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Shifting Patient Safety into High Gear

Boston, MA, November 16, 2012

Shifting Patient Safety into High Gear

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Lessons from Emergency Medicine

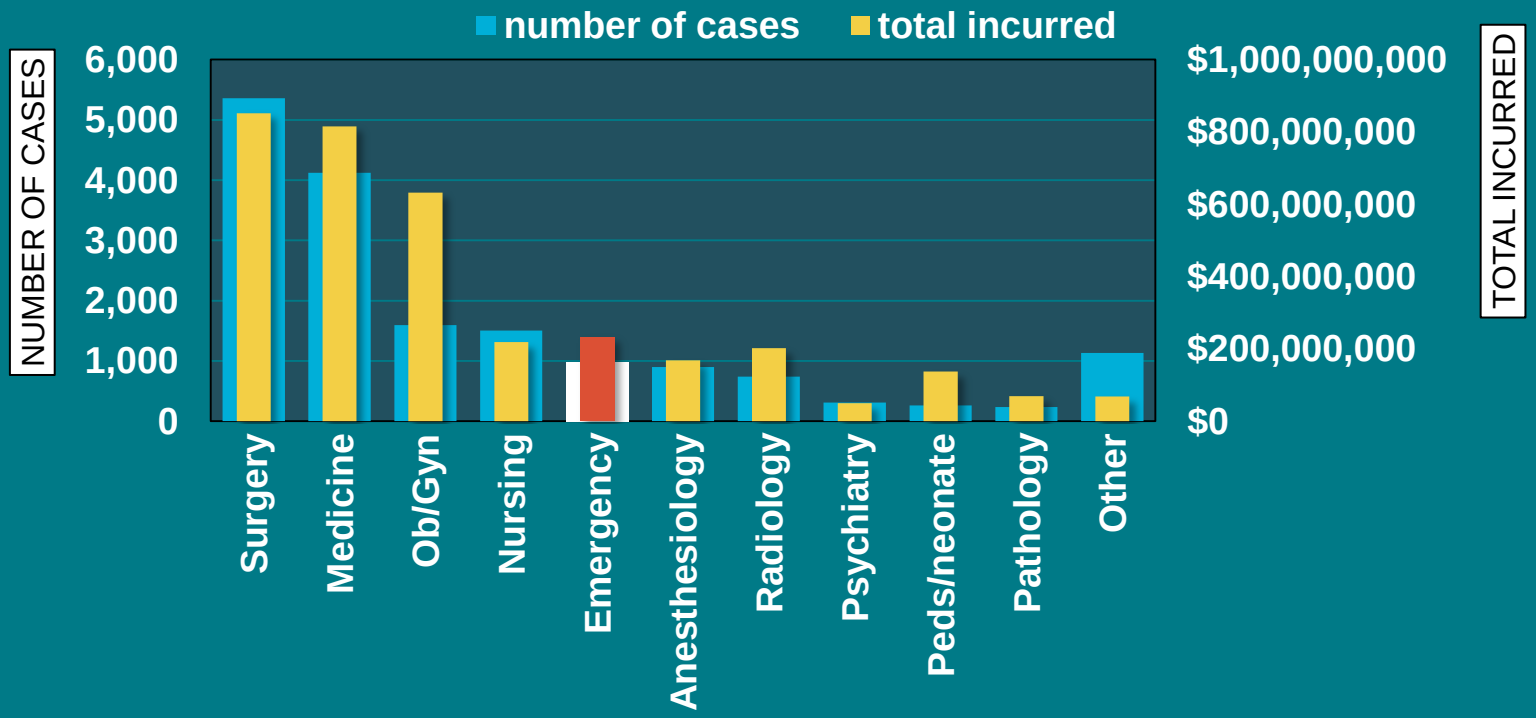
Carrie Tibbles, MD | CRICO

Assaad Sayah, MD | Cambridge Health Alliance

Larry Nathanson, MD | Beth Israel Deaconess Medical Center

Emergency Medicine is in the top five

National Landscape: Primary Responsible Services



CBS N=17,124 coded professional liability cases asserted 1/1/07–12/31/11.

Total incurred includes reserves on open cases and payments on closed cases.

