Capital Zone Emergency Services Council

"CZESC"

Quarterly Report

Quarter 2 (April to June 2016)

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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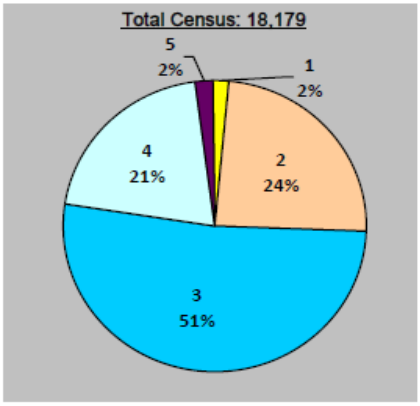
Demand

Census – Halifax Infirmary ED

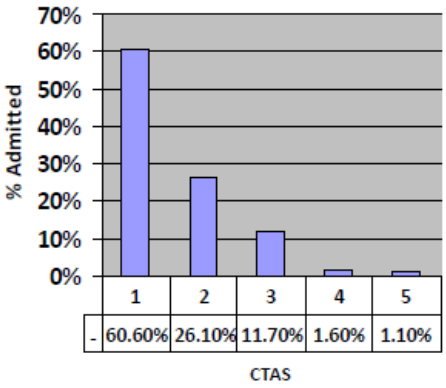
Reporting Date: April 1 to June 30, 2016

Context :

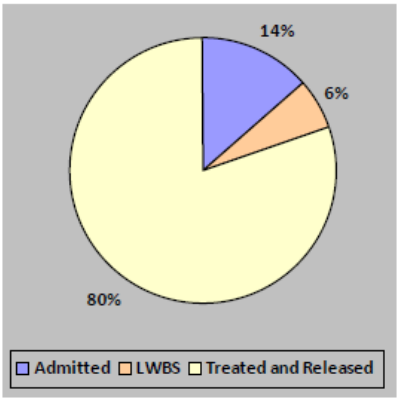
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left 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.



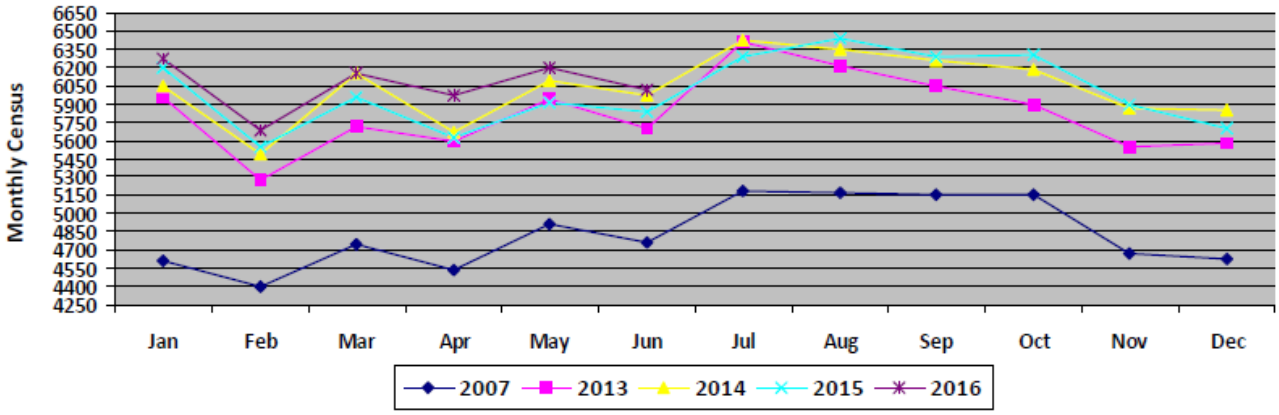
CTAS Distribution



Percentage Admits



Discharge Distribution



Analysis:

Monthly census continues at levels similar to that in the previous three years. Half of our patients are CTAS 3, and 4/5 patients are discharged from the ED. LWBS rates remain high at 6%, indicating ongoing access block resulting almost entirely from boarded patients occupying emergency beds. The next report will show a significant increase in census from previous years (including a record breaking 273 in one day!)

Sam Campbell, Site Chief, HI ED

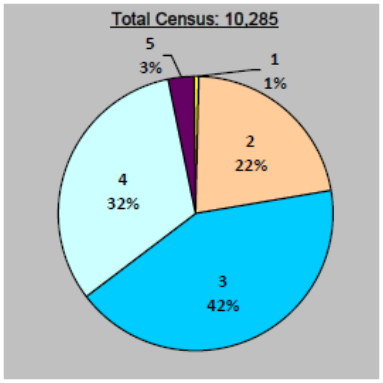
Demand

Census – Dartmouth General ED

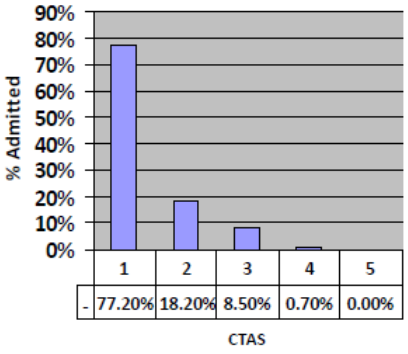
Reporting Date: April 1 to June 30, 2016

Context:

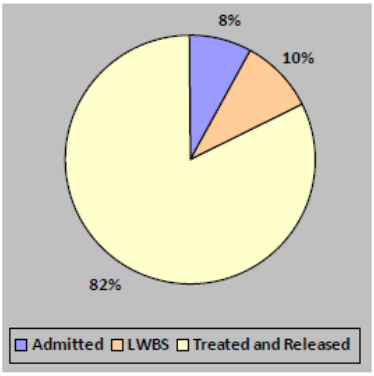
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left 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.



