Capital District Emergency Services Council "CDESC"

Quarterly Report

Quarter 1 2014

With focus on the Emergency Department of IWK Health Centre

Capital Health
A different today. A better tomorrow.

IWK Health Centre

DALHOUSIE UNIVERSITY
Inspiring Minds

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 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	• 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.

Table of Contents

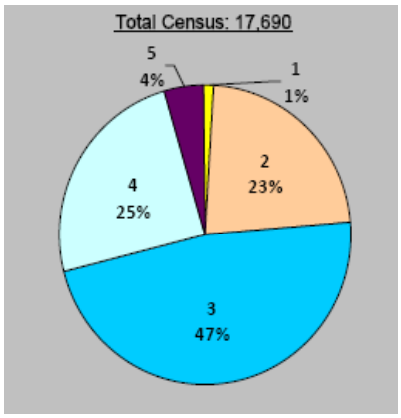
Demand

Census – Halifax Infirmary ED

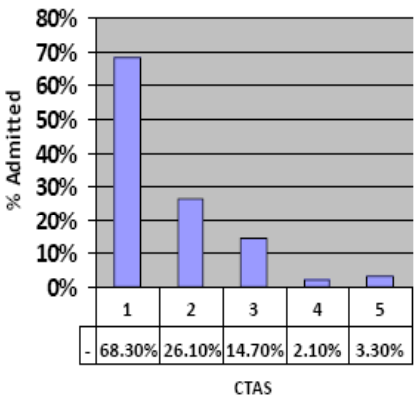
Reporting Date: Jan 1 – Mar 31, 2014

Context :

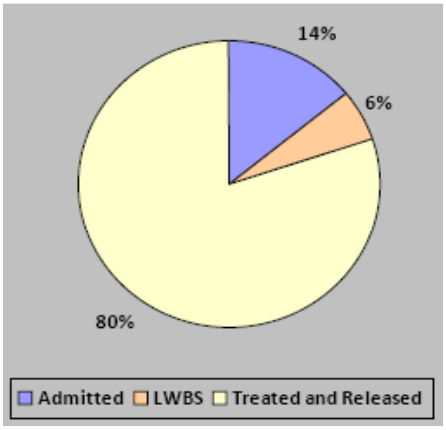
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left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



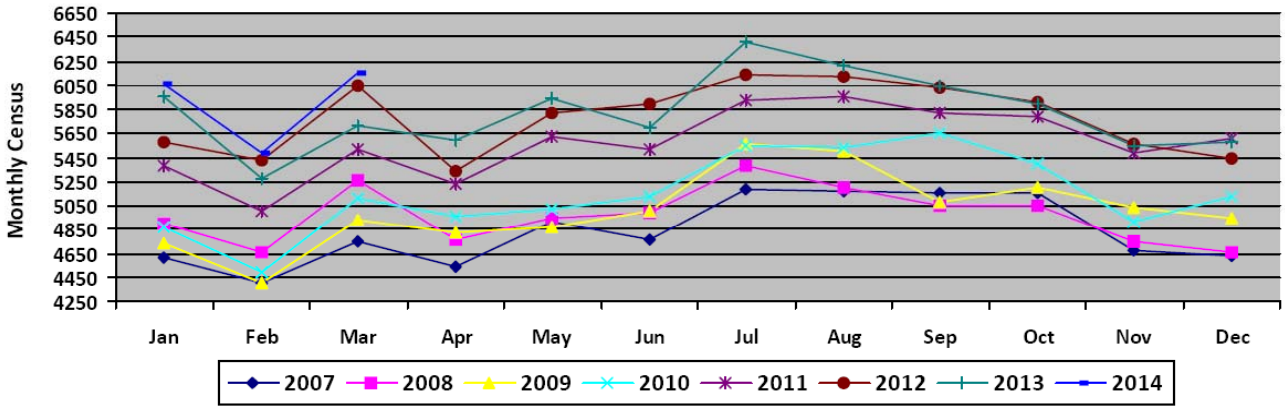
CTAS Distribution



Percentage Admits



Discharge Distribution



Analysis:

Emergency Department census at the Halifax Infirmary continued at record highs the entire year. Increased hours of clinical funding have been allocated as a result. CTAS 3 continues to represent our largest CTAS category. Left without being seen (LWBS) is stable at 6%

Sam Campbell, Site Chief, HI ED

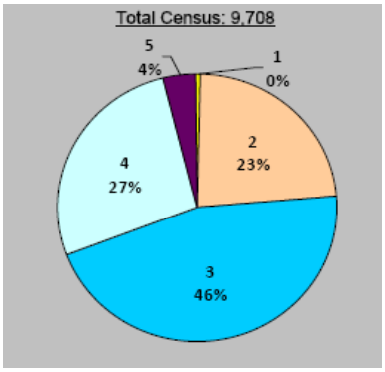
Demand

Census – Dartmouth General ED

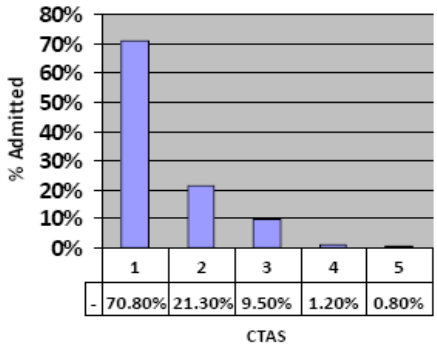
Reporting Date: Jan 1 to Mar 31, 2014

Context:

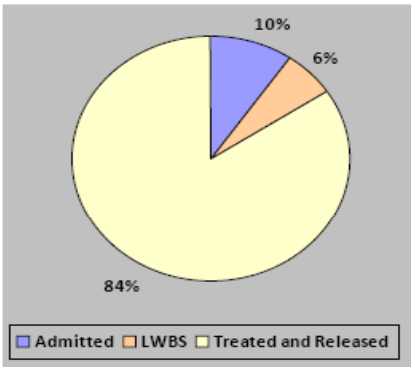
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left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



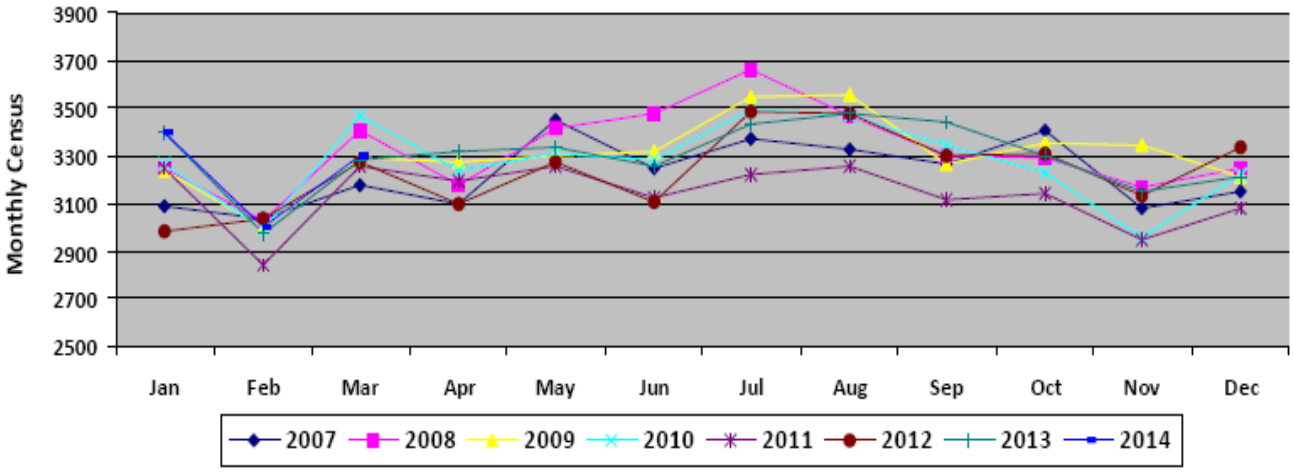
CTAS Distribution



Percentage Admitted



Discharge Distribution



Analysis:

For this quarter admission rate was increased compared to historical norms. Left without being seen (LWBS) numbers were also up. Capacity issue at Dartmouth General Emergency Department remains at the forefront. Work is being done regarding flow to inpatient units and also mechanisms to deal with the large number of admitted patients in the department.

Ravi Parkash, Site Chief, DGH ED

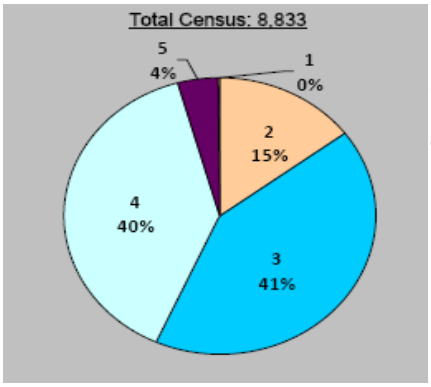
Demand

Census – Cobequid Community ED

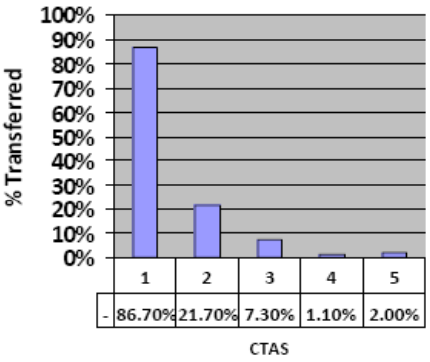
Reporting Date: Jan 1 to Mar 31, 2014

Context:

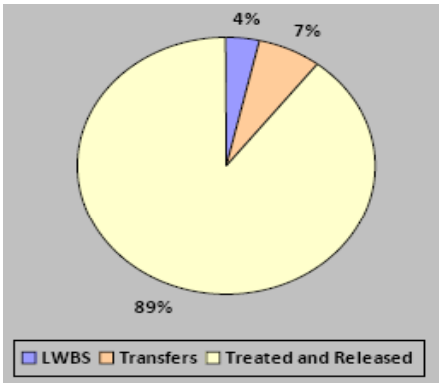
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left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



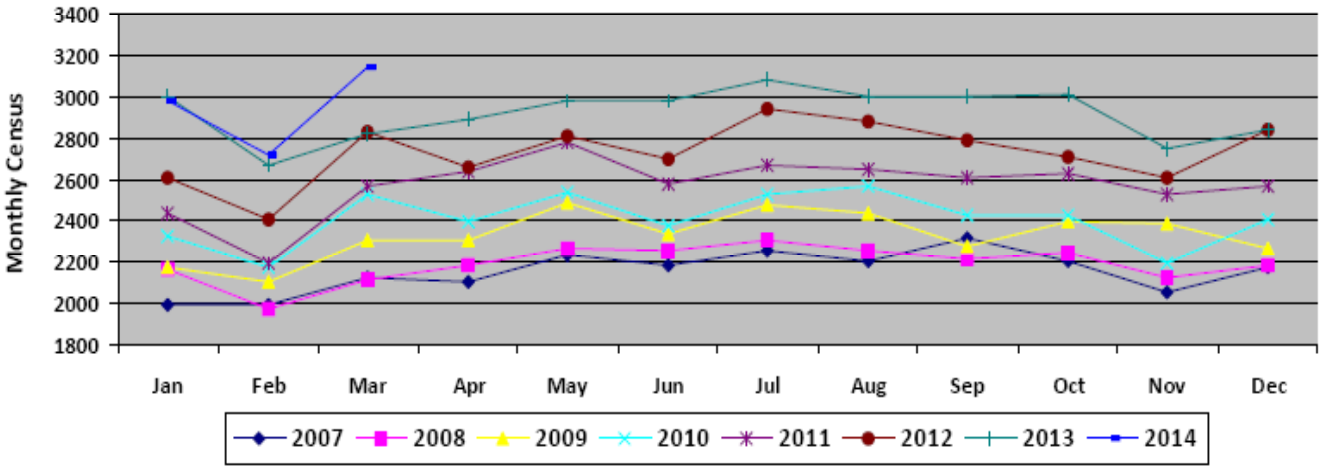
CTAS Distribution



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 remains unchanged with 57% of visits being in CTAS 1,2 or 3 category.

Mike Clory, Site Chief, CCHC ED

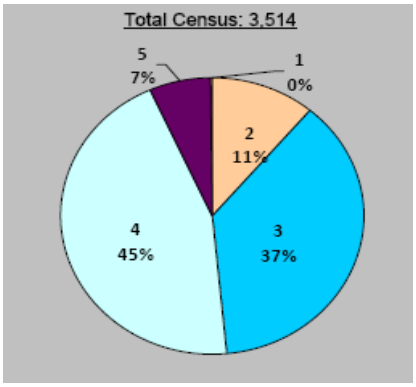
Demand

Census –Hants Community Hospital ED

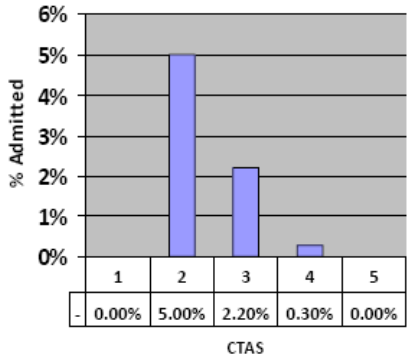
Reporting Date: Jan 1 to Mar 31, 2014

Context:

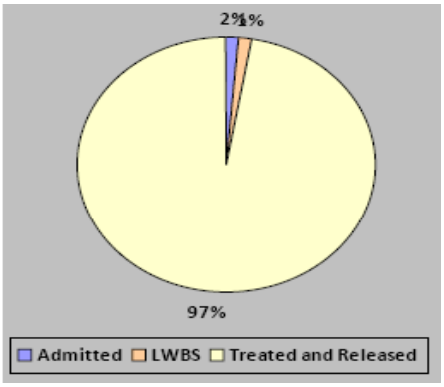
Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of care. Left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



