

Capital District Emergency Services Council
“CDESC”

Quarterly Report

Quarter 3 of 2014

**With focus on the Emergency Department of
Charles V. Keating
Emergency and Trauma Centre
QEII Health Sciences Centre**



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 CDHA/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	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • “avoidable” CTAS 3 (ED as safety net) <ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • “inappropriate” ED visits (ED as gate keeper) <ul style="list-style-type: none"> - 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. WILLIAMS, 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.

Table of Contents

1. DEMAND

A. Census

1. Halifax Infirmary Emergency Department
2. Dartmouth General Hospital Emergency Department
3. Cobequid Community Health Center Emergency Department
4. Hants Community Emergency Department

2. FLOW AND NETWORK INTEGRATION

- A. Emergency Department Length of Stay for Admitted Patients
- B. Ambulance Offload / Transition
- C. Matching Capacity with Demand
- D. Pod Initial Destination - Halifax Infirmary ED / Rapid Assessment Unit (RAU)
- E. Clinical Decision Unit (CDU) Utilization

3. PATIENT EXPERIENCE

A. Wait Times

1. Halifax Infirmary Emergency Department
2. Dartmouth General Hospital Emergency Department
3. Cobequid Community Health Centre Emergency Department
4. Hants Community Emergency Department

4. CLINICAL CARE

- A. Diagnostic Imaging and Laboratory Reporting

5. FOCUS: EMERGENCY DEPARTMENT OF CHARLES V. KEATING EMERGENCY AND TRAUMA CENTRE

- A. Emergency Department Frailty Working Group
- B. Stroke
- C. Ebola

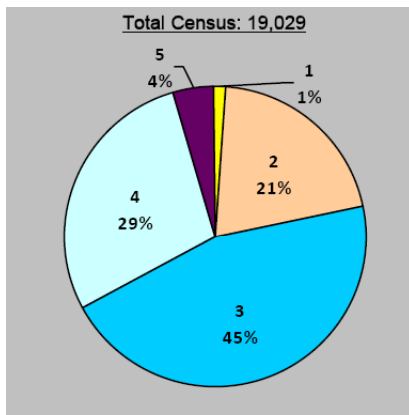
Demand

Census – Halifax Infirmary ED

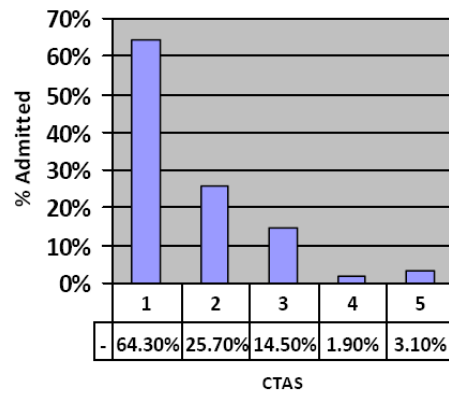
Reporting Date: July 1 – September 30, 2014

Context :

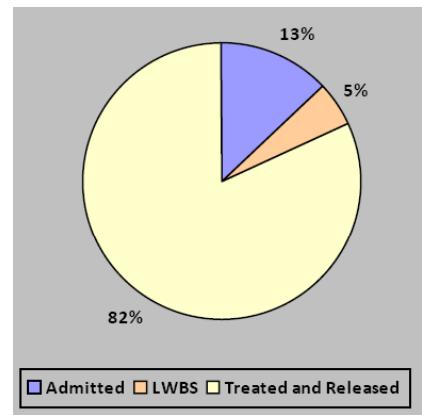
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left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



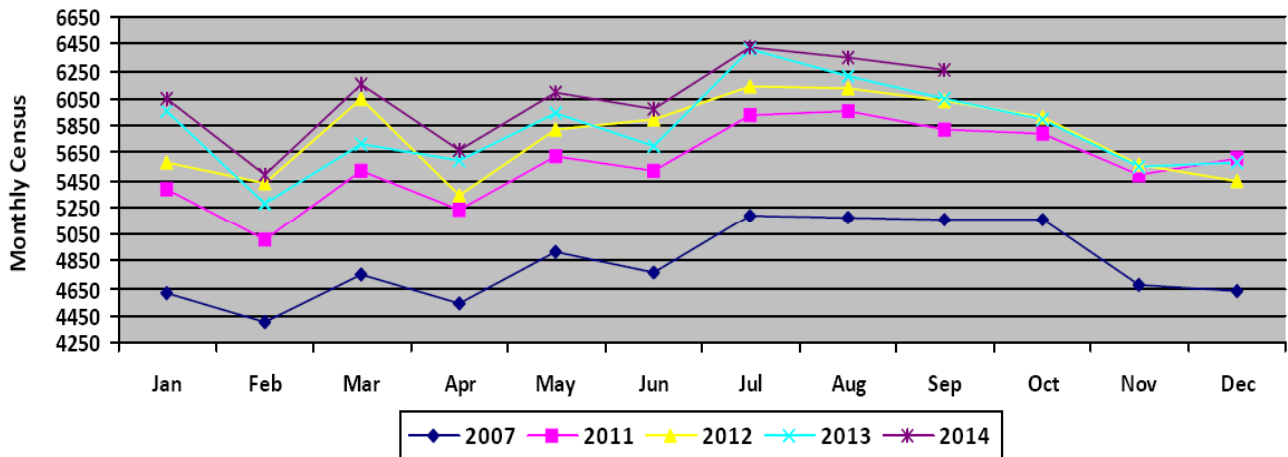
CTAS Distribution



Percentage Admits



Discharge Distribution



Analysis:

Increase of approximately 4 patients per day as compared to the same quarter last year (approximate 2% increase).

Distribution pattern of admissions remains relatively the same and a decrease in Left Without Being Seen (LWBS) by 2% despite the increase in volume and wait times.

Rob MacKinley, Health Services Manager, HI ED

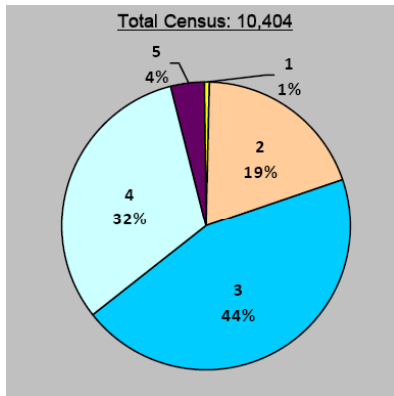
Demand

Census – Dartmouth General ED

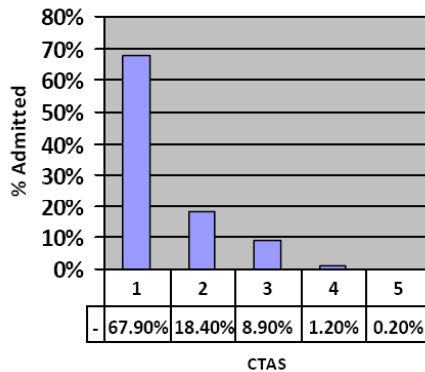
Reporting Date: July 1 to September 30, 2014