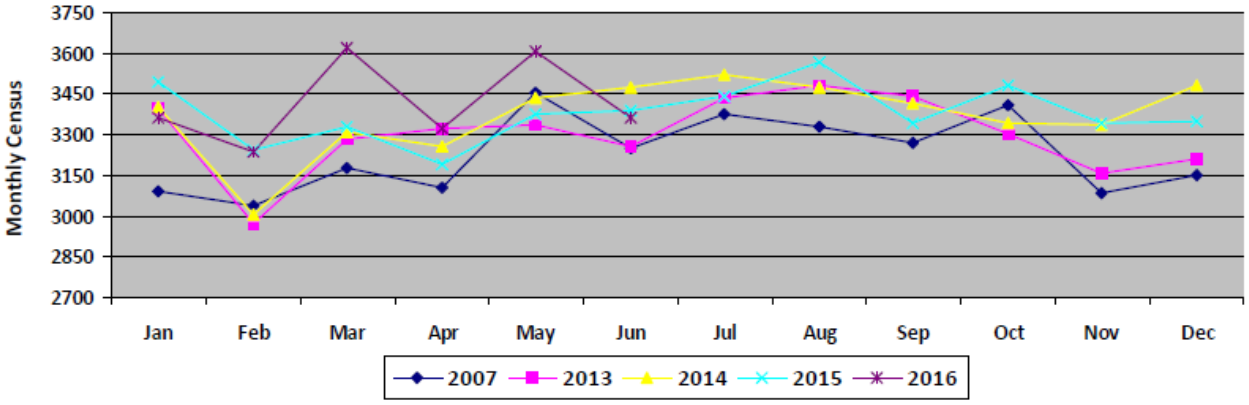
CTAS Distribution



Percentage Admitted



Discharge Distribution



Analysis:

Historically high acuity at the Dartmouth General Hospital Emergency department persists with significant increase in patient volumes. Although not shown here, Percentage of CTAS level 1,2 patients, ambulance numbers and patients >65 years of age are all high, reflecting a high acuity centre.

Ravi Parkash, Site Chief, DGH ED

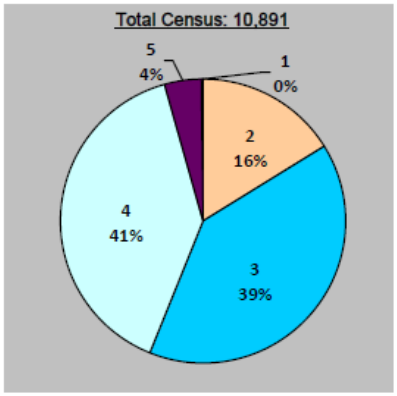
Demand

Census – Cobequid Community ED

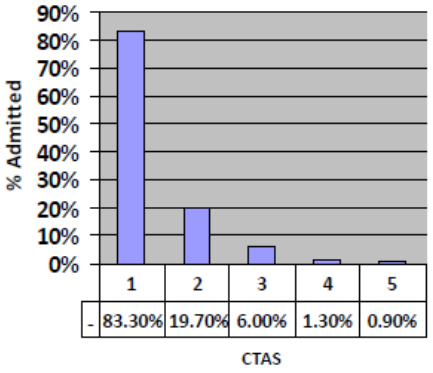
Reporting Date: April 1 to June 30, 2016

Context:

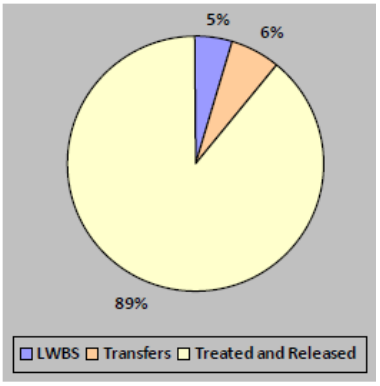
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left 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.



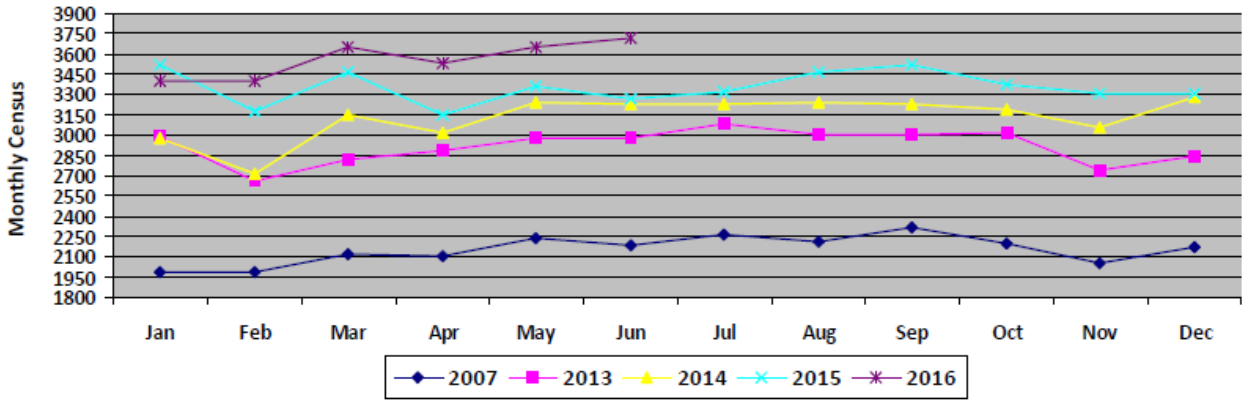
CTAS Distribution



Percentage Transferred



Discharge Distribution



Analysis:

Patient registrations continue to increase at CCHC. Second quarter registrations are 11% higher than the same period last year. The LWBS rate has slightly increased to 5%. This is partly due to strain on available nursing resource between the hours of 9-1400 and 1900-2200, as the increased volume often necessitates double triage. We are hopeful that an application for increased nursing complement will be approved to address this trend.

Acuities are slightly higher than average for 2015 (56 % vs 54% for CTAS level 1-3). In the province, this acuity is only exceeded by DGH and QEII ED's.

Mike Clory, Site Chief, CCHC ED.