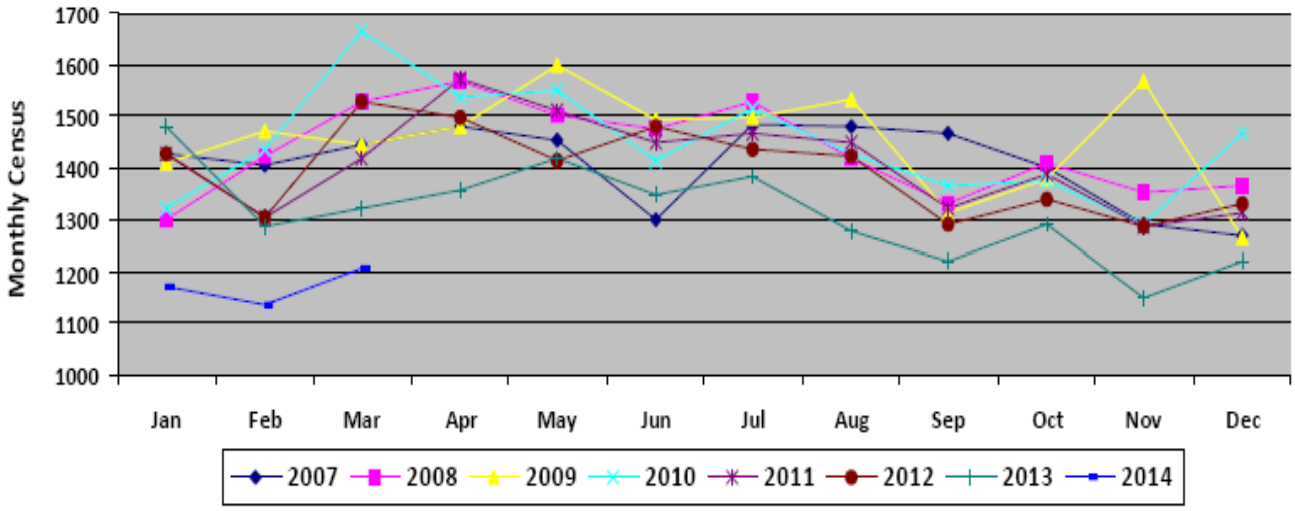
CTAS Distribution



Percentage Transferred



Discharge Distribution



Analysis:

Hants' monthly census has declined from previous years. CTAS distribution has seen an increase in CTAS 3 patients from previous reports and CTAS 5 patients decreasing. Transfers to the HI site for tertiary care account for 5% of CTAS 2.

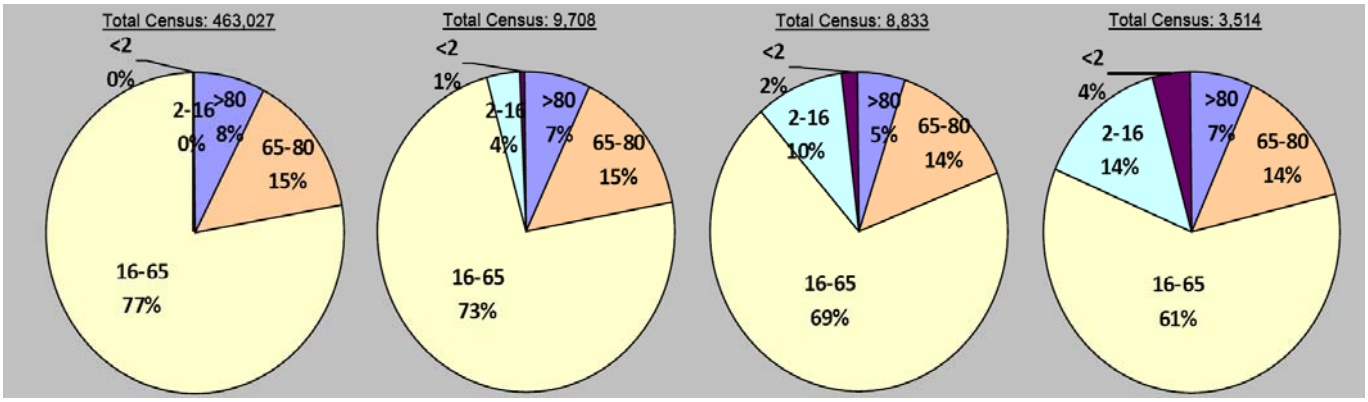
Tanya Penney, HCH ED

Demand

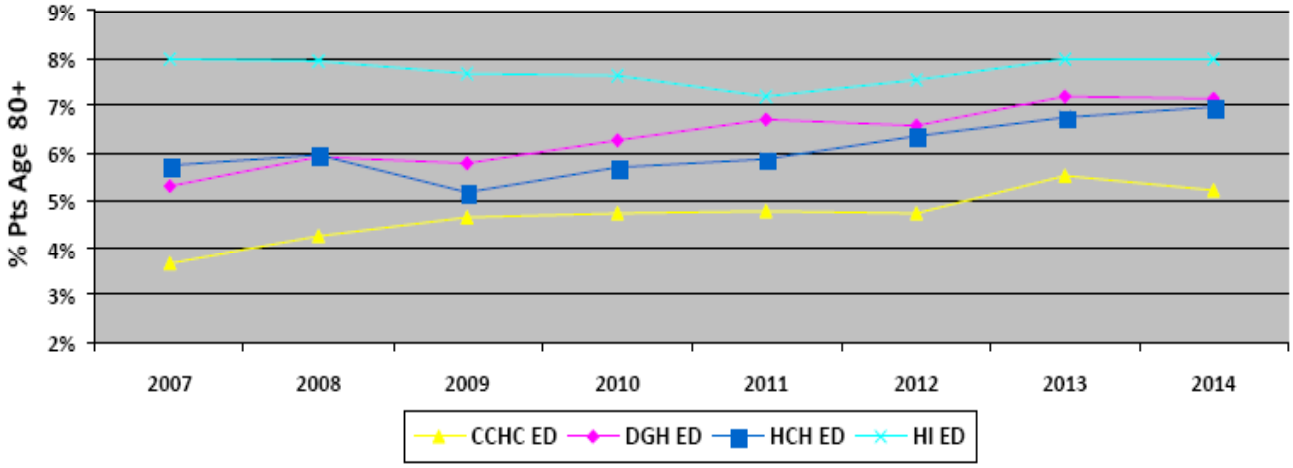
Demographics – Halifax Infirmary ED / Dartmouth General ED / Cobequid Community ED / Hants Community ED

