Abdominal Trauma - Blunt

Inclusion Criteria:
- Blunt Abdominal Trauma
- Cooperative patient
- Stable Vital Signs (RR>8 or <24, SBP>100, P>60 or <110)
- No Peritoneal Signs
- If done - negative initial imaging studies (AAS, CT Abdomen/Pelvis)
- Pertinent labs acceptable (e.g., HgB)

Exclusion Criteria:
- Uncooperative patient, patients requiring restraints
- High suspicion of impending alcohol withdrawal syndrome
- ETOH estimated <200 mg/dL at the time the patient is sent to Observation Unit (initial ETOH can be >200 mg/dL)
- Pregnancy >20 weeks

Interventions in ED prior to Observation Unit transfer:

Trauma Team consult
CBC, U/A (if urine is heme positive)

Interventions in Observation Unit after transfer of patient:
- NPO (unless Trauma Team orders differently) initially, advance per physician.
- Repeat HgB q 4-6 hours (if pertinent to patients management)
- Examination by Observation Unit ECP before, or upon, patient arrival.
- Serial abdominal examinations (e.g.., q 4 hours)- immediate reevaluation by Emergency Physician and/or Trauma Team if the patient develops:
  - Vomiting
  - Increasing abdominal pain
  - Peritoneal signs/increased tenderness on examination.
- Routine monitoring of vital signs- immediate reevaluation by Observation Unit ECP (and/or Trauma Team) if vitals become unstable or if there is a worsening trend.

Discharge Criteria:
- Patient is ambulatory, not ataxic
- Serial abdominal exams essentially negative
- Pertinent laboratories deemed stable (e.g.., HgB without significant decrease)
- Vital signs remain stable
- Patient able to tolerate PO (level/advancement of diet per Trauma Team recommendations)
- Appropriate follow-up has been established
- If consulted - Trauma Team agrees with discharge and follow-up plan

ATRIAL FIBRILLATION - NEW ONSET

TRANSFER CRITERIA

Stable BP, HR under 110 consistently for one hour (with treatment)
No chest pain with rate controlled
No evidence of acute comorbidities - MI, CHF, PE, CVA, etc.
Onset less than 48 hours
Cardiologist agrees with plan to observe

EXCLUSION CRITERIA

Unstable BP, HR not controlled under 110 with EC meds
Ongoing ischemic chest pain
Significant comorbidities - Evidence of Acute MI, CHF, PE, Sepsis, CVA / embolic event, etc.
Chronic Atrial Fibrillation. Onset over 48 hours or unknown
Cardiologist or ECP chooses inpatient admission

EC OBSERVATION UNIT INTERVENTIONS

Cardiac and ST segment monitoring
Vitals Q 2 hours
Anticoagulate if not contraindicated - PO ASA (325 mg), Heparin (5,000 units IV push, then 1,000 units/hr by IVAC).
Rate control Options - PO Digoxin, PO Verapamil, PO beta blockers
Testing - CKMB and Troponin i at 3,6, & 9 hrs from arrival in EC
- TSH, 2D Echocardiogram, pulse ox or ABG
Educate patient on cardioversion (medical or electrical) if initial obs treatment fails within 12 hours. Cardioversion to occur outside of Observation Unit (Cat I or IP unit).
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 rule out
Stable condition
Discuss home medication therapy with cardiologist

Hospital

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

ALLERGIC REACTION

TRANSFER CRITERIA

Allergic Rx with response to therapy
Local skin eruptions or skin breaks
All patients with significant generalized reaction
Swelling face, neck or hand
Mild respiratory problems
No EKG changes (if done)

EXCLUSION CRITERIA

Hypotension, significant tachypnea
Pulmonary complications or SPO2 < 92%
EKG changes (if done)
Stridor, respiratory distress
Significant ongoing upper airway involvement

OBSERVATION UNIT INTERVENTIONS

IV fluids as needed
Antihistamines
IV corticosteroids
Cardiac monitoring (if indicated)
Respiratory treatments (if indicated)
Pulse oximetry monitoring (if indicated)
Repeat doses of subcutaneous epinephrine (1:1,000 - 0.2-0.3mg)

