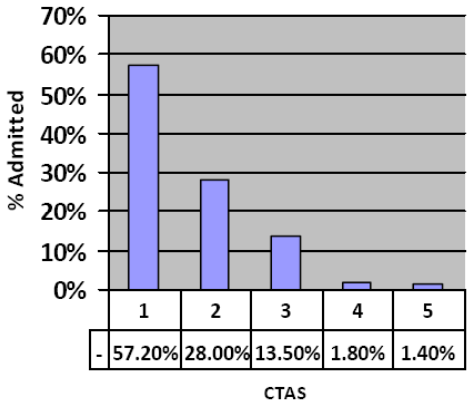
Reporting Date: April 1 – June 30, 2015

Context :

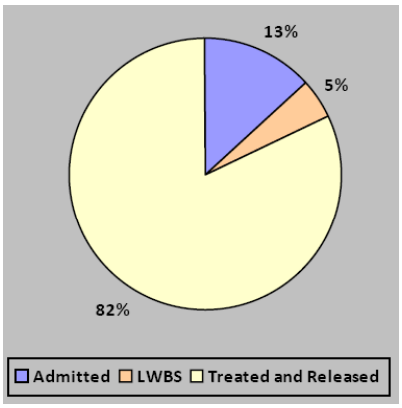
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left Without Being Seen (LWBS) is a reflection of decreased access secondary to wait times (target 2-3%). Percentage admitted national benchmark is 16-18% for CTAS 3s.



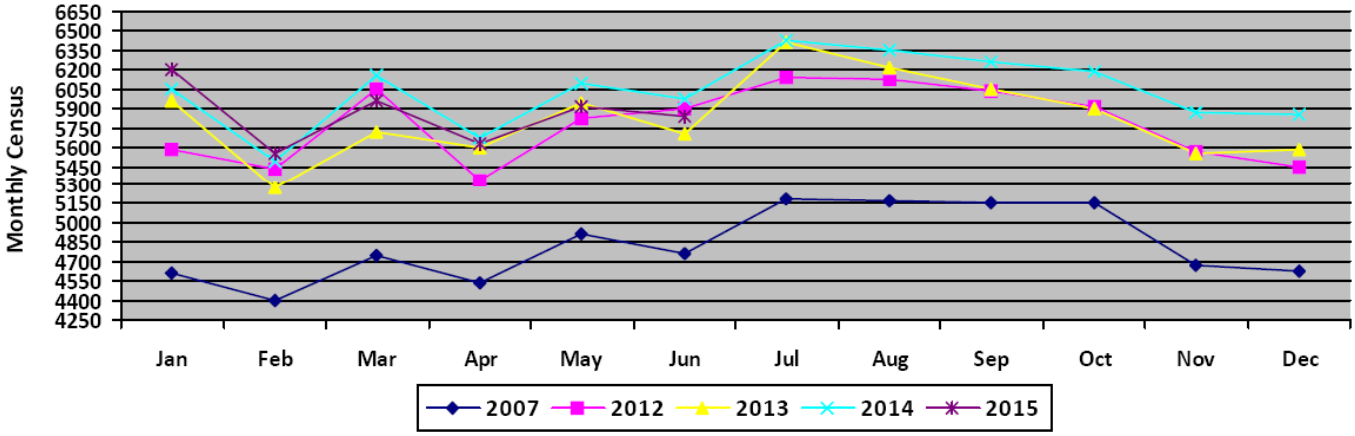
CTAS Distribution



Percentage Admits



Discharge Distribution



Analysis:

Monthly census from April to June 2015 is similar to that in the previous three years. Half of our patients are CTAS 3, and 4/5 patients are discharged form the ED. LWOBS rates remain high at 5%, indicating ongoing access block.

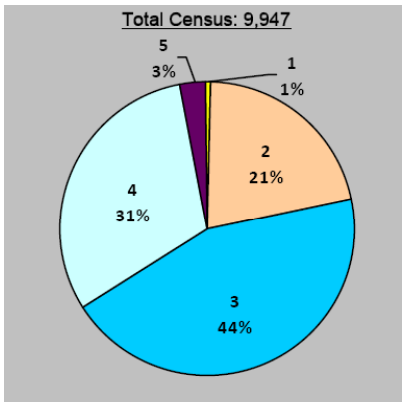
Sam Campbell, Site Chief, HI ED

Demand

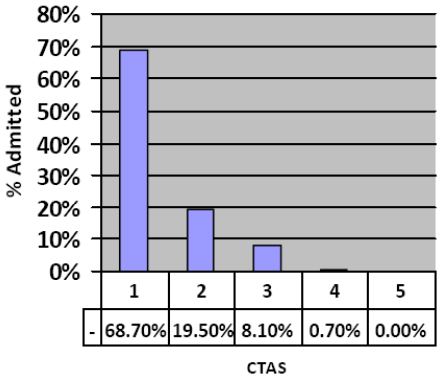
Census – Dartmouth General ED Reporting Date: April 1 to June 30, 2015

Context:

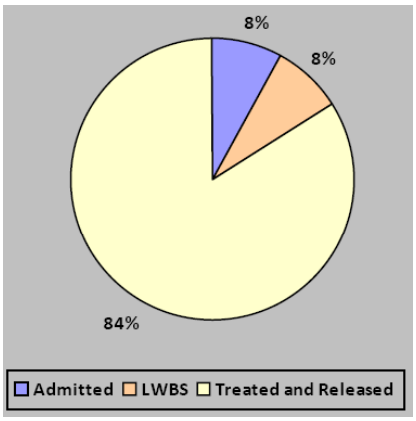
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left Without Being Seen (LWBS) is a reflection of decreased access secondary to wait times (target 2-3%). Percentage admitted national benchmark is 16-18% for CTAS 3s.



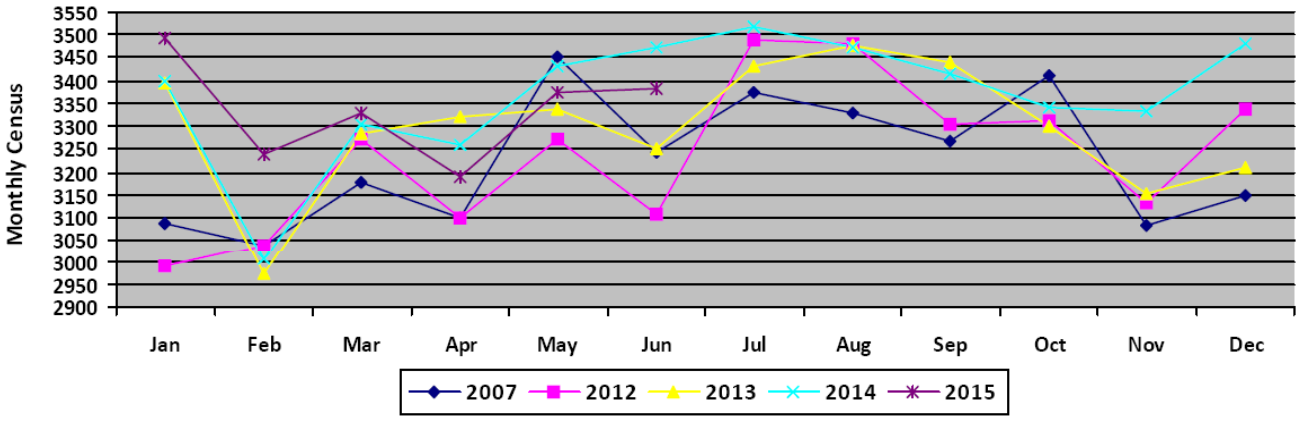
CTAS Distribution



Percentage Admitted



Discharge Distribution



Analysis:

Historically high acuity at the Dartmouth General Hospital Emergency department persists with moderate increase in patient volumes

Ravi Parkash, Site Chief, DGH ED

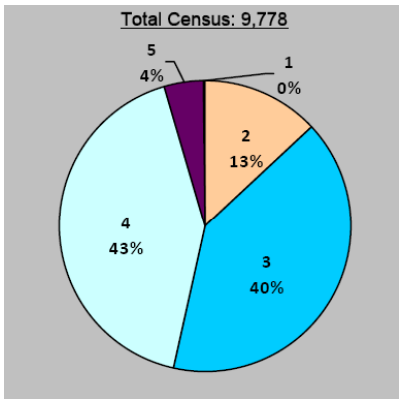
Demand

Census – Cobequid Community ED

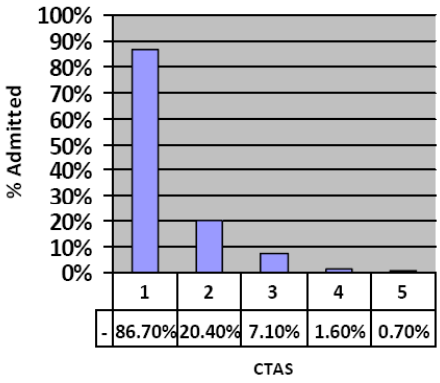
Reporting Date: April 1 to June 30, 2015

Context:

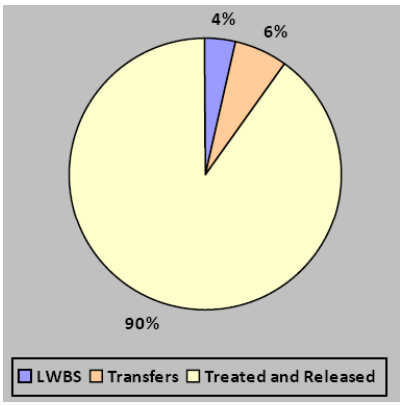
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left Without Being Seen (LWBS) is a reflection of decreased access secondary to wait times (target 2-3%). Percentage transferred is used as a surrogate for admits for CCHC.



CTAS Distribution



Percentage Transferred



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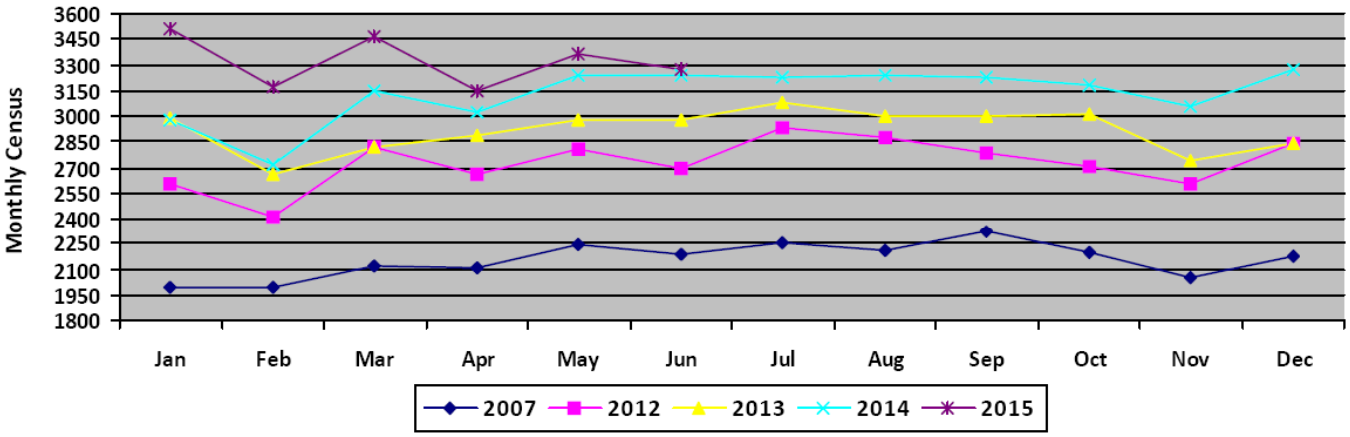


Analysis:

Patient registrations continue to increase at CCHC. First quarter registrations are15% higher than the same period last year. This has as a consequence an increase in the LWBS rate from 4% to 7%. The increased volume often necessitates double triage but nursing resources have not been able to accommodate this function during the early morning period of high volume registration. The transfer rate remains stable at 7%. We are hopeful that the increase in nursing complement approved for April 1 will help deal with these volumes.

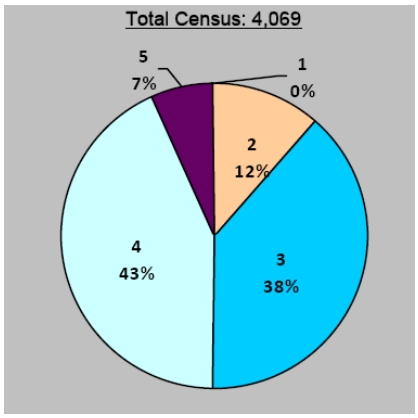
Mike Clory, Site Chief, CCHC ED.

Demand

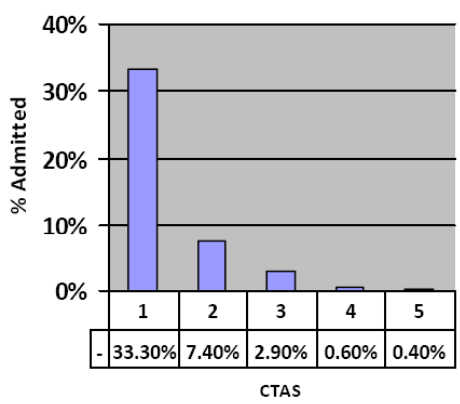
Census –Hants Community Hospital ED **Reporting Date: April 1 to June 30, 2015**

Context:

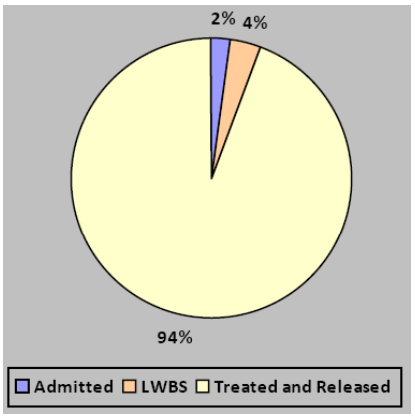
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left Without Being Seen (LWBS) is a reflection of decreased access secondary to wait times (target 2-3%).