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

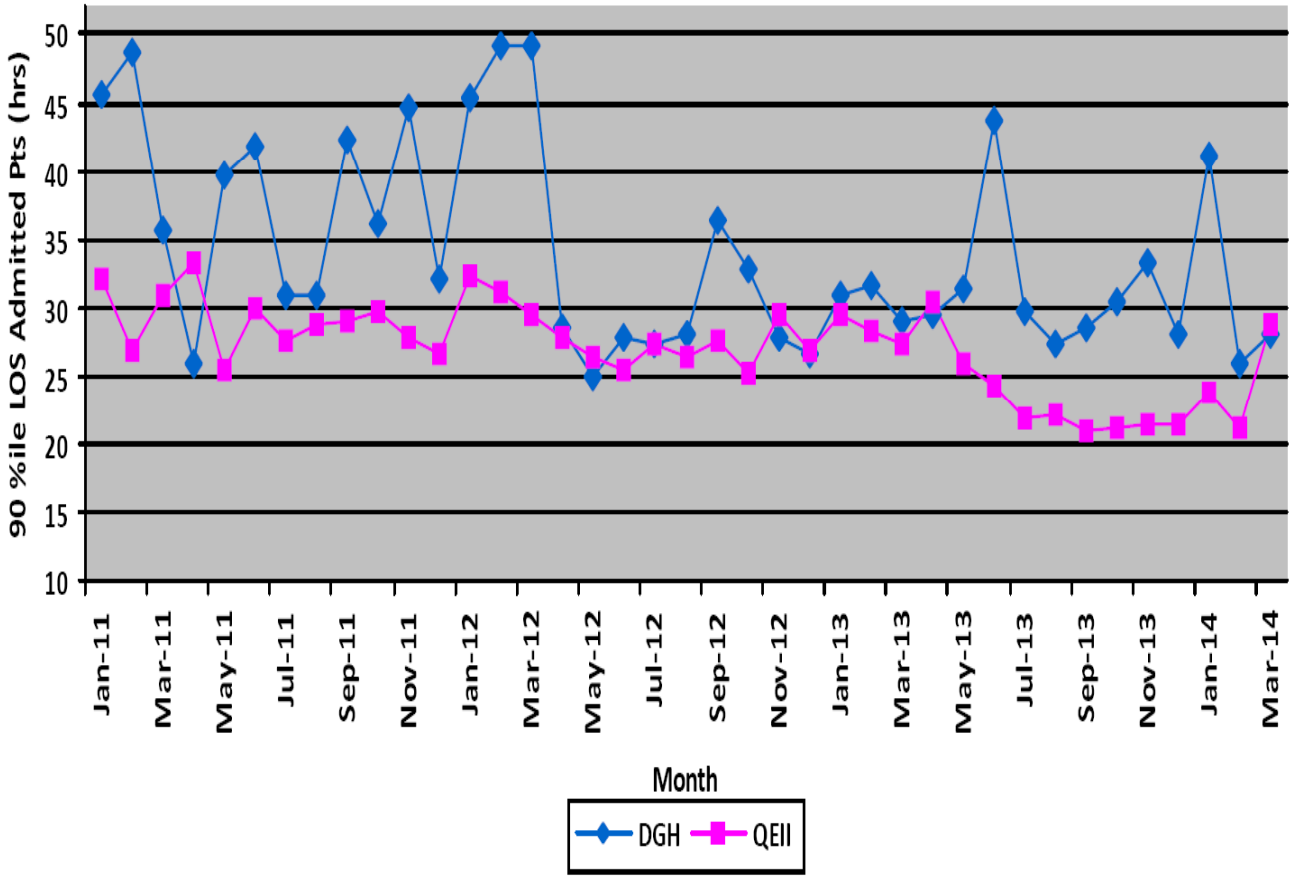
David Petrie, District Chief, Capital Health

Flow and Network Integration

ED Length of Stay 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 28 hours. Dartmouth General remains approximately 28 hours. The current national target recommended by CAEP is 12 hours.

David Petrie, District Chief, CDHA

Flow and Network Integration

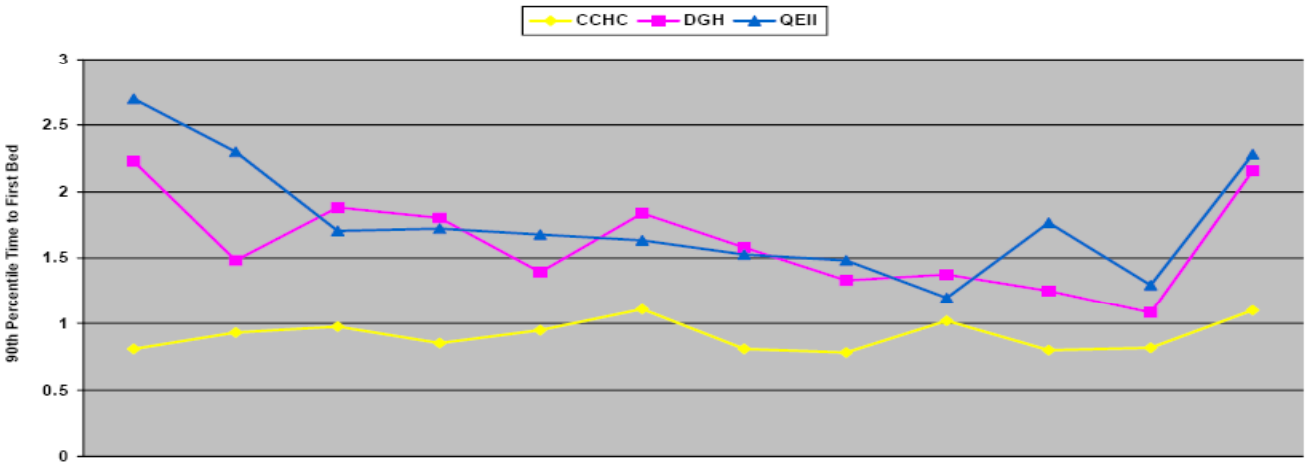
Ambulance Offload / Transition

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).

Reporting Period from: Apr 01, 2013 to: Mar 31, 2014



	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14
CCHC	0.81	0.93	0.98	0.85	0.95	1.11	0.81	0.78	1.02	0.8	0.82	1.1
DGH	2.23	1.48	1.88	1.8	1.39	1.84	1.58	1.33	1.38	1.25	1.09	2.16
QEII	2.7	2.3	1.7	1.72	1.68	1.63	1.53	1.48	1.2	1.77	1.3	2.28

90th Percentile Time to Bed (hr)

CCHC	253	236	267	212	188	206	207	189	250	242	192	269
DGH	628	584	515	546	605	569	543	506	576	598	548	638
QEII	1177	1264	1280	1388	1294	1305	1337	1291	1332	1446	1264	1371

Ambulance Volume

Analysis:

There was a downward trend in time to first bed at both the Halifax Infirmary and Dartmouth General. The offload interval at the Cobequid Community Health Centre has been relatively stable. There is an uptick in March. This will have to be watched closely to see if it is a trend or a blip.