Context:

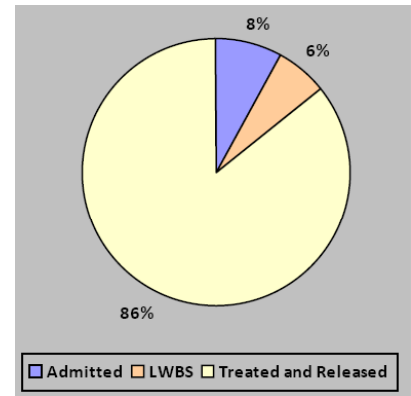
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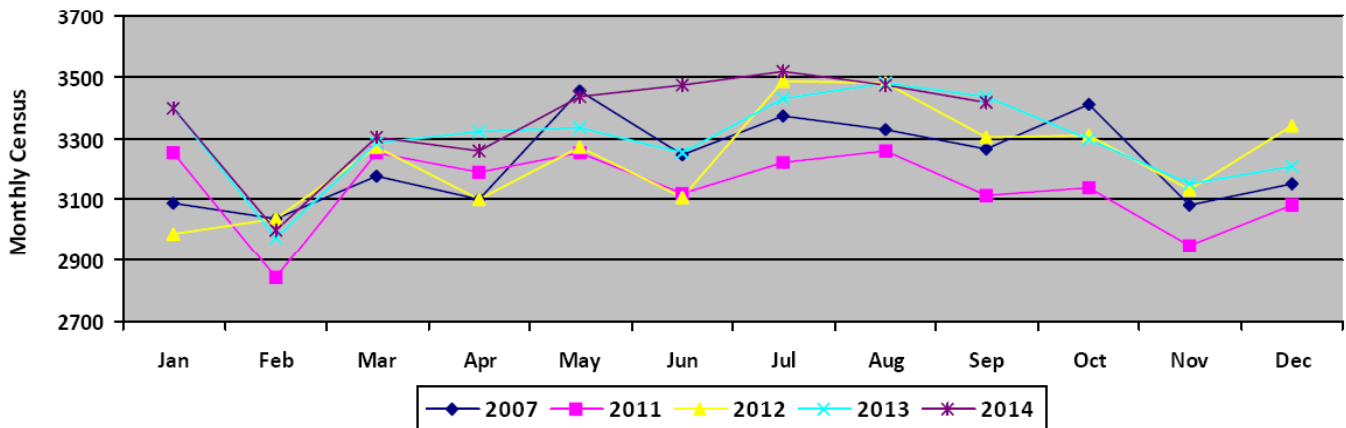
CTAS Distribution



Percentage Admitted



Discharge Distribution



Analysis:

Overall patient volumes continue to be higher than previous years. Acuity levels are stable with the majority of patients being higher acuity patients (CTAS level 2/3).

Ravi Parkash, Site Chief, DGH ED

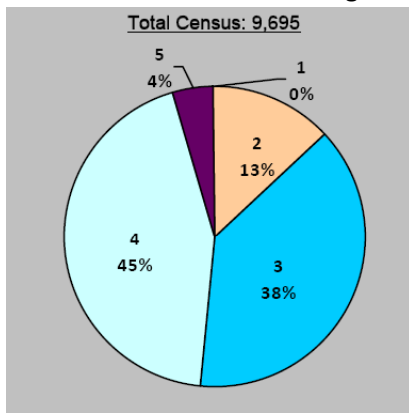
Demand

Census – Cobequid Community ED

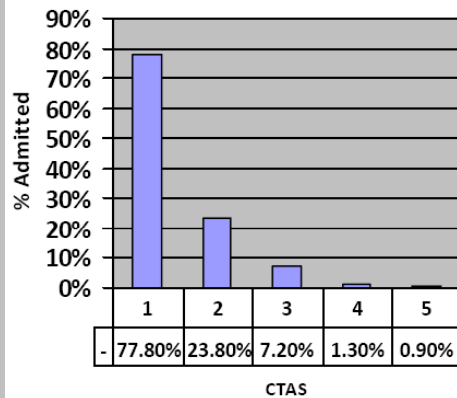
Reporting Date: July 1 to September 30, 2014

Context:

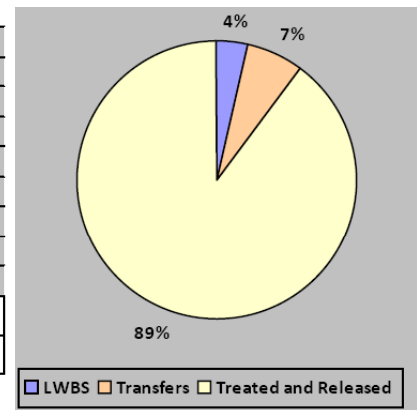
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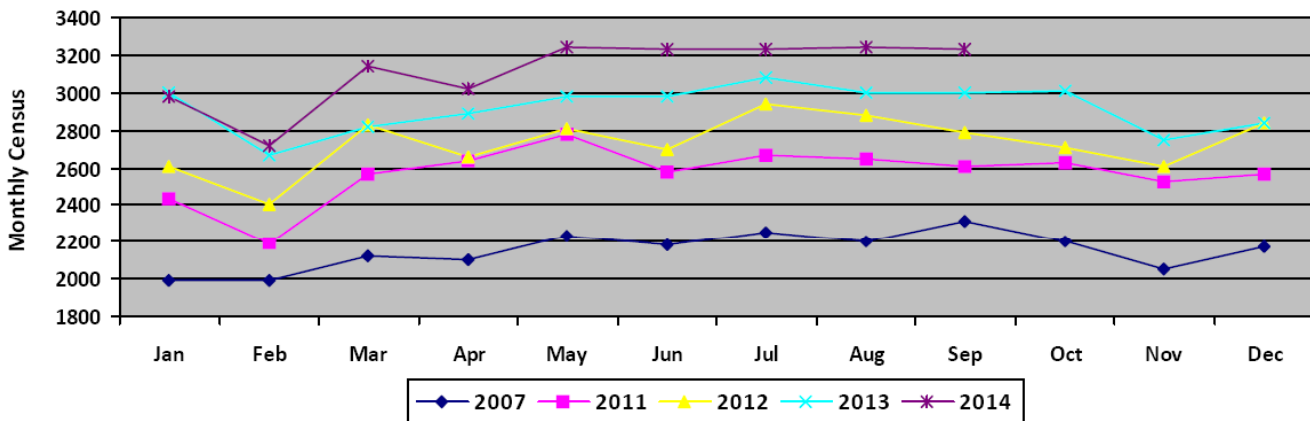
CTAS Distribution



Percentage Transferred



Discharge Distribution



Analysis:

Patient registrations continue to increase at CCHC but the LWBS rate has maintained at 4%. The transfer rate remains stable at 7%. Acuity was slightly less with 51% of visits being in CTAS 1,2 or 3 category, in contrast to 53% in second quarter 2014.

