

EMORY UNIVERSITY SCHOOL OF MEDICINE —
DEPARTMENT OF EMERGENCY MEDICINE

**EMERGENCY DEPARTMENT
CLINICAL DECISION UNIT**

EMORY MIDTOWN HOSPITAL
EMORY UNIVERSITY HOSPITAL
GRADY MEMORIAL HOSPITAL

EMORY
HEALTHCARE



2014

TABLE OF CONTENTS:

- **CONTACT INFORMATION**
- **GENERAL GUIDELINES FOR CDU OPERATION**
- **GUIDELINES FOR HOLDING PATIENTS IN THE CDU**
- **OBSERVATION UNIT QUALITY ASSURANCE PROGRAM**
- **OBSERVATION UNIT UTILIZATION REVIEW PROGRAM**
- **GUIDELINES FOR STRESS TESTING CDU PATIENTS**
- **CMS AND ACEP POLICY ON OBSERVATION SERVICES**
- **CDU STATISTICS**
- **CONDITION SPECIFIC GUIDELINES**

CONTACT INFORMATION

- **Medical Director, Observation Medicine:** Michael Ross MD

Clinical Decision Units:

Emory University:

- **CDU phone number:** 404-712-2908
- **Medical Director:** Michael Ross, MD maross@emory.edu
(office: 404-778-2643, PIC # 13951)
- **Associate Providers:** Andrea Brown, NP andrea.Brown@emoryhealthcare.org
Sheria Brantley NP Sheria.Brantley@emoryhealthcare.org
(office: 404-778-2908, CDU phone: 404-938-0164)
- **Unit Director, EM:** Elaina Hall, RN
- **Nurse Manager:** Sharon Friday, RN sharon.friday@emory.net
(office: 404-712-7576; 404-712-2908)

Emory Midtown:

- **CDU phone number:** 404-686-3154
- **Medical Director:** Anwar Osborne, MD (adosbor@emory.edu (PIC #17548)
- **Associate Providers:** Barbara Swartzberg, NP Barbara.Swartzberg@emoryhealthcare.org
(office: 404-686-3845, PIC #20393)
- **Unit Director, EM:** Michael Flake, RN (michael.flake@emoryhealthcare.org)

Grady Memorial Hospital:

- **CDU phone number:** (404) 616-6448
- **Medical Director:** Matthew Wheatley, MD (mwheatl@emory.edu Office: 404-616-6419;
PIC # 12807)
- **Associate Providers:** Tryphena (Triffy) Pacitti NP tpacitt@emory.edu
- **VP of nursing** Michelle Wallace, RN mwallace1@gmh.edu
- **Unit Director:** Mulikat “Lola” Amuda , RN (mamuda@gmh.edu)

Mission statement – The Clinical Decision Unit strives to provide high quality patient care to those emergency department patients needing further management to determine their need for inpatient admission. The unit will do this by providing active management of specific conditions using the best available clinical evidence. We will provide this in a setting that is both efficient for health care providers and pleasant for our patients. We strive for the unit to be a nationally recognized center of excellence in this area of patient care, teaching, and research.

Scope of services – The “Clinical Decision Unit”, or CDU, is an emergency department (ED) observation unit which provides physician and hospital “observation services” as defined by CMS, AMA-CPT, and ACEPs policy on the management of observation units. The unit provides services to emergency patients who require care that goes beyond their initial evaluation and management in the emergency department. The goal of observation is to determine the need for inpatient admission. The scopes of these services are outlined in this document.

Management – The CDU is administratively part of the emergency department (ED) and

therefore it is under the ED nursing and medical administration.

Nursing leadership – The charge nurse for the CDU is supervised by the nursing director of the ED.

Physician leadership – The Medical Director of Observation medicine, who reports to the Chair of the Department of Emergency Medicine, shall oversee the observation medicine service line at all Emory School of Medicine adult emergency departments. Each ED shall have a CDU site director who shall work under the direction of the medical director of observation medicine. CDU Associate Provider leaders will work under the direction of the CDU site director on CDU issues.

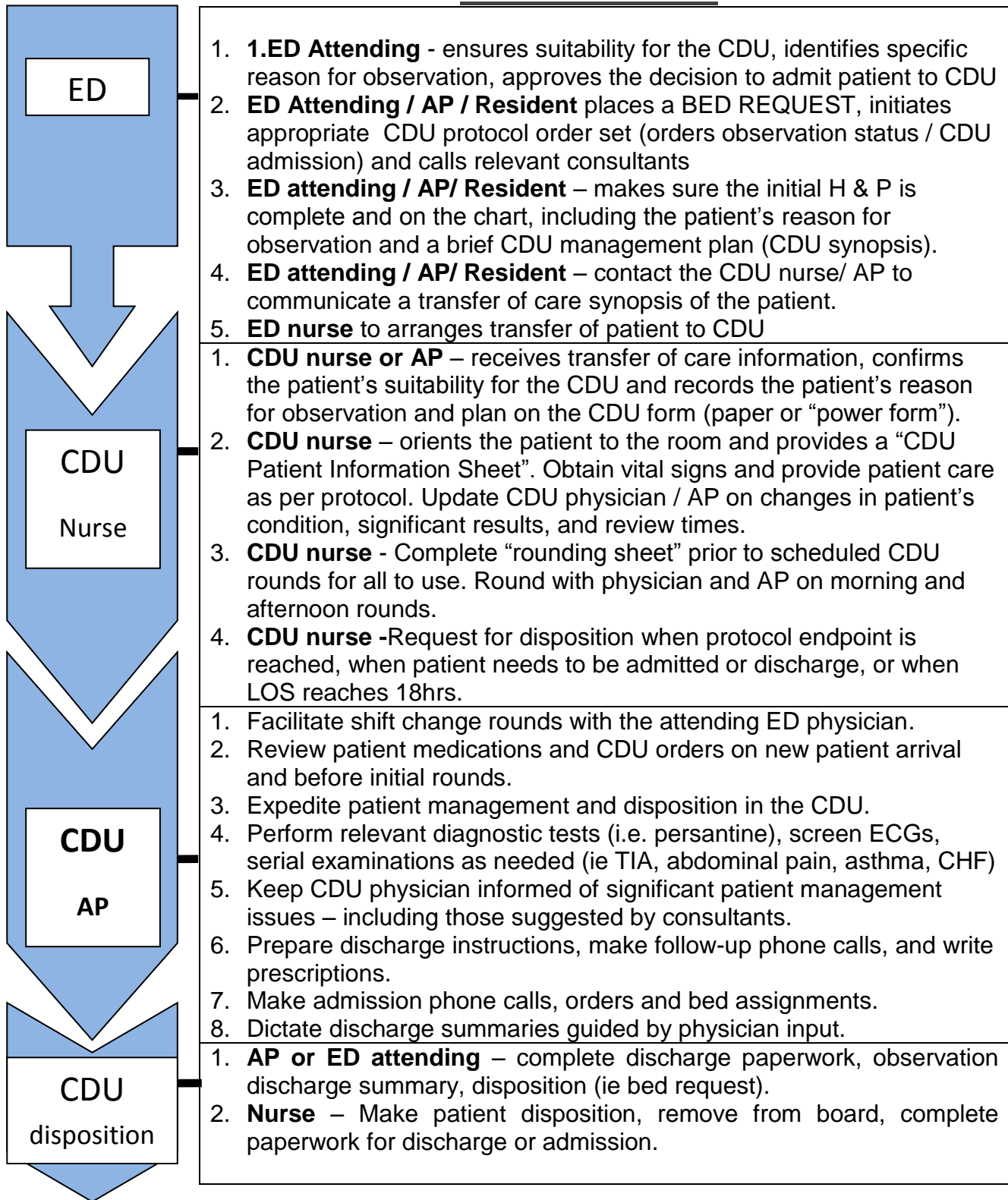
Physician accountability - **The ED PHYSICIAN WILL ACT AS THE "GATEKEEPER" FOR ALL ADMISSIONS TO THE CDU. THE PHYSICIAN ASSIGNED TO COVER THE CDU IS THE "ACCOUNTABLE" PHYSICIAN FOR ALL CDU PATIENTS.** This means that admission to and discharge from the unit can only be made by the ED physician (or His or Her designee). Other services may not "bypass" the ED physician and admit directly to the CDU. However they may admit their patients for observation services to hospital inpatient beds as dictated by hospital policy. Consultants and Private Attendings may recommend discharge or admission; however the final disposition order must come from the ED physician.

Associate Providers (NP or PA) in the CDU - The associate provider (AP) works under the direct supervision of the ED attending physician. The AP will facilitate patient care in the CDU as detailed below. Work activities outside the CDU may vary by setting and will occur following completion of CDU activities.

Unit operation - Patients are managed in the CDU based on the guidelines detailed in this manual. These guidelines are developed through research and internal consensus. Their goal is to facilitate optimal patient care and consistency. Guidelines detail what is felt to be reasonable care for most patients with the specified condition most of the time, with the understanding that appropriate exceptions may occur. Prudent judgment may allow care outside these guidelines. There will be a monthly meeting to review unit utilization, quality, and clinical issues – attended by the CDU medical director, AP, and nursing representative.

Unstable patients –As detailed below, clinically unstable ED patients are excluded from the CDU based on general unit guidelines and condition specific guidelines. If a patient becomes unstable while in the CDU then the patient should be evaluated by the CDU attending physician and / or CDU Associate Provider. Unstable patients should be moved back to the ED for acute stabilization and admission. If a CDU patient experiences a cardiac or respiratory arrest, the staff will notify ED staff immediately (either press the code button in the patient's room which in turn will notify ED staff or place an overhead page to the ED for "Doctor to the CDU STAT").

Patient care flow



CDU Rounds

Time/ Hospitals	Grady Memorial 404-616-6448	Emory Midtown 404-686-3154	Emory University 404-712-2908
Morning Shifts	<p>M-F: 7am – 3pm Blue Zone attending. Round from 7A-9A with CDU AP and Nurse. (1st 2 hours of shift), then goes to ED (BZ).</p> <p>Sat and Sun: 10a – 6p Blue Zone attending. Round from 10a-12p with CDU AP, then goes to ED (BZ).</p>	<p>8 am – 4pm Red Pod attending. Round with 6am – 6pm AP and CDU nurse. (1st 45 min of shift)</p> <p>(Gold Pod attending covers CDU AP between 6:30A-8A)</p>	<p>7am – 4pm Blue Zone (BZ) attending. Round with 6am–6pm AP and CDU nurse, then goes to ED. (1st 45 min of shift)</p>
Afternoon Shifts	<p>M-F: 3pm- 11am Blue Zone attending. Round in ED with BZ team and CDU AP, then rounds in CDU with CDU AP.</p> <p>Sat and Sun: 5p – 1a Blue Zone attending. Round from 5p-6p with CDU AP. Sign out CDU to BZ1 (11p-7a) after shift ends at 1a.</p>	<p>4pm – 12am Red Pod attending (on Fri-Sun it is Gold Pod attending). Rounds in ED with team, then CDU rounds with 6am – 6pm AP.</p> <p>Sign out to 10:30P-6:30A attending, and 6P-6A AP.</p>	<p>4pm – 12am attending. Round in ED with BZ team then rounds in CDU with 6am – 6pm AP. Takes sign out from AP before they leave at 6P.</p> <p>Signs out to 12a-8a BZ attending.</p>
Night Shifts	<p>M-F: 11pm-7am Blue Zone attending. Round 11p-12a with CDU AP.</p>	<p>10:30pm – 6:30am night attending to get sign-out from 4P-12A attending. Sign out to the 6:30am attending and 6A-6P AP.</p>	<p>12am – 8am night attending to get sign-out from 4P-12P attending.</p> <p>Signs out to the 7am attending and 6am – 6pm AP.</p>

Rounding principles:

1. **Round at the beginning of each shift** - CDU rounds are comparable to having a patient signed out to you at shift change. The beginning of a shift is the time to get “sign out”, examine the patient, give orders, make dispositions, and assign your name to each patient on the CDU tracking board. The compelling question should be “why is this patient still here?” Patient’s who have not clinically “declared themselves” by 15-18 hours are unlikely to leave and a disposition should be made. Morning rounds are busiest, afternoon are lightest (average census is lowest) and evening rounds may be chart review only unless a patient is likely to be discharged.
2. **Who to round on** - Round on all patients that are new or have not had a disposition made. However, if a patient has already been seen, discharged or admitted, and all observation discharge paperwork completed then that patient does not need to be seen.
3. **What to do** – review the chart (ie. ED H/P, transfer of care paperwork, labs, x-ray reports, consults, test results), take report from the CDU nurse / AP, examine the patient (focused on why they are in the CDU), and document / communicate your findings and plan with the CDU team. Discharge / admit patients as needed (with AP if present).
4. **CDU (observation) discharge summary** - This must cover all four CPT documentation elements:
 - a. Clinical course in the unit
 - b. A final examination (focused)
 - c. Instructions for continuing care (outpatient or inpatient)
 - d. Preparation of discharge (or admission) records

Patient Selection

Overview – The CDU manages patients for up to 18-24 hours, after which time a disposition should be made. Care beyond this time frame may occasionally occur if it is clear that as short term disposition is likely to occur (ie. stress test in the morning). The goal is to provide accelerated care while decreasing inappropriate ED discharges. Patients will first have been managed in the ED and found to need further management to determine their need for admission. If a patient can be discharged within 4-6 hours placement in the CDU may not be the best use of available resources. Based on clinical judgment, and the best scientific evidence, patients should have at least a 70% probability of discharge within 18 hours - if managed actively. Patients will be managed in the unit using the guidelines and principles detailed in this document.