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 ½ 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	25.32%
YELLOW	GREEN	14.08%
GREEN	YELLOW	10.26%
YELLOW	YELLOW	10.02%
YELLOW	RED	7.20%
GREEN	RED	6.32%
YELLOW	ORANGE	6.11%
GREEN	ORANGE	4.81%
ORANGE	YELLOW	3.37%
ORANGE	GREEN	3.15%
ORANGE	RED	2.63%
ORANGE	ORANGE	2.38%
RED	YELLOW	1.48%
RED	RED	1.25%
RED	ORANGE	1.11%
RED	GREEN	0.51%

Analysis:

During Quarter 1, 2014, Dartmouth General Red / Halifax Infirmary Green occurred 6.32% (down from 8.52%) of the time and Halifax Infirmary Red / Dartmouth General Green occurred 0.51% (down from 0.54%) of the time. Ambulance smoothing may occur during these times. Cobequid Community Health Centre may receive CTAS 3, 4 or 5 ambulances during these Red times.

David Petrie, District Chief, CDHA

Flow and Network Integration

Pod of Initial Destination at the HI ED / RAU

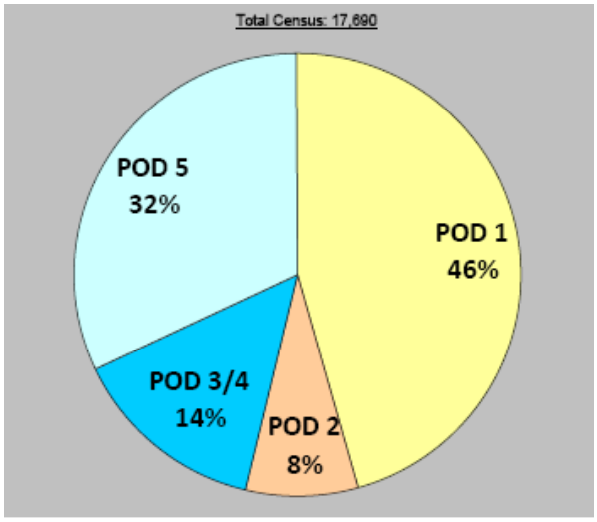
Context:

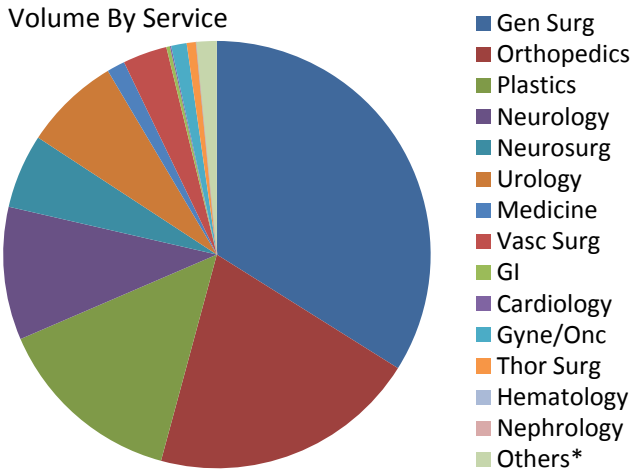
Internal flow within an ED needs to optimize available space/capacity to meet the volume/CTAS demands of the presenting patients**.**

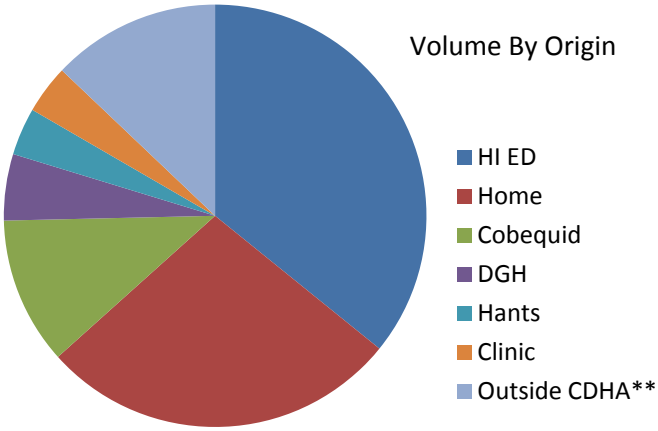
The HI ED has innovated (chair centric Pod 1, fast track/paramedic assisted pod 5) to meet the needs of this demand. The Rapid Assessment Unit is another aspect of the ED which has evolved to meet the needs of transferred patients and referred patients from our own ED. This allows expedited consultations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







Analysis:

Considering that CTAS 3 represents our biggest load in terms of patient numbers, it is concerning that only 22% of patients are seen in bed-centred pods. Although this demonstrates the efficiency of the chair centric pods, clearly this means that sicker patients are being managed in a less intensive care environment. We will review consultant service bed use (admitted and other) and bed consumption due to long ED stays in ED patients who are not admitted.

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 Patient Admitted	Percentage CDU Admitted	Total Site Patient Volume	Percentage Total Patients CDU	Median Length of Stay CDU No Admitted Patients
HI ED	230	56	24.3%	17693	1.3%	17.78
DGH ED	319	72	22.6.0%	9708	3.3%	15.45
CCHC ED	1	0	0.0%	8833	0.0%	8.85

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

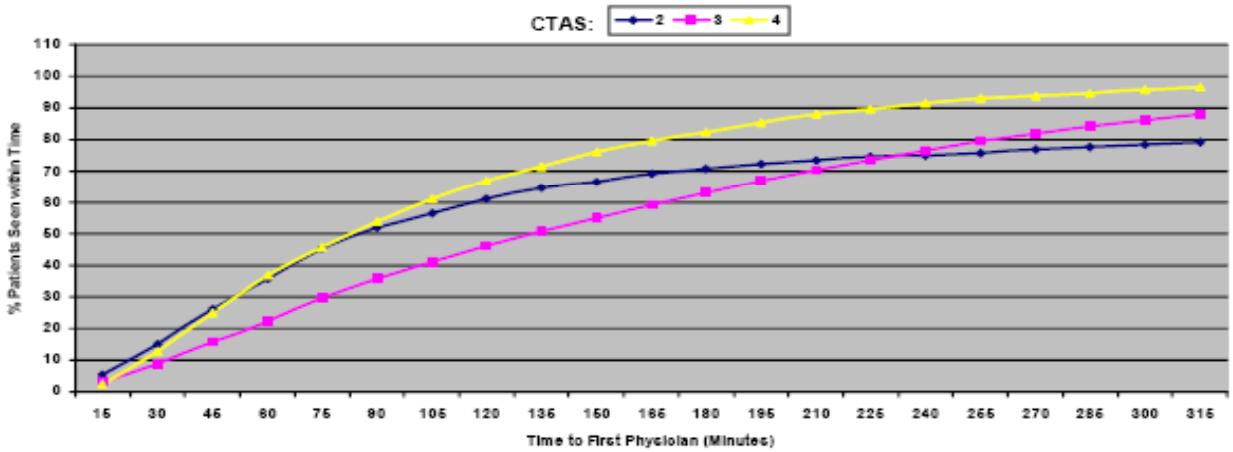
Patient Experience

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 remain considerably above the goal, increasing in February to levels not seen since 2009. This is likely to be related to the increases in census, nevertheless the return to this dysfunctional trend is concerning. Initiatives to address this internally include a review of coverage to maximize matching of physician coverage with patient demand. Externally, we will be monitoring the use of beds by consulting services.

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).