DISPOSITION

Home - Improvement in clinical condition
Stable VS
Resolution or improvement in local skin irritations and/or respiratory function

Hospital - Delayed reaction or reoccurrence
Significant respiratory problems persistent wheezing or stridor
Inability to take po medications
Unstable vital signs - systolic BP < 100mm Hg and/or RR > 24/min persistently

ABDOMINAL PAIN - RULE OUT APPENDICITIS

Observation Unit Transfer Criteria

Abdominal pain - periumbilical, RLQ
Stable VS
Ancillary Signs/Sx - anorexia, N&V, fever, elevated WBC (any pt. may have some or all)
MANTRELS score less than 6

Exclusion Criteria

Previous appendectomy
Unstable VS
Immunocompromised patient
Pregnant pt., ectopic pregnancy
Bowel obstruction
Surgical abdomen - free air, rigidity, rebound tenderness, new mass

Observation Unit Interventions

NPO, IV hydration, repeat CBC, radiology/ultrasound studies (prn)
Serial VS, serial exams, MANTRELS Score* q-2-h
Surgical consultation as needed
Pain medication prn

Disposition

Home:
- Pain resolved or significantly improved
- VS stable
- *MANTRELS Score remains same or decreasing
- Work-up negative

Admit:
- Persistent vomiting,
- Pain not resolving/worsening
- Develops surgical abdomen
- Unstable VS
- *MANTRELS Score rising
- Positive finding on work-up that requires further treatment or investigation

*** MANTRELS Score:**

(Trend over time more valuable than any single score.)

Number of Points for each:	**SCORE:**
Migration (**1**) **A**norexia-**A**cetone (**1**) **N**&V (**1**) RLQ **T**enderness (**2**) **R**ebound (**1**) **= EXCLUSION FROM OBS.** **E**levation of temp (**1**) **L**eukocytosis (**2**) **S**hift to left (**1**)	5-6 consider appendicitis, 7-8 appendicitis likely, 9-10 appendicitis probable.

The MANTRELS Score was first proposed by Dr. Alfredo Alvarado in an Annals article in 1986. Looking retrospectively at patients with abdominal pain who were ultimately diagnosed with or without appendicitis he was able to develop a score based on 8 findings. These findings were as follows:

- **M**igration of pain - usually begins periumbilical, migrates to RLQ
- **A**norexia - **A**cetone - pts. with appendicitis will typically have no appetite and may show ketones in the urine
- **N**&V - often seen, relatively sensitive, not specific
- **T**enderness - most typical in RLQ over McBurney's point
- **R**ebound - indicative of peritoneal irritation common to appendicitis
- **El**evation of temperature - low grade fever is typical
- **L**eukocytosis - WBC > 10,000 tended to be sensitive with a good positive predictive value but very non-specific
- **S**hift to Left - like leukocytosis it is seen but is not very specific

In two abstracts published in the Annals by Louis Graff the Alvarado scoring system for appendicitis was found to be most predictive in those groups of patients who had a higher prevalence of appendicitis. In a group with a relatively low incidence of appendicitis, say 8%, a MANTRELS Score of 5 is modestly predictive of appendicitis. However, in a group of patients in whom the prevalence of appendicitis is high, say 20%, then the same MANTRELS Score of 5 predicts appendicitis with great accuracy. Graff developed a nomogram based on disease prevalence and MANTRELS Score. The problem is determining what prevalence group any single patient belongs to at the time you are examining that patient. In an additional study by Graff he found that over time those patients with appendicitis most typically had a rising MANTRELS Score. Those patients found not to have appendicitis most often had a falling score. It is felt that a single score for a patient has far less predictive use as opposed to a trend. A rising score tends to be associated with appendicitis regardless of the prevalence group a patient may belong to and would likely be the most valuable contribution this scoring system could add to the evaluation of appendicitis in the Observation Unit.