General principles of CDU patient selection

Focused patient care goal - The Physician’s note should document the specific reason for admission to the CDU. Generally there should be only one specific problem that requires acute management. When multiple problems require acute management, the likelihood of discharge is much lower.

“Focused Goals” fall into three broad categories:

- Diagnostic evaluation of critical symptom – i.e. chest pain, syncope, etc.
- Short term treatment of an emergency condition – i.e. asthma, dehydration, etc.
- Management of psychosocial needs – i.e. need for home support services or placement (if feasible)

Limited intensity of service and severity of illness – based on available resources, such as nurse to patient ratios, higher acuity patients will need to be placed in the hospital for management. This is defined for each condition for several conditions in this document, however conditions outside this list may be observed if they meet the general principles outlined here.

General EXCLUSIONS from the CDU

PATIENTS WITH AN INCOMPLETE CHART – A missing or poorly documented ED history, physical, and medical decision making, a single concise diagnosis, a clear plan, and appropriate orders. This makes it very difficult to efficiently and safely manage the patient.

HIGH SEVERITY OF ILLNESS – Such as patients requiring more nursing care than can be offered in the unit. For example, patients with acutely unstable vital signs, unstable cardiac, pulmonary, or neurological conditions. These patients should be managed in the initial Emergency Center treatment area until deemed to be stable for at least one hour or admitted.

HIGH INTENSITY OF SERVICE – Such as patients that are too unstable or ill to be observed. For example difficult intoxicated or suicidal psychiatric patients, patients requiring frequent vital signs or treatments. This includes patients on intravenous vasoactive drip infusions of nitroglycerin, labetalol, cardiazem (diltiazem), dopamine or dobutamine, epoprostenol (flolan), or treprostinil (remodulin).

PATIENTS FOR WHOM INPATIENT ADMISSION IS CLEARLY NEEDED - If the ED physician identifies the need for a traditional inpatient admission, the patient should not be admitted to the CDU. However, when appropriate, patients that are “holds” may be temporarily boarded in the unit based on criteria below.

AGE LESS THAN 15 YEARS OLD - Younger patients will be managed in a pediatric CHOA hospital based on general pediatric transfer practices. Pediatric CDU patients over the age of 15 should NOT have significant underlying illness or co-morbidities (such as underlying heart disease, sickle cell disease, etc) requiring skilled pediatric nursing care. Children in the CDU should have a legally responsible adult stay with them while in the CDU.

OBSTETRIC PATIENTS OVER 20 WEEKS PREGNANT - These patients should be managed on the Labor and Delivery unit according to hospital and ED practices. If they have already been evaluated and cleared by the obstetric service (either on L & D and sent back to ED, or cleared by an obstetrician) for CDU management of a non-obstetrical condition (i.e. asthma), then they may be managed in the CDU.

PATIENTS AT RISK OF SELF HARM. Specifically suicidal patients, acutely psychotic patients, or patients with significant inebriation due to alcohol or illicit drugs. The unit is not physically designed to closely monitor these patients for their safety. Patients determined to be at risk of self harm should have their clothing held and be moved to the ED for closer psychiatric monitoring (consistent with ED practices).

ANTICIPATED CDU LENGTH OF STAY LESS THAN 4 HOURS OR OVER 24 HOURS. The work of transferring, admitting, and discharging patient whose stay is under 4 hours is not the best use of these resources. On the other hand, since most patients are discharged from the unit in 15 hours - patients that clearly require more than 18 hours of care are more likely to be admitted and unlikely to benefit from the CDU. Reasons for staying beyond 18 hours should be documented in the chart.

PATIENTS WITH (1) AN ACUTE GAIT DISTURBANCE, (2) “RULE OUT HIP FRACTURE”, OR (3) OVER AGE 65 WITH BACK PAIN, (4) TRANSPLANT PATIENTS, (5) HEMODIALYSIS PATIENTS - These patients have been found to have a very high admit rate and often require more than 24 hours of care.

CDU Quality Assurance and Utilization Review

The CDU committee for each hospital will meet on a monthly basis to review CDU utilization, CDU quality reports, clinical and administrative issues. Meetings will ideally be attended by the site director of the CDU and leadership representatives of CDU nursing, CDU Associate Providers, and an administrative assistant.

Utilization Review Monitors – to be reviewed by month and for prior 12 months (as available)

1. Case mix for CDU – by diagnosis (with “total” composite value as well), volume, admit rates, ED LOS, and CDU LOS.
2. Arrival and departure volumes - by hour of day
3. Unit occupancy (where available) – by hour of day
4. CDU LOS by time of arrival in the CDU – by hour of the day

Quality Assurance Monitors – to be reviewed monthly – when available or needed

1. Concerns voiced by staff, patients, or consultants - Reviewed monthly.
2. Return to ED or hospital within 14 days of CDU discharge – Reviewed when available.
3. Death or cardio-respiratory arrest in the unit – Reviewed monthly.
4. Length of stay over 36 hours – Reviewed periodically as needed.
5. Protocol compliance – Reviewed periodically as needed.
6. Protocol failure characteristics – Reviewed periodically as needed.
7. Documentation and transfer of care compliance – missing or incomplete charts

Guidelines for “holds” or “boarders” in the CDU

General principle - A “Hold” applies to a patient who is awaiting a prearranged action such as traditional inpatient admission, transfer to another facility, surgery, discharge home, etc. This is in contrast to a patient whose status is “observation” – where a patient is actively managed to determine the need for inpatient admission. “Holds” are often a manifestation of hospital overcrowding, or inefficiencies of patient care (i.e. prolonged waits to go to the O.R. or a bed). They have no limit on length of stay, acuity, or clinical condition. The CDU helps to address the problem of “holds” by avoiding admission and keeping inpatient beds open. Alternatively, filling the CDU with holds will exacerbate a bed shortage and enables inefficiencies of care to continue.

Guidelines for “holds” in the CDU - A patient who is awaiting admission to an inpatient bed or transfer may be held in the CDU provided that:

1. All efforts have been made to expedite inpatient admission or transfer (i.e. charge nurse has spoken with pre-op waiting, etc). All other options have been explored.
2. It is estimated that the bed or procedure will not be available for 3 hours or more. It is otherwise not worth the work of transferring twice in less than 3 hours.
3. “Holds” may not constitute more than half of the CDU bed capacity. The last available CDU bed may not be used for a hold.

EUH CDU low census staffing

Principle: The 8 bed CDU provides service to selected emergency department patients needing observation services. The CDU always has an 8 bed capacity. The unit is generally staffed with two RNs for eight beds. With variations in CDU nurses or CDU patients, some flexibility is required to maximize resource utilization:

1. **When the CDU has less than 4 patients, AND the ED needs nursing support** – the CDU nurse may be flexed to assist in the ED. HOWEVER, the CDU capacity remains at 8 and patients will continue to be assigned to the CDU regardless of this staffing shift. When the number of CDU patients (either in the CDU or in the ED awaiting a CDU bed) reaches 5 patients, then the second “flexed” CDU nurse will return to the CDU to assume patient care.
2. **When the CDU has no patients, AND the ED needs nursing support** - If both CDU nurses are flexed then the CDU nurse will return to the CDU when there are two CDU patients in the ED. The ED shift nurse manager has 60 minutes to transition the ED patient assignment.
3. **When the CDU has less than 2 nurses** (which may occur for portions of a shift due to staffing issues) – an ED nurse may be flexed to cover the CDU until the CDU has 2 nurses. If there is not a nurse available to assist CDU staffing then patients assigned to the CDU will be held in the ED until staff are available.

Recommend Guidelines - CDU nurses will not be assigned ED critical patient unless one has been properly oriented to acute care. The charge nurse will work with the CDU nurse to give an assignment that is manageable for the nurse. The CDU nurse should actively seek potential CDU patients and make suggestions to ED attending for CDU admissions - in accordance with the CDU guidelines. To assure success, flexibility and cooperation is required.

GUIDELINES FOR STRESS TESTING OBSERVATION UNIT CHEST PAIN PATIENTS

The purpose of stress testing CDU chest pain patients is to identify those with severe coronary artery stenosis, or unstable angina (USA). Initial ECG or cardiac markers in this population do not adequately detect USA. Subendocardial myocardial infarction, or “NSTEMI” must first be ruled out before a stress test can be performed safely. This is done with ECGs and serial cardiac marker testing.

1. **The ACC/AHA Guidelines for the Management of Patients with Unstable Angina/Non-ST-Elevation Myocardial Infarction** are most recently updated in 2011 and recommend certain goals of care. Patients in whom Acute Coronary Syndrome (ACS) is considered to be probable or possible, an admission to an observation unit is acceptable in those with a non-diagnostic EKG, negative cardiac biomarkers, and a history of present illness that is not highly suggestive of ACS. Stress testing and imaging at all locations is done in accordance with ACC/AHA guidelines for stress testing and imaging. Stress imaging (nuclear, echo, MRI, coronary CTA) will be interpreted by those trained and credentialed to interpret each modality in accordance with hospital standards and national guidelines for each imaging modality.

2. **Chest Pain Protocol** - the ACC/AHA Guidelines recommend serial EKG's, and serial cardiac biomarkers for appropriate low risk patients. For selected low risk patients, it is acceptable to discharge them with arrangements for a stress test within 72 hours. When this occurs, strict patient instructions should be given for when to return to the ED, along with aspirin therapy if not contraindicated .
3. **Vasodilator stress injections (dipyrimadole or lexiscan)** – may be performed by associate providers (NP or PA) who have completed training in this area and have performed at least 10 supervised injections. This includes compliance with persantine / lexiscan patient selection, monitoring and documenting patient condition during drug infusions, identifying and treating both minor and major vasodilator side effects, coordinating testing with other departments, understanding imaging results which are reported by nuclear cardiology. Credentialing in this area will be renewed each year based on performance skills and knowledge in this area. These injections will be supervised by the attending physician working with the associate provider.
4. **The following variables are considered** in choosing an appropriate stress test
 - a. **What is available**
 - b. **Patient characteristics:**
 - i. Initial probability of acute coronary ischemia in the patient (Bayes' theorem) –higher probability of disease warrant a more sensitive test, lower probability patients benefit from a less sensitive test (i.e. where the false positive rate is less than disease prevalence).
 - ii. The patients' ability to exercise.
 - iii. Contraindications to various stress tests (Persantine - severe asthma; cCTA - high BMI/CRF/CAD; cCTA/MPI – child bearing age females (radiation - relative issue)).
 - c. **Test characteristics**
 - i. Sensitivity and specificity of the stress test – More sensitive tests produce more false positives. More specific tests may yield more false negatives.
 - ii. PET – ideal for high BMI, known CAD/prior MI
 - iii. DSE or MRI – ideal for child bearing age females
 - d. **The cost** of the stress test

Why stress imaging after MI has been ruled out?

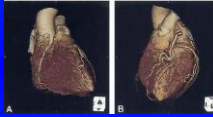
We do stress imaging determine if the patient's symptoms (ie chest pain) are due to unstable angina once AMI has been ruled out. In other words, we are asking if there is >70% coronary occlusion (by plaque or ruptured plaque + clot) causing myocardial ischemia. Stress testing with imaging identifies 3/5 of true positive ACS cases in this population, while serial markers and ECGs identify only 1/5 of cases. Stress testing / imaging options can be broken down as follows:

1. Non-stress imaging – Coronary CTA (anatomy) or rest sestimibi imaging (physiology)
2. Stress Imaging – usually a combination of:
 - a. A stress modality -2 options: ischemia induction or vasodilators
 - b. An imaging modality:
 - i. Echo
 - ii. Nuclear [SPECT camera isotopes (thallium or technecium) and PET camera isotope (Rubidium)]
 - iii. MRI

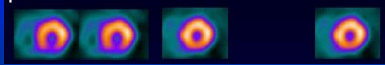
All stress imaging modalities have reported sensitivities of roughly 85-90% in this population. Exercise stress test without imaging has a role in very low risk patients, but has sensitivities of only about 75% and problems with indeterminate test results (sub-maximal heart rate, etc). Below is a visual summary of this:

Overview: Non-stress Imaging Modalities

- Coronary CTA = Anatomy



- Rest sestimibi Imaging = Physiology



Overview – Stress Testing and Imaging:

<p><u>Stress Modalities:</u></p> <ul style="list-style-type: none"> • <u>Ischemia induction</u> <ul style="list-style-type: none"> - Graded Exercise Stress Test - Dobutamine ST • <u>Vasodilators</u> <ul style="list-style-type: none"> - Adenosine - Dipyrimadole (<i>Persantine</i>) - Regadenoson (<i>Lexiscan</i>) 	<p><u>Stress Imaging:</u></p> <ul style="list-style-type: none"> • <u>Echo</u> – rest / stress • <u>Nuclear</u> <ul style="list-style-type: none"> - SPECT (Camera) <ul style="list-style-type: none"> • ⁸¹Tl • ²⁰¹Tl • Technecium (Tc 99m) <ul style="list-style-type: none"> - Tc Sestimibi (<i>Cardiolite</i>) - Tc tetrafosmin (<i>Myoview</i>) - PET (Camera) <ul style="list-style-type: none"> • ⁸⁷Rb • Rubidium • <u>MRI</u>
---	---

Stress Testing and Imaging Combinations

<p><u>Stress Modalities:</u></p> <ul style="list-style-type: none"> • <u>Ischemia induction</u> <ul style="list-style-type: none"> - Graded Exercise Stress Test - Dobutamine ST • <u>Vasodilators</u> <ul style="list-style-type: none"> - Adenosine - Dipyrimadole (<i>Persantine</i>) - Regadenoson (<i>Lexiscan</i>) 	<p><u>Stress Imaging:</u></p> <ul style="list-style-type: none"> • Echo – rest / stress • <u>Nuclear:</u> <ul style="list-style-type: none"> - SPECT (Camera) <ul style="list-style-type: none"> • Thallium • Technecium (Tc 99m) <ul style="list-style-type: none"> - Tc Sestimibi (<i>Cardiolite</i>) - Tc tetrafosmin (<i>Myoview</i>) - PET (Camera) <ul style="list-style-type: none"> • Rubidium • MRI
---	--

1. Hospital, Stress test, Location, and Supervision of Patient Condition During Test
EUH

Hospital	Test	Location	Coverage (MD and Associate Provider)
EUH	Lexcian Technetium SPECT ¹	Emory Clinic (Nuclear Medicine) ¹	Cardiology (Emergency) ¹
EUH	Dobutamine Stress Echo	Emory Clinic	Cardiology
EUH	Adenosine MRI	MRI	Cardiology
EUH	Coronary CTA	Emory Clinic	Cardiology [^]
1 - The Emergency Department Physician is responsible for patients during weekend SPECT₁, at which time it is performed by the ED CDU Associate Provider in the Radiology department.			

