

*Capital District Emergency Services Council*  
*“CDESC”*

**Quarterly Report**

**Quarter 4**

**With focus on CCHC and HCH EDs**



## 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
<b>CTAS 1, 2, 3</b>	<ul style="list-style-type: none"> <li>• Often described as “real” emergencies 97% of fixed costs of ED to meet population burden of acute illness and injury&lt;4&gt;</li> <li>• Does include exacerbations of chronic problems</li> </ul>	<ul style="list-style-type: none"> <li>• “avoidable” CTAS 3 (ED as safety net)               <ul style="list-style-type: none"> <li>- frail elderly with no acute event or problem</li> <li>- partial diagnosis requiring further work up</li> <li>- chronic condition requiring follow up or has predictable clinical course</li> </ul> </li> </ul>
<b>CTAS 4, 5</b>	<ul style="list-style-type: none"> <li>• <b>DO NOT</b> cause ED overcrowding&lt;2,3&gt;</li> <li>• Very low marginal cost to see in ED&lt;4,5&gt;</li> <li>• 9/10 most common successful lawsuits in EM</li> </ul>	<ul style="list-style-type: none"> <li>• “inappropriate” ED visits (ED as gate keeper)               <ul style="list-style-type: none"> <li>- Medication refill</li> <li>- “sick note” for work or school</li> <li>- Queue jumping to see specialist</li> </ul> </li> </ul>

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.

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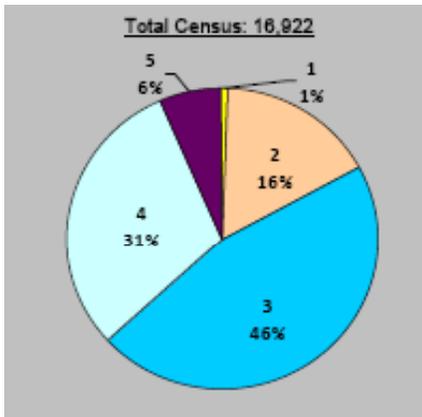
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Learners for Calendar Year 2012

# Demand

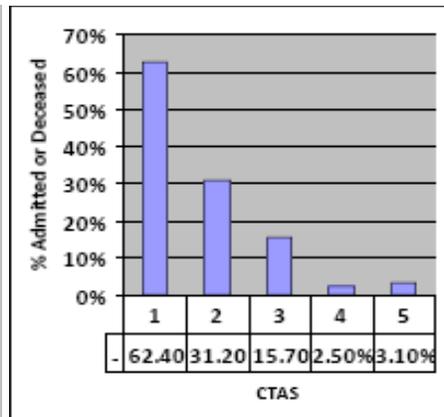
## Census – Halifax Infirmary ED

Reporting Date: Oct 1 – Dec 31, 2012

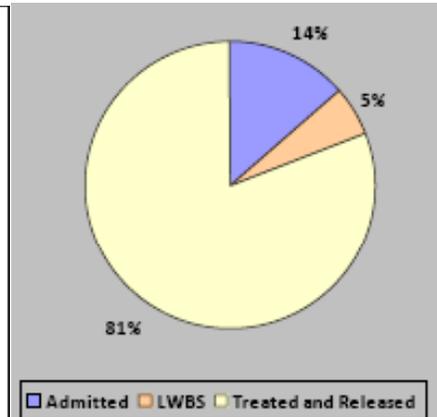
**Context :** Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity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



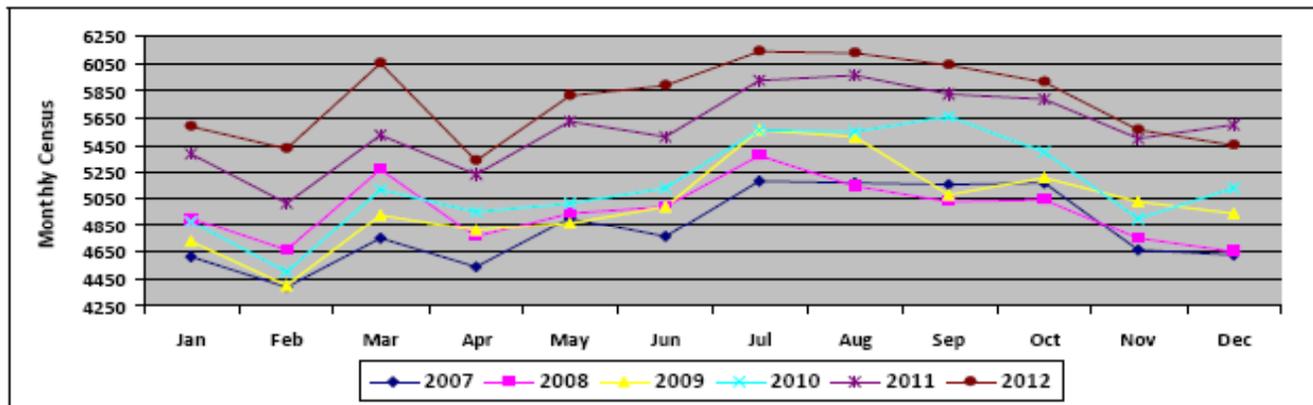
CTAS Distribution



Percentage Admits



Discharge Distribution



**Analysis:** We have seen a steady increase in our monthly census over the past 5 years. CTAS 2 and 3 patients continue to take up the largest portion of our patient load, with about 20% being subsequently admitted to hospital. These patient are more likely to need an ED bed for the duration of their ED stay, and are thus contribute to access block.

CTAS distribution is similar to other tertiary care hospitals across Canada.