References:

Alvarado A. A practical score for the early diagnosis of acute appendicitis. *Ann Emerg Med.* 1986;15:557-564.
Graff LG, Radford MJ. Probability of appendicitis nomogram. *Ann Emerg Med.* 1990;19:607-608.
Graff LG, Radford MJ. Abdominal pain: Threshold to observe affects emergency physician diagnostic performance. *Ann Emerg Med.* 1990;19:486-487.

ASTHMA

Transfer Criteria

Acceptable VS
Intermediate response to therapy - improving but still wheezing
Peak Flow 40-70% of predicted (if reliable)
Fair to good air exchange
Alert and oriented
Patients should receive at least 2 nebulized bronchodilator treatments and steroids prior to transfer to Obs Unit.

Exclusion Criteria

Unstable VS or clinical condition
Poor response to therapy
Elevated pCO2 (if done)
Pulse-ox < 90 on room air after initial treatment
Peak Flow < 40% predicted value after initial treatment (if reliable)
Persistent use of accessory muscles, RR>40 after initial treatment
Lethargy
Toxic theophylline level
New EKG changes

Potential Intervention

Nebulized bronchodilator therapy
Systemic steroids
Chest X-ray
Pulse oximetry, ABG□s
Frequent Reassessment
Oxygen
TMS monitoring as needed

Disposition

Home -
Acceptable VS
Resolution of bronchospasm or return to baseline status
Peak flow > 70% predicted
Pulse os > 94% on room air

Hospital -
Progressive deterioration in status
Failure to resolve bronchospasm within 18 hours
Co-existent pneumonia
CO2 Retention
Persistent Peak flow < 70% of predicted (if reliable)
Unstable VS
Pulse-ox < 90% on room air

BACK PAIN

TRANSFER CRITERIA

Back pain without significant trauma (i.e., strain)
Normal x-ray (if obtained)
Inability to ambulate because of pain
Inability to control pain by po medications
Normal neurological exam
No bowel or bladder control problems
R/O metastatic disease if appropriate
No paraspinal mass

EXCLUSION CRITERIA

Back pain with significant trauma
Abnormal x-rays (if obtained) (burst fracture, spine canal involvement)
Abnormal neurological exam (motor)
Bowel or bladder control problems
Metastatic disease
Fever

OBSERVATION UNIT INTERVENTIONS

Serial exams
Parenteral analgesics
Physical therapy (assessment)
Consultation as needed – PMR, Ortho, continuing care nurse

DISPOSITION CRITERIA

Home -
- Ability to tolerate pain on po medication
- Ability to ambulate and care for self at home or continuing care arrangements made
- No change in neurologic exam

Hospital -
- Inability to tolerate pain on po medications
- Inability to ambulate or care for self at home
- Change in neurological exam

CELLULITIS

Transfer Criteria

H&P consistent with cellulitis, requires > 1 dose antibiotics
Fever < 40°C, WBC < 20,000
Uncomplicated periorbital cellulitis

Exclusion Criteria

Septic or toxic appearance, pt. immunosuppressed, temperature > 40°C
Cellulitis involves true orbit, upper lip/nose, neck, or > 9% TBSA
Extensive tissue damage, sloughing, cellulitis secondary to a deeper process (abscess, osteomyelitis, deep wound infection)
Patient unable to care for self at home
Patient already failed outpatient treatment
Patient can be discharged after 1 dose of antibiotics

Observation Unit Interventions

IV antibiotics *, analgesics on prn basis
Teaching patient cellulitis management at home
Home care consultation for cellulitis management home care
Mark edges of cellulitis with indelible marker as reference point
Pertinent labs (CBC, glucose, blood cultures, wound cultures if indicated)

Disposition

Home:
- WBC stabilized (if performed)
- Improved clinical condition, temperature not rising over 8 hours
- Able to perform cellulitis care at home, home care arranged as necessary, able to take oral medications**
- Area of cellulitis not enlarging

Admit if:
- No response to IV therapy, rising WBC
- Increase in skin involvement
- Temperature not reduce or rising
- Unable to take oral medications
- Unable to care for wound at home, home care unavailable

***** Suggested **IV** agents: cefazolin, nafcillin, vancomycin, clindamycin, ampicillin/sulbactam, ceftriaxone, ticarcillin/clavulanate.