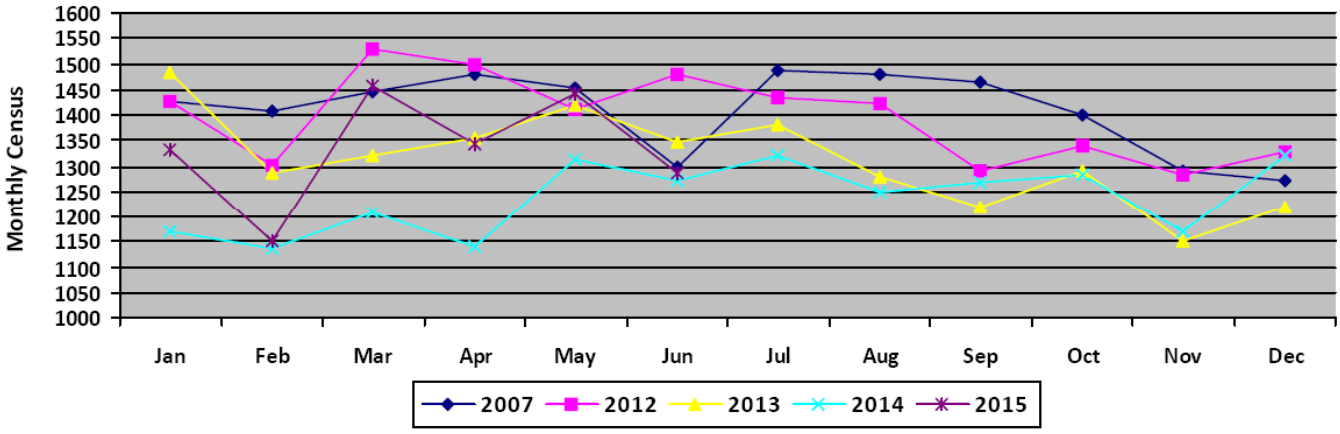
CTAS Distribution



Percentage Transferred



Discharge Distribution



Analysis:

Seeing an overall rise in our census this quarter however June saw a considerable decline.

The opening of an urgent care clinic – same day appointments would account for this.

Percentages of CTAS levels remains stable.

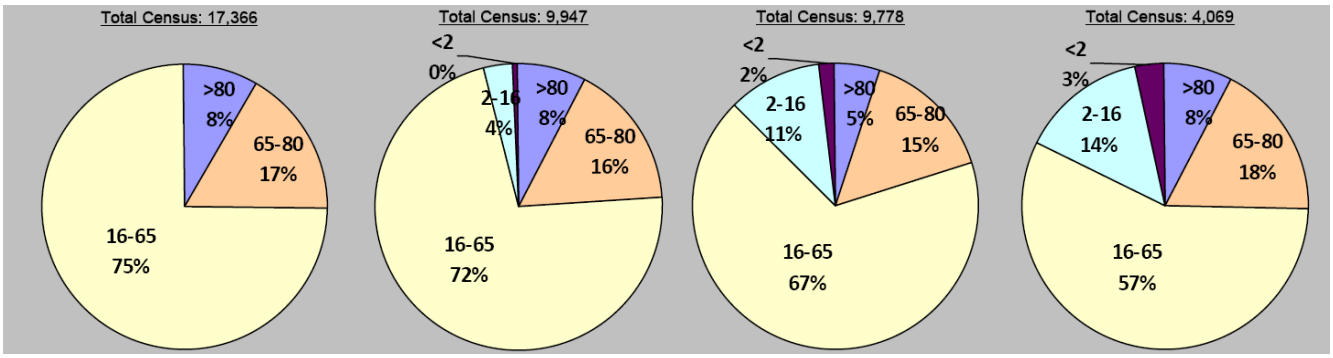
Tanya Penney, Health Services Manager, HCH ED

Demand

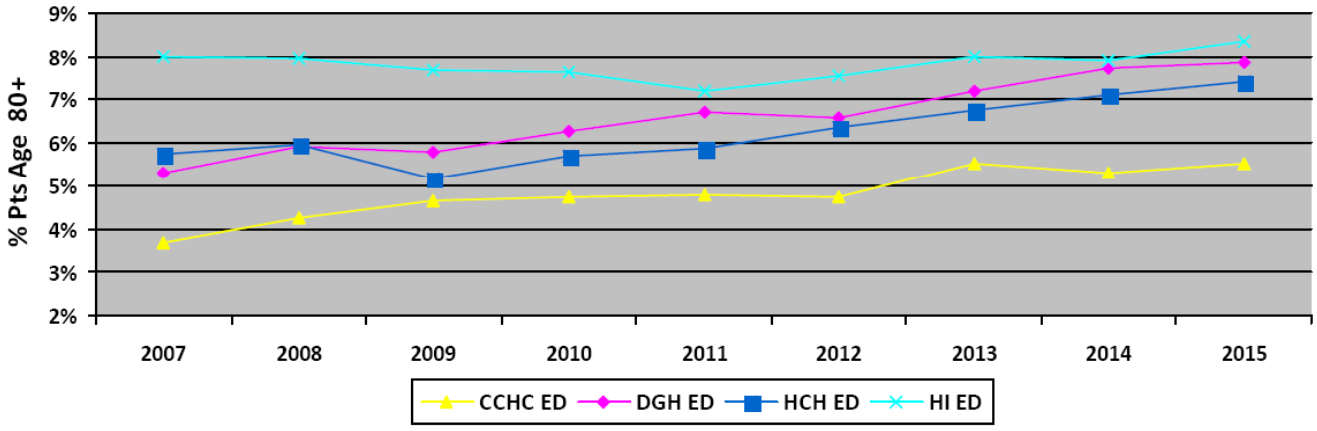
Emergency Department Demographics – Halifax Infirmary / Dartmouth General / Cobequid Community / Hants Community

Context:

The complexity of patients presenting to the Emergency Department is a function of CTAS, age, presenting complaint, and many other factors. This data looks at the percentage of census in the following age groups (IWK excluded at this time): < 2 yrs, 2-16 yrs, 16-65 yrs, 65-80 yrs, and > 80 yrs.



Halifax Infirmary ED Distribution | Dartmouth General ED Distribution | Cobequid Community ED Distribution | Hants Community ED Distribution



Analysis:

The volumes of patients continues to rise, year over year, in the district and the proportion presenting to the Emergency Department over 80 years of age has risen slowly.