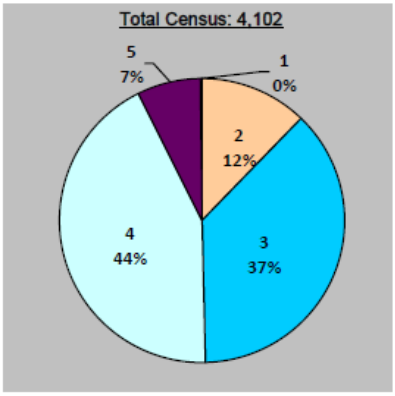
Demand

Census – Hants Community Hospital ED

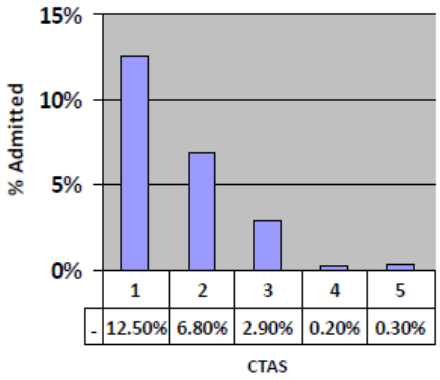
Reporting Date: April 1 to June 30, 2016

Context:

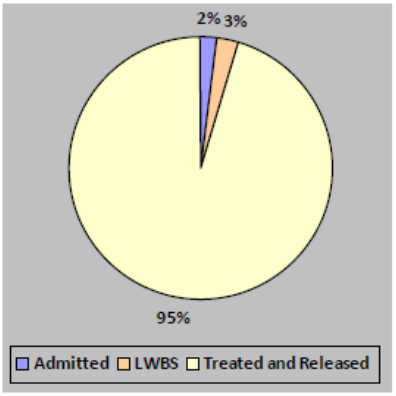
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left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



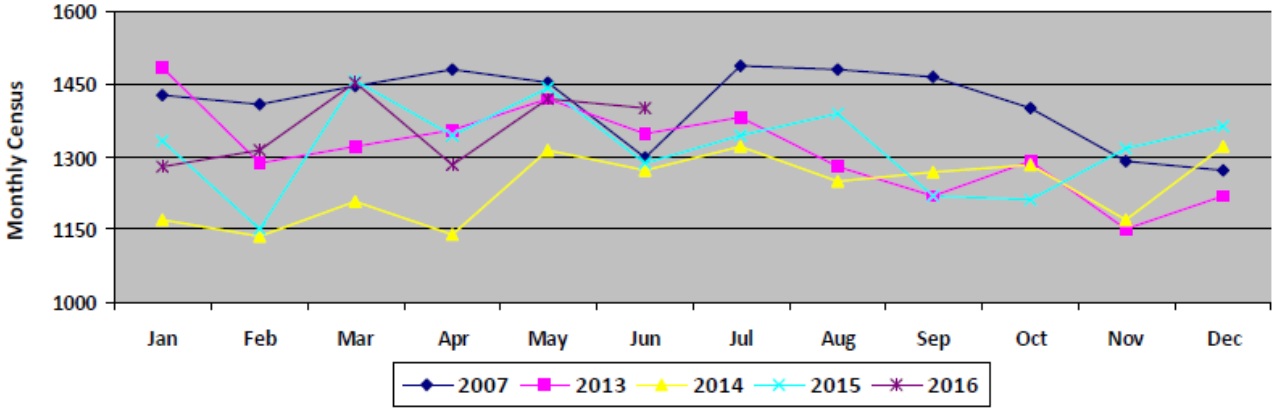
CTAS Distribution



Percentage Transferred



Discharge Distribution



Analysis:

Census and percentages of CTAS are relatively similar to prior years.

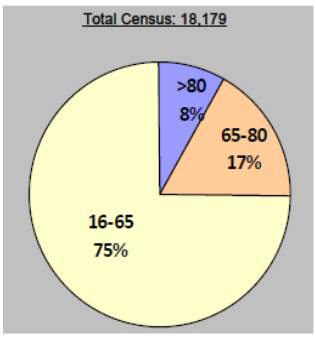
Sam Campbell, Chief, HCH ED

Demand

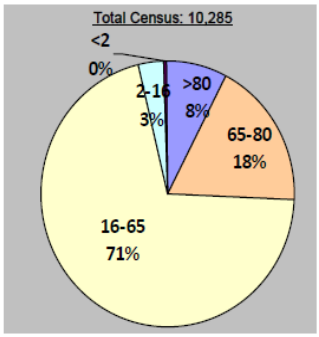
Emergency Department Demographics – Halifax Infirmary / Dartmouth General / Cobequid Community / Hants Community

Context:

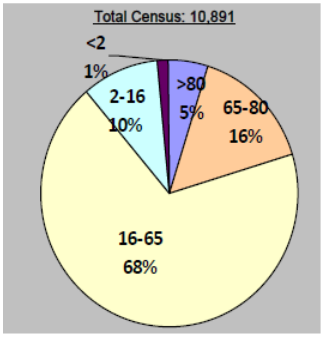
The complexity of patients presenting to the Emergency Department is a function of CTAS, age, presenting complaint, and many other factors. This data looks at the percentage of census in the following age groups (IWK excluded at this time): < 2 yrs, 2-16 yrs, 16-65 yrs, 65-80 yrs, and > 80 yrs.



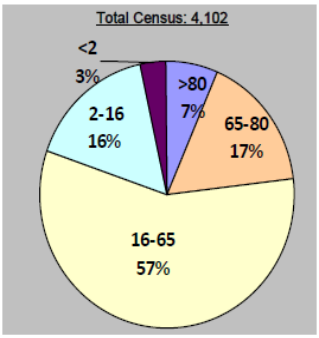
Halifax Infirmary
ED Distribution



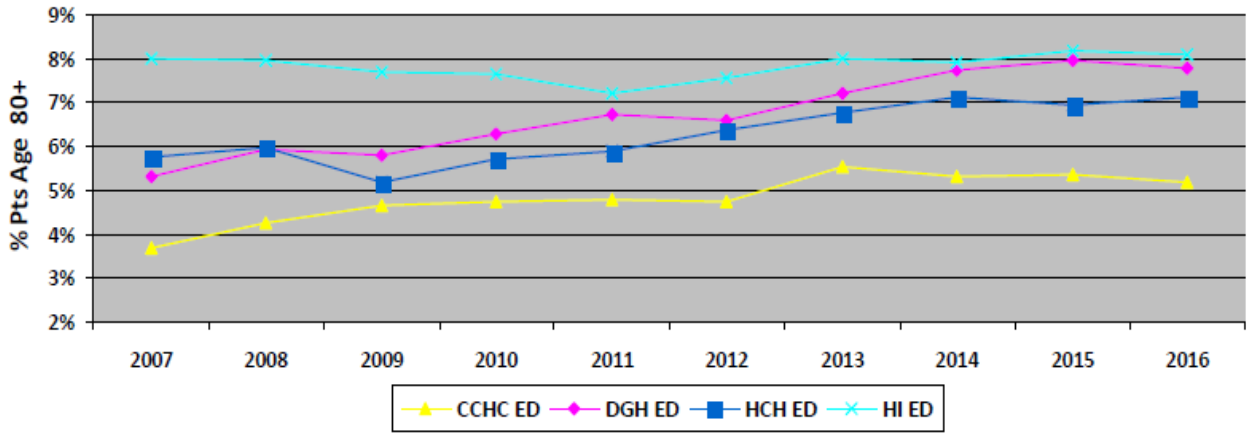
Dartmouth General
ED Distribution



Cobequid Community
ED Distribution



Hants Community
ED Distribution



Analysis:

While patient volumes continue to rise, so too does the average age of patients, with 25% of patients at the HI and DGH sites being over 65 years of age. Patient age is a surrogate marker for complexity, which requires longer stays and higher resource use. The boarding of non admitted geriatric patients waiting for adult protection placement is resulting in and increasing amount of ED bed blockage by non-emergency patients that is not reflected in the 'admitted' boarding data. Constantly improving the care we provide to older patients and those with frailty is a specific goal of the Central Zone Emergency Departments.

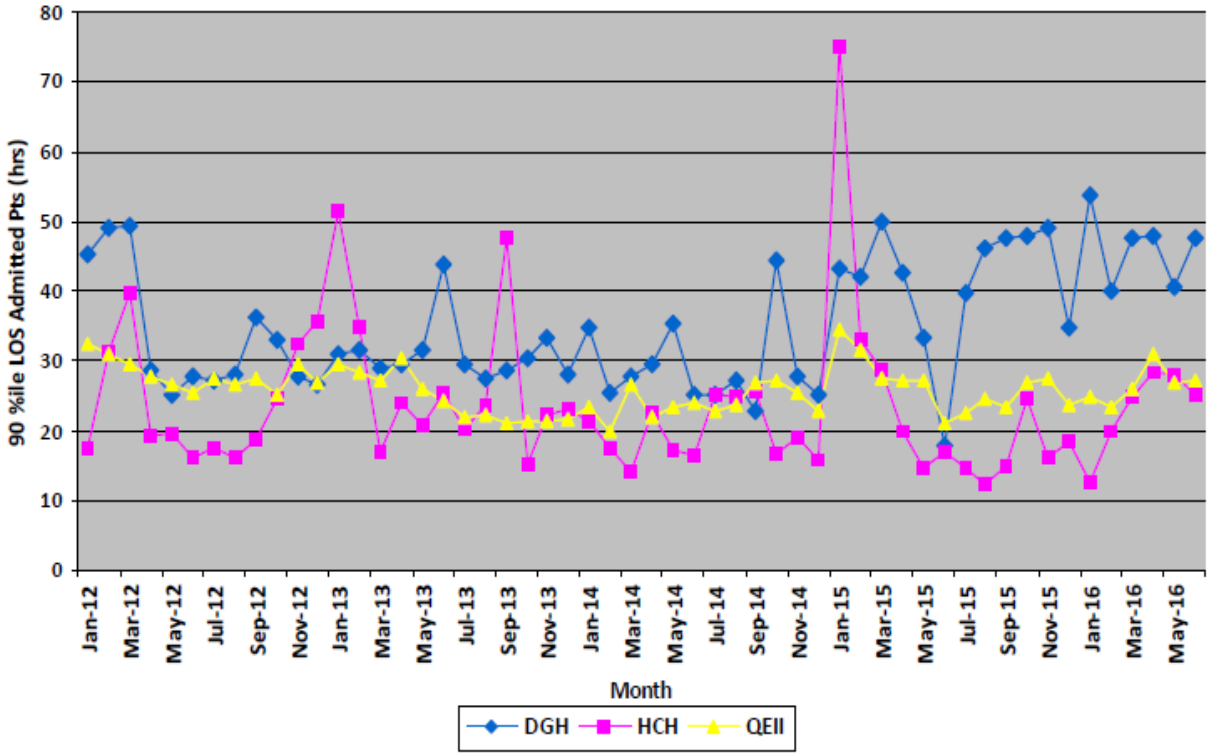
Sam Campbell, Acting CZESC Chair, NSHA

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:

The boarding of admitted patients at the Dartmouth General Emergency Department continues at crisis levels (and is trending to deteriorate), The other Emergency Departments are also significantly affected by boarding, which presents the biggest challenge to safe and effective patient care, both for those being boarded, and those waiting for emergency assessment. The current national target recommended by CAEP of 12 hours is not achieved consistently by any of the ED's and, with the exception of Hants in January 2016, it has not been achieved at all in the past year. At Hants, boarding 90%ile LOS have been similar to those at the HI for the past 4 months. This crisis has been going on for so long that it appears that this deviance from recommended standards of care has become 'normalized', and indicates the failure of an effective system of care.

Sam Campbell, Acting CZESC Chair, NSHA.

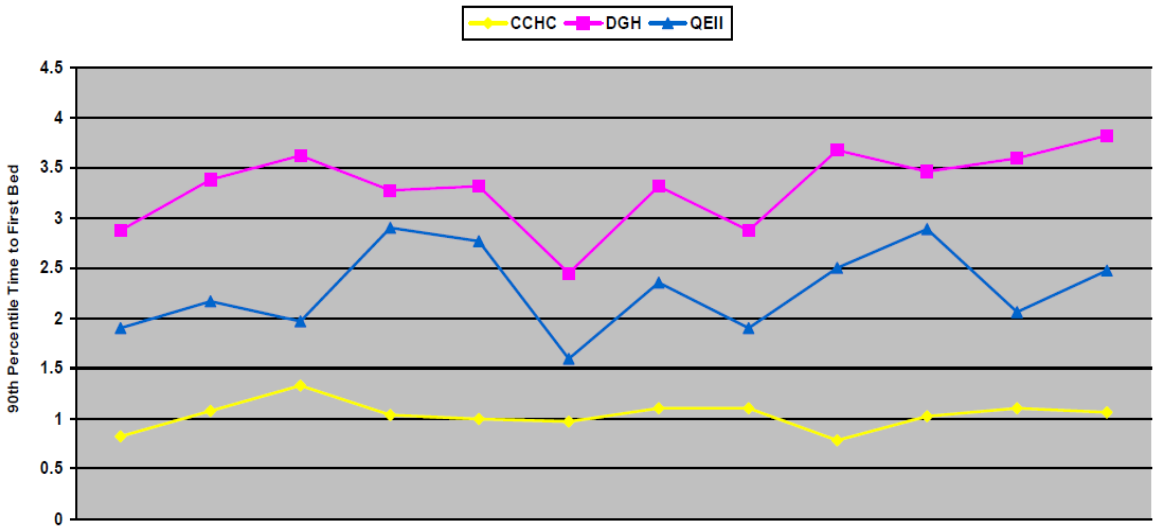
Flow and Network Integration

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.