****** Suggested **oral** agents: cephalexin, clindamycin, erythromycin, ofloxacin (not ciprofloxacin), or amoxicillin/clavulanate. (ampi/sulbact. in diabetic pts. or cat/dog bites, erythro. in non-diabetics

CHEST PAIN OBSERVATION

TRANSFER CRITERIA

Clinical suspicion that risk of MI is **low (< 6%)** (Goldman algorithm)
Chest discomfort is potentially cardiac ischemia (Based on risk factors / discomfort)
Normal EKG, or concurrence with cardiologist / PMD
Acceptable vital signs
No history of known coronary artery disease, or concurrence with cardiologist /PMD

EXCLUSION CRITERIA

Clinical suspicion that risk of MI **is over 6%** (Goldman algorithm)
EKG which shows evidence of MI or clearly acute injury/ischemia pattern
Unstable vital signs
Clear Unstable Angina by history (i.e. known CAD, Sx like prior angina/MI)
Chest pain is clearly not cardiac ischemia
Private attending chooses IP admission

INTERVENTIONS

Initial EC intervention:

- IV (heplock?), O2, TMS monitor hook up, initial EKG, CXR, NO caffeine.
- If not contraindicated, give Aspirin 325mg PO, (consider Maalox 30cc PO).
- Appropriate nitrates (physician discretion) - NTG SL prn, NTP, or Nitrobid.
- Send initial biomarker(s) - CPK-MB, possibly Myoglobin or Troponin T.
- ECP speaks with PMD, or CPC cardiologist, choose stress test option.

EC Observation Unit interventions:

- Call lab to add myoglobin to initial blood drawn in EC
- Continue IV (heplock ?), O2, TMS (ST segment) Monitor, Nitrates, No caffeine.
- Send patient to obtain initial resting scan if ordered.
- Perform EKG based on clinical suspicion or ST monitor alert. Show ECP / PA stat.
- Protocol = **Time 0 and 4 hour ECG, CK-MB, and Myoglobin**
- **If all tests are negative => appropriate stress test**

If abnormal CK-MB, or ECG => admit
IF **(a)** No stress test planned, **(b)** ONLY myoglobin is elevated,
(c) 0 to 4hr CK-MB /Myoglobin doubled, or **(d)** 4 hour tests are missed:
Time 8 hour ECG, CK-MB, TnT

If all tests are negative => appropriate stress test

If abnormal EC-MB, TnT, or ECG => admit

DISPOSITION

Home - Acceptable VS
Normal biomarkers
Unremarkable Stress Test
No significant EKG changes

Hospital - Unstable VS
Positive biomarker
EKG changes
Significant Stress Test abnormality
ECP / PMD clinical discretion

CONGESTIVE HEART FAILURE

TRANSFER CRITERIA

Previous history of CHF
Acceptable VS – BP > 100/60, R < 32, P < 130
Pulse-ox 85% on room air, correctable to > 90 on Oxygen
High likelihood of correction to baseline status within 24 hours – consider discussion with PMD

EXCLUSION CRITERIA

Unstable VS
New onset CHF
Associated unstable angina, COPD, MI sepsis, pneumonia, new murmur, confusion
EKG changes
Severe anemia (Hb<8)
New arrhythmia
Respiratory failure, intubation

POTENTIAL INTERVENTION

TMS monitoring
Oxygen per respiratory guidelines
Serial exams, vital signs, EKG's, cardiac enzymes, and pulse-ox checks
Medication – diuretics, vasodilators, ACE Inhibitors, Inotropic
Consider stopping medications with negative inotropic effects

DISPOSITION

Home - Acceptable VS
Return to baseline status
Pulse-ox > 90 on room air unless previously on home oxygen
EKG unchanged from baseline
No chest pain or dyspnea at rest