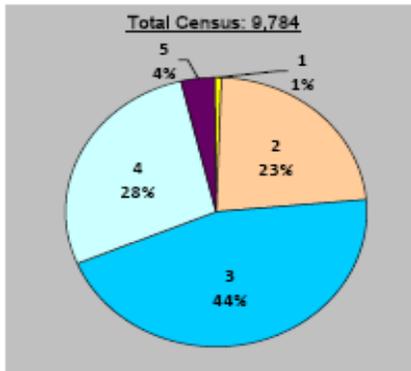
The LWBS rates are still higher than what is considered a safe target through the rate has come down over the past year (despite rising volumes) because of multiple flow initiatives within the ED.  
 Sam Campbell, Site Chief, HI ED

# Demand

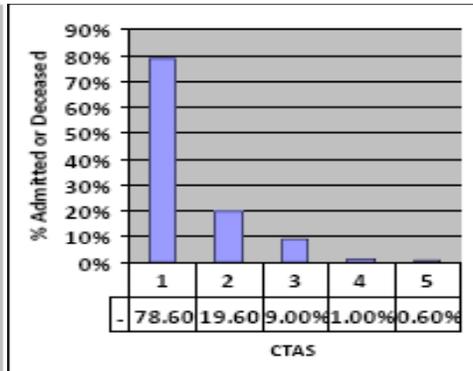
## Census – Dartmouth General ED

Reporting Date: Oct 1 – Dec 31, 2012

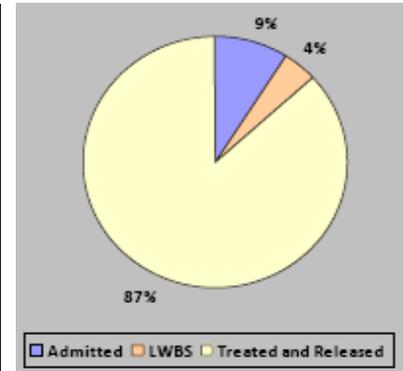
**Context:** Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of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



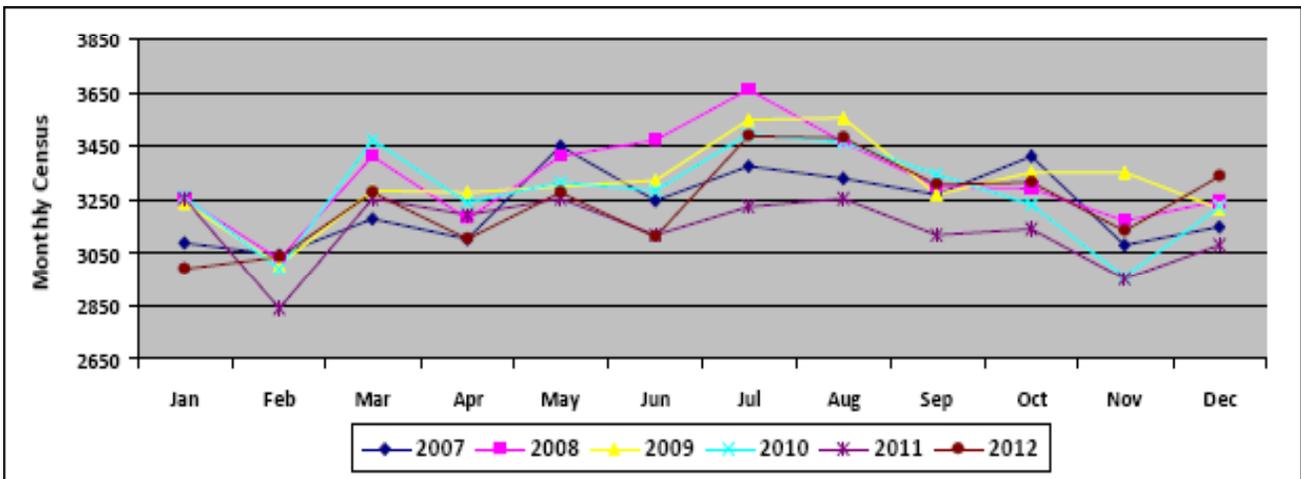
CTAS Distribution



Percentage Admitted



Discharge Distribution



**Analysis:** Monthly Registrations are up 8-10% since July 2012. Admission rates and CTAS distribution comparable with historical norms for DGH. Improvement in LWBS rate(4%) compared to previous (approx 8%) likely due to : 1) Liason Nurse role started in June to expedite workup of CTAS 2/3 waiting to be brought into ED 2) Improved staffing levels for RNs an ACPs.

Target LWBS 2-3 % achievable if successful with planned changes to MET(fasttrack).

