

The Nuts and Bolts of Setting Up an ED Observation Unit

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Disclosure of Commercial Relationships:

- | <i>Nature of Relationship</i> | <i>Name of Commercial Entity</i> |
|-------------------------------|--|
| • Advisory Board | None |
| • Consultant | None |
| • Employee | None |
| • Board Member | None |
| • Shareholder | None |
| • Speaker's Bureau | None |
| • Patents | None |
| • Other Relationships | <p>CMS Technical Advisory Panel: AMI,
HF, pneumonia</p> <p>Past CMS APC Advisory Panelist
Chair – Visits and Observation
Subcommittee</p> <p>Co-chair, Mission Lifeline Atlanta,
AHA</p> |

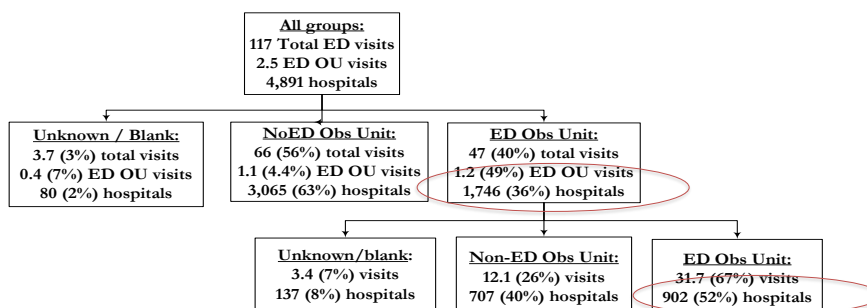
Key components



- Making the case
- Physical design
- Protocols, guidelines, and order-sets
- Critical metrics – utilization, quality, economic
- Staffing – physician, APP, nurse, tech/sec
- Ancillary support
- Financial analysis

How many observation units are there? CDC / NHAMCS ED 2007 survey data

Wiler J, Ginde A, Ross M; Acad Emerg Med 2011



- ED dispositions:
 - 15% = "Stay": Admit to hospital or EDOU

4/15 = 26%
of people who
"stay"

- 2% = EDOU
- 2% = <48hr hosp. ("Short stay")
- 11% = >48 hr hosp.

} 13 % IP "admit"



The Setting

EXHIBIT 1

Hospital Settings In Which Observation Services Are Provided

Setting	Description	Characteristics
Type 1	Protocol driven, observation unit	Highest level of evidence for favorable outcomes Care typically directed by ED
Type 2	Discretionary care, observation unit	Care directed by a variety of specialists Unit typically based in ED
Type 3	Protocol driven, bed in any location	Often called a "virtual observation unit"
Type 4	Discretionary care, bed in any location	Most common practice Unstructured care Poor alignment of resources with patients' needs

"Hospitalized but Not Admitted"

Sheehy AM et al. JAMA IM 2013

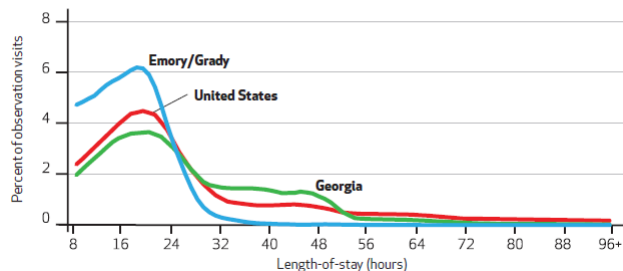
- Retrospective observational cohort study
- Setting: Type 4 (No type 1 obs unit)
 - 566 bed Academic Medical Center (U. Wisc)
- Time frame: 36 months
- Population: Hospitalized patients
 - 43,853 patients
 - 10.4% for "observation"
 - Mean LOS = 33.3 hours (17% over 48 hours)
 - » Medical patients = 41.1 hours
 - » More medical, elderly, and female patients
 - Hospital Margin = LOSS of \$331 per case
- Conclusion: ". . . observation status"
 - Are they missing something???