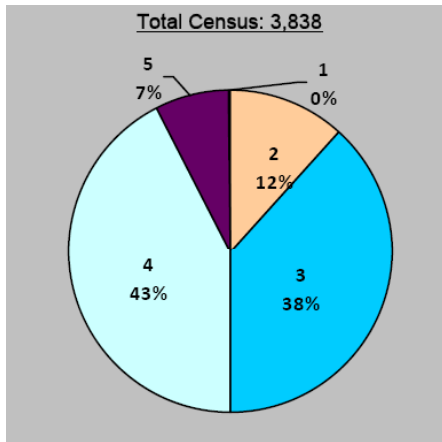
Mike Clory, Site Chief, CCHC ED

Demand

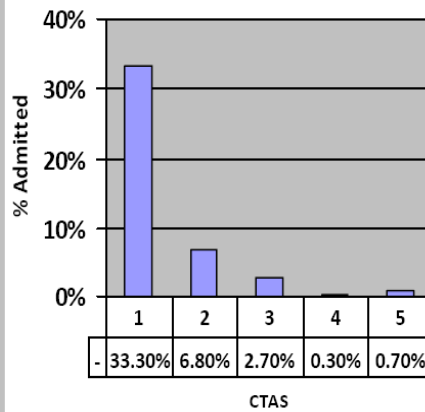
Census –Hants Community Hospital ED Reporting Date: July 1 to September 30, 2014

Context:

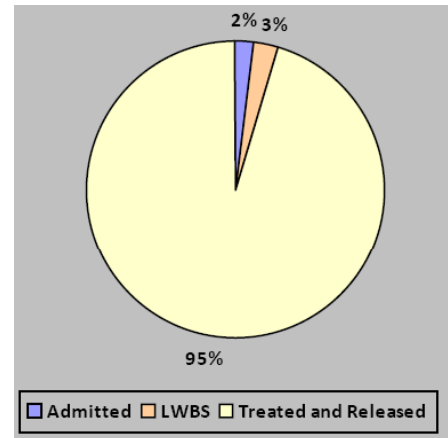
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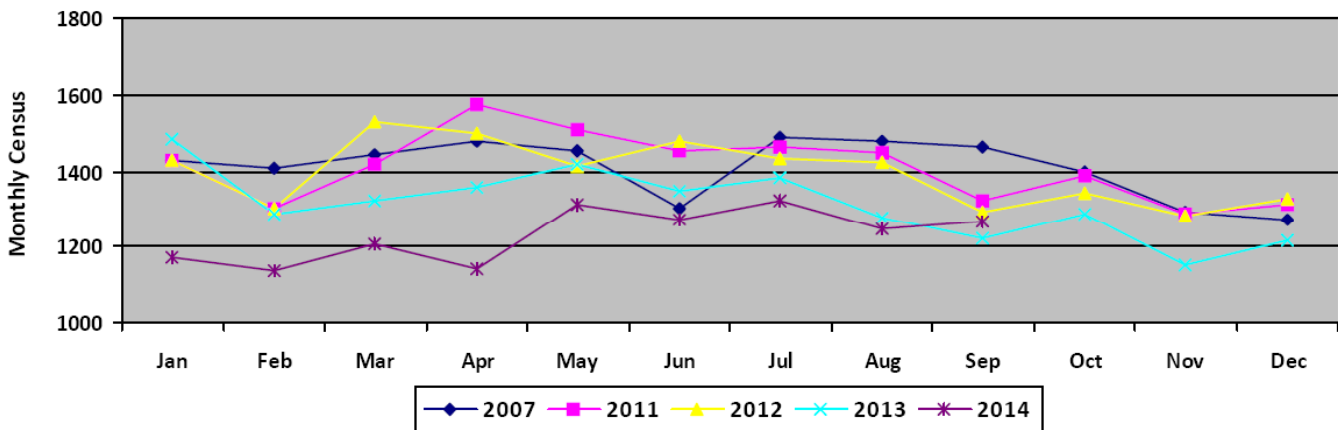
CTAS Distribution



Percentage Transferred



Discharge Distribution



Analysis:

Hants' monthly census has been inclining to previous levels. No evidence of increased visits in neighbouring ED sites. Plan – continue to monitor daily census. LWBS rates have been dramatically declining due to triage driven protocols.

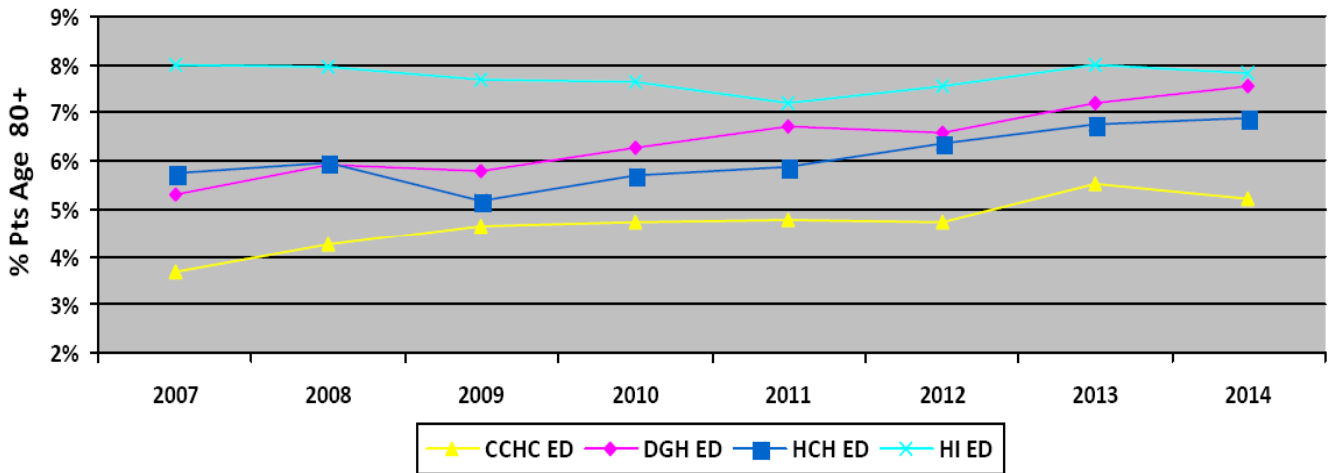
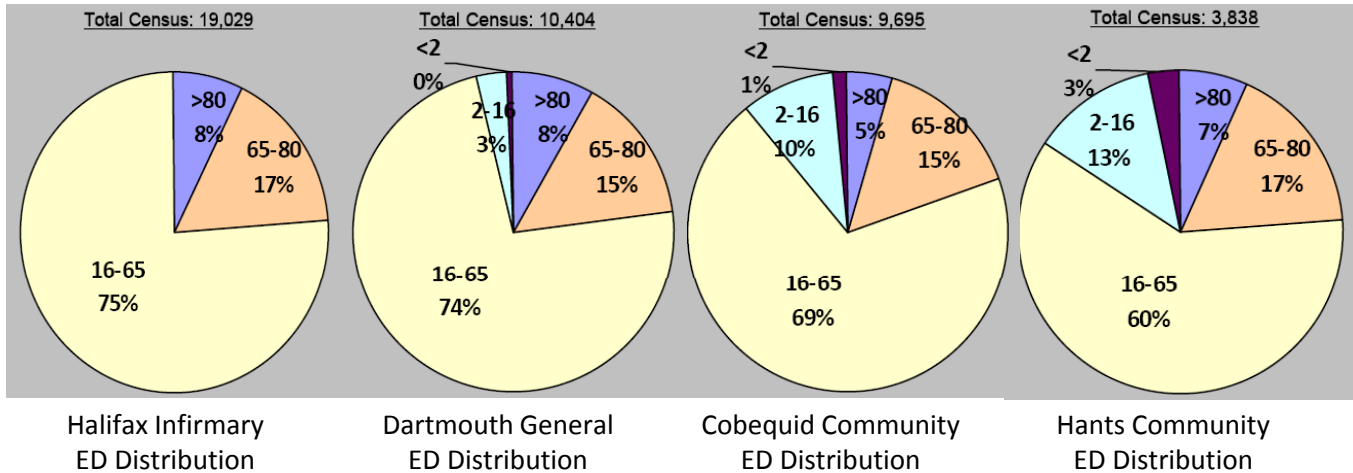
Tanya Penney, Health Services Manager, HCH ED