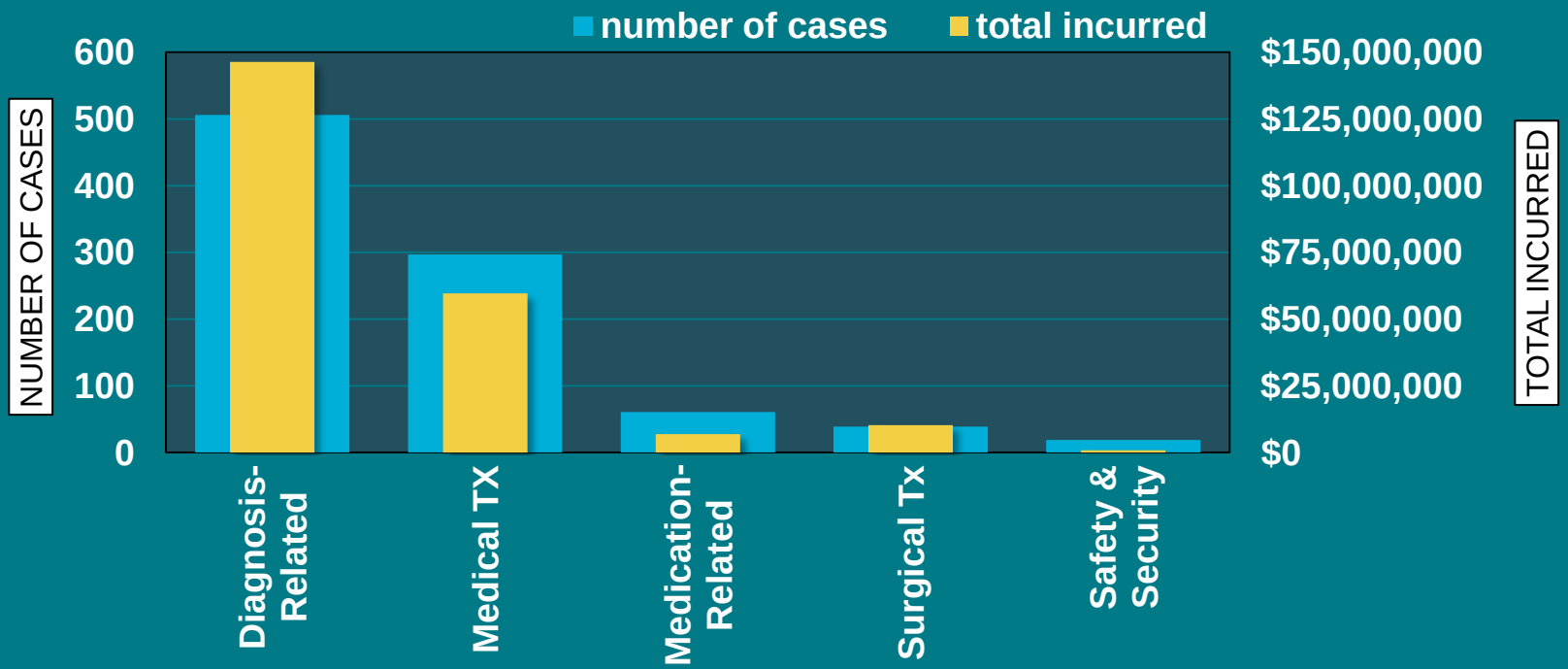
Surgery includes: General Surgery, Neurosurgery, Orthopedics, and Surgery Subspecialties (Bariatric Surgery, Colorectal Surgery, Cardiac Surgery, Otorhinolaryngology (with Plastic), Hand Surgery, Ophthalmology, Otolaryngology (No plastic), Plastic (NOC), Pediatric Surgery, Oncology (Surgical), Thoracic Surgery, Urology Surgery, Vascular Surgery, Transplant, Podiatry).

Medicine includes: General Medicine and Medicine Subspecialties (Cardiology, Dermatology, Endocrinology, Gastroenterology, Genetics, Geriatrics, Hematology, Hospitalist, Immunology and Allergy, Infectious Disease, Oncology (Medical), Nephrology, Neurology, Physical Medicine/Rehabilitation, Pulmonary Disease, Rheumatology).

Other includes: Dentistry/Oral Surgery, Allied Health, Non-clinical, and Pharmacy.

Diagnosis-related allegations account for 50% of ED claims

National Landscape: Top Major Allegations in ED Cases



CBS N = 976 coded professional liability cases asserted 1/1/07–12/31/11 with ED as the primary responsible service.
Total Incurred = reserves on open cases and payments on closed cases.

Emergency Medicine Diagnosis-related Malpractice Data

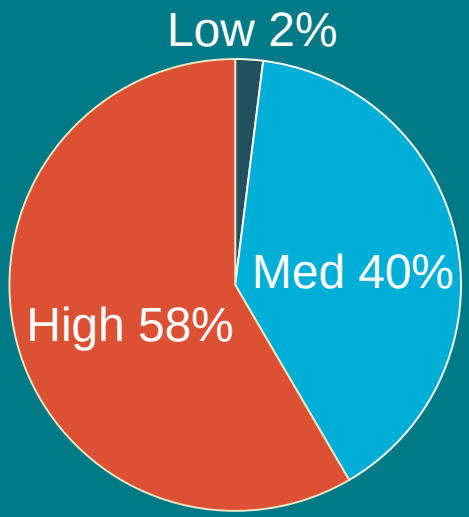
506 cases | $146M total incurred

2007-2011

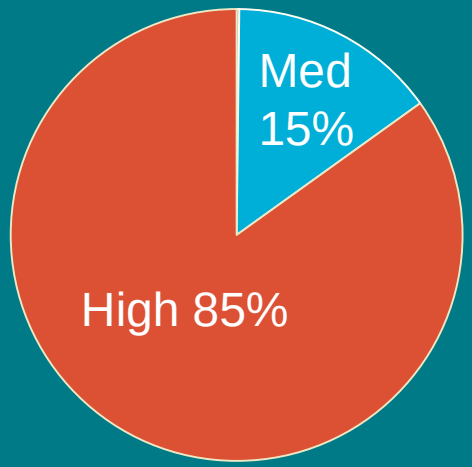
58% of cases involved high severity injury

Injury Severity in Diagnostic ED Cases

PERCENT OF CASES



PERCENT OF TOTAL INCURRED



CBS N=506 PL cases asserted 1/1/07–12/31/11 with a diagnosis-related major allegation and ED as primary responsible service.

Total Incurred=reserves on open and payments on closed cases.