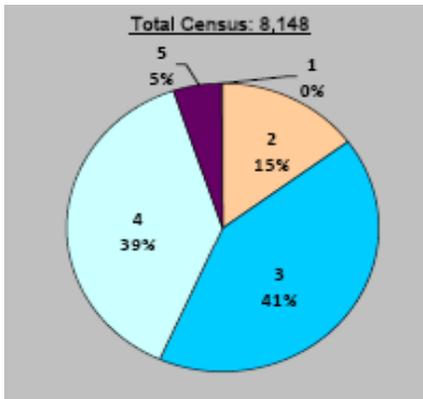
Ravi Parkash, Site Chief, DGH ED

# Demand

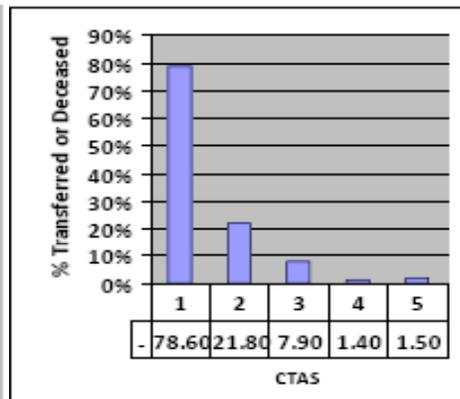
## Census – Cobequid Community ED

Reporting Date: Oct 1 – Dec 31, 2012

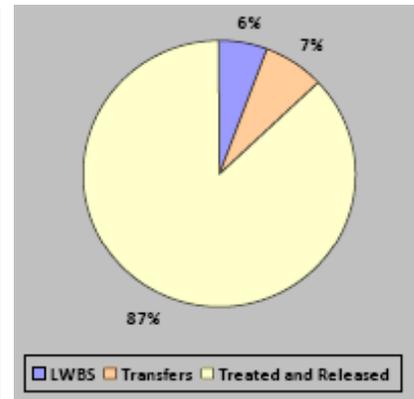
**Context:** Emergency Departments are designed to meet the unscheduled (from life threatening to relatively minor) health care needs of the population. The 5 level CTAS score is used to differentiate acuity (1 being severe and time dependent) though it is only a surrogate marker for the complexity of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



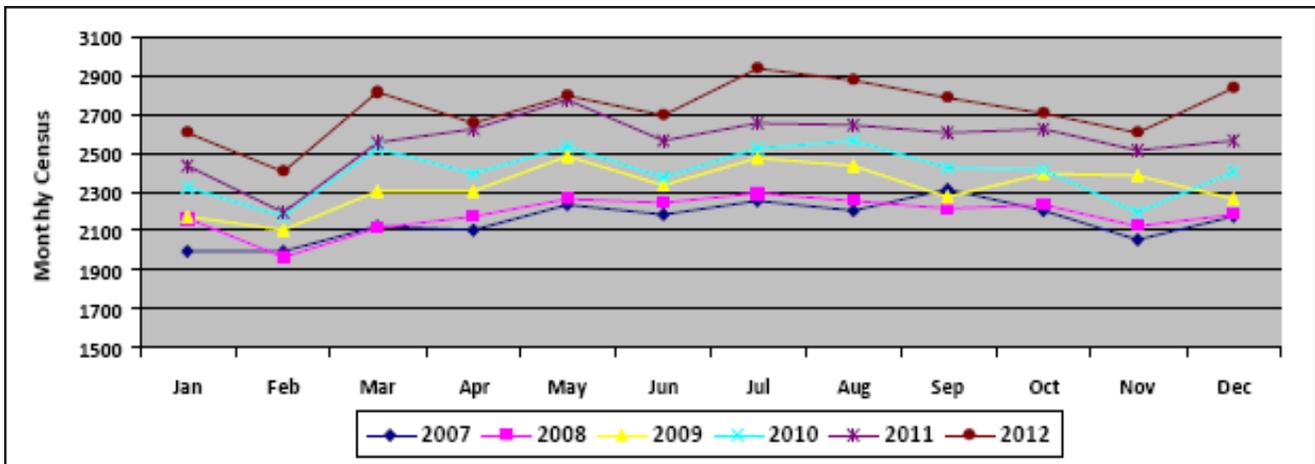
CTAS Distribution



Percentage Transferred



Discharge Distribution



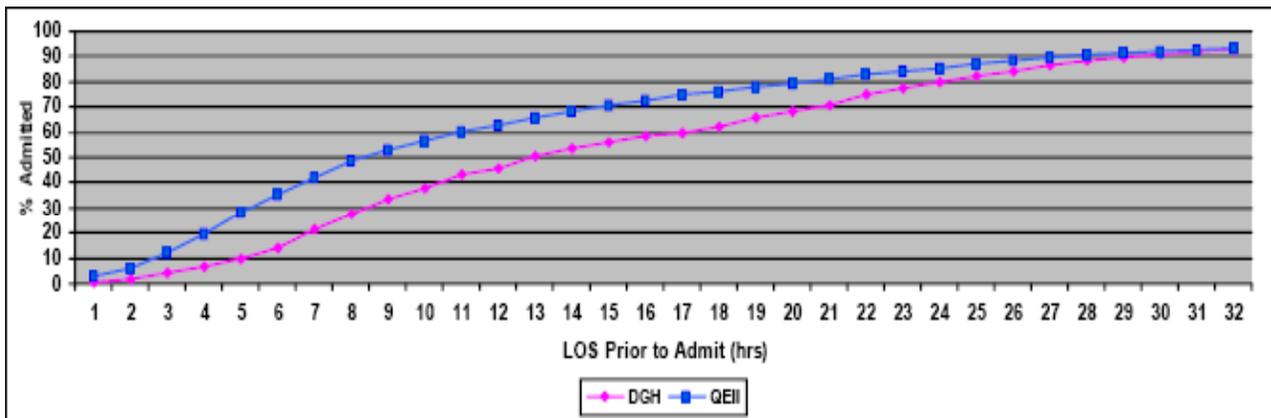
**Analysis:** The census continues to rise in the department with a 6.3% increase in 2012 annual registrations versus 2011. Of note, operational hours were extended to 24:00 beginning in December. The December registrations reflected a 10% increase over 2011. Despite this continuing increase in volumes the LWBS rate, although above national benchmark, actually decreased from 7.4% in 2011 to 6.3% this year. This is a reflection of increased physician resource available (due to more responsive funding model with DHW) as well as departmental process improvements such as matching staffing to patient presentation times and implementation of chaircare.