Demand

Emergency Department Demographics – Halifax Infirmery / 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.



Analysis:

The volumes of patients are up significantly in the district and the proportion presenting to the Emergency Department over 80 years of age has risen slowly.

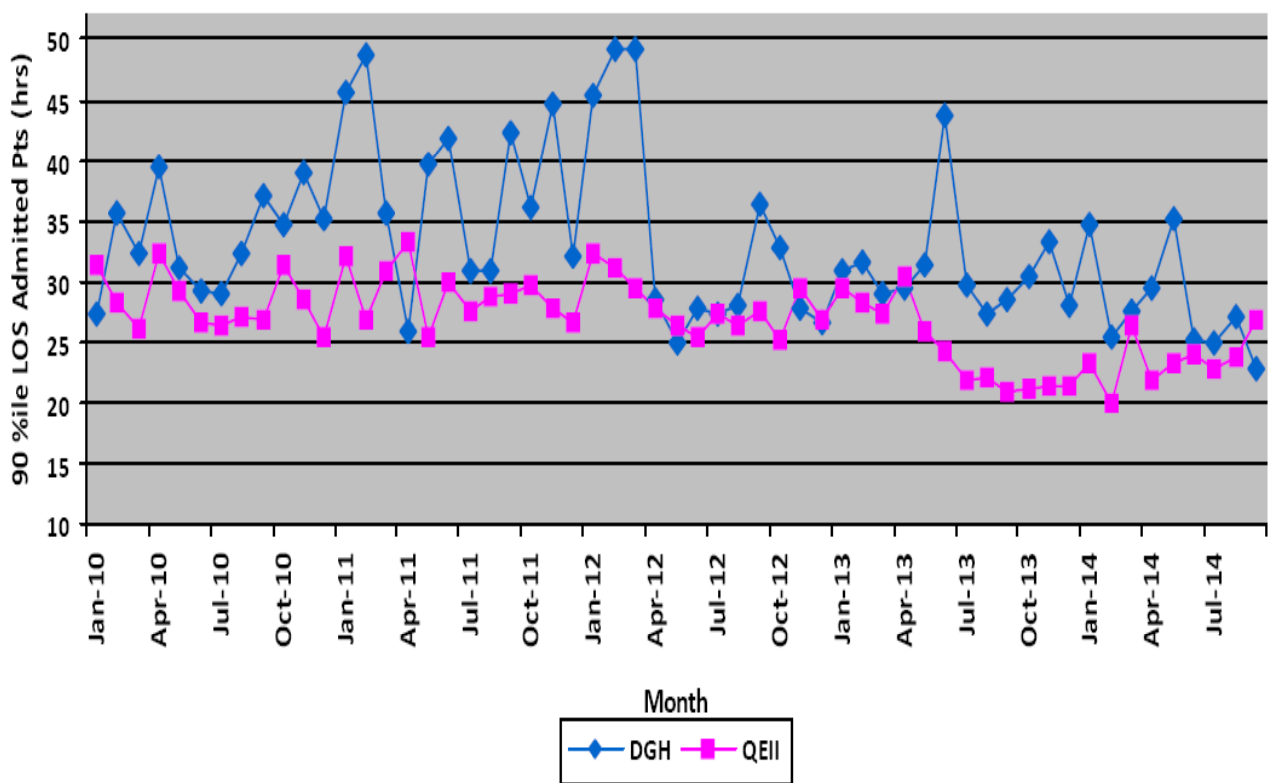
David Petrie, District Chief, Capital Health

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:

The 90th percentile performance for the Halifax Infirmary is 24 hours. Dartmouth General remains approximately 25 hours. The current national target recommended by CAEP is 12 hours.

David Petrie, District Chief, CDHA

Flow and Network Integration

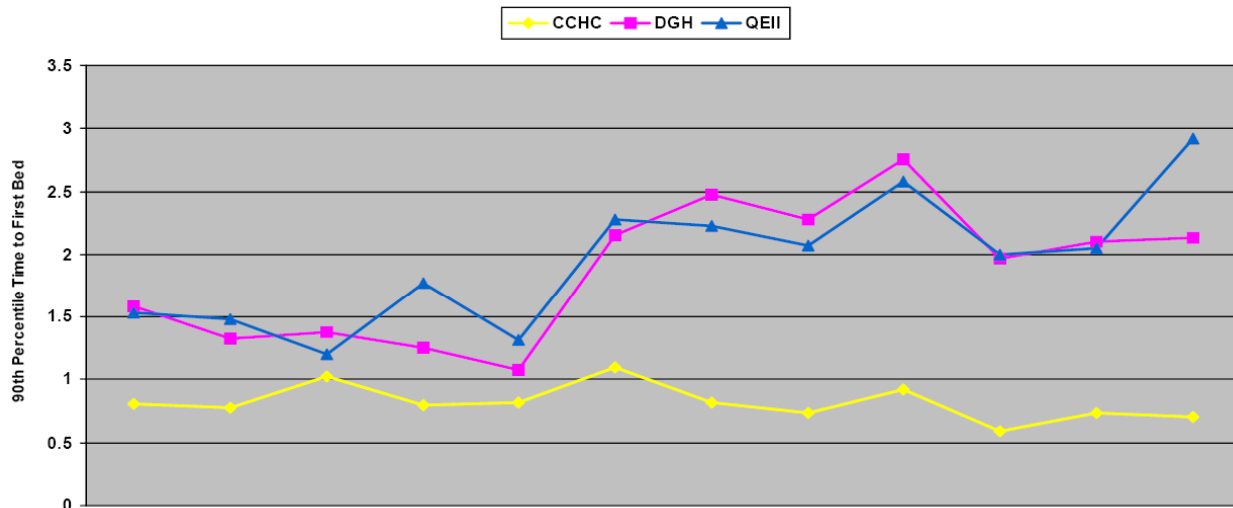
Ambulance Offload / Transition

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: Oct 01, 2013 to: Sep 30, 2014