Severity Scale: High= Death, Permanent Grave, Permanent Major or Permanent Significant
Medium= Permanent Minor, Temporary Major or Temporary Minor
Low= Temporary Insignificant, Emotional Only or Legal Issue Only

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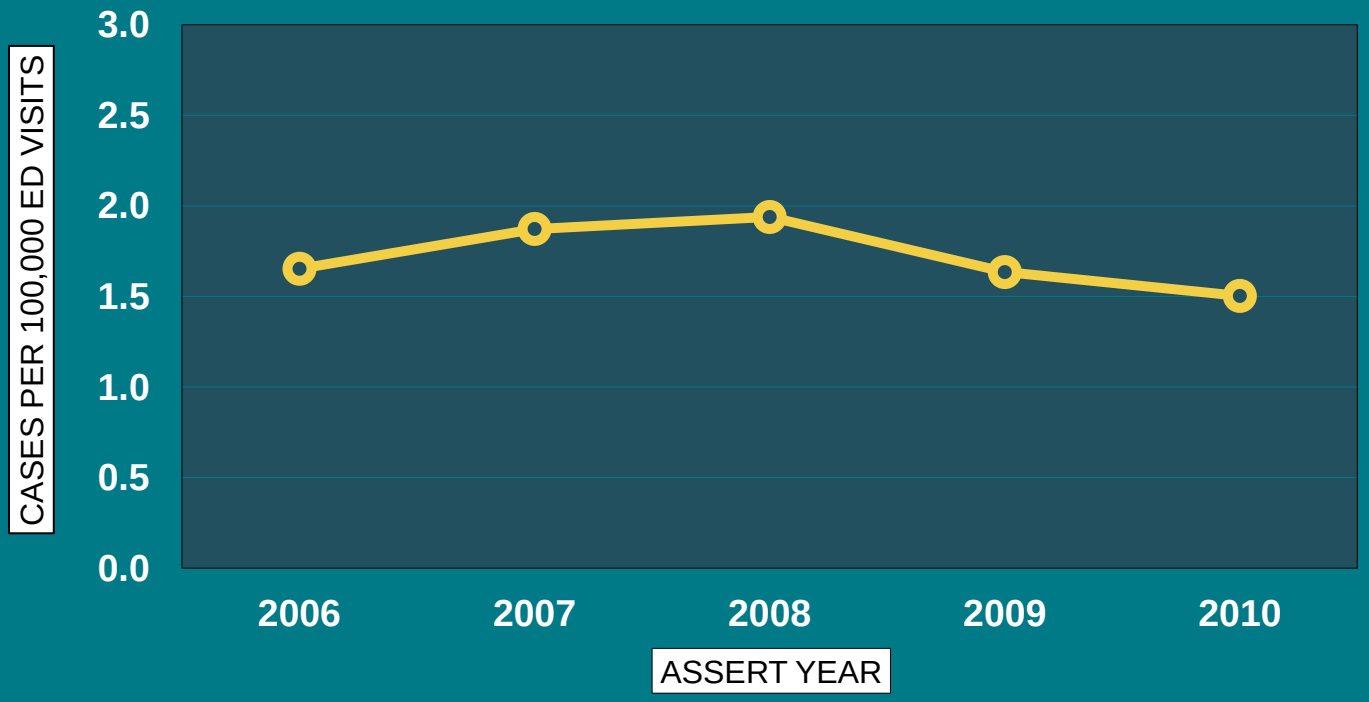
Case rate per 100,000 ED visits stable

Diagnostic ED Cases: Case rate per 100k ED Visits



CBS N=538 coded PL cases asserted 1/1/06–12/31/10 with a diagnosis-related major allegation and ED as primary responsible service.

Heart disease, fractures, and cerebro-vascular disease account for 28% of claims.

Top Final Diagnoses in Diagnostic ED Cases

DIAGNOSIS	# CASES
Diseases of the heart	66
Fractures	39
Cerebrovascular disease	36
Gastrointestinal disorders	34
Diseases of arteries; arterioles; and capillaries	31
Central nervous system infection	25
Cancer	21
Complications	18
Bacterial infection	17
Spinal cord injury	16

CBS N=506 coded PL cases asserted 1/1/07–12/31/11 with a diagnosis-related major allegation and ED as primary responsible service.

Ordering, managing, and planning

Diagnostic Process of Care in ED Cases

STEP	# CASES*	% CASES*	TOTAL INCURRED
1. Patient notes problem and seeks care	24	5%	$9,566,598
2. Initial assessments: history & physical exam	54	11%	$15,690,771
3. Ongoing assess: monitoring of clinical status	162	32%	$50,747,991
4. Ordering of diagnostic tests	347	69%	$119,225,319
5. Performance of diagnostic tests	27	5%	$15,174,297
6. Interpretation of diagnostic tests	72	14%	$18,077,523
7. Transmittal of test results to (ED) provider	34	7%	$15,887,980
8. Consultation management	147	29%	$49,445,334
9. Development of discharge plan	241	48%	$80,184,894
10. Post discharge f/u (inc pending test results)	42	8%	$18,693,190
11. Patient adherence with plan	27	5%	$3,595,579

*A case will often have multiple factors identified.

CBS N=506 coded PL cases asserted 1/1/07–12/31/11 with a diagnosis-related major allegation and ED as primary responsible service.

Total Incurred=reserves on open and payments on closed cases.