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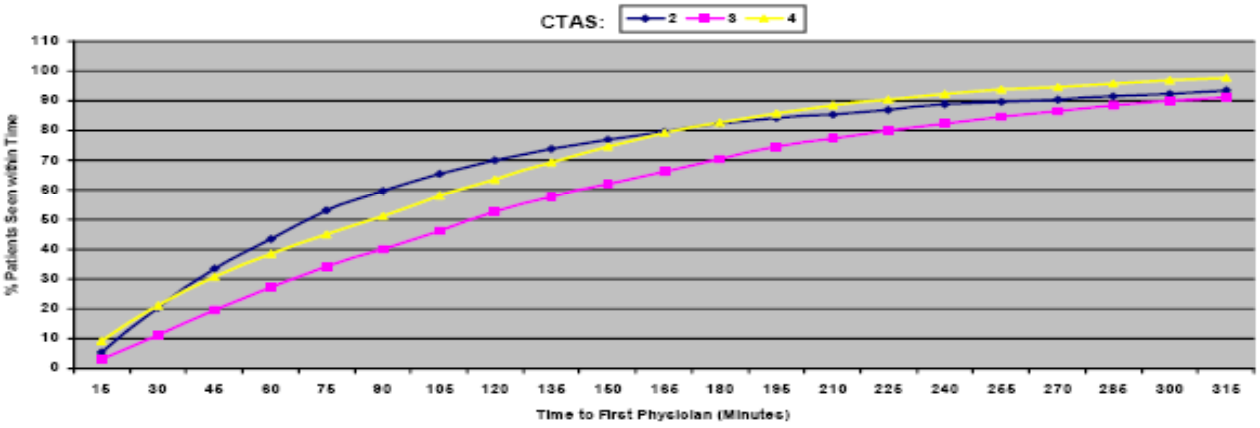

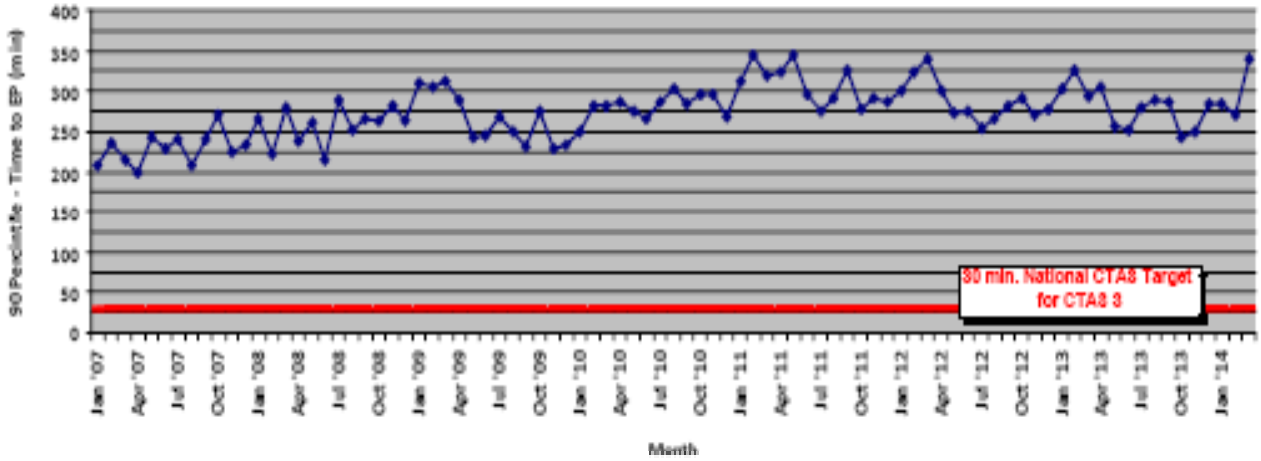

Analysis:

Wait times for CTAS 3 patients continues to rise mainly due to the lack of available Emergency Department beds for incoming patients. Loss of the ambulance offload team in March is expected to compound the problem. On a positive note, progress is being made by the Emergency Department Flow committee and changes to internal processes, which are anticipated to be in place by the end of May 2014, will hopefully improve wait times.

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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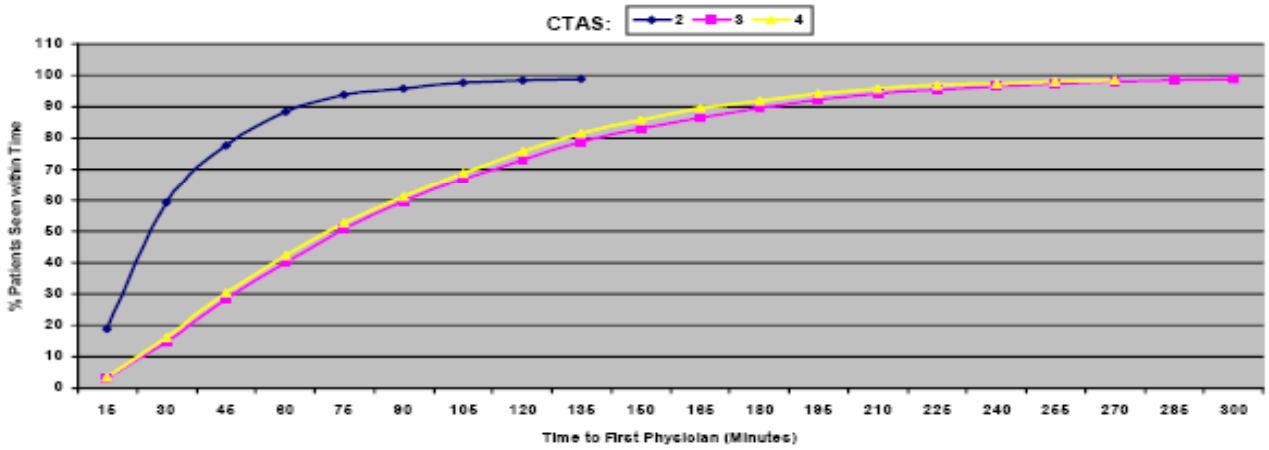

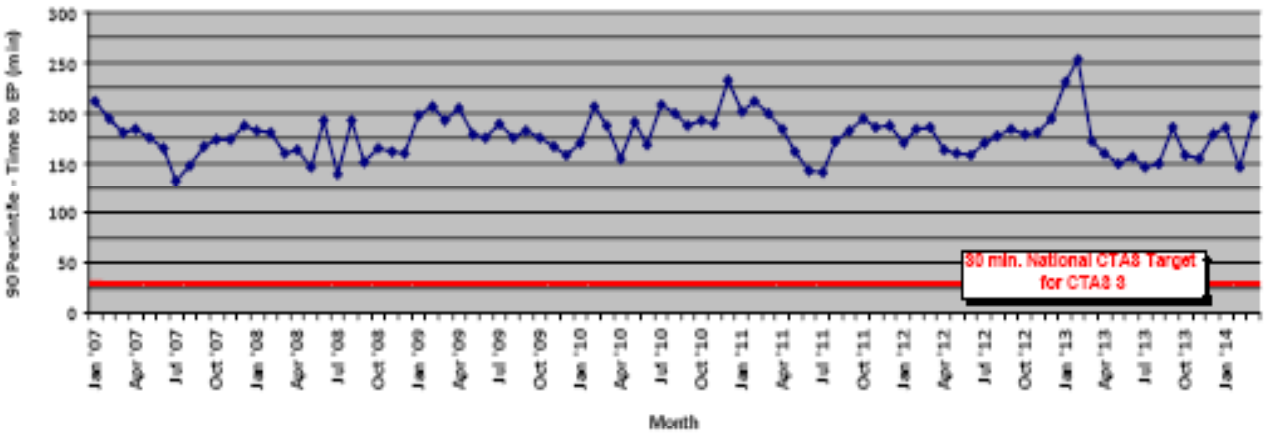

Analysis:

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

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).