EUHM

Hospital	Test	Location	Coverage (MD and Associate Provider)
EUHM	Lexcian Technetium SPECT ¹	Cardiac Imaging	Cardiology
EUHM	Dobutamine Stress Echo or GXT	Cardiac Imaging	Cardiology
EUHM	Adenosine MRI	Cardiac Imaging	Cardiology
EUHM	Coronary CTA	Cardiac Imaging	Radiology

GRADY

Hospital	Test	Location	Coverage (MD and Associate Provider)
Grady	Persantine / Lexiscan Tc SPECT	Nuclear Medicine ² CDU	Cardiology ² ED - Associate Provider
Grady	Dobutamine or GXT Stress Echo	Echo / stress lab	Cardiology
Grady	Rest Sestimibi	Nuclear Medicine	Nuclear Medicine
Grady	Coronary CTA	Emory Clinic	Cardiology [^]
2 – Cardiology / nuclear medicine performs and supervises vasodilator stress and Tc injections when they have open slots. Otherwise vasodilator stress and Tc injections are done and supervised in the CDU, then the patient is sent to nuclear medicine for imaging. All SPECT (Tc) imaging is done and supervised in and by nuclear medicine.			

2. How do we select a stress test with imaging?:

Based on the above, here is the breakdown of what is available and where -

Emory University Hospital CDU

- Emory University Hospital CDU **Weekdays**, 7AM – 5PM
 - Male any age, or Female >55; no renal failure:
 - BMI <30, no known CAD:
 - Lexiscan technecium SPECT
 - Dobutamine stress echo
 - Exercise stress echo – if able to exercise
 - Coronary CTA
 - BMI>30, known CAD, or no available SPECT isotopes:
 - Lexiscan Rubidium PET
 - Lexiscan technecium SPECT
 - Female <55:
 - Dobutamine echo
 - Exercise Stress echo
 - Adenosine MRI
 - Severe Asthma / COPD; renal failure:
 - Dobutamine echo
 - Dobutamine SPECT (rest / stress sestimibi)
 - Lexiscan Rubidium PET

- Emory University Hospital CDU **Weekends** until 2PM
 - Lexiscan SPECT (rest / stress sestimibi) – by CDU Associate Provider

Component	Status	Details
Diagnostic Tests		
<input type="checkbox"/> ECHO CARD	Stat	Reason: Chest Pain
<input type="checkbox"/> Moderate risk of ACS, no active wheezing, unable to exercise. BMI >35, no other stress imaging available (weekends)		
<input type="checkbox"/> NC Myocard Perf Rest +Stress SPECT Multi		
<input type="checkbox"/> PET Dept - M-F 8am-3pm		
<input type="checkbox"/> PET Cardiovascular Stress Test	Stat	Reason: Chest Pain
<input type="checkbox"/> Moderate risk of ACS, unable to exercise, (+) history of asthma/wheezing		
<input type="checkbox"/> ECHO Dept - M-F 9am-3pm - To schedule outpatient echo on weekend call Transfer Service 8-4930		
<input type="checkbox"/> ECHO Stress w Dobutamine CARD	Stat	Reason: Chest Pain, HISTORY OF ASTHMA/COPD
<input type="checkbox"/> Low risk, able to exercise, controlled hypertension, no aortic stenosis, no active heart failure		
<input type="checkbox"/> NC Myocard Perf Rest +Stress SPECT Multi (NC Cardiovasc...		
<input type="checkbox"/> ECHO Stress w Exercise CARD	Stat	Reason: Chest Pain
<input type="checkbox"/> CT Cardiac Dept - M-F 8am-3pm ***PHONE CALL Required for CTA*** Call 8-4591 to arrange for CTA Procedures.		
<input type="checkbox"/> For Triple R/O, MUST be noted in the order and clinical exclusion criteria should be followed		
<input type="checkbox"/> CT Cardiac CTA Coron w/Calc Scor		
<input type="checkbox"/> CT Cardiac CTA Coron w/o Calc Scor		
Return to CDU Chest Pain		

Emory Midtown Hospital CDU – 7/2011

- Emory University Midtown Hospital CDU **Weekdays** 7AM – 5PM:
 - Male any age, or Female >55:
 - BMI <30, no known CAD:
 - Lexiscan technecium SPECT
 - Dobutamine stress echo.
 - Exercise stress echo - if able to exercise
 - BMI>30, known CAD, or no available SPECT
 - Lexiscan Rubidium PET
 - Lexiscan technecium SPECT
 - Female <55:
 - Dobutamine echo
 - Exercise Stress echo
 - Adenosine MRI
 - Severe Asthma / COPD, or Renal Failure:
 - Dobutamine echo
 - Dobutamine SPECT (rest / stress sestimibi)
 - Lexiscan Rubidium PET
-
- Emory University Midtown Hospital CDU **Weekends** - Saturday 7AM -12 noon, Sunday until 2PM
 - Lexiscan Rubidium PET
 - Lexiscan technecium SPECT

Component	Status	Details
CDU Chest Pain, EUHM Chest Pain Diagnostics (Initiated Pending)		
Diagnostic Tests		
<input type="checkbox"/> ECHO CARD	Stat	Reason: Chest Pain
<input checked="" type="checkbox"/> Moderate risk of ACS, no active wheezing, unable to exercise. BMI >35, no other stress imaging available (weekends)		
<input checked="" type="checkbox"/> PET Cardiac Perf Multi CARD	Not available for the facility of the active encounter	
<input checked="" type="checkbox"/> Moderate risk of ACS, unable to exercise - order one of these tests		
<input checked="" type="checkbox"/> NC Myocard Perf Rst+Str SPECT Multi CARD	Not available for the facility of the active encounter	
<input checked="" type="checkbox"/> Moderate risk of ACS, unable to exercise, (+) history of asthma/wheezing - order one of these tests		
<input checked="" type="checkbox"/> ECHO Stress Hours 7:30am-4pm M-F		
<input type="checkbox"/> ECHO Stress w Dobutamine CARD	Stat	Reason: Chest Pain, HISTORY OF ASTHMA/COPD
<input checked="" type="checkbox"/> Low risk, able to exercise, controlled hypertension, no aortic stenosis, no active heart failure		
<input checked="" type="checkbox"/> NC Cardiovascular Stress Test CARD	Not available for the facility of the active encounter	
<input type="checkbox"/> ECHO Stress w Exercise CARD	Stat	Reason: Chest Pain

Grady Memorial Hospital CDU – 2/2014

- Grady Memorial Hospital CDU **Weekdays** 7AM – 2PM:
 - BMI <30, no known CAD:
 - **Exercise Treadmill (ETT)** – if able to exercise
 - **Coronary CT Angiogram (cCTA)**
 - Must be currently in sinus rhythm (no Atrial fibrillation/flutter)
 - Resting HR <80 (must be below 60 after beta blockers)
 - Able to get IV dye
 - No dye allergy
 - GFR > 50
 - 18 or 20g AC or forearm IV
 - No Beta-blocker allergy
 - No active wheezing or history of COPD
 - No history of CHF (EF > 45%)
 - BMI>30, known CAD, or not candidate for cCTA or ETT
 - **Persantine or Adenosine Technetium SPECT**
 - **Persantine** if performed in CDU
 - **Adenosine** if performed in Stress lab
 - Consider **Cardiology consult** for recs on stress vs cath/admission
 - Severe Asthma / COPD:
 - **Regadenoson (Lexiscan®) technetium SPECT**
-
- Grady Memorial Hospital CDU **Weekends** - Saturday and Sunday until 2PM
 - **Persantine/Lexiscan technetium SPECT**

▼ Stress Test

CARDIAC STRESS TEST WITH NUCLEAR IMAGING (CV STRESS AND NM STRESS) PANEL

BOTH STRESS AND NUCLEAR COMPONENTS MUST BE ORDERED

CV Stress Test, Exercise w NM Imaging

ⓘ Routine, ONE TIME First occurrence Today at 1132

And

NM Cardiac Multiple Stress and Rest

ⓘ Routine

Cardiac perfusion Single Rest or Stress

STAT

▼ CTA Beta Blocker Protocol

1 of 1 selected

▶ CTA Beta Blocker Protocol

CTA Beta-Blocker protocol

CT Angio Heart W 3D Image

ⓘ STAT

metoprolol (LOPRESSOR) tablet 50 mg

50 mg, Oral, EVERY 30 MIN PRN, If HR>60 and patient has no contraindications to beta-blocker see adm inst. for details. Starting Today at 1231, For 2 doses

Step 1: Check vitals. If HR <60, proceed to scanner without meds. If HR>60, give 1st dose oral metoprolol 50 mg, unless patient has contraindications to beta-blocker (see below). Recheck vitals in 30 mins in those who get oral metoprolol. If HR >60, AND no contraindications present on vitals (SBP is not <100, patient not having any wheezing or asthma or other problem), then give a second dose of oral metoprolol 50 mg. Wait another 30 mins then go to CT scanner. CONTRAINDICATIONS TO BETA-BLOCKER - look for these before giving first dose metoprolol - HR>60 already - SBP<100 - Known prior allergy or intolerance to beta-blocker - Decompensated heart failure - Severe Asthma or COPD on daily beta agonist therapy, unless an MD clears giving a beta-blocker - Active bronchospasm *Obtain medication from 3E-Angio Pyxis*

Metoprolol Tartrate (LOPRESSOR) injection 5 mg

5 mg, Intravenous, EVERY 5 MIN PRN, If HR >60 and no contraindications (SBP is not <100, patient not having any wheezing or asthma or other problem), Starting Today at 1231, For 3 doses

Step 2: If HR<60, proceed to step 3. Otherwise treat as follows to goal HR<60 before scanning. - Upon arrival to CT scanner, if HR >60 and no contraindications (SBP is not <100, patient not having any wheezing or asthma or other problem), give 5 mg IV Metoprolol. - Wait 5 mins and recheck vitals. If HR >60 and no contraindications (SBP is not <100, patient not having any wheezing or asthma or other problem), give another 5 mg IV Metoprolol. - Wait 5 mins and recheck vitals. If HR >60 and no contraindications (SBP is not <100, patient not having any wheezing or asthma or other problem), give another 5 mg IV Metoprolol. Recheck vitals. Further doses only if given by direct MD order. If HR <65, scan. If HR >65, consider aborting scan. *Obtain medication from 3E-Angio Pyxis*

nitroGLYCERIN SL (NITROSTAT) SL tablet 0.4 mg

0.4 mg, Sublingual, ONCE PRN, Chest pain, see adm instructions, Starting Today at 1231, For 1 dose

This is a "Sound-Alike, Look-Alike" drug. Confirm you have selected the correct drug.