Case Study

Case Study

- 16-yo F saw her pediatrician in the clinic complaining of abdominal pain, nausea, and vomiting for the past 24 hours.
  - PE (pediatrician): VSS, afebrile, slightly obese, right mid-lower abdomen was tender to percussion.
  - Impression: “r/o appendicitis vs. renal colic.” She was sent to the ED for CBC, U/A, UC, & KUB.
- ED Physical Exam (ED resident): diffuse tenderness noted right lower quadrant, no guarding or rebound.
  - No change noted in bowel movements.
  - Pain varied between 5/10 → 10/10; did not respond to Tylenol.
  - U/A & KUB unremarkable; CBC & electrolytes normal – except for slightly ↑ neutrophils.
  - W/out a formal consult, the attending spoke to a pediatric surgeon → concluding pt did not have a surgical abdomen.

Case Study (cont'd)

- Patient was discharged w/diagnosis of abdominal pain.
  - Plan: instructed to have a light diet and call her pediatrician if the pain or vomiting resumed.
- One hour later: patient returned with increased pain, and nausea and vomiting
  - PE (same resident): abdomen diffusely tender, (+) BS, no guarding, and afebrile.
  - Impression: non-surgical abdomen
  - Plan: hydrate

Case Study (cont'd)

- While in ED, RN noted patient screaming in pain, in a knee/chest position; RN notified the attending:
  - Attending ped examined pt, reviewed resident's note, and indicated that she "looked well. No acute distress."
  - Patient's mother asked whether an U/S or other imaging test was needed. Attending dismissed the mother's suggestion, telling her the symptoms did not warrant it.
- Patient was discharged home.

Case Study (cont'd)

- Next day: patient returned to ED w/episodic right lower quadrant abdominal pain with vomiting (5-6 x).
  - PE (different resident): afebrile w/mild tenderness in both lower quadrants, no guarding, min rebound, & nl BS. No rectal exam documented. Pt had not had a stool that day.
  - Attending ED physician believed that the previous day's attending had obtained a surgical consult, had diagnosed her with constipation, and had ordered an enema, after which the patient reported feeling better.
  - Patient was discharged home.
  - Plan: ↑ fluid intake, take mineral oil, ↑ fiber in diet, and inform her pediatrician how she was doing.

Case Study (cont'd)

- 3 days later: patient seen by her pediatrician for continued abdominal pain & vomiting.
  - PE: slight fever & orthostatic; abdomen quiet w/↑'d guarding.
  - Plan: patient sent to ED
  - ED PE: WBC & sed rate elevated; CT scan = nl appendix but presence of a complex pelvic mass; U/S = torsion R ovary
    - Pt taken to the OR → infarction R ovary confirmed → R ovary & fallopian tube removed.
    - Pt had an uneventful postoperative course.
    - Lawsuit Allegation
    - Parents alleged a delay in diagnosing and treating their daughter resulted in the permanent loss of one of her ovaries.

What are the key issues that led to this adverse outcome?

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Contributing Factors / Pitfalls

- Narrow diagnostic focus (atypical presentation)
- Failure/delay responding to the patient's concerns
- Failure/delay ordering diagnostic tests
- Failure/delay obtaining a consult or referral
- Communication among providers re: patient condition
- Illegible documentation

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Lessons from Emergency Medicine

Team Communication Training

Assaad Sayah, MD | Cambridge Health Alliance

Chief, Emergency Department

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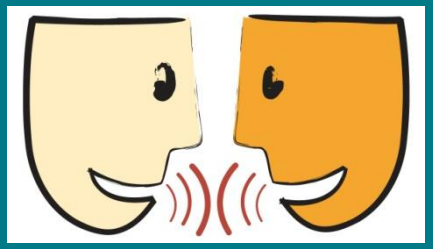
Why this Project?

- Strategies are needed to improve communication, prevent errors, and mitigate consequences for patients treated in the emergency department
- EPIC may introduce more opportunities for misses. It does not replace verbal communication.



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Grant Details

- Modeled on the success CRICO has had implementing team training programs in other disciplines
- $1.2 million for the ED Team Communication Project across six hospitals.

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Steering Committee

- A steering committee consisting of the site leaders from each institution and representation from CRICO helped to coordinate and support the project.
- While the steering committee offers guidance to each of the institutions, it is recognized at the outset that while the essential elements of team training are constant, the implementation at each local site has been tailored to the local environment.
- The steering committee also developed outcomes to measure the success of the project.

Benefits of SIM Training

- High performance teams, function more efficiently and effectively when they have developed and practiced specific communication skills and team behaviors.
- Simulated critical incidents:
  - (followed by debriefing and reflection) are a well established method for this practice and an opportunity for team members to improve their skills
  - allow for practice of skills in a realistic, but low risk environment.
  - highlight and teach role clarity leadership skills, effective closed loop communication, and resource management as teams deliver coordinated care through the exercise.

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GOAL: To improve communication among providers as a means of decreasing diagnostic failures.