Mike Clory, Site Chief, CCHC ED

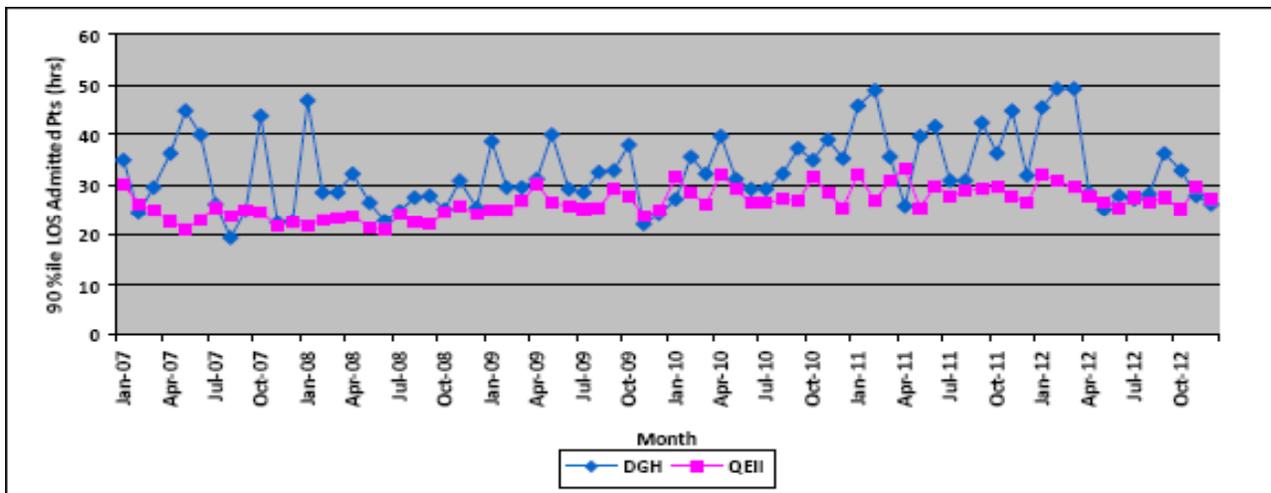
# Flow and Network Integration

## ED Length of Stay for Admitted Patients

**Context:** ED LOS of admitted patients (i.e. “ED boarding”) has been recognized as the main – 75% of the variance - 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.



Percentile Length of Stay for Non CDU Admitted Patients



90th Percentile Length of Stay Admitted Patients

**Analysis:** The upper “90thtile performance” graph compares the ED LOS for admitted patients from the HI to DGH. The Better Care Sooner standard for this metric is 8 hours 90% of the time (in Ontario the 90th percentile standard is 6 hours). 45% of HI patients are admitted by 8 hours and 25% of DGH patients achieve this target. The 90th percentile performance for both hospitals is 30 hours (the comparison for Academic Health Science centers across Canada as measured by the Collaborative in Health Care Excellence is 16 hours).

The bottom graphic shows the trending of performance for this Key Process Indicator since 2007 at both the DGH and the HI.

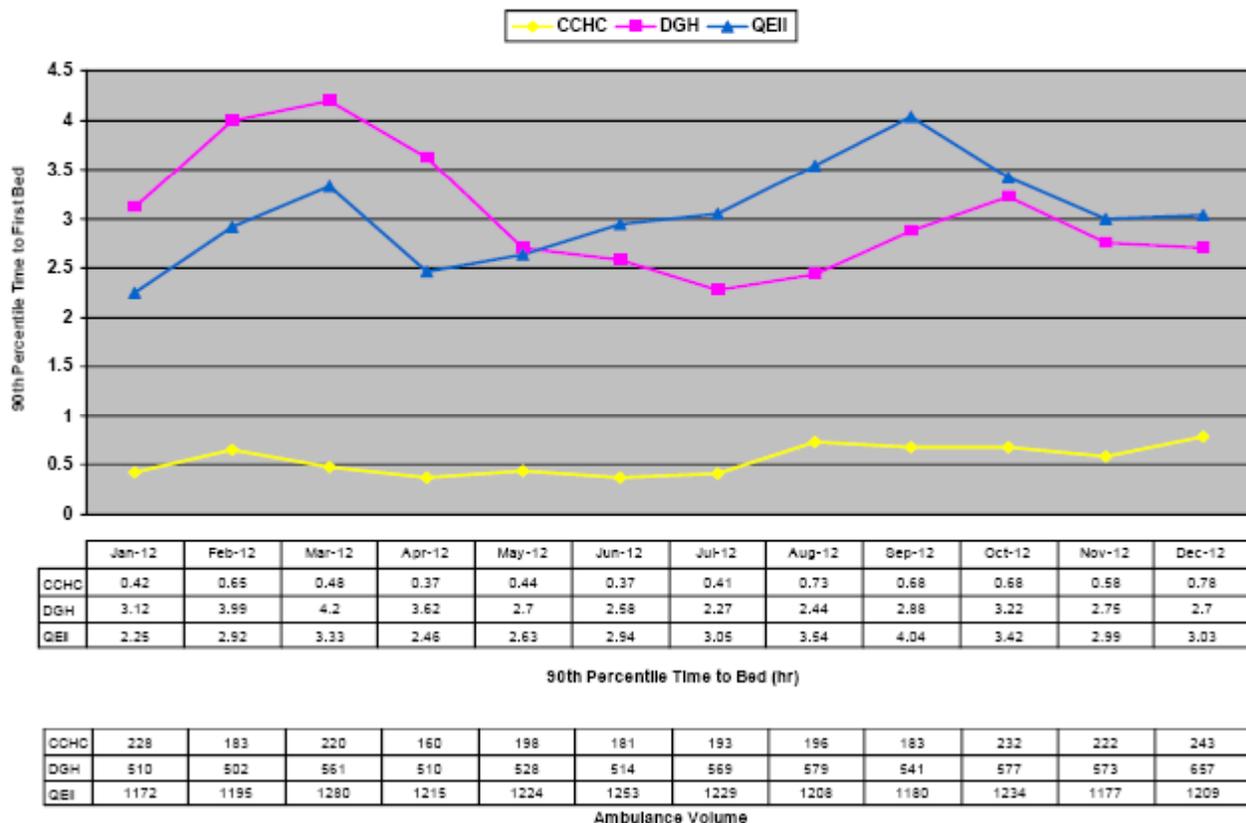
David Petrie, District Chief, CDHA 7

# 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).



**Analysis:** At the HI ED the mean time from ambulance arrival to placement in an ED bed has risen from 150 minutes to 250 minutes. This is essentially the same whether the transition team is on or not (which is to be expected). The metric that the transition team has improved on is the ambulance crew turn around times (which is not available at this time but will be available for the next quarterly report).