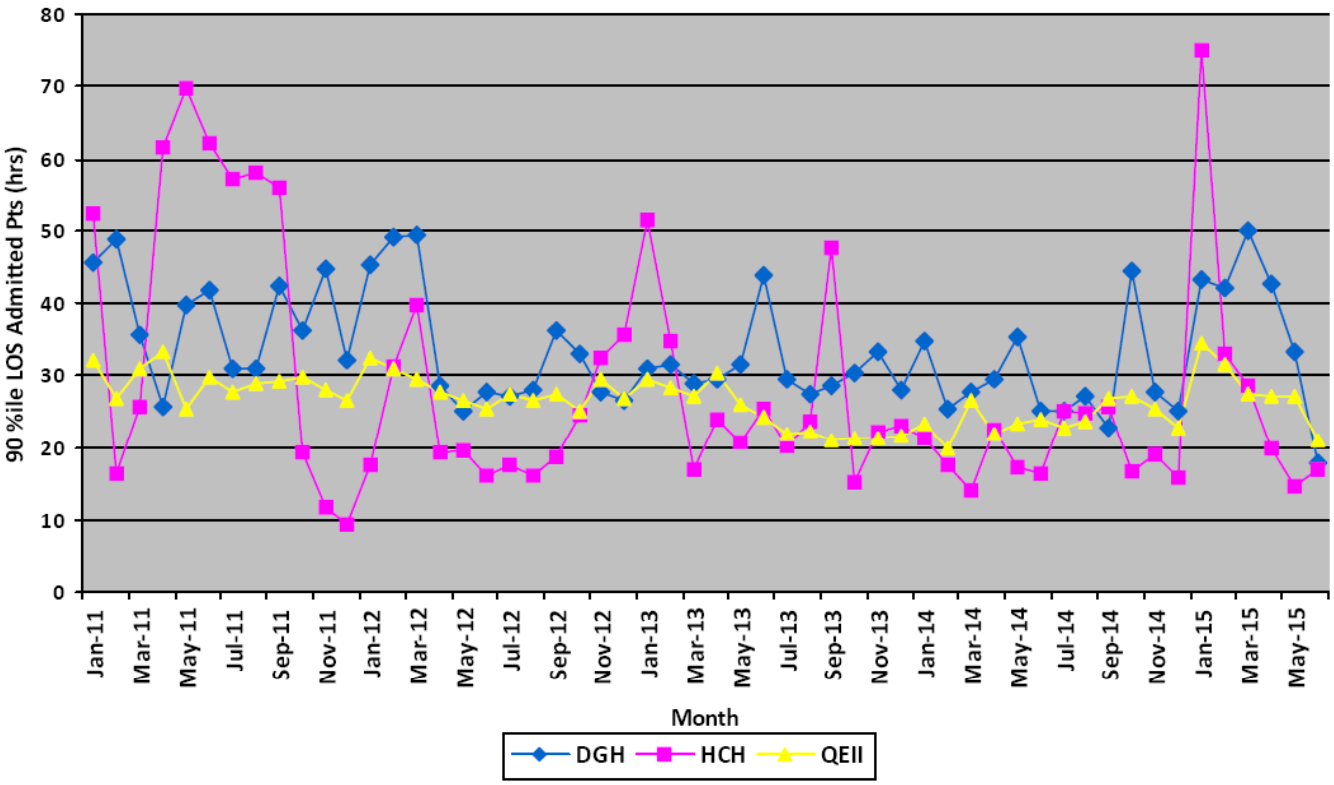
David Petrie, District Chief, Capital Health

Flow and Network Integration

ED Length of Stay (LOS) for Admitted Patients

Context:

ED LOS of admitted patients (i.e. "ED boarding") has been recognized as the main cause of overcrowding in the ED. Overcrowding is the term used to describe access block. Access block as manifested by increased patient wait times, increased ambulance offload times, and increased LWBS rates is associated with increased adverse outcomes, increased mortality (in a dose/response relationship), and increased costs to the system overall.



Analysis:

There was a significant spike in Emergency Department length of stay for admitted patients in the first quarter of 2015 with 90th percentile performance hitting greater than 72 hours in January and 50 hours in March at the Dartmouth General Emergency. The current national target recommended by CAEP is 12 hours.

David Petrie, District Chief, CDHA

Flow and Network Integration

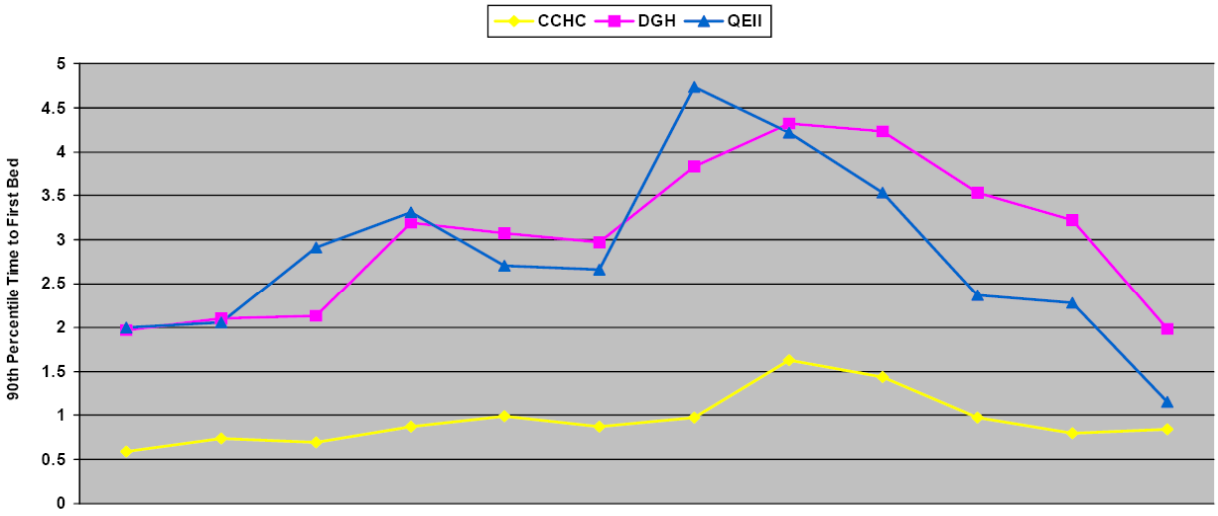
Ambulance Offload / Transition

Context:

Ambulance offload times are another Key Process Indicator which has implications both to the individual patient (i.e. wait times to see an MD), and to the community (i.e. turn around times for the ambulance to get back to the streets and available to the community for the next 911 emergency call.

Because of rising ambulance offload times in the past (due to ED access block) a transition team has been in place to assume the observation of care in the "ambulance hallway" prior to the placement of the patient in an ED bed (to allow the EHSNS crew to return to service). This off load team was discontinued on April 1, 2014.

Reporting Period from: Jul 01, 2014 to: Jun 30, 2015



	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15
CCHC	0.59	0.74	0.7	0.87	0.99	0.87	0.98	1.63	1.43	0.97	0.8	0.85
DGH	1.97	2.1	2.13	3.19	3.08	2.98	3.83	4.32	4.23	3.53	3.23	1.98
QEII	2	2.05	2.92	3.32	2.7	2.67	4.73	4.21	3.53	2.37	2.28	1.15

90th Percentile Time to Bed (hr)

CCHC	216	198	224	260	260	235	313	306	305	261	247	203
DGH	598	571	562	548	600	574	648	626	613	562	550	546
QEII	1341	1319	1274	1279	1310	1326	1397	1273	1432	1262	1302	1318

Ambulance Volume

Analysis:

After a prolonged period of improved ambulance offload times there is a consistent increase in the 90th percentile performance. Offload times in January to March of 2015 spiked along with all overcrowding metrics.