	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14
CCHC	0.81	0.78	1.02	0.8	0.82	1.1	0.82	0.74	0.92	0.59	0.74	0.7
DGH	1.58	1.33	1.38	1.25	1.08	2.15	2.47	2.28	2.75	1.97	2.1	2.13
QEII	1.53	1.48	1.2	1.77	1.31	2.28	2.23	2.07	2.58	2	2.05	2.92

90th Percentile Time to Bed (hr)

CCHC	207	189	250	242	192	269	231	238	250	216	198	224
DGH	543	506	576	598	547	639	586	594	537	598	571	562
QEII	1337	1291	1332	1444	1264	1372	1283	1390	1279	1341	1319	1275

Ambulance Volume

Analysis:

After a prolonged period of improved ambulance offload times there is a disturbing increase in the 90th percentile performance likely secondary to the discontinuation of the offload/transition teams at the Dartmouth General and Halifax Infirmary and the increase in patient volumes.

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	36.24%
YELLOW	GREEN	19.46%
GREEN	YELLOW	11.73%
YELLOW	YELLOW	10.04%
ORANGE	GREEN	4.23%
YELLOW	ORANGE	3.72%
GREEN	ORANGE	3.48%
ORANGE	YELLOW	3.09%
GREEN	RED	2.17%
ORANGE	ORANGE	1.51%
YELLOW	RED	1.23%
RED	YELLOW	1.06%
RED	GREEN	0.88%
ORANGE	RED	0.72%
RED	ORANGE	0.34%
RED	RED	0.10%

Analysis:

During Quarter 4, 2014, Dartmouth General Red / Halifax Infirmary Green occurred 2.17% of the time (this is a significant drop from previous) and Halifax Infirmary Red / Dartmouth General Green occurred 0.88% of the time (ie: The Dartmouth General is 2.5 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.

David Petrie, District Chief, CDHA

Flow and Network Integration

Pod of Initial Destination at the Halifax Infirmiry ED / RAU

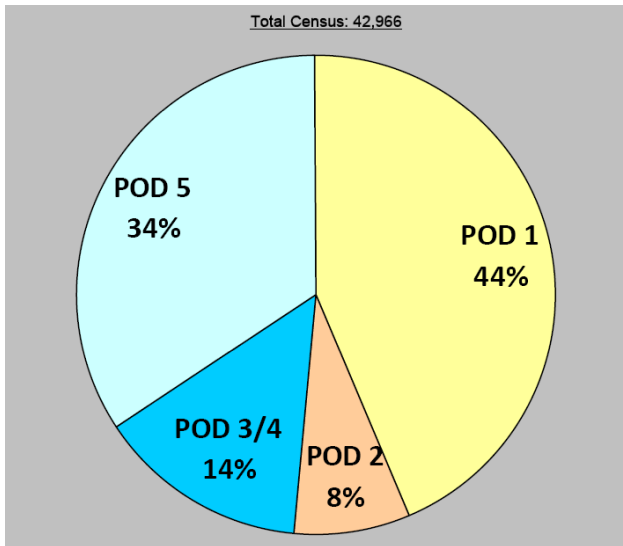
Context:

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

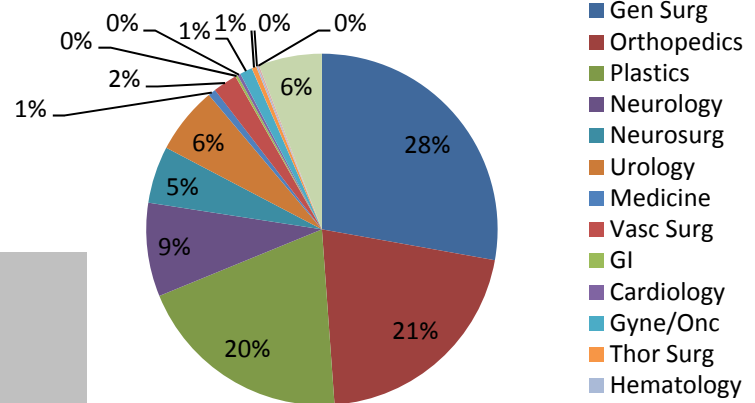
The HI ED has innovated (chair centric Pod 1, fast track/paramedic assisted pod 5) to meet the needs of this demand. The Rapid Assessment Unit is another aspect of the ED which has evolved to meet the needs of transferred patients and referred patients from our own ED. This allows expedited consultations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

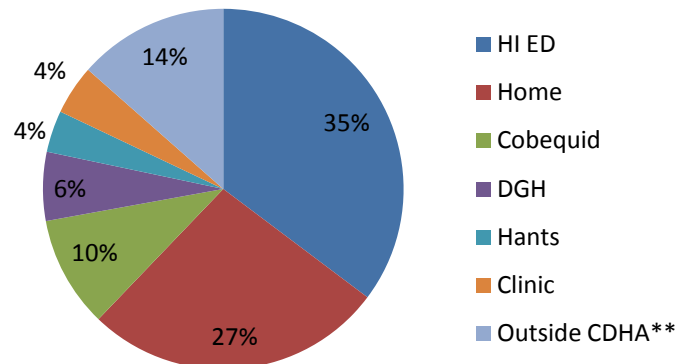
- Initial Location POD 1-2-3-4-5 or Psych
- Psych and Intake A part of Pod 1
- Intake B Part of Pod 5
- No Left Without Being Seen Counted



Volume By Source



Volume By Origin



Analysis:

The distribution of patients streamed between pods remains unchanged from previous reports.