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	15.48%
YELLOW	GREEN	10.71%
GREEN	YELLOW	8.49%
YELLOW	YELLOW	5.84%
GREEN	ORANGE	4.05%
YELLOW	RED	3.73%
GREEN	RED	3.68%
YELLOW	ORANGE	3.08%
ORANGE	GREEN	2.87%
RED	GREEN	2.36%
ORANGE	RED	1.78%
ORANGE	YELLOW	1.72%
RED	RED	1.62%
RED	YELLOW	1.44%
ORANGE	ORANGE	1.23%
RED	ORANGE	0.59%

**Analysis:** During Quarter 4 2012, DGH Red/HI Green occurred 3.68% of the time and HI Red/DGH Green occurred 2.36% of the time. Ambulance smoothing may occur during these times. CCHC also may receive CTAS 3/4/5 ambulance patients from both DGH and HI regions at 1 patient per hour before 16:00. Further Information will be available next quarter with regards to patient flow outcomes.

David Petrie, District Chief, CDHA

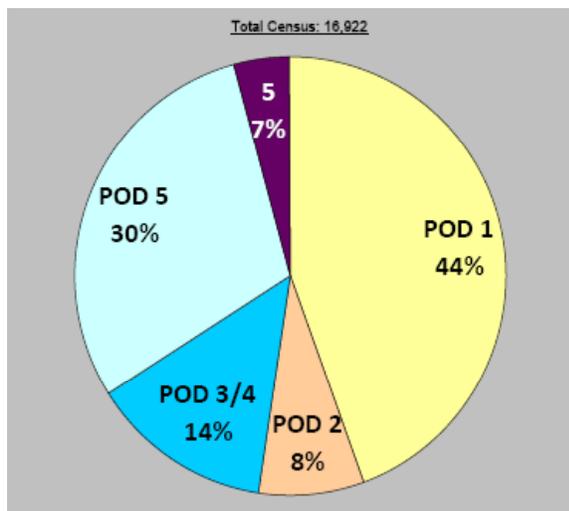
# Flow and Network Integration

## 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.

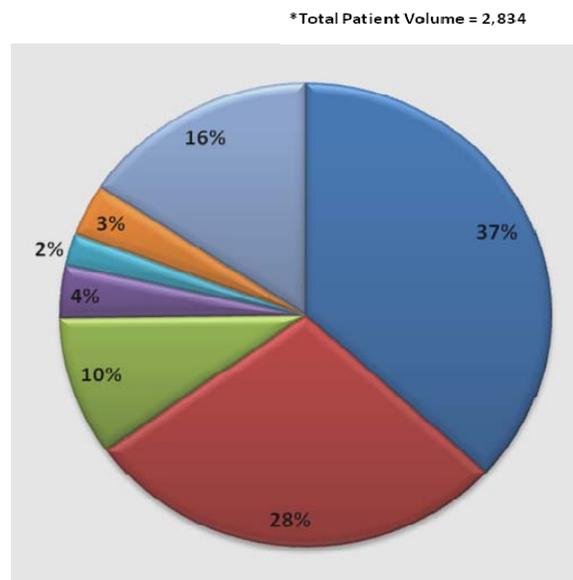
The HI ED has innovated (chair centric Pod 1, fast track/paramedic assisted pod 5) to meet the needs of this demand. The Rapid Assessment Unit is another aspect of the ED which has evolved to meet the needs of transferred patients and referred patients from our own ED. This allows expedited consultations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

RAU Patient Volume\* by Origin



**Analysis:** 74% of all patients are seen in Pod 1 (chair centric care) or Pod 5 (fast track). This is a reflection of the number of hours that our actual ED acute care beds in Pods 2, 3, and 4 are blocked by admitted in-patients. This ratio is likely too high and will be reduced with the reduction of ED boarding.

The RAU receives patients from many different sources with 16% being transferred from other hospitals from outside the district and 19% coming from within the district.

Interestingly 28% come from home (including post op rechecks / complications, etc) which potentially could be seen more efficiently in clinics. David Petrie, District Chief, CDHA

# 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	201	37	18.4%	16922	1.2%	15
DGH ED	554	143	25.8%	9784	5.7%	14.5
CCHC ED	20	6	30.0%	8148	0.2%	6.9

**Analysis:** CDUs were only implemented in the past 6 months and the culture / operationalization of this process has not entirely caught on resulting in artificially low numbers (as compared to potential benefit). Approximately  $\frac{3}{4}$  of the time the CDU is invoked an admission is avoided.

CDU Utilization is less than other sites at CCHC partly due to the fact that patients are often not observed and managed for as long a period as other EDs due to necessity of transfer to HI. In an Acad Emerg paper published this year the Ontario rates for a similar program is 4% and this resulted in reduced ED LOS, reduced admission rate, and no increase in ED revisit rate.