David Petrie, District Chief, CDHA

Flow and Network Integration

Matching Capacity with Demand:

Context:

Ambulance smoothing has occurred in the central region for Quarter 4 2012 based on the relative surge capacity at each ED site. This table shows the percentage of time that the HI and DGH were on then escalating levels of capacity (Red being the highest surge level). CCHC is also part of this network. The surge levels are determined by 5 criteria and are measured real time so the status changes dynamically. If an ambulance patient does not meet exclusion criteria (CTAS 1 and 2 previously determined trip destination criteria for major trauma, stroke, STEMI, or have had recent admit to hospital) then patients may be rerouted from a Red ED to a Green ED.

QEII	DGH	%
GREEN	GREEN	28.13%
YELLOW	GREEN	11.47%
GREEN	YELLOW	11.18%
GREEN	RED	10.87%
YELLOW	YELLOW	7.74%
YELLOW	RED	7.60%
GREEN	ORANGE	4.78%
YELLOW	ORANGE	4.05%
ORANGE	RED	3.79%
ORANGE	ORANGE	2.40%
ORANGE	GREEN	2.25%
ORANGE	YELLOW	2.02%
RED	RED	1.40%
RED	YELLOW	0.86%
RED	GREEN	0.81%
RED	ORANGE	0.64%

Analysis:

During January to March 2015, Dartmouth General Red / Halifax Infirmary Green jumped to 7.72% of the time (from 6.41% last quarter) and Halifax Infirmary Red / Dartmouth General Green occurred 2.71% (up from 1.99% (ie: The Dartmouth General is 3 times more likely to be on a trip diversion status.) Ambulance smoothing may occur during these times. Cobequid Community Health Centre may receive CTAS 3, 4 or 5 ambulances during these Red times up until 15:00.

The percentage of time either Emergency Department was on Red in January to March increased significantly from the previous quarter.

Flow and Network Integration

Pod of Initial Destination at the Halifax Infirmary ED / RAU

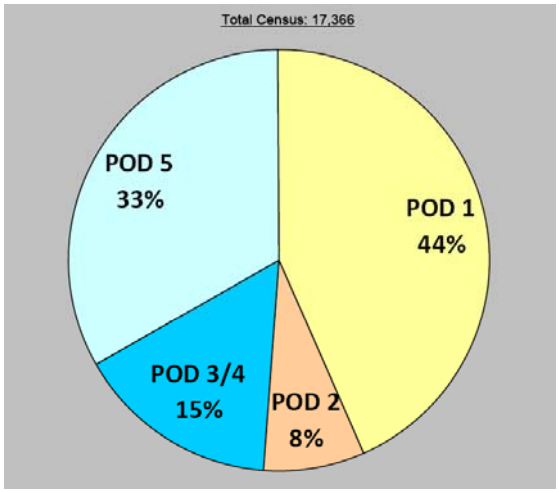
Context:

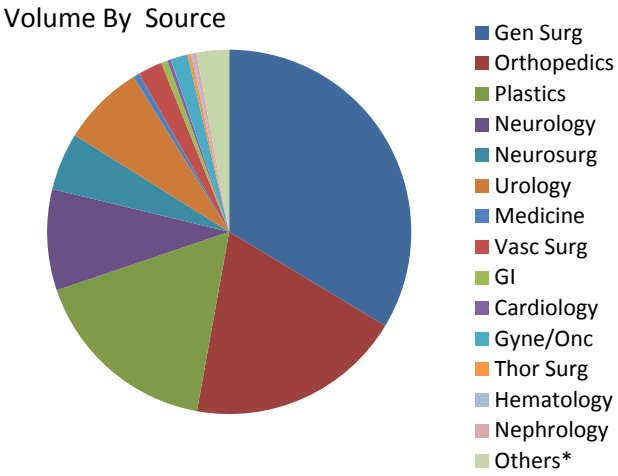
Internal flow within an ED needs to optimize available space/capacity to meet the volume/CTAS demands of the presenting patients**.**

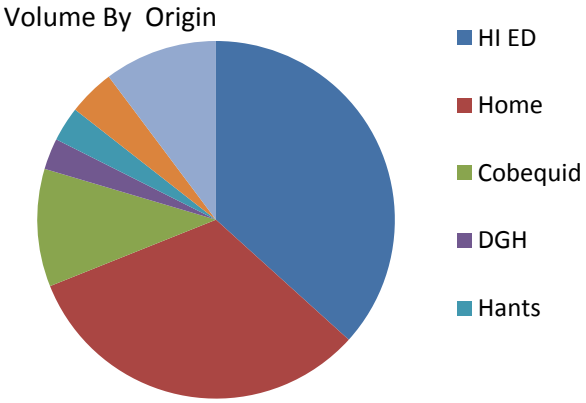
The HI ED has innovated (chair centric Pod 1, fast track/paramedic assisted pod 5) to meet the needs of this demand. The Rapid Assessment Unit is another aspect of the ED which has evolved to meet the needs of transferred patients and referred patients from our own ED. This allows expedited consultations to specific services and frees up bed time to see the next Emergency patient in the waiting room or ambulance hallway.

HI ED- POD Utilization

- Initial Location POD 1-2-3-4-5 or Psych
- Psych and Intake A part of Pod 1
- Intake B Part of Pod 5
- No Left Without Being Seen Counted







Analysis:

'Chair-centric' pods, 1 and 5 continue to serve 80% of patients, while only offering 40% of our bed capacity. This illustrates the pressure resulting from a restricted ability to empty beds after their emergency phase has been completed – in the vast majority of cases, this is due to admitted patients remaining the ED.
RAU continues to divert patients from ED beds, with 40% of patients coming from the HI ED. Almost half of all RAU patients are referred to orthopedics or general surgery.

Sam Campbell, Site Chief, QEII ED

Flow and Network Integration

Clinical Decision Unit (CDU) Utilization

Context:

The Clinical Decision Unit is a virtual unit embedded within the physical space of the ED which facilitates observation and rechecks by the Emergency Physician. The purpose is twofold; to improve the transfer of care with more explicit ordering and documentation clinical care pathways, and to try and reduce admissions for patients that potentially may "turn around" with 6 – 24 hours of treatment and observation.

Site	CDU patients	CDU Patients Admitted	Percentage CDU Admitted	Total Site Patient Volume	Percentage Total Patients CDU	Median Length of Stay CDU Non Admitted patients (hr)
HI ED	316	67	21.2%	17367	1.8%	17.81
DGH ED	449	109	24.3%	9949	4.5%	17.04
CCHC ED	56	35	62.5%	9778	0.6%	8.37

Analysis:

The benchmark for Clinical Decision Unit use in the province of Ontario is 4 – 5 %. Unfortunately, documentation of its use has not been very good at the Halifax Infirmary or the Cobequid Community Health Centre; but is approximately at the expected rate at the Dartmouth General.