3 Study Groups:

- Blue: Local operations data (Complete enumeration)
- Red: CDC: NCHS: NHAMCS (ED sample survey)
- Green: AHRQ: HCUP: National ED Survey (Claims)

EXHIBIT 3

Observation Visit Lengths-Of-Stay Across Three Study Groups



By Michael A. Noss, Jason M. Hockenberry, Ryan Mutter, Marguerite Barrett, Matthew Wheatley, and Stephen R. Pitts

Protocol-Driven Emergency Department Observation Units Offer Savings, Shorter Stays, And Reduced Admissions

- U.S. Savings Potential from Type 1 Units:
 - **Observation patients - \$950 Million / year**
 - 38% shorter stays
 - 44% lower admit rates
 - **Short Inpatients - \$8.5 Billion / year**
 - 11.7% of all admissions
 - Savings potential – ED visits vs ED admissions:
 - Avoided ED visits = \$2.3-3.4 Billion/yr
 - Avoided ED admits = \$5.5-8.5 Billion/yr
 - Relative savings = 2.4-2.5 times greater
- (avoided: admits vs ED visits)

REVIEW ARTICLE

State of the Art: Emergency
Department Observation Units

Michael A. Ross, MD,* Taruna Aurora, MD,† Louis Griffl, MD,‡ Pawan Suri, MD,†
Rachel O'Malley, MD,§ Aderonke Ojo, MD,* Steve Bohan, MD, and Carol Clark, MD**

<u>Condition / Year / Author</u>	<u>N</u>	<u>Primary Outcome</u>
1. Syncope / 14 / Sun *	124	↓ admissions and LOS
2. Chest Pain / 10 / Miller *	110	↓ Cost (stress MRI)
3. Atrial Fib / 08 / Decker	153	↑ conversion to sinus
4. TIA / 07 / Ross	149	↓ LOS and cost
5. Syncope / 04 / Shen	103	↑ established diagnosis, ↓ admissions
6. Asthma / 97 / McDermot	222	↓ admissions, no relapse ↑
7. Chest Pain / 98 / Farkouh	424	No difference cardiac events
8. Chest Pain / 97 / Roberts	165	↓ LOS and cost
9. Chest Pain / 96 / Gomez	100	↓ LOS and cost

(*Crit Pathways in Cardiol* 2012;11: 128–138)

*Added since published after this review

Making the case for a Type 1 Setting



- Hospital - economic:
 - Cost reduction = \$1.5 – 2.0K / case
 - = Baugh Health Affairs data - \$1,572 / case
 - = Emory TIA data - \$2,062 / case
 - Revenue enhancement = \$3K/case
 - Baugh “options modeling” data - \$2,908 / case
 - Soft economics:
 - Risk reduction – re-admissions, RAC
 - Decrease ED overcrowding and diversion (1 admit / diversion hour)
- Organizational goals and objectives:
 - Locate yours - an OU fits in!
- Quality:
 - Patient satisfaction
 - Less patient financial risk (shorter stays, less SNF risk, faster admit)
 - Lower risk of inappropriate discharge
 - Standardized care – quality compliance

Physical design



- Location –
 - Proximate to the ED
 - Remote from the ED
- Function
 - Pure OU
 - Hybrid OU – shared with:
 - Boarders?
 - Scheduled procedure patients
- Features
 - Outpatient room building code -24 / overnight rule?
 - Cardiac monitoring
 - Privacy, TV, telephone, soft bed
 - Square feet?

Physical design - # beds: SIMPLE

- Percent ED census – simple, fairly good
 - ~ 1patient/bed/day
 - Benchmark data:
 - 28% ED – IP admit rate / 8% OU admit rate
 - Adjust up or down by proportions:
 - 32% ED – IP admit rate / 9% obs
 - 11% ED-IP admit rate / 3% obs
 - From this determine patients / day => # beds

Protocols, guidelines, and order-sets



- Protocols / guidelines:
 - General and for the unit
 - Condition specific
- Guideline development:
 - Discovery
 - Design
 - Do
 - Data
- Protocols / Order sets – derived from guidelines

The burning question on rounds:

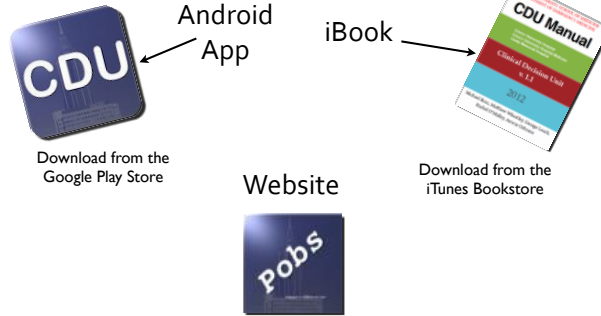
“WHY IS THIS PATIENT STILL HERE?”