Hospital - Worsening respiratory status
New EKG changes, arrhythmia, or ischemia
Persistent hypoxia, rales, dyspnea
Failure to return to baseline status within 18 hour time frame

*The above criteria are guidelines only and are subject to physician discretion

DEHYDRATION

TRANSFER CRITERIA

Acceptable VS
Mild to moderate dehydration
Self-limiting or treatable cause not requiring hospitalization
Mild to moderate electrolyte abnormalities (if done)
Hyperemesis Gravidarum

EXCLUSION CRITERIA

Unstable VS
Cardiovascular compromise
Severe dehydration
Severe electrolyte abnormalities
Associated cause not amenable to short term treatment: bowel obstruction, appendicitis, bowel ischemia, DTs, DKA, sepsis, etc.

PONTENTIAL INTERVENTION

IV hydration (D5LR if hyperemesis gravidarum)
Serial exams and VS
Antiemetics

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

Uncomplicated Deep Vein Thrombosis

Transfer Criteria

- Hemodynamically stable – acceptable vitals, pulse ox.
- No evidence of thromboembolic complications (ie PE)
- Confirmed DVT – no exclusion criteria, candidate for home enoxaparin
- Unfractionated heparin started in EC

Exclusion Criteria

- Clinical evidence of a Pulmonary Embolus (By V/Q scan or chest CT)
- Known hypercoagulable or bleeding disorder (Antithrombin III deficiency, Protien C or S deficiency, polycythemia including history of heparin induced thrombocytopenia)
- High risk of bleeding complications – active GI bleeding, major surgery or trauma within 2wks, recent intracranial bleed, recent head injury / tumor / AVM.
- Hemodialysis / CAPD chronic renal failure
- Social: inability to care for self or follow up, prolonged admit likely
- Age < 18
- Pregnancy
- Prosthetic heart valve
- Weight > 150kg (330 lbs)

Interventions

Send PT/INR, PTT, Cr - if not done in the EC

Pharmacy consult for dosing / dispensing Enoxaparin and Coumadin:

Enoxaparin:

- 1.5 mg/kg subcutaneous Q24hr (until INR=2-3) for day time sched (8am – 4pm). If day schedule is in 12 hours, give first enoxaparin 1mg/kg to last 12 hours. Nurse to administer enoxaparin.
- IV Heparin is stopped at time of SQ enoxaparin.(heparin is contraindicated after SQ enoxaparin).

Warfarin (Coumadin):

- Order first dose of warfarin 7.5 or 5mg PO at least 3 hours after enoxaparin or heparin is started.
- Pharmacist to label/ dispense for home use: enoxaparin SQ x 5 days, warfarin 2.5mg PO #30.

Nurse to educate patient – DVT, anticoagulation, signs / Sx to report or return to EC

Consult Continuing Care / ATO nurse to:

- Schedule Beaumont Home Care - BHC provides daily monitoring,enoxaparin SQ injection, fingerstick INR, and calls INR result to Pharmacy-AMS (pager 922-3696) for warfarin dose (INR goal 2 – 3)
- Verify plan with responsible followup physician.

Monitor 12hrs for bleeding or thromboembolic (ie PE) complications prior to discharge.

Disposition:

Home

Acceptable VS
No evidence of PE
Uncomplicated DVT (no thromboembolic or bleeding events)
Adequate home care / support available
Medical follow up (as above)

Hospital

High risk DVT or PE identified
Unacceptable vital signs
Bleeding problems with heparin started
Home treatment not feasible

EXACERBATION OF COPD

Transfer Criteria

Initial therapy of at least 10 mg total Albuterol aerosol, steroids, and CXR
Acceptable VS
Intermediate response to therapy - improving but still dyspneic, considered to be at High probability for further improvement and discharge home
Fair to good air exchange
Alert and oriented
CXR without apparent acute process
No indication of impending respiratory fatigue

Exclusion Criteria

Unstable VS or clinical condition
Poor response to therapy
Uncompensated elevation of pCO2 or evidence of CO2 narcosis, lethargy
Pulse-ox < 85 on 2 L oxygen or less after 10mg aerosolized Albuterol
Persistent use of accessory muscles, RR>40 after initial treatment
Pneumonia
Toxic theophylline level
New EKG changes