Clinical Decision Units has been shown to reduce Emergency Department length of Stay, reduce admission rates with no increase in Emergency Department revisit rates in a recent Academic Emergency Paper.

David Petrie, District Chief, CDHA

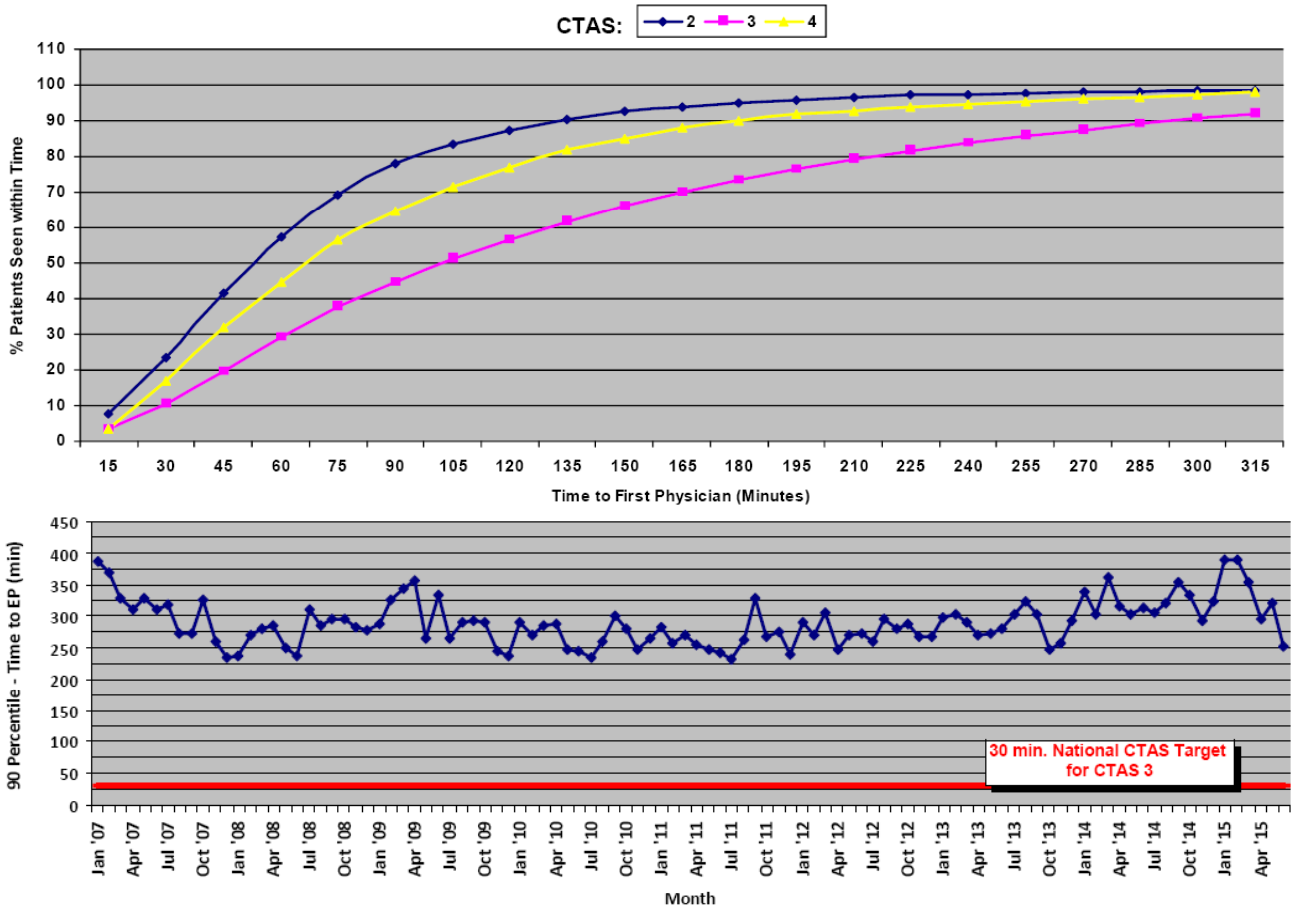
Patient Experience

Wait Times – HI ED

Context: One of the main ways ED access block manifests itself is in patient wait times (time from registration to time to see MD). Wait times have been shown to be associated with adverse outcomes in a dose response curve that suggests causation.

This data looks at the wait time performance curve for CTAS 2, 3, and 4s (assuming CTAS 1s get seen expeditiously and CTAS 5s have less of a time dependency).

The time targets are: CTAS 2 = 15 min, CTAS 3 = 30 min, CTAS 4 = 60 min.



Analysis:

While waits have improved marginally over the past three months, waits for emergency care remain unacceptably long, with CTAS 3 patients bearing the brunt of system dysfunction. Over half of CTAS 3 patients wait for over two hours and 30% are still waiting over 4 hours for care. (CTAS 4 patients are paradoxically seen quicker than those with CTAS 3 because of the parallel streaming process that takes many of them through pod 5). As half of our patients are assigned a CTAS score of 3, this reflects poorly on the ability of the system to provide emergency care within a reasonable time period.

Patient Experience

Wait Times – DGH ED

Context: One of the main ways ED access block manifests itself is in patient wait times (time from registration to time to see MD). Wait times have been shown to be associated with adverse outcomes in a dose response curve that suggests causation.

This data looks at the wait time performance curve for CTAS 2, 3, and 4s (assuming CTAS 1s get seen expeditiously and CTAS 5s have less of a time dependency).

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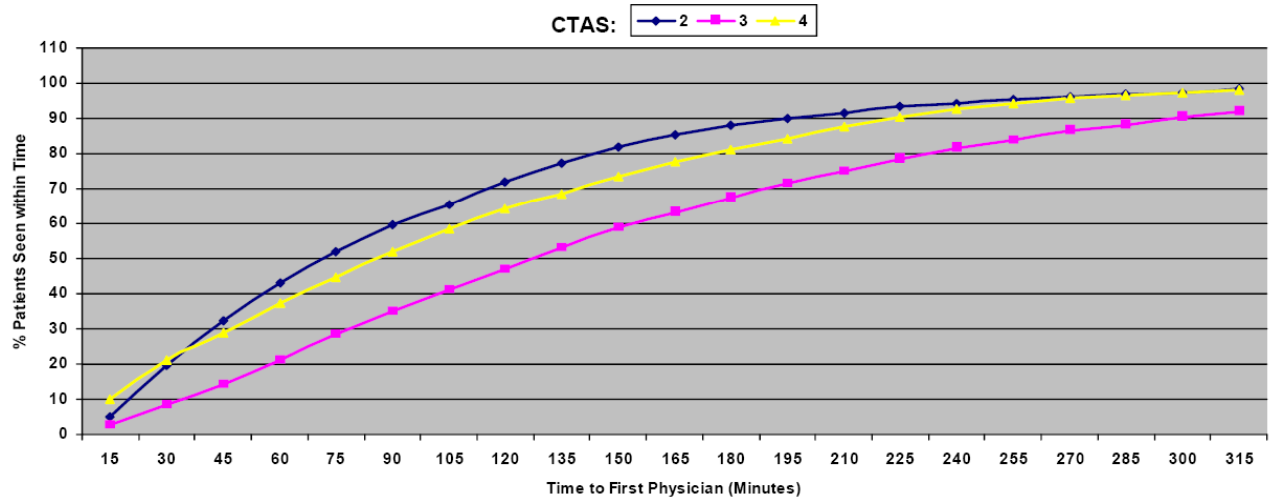