Rob MacKinley, Health Services Manager, 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	217	40	18.4%	19029	1.1%	18.96
DGH ED	437	87	19.9%	10404	4.2%	16.26
CCHC ED	2	2	100.0%	9695	0.0%	

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

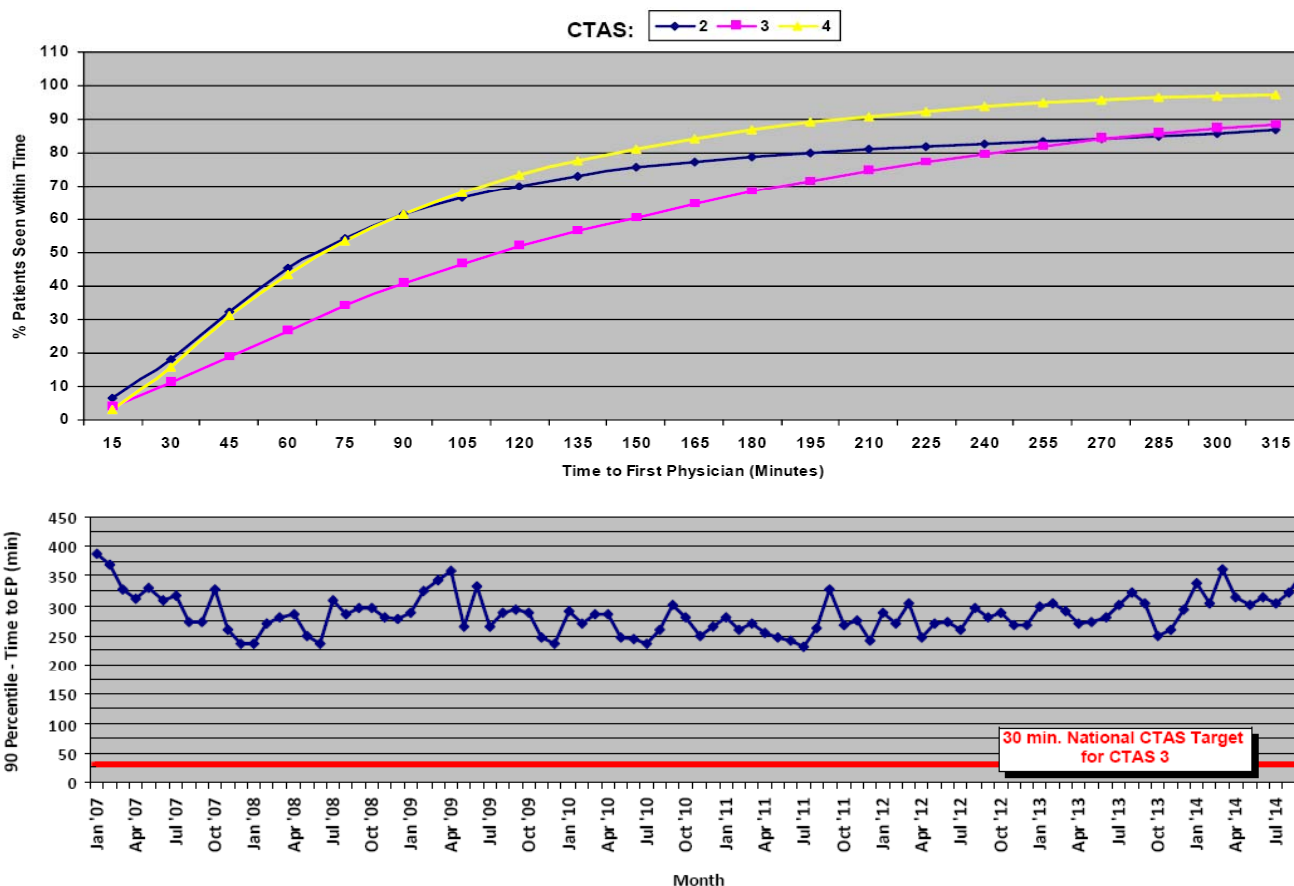
Patient Experience

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:

Wait times have steadily increased this quarter compared to the same time last year. There is a direct correlation to the increased time of boarded (admitted) patients in the ED over this quarter. We continue to address wait times with collaborative working consult services, non physician providers and utilizing streaming models.

Rob MacKinley, Health Services Manager, HI ED

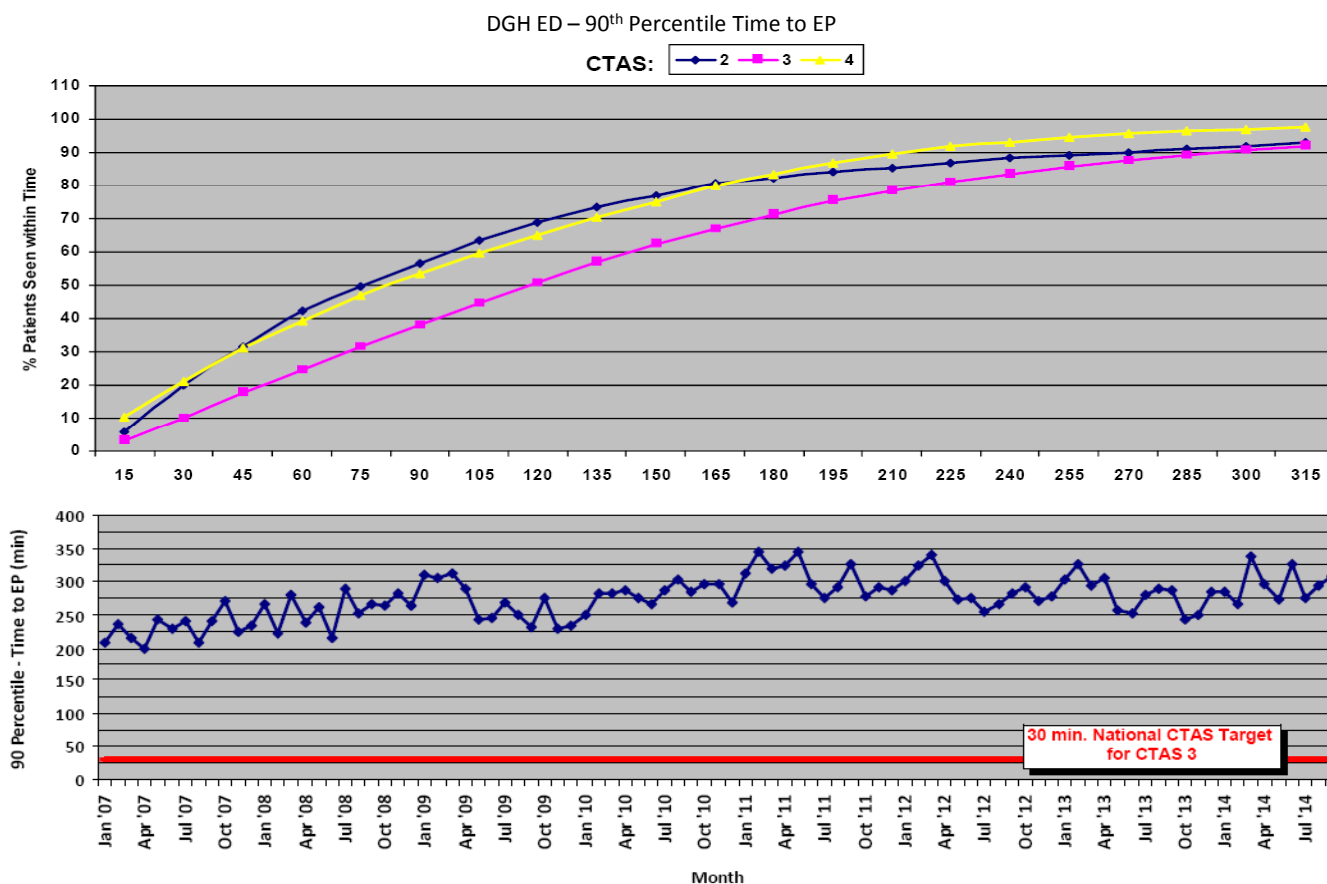
Patient Experience

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:

Capacity issues for admitted patients at DGH continues to have a negative impact on wait times for incoming ED patients. Loss of the CDHA/EHS ambulance offload team in March 2014 has also had a negative impact on wait times for those patients arriving by ambulance.