Overall Objectives

1. Recognize the barriers to getting complete information (gathering and integrating information)
2. Use the designated method for transferring complete information
3. Lower the barriers for “speaking-up”

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Sessions

Each class had a team of instructors which included

- 1 Physician
- 1 Physician Assistant
- 1 Registered Nurse

Each Session was comprised of a specific complement of staff

- 1 Physician
- 1 Physician Assistant
- 3-7 Registered Nurses
- 1-4 Support Staff (Nursing Assistants, Unit Secretaries, Greeters)
- 1-2 Security Officers

Average class size was about 8 attendees

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Scenarios

- Scenario 1: Disaster
- Scenario 2: Slow Burn

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Scenario 1: Disaster

Two patients are in ED beds when staff enter

- Both arrived in the ED after a bus accident
- Nursing Assistant (NA) updates team on patients' status
- NA becomes ill during course of scenario

Twist: *this is a HAZMAT incident*

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Scenario 2: Slow Burn

Patient 1

66 yo F presenting with Initial BP 153/92 and fever of 101.2, shortness of breath and cough. Her chest X-ray showed LLL pneumonia and was treated with hydration and IVAvelox.

Nursing supervisor said she could go up to the floor after shift change. While waiting for report and to go up, her HR Subtly started going up and BP going down, to 100/47, not floridly hypotensive, but drifting down.

Patient 2

Found in the bathroom by safety officer.

Suspected intoxication: loud and disruptive behavior.

Reports that s/he is withdrawing from alcohol and brought to ED.

Patient 3

Arrives last: 46 yo M, remote history of alcohol use, vomiting blood began this AM. Has been taking large doses of Motrin for knee injury. EMS was only able to get peripheral 22 gauge IV.

Twist: *Patient 2 begins to seize*

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Lessons: closing the loop in communication

To ensure that communication is open, accurate, timely, and precise:

- Call out vital information and assessment data;
- Provide situation updates;
- Use explicit double-check, reading back, or checking back, behaviors.

When to use it

- ED on the same page at the time of admission
- Sign out to the floor during admission
- Change of Shift
- Discharge
- During a “Code Consult”

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Lessons: adopting an assertive stance

Verbal

- Be specific and direct
- Be honest
- Stick to the statement; repeat it if necessary
- Use “I” statements
- Deflect responses from the other person that might undermine you
- Offer a solution
- Ask for feedback

Non-verbal

- Eye contact
- Body posture
- Gestures
- Facial expression
- Voice, tone, inflection, and volume
- Timing

Adapted from Flin et al., Safety at the Sharp End, 2008.

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Lessons: speaking up

- Speaking up is a two-way street. Effectiveness depends on both the giver and the receiver.
- Invite inquiry and information, and show appreciation when it comes.
- Think out loud and seek input.
- Encourage efficient, accurate, and precise communication without fear of reprisal.
- Build team trust, cohesiveness, and a culture of patient safety.
- Find the teaching moments and debrief (2-3 mins.)
- When to bring it to the next level.

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S
IGNIFICANT
EVENTS /
KEY FACTS
T
HERAPIES /
TESTS (LABS,
RADIOLOGY)
O
XYGEN, LAST
VITAL SIGNS
P
ENDING ISSUES

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Triggers

	AGE	HR >	RR >	SBP <	SPO2 <
Adult	>18 yrs	<45 OR >130	<8 OR >30	90	90%
Pediatric	<3 mo	180	50	60	92 %
	3mo–3 yrs	160	40	70	
	3 yrs–8 yrs	140	30	70	
	8 yrs–18 yrs	100	20	90	

- Patient Status
- Nursing concern of critical clinical status
- Examples could include
  - ESI Score of 1 and other potentially critical patients
  - Active Seizure
  - Fall in ED
  - Active Chest Pain

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Triggers

Trigger Response

- Immediately notify unit secretary.
- Unit Secretary makes overhead announcement – “CODE CONSULT to Room __”
- Physician, Primary Nurse for that room, and ParII respond immediately to room

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Plans for Sustainability

- The ED went live with the STOP tool and Triggers on Nov 1, 2012
- An OLC module is being developed
- Refresher courses will be offered periodically during special collaborative meetings

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Lessons from Emergency Medicine