	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16
CCHC	0.82	1.08	1.33	1.04	1	0.97	1.1	1.11	0.79	1.03	1.1	1.07
DGH	2.87	3.38	3.62	3.27	3.32	2.45	3.32	2.88	3.67	3.46	3.6	3.82
QEII	1.91	2.17	1.97	2.9	2.77	1.6	2.35	1.91	2.5	2.89	2.07	2.48

90th Percentile Time to Bed (hr)

CCHC	262	253	262	274	276	241	301	248	270	254	239	310
DGH	571	553	487	592	582	580	529	525	594	519	632	598
QEII	1378	1471	1375	1397	1349	1333	1467	1298	1300	1253	1379	1387

Ambulance Volume

Analysis:

A direct result of boarding and bed blockage is that ambulances are not able to offload patients, tying up pre-hospital resources in hospital corridors, and denying definitive care from their patients. None of the sites with EDIS are obtaining the 20 min offload recommendations, with DGH again faring the worst.

Sam Campbell, Acting CZESC Chair, NSHA.

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 yellow ED (this was recently changed from rerouting only to Green EDs).

QEII	DGH	%
YELLOW	RED	13.80%
YELLOW	YELLOW	10.51%
ORANGE	RED	8.45%
GREEN	YELLOW	8.37%
RED	RED	8.03%
GREEN	RED	7.61%
GREEN	GREEN	7.44%
YELLOW	GREEN	6.86%
YELLOW	ORANGE	6.57%
GREEN	ORANGE	5.90%
ORANGE	YELLOW	4.84%
ORANGE	GREEN	2.90%
ORANGE	ORANGE	2.84%
RED	ORANGE	2.46%
RED	YELLOW	2.16%
RED	GREEN	1.25%

Analysis:

Compared to the previous quarter, Dartmouth General redirect status toward Halifax Infirmary was 27.31% with the opposite the case in only 6.31% of the time. Although part of this can be explained by the recent expansion of diversion potential from 'red to yellow or green, or orange to green, it is another indicator of the severe blockage of access at the DGH site. The Dartmouth General Emergency was in 'Red' status (overwhelmed) 37.89% of the time (Halifax Infirmary 13.9%) (These categories are determined by a peer-agreed system and can be changed as capacity and flow patterns change). There is an opportunity to expand this system across the province.

Because it is able to begin the day without boarded patients, Cobequid Community Health Centre continues to help smooth EHS offloads by taking a higher proportion of ambulances with CTAS 3, 4 or 5 patients when other sites are in 'Red' up until 15:00.

Sam Campbell, Acting CZESC Chair, NSHA

Flow and Network Integration

Pod of Initial Destination at the Halifax Infirmary ED / RAU

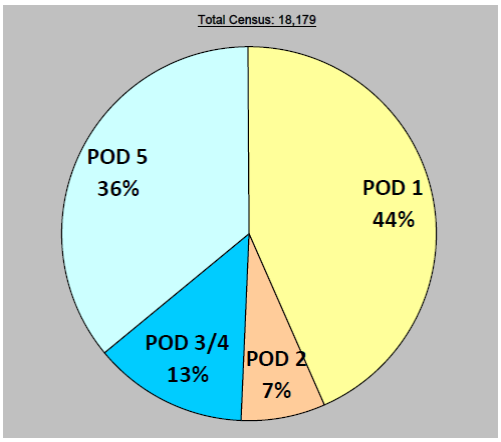
Context:

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

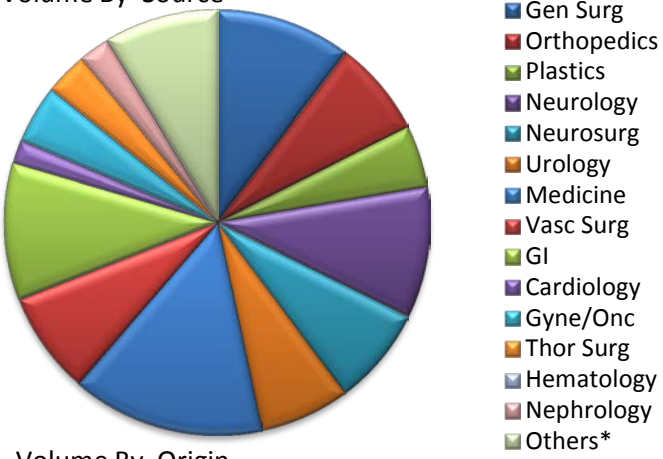
The HI ED has innovated (chair centric Pod 1, fast track/paramedic assisted pod 5) to meet the needs of this demand. The Rapid Assessment Unit (RAU) is another aspect of the ED which has evolved to meet the needs of transferred patients and referred patients from our own ED. This allows expedited consultations 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

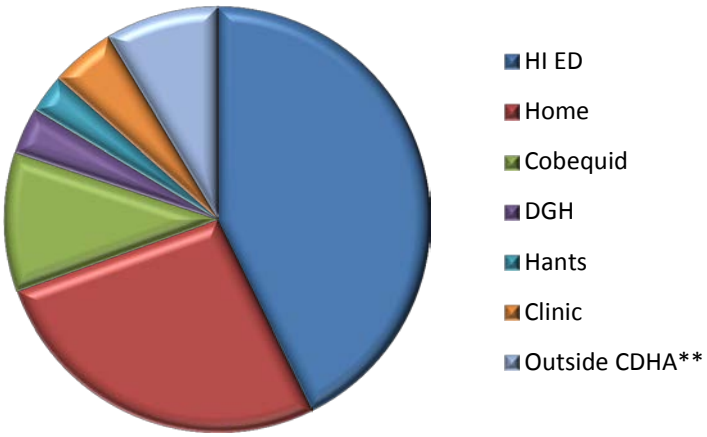
- Initial Location POD 1-2-3-4-5 or Psych
- Psych and Intake A part of Pod 1
- Intake B Part of Pod 5
- No Left Without Being Seen Counted



Volume By Source



Volume By Origin



Analysis:

The success of a 'Chair-centric' model in pods 1 and 5, as part of the strategy to deal with bed blockage continues to offer a 'lifeline' with 4/5 patients being treated in these areas.
RAU continues to divert patients from Emergency Department beds. Although previously almost half of all RAU patients were referred to orthopedics or general surgery there is a significant increase in the use of RAU to board admitted medical patients, who are now, the biggest used of RAU hours Although designed primarily to divert consulted patients originating at other hospitals, the Halifax Infirmary Emergency Department is still the biggest 'supplier' of patients to the RAU, with Cobequid the second biggest .