Step 3: Screen for contraindication to nitro (use of sildenafil or other erectile dysfunction medication in last 48 hours, SBP<110, prior intolerance of nitrates). If no contraindication, then administer sublingual nitroglycerin 0.4 mg tablet. If any contraindication, then scan without nitroglycerin. Practice breath hold technique and then scan 3-5 mins after nitro is given. *Obtain medication from 3E-Angio Pyxis*

CDU DIPYRIDAMOLE PROTOCOL:

Patient selection:

- Chest pain or symptoms suggestive of ACS – per CDU guideline criteria.
 - No methylxanthines (caffeine) for 12 hours before test, NPO 4 hours before test.
- If history of asthma / COPD:
 - No use of inhalers in the past seven days
 - Never intubated for asthma / COPD
 - No current wheezing on exam
- Dipyridamole stress test is available within 15 hours (based on CDU test availability)

CDU Protocol:

- Negative serial ECGs and cardiac markers
- If history of asthma / COPD (but no other persantine asthma/COPD exclusions)
 - Give: Albuterol 2.5 – 5 mg nebulizer **just prior to** dipyridamole infusion.
- Equipment needed:
 - Dipyridamole forms:
 - Dipyridamole order form and check list – for nurse and AP to review and complete.
 - Dipyridamole documentation flow sheet – to complete after testing.
 - Cardiac monitor + central monitoring - blood pressure and HR to run every 1 minute during test.
 - Contact ED central monitoring to provide HR / BP data for documents.
 - 12 lead ECG – programmed to run every 1 minute during stress test period
 - Drug infusion pump
 - Drugs –
 - Dipyridamole (0.56 mg/kg, up to total dose of 60mg)
 - Aminophylline (250mg in vial with syringe at bedside)
 - Saline flush syringes (2 or 3) at bedside
 - Staff - nurse, doctor and / or Associate Provider
- Actions:
 - RN – coordinate getting staff, equipment, central monitor station, and paperwork ready. Send completed order forms to pharmacy and nuclear medicine. Call MD/AP when all is ready.
 - MD/AP - Review forms and chart, examine patient (ie. for wheezing). Cancel if needed.
 - MD/AP – monitor vitals, ECG, symptoms during test.
 - Severe symptoms (wheezing or ST elevation) – Immediately give Aminophylline (250 mg IVP over 3 min). This is very uncommon.
 - Minor symptoms (nausea, headache) – At least 5-10 minutes **after** isotope injection, give caffeinated drink or Aminophylline (100mg IVP over 1 min)
 - All - Get baseline ECG, HR, BP, and symptoms – then repeat every 1 minute throughout test
 - RN - Infuse dipyridamole over **4 minutes**
 - RN – Inject isotope (Tc) **3 minutes after** dipyridamole is infused.
 - All - Continue to monitor ECG, HR, BP, and signs/symptoms for **3 more minutes** following isotope injection.
 - All – after the test complete persantine infusion monitoring form (central monitoring data)
 - RN - Send patient to nuclear medicine for dipyridamole MPI (myocardial perfusion imaging)
 - If defect on dipyridamole image, return to nuclear medicine for rest MPI **≥ two hours later**.
 - MD / AP – disposition:
 - **Normal** dipyridamole MPI (rest MPI not needed) –
 - May discharge
 - **Reversible** MPI defect (defect present on dipyridamole MPI, but absent on rest MPI) –
 - Admit for unstable angina
 - **Fixed** MPI defect (defect on dipyridamole MPI also present of rest MPI) –
 - Probably old MI or anatomic artifact, may discharge. Consult cardiology if uncertain.
 - **Indeterminate** image results or possible reversible defect => Consult cardiology.

Clinical Decision Unit: Persantine Stress Test Checklist

Date / Time _____

Check	To be completed by RN prior to procedure	Findings
	1. Physician has ordered Persantine Stress test and has reviewed serial enzymes and EKG's 2. Remove nitroglycerine paste 1 hour before test	<input type="checkbox"/> Yes <input type="checkbox"/> No
Checklist to assess contraindications for Persantine Stress Test		
	3. Patient did not take Persantine or has not consumed caffeine containing products for at least 12 hours a) No coffee, tea, energy drinks containing caffeine OR chocolate b) No xanthine-containing medications such as theophylline, aminophylline, pentoxifylline (Trental®)	Last Caffeine ingestion: _____ Last dose of medication: _____
	4. Patient has been NPO for at least 4 hours	Last meal/drink _____
	5. Patient has no allergy to the following: a) Dipyrimadole/Persantine b) Theophylline/Aminophylline	Can not do if the patient is allergic to any of these
	6. Vital signs: a) Uncontrolled hypertension: Systolic BP >200, Diastolic >110 mmHg b) Hypotension: Systolic <100mm Hg	NOTIFY MD if either is true.
To be completed by Mid-level Provider or MD		
	7. Does patient have asthma and/or COPD? If yes, has the patient ever been intubated for asthma/COPD? Has the patient used inhalers in the last seven days? <u>Date of last exacerbation:</u> _____	Can not proceed if patient has ever been intubated for asthma/COPD <u>or</u> has used inhalers in the past 7 days
	8. Auscultate lungs for wheezing or rales	Can not proceed if wheezing or rales
	9. Does patient have chest pain or EKG or labs that are suggestive of unstable angina or non-ST elevation MI?	Can not do test if unstable angina or NSTEMI confirmed
	10. Does patient have a history of any of the following diseases? a) Myasthenia Gravis b) Moderate to Severe Aortic Stenosis c) 2nd or 3rd degree heart block d) Severe or bilateral carotid artery disease e) Active Congested heart failure	MD may need to cancel Persantine Stress test if any of these are present
If Checklist confirms NO contraindications then proceed to #11		If contraindications identified notify MD
	11. Radiology – order persantine stress test on radiology order form. (Attach orange cover sheet)	
	12. Pharmacy order: • Persantine 0.56 mg/kg (Max dose 60 mg) infused by SMART PUMP over 4 minutes • Aminophylline 250 mg IV push over 2-5 min	Date Persantine needed: _____ Time Persantine needed: _____ Weight = _____kg
	13. Call cardiac nuclear medicine tech to confirm date / time when isotope is needed in the CDU for the persantine sestimibi injection.	Date Sestimibi needed: _____ Time Sestimibi needed: _____
Inform ED nursing supervisor for mobilization of additional staff for Observation Unit when patient is sent to lab		
LIP to carry out the persantine infusion with continuous monitoring.		
After infusion, send patient to nuclear lab for the scan.		

LIP	ID #	Pager #	Date	Time
Physician	ID#	Pager #	PATIENT ID LABEL	
Nurse Signature	Date	Time		

Observation Policies:

Medicare Claims Processing Manual

Chapter 4 - Part B Hospital (Including Inpatient Hospital Part B and OPSS; Rev. 2845, 12-27-13)

(Source: <http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/clm104c04.pdf>)

290.1 - Observation Services Overview

Observation care is a well-defined set of specific, clinically appropriate services, which include ongoing short term treatment, assessment, and reassessment, that are furnished while a decision is being made regarding whether patients will require further treatment as hospital inpatients or if they are able to be discharged from the hospital. Observation services are commonly ordered for patients who present to the emergency department and who then require a significant period of treatment or monitoring in order to make a decision concerning their admission or discharge. Observation services are covered only when provided by the order of a physician or another individual authorized by State licensure law and hospital staff bylaws to admit patients to the hospital or to order outpatient services.

Observation services must also be reasonable and necessary to be covered by Medicare. In only rare and exceptional cases do reasonable and necessary outpatient observation services span more than 48 hours. In the majority of cases, the decision whether to discharge a patient from the hospital following resolution of the reason for the observation care or to admit the patient as an inpatient can be made in less than 48 hours, usually in less than 24 hours.

290.2.2 - Reporting Hours of Observation - Excerpts from document:

- Observation time begins at the clock time documented in the patient's medical record, which coincides with the time that observation care is initiated in accordance with a physician's order.
- General standing orders for observation services following all outpatient surgery are not recognized.
- Similarly, in the case of patients who undergo diagnostic testing in a hospital outpatient department, routine preparation services furnished prior to the testing and recovery afterwards are included in the payments for those diagnostic services.
- Observation services should not be billed concurrently with diagnostic or therapeutic services for which active monitoring is a part of the procedure (e.g., colonoscopy, chemotherapy). In situations where such a procedure interrupts observation services, hospitals may determine the most appropriate way to account for this time.
- Observation time ends when all medically necessary services related to observation care are completed.
- Observation time may include medically necessary services and follow-up care provided after the time that the physician writes the discharge order, but before the patient is discharged. However, reported observation time would not include the time patients remain in the hospital after treatment is finished for reasons such as waiting for transportation home.

290.5.1 Billing and Payment for Observation Services Additional excerpts from document:

- The beneficiary must be in the care of a physician during the period of observation, as documented in the medical record by outpatient registration, discharge, and other appropriate progress notes that are timed, written, and signed by the physician.
- The medical record must include documentation that the physician explicitly assessed patient risk to determine that the beneficiary would benefit from observation care.

Emergency Department Observation Services

[Ann Emerg Med. 2008;51:686.]

Emergency department (ED) patients frequently require services beyond their initial ED care to determine the need for inpatient admission. These distinct and reimbursable services may include but are not limited to: further diagnostic evaluation, continued therapy or management of acute psycho-social issues.

To promote quality of care and patient safety for ED observation patients, the American College of Emergency Physicians (ACEP) supports the following principles:

- Observation of appropriate ED patients in a dedicated ED observation area, instead of a general inpatient bed or an acute care ED bed, is a “best practice” that requires a commitment of staff and hospital resources.
- An emergency physician and emergency nurse should direct ED observation areas with clearly defined administrative responsibilities for the unit.
- Written policies and procedures for the ED observation area should be approved by appropriate ED and hospital medical staff representatives.
- ED observation area policies and procedures should address the following:
Patient criteria for admission into the unit, discharge from the unit, and admission to an inpatient bed;
A clear statement of which physician bears clinical responsibility for each patient in the area;

A clear delineation of emergency physician and nursing staff roles and responsibilities throughout the day – including how care will be transferred between providers;

- Circumstances that require notification of the physician who is responsible for the patient;
Maximum allowable length of stay in the unit and means to address outliers; and
A description of how utilization and relevant quality measures will be monitored and reported.
- ED observation areas should have adequate space, staffing, equipment, and supplies appropriate for the conditions being managed.
- Mechanisms should be in place to expedite the discharge or the transfer of patients to an inpatient bed, when appropriate.

Revised and approved by the ACEP Board of Directors
January 2008.

This policy statement was prepared by the Emergency Medicine Practice Committee and replaces the statement “*Emergency Department Observation Units*,” approved by the ACEP Board of Directors January 1993 (*Ann Emerg Med* June 1995;25:863-864

As an adjunct to this policy statement, the ACEP Short Term Observation Section has prepared a Policy Resource and Education Paper (PREP) titled, “*Management of Observation Units*,” accompany this policy and can be obtained at www.acep.org

doi:10.1016/j.annemergmed.2008.02.019

Clinical Decision Unit – EUH and EUHM

(7/12 – 6/13)

Condition	% census	# visits	% Discharge	CDU LOS (hrs)	Total LOS (ED+CDU) (hrs)	CDU Admit LOS (hrs)	CDU Discharge LOS (hrs)
Chest Pain	45%	2,839	81%	16.2	21.6	16.7	16.2
Dehydration/vomiting	7%	437	72%	15.6	22.2	17.8	14.8
Syncope	6%	369	83%	16.8	22.2	16.5	16.7
TIA	6%	345	71%	16.1	22.2	13.9	17
Other	5%	312	73%	14.4	21	13.2	15
Cellulitis	4%	264	73%	17	22.5	17	17
Abd pain	4%	242	71%	14.6	22.3	15.8	14
Asthma	3%	186	61%	17.6	23.2	20.8	16.4
CHF	2%	134	74%	18.1	23.6	16.7	18.6
Electrolyte abnormality	2%	116	80%	14.5	20.4	13.6	14.7
Transfusion of blood/products	2%	96	86%	13.9	19.1	14.7	13.8
COPD exacerbation	2%	95	55%	16.4	22.8	17.8	15.7
Pyelonephritis	2%	95	67%	16.5	22.8	16.2	16.7
Pneumonia	1%	79	70%	17.2	23	18.3	16.3
Hyperglycemia	1%	76	82%	17.2	23.4	20.1	17
Allergic rxn	1%	66	89%	12.5	16.8	12.1	12.7
GI bleed	1%	60	78%	16.1	22.5	12.9	17.2
Headache	1%	54	76%	14.7	22.4	13.7	15
Back pain	1%	42	79%	15.8	23.2	14.5	16.2
Vertigo	1%	42	86%	15.3	22.1	13.8	15.6
DVT	1%	41	85%	10.8	16.5	14.5	10.2
Atrial fibrillation	1%	37	57%	14.4	19.2	13.3	15.3
Renal colic	<1%	29	76%	14.8	20.8	20.2	13
Hypoglycemia	<1%	27	48%	16.6	21.9	17.3	15.9
Hypertensive urgency	<1%	23	87%	14.2	19.9	18.7	13.5
Hyperemesis gravidarium	<1%	22	86%	16.4	23.7	19.2	16
Anemia	<1%	12	83%	12.1	16.7	11.1	12.4
Heart Failure	<1%	12	0%	16.4	26.1	N/A	N/A
Supraventricular tachycardia	<1%	9	100%	8.5	15.2	N/A	8.5
Vaginal bleeding	<1%	9	100%	12.4	18.4	N/A	12.4
Grand Total	100%	6,255	77%	16.0	21.8	16.3	15.9

CDU Summary Report

This report displays timing event information on patients who spent time in the CDU care area.