Ravi Parkash, Site Chief, DGH ED

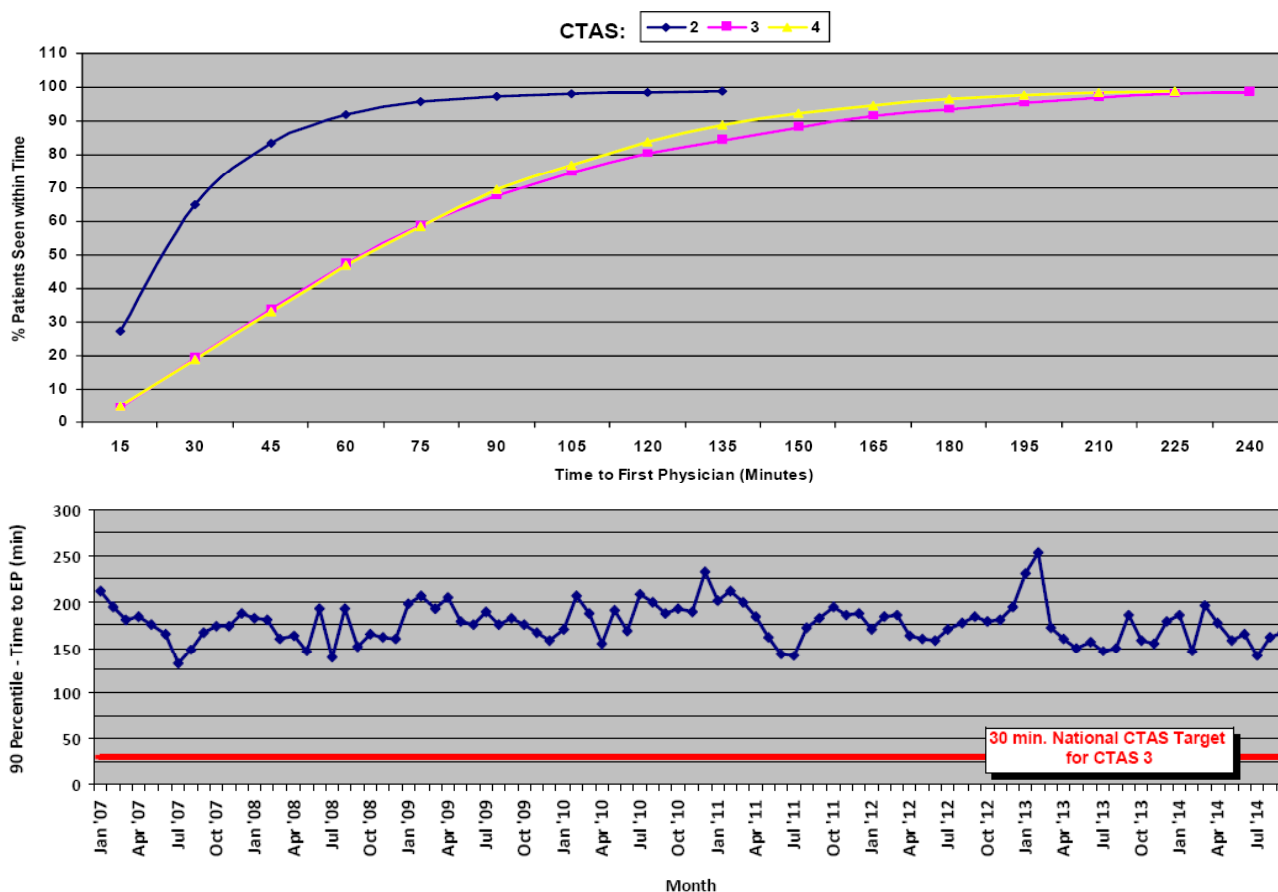
Patient Experience

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).

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



Analysis:

Wait times have remained stable despite increased volumes. Care plans help deliver treatments to selected patients before EP assessments. This is not reflected in this data. 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