David Petrie, District Chief, CDHA

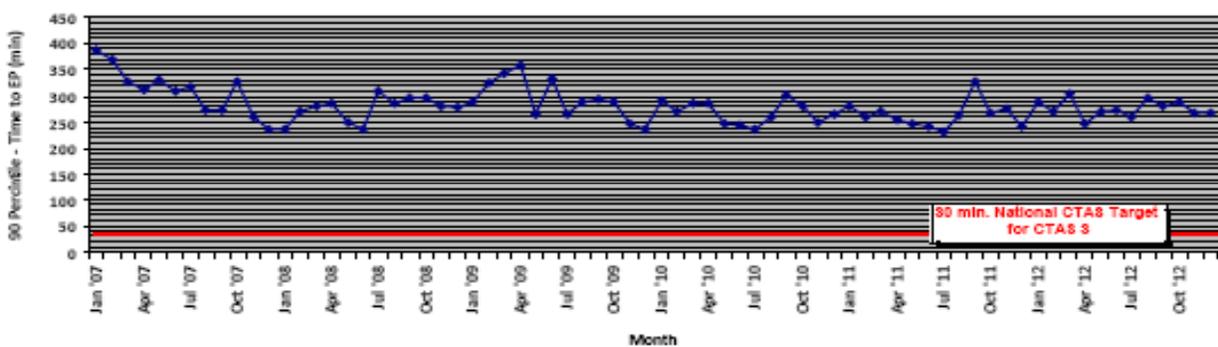
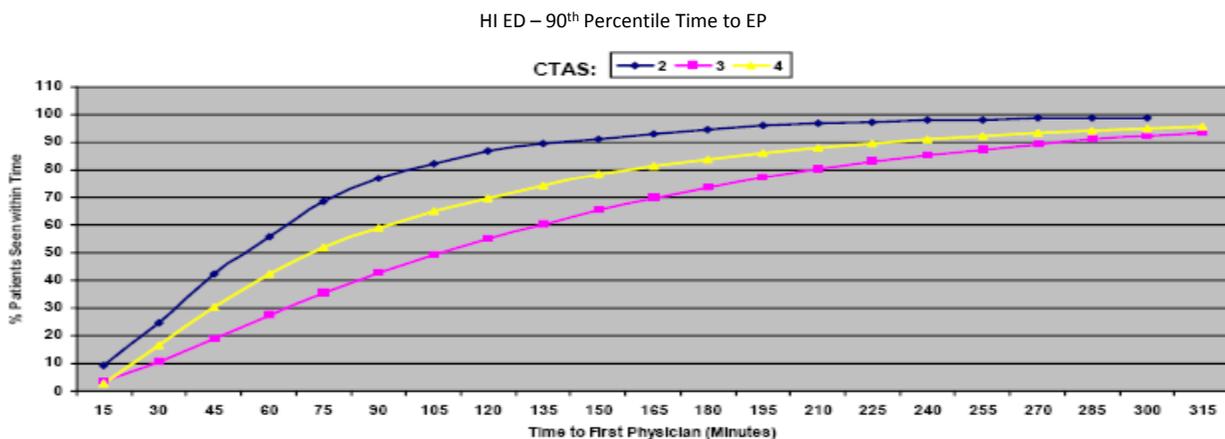
# Patient Experience

## 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.



CTAS 3

**Analysis:** CTAS 2: 90<sup>th</sup> percentile performance time to MD is 1 hour 35 minutes.  
 CTAS 3: 90<sup>th</sup> percentile performance time to MD is 3 hours 45 minutes.  
 CTAS 4: 90<sup>th</sup> percentile performance time to MD is 4 hours 30 minutes.

While the recommendations are for 90% of patients with CTAS 3 to be seen within 30 minutes of their time of arrival, we are currently only manage this between 250 and 350 minutes – 10 times the recommended period. While CTAS 2 patients also wait about 10 times the recommended period, the proportion for CTAS 4 patients is less extreme (four times) partly because of initiatives to manage ambulatory patients more efficiently.