For patients who departed the ED from: 07/01/2012 to 06/30/2013

Protocol	No. Encounters	% Census	% Discharge	ED ALOS (hrs)	CDU ALOS (hrs)	Total ALOS (hrs)	CDU Admit ALOS (hrs)	CDU Discharge ALOS (hrs)					
ABDOMINAL PAIN	8	0 %	88 %	8.4	17.8	26.2	26.2	16.6					
ASTHMA (REVISED)	296	12 %	72 %	6.7	17.8	24.4	21.7	16.2					
ATRIAL	2	0 %	100 %	5.8	16.0	21.8		16.0					
BACK PAIN	2	0 %	100 %	4.3	21.1	25.3		21.1					
CELLULITIS	140	6 %	89 %	10.1	19.3	29.5	19.2	19.4					
CHEST PAIN	1,195	49 %	90 %	8.7	17.2	25.9	17.1	17.2					
COPD (CREATED)	72	3 %	71 %	7.0	17.4	24.4	22.0	15.5					
DEHYDRATION	74	3 %	70 %	9.5	16.2	25.6	16.8	15.9					
GI BLEED (REVISED)	3	0 %	33 %	11.4	21.5	32.9	21.2	22.3					
HEART FAILURE	106	4 %	84 %	8.4	19.4	27.8	17.5	19.8					
HYPERGLYCEMIA	66	3 %	88 %	9.1	14.7	23.7	17.7	14.2					
HYPOGLYCEMIA	25	1 %	92 %	6.4	15.1	21.5	6.9	15.8					
NONE	23	1 %	22 %	12.5	7.3	19.8	5.8	12.8					
OBSERVATION (USE	41	2 %	88 %	8.3	16.5	24.8	16.7	16.5					
PNEUMONIA	33	1 %	64 %	7.5	18.1	25.6	20.0	17.0					
PYELONEPHRITIS	36	1 %	75 %	10.4	17.2	27.5	19.5	16.4					
SYNCOPE (REVISED)	151	6 %	95 %	8.6	17.9	26.5	11.4	18.3					
TIA (REVISED)	164	7 %	79 %	7.0	16.6	23.6	15.6	16.9					
TOXICOLOGY	2	0 %	50 %	8.6	12.3	20.9	12.8	11.7					
VERTIGO (CREATED)	4	0 %	100 %	11.0	11.6	22.6		11.6					
Grand Total	2,416	100 %	85 %	8.4	17.3	25.7	17.8	17.2					

Index of CDU protocols

1.	ABDOMINAL INJURY	24
2.	ABDOMINAL PAIN	25
3.	ACUTE HEART FAILURE	26
4.	ALLERGIC REACTION	27
5.	ASTHMA	28
6.	ATRIAL FIBRILLATION – ACUTE ONSET	29
7.	BACK PAIN	30
8.	CELLULITIS	31
9.	CHEST INJURY	32
10.	CHEST PAIN – POSSIBLE ACS	33
11.	COPD EXACERBATION	34
12.	DEEP VEIN THROMBOSIS	35
13.	DEHYDRATION OR VOMITING	36
14.	DILANTIN TOXICITY	37
15.	ELECTROLYTE ABNORMALITY	38
16.	GASTROINTESTINAL BLEED	39
17.	HEADACHE	40
18.	HEAD INJURY	41
19.	HYPEREMESIS GRAVIDARUM	42
20.	HYPOGLYCEMIA	43
21.	HYPERGLYCEMIA	44
22.	PNEUMONIA	45
23.	PYELONEPHRITIS	46
24.	RENAL COLIC	47
25.	SEIZURES	48
26.	SOCIAL ADMISSIONS	49
27.	SYNCOPE	50
28.	TOXICOLOY OBSERVATION	51
29.	TRANSFUSION OF BLOOD AND BLOOD PRODUCTS	52
30.	TRANSIENT ISCHEMIC ATTACK	53
31.	VAGINAL BLEEDING	54
32.	VERTIGO	55

ABDOMINAL INJURY (NON-PENETRATING)

TRANSFER CRITERIA

- Cooperative patient with stable vital signs (RR>8 or <24, SBP>100 P>60 or <110)
- No Peritoneal Signs
- Negative initial imaging studies (i.e. CT)
- Pertinent lab results acceptable (e.g., Hgb)
- Surgery consult documented

EXCLUSION CRITERIA

- Uncooperative patient, patients requiring restraints
- Impending alcohol withdrawal syndrome
- ETOH estimated >200 mg/dL at transfer
- Pregnancy >20 weeks
- Abnormal vital signs (above)
- CT scan not done or significant acute abnormality

POTENTIAL INTERVENTIONS

- NPO initially, advance per physician
- Repeat Hct q 4-6 hours (if pertinent to patient's management)
- Serial abdominal examinations (e.g. q 4 hours)
- If indicated by physician, serial ultrasounds
- Immediate reevaluation by ED physician or surgeon if patient develops:
 - Significant vomiting
 - Increasing abdominal pain
 - Increased tenderness
 - Worsening vital signs: Decreased BP, increased HR, fever

DISCHARGE CRITERIA:

- Patient is ambulatory
- Serial abdominal exams essentially negative
- Repeat labs reviewed and stable (Specifically any Hb drop?)
- Vital signs reviewed and stable
- Patient able to tolerate PO
- Appropriate follow-up established
- Surgery agrees with disposition

ABDOMINAL PAIN

TRANSFER CRITERIA

- Stable VS
- Ancillary Signs/Sx - anorexia, N&V, fever, elevated WBC
- Negative pregnancy test
- Non-surgical abdomen
- High likelihood (~70%) of discharge within 15 hours

EXCLUSION CRITERIA

- Unstable VS (HR >110, SBP<100, RR > 22)
- Immunocompromised patient (T-cells < 200, chemo, transplant)
- Pregnant patient
- Bowel obstruction (even partial) or ileus
- Cholecystitis (sonographic Murphy, pericholecystic fluid, GB wall thickening>4mm, or dilated CBD)
- Surgical abdomen - free air, rigidity, rebound tenderness
- Hx of frequent ED visits for abdominal pain – suspected habitual patient / narcotic abuse

POTENTIAL INTERVENTIONS

- Analgesics
- NPO, IV hydration, repeat CBC
- Imaging studies as indicated (i.e. CT abd / pelvis, ultrasound, MRI)
- Serial VS
- Serial exams Q2-4 hours while awake and as indicated
- Surgical or GI consultation as needed

DISPOSITION

Home

- Pain and / or tenderness resolved or significantly improved
- VS acceptable
- No diagnosis requiring hospitalization

Admit

- Persistent vomiting
- Pain not resolving or worsening
- Unstable VS
- Clinical condition or positive testing that merits hospitalization
- Consultant preference
- Surgical abdomen

ACUTE HEART FAILURE

TRANSFER CRITERIA

- Previous history of CHF
- Acceptable VS: SBP >100, R < 32, HR <130
- Pulse-ox >90 on room air after initial treatment, correctable to > 92 on Oxygen by NC.
- High likelihood of correction to baseline status within 24 hours with good home support
- No acute co-morbidities

EXCLUSION CRITERIA

- New onset CHF
- Acute cardiac ischemia (EKG changes, positive troponin, ongoing ischemic chest pain, unstable angina) or new arrhythmias
- Unstable VS after treatment (HR>130, SBP<85 or >180, RR>32, Pox<92 on O2 by NC)
- Acute co-morbidities - sepsis, pneumonia, new murmur, confusion
- Abnormal labs to consider - Severe anemia (Hb<8), renal failure (BUN>40 or Cr>3), Na<135, BNP > 840
- Patient requiring vasoactive drips, invasive or noninvasive ventilation (bipap)
- Evidence of poor perfusion (confusion, cool extremity, weakness, N/V)
- Patients requiring provocative stress tests

POTENTIAL INTERVENTION

- Cardiac monitoring, strict Intake/Output, vital signs Q4hr, weight on arrival
- Oxygen per respiratory guidelines with pulse oximetry (continuous or q4hours)
- Serial EKGs, and cardiac markers (Tnl) - 2,4, and 6hrs from 1st lab draw.
- Medication as indicated – IV diuretics (home dose), nitroglycerine paste, ACE Inhibitors, ASA
- Repeat electrolytes q6 hours or prn
- Echocardiography (if not done within 30d) and cardiology consultation - as indicated
- CHF education and smoking cessation education

DISPOSITION

Home

- Subjective improvement – no chest pain, orthopnea, or exertional dyspnea above baseline
- Acceptable VS (O2 sat at baseline or >94%, RR <20HR<100, SBP >100 or baseline,).
- Negative serial ECGs and cardiac markers, good electrolytes, acceptable echo if done
- Evidence of adequate diuresis – 1L urine, decrease in weight, decrease in JVD
- CHF discharge checklist (ACEi, β -blocker, HF/ diet/ smoking education, close followup)

Hospital

- New ischemic EKG changes, arrhythmia, cardiac markers, or evidence of cardiac ischemia
- Persistent hypoxia, rales, dyspnea
- Poor response to therapy - Failure to improve subjectively
- Poor home support
- Physician judgment

ALLERGIC REACTION

TRANSFER CRITERIA

- Response to therapy in the ED
- Erythroderma, urticaria, or angioedema present
- If airway angioedema present, need surgical airway judged to be highly unlikely
- Minimum 2-hours of stability or improvement in ED after treatment

EXCLUSION CRITERIA

- Hypotension (SBP <100), tachycardia > 110
- O2 saturation consistently < 94% on room air
- Suspicion of acute coronary syndrome
- Stridor, respiratory distress, hoarseness at the time of transfer
- IV vasopressors required

POTENTIAL INTERVENTIONS

- IV fluids as needed
- Frequent rechecks and documentation of clear airway
- Antihistamines, corticosteroids
- Cardiac monitoring (if indicated)
- Inhaler or nebulizer treatments (if indicated)
- Pulse oximetry
- Repeat doses of SQ epinephrine

DISPOSITION

Home

- Resolution or improvement in clinical condition
- Stable VS

Hospital

- Delayed worsening of allergic symptoms
- Persistent wheezing or stridor
- Inadequate response to therapy during observation
- Inability to take oral medications
- Abnormal vital signs: SBP < 100mm or RR > 24/min or hypoxia

ASTHMA

TRANSFER CRITERIA

- Alert and oriented, acceptable VS
- Intermediate response to therapy - improving but still wheezing
- PEFr (peak flow) 40-70% predicted (or personal best) after β 2 agonists
- β 2 agonist nebs (2 treatments or 10 mg albuterol) + steroids given in ED
- Chest X-ray with no acute findings (pneumonia, pneumothorax, CHF)

EXCLUSION CRITERIA

- 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
 - If ABG done, Elevated pCO₂ (>50) plus decreased pH
 - O₂Sat < 92% on room air, unless documented chronic hypoxia
 - PEFr* < 40% predicted or personal best
- Suspicion of ACS, new onset CHF, pneumonia

POTENTIAL INTERVENTIONS

- Serial treatments with nebulized β 2 agonist and ipratropium
- IV Magnesium Sulfate as needed.
- Frequent reassessment. BNP if needed.
- Systemic steroids (PO or IV)
- Pulse oximetry, ABG, and oxygen with cardiac monitoring as needed

DISPOSITION

Home (on steroids, nebs, with follow-up and smoking cessation)

- Acceptable VS – HR \leq 100, RR \leq 20 after ambulation (if able)
- Pulse Ox \geq 95% on RA (or return to baseline)
- Resolution of bronchospasm or return to baseline status
- PEFr > 70% predicted (or 70% personal best) – if reliable reading

Hospital

- Progressive deterioration in clinical status or VS
- Failure to resolve bronchospasm within 15 hours
- Persistent PEFr < 70% of predicted (if reliable)
- Hypoxic despite therapy, if not chronic state

ATRIAL FIBRILLATION – ACUTE ONSET

TRANSFER CRITERIA

- Stable BP, HR under 110 consistently for one hour (with treatment)
- No chest pain with rate controlled
- Normal chest X ray
- No evidence of acute comorbidities - MI, CHF, PE, CVA, etc.
- Onset clearly less than 48 hours
- Rhythm conversion drugs given prior to CDU (i.e. propafenone 450mg PO if no CHF)
- Cardiologist agrees with plan to observe (if notified)

EXCLUSION CRITERIA

- HR > 110 with ED meds
- IV vasoactive drips required (ie diltiazem)
- Hemodynamically unstable – i.e. BP
- Ongoing ischemic chest pain after rate control
- Onset over 48 hours, or unknown from history
- Acute comorbidities - Evidence of Acute MI, CHF, PE, Sepsis, CVA / embolic event,
- Recent comorbidities - Stroke/TIA within 3 months, Acute MI within 4 weeks.
- Chronic Atrial Fibrillation.
- Cardiologist or ECP chooses inpatient admission

POTENTIAL INTERVENTIONS

- Cardiac monitoring, pulse oximetry
- Vitals Q 2 hours for 6 hours, then Q4 hours
- Anticoagulate if not contraindicated - PO ASA (325 mg) or subQ heparin (LMWH or UFH)
- Rate control Options - Oral Cardizem, Verapamil, or beta blockers
- Testing - Serial Troponin and ECGs at 3 and 6 hour from 1st ED blood
- TSH, 2D Echocardiogram if indicated
- Educate patient on cardioversion (medical or electrical) if initial obs treatment fails within 12 hours. Electrical cardioversion to occur outside of the CDU
- NPO at 12 hours from arrival in Observation Unit if not spontaneously converted

DISPOSITION PARAMETERS

Home

- Patient converts and remains in NSR for over one hour
- Negative diagnostic testing
- Stable condition
- Discuss home medication therapy with cardiologist

Hospital

- Failure to maintain control of rate under 100
- Positive diagnostic testing (as indicated for MI, PE, CHF, etc.)
- Unstable condition

BACK PAIN

TRANSFER CRITERIA

- Inability to adequately control pain in ED with analgesics
- Normal neurological function and temperature.
- No risk of metastatic disease or vertebral or epidural abscess
- Back pain without severe trauma
- Normal imaging (if obtained)
- Inability to ambulate because of pain