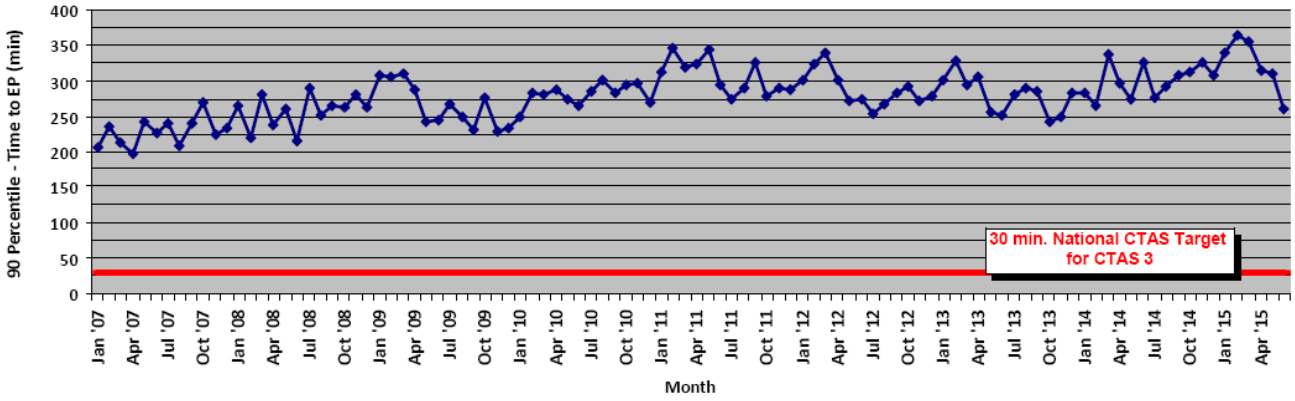

Analysis:

Increasing wait times at the Dartmouth General Hospital Emergency Department reflect lack of inpatient capacity at Dartmouth General Hospital and increased length of stay for admitted patients in the emergency department. This creates access block for incoming patients.

Ravi Parkash, Site Chief, DGH ED

Patient Experience

Wait Times – Cobequid ED

Context: One of the main ways ED access block manifests itself is in patient wait times (time from registration to time to see MD). Wait times have been shown to be associated with adverse outcomes in a dose response curve that suggests causation.

This data looks at the wait time performance curve for CTAS 2, 3, and 4s (assuming CTAS 1s get seen expeditiously and CTAS 5s have less of a time dependency).

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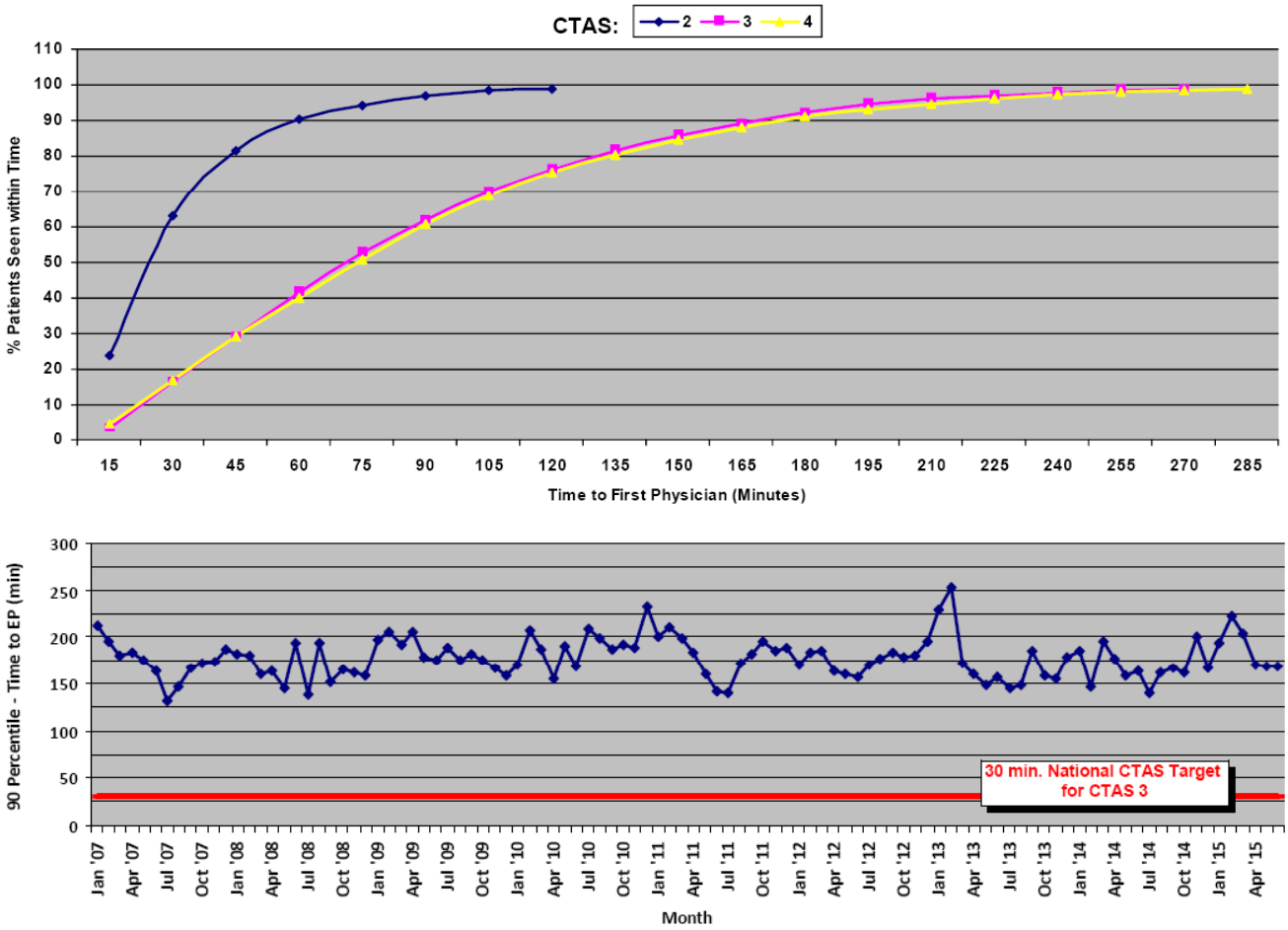


Analysis:

Wait times have increased slightly due to increased volumes. An increase in nursing resource to allow full bed capacity during hours of operation may improve patient wait times as the level 3 patients are often waiting for a bed to be assessed.