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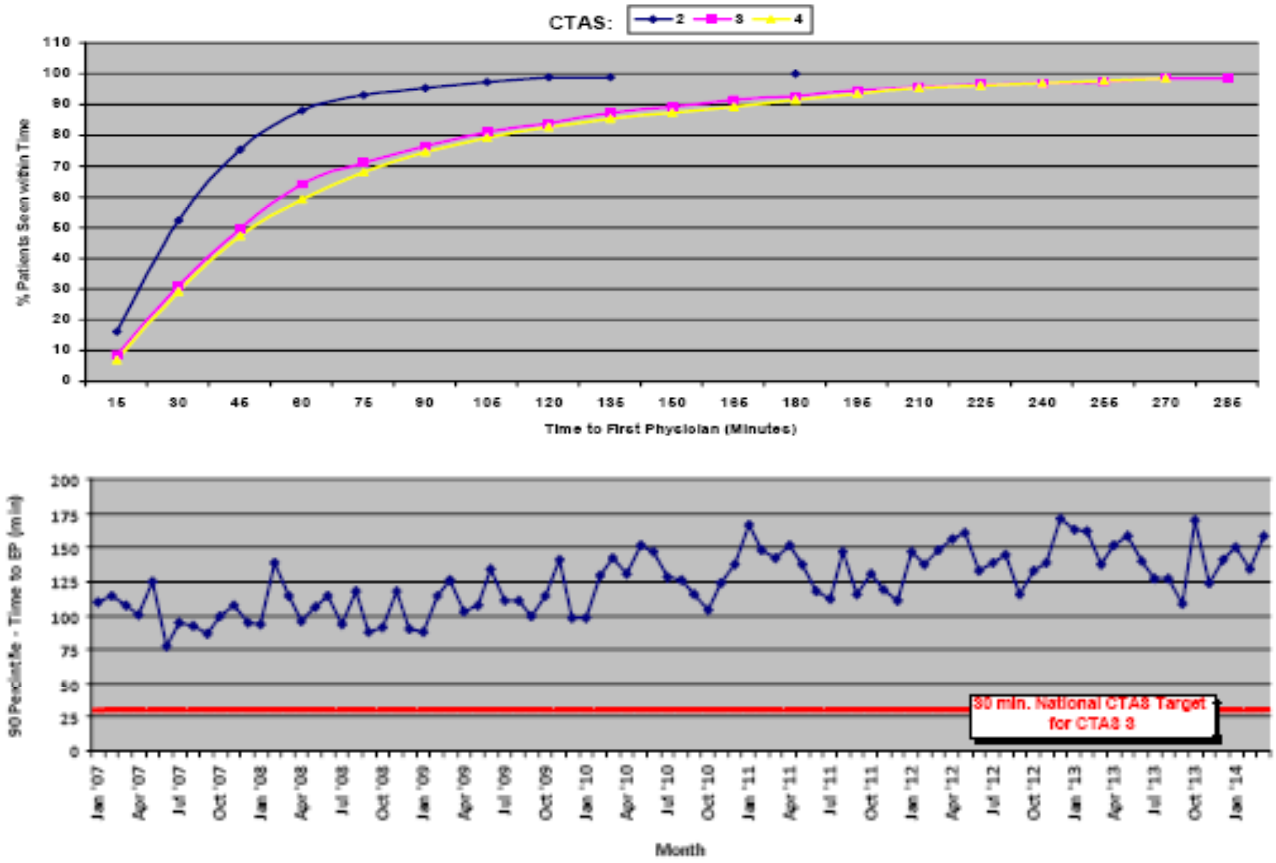


Analysis:

Wait times within HCH exist due to:
1. Admitted bed shortages – creates limited space.
2. Physician dependent (1 ERP) – limited flux.

Throughput initiative – initiation of pain and asthma protocols have been began fully in March 2014. Time to care will decrease; however not reflected in stats above.

LWBS rates remain above standard – time to physician (as per previous slide) is a large cause of this rate.

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: Jan 01, 2014 to: Mar 31, 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	17693	2248 (12.7%)	919 (5.2%)	36 (0.2%)	7790 (44.0%)	10993 (62.1%)
DGH	9708	1383 (14.2%)	435 (4.5%)	0 (0.0%)	5513 (56.8%)	7331 (75.5%)
CCHC	8833	763 (8.6%)	262 (3.0%)	0 (0.0%)	4594 (52.0%)	5619 (63.6%)
HCH	3514	0 (0.0%)	57 (1.6%)	0 (0.0%)	1165 (33.2%)	1222 (34.8%)
Total	39748	4489 (11.5%)	1673(4.2%)	36 (0.2%)	19062 (48.0%)	25165 (63.3%)

Labs Ordered			
Site	Patients with Labs Ordered	% Patients with Labs	Volume
QEII	7837	44.3%	17693
DGH	5185	53.4%	9708
CCHC	3960	44.8%	8833
HCH	1050	29.9%	3514
Total	18032	45.37%	39748

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.

David Petrie, District Chief, CDHA

IWK Health Centre Emergency Department

CTAS and the Provincial Emergency Care Standards at the IWK

Similar to all other Emergency Departments and CECs across the province, we at the IWK are working towards compliance with the new provincial standards. Although we do not have all the same issues as adult emergency departments with respect to admitted patients in the ED or delays in ambulance offload times, we are spending many hours ensuring staff have all the necessary competencies.

Our nurses, many of whom have been triaging patients for years, did not have formal CTAS training. As our nurses are going through the CTAS course, we have found that we have not been totally adhering to the national scale. This has not impacted patient safety, but it does impact how we are viewed nationally and by our own leadership as we appear to have a lower level of acuity.

This is partially resulting from our lack of an EDIS, which provides automatic triaging of patients. In years past, as we benchmarked against other paediatric centers across the country, we found that our results were very comparable. More recently, our lack of an EDIS and our inconsistent triaging practice has led to the IWK reflecting lower acuity. The necessity of training all our triage nurses with the current CTAS standards will benefit us as our data will reflect our patient population more accurately.