EXCLUSION CRITERIA

- Frequent ED visits for back pain – suspected habitual patient
- Age over 65 years old
- Acute motor deficit (i.e. foot drop, loss of extension of foot or 1st toe, loss of control of bowel or bladder)
- Abnormal x-rays if obtained (burst fracture, spine canal involvement)
- High suspicion of cord compression, metastatic disease, epidural bleed or abscess, discitis.
- Fever

POTENTIAL INTERVENTIONS

- Narcotic analgesics (± NSAIDs if appropriate)
- Serial exams
- Physical therapy assessment
- Consultation as needed – PMR, Ortho, social service
- Imaging (CT or MRI) if acute surgical disease or cancer is suspected

DISPOSITION CRITERIA

Home

- Ability to ambulate and care for self at home with oral analgesics
- Pain at a tolerable level for discharge home
- No worsening in neurologic exam

Hospital

- Inability to tolerate pain on oral medications
- Inability to ambulate or care for self at home
- Worsening neurological exam
- Abnormal imaging warranting inpatient admission

CELLULITIS

TRANSFER CRITERIA

- Serial exams needed to exclude rapidly progressive cellulitis
- Cellulitis which requires > 1 dose antibiotics in the ED
- Temp < 40.C, WBC < 16,000 and WBC >4,000.
- Cellulitis with a drained abscess which requires a brief period of observation and wound care

EXCLUSION CRITERIA

- Septic or toxic patients – clinical appearance, evidence of severe sepsis (Temp >40, SBP<100, RR>22, HR>100, acute organ dysfunction, lactate >4mmol/L)
- Immunocompromized patients – neutropenia, HIV, transplant patients, ESRD/hemodialysis patients, patients on immunosuppressants or chemotherapy, post-splenectomy patients.
- High risk infections – diabetic foot infections; infections proximate to a prosthesis, percutaneous catheter or indwelling device; infections of the orbit or upper lip/nose, neck; infections of >9% TBSA; extensive tissue sloughing; suspicion of osteomyelitis or deep wound infection.
- Poorly controlled diabetes
- Patient unable to care for self at home
- Patient who can be discharged after 1 dose of antibiotics in the ED

POTENTIAL INTERVENTIONS

- Mark edges of cellulitis with indelible marker to monitor progression
- Antibiotics based on contemporary local guidelines and sensitivities
- IV antibiotics - MRSA coverage as indicated (Vancomycin X ≥ 2 , Bactrim, Clinda, or Doxycycline)
- Pertinent labs (CBC, glucose, blood or wound cultures PRN)

DISPOSITION

Home

- Improvement or no progression of cellulitis
- Improved and good clinical condition (ie. No fever, good VS) for 8 hrs.
- Able to perform cellulitis care at home and take oral medications

Admit

- Increase in skin involvement
- Clinical condition worse or not better (i.e. rising temp, poor vitals)
- Unable to take oral medications
- Unable to care for wound at home, home care unavailable

CHEST INJURY

TRANSFER CRITERIA

- Blunt (typically MVC) or penetrating (superficial stab) chest injury
- Consultation with surgeon
- Fewer than 3 rib fractures (excluding 1st or 2nd)
- SBP >100, RR<24, O2Sat > 94% on 2L NC or less
- CXR - absence of PTX, pulmonary contusion, wide mediastinum
- Negative Chest CT
- Need for parenteral analgesia

EXCLUSION CRITERIA

- Hemodynamic instability or hypoxia
- Thoracic / Gen surg want to admit to floor or O.R.
- Positive imaging studies - pneumothorax, pulmonary contusion, wide mediastinum, pleural effusion, any vascular injury
- Acutely abnormal ECG (blocks / changes) or significant arrhythmias
- Other significant trauma - long bone fracture, head injury
- Significant abdominal pain / tenderness

POTENTIAL INTERVENTIONS

- Continuous cardiac and oxygen saturation monitor
- Analgesics
- Incentive spirometry
- Repeat CXR > 6 hours (or prn) after 1st CXR
- Surgery re-evaluation
- Serial ECGs if suspicion for myocardial contusion

DISPOSITION

Home

- Stable vital signs
- No evidence of PTX, pulmonary contusion, pneumonia
- Adequate oxygenation (pO₂>94% or RA)
- Pain controlled with oral medications
- Adequate incentive spirometer performance if blunt injury

Hospital

- Abnormal vital signs – HR>100, SBP<100, RR>22 despite therapy
- Poor incentive spirometer performance – inadequate pulmonary toilet
- Intractable pain
- Acute thoracic injury - PTX, pulmonary contusion, pneumonia on repeat CXR
- Hypoxia (<94%) on room air

CHEST PAIN – POSSIBLE ACS

TRANSFER CRITERIA

- ACS risk is low based on Reilly / Goldman criteria
- Chest discomfort is potentially due to cardiac ischemia
- No acute ECG changes of ACS, negative initial troponin (<0.04 or <0.15 if very low suspicion of ACS)
- Acceptable vital signs

EXCLUSION CRITERIA

- Moderate to high risk criteria by Reilly / Goldman criteria (Pain worse than usual angina or like prior MI, recent revascularization, SBP<110, rales above both bases).
- New ECG changes consistent with ischemia
- Positive troponin (>0.10) 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 (consider: no NACPR criteria; or HART score ≤ 3)
- Recent normal cardiac catheterization (no coronary stenosis)
- Private attending chooses hospital admission

POTENTIAL INTERVENTIONS:

- Continue saline lock, O₂, cardiac and ST segment monitor, nitrates prn, daily aspirin, and NO CAFFIENE if persantine is planned, NPO six hours before stress test.
- Serial Troponin I and ECGs at 3 and 6 hour from first ED blood draw
 - No 6-hour level needed if negative provocative test done after 3hr draw
 - 6 hour lab needed if positive “delta” (normal, but >50% rise) between 1st two labs
- Repeat EKG based on symptoms or ST monitor alert – show to CDU physician STAT
- Stress testing and cardiac imaging - if initial and 3 hour Tnl is negative:
- EUH, EMH, GMH - Stress test based on selection algorithm If no stress test is available – admit if indicated, otherwise discharge on appropriate medications (i.e. aspirin, ntg) with short term follow up and instructions.

DISPOSITION

Home

- Acceptable VS, stable symptoms, no serious cause of symptoms identified
- Normal serial cardiac markers and EKGs
- Negative provocative test or cardiac imaging for ACS – no ischemic or reversible defects identified.

Hospital

- Unstable VS
- Positive cardiac markers or EKGs
- Positive provocative test – ischemic or reversible perfusion defect
- CDU or personal physician discretion
- Serious alternative diagnosis, e.g. PE, aortic dissection

COPD EXACERBATION

TRANSFER CRITERIA

- Good response to initial therapy (β -agonists, ipratropium, steroids).
- No acute process on chest Xray (required)
- Acceptable VS (PO₂>90, HR<100, RR<24, SBP>100)
- Alert and oriented
- No indication of impending respiratory fatigue

EXCLUSION CRITERIA

- Concurrent acute co-morbidities - Pneumonia, CHF, cardiac ischemia
- Unstable VS or clinical condition
- Acute confusion / lethargy or other evidence of CO₂ narcosis; elevated pCO₂ (if drawn)
- Poor response to initial therapy
- O₂ sat < 85 on 2 L 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%

POTENTIAL INTERVENTION

- Serial treatments: β -agonists Q2-4hr, ipratropium Q6hr, and steroids
- Hydration, antibiotics if indicated
- Pulse oximetry (continuous or q4hr), ABG if indicated
- Supplemental oxygen as indicated
- Reassessment Q4 hours
- Cardiac monitoring, cardiac markers, ECGs, and BNP - as needed

DISPOSITION

Home

- Acceptable VS
- Resolution of exacerbation or return to baseline status
- Pulse-ox > 90% on room air or home FIO₂, back to patient's baseline

Hospital

- Progressive deterioration in status, Unstable VS
- Failure to resolve exacerbation within 18 hours
- Co-existent pneumonia or CHF
- Uncompensated pCO₂ Retention
- O₂ sat < 90 % on room air or home FIO₂

DEEP VEIN THROMBOSIS

TRANSFER CRITERIA

- Hemodynamically stable – acceptable vitals, pulse ox.
- No evidence of PE
- No exclusion criteria, candidate for home Low Molecular Weight Heparin (LMWH)
- Labs - Normal PT, PTT, CBC, platelet count, and Cr.
- Confirmed DVT (or suspected DVT with doppler not yet available)

EXCLUSION CRITERIA

- High likelihood of Pulmonary Embolism
- Known hypercoagulable or bleeding disorder
- New DVT in patient on Warfarin with INR in therapeutic range
- Patient is a poor candidate for anticoagulation – frequent falls
- High risk of bleeding complications – e.g. active GI bleeding, major surgery or trauma within 2wks, recent intracranial bleed, recent head injury / tumor / AVM)
- Social: unable to care for self or follow up, unable to obtain outpatient LMWH, unable to follow up for outpatient coumadin management.
- Clinical conditions – pregnancy, prosthetic heart valve, CRF on HD, morbid obesity (>150kg)

POTENTIAL INTERVENTIONS

- Venous imaging if not done in the ED
- Start LMWH (i.e. Lovenox)
- Have patient give self first injection, or alternatively saline practice injection
- After heparin started, may give first dose of Coumadin 10 mg PO
- Monitor at least 12hrs for bleeding or thrombo-embolic complications
- Consult pharmacist to review dosing and help arrange home LMWH and coumadin for 5-7d
- Nurse education: *DVT, anticoagulation, signs/symptoms for complications of DVT and anticoagulation*
- Patient to watch video and receive booklet.

DISPOSITION:

Home

- Acceptable VS, No clinical evidence of PE
- Uncomplicated DVT (no thrombo-embolic or bleeding events)
- Adequate home care / support available
- Outpatient follow up within 1-2 days for INR testing and evaluation. Instruction for coumadin, LMWH, DVT, PE and what to return for.

Hospital

- High risk DVT or PE identified
- Unacceptable vital signs
- Bleeding problems after anticoagulant
- Home treatment not feasible
- Physician discretion

DEHYDRATION OR VOMITING / DIARRHEA

TRANSFER CRITERIA

- Acceptable VS
- Mild to moderate dehydration
- Self-limiting or treatable cause not requiring hospitalization
- Mild to moderate electrolyte abnormalities
- Evidence of dehydration – vomiting / diarrhea, high BUN/Cr ratio, orthostatic changes, poor skin turgor, high urine specific gravity, hemoconcentration, etc.

EXCLUSION CRITERIA

- Dehydration is not clearly present
- Unstable VS (hypotension, tachycardia, severe dehydration)
- Cardiovascular compromise
- Severe (>15%) dehydration
- Severe electrolyte abnormalities
- Associated cause not amenable to short term treatment: bowel obstruction, appendicitis, bowel ischemia, DTs, DKA, sepsis, etc.

POTENTIAL INTERVENTION

- IV hydration (D5LR if starvation ketosis present or for hyperemesis gravidarum)
- Serial exams, monitor intake and output, vital signs
- Antiemetic
- Advance diet as tolerated

DISPOSITION

Home

- Acceptable VS
- Resolution of symptoms, able to tolerate oral fluids
- Normal electrolytes (if done)

Hospital

- Unstable VS
- Associated cause found requiring hospitalization
- Inability to tolerate oral fluids despite observation protocol

DILANTIN TOXICITY

TRANSFER CRITERIA

- Dilantin toxicity secondary to unintentional overmedication
- Unsteady gait
- CBC, chem-7, dilantin level
- Toxicology consult on ALL patients: *document time of call to Poison Control Center*
- IV access and cardiac monitor
- Charcoal if indicated

EXCLUSION CRITERIA

- Suicide attempt or gesture
- Multiple acute co-ingestants
- Significant inebriation or intoxication
- Unstable vital signs
- Arrhythmias
- Other acute comorbidities or complicating illnesses
- Dilantin level greater than 35 µ/cc

POTENTIAL INTERVENTIONS

- Cardiac monitoring
- Serial dilantin levels
- Repeat charcoal if needed
- Initial bed rest, then advance activity as tolerated
- Follow up with Poison Control Center call / consult

DISPOSITION CRITERIA

Home

- Steady gait
- Understanding of discharge instructions
- Poison center or toxicology consult completed

Hospital

- Persistent symptoms after 24 hours
- Increasing dilantin level after second dose of charcoal
- Unstable vital signs or clinical condition
- Physician discretion based on other complications or comorbidities

ELECTROLYTE ABNORMALITY

TRANSFER CRITERIA

- Acceptable VS
- Cause of electrolyte disturbance does not require hospitalization
- No co-morbidity requiring more prolonged hospitalization
- Mild and rapidly correctable electrolyte abnormality
- Hypokalemia > 2.5 mEq/L, with no ventricular ectopy on ED monitoring for >1 hour.
- Hyponatremia >120 mEq/L with normal mentation and a reversible etiology (eg dilutional, drug-induced, gastroenteritis, hyperemesis). Not psychogenic polydipsia, SIADH
- Hypernatremia < 155 mEq/L with normal mentation and rapidly reversible etiology (e.g. NH patient with infection)
- Hypercalcemia < 7.0 mEq/L (ionized) rapidly correctible etiology
- Hypocalcemia > 1.0 mEq/L (ionized), e.g. renal failure
- Hypomagnesemia >2.0 mEq/L associated with other electrolyte abnormalities