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	266	52	19.5%	18179	1.5%	17.52
DGH ED	444	118	26.6%	10285	4.3%	18.36
CCHC ED	30	19	63.3%	10891	0.3%	7.69

Analysis:

While the Dartmouth General Emergency Department approaches the 4-5% benchmark for Clinical Decision Unit (Ontario), The Halifax Infirmary Emergency Department continues to underuse (or under-document) this option.

The Clinical Decision Unit designation at Cobequid is being used more heavily for patients waiting for transfer to the Halifax Infirmary for admission or consultation.

Sam Campbell, Acting CZESC Chair, NSHA.

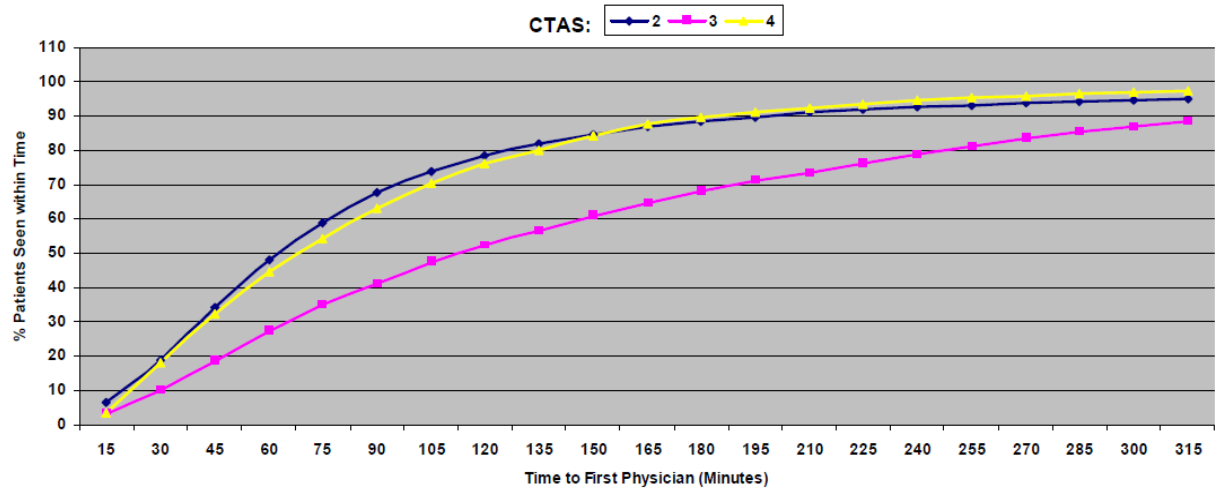
Patient Experience

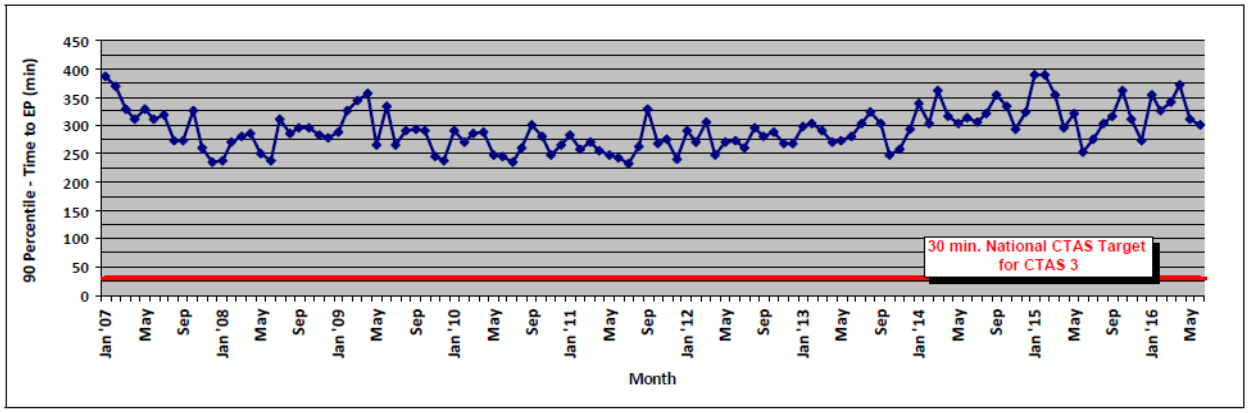
Wait Times – HI ED

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:

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. Considering that the occupation of Emergency Department beds by admitted patients remains high, it appears that without increased inpatient capacity, 'internal' methods to improve flow are likely to have limited further impact.