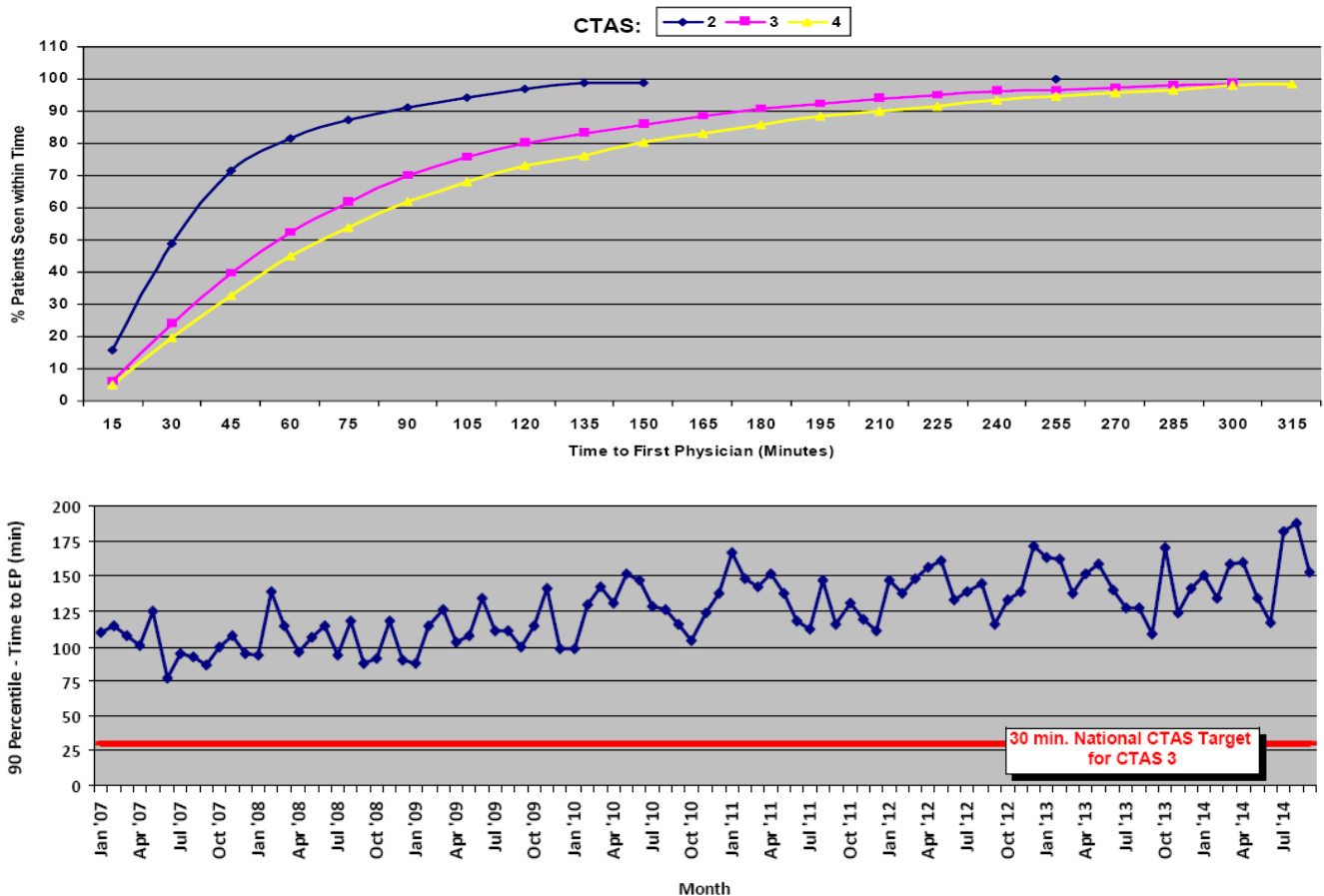
Patient Experience

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 within HCH exist due to:

1. Admitted bed shortages – creates limited space.
2. Physician dependent (1 ERP) – limited flux.

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: Jul 01, 2014 to: Sep 30, 2014

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	19029	2549 (13.4%)	860 (4.5%)	34 (0.2%)	8288 (43.6%)	11731 (61.6%)
DGH	10404	1527 (14.7%)	462 (4.4%)	0 (0.0%)	5594 (53.8%)	7583 (72.9%)
HCH	3838	6 (0.2%)	48 (1.3%)	0 (0.0%)	1119 (29.2%)	1173 (30.6%)
CCHC	9695	827 (8.5%)	205 (2.1%)	2 (0.0%)	4896 (50.5%)	5930 (61.2%)
Total	42966	4909 (11.4%)	1575 (3.7%)	36 (0.1%)	19897 (46.3%)	26417 (61.5%)

Labs Ordered			
Site	Patients with Labs Ordered	% Patients with Labs	Patient Volume
QEII	8175	43.0%	19029
DGH	5120	49.2%	10404
HCH	1158	30.2%	3838
CCHC	4151	42.8%	9695
Total	18604	43.30%	42966

Analysis:

This is raw 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).

David Petrie, District Chief, CDHA

Emergency Department Frailty Working Group

The purpose of our ED working group was to identify various issues and initiatives that can be addressed to improve care of frail and/or elderly patients in our ED. Frailty Month took place throughout the month of October where our goal was to provide education and raise awareness about frailty and providing care for older adults in the ED. We had weekly lunch



& learn sessions, developed a purposeful space for frailty in the ED and were able to complete our goal of obtaining high-backed geriatric chairs for rooms in Pods 3 & 4. In addition, the group is working hard on a variety of other initiatives including: ED documentation (new nursing note, CDU form), research (qualitative interviews), and CARE program.

CARE Program:

Overview of Program

The emergency department (ED) is a common place of care for seniors with acute illness or injury. The Care and Respect for Elders in Emergencies (CARE) Program is a new initiative at the Charles V. Keating Emergency and Trauma Centre. The volunteer-based program is intended to provide comfort and support for older patients (≥ 65 years) who are expected to spend a prolonged period of time in the ED, especially those who are unaccompanied.

CARE Program volunteers deliver interventions at the bedside such as reality orientation, conversation and other therapeutic activities intended to: 1) 'engage and re-orient' high-risk, older patients; 2) contribute to prevention of unintended complications such as delirium and falls; and 3) to help make the patient's ED stay as comfortable as possible. *Volunteers do not perform any tasks of paid personnel.* As the training for volunteers requires considerable time and resources, volunteers must commit to a minimum of 6-months or 100-hours in the program.

Fiscal Year	05-19	20-64	65+	Total
2009-2010	2	52	46	100
2010-2011	2	52	46	100
2011-2012	2	52	46	100
2012-2013	2	50	48	100
2013-2014	2	50	48	100
Percentage by Age Groups-Admissions				

Fiscal Year	05-19	20-64	65+	Total
2009-2010	7.0	71.4	21.6	100.00
2010-2011	6.9	71.5	21.7	100.00
2011-2012	6.8	70.9	22.2	100.00
2012-2013	6.2	70.7	23.1	100.00
2013-2014	5.9	70.1	24.0	100.00
Percentage by Age Groups-Total Volume				

Stroke

Context:

The Halifax Infirmary is the tertiary care stroke centre where all potentially thrombolizable strokes are brought by ambulance. Door to CAT scan to needle and to stroke unit times are key process indicators for the Emergency Department and have been associated with outcomes.

Quarter		Onset to HI ED	HI ED to CT	HIED to Needle	HIED to stroke
3.2013 (n=18)	Median	53	20	59	270
	Number in Target		16 of 18	10 of 18	2 of 18
	Percentage in Target		89%	56%	11%
4.2013 (n=12)	Median	61	21	64	270
	Number in Target		9 of 12	4 of 12	1 of 12
	Percentage in Target		75%	33%	8%
1.2014 (n=21)	Median	63	17	58	391
	Number in Target		19 of 22	12 of 22	3 of 22
	Percentage in Target		86%	55%	14%
2.2014 (n=20)	Median	63	21	59	264
	Number in Target		16 of 18	9 of 18	1 of 18
	Percentage in Target		89%	50%	6%
Total (n=70)	Median	62	20	59	270
	Number in Target		60 of 70	35 of 70	7 of 70
	Percentage in Target		86%	50%	10%

Analysis:

Over the last year we continue to consistently meet ED to CT time with 86% to target. Decrease in this percentage is again seen fall/winter 2013, during busier time in the ED underlying critical importance of good ED flow to meet door to CT time.

Ebola**Context**

With the recent outbreak of Ebola Virus Disease (EVD) in West Africa, Health care providers have been advised to be vigilant for the recognition, reporting and prompt investigation of patients with symptoms of Ebola and other similar diseases that can cause viral hemorrhagic fevers.

Person-to-person transmission of Ebola virus is primarily associated with direct contact with blood and body fluids of infected persons. It can also be transmitted through contact with medical equipment contaminated with infected body fluids. Health care providers caring for patients with suspected or confirmed Ebola virus disease must carefully and consistently apply the recommended infection prevention and control precautions.

Infection Control Education

As part of the ongoing personal protective equipment (PPE) training, several training sessions were held to teach both donning and doffing of the equipment in the Emergency Department. A total of 116 health care providers have taken part of this ongoing process. As information is updated and we learn more from others experience, we will continue to practice with PPE and our guidelines for managing suspected or confirmed cases of Ebola.