EXCLUSION CRITERIA

- Unstable VS or cardiovascular compromise
- Severe dehydration or severe electrolyte abnormalities (K >6.0, K <2.5, Na >155, Na <120, iCa >7.0, iCa <1.0, Mg <2.0)
- Mental status changes, seizure, lethargy, neuro deficit, or other sign of cerebral edema
- Associated cause not amenable to short term treatment: bowel obstruction, appendicitis, bowel ischemia, DTs, DKA, sepsis, some drug effects, etc.
- Unlikely to be corrected within 15 hours
- More than two acute electrolyte disturbances

POTENTIAL INTERVENTIONS

- IV therapy (Normal saline for most) therapy targeting the specific disorder, per CDU physician.
- Electrolyte replacement / correction, and repeat labs as ordered by CDU physician
- Serial vital signs and repeat clinical examination

DISPOSITION

Home

- Acceptable VS
- Resolution of symptoms, able to tolerate oral fluids
- Improved electrolytes

Hospital

- Unstable VS
- Associated cause found requiring hospitalization

Inability to tolerate oral fluids

GASTROINTESTINAL BLEED (UPPER)

ADMISSION CRITERIA

- History of dark stool (not bright red) in last 24-48 hours
- No more than 2 episodes of bright red blood
- GI or surgery consulted for evaluation (or endoscopy) within 24hr
- Normal PT/INR, Hgb >10, normal Cr.
- Rectal exam for guaiac and orthostatics vitals done in the ED

EXCLUSION CRITERIA

- Unstable VS (HR>100, SBP<100, RR>22) or fever (T>38)
- Significant orthostatic changes (\downarrow SBP \geq 20); standing pulse >110
- More than 2 episodes of bright red bleeding
- Bowel prep and endoscopy can not be completed within 18-24 hours (i.e. both EGD and colonoscopy planned).
- Active bleeding = fresh voluminous hematemesis, multiple episodes of melena on day of arrival, or a significant amount of bright red bowel movement per rectum
- Hgb <8.0, or a drop of Hct >10 in 4 hours (if repeated in the ED)
- History of end stage liver disease, coagulopathy, portal hypertension, esophageal varices, or coumadin
- EKG Changes
- Social issues = inadequate home support

POTENTIAL INTERVENTIONS

- Serial Hct / Hgb Q6 hr
- Guaiac stools / emesis prn.
- IV Hydration, PPI or H2 blockers IV
- Frequent VS – Q2 hours X3, then Q4hrs
- NPO, I & O, clotting studies
- GI Consult for endoscopy

DISPOSITION

Home

- Normal or stable serial exams
- Stable VS
- No deterioration in clinical condition
- If endoscopy - no active bleeding, and follow-up arranged on PPI

Hospital

- Continual decrease in Hct/Hg
- Recurrence of bleeding
- Deterioration in clinical condition
- Active bleeding by endoscopy

HEADACHE

TRANSFER CRITERIA

- Persistent pain in tension or migraine headache
- Hx of migraine with same aura, onset, location and pattern
- Drug related headache
- No focal neurological signs
- Normal CT scan (if done)
- If LP is needed, then it must be done and normal (unless failed attempt and IR consult for LP arranged in ED BEFORE transfer to CDU, and low risk patient)
- Neurology, Neurosurgery, Neuro-ophthalmology consult completed in ED for complicated cases

EXCLUSION CRITERIA

- Focal neurologic signs
- Meningismus or high suspicion of meningitis, encephalitis, or subarachnoid hemorrhage
- Elevated intraocular pressure as cause (i.e. glaucoma)
- Abnormal CT scan
- Abnormal LP (if performed)
- Hypertensive emergency (diastolic BP > 120 with symptoms)
- Suspected temporal arteritis
- Blocked VP shunt
- Frequent ED visits – suspected habitual patient, narcotic seeking behavior

POTENTIAL INTERVENTIONS

- Serial exams including vital signs,
- Neuro checks: level of alertness, speech, motor function
- Analgesics, analgesics appropriate for a headache
- Neurology consult as indicated
- MRI/MRA/MRV Imaging as indicated
- Retina scan if available

DISPOSITION CRITERIA

Home

- Resolution of pain
- Other to take patient home
- No deterioration in clinical course

Hospital

- No resolution in pain
- Deterioration in clinical course
- Rule in of exclusionary causes

HEAD INJURY

TRANSFER CRITERIA

- Patients on anticoagulation with a normal head CT who need serial neuro exams or repeat head imaging
- Patients not on anticoagulation with mildly abnormal CT head (questionable punctate hyperdensity, small SAH or SDH with no mass effect/shift) who need serial neuro exams or repeat CT imaging
- Acceptable Vital Signs
- Headache, dizziness, transient vomiting, transient amnesia are acceptable
- Ethanol level <100 for intoxicated patients
- Patients mentating clearly, able to ambulate and perform self-care
- Otherwise cleared from a trauma standpoint
- Lacerations repaired prior to CDU admission
- Trauma and Neurosurgery consults initiated in the ED, as appropriate

EXCLUSION CRITERIA

- Unstable VS
- Abnormal CT Scan of brain in the setting of a coagulopathy
- Depressed skull fracture
- Penetrating skull injury
- Focal neurologic abnormality or significant confusion
- Uncooperative patient, restraints, or sitter required
- Other traumatic injuries requiring further work-up or close monitoring
- Patients who require ongoing spine precautions
- Acute psychiatric disorder, suicidal patient

POTENTIAL INTERVENTION

- Serial neurologic exams including vital signs every 2-4 hours, as ordered
- Analgesics
- Antiemetics
- Neurosurgical consultation if indicated
- Repeat CT scan or MRI as indicated

DISPOSITION

Home

- Acceptable VS
- Normal serial neurologic exams

Hospital

- Deterioration in clinical condition
- Development of any exclusion criteria

HYPEREMESIS GRAVIDARUM

TRANSFER CRITERIA

- Dehydration (mild to moderate)
- Ketonuria
- < 20 weeks pregnant
- Stable vital signs
- Ob/Gyn service or attending contacted & agrees
- Minimally abnormal lab values that are correctable by IV fluids

EXCLUSION CRITERIA

- Pregnancy > 20 weeks
- Unstable vital signs, severely abnormal lab values
- Severely dehydrated as evidenced by acute renal failure
- Urinary tract infection in pregnancy

POTENTIAL INTERVENTIONS

- IV – D5LR or D5NS at 250 cc/hr until urine ketones clear, then 150 cc/hr
- Diet - ice chips advanced to clear fluids, dry diet when tolerate fluids
- Antiemetics: Zofran 4mg q6-hprn, Tigan 200mg IM q-6-h prn, Compazine 5-10mg IV or IM q-6-h prn,
- Dietary counseling

DISPOSITION CRITERIA RAPID FOLLOWUP WITH OBGYN

Home

- Stable vital signs, normal labs, urine ketones cleared
- Taking oral fluids
- Absence of significant nausea, no vomiting

Hospital

- Unstable vital signs
- Uncorrected or worsening lab values
- Unable to tolerate oral fluids
- Private attending or EDP chooses admission

HYPOGLYCEMIA

TRANSFER CRITERIA

- Blood sugar below 40 mg% pre Rx (if obtained) and ≥ 80 post treatment
- Symptoms resolved with administration of glucose
- Type I or Type II Diabetes
- Etiology determined (e.g. missed a meal)

EXCLUSION CRITERIA

- Intentional overdosage of hypoglycemic medications
- Major comorbid condition causing hypoglycemia – liver failure, insulinoma, sepsis, etc.
- Insufficient change in symptoms with administration of glucose
- Fever, hypothermia (T < 35C or T > 38C)
- D10 drip required to maintain euglycemia

POTENTIAL INTERVENTIONS

- Dietary food tray
- Serial exams and vital signs
- IV hydration, K+ administration or electrolytes as indicated
- Serial lab - repeat glucose Q2-4hr and as indicated
- IV D-50 (or oral juice if alert) for hypoglycemia and confusion – notify physician
- Diabetic counseling as needed

DISPOSITION CRITERIA

Home

- Resolution of symptoms
- Capable adult supervision
- Bedside glucose over 80 mg%
- Resolution of precipitating factor
- Follow up with primary care

Hospital

- Deterioration of clinical signs
- Persistent deficits in neurological or mental status
- Bedside glucose repeatedly < 80

HYPERGLYCEMIA

ADMISSION CRITERIA

- Blood sugar > 300 & < 600 after ED treatment
- Normal to near normal pH and total CO₂ level
- Readily treatable cause (e.g. non-compliance, UTI, abscess)
- New onset hyperglycemia / suspect undiagnosed DM

EXCLUSION CRITERIA

- DKA (pH <7.20, total CO₂ <18, elevated serum acetone, anion gap >18)
- Hyperosmolar non-ketotic coma (or AMS)
- Blood glucose > 600
- Precipitating cause unknown or not readily treatable
- Social issues – precluding adequate outpatient management

POTENTIAL INTERVENTIONS

- IV hydration, 0.9NS at 150-250 cc/hr
- Bedside glucose q 2 hours until level < 300, then q 4 hours
- Sliding scale insulin (see sliding scale guidelines)
- Treat precipitating cause (antibiotics, I&D abscess, etc.)
- Diabetic counseling
- Repeat electrolytes q4hours until labs stable
- Initiate Metformin if new onset per CDU MD

DISPOSITION CRITERIA

Home

- Blood glucose < 250
- Resolution of symptoms
- Stable vital signs
- Successful treatment of precipitating cause
- Tolerating PO fluids
- PCP or Endocrine follow up within 48 hours if new onset
- Patient education materials: includes BG monitor, lancets, strips, education video /book

Hospital

- Worsening symptoms
- Unstable vital signs
- Blood glucose remains > 250
- Development of DKA
- Unable to tolerate PO fluids
- Poor candidate for home management

PNEUMONIA

TRANSFER CRITERIA

- History, exam, and CXR consistent with acute pneumonia
- PORT score class ≤ 3
- O₂ saturation $>92\%$ on room air at the time of CDU admission
- Able to return to previous living environment when discharged (outpatient support is present)
- Initial dose of antibiotics given in the ED

EXCLUSION CRITERIA

- Persistently abnormal vitals – after ED treatment (O₂ saturation $<92\%$ on RA, HR >120 , SBP <100 , RR >30 , T <35 or >40 C)
- Significantly abnormal ABG – if done (pCO₂ >45 , pH <7.35)
- Potential respiratory failure
- Multi-lobar pneumonia
- Unlikely to be discharged in 24 hours, poor candidate for outpatient therapy
- Immunocompromised patients: AIDS, PCP pneumonia, chemotherapy, chronic corticosteroid use, active cancer, sickle cell disease, asplenic patients.
- High risk patients: Nursing home patient, cancer, cirrhosis, ESRD, altered mental status, nosocomial etiology, aspiration risk (ie. bulbar stroke)
- High suspicion of – DVT/PE, SARS, H1N1, or TB (HIV/AIDS, institutionalized, recent prison, native of endemic region, history of pulmonary TB, apical disease on CXR)

POTENTIAL INTERVENTIONS

- Antibiotics based on contemporary hospital guidelines for pneumonia
- Supplemental oxygen and bronchodilator therapy as needed. Steroids and indicated.
- Analgesics as needed for pain, myalgias, or cough/sputum
- Serial vital signs, cardiac and oxygen saturation monitoring (continuous or intermittent)
- Assistance with activities of daily living as needed

DISPOSITION

Home

- Subjective and clinical improvement during CDU stay
- Acceptable vital signs during observation period
- Patient able to tolerate oral medications and diet

Hospital

- Patient not subjectively improved enough to go home
- Lack of clinical progress or clinical deterioration.
- Unable to safely discharge for outpatient management
- Physician discretion

PYELONEPHRITIS

TRANSFER CRITERIA

- Acceptable vital signs and normal mentation
- Clinical evidence of pyelonephritis (flank pain, urgency, frequency, dysuria)
- UA evidence of pyelonephritis (significant pyuria, nitrates, and/or leukocyte esterase)
- Not suitable for discharge from the ED
- Urine cultures obtained

EXCLUSION CRITERIA

- Male patients
- Pregnant females
- Abnormal VS after ED treatment (SBP <90, HR >120, T<35 or >40 C)
- Mental status changes
- Significant comorbidities – diabetes, renal failure, sickle cell disease
- Immunosuppressed patients - HIV, transplant patients, chronic high dose steroids, asplenic
- Urinary tract anatomic abnormality (solitary kidney, reflux, or indwelling device)
- Urethral or ureteral obstruction (ie. kidney stones, urinary retention)
- Poor candidate for outpatient treatment of pyelonephritis (ie poor home support)

POTENTIAL INTERVENTIONS

- IV hydration, antiemetics, antipyretic
- IV antibiotics based on contemporary guidelines for pyelonephritis
- Advance to oral antibiotics, antiemetics, and analgesics – as tolerated
- Imaging as needed (CT or ultrasound)

DISPOSITION CRITERIA

Home

- Resolution or improvement of systemic symptoms
- Ability to take po medications
- Stable vital signs
- PCP follow up within 72 hours for culture results and repeat exam.