WRONG ANSWERS:

1. Because they haven't hit 24 hours yet.
2. We are keeping them until the -----.
 - morning, lunch, end of the game, etc.
3. I don't know, why are they here in the first place?
4. Other ideas?

Emory Protocols

Observation Medicine Resources

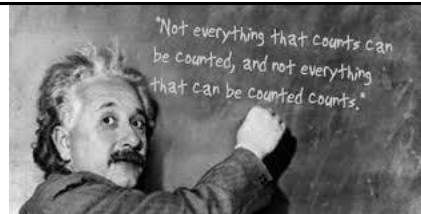


www.obsprotocols.org

all resources are free/CDU manual is for ipad or ipad mini only/ iphone app is coming soon/ feel free to email or ask any of your obs friends (Mike Ross, Matthew Wheatley, Anwar Osborne)

Critical metrics – utilization, quality

- Utilization – data source?
 - Electronic
 - Paper?
- Critical metrics:
 - Patient identifier
 - Gender and age (DOB)
 - Condition – reason for observation
 - Times:
 - ED arrival
 - OU arrival
 - OU admit order – boarding report?
 - OU departure
 - Departure order – D2D report?
 - Disposition
 - Admit / Discharge



Critical Metrics:

- Volumes – 0.9 – 1.1 pt/bed/day
 - Can not use 24/LOS due to variations in census by day and hour
- LOS – 15-18 hours
- Percent discharge – 70-90%
 - Under 70% - observing patients that should be admitted from the ED?
 - Over 90% - observing patients that should be discharged from the ED?

Three EHC CDUs – CY 2016

Rank	Protocol Category	#	% Census	ED LOS	CDU LOS	ED+CDU LOS	Admit Rate
1	Chest Pain	3229	36%	4.8	16.4	21.3	11%
2	Other	829	9%	5.4	15.0	20.4	17%
3	TIA	688	8%	4.9	17.0	22.1	14%
4	*Psych Obs	675	8%	6.0	24.0	23.9	3%
5	Abd pain	498	6%	6.5	14.9	21.8	27%
6	Syncope	463	5%	4.7	17.0	21.7	12%
7	Dehydration/vomiting	414	5%	6.2	15.8	21.9	17%
8	Cellulitis	227	3%	6.1	16.4	22.4	19%
9	Vertigo	211	2%	4.5	15.8	20.3	9%
10	CHF	166	2%	5.6	16.6	22.2	31%
11	Transfusion of blood	135	2%	5.2	15.4	20.6	7%
12	Asthma	129	1%	5.5	18.3	23.8	30%
13	Back pain	123	1%	6.1	16.0	22.1	21%
14	Pyelonephritis	120	1%	5.3	15.7	21.1	23%
16	Electrolyte abnormality	110	1%	5.6	15.1	20.7	14%
17	Renal colic	101	1%	4.7	13.4	18.0	13%
18	Headache	89	1%	7.7	15.4	23.1	20%
19	COPD exacerbation	87	1%	5.9	17.9	23.9	36%
20	Pneumonia	83	1%	5.5	16.3	21.8	35%
21	GI bleed	73	1%	5.0	15.2	20.2	27%
22	Hyperglycemia	71	1%	6.2	15.0	21.2	7%
23	Allergic rxn	47	1%	3.9	11.1	15.1	2%
24	Papilledema	42	0%	7.4	15.7	23.2	17%
25	Atrial fibrillation	41	0%	5.9	14.9	20.8	20%
26	DVT	39	0%	4.8	11.2	16.0	13%
27	*HD Obs	33	0%	4.3	5.9	11.7	12%
28	Vaginal bleeding	27	0%	6.1	14.3	20.5	11%
29	Hypertensive urgency	26	0%	6.5	14.3	20.7	12%
30	Hypoglycemia	15	0%	4.4	15.0	19.4	0%

18

Performed on: 08/06/2012 21:22

ED Hospital Bed Request Order EUH

Admission Type

- Observation
- Inpatient
- CDU
- Hospice
- Planned Admission

Transfer - Wesley Woods

- Transfer - EUOSH
- Transfer - Other

Bed Type

- Cardiac tele
- Floor
- ICU
- Medical tele
- DR
- Stepdown - Medical
- Stepdown - NCCI
- Uppergate