The Physical Plant of the IWK Emergency Department

The current IWK Emergency Department space is 25 years old. This is obvious when anyone, patients and families included, walk through the main door. There is a large open waiting area, which despite our concerns about infection control in the paediatric population, cannot be clearly divided to separate infectious from non-infectious patients. As well, we are the only Emergency Department where, any hour of day or night, you can walk in the front door and continue through the department to access all areas of the ED as well as the rest of the Health Center.

There are many other patient and staff safety issues that can only be addressed with a complete renovation of the Emergency Department, including:
•Increased trauma space
•Increased interview space
•Area to fast track low-acuity patients

We expect that within the next few years, we will be able to begin planning for a major renovation of our ED, however the reality of a new department is still probably ten years away. In the meantime, we will continue to provide the best care possible in our current space.

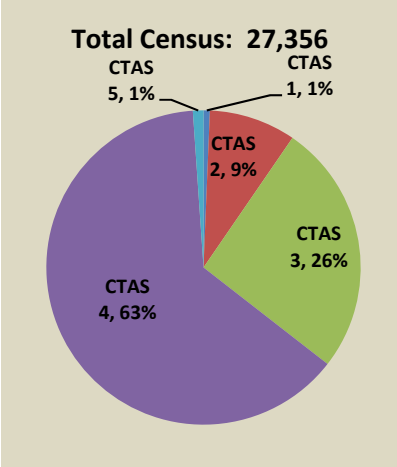
Demand

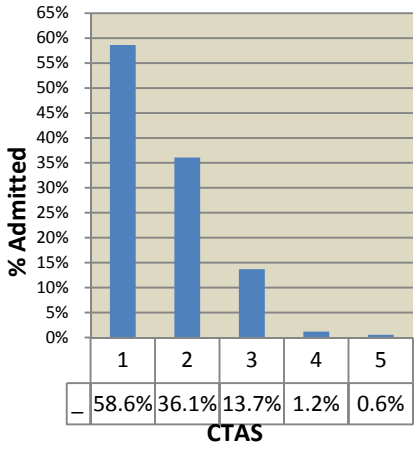
Census - IWK Health Centre ED

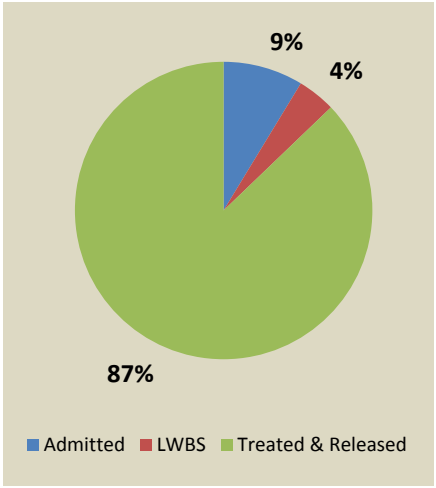
Reporting Date: Jan 1 - Dec 31, 2013

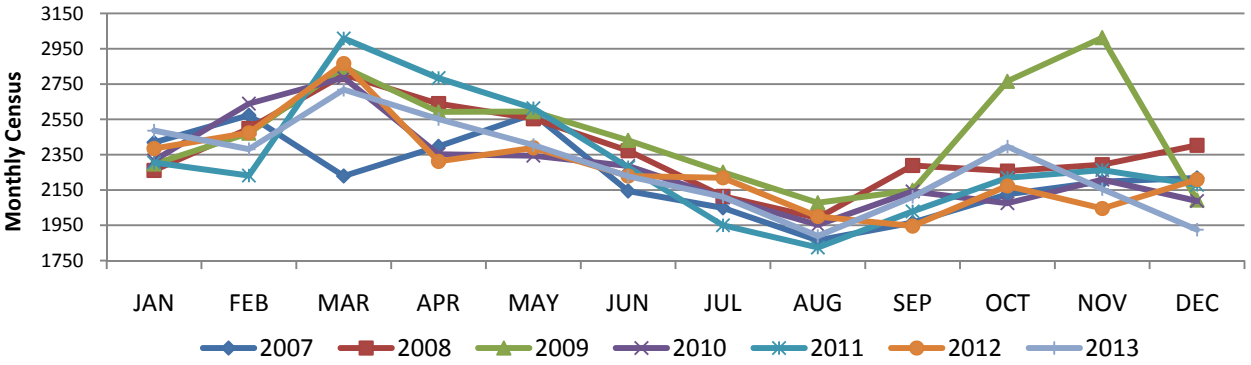
Context:

Because the IWK Health Centre does not have an EDIS, data is not readily accessible and we are unable to report data for Jan - March 2014. We will instead be reporting data for the full calendar year of 2013. Of note is the fact that we have reduced our Left Without Being Seen (LWBS) numbers to 4%, which we feel is a major achievement.









Analysis:

Demand has been strikingly consistent over the past five years with the exception of the H1N1 Pandemic in the fall of 2009. There is considerable variation in demand for Emergency Care by season, and winter months are typically busier with a high burden of infectious disease in susceptible young children. We are hopeful that the decrease in LWBS will be sustainable but there is uncertainty about that as it may be in part due to the presence of a senior, final-year PEM trainee with more autonomy in practice. Contrary to what we had believed, our CTAS data does not totally mirror tertiary pediatric data for other EDs across Canada. We will speak more to this later in this report.

Shannon MacPhee, Site Chief & Barb Bergeron, Manager, IWK ED

Flow and Network Integration

IWK Health Centre ED Admissions

Reporting Date: Jan 1 – Dec 31,

Context:

The ED admission rate is approximately 8% which is identical to other pediatric centers across the country. Approximately 45% over the past two years go to the medical unit, which is down from 50% over previous years. Approximately 30% consistently go to the surgical unit. Approximately 15% over the past 3 years go to the psychiatric unit and this is a sharp increase from previous years of 7%. The remainder of admissions go to the neonatal and pediatric intensive care units and oncology.

Emergency Department Admission Statistics Jan – Dec 2013	Jan to Mar 2013	April to June 2013	July to Sept 2013	Oct to Dec 2013	Total 2013
Total Emergency Department Admitted	607	631	553	584	**2,375**
Average Length of Stay (minutes)	289.7	289.3	270.9	276.3	**282.1**
Median Length of Stay (minutes)	276	276	248	271.5	**270**
90th Percentile Length of Stay (minutes)	452.5	485	445	429.4	**456**
Number of ED Admissions Length of Stay <= 8 hrs	560	564	511	547	**2,182**
Percentage of ED Admissions Length of Stay <= 8 hrs	**92.3%**	**89.4%**	**92.4%**	**93.7%**	**91.9%**

Analysis:

Time to the inpatient unit at the IWK is considerably less than at the adult facilities across the province, which is consistent with national data. As evidenced in the second half of the calendar, and as would be expected, LOS is decreased with lower numbers of admissions. In general LOS in ED is longer for patients being admitted to the medical unit. We continue to try to improve outflow to the medical unit, and in collaboration with medical unit staff and physicians, are working to move the majority of patients to the unit for their admission clerking. This continues to be a work in progress.

Shannon MacPhee, Site Chief, & Barb Bergeron, Manager, IWK ED