The ED Dashboard at BIDMC

Larry A. Nathanson, MD
Beth Israel Deaconess Medical Center

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Disclosure

Founder of Forerun Systems, a health IT company

Overview

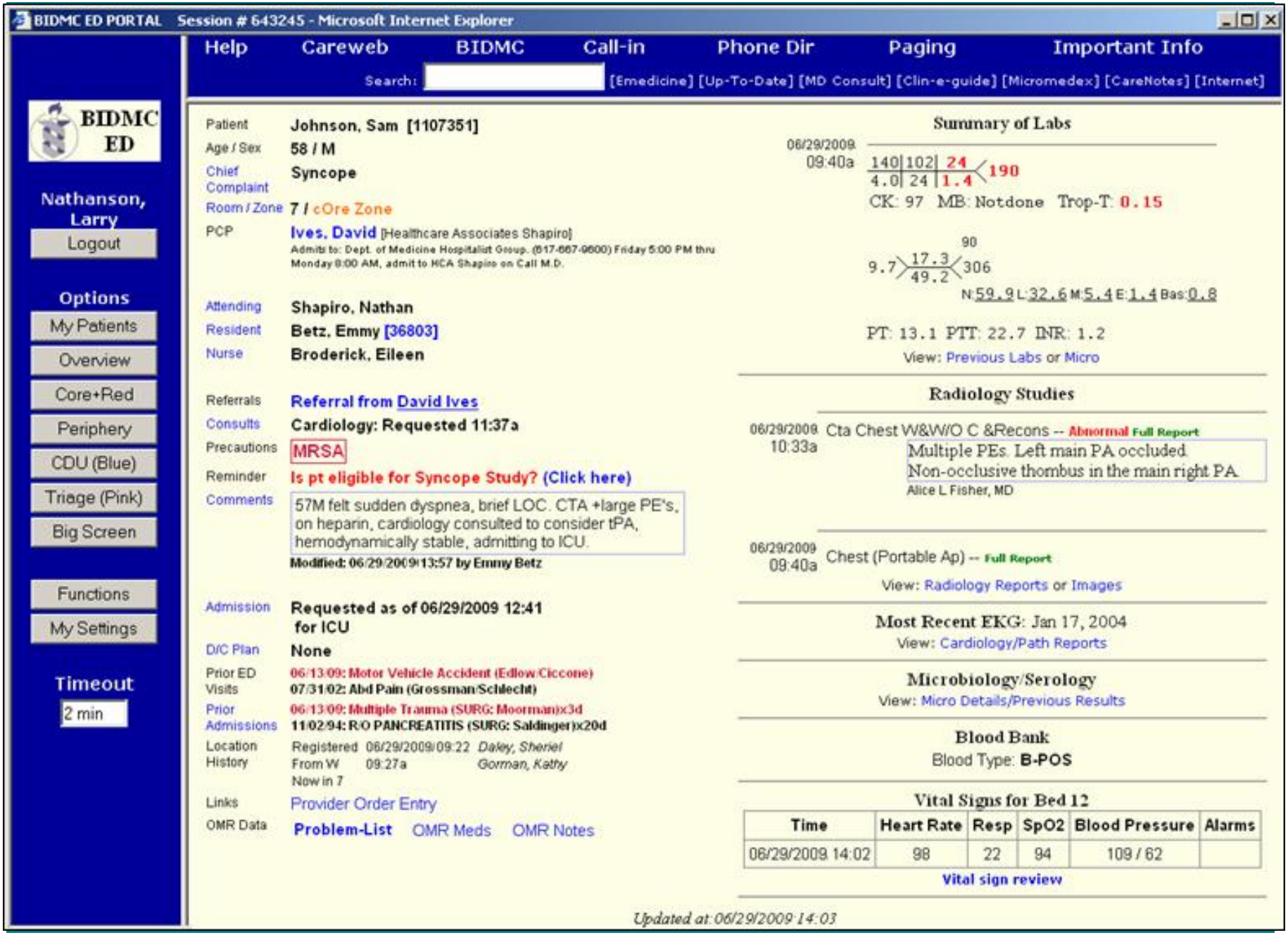
The ED Dashboard at BIDMC:

- Improves situational awareness
- Promotes closed loop communications
  - With primary care
  - With consultants
- Clinical Decision Support
  - Reminders for standardized care protocols
  - Alerts for dangerous conditions

Situational Awareness

7h 66	45	[redacted]	☆ Com	Chills
18h 64	46	[redacted]	☆ Com REF Neuro	Swollen Legs /Pain
2h 63	47	[redacted]	☆ Com REF Urol	Abd Pain

	L	Epstein TimPeck	MB	Nur	R	
U	L	LarryN Buggia	mango	Nur	A	♥
XC	L	L	Epstein TimPeck	MB	Nur	O


BIDMC ED PORTAL Session # 643245 - Microsoft Internet Explorer
Help Careweb BIDMC Call-in Phone Dir Paging Important Info
Search: [Emedicine] [Up-To-Date] [MD Consult] [Clin-e-guide] [Micromedex] [CareNotes] [Internet]
BIDMC ED
Nathanson, Larry
Logout
Options
My Patients
Overview
Core+Red
Periphery
CDU (Blue)
Triage (Pink)
Big Screen
Functions
My Settings
Timeout
2 min
Patient Johnson, Sam [1107351]
Age / Sex 58 / M
Chief Complaint Syncope
Room / Zone 7 / cOre Zone
PCP Ives, David [Healthcare Associates Shapiro]
Admits to: Dept. of Medicine Hospitalist Group. (617-667-9600) Friday 5:00 PM thru Monday 8:00 AM, admit to HCA Shapiro on Call M.D.
Attending Shapiro, Nathan
Resident Betz, Emmy [36803]
Nurse Broderick, Eileen
Referrals Referral from David Ives
Consults Cardiology: Requested 11:37a
Precautions MRSA
Reminder Is pt eligible for Syncope Study? (Click here)
Comments 57M felt sudden dyspnea, brief LOC. CTA +large PE's, on heparin, cardiology consulted to consider tPA, hemodynamically stable, admitting to ICU.
Modified: 06/29/2009 13:57 by Emmy Betz
Admission Requested as of 06/29/2009 12:41 for ICU
D/C Plan None
Prior ED Visits 06/13/09: Motor Vehicle Accident (Edlow/Ciccone)
07/31/02: Abd Pain (Grossman/Schlecht)
Prior Admissions 06/13/09: Multiple Trauma (SURG: Moorman)x3d
11/02/94: R/O PANCREATITIS (SURG: Saldinger)x20d
Location History Registered 06/29/2009 09:22 Daley, Sheriel
From W 09:27a Gorman, Kathy
Now in 7
Links Provider Order Entry
OMR Data Problem-List OMR Meds OMR Notes
Summary of Labs
06/29/2009 09:40a
140 102 24 190
4.0 24 1.4
CK: 97 MB: Notdone Trop-T: 0.15
90
9.7 17.3 306
49.2
N:59.9 L:32.6 M:5.4 E:1.4 Bas:0.8
PT: 13.1 PTT: 22.7 INR: 1.2
View: Previous Labs or Micro
Radiology Studies
06/29/2009 10:33a Cta Chest W&W/O C &Recons -- Abnormal Full Report
Multiple PEs. Left main PA occluded. Non-occlusive thombus in the main right PA.
Alice L Fisher, MD
06/29/2009 09:40a Chest (Portable Ap) -- Full Report
View: Radiology Reports or Images
Most Recent EKG: Jan 17, 2004
View: Cardiology/Path Reports
Microbiology/Serology
View: Micro Details/Previous Results
Blood Bank
Blood Type: B-POS
Vital Signs for Bed 12
Time | Heart Rate | Resp | SpO2 | Blood Pressure | Alarms
06/29/2009 14:02 | 98 | 22 | 94 | 109 / 62 |
Vital sign review
Updated at: 06/29/2009 14:03