CDU Protocol

- Atrial fibrillation
- Chest Pain
- CHF
- Diabetes - ketoacidosis
- Diabetes - hyperosmolar
- Asthma
- Cellulitis
- Abdominal injury
- Allergic rxn
- Abdominal pain
- Back pain
- Chest injury
- DVT
- Dehydration/vomiting
- Electrolyte abnormality
- GI bleed
- Headache
- Head injury
- Hypertension gravidarum
- Hypertensive urgency
- Hypoglycemia
- Hyperglycemia
- Diverticulosis
- Pneumonia
- Pyelonephritis
- Renal colic
- Rib fractures
- Seizures
- Social admission
- Supraventricular tachycardia
- Syncope
- TIA
- Transfusion of blood/products
- Vaginal bleeding
- Venous
- Other:

Admitting Diagnosis

Admitting Physician

ICU Units

- CCU
- CTICU
- MICU
- Neuro ICU
- SICU

Decision to Admit (Date/Time)

Room Preference

- >20 wks preg
- JAMS
- CF patients
- Dialysis, Hemo
- Dialysis, Peritoneal
- Folate/Fenofibrate infusion
- Isolation - Airborne
- Isolation - Contact
- Isolation - Droplet
- Long term video monitoring
- None
- Obese > 350 lbs
- Organ transplant
- Rifampin
- Suxidol - 1013/ratier
- Vasovagial Dip
- Vasovagial Dip Treated
- Ventilator assist device

Family History

- Coronary Artery Disease
- Diabetes mellitus
- Hypertension
- CVA
- PE/DVT
- None
- Other:

Primary Care Physician

Other PCP Dickens

Specialty Physician 1

Specialty Physician 2

EUH Hospitalist Team

- Team A
- Team B
- Team C
- Team Paulin
- Team Seavey
- Team Stone
- Other:

Central or Arterial Line

- Yes
- No

CDU Synopsis

Airborne (SARS, chicken pox, TB)
 Contact: (MRSA, C diff, Gastroenteritis, Infected Decubul)
 Droplet: (Influenza, Pertussis, Meningitis)

Does this patient have an admitting diagnosis of?

- Pneumonia
- STEMI
- NSTEMI
- CVA
- Sepsis
- None of the above

Performed on: 08/06/2012 21:22

Cardiovascular - Respiratory Exclusion Criteria

Acute Heart Failure

- New onset CHF
- Acute cardiac ischemia (EKG changes, positive cardiac markers, ongoing ischemic chest pain, unstable angina) or new arrhythmias
- Unstable VS after treatment (HR >130, SBP <95 or >180, RR >32, Poi <92 on O2 by NC)
- Acute co-morbidities - sepsis, pneumonia, new murmur, confusion
- Abnormal labs - Severe anemia (Hb <8), renal failure (BUN >40 or Cr >3), Na <135
- Patient requiring vasovagial drips, invasive or noninvasive ventilation (Drap)
- Evidence of poor perfusion (confusion, cool extremity, weakness, N/V)

Asthma

- Unstable VS or clinical condition - severe dyspnea, confusion, drowsiness
- Poor response to initial ED treatment:
 - Persistent use of accessory muscles, RR >40, or excessive effort
 - Elevated pCO2 (>50) plus decreased pH if ABG done
 - O2 Sat < 92% on room air, unless documented chronic hypoxia
 - PEFR* < 40% predicted or personal best
- Suspicion of ACS, new onset CHF, pneumonia

Atrial Fibrillation (Acute Onset)

- HR not controlled under 110 with ED meds
- IV vasovagial drips required (ie diltiazem)
- Hemodynamically unstable - i.e. BP
- Ongoing ischemic chest pain with rate control
- Acute co-morbidities - Evidence of Acute MI, CHF, PE, Sepsis, CVA / embolic event, recent co-morbidities - Stroke/TIA within 3 months, Acute MI within 4 weeks.