Sam Campbell, Site Chief, HI ED

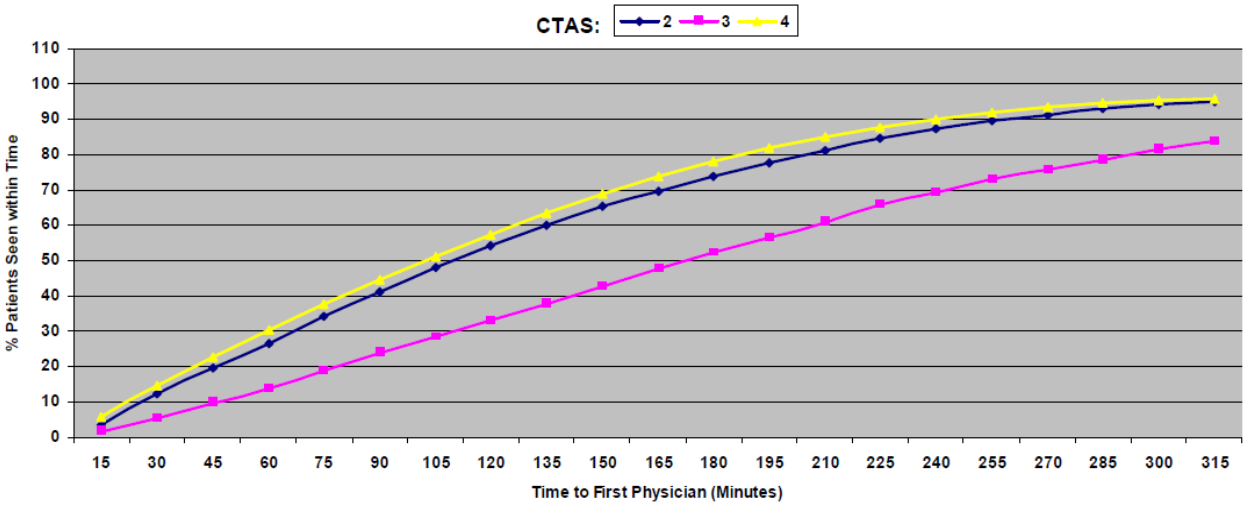
Patient Experience

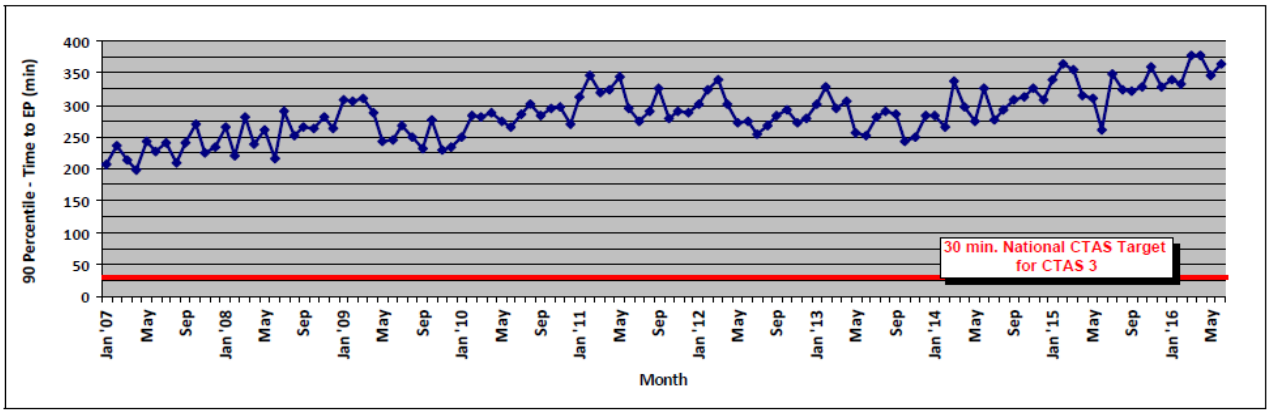
Wait Times – DGH ED

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).

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





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. After an initial improvement in wait times in early 2015, the closure of beds due to renovation of inpatient units at DGH has resulted in a steady increase in waits despite several mitigation strategies in place both in the department, hospital and Zone. We will welcome the completion of renovation work in spring/summer 2017.

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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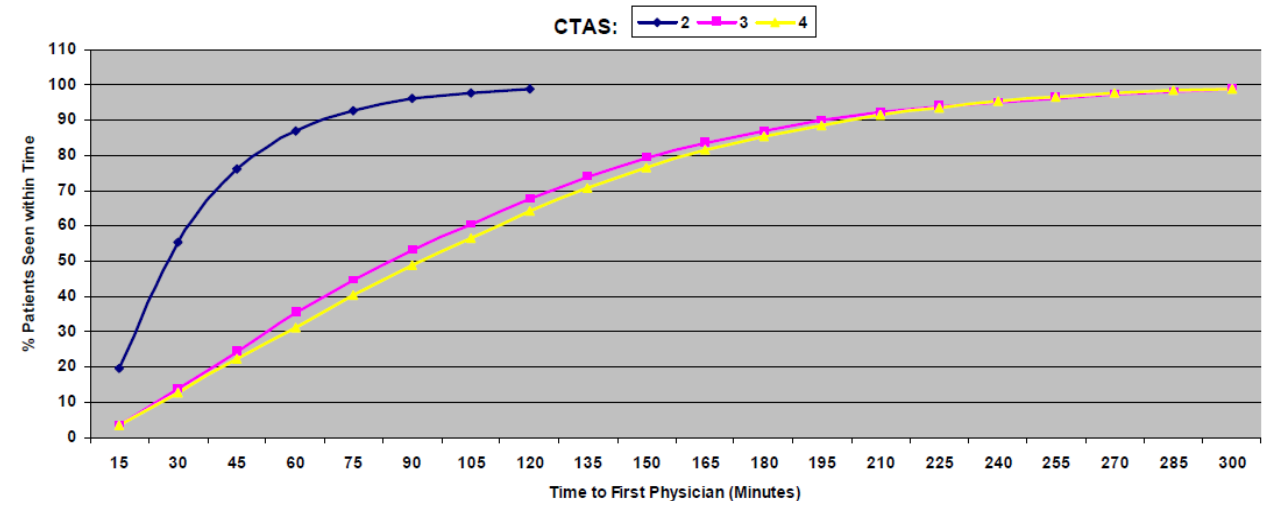
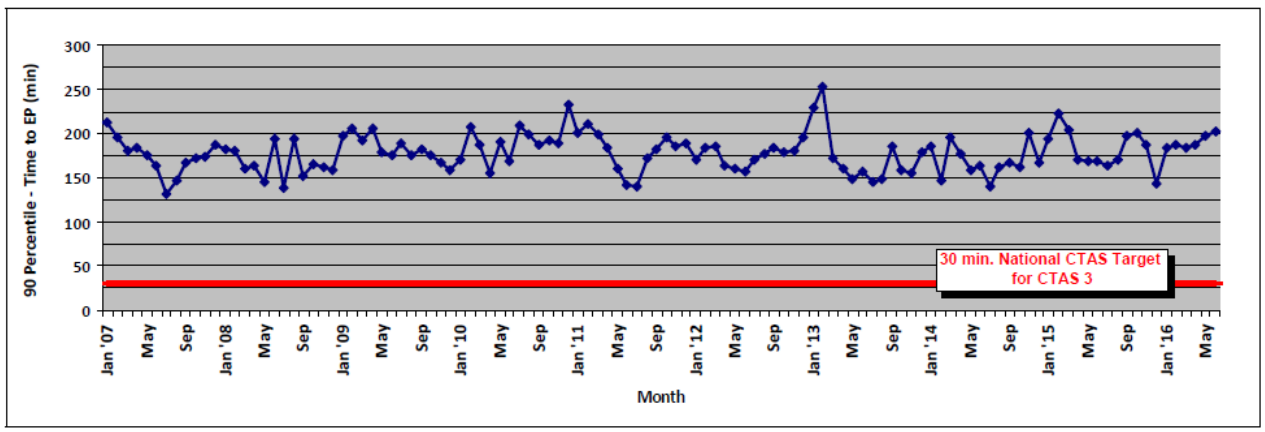