Closed Loop Communication

BIDMC ED Referral

Patient Name:	Smith,Jane	Age:	16
Person Calling In:	Dr. Jones	Gender:	Female
Pt's Usual Provider:			
Clinical Summary:	16F presents to our clinic with abdominal pain, nausea and vomiting for the last 24 hours. She has a history of eczema and ovarian cysts. We found her to afebrile with stable vital signs. Her exam was notable for right sided lower abdominal tenderness to percussion. She appears very uncomfortable and we are concerned she could have appendicitis or a kidney stone. Please consider CBC, urinalysis, culture and imaging.		

Referrals **Referral from Dr. Jones**

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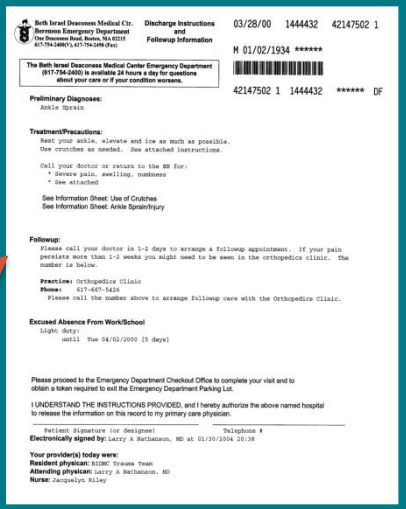
Preliminary Diagnosis	Ankle Sprain	D/C Help
Treatment + Precautions	Rest your ankle, elevate and ice as much as possible. Use crutches as needed. See attached instructions. Call your doctor or return to the ER for: * Severe pain, swelling, numbness * See attached Use of Crutches, Ankle Sprain/Injury	Instruction Sheets
Prescriptions	Tylenol with Codeine #3 1-2 tabs PO q 4-6h prn #12	Add/Edit Rx
Status	This is **NOT** a Work-Related Visit	Change
Followup	For BIDMC clinics or HCA click on the "Followup Options" button! Please call your doctor in 1-2 days to arrange a followup appointment. If your pain persists more than 1-2 weeks you might need to be seen in the orthopedics clinic. The number is below. Orthopedics Clinic	Followup Options
Additional Notes to Provider **(NOT printed for pt.)**	Summary of EDVisit and/or Additional notes for providers: ED evaluation on 01/28/2004 for: TWISTED ANKLE Inversion injury of the right ankle last night. Came in due to swelling and difficulty walking. Exam is normal except moderate swelling. Xrays do not show a fracture. Will discharge with Aircast and crutches. File in Electronic Medical Record (OMR) Rind,David M (Internal Medicine, Attending, BIDMC)	Notify Others
Other	Excused Absence From Work/School	Work Notes + AMA


Beth Israel Deaconess Medical Ctr. Discharge Instructions and Followup Information 03/28/00 1444432 42147502 1

M 01/02/1934 ******

The Beth Israel Deaconess Medical Center Emergency Department (617-754-2400) is available 24 hours a day for questions about your care or if your condition worsens.

42147502 1 1444432 ****** DF

Preliminary Diagnoses:
Ankle Sprain

Treatment/Precautions:
Rest your ankle, elevate and ice as much as possible.
Use crutches as needed. See attached instructions.

Call your doctor or return to the ER for:
* Severe pain, swelling, numbness
* See attached

See Information Sheet: Use of Crutches
See Information Sheet: Ankle Sprain/Injury

Followup:
Please call your doctor in 1-2 days to arrange a followup appointment. If your pain persists more than 1-2 weeks you might need to be seen in the orthopedics clinic. The number is below.

Practice: Orthopedics Clinic
Phone: 617-667-5426
Please call the number above to arrange followup care with the Orthopedics Clinic.

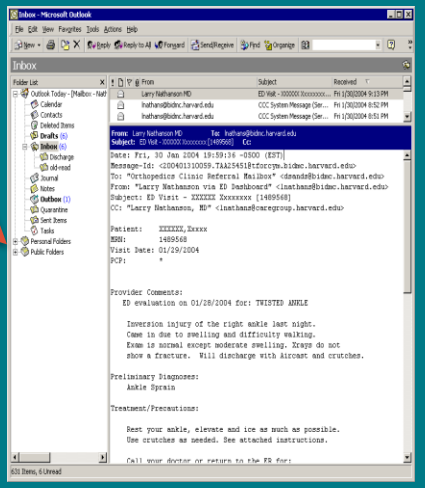
Excused Absence From Work/School
Light duty:
until Tue 04/02/2000 (5 days)

Please proceed to the Emergency Department Checkout Office to complete your visit and to obtain a token required to exit the Emergency Department Parking Lot.