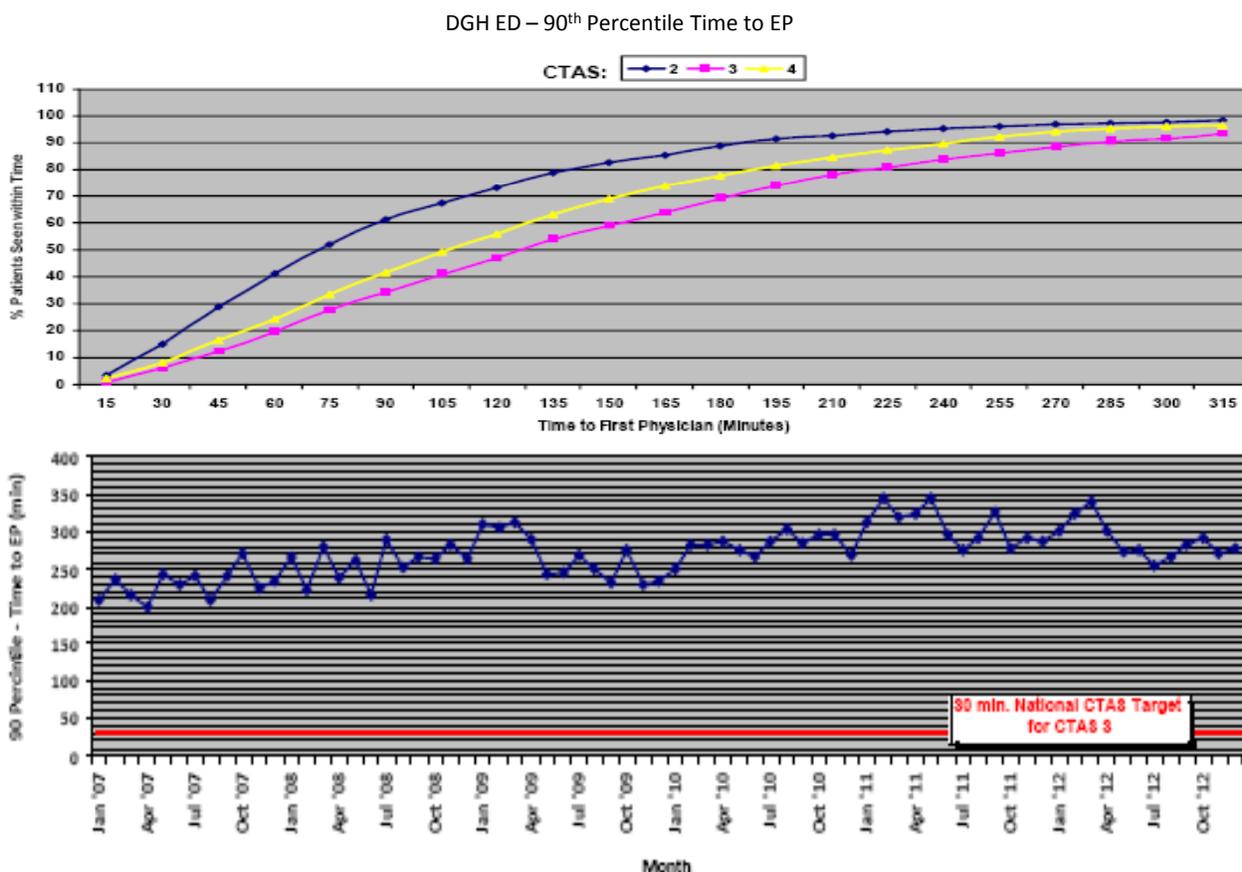
# Patient Experience

## 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:** CTAS 2: 90<sup>th</sup> percentile performance time to MD is 3 hours.

CTAS 3: 90<sup>th</sup> percentile performance time to MD is 4 hours.

CTAS 4: 90<sup>th</sup> percentile performance time to MD is 4 hours 30 minutes.

Standards not being met however, improvement in wait times since Apr 2012. Improvement may be due to: 1) Liaison Nurse role 2) improved inpatient flow and coordination of inpatient discharges may be having positive effect. Wait times may further improve with: 1)planned changes to MET as of Feb 2013. 2) Clinical Leader (charge nurse) group now permanent and will continue to develop skills. 3) ongoing work by Flow Committee.

Ravi Parkash, Site Chief, DGH ED

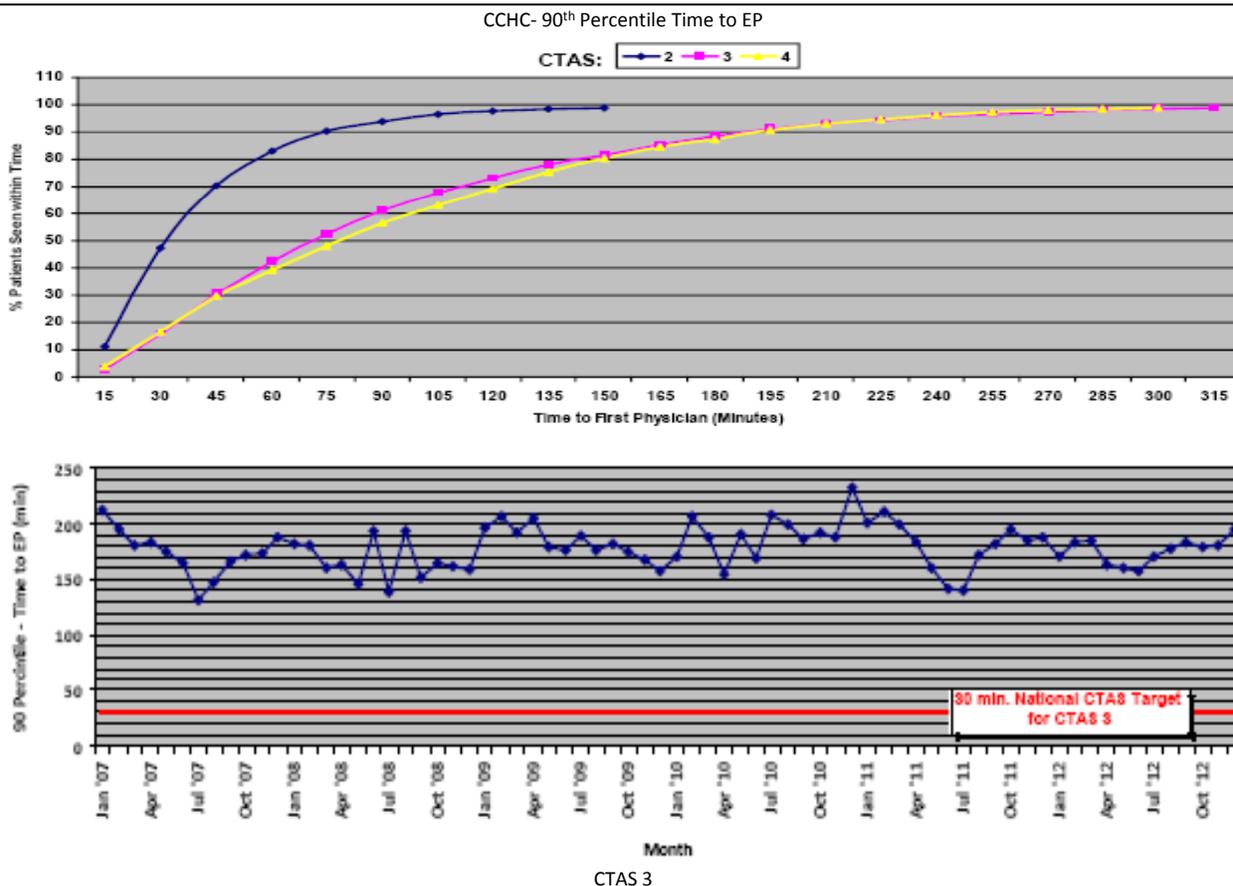
# Patient Experience

## 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:**
- CTAS 2: 90<sup>th</sup> percentile performance time to MD is 1 hour 15 minutes.
  - CTAS 3: 90<sup>th</sup> percentile performance time to MD is 3 hours 10 minutes.
  - CTAS 4: 90<sup>th</sup> percentile performance time to MD is 3 hours 10 minutes.