Analysis:

Wait times have remained stable despite 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

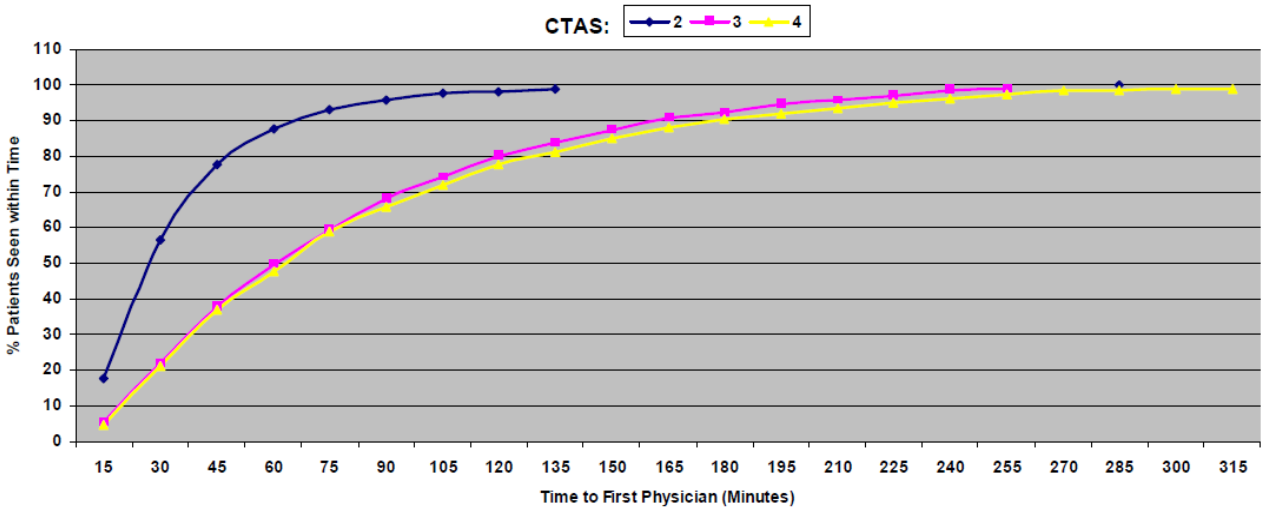
Patient Experience

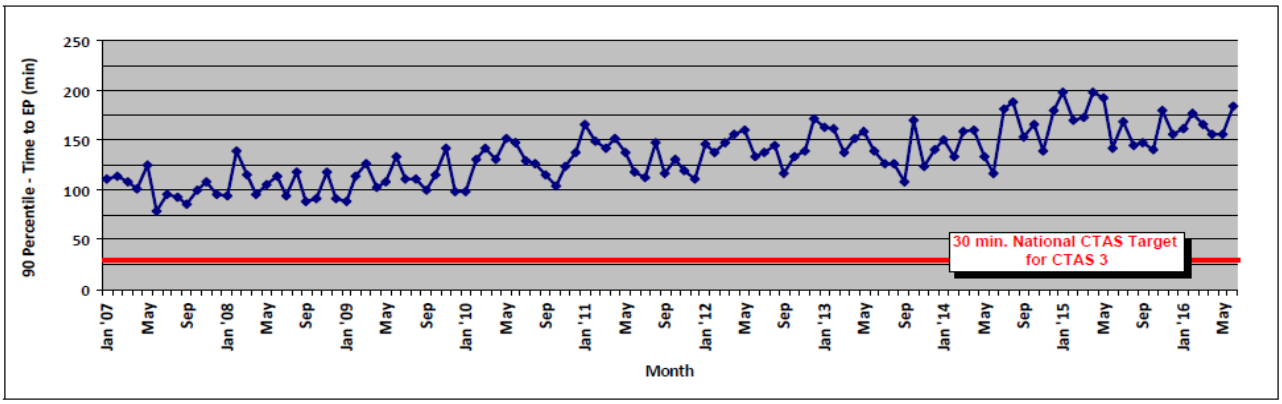
Wait Times – Hants ED

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 an increase 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 same. Newer physicians take a bit longer as they build experience in the department. With an increase in availability of certified emergency physicians, new hires are generally certified.
3. Delays to tertiary care and/or consultants within HI site – minimal delays over this quarter. Staff report some EHS related issues. Not showing in reports. Encouraged to report in order top track.
4. Hants has been increasingly helping out with boarding patients from the HI, both as in-patients and in the ED

Sam Campbell, Chief, Hants 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, 2016 to: Jun 30, 2016

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	18179	2391 (13.2%)	960 (5.3%)	40 (0.2%)	6917 (38.0%)	10308 (56.7%)
DGH	10285	1756 (17.1%)	618 (6.0%)	0 (0.0%)	5048 (49.1%)	7422 (72.2%)
HCH	4102	6 (0.1%)	63 (1.5%)	0 (0.0%)	1173 (28.6%)	1242 (30.3%)
CCHC	10891	977 (9.0%)	127 (1.2%)	0 (0.0%)	5221 (47.9%)	6325 (58.1%)
Total	43457	5130 (11.8%)	1768 (4.1%)	40 (0.1%)	18359 (42.2%)	25297 (58.2%)

Labs Ordered			
Site	Patients with Labs Ordered	% Patients with Labs	Patient Volume
QEII	8417	46.3%	18179
DGH	5393	52.4%	10285
HCH	1190	29.0%	4102
CCHC	4695	43.1%	10891
Total	19695	45.32%	43457

Analysis:

Dartmouth General Hospital Emergency Department continues to order more Lab and Diagnostic Imaging than the other centres . Ultrasound use in Dartmouth has increased from previous reports.

Sam Campbell, Acting CZESC Chair, NSHA.