Chest Pain (Possible ACS)

- Moderate to high risk criteria by Reilly / Goldman criteria (Pain worse than usual angina or like prior MI, recent revascularization, SBP <110, rates above both bases)
- New ECG changes consistent with ischemia
- Positive troponin (>0.15) not known to be chronic
- Stress test or cardiac imaging needed - but NOT available while in the CDU
- Chest pain is clearly not cardiac ischemia
- Recent normal cardiac catheterization (no coronary stenosis)
- Private attending chooses hospital admission

COPD Exacerbation

- Acute co-morbidities - Pneumonia, CHF, cardiac ischemia
- Unstable VS or clinical condition
- Acute confusion / lethargy, elevated pCO2 (if drawn) or evidence of CO2 narcosis
- Poor response to initial therapy
- O2 sat < 95 on 2L O2 after 5 mg aerosolized albuterol
- Persistent use of accessory muscles, RR >28 after initial treatment
- Estimated likelihood of discharge from observation unit is less than 70%

ers

Print 0 minutes ago

erOrders

Add Document Medication by Hx Reconciliation Check Interactions External Rx History Rx Plans (0): No Benefit Found Status Meds History Adm. Meds Rec Disch. Meds Rec

ers Medication List 08/05/2012 13:44

CDU Chest Pain (Initiated Pending)

Admit Transfer Discharge

EXCLUSION CRITERIA:

- Moderate to high risk criteria by Rellly / Goldman criteria (pain worse than usual angina or like prior MI, recent revascularization, SBP>110, rates above both legs)
- New ECG changes consistent with ischemia
- Positive troponin (I,0,15) not known to be chronic
- Stress test or cardiac imaging needed - but NOT available while in the CDU
- Chest pain is clearly not cardiac ischemia
- Recent normal cardiac catheterization (no coronary stenosis)
- Private attending chooses hospital admission

CDU Admit - ED Observation, Chest Pain

Code Status Full Code

Hypoglycemia Protocol

Vital Signs Vital Signs (Vital Signs with Pulse Diametry) q4hr, 24 hr(s), Contact MD if temp > 38, HR > 120, RR > 24, SBP < 85, Pulse Ox < 93%; Perform Puls...

Caput Physician - Notification (ED Consult)

NPO Diet NPO except medications for 6 hours prior to Cardiac Diagnostic

Fat Controlled Low Chol Diet (Low Chol Fat Controlled) 2000 mg/2 gm Sodium

Communication Order No Caffeine prior to Cardiac Diagnostics

Sodium Restricted Diet 2000 mg For patients with hypertension or heart failure

Sodium Restricted Diet 2000 mg For Diabetic Patients

Calorie Controlled Diet 1800 cal

ED Cardiac Monitoring 12 lead monitoring, for Chest Pain, convert to 5 lead after negative serial cardiac markers

Communication Order May remove cardiac monitor during transport if serial cardiac markers negative x 2

Patient Education Provide patient educational materials "Angina Pectoris"

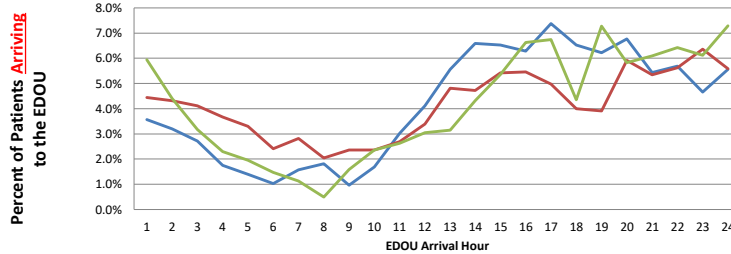
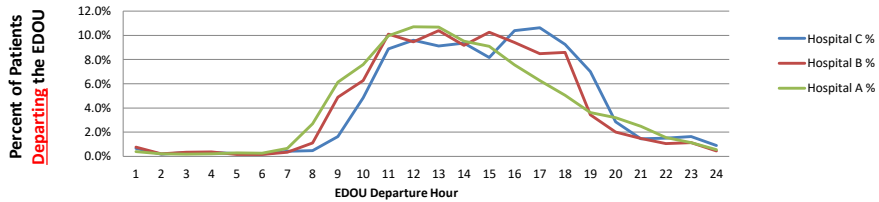
Blood Glucose POCT AC-HS