Hospital

- Clinical deterioration or lack of adequate improvement
- Inability to tolerate oral meds or hydration
- Unstable vital signs or evidence of septic shock
- Abnormal imaging (ureteral obstruction or emphysematous pyelonephritis, solitary kidney)

RENAL COLIC

TRANSFER CRITERIA

- Diagnosis of renal colic established by helical CT, IVP or ultrasound
- Uncomplicated stone
- Persistent pain or vomiting despite medication
- Acceptable VS
- Urology resident notified

EXCLUSION CRITERIA

- Unstable VS
- Clinical evidence of a UTI (fever, significant pyuria on a cath specimen)
- Solitary kidney
- Relative large proximal stone (>6 mm) with high grade obstruction
- Acute renal failure

POTENTIAL INTERVENTION

- IV Hydration
- As needed - IV narcotics, IV ketolorac, IV antiemetics
- Medical Expulsive therapy as indicated (ie Flomax / tamsulosin, steroids)
- Diagnostic tests as needed - Delayed IVP films, ultrasound, CT
- Serial exams and vital signs
- Strain urine for stone capture and analysis, U/A if not yet done
- Urology consultation as needed.

DISPOSITION

Home

- Acceptable VS
- Pain and nausea resolved or controlled
- Passage of stone

Hospital

- Persistent vomiting or uncontrolled pain after 14 hours
- Diagnosis of coexistent infection or significant abnormality
- Change in diagnosis requiring further therapy or workup

SEIZURES

TRANSFER CRITERIA

- Past history of seizures with breakthrough seizure or subtherapeutic anticonvulsant level
- No seizure in last 2 hours
- New onset seizures with a normal neuro exam, normal head CT, and neurology agreement
- Blood work: electrolytes, blood glucose, anticonvulsant levels (if appropriate), UDS / tox labs (as indicated).

EXCLUSION CRITERIA

- Ongoing seizures or postictal state
- Persistent focal neurological findings (e.g. Todd's paralysis)
- Clinical suspicion of meningitis or new stroke
- Delirium of any etiology, including alcohol withdrawal syndrome / DTs
- Seizures due to toxic exposure (e.g. theophylline or carbon monoxide toxicity) or hypoxemia
- Pregnancy beyond first trimester / eclampsia
- New findings on head CT
- New EKG changes or significant arrhythmias

POTENTIAL INTERVENTIONS

- Appropriate anticonvulsant therapy
- Seizure precautions
- Cardiac and oximetry monitoring
- Serial (q 2-4hours) neuro checks and vital signs
- Toxicological testing PRN
- EEG or neurology consultation as indicated
- NPO or liquid diet as indicated
- Neurology consult if new onset seizures

DISPOSITION

Home

- No deterioration in clinical status
- Therapeutic levels of anticonvulsants PRN
- Correction of abnormal labs
- Resolution of post-ictal or benzodiazepine-related sedation
- Appropriate home environment

Hospital

- Deterioration of clinical status, mentation, or neuro exam
- Rule in for exclusionary causes
- Inappropriate home environment
- Recurrent seizures or status epilepticus
- Not sufficiently alert for discharge after 18 hours observation

SOCIAL ADMISSIONS

TRANSFER CRITERIA

- Pt. requires assisted living arrangements, i.e. home care
- Family requires assistance with home care needs
- High probability of care arrangements within 18 hour time frame
- Social service consult available within 4 hours
- Patient's condition does NOT require extensive nursing care

EXCLUSION CRITERIA

- Inpatient admission criteria are met
- Social worker unable to provide timely consult
- Inability to place pt. within 14 hour time frame
- Clinical or physical condition requires stabilization in an inpatient bed
- Patients' condition requires a higher intensity than CDU nursing can provide
- Patient requires restraints or a sitter

POTENTIAL INTERVENTIONS

- Consult Social Services
- Work with family, patient, primary care physician, and nursing services to coordinate best outpatient care
- Monitor vital signs, labs

DISPOSITION

Home

- Home assistance arranged
- Family refuses placement
- N.H. not available and family willing to take pt. home

Hospital

- Unable to obtain N.H. placement or home assistance and the patient is not safe for discharge home within 18 hours
- Clinical deterioration
- Need for inpatient admission identified

SYNCOPE

TRANSFER CRITERIA

- Minimum ED interventions: ECG, monitor, stool guaiac, IV, labs
- No acute dyspnea or history of CHF
- No acute ECG changes, bundle branch block, or significant arrhythmias
- Vital signs normal
- No new neurologic deficits

EXCLUSION CRITERIA

- Abnormal or unstable vital signs (HR <50 or >100, SBP <100 or >200, pO₂ <94%, RR >24)
- ECG: BB blocks {LBBB; RBBB+LAFB; RBBB+LPFB - esp with 1st degree heart block}; Prolonged QTc (>500mS), new ECG ST/T wave changes
- Significant cardiac arrhythmias (v. tach, a fib, bradycardia, etc)
- Serious cause suspected – ACS, PE, GI Bleed, sepsis, AAA, IC bleed, etc
- History of CHF, major valvular disease, family history of sudden death (<50)
- Significant injury (eg fracture, subdural). Lacerations acceptable.
- New CT or lab abnormalities (if done)
- Unsafe home environment

POTENTIAL INTERVENTIONS

- Serial vital signs, cardiac monitoring take postural BP
- Serial Tnl at 0, 3, and 6 hours
- Appropriate IV hydration, diet
- Additional selective workup (based on patient):
 - Cardiac workup – CHF, valvular disease/new murmur, structural cause (e.g. suspect HOCM): 2-D echo, pacemaker evaluation, cardiology consult
 - Cardiac workup – Ischemia, arrhythmia, autonomic: stress imaging, tilt testing, holter monitor, pacemaker evaluation, EP consult
 - PE work up – D-dimer, CT chest, venous doppler
 - Neuro workup – serial neuro checks, HCT, neurology consult, possible EEG

DISPOSITION

Home

- Benign CDU course, stable vital signs
- No arrhythmia documented on review of cardiac monitor history screens
- Acceptable home environment
- Follow up with possible holter event monitor PRN

Hospital

- Deterioration of clinical course
- Significant testing abnormalities
- Unsafe home environment

TOXICOLOGY OBSERVATION

TRANSFER CRITERIA

- Non-suicidal Patients
- Stable VS and mental Status
- Accidental overdose of the following compounds: phenytoin, oral sulfonylureas, acetaminophen, warfarin
- Snakebites or black widow envenomations not requiring antivenom
- Toxicology consult obtained in ED and observation recommended.

EXCLUSION CRITERIA

- Any suicidal ingestion
- Unstable vital signs, altered mental status, combative or disruptive patients
- Evidence of organ dysfunction as a result of ingestion (liver, active bleeding)
- Toxicology not consulted

POTENTIAL INTERVENTIONS

- IV fluids
- QT monitoring
- Serial labs (chemistry, drug levels)
- Symptomatic treatment

DISPOSITION

Home

- Stable VS
- Asymptomatic patients with no physical or laboratory evidence of continued toxicity
- Patient cleared for discharge by toxicologists.

Hospital

- Unstable VS
- Persistent symptoms (vomiting, ataxia, hypoglycemia, AMS)
- New lab abnormalities (LFTs, CPK, electrolytes)
- Admission recommended by toxicology

TRANSFUSION OF BLOOD AND BLOOD PRODUCTS

TRANSFER CRITERIA

- Symptomatic anemia or thrombocytopenia
- Deficiency correctable by transfusion
- Stable vital signs with recent labs verifying need for transfusion

EXCLUSION CRITERIA

- Unstable vital signs
- Active bleeding present unless transfusing platelets for thrombocytopenia and patient stable
- End stage renal failure, dialysis patients
- Pregnant patients
- Hgb <5

POTENTIAL INTERVENTIONS

- IV started, Pre-medicate and IV hydration as needed
- Type and Cross match sent if not previously done
- Transfuse only leukocyte-reduced red cells or platelets per Nursing protocol –Repeat CBC at least 2 hours following transfusion.
- Obtain and record vital signs according to blood bank policy:
 - Within 30 minutes prior to the transfusion (baseline)
 - 15 minutes after the start of the transfusion:
 - 1 hour after the start of the transfusion
 - Post transfusion

DISPOSITION

Home

- Stable vital signs
- Symptoms improved
- No fever for 1 hour after 1 unit PRBC's or 1 dose of platelets for 2 hours after 2 units PRBC's
- No evidence of fluid overload or CHF
- No evidence of transfusion reaction per Nursing protocol
- Satisfactory increase in hemoglobin following transfusion

Hospital

- Transfusion reaction
- Unstable vital signs
- Fluid overload, CHF

TRANSIENT ISCHEMIC ATTACK (TIA)

TRANSFER CRITERIA

- Transient ischemic attack – resolved acute deficit, not crescendo TIAs.
- Sub-acute stroke (onset >72hr; NIHSS \leq 3; seen by neurology in the ED)
- Negative HCT (unless prompt MRI planned; with a normal exam and not high risk for bleed)
- Workup can be completed within ~18hrs

EXCLUSION CRITERIA

- Head CT imaging positive for bleed, mass, or acute infarction.
- Known extra-cranial embolic source – history of atrial fibrillation, cardiomyopathy, artificial heart valve, endocarditis, known mural thrombus, or recent MI.
- Known carotid stenosis (>50%)
- Any persistent acute (<72 hour) neurological deficit or crescendo TIAs
- Non-focal symptoms – ie confusion, weakness, seizure, transient global amnesia
- Hypertensive encephalopathy
- Unable to ambulate independently, perform self care, and pass ED dysphagia screen
- Severe headache or evidence of cranial arteritis
- Acute medical or social (poor home support) issues requiring inpatient admission
- Prior large stroke - making serial neurological examinations problematic
- Pregnancy

OBSERVATION UNIT INTERVENTIONS

- Neuro checks Q-2hr – to detect stroke, crescendo TIA, etc.
- Neurology consult – to detect occult stroke.
- Fasting lipid panel, HgA1c
- Carotid imaging with MRI/MRA - to detect surgical carotid stenosis (>50%) and microinfarct
 - If contraindications to MRI/MRA and good renal function, then CTA of head and neck vessels
 - If contraindications to MRI/MRA and poor renal function, then doppler of neck vessels
- 2-D Echocardiography as indicated by neurology - to detect a cardioembolic source.
- Cardiac monitoring – for at least 12 hours for paroxysmal atrial fibrillation
- Appropriate antiplatelet therapy (Aspirin \Rightarrow If on ASA then Plavix OR Aggrenox)
- Stroke preventive educational materials (lipids, smoking, DM, HT, obesity, alcohol, stroke)
- Subacute strokes - rehab evaluation and outpatient treatment planning

DISPOSITION

Home

- No recurrent deficits, negative workup
- Clinically stable for discharge home (on Asa – 81mg/day)

Hospital

- Recurrent symptoms / deficit
- Evidence of treatable vascular disease - ie >50% stenosis of neck vessels
- Evidence of embolic source requiring treatment (ie heparin / coumadin) - ie mural thrombus, Paroxysmal atrial fibrillation
- Unable to complete workup or safely discharge patient within timeframe
- Physician judgment

VAGINAL BLEEDING

TRANSFER CRITERIA

- Heavy dysfunctional uterine bleeding, progestin ordered in ED
- Bleeding in early pregnancy (quant HCG < 6000) with ultrasound showing no ultrasonographic evidence of intrauterine or ectopic pregnancy
- Threatened abortion with ongoing bleeding
- First trimester missed or inevitable spontaneous abortion - OBGYN input REQUIRED
- CBC results available, blood bank tube sent

EXCLUSION CRITERIA

- Unresolved hemodynamic compromise in ED (HR>110, SBP<90, HR rise >30 on standing)
- Hematocrit < 20
- EGA > 12 weeks
- Coagulopathy (prolonged PT, PTT, thrombocytopenia)

POTENTIAL INTERVENTIONS

- Serial vital signs and bleeding intensity checks (pad count)
- IV saline infusion
- RhoGam for pregnant Rh-negative patients
- Repeat hematocrit
- Blood transfusion PRN

DISPOSITION

Home

- Bleeding decreased
- Vital signs stable
- Repeat hematocrit acceptable
- Uterine evacuation performed if indicated, patient recovered from procedure
- Follow up to OB for 1st trimester pregnant patients with bleeding
- Follow up to GYN arranged for endometrial biopsy within 10 days in pts requiring progestin/hormone tx who are at higher risk for endometrial CA (older age)
- Follow up to PCP or GYN for repeat H/H and US if suspect DUB, fibroids

Hospital

- In-patient procedure required
- Vital signs unstable
- Bleeding intensity does not slow or increases

VERTIGO

INCLUSION CRITERIA

- Likely peripheral vertigo
- Acceptable vital signs
- Normal cerebellar exam (heel - shin, or finger nose testing)
- Normal cranial nerve exam (corneal reflex, EOM intact)

EXCLUSION CRITERIA

- Acute hearing loss, double vision, neuro deficits
- Severe headache or head trauma associated with vertigo
- Significant vital sign abnormalities
- Fever (Temp of 38 C oral or greater)
- High clinical suspicion of central vertigo or stroke

POTENTIAL INTERVENTIONS

- Medication - Benzodiazepines
- Anticholinergics (e.g. antivert, benadryl)
- Antiemetics (e.g. Phenergan, Compazine)
- Appropriate IV hydration
- Further testing when indicated, e.g. blood work, head CT, Brain MRI
- Consultation as indicated
- Advance diet and ambulate as tolerated

DISPOSITION

Home

- Acceptable vital signs
- Able to ambulate and care for self safely in home environment
- Able to take PO medications

Hospital

- Unacceptable vital signs or clinical condition (e.g. stroke)
- Significant lab or Xray abnormalities
- Unable to take PO meds or care for self in home environment
- Unable to ambulate as well as before vertigo