I UNDERSTAND THE INSTRUCTIONS PROVIDED, and I hereby authorize the above named hospital to release the information on this record to my primary care physician.

Patient Signature (or designee) Telephone #
Electronically signed by: Larry A Nathanson, MD at 01/30/2004 20:38

Your provider(s) today were:
Resident physician: BIDMC Trauma Team
Attending physician: Larry A Nathanson, MD
Nurse: Jacquelyn Riley


Inbox - Microsoft Outlook

Inbox

Date: Fri, 30 Jan 2004 19:59:16 -0500 (EST)
Message-Id: <200401310059.TAA254518fdorcpw.bidmc.harvard.edu>
To: "Orthopedics Clinic Referral Mailbox" <dnands@bidmc.harvard.edu>
From: "Larry Nathanson via ED Dashboard" <lnathans@bidmc.harvard.edu>
Subject: ED Visit - XXXXXX Xxxxxxxx [1489568]
CC: "Larry Nathanson, MD" <lnathans@caregroup.harvard.edu>

Patient: XXXXXX,Xxxxx
MRN: 1489568
Visit Date: 01/29/2004
PCP: *

Provider Comments:
ED evaluation on 01/28/2004 for: TWISTED ANKLE

Inversion injury of the right ankle last night.
Came in due to swelling and difficulty walking.
Exam is normal except moderate swelling. Xrays do not show a fracture. Will discharge with Aircast and crutches.

Preliminary Diagnoses:
Ankle Sprain

Treatment/Precautions:

Rest your ankle, elevate and ice as much as possible.
Use crutches as needed. See attached instructions.

Call your doctor or return to the ER for:

631 Items, 6 Unread

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Critical/Acute:

- ○ Code Cord
- ○ Post-Arrest Response Team
- ○ Acute ST-Elevation MI
- ○ Code STROKE

Non-surgical:

- ○ BMT Service
- ○ Cardiology -- BIDMC
- ○ Cardiology -- Atrius
- ○ BIDMC Cardiology Attending
- ○ EEG
- ○ GI - General
- ○ GI - ERCP/Biliary
- ○ GI - Hepatology/Liver
- ○ GI - Pancreatitis Consult
- ○ Neurology
- ○ Psychiatry
- ○ Renal - Dialysis
- ○ Renal - General
- ○ Renal - Transplant
- ○ Toxicology

Surgical:

- ○ Bariatric Surgery
- ○ ENT
- ○ Hand Surgery
- ○ Neurosurgery
- ○ OB/Gyn
- ○ Oral-MaxilloFacial Surgery
- ○ Orthopedics
- ○ Plastic Surgery
- ○ Podiatry
- ○ Spine
- ○ Surgery
- ○ Thoracic Surgery
- ○ Transplant Surgery
- ○ Urology
- ○ Vascular Surgery

Other:

- ○ Physical Therapy
- ○ Respiratory Therapy
- ○ Case Management
- ○ Social Work

Consults **Bariatric Surgery: Preliminary Findings 11/ /2012 11:18p**

11/ /2012
4:06p

Bariatric Surgery Consult (Urgent) *Requested by Jonathan Fisher*

11/ /2012 4:06p	Jonathan Fisher	Paged 38520: "Bariatric Surgery consult, ED Pt: [redacted] Callback: Fisher 6178036148. *[OK ADRA, SOUHEIL[93582]]*
11/ /2012 4:31p	Ameeka Pannu	Status: Acknowledged Ameeka p91224
11/ /2012 5:55p	Ameeka Pannu	Status: Preliminary Findings Patient will be seen by fellow shortly. Please order upper GI study to eval conduit. Thank you, Ameeka p91224
11/ /2012 6:01p	Colin J Huguenel	Paged 38520: "Re: ED Pt [redacted] Called radiology, unable to get this study in ED at this hour, emergency only, likely have to admit patient for study in AM -Colin x42477 p92211" *[OK ADRA, SOUHEIL[93582]]*
11/ /2012 11:18p	Mautin T Hundeyin	Status: Preliminary Findings UGI negative for band prolapse, please obtain CT scan to r/o other pathology. If negatvem patient can d/c home on Bari Stage 3 diet. Thanks mautin p93570 x29016
11/ /2012 03:17a	Nicole M Dubosh	Paged 38520: "Re: ED Pt [redacted] CT results back. please call 4-2455 to discuss plan. Nicole p93665" *[OK ADRA, SOUHEIL[93582]]*

Send a related page | Change Bariatric Surgery Consult Status

Clinical Decision Support

Reminder	Current RCI PEP & treatment protocols: (Click here) RCI Physician Instructions: (Click here)

Reminder	Patient is at increased fall risk Patient with many recent CT scans - check history before ordering

WARNING!!!

- **There were some critical lab value(s)-- have you rechecked or addressed them???**

- **Some labs may still be pending -- please check carefully!**

Patients should not be discharged with pending blood cultures, (except for rare situations.)

The ED attending physician can override this if clinically indicated.

Conclusion

- Situational awareness
- Closed loop communications
- Clinical Decision Support

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