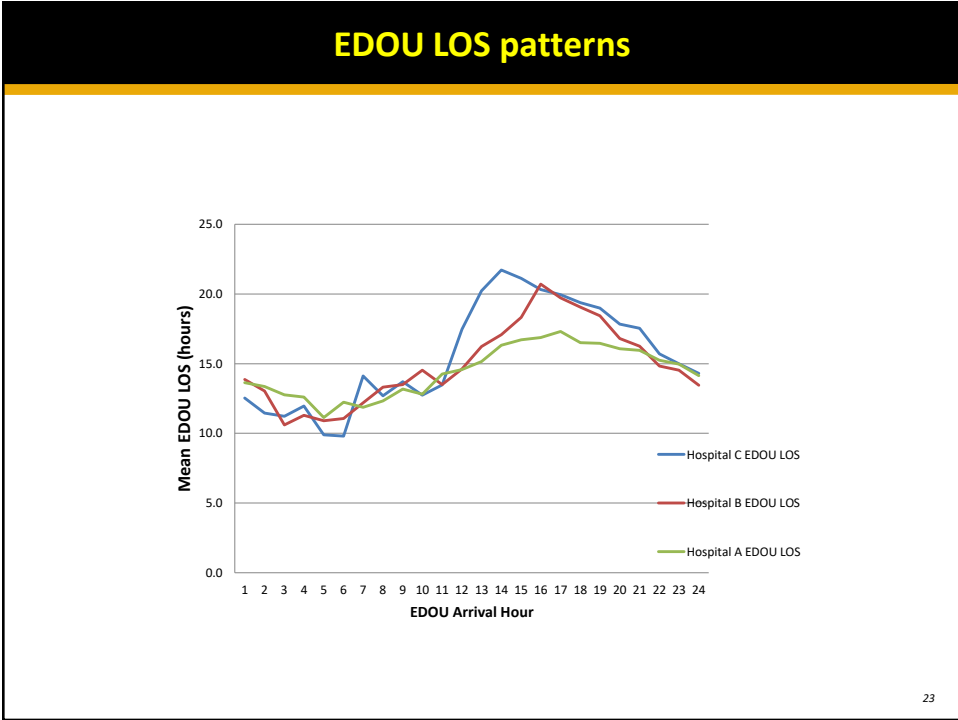
Sodium Chloride 0.9% (NS) 100 mL/hr, 1,000 mL, IV

Peripheral IV Maintain

Orders For Signature

EDOU Arrival / Departure patterns





EDOU Utilization

- 3 High volume Type 1 EDOUs
 - 2004 – 2014
 - 2.25 Million ED visits
 - 157,721 EDOU visits
- Utilization =
 - 0.9 pt/bed/day

Day	Hospital A	Hospital B	Hospital C
1	0.88	0.72	0.88
2	0.92	0.85	0.92
3	0.90	0.90	0.95
4	0.88	0.90	1.00
5	0.85	0.90	0.95
6	0.85	0.95	0.90
7	0.85	0.95	0.95
8	0.90	0.90	0.95
9	1.05	1.05	1.05
10	1.15	0.95	0.80
11	1.15	0.95	0.95

Critical Metrics

Advanced Utilization and Quality

- Ancillary testing –
 - Stress imaging, MRI, echo, etc
 - Allows tracking of LOS by test to detect delays
- ED boarding time: OU order to OU arrival
- D2D (discharge to departure) time: admit/discharge delays
- Recidivism –
 - What timeframe - 7, 14, or 30 day?
 - What type - ED, Obs, Inpatient?
 - How many visits? – 1, 2, 3+?
- Major outcomes:
 - ICU admissions
 - Death

Staffing – Physician



- One physician model - Rounds before shift:
 - Morning – heavy (~6min/patient if with an APP)
 - Afternoon – light, lowest census
 - Midnights – verbal sign out

Staffing – Leadership



- Physician – develop protocols, educate faculty, maintain utilization and quality, interface with other departments, monitor finance, run monthly meetings.
- APP – assist physician director with other APPs and unit monitors and operations.
- Nursing director – train staff, maintain staffing, implement protocols.

Staffing – APP



- Benchmark estimates – 45-60 minutes/patient
- Staff:
 - heavy in the morning
 - Light in afternoon
 - Brief heavy in late afternoon / early evening
- Dual function roles?
 - Administrative duties (call backs)
 - Fast track
 - Triage
 - Main ED

Staffing – Nursing, tech, sec



- RN – benchmark data:
 - 4-5 patient / nurse
 - May maximize use of nurse in afternoon with hybrid model (scheduled procedure patients)

Ancillary support



- Cardiac imaging
 - Stress lab
 - cCTA
 - Echo
- MRI
- Consultants –
 - Cardiology
 - Neurology