The bottom graphic trends the wait time for CTAS 3 patients (compared to target) over the past 5 years.

Mike Clory, Site Chief, CCHC 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: Oct 01, 2012 to: Dec 31, 2012

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	16920	2109 (12.5%)	663 (3.9%)	48 (0.3%)	7556 (44.7%)	10376 (61.3%)
DGH	9784	1352 (13.8%)	388 (4.0%)	0 (0.0%)	5273 (53.9%)	7013 (71.7%)
CCHC	8148	726 (8.9%)	189 (2.3%)	4 (0.0%)	4301 (52.8%)	5220 (64.1%)
HCH	3953	6 (0.2%)	52 (1.3%)	0 (0.0%)	1195 (30.2%)	1253 (31.7%)
Total	38805	4193 (10.8%)	1292 (3.3%)	52 (0.1%)	18325 (47.2%)	23862 (61.5%)

Labs Ordered			
Site	Patients with Labs Ordered	%Pts with Labs	Volume
QEII	7142	42.2%	16920
DGH	4823	49.3%	9784
CCHC	3605	44.2%	8148
HCH	1297	32.8%	3953
Total	16867	43.47%	38805

**Analysis:** This is raw data looking at the percent of overall patients who receive a Cat Scan, Ultrasound, MRI (Magnetic Resonance Imaging), X-Ray or labs ordered during their assessments in the Emergency Department. 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 CDESC.

David Petrie, District Chief, CDHA

## COBEQUID COMMUNITY HEALTH CENTRE ED / HANTS COMMUNITY HOSPITAL ED QUALITY ASSURANCE AUDIT REPORT ON ASTHMA/COPD

Audit Date: Jan 23, 2013 Audit Type: Retrospective Sample Size: CCHC 48 HCH 20	Department: Emergency Department Audit Tools: EDIS Database/HPF Audit Activity: Chart review of Asthma/COPD presentations to CCHC ED and HCH ED for the month of November 2012.
<b>Standard Audited:</b>	Emergency Department care to patients presenting with Asthma/COPD
<b>Criteria Audited: (What did you look at)?</b>	HPF record of emergency visit for asthma/COPD presentations to CCHC. This included emergency charts and nursing notes. (1) Time to MD by CTAS level (2) Time to first treatment by CTAS level (3) Concurrence with CH ED Asthma Care Pathway (4) Appropriateness of care (5) Quality of charting by MD and RN
<b>Results:</b>	Steroid treatment: CCHC ED 34 patients / HCH ED 10 patients Discharge instructions: CCHC ED 34 patients / HCH ED 10 patients

### Cobequid Community Health Centre

### Hants Community Hospital

	CTAS 2	CTAS 3	CTAS 4	CTAS 2	CTAS 3
Cases	14	26	9	6	8
Triage to MD (in minutes)	52	99	115	46	39.5
Triage to Treatment (in minutes)	37	117	124	64	69.6
Treatment time shorter than time to MD (number of charts)	11	4	3	0	0
Triage to MD within CTAS guidelines	0%	15%	22%	0%	38%
Triage to treatment within CTAS guidelines	21%	15%	33%	0%	13%

- Asthma care map not in use at either site.
- MDI instead of nebulizer was used in 4% of patients at CCHC and 15% of patients at HCH.
- Appropriate care provided to 45 of 48 patients (three cases did not provide indicated steroid treatment) for CCHC. Appropriate care provided to most patients at HCH.
- All antibiotic selections were deemed appropriate for respiratory infections at both sites.
- Discharge instructions were provided to 34 of 42 patients (not transferred to the QE II) at CCHC. Discharge instructions were provided to 50% of patients presenting to HCH.
- Steroids were given to 50% of patients who presented to HCH.

<b>Issues:</b>	<ul style="list-style-type: none"> <li>•Appropriate asthma/COPD care being provided at both the CCHC and HCH EDs.</li> <li>•Timeliness of patient care not meeting CTAS guidelines at either site.</li> </ul>
<b>Recommendations &amp; follow up:</b>	<ul style="list-style-type: none"> <li>•Provide education to CCHC and HCH ED staff concerning the CH ED Asthma Care Pathway via Clinical Nursing Educator.</li> <li>•Implement utilization of Asthma Care Pathway</li> <li>•Perform follow up audit three to six months post implementation of Asthma Care Pathway.</li> </ul> <p style="text-align: right;">Mike Clory, Site Chief, CCHC &amp; HCH ED</p>

COBEQUID COMMUNITY HEALTH CENTRE ED Learners for Calendar Year 2012	
	Number of Shifts
January 1-31, 2012 (31 days)	
Med Students	30
Residents	37
February 1-28, 2012 (28 days)	
Med Students	
Residents	24
March 1-31, 2012 (31 days)	
Med Students	14
Residents	12
April 1-30, 2012	
Med Students	
Residents	
May 1-31, 2012	
Med Students	
Residents	
June 1-30, 2012	
Med Students	
Residents	14
July 1-31, 2012	
Med Students	
Residents	16
Aug 1-31, 2012	
Med Students	
Residents	15
Sept 1-30, 2012	
Med Students	13
Residents	
Oct 1-31, 2012	
Med Students	16
Residents	14
Nov 1-30, 2012	
Med Students	24
Residents	
Dec 1-31, 2012	
Med Students	23
Residents	43
Total Learner shifts	
	295
Mike Clory, Site Chief, CCHC ED	