Mike Clory, Site Chief, CCHC ED

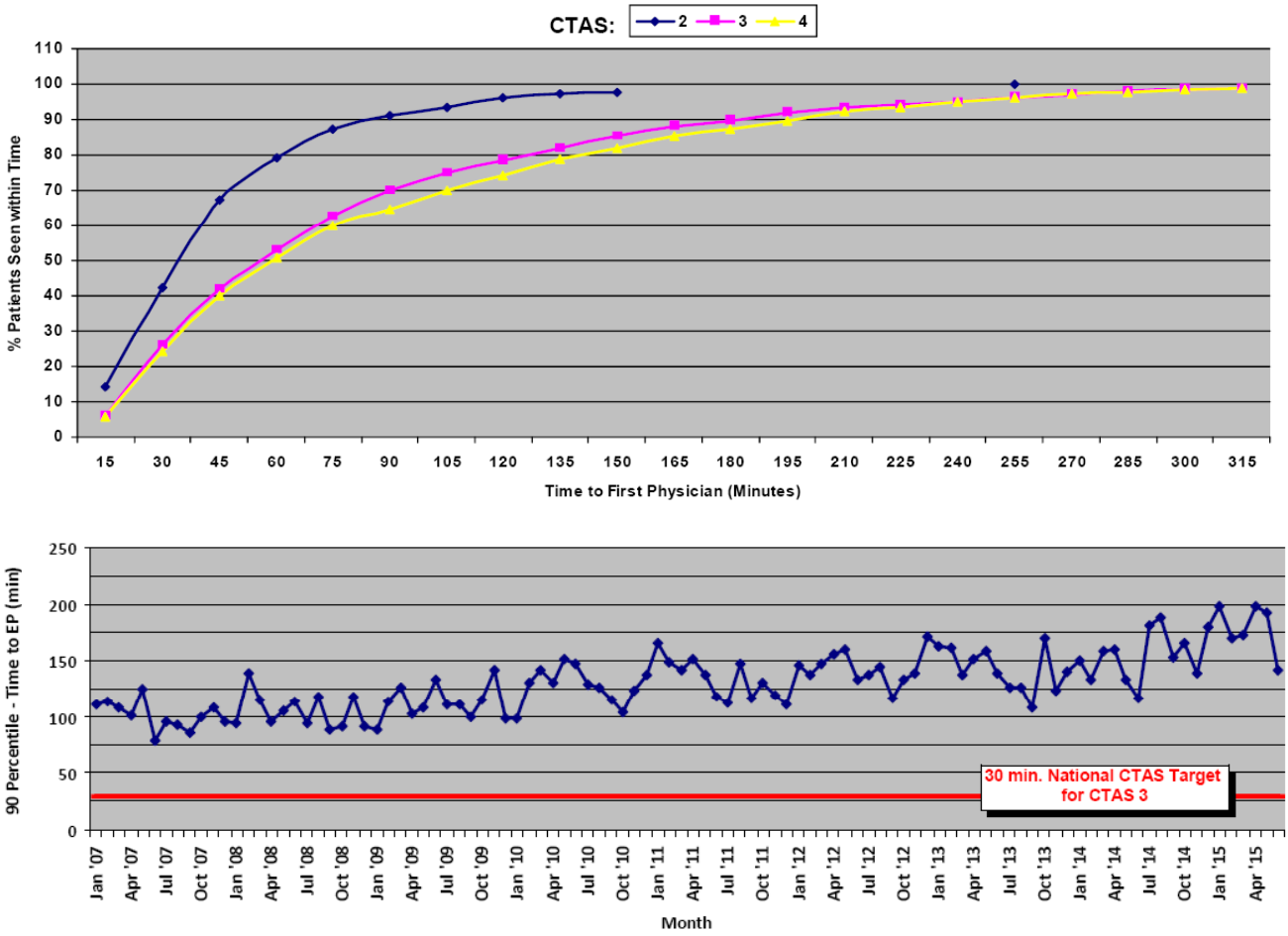
Patient Experience

Wait Times – Hants ED

Context: One of the main ways ED access block manifests itself is in patient wait times (time from registration to time to see MD). Wait times have been shown to be associated with adverse outcomes in a dose response curve that suggests causation.

This data looks at the wait time performance curve for CTAS 2, 3, and 4s (assuming CTAS 1s get seen expeditiously and CTAS 5s have less of a time dependency).

The time targets are: CTAS 2 = 15 min, CTAS 3 = 30 min, CTAS 4 = 60 min.



Analysis:

Wait times are seeing a slight decrease over last quarter. Wait times within HCH exist due to:

1. *Admitted bed shortages – creates limited space – bed availability has been excellent*
2. *Physician dependent (1 EP) – limited flux - remains*
3. *Delays to tertiary care and/or consultants within HI site – minimal delays over this quarter*
4. *Increased census*

Tanya Penney, Health Services Manager, HCH ED

Clinical Care

Diagnostic Imaging & Lab Reporting

Context:

Through put of patients in the Emergency Department is impacted by the intensity of the work up (lab and diagnostic imaging required). Decision rules developed in the Emergency Department setting (Cat Scan Head, Cervical-Spine, Ottawa Ankle, Rule Out Deep Vein Thrombosis, Rule Out Pulmonary Emboli, etc) all impact the cost effectiveness of patient investigation.

Reporting Period from: Apr 01, 2015 to: Jun 30, 2015

DI Ordered						
Site	Pt Volume	CT Orders (%Pt Volume)	US Orders (%Pt Volume)	MRI Orders (% Pt Volume)	XR Orders (%Pt Volume)	Total Di Orders (% Pt Volume)
QEII	17368	2326 (13.4%)	866 (5.0%)	35 (0.2%)	7254 (41.8%)	10481 (60.3%)
DGH	9949	1556 (15.6%)	463 (4.7%)	1 (0.0%)	5187 (52.1%)	7207 (72.4%)
HCH	4071	6 (0.1%)	56 (1.4%)	0 (0.0%)	1171 (28.8%)	1233 (30.3%)
CCHC	9778	743 (7.6%)	141 (1.4%)	0 (0.0%)	4694 (48.0%)	5578 (57.0%)
Total	41166	4631 (11.2%)	1526 (3.7%)	36 (0.1%)	18306 (44.5%)	24499 (59.5%)

Labs Ordered			
Site	Patients with Labs Ordered	% Patients with Labs	Patient Volume
QEII	8541	49.2%	17368
DGH	5291	53.2%	9949
HCH	1167	28.7%	4071
CCHC	4242	43.4%	9778
Total	19241	46.74%	41166

Analysis:

This is unadjusted data looking at the percentage of overall patients who receive a Cat Scan, Ultrasound, MRI (Magnetic Resonance Imaging), X-Ray or labs ordered during their assessments in the Emergency Departments. This data is not adjusted to acuity, complexity, or presenting complaint / diagnosis. There are no national benchmarks for these indications but they will allow for some comparison within the Capital Health Emergency Departments. With the Choosing Wisely campaign ramping up this may create an opportunity for improvements. Dartmouth General Hospital continues to order more lab and Diagnostic Imaging than the other centres (again, not adjusted to acuity / complexity) but have made significant reductions as compared to their peers.

David Petrie, District Chief, CDHA