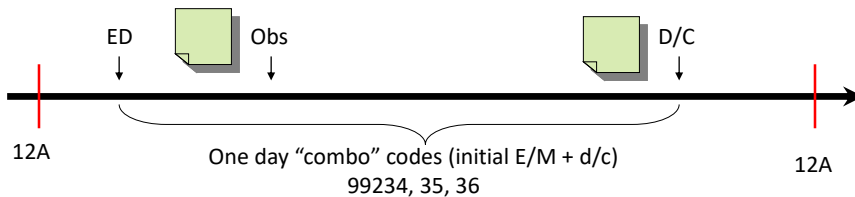
Financial analysis - Professional



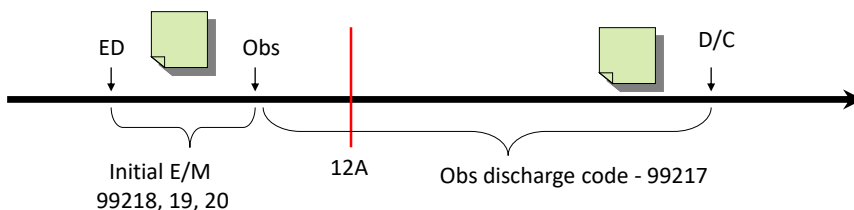
- Meet with your coding company to clarify observation coding and rules
- Physician CPT code accounting
 - CDU census = 2day + 1day code volumes
 - Do not count 99217
 - 99217 volume = [99218+99219+99220] volumes
 - Case mix distribution (2-day and 1day cases)

Two scenarios – 1 vs 2 days

ONE DAY SCENARIO:



TWO DAY SCENARIO:



Billing observation professional services: “One Physician” model

- The observation code is billed **instead of** the emergency code
- Added “observation work” is covered by the **discharge** codes (do not need to repeat the initial H&P)

Emergency level of care (Not billed)	Observation “level of care”: (Billed)	Observation Care covers two days**	Observation Care all on the same day*
99283	low	99218 + 99217	99234
99284	medium	99219 + 99217	99235
99285	high	99220 + 99217	99236

Billing observation professional services: CPT documentation requirements

Service	CPT	Documentation Requirements			2017	2017
		History	Physical	M.D.M.	wRVUs	tRVUs
Emergency level 3	99283	EPF	EPF	M	1.34	1.75
Emergency level 4	99284	D	D	M	2.56	3.32
Emergency level 5	99285	C	C	H	3.80	4.90
Obs + Same Day disch - Low	99234	D or C	D or C	L	2.56	3.77
Obs + Same Day disch - Mod	99235	C	C	M	3.24	4.78
Obs + Same Day disch - High	99236	C	C	H	4.20	6.16
Observation Initial Day - Low	99218	D or C	D or C	L	1.92	2.82
Observation Initial Day - Mod	99219	C	C	M	2.60	3.84
Observation Initial Day - High	99220	C	C	H	3.56	5.25
Obs Subsequent Day - Low	99224	PF	PF	L	0.76	1.13
Obs Subsequent Day - Mod	99225	EPF	EPF	M	1.39	2.06
Obs Subsequent Day - High	99226	D	D	H	2.00	2.97
Observation Discharge Day	99217	+	+	+	1.28	2.06

D = Detailed C = Comprehensive PF= Problem Focused EPF = Expanded Problem Focused;
Obs=Observation; L=Low, M=Moderate, H=High, wRVU=Work RVUs, tRVUs=Total RVU.

Doctor (CPT): Financial analysis - Professional



- Meet with your coding company to clarify observation coding and rules
- Physician CPT code accounting
 - CDU census = 2day + 1day code volumes
 - Do not count 99217
 - 99217 volume = [99218+99219+99220] volumes
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Going Macro: Emory Healthcare The **“24/85”** Goal

- **Decrease variations in observation care** – within and between hospitals.
- **EHC - avoid filling inpatient beds with outpatients:**
 - High Volume: 12% to 30% of all patients staying in our hospitals.
 - Over one third use inpatient beds.
 - Observation patients – by disposition:
 - **88% are discharged (target group)**
 - 12% are admitted
- The **“24/85”** goal for **discharged observation patients:**
 - **Discharged 85% of observation patients in <24 hours**
 - **Managed 85% in an observation unit**
 - Where length of stays and costs are lowest.
 - This opens inpatient beds and is better for patients.

Questions???