Potential Intervention

Nebulized bronchodilator therapy
Systemic steroids
Pulse oximetry, ABG□s, Oxygen
Frequent Reassessment
TMS monitoring as needed
Chest PT
Hydration
Antibiotics if indicated

Disposition

Home - Acceptable VS
- Resolution of bronchospasm or return to baseline status
- Pulse-ox > 90% on room air or home FIO2

Hospital - Progressive deterioration in status, Unstable VS
- Failure to resolve bronchospasm within 18 hours
- Co-existent pneumonia or CHF
- Uncompensated pCO2 Retention
- Persistent peak flow below patient□s baseline
- Pulse-ox < 90 % on room air or home FIO2

HEADACHE

TRANSFER CRITERIA

Persistent pain in tension or migraine headache
Hx of migraine with same aura, onset, location and pattern
No focal neurological signs
Normal CT scan (if done)
Normal LP (if done and may be kept post normal LP)
Drug related headache

EXCLUSION CRITERIA

Focal neurologic signs
Meningismus
Elevated intraocular pressure as cause (glaucoma)
Abnormal CT scan
Abnormal LP (if performed)
Hypertensive emergency (diastolic BP > 120 with symptoms)
Tender temporal artery and/or grossly elevated ESR (if done)
Blocked VP shunt

OBSERVATION UNIT

Serial exams including vital signs
Analgesics

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

Acceptable Vital Signs
Normal CT Scan of brain
Simple skull fracture
Headache, dizziness, vomiting, confusion, amnesia for injury are acceptable
Alcohol or drug intoxication associated with head injury if patient is cooperative.
-alcohol level should be <100 for intoxicated patients
Basilar skull fracture if neurosurgery consult does not result in admission

Exclusion Criteria

Unstable VS
Abnormal CT Scan of brain
Depressed skull fracture
Penetrating skull injury
Focal neurologic abnormality
Uncooperative patient, restraints, or sitter required
Acute psychiatric disorder, suicidal patient

Potential Intervention

Serial neurologic exams including vital signs every 2 hours
Analgesics
Antiemetics
Neurosurgical consultation if indicated
Repeat CT scan if indicated

Disposition

Home - Acceptable VS
Normal serial neurologic exams

Hospital - Deterioration in clinical condition
Development of any exclusion criteria

HYPERTENSIVE URGENCY

Transfer Criteria

- Acceptable VS
- BP<250/130 after initial treatment (nifedipine, labetol, clonidine, etc.)
- Normal mentation
- Asymptomatic or without evidence of end-organ injury

Exclusion Criteria

- Unstable VS
- BP>250/130 after initial treatment
- Evidence of end-organ injury: retinal hemorrhage, papilledema, CHF, acute renal failure, cardiac ischemia or intracranial hemorrhage, hypertensive encephalopathy, CVA, aortic dissection, focal neurologic abnormalities
- New EKG changes
- Eclampsia
- Anti-hypertensive drip required for control of BP

Potential Intervention

Anti-hypertensive medications
Serial VS and neurologic exams
TMS monitoring
Pulse oximetry as needed

Disposition

Home - Acceptable VS
BP<200/110
Asymptomatic
Outpatient treatment and follow-up arranged

Hospital - Development of any exclusion criteria
Symptoms worsen or persist
BP>200/110

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
Greater than moderately dehydrated

Observation Unit Interventions

IV - D/5-L/R at 250 cc/hr until urine ketones clear, then 150 cc/hr
Diet - ice chips advanced to clear fluids, dry diet when tolerate fluids
Tigan 200mg IM q-6-h prn, Compazine 5-10mg IV or IM q-6-h prn, Zofran 4mg q6-hprn, Phenergan 12.5-25 mg IV q-6-h prn
Dietary counseling

Disposition Criteria

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 ECP chooses admission

HYPOGLYCEMIA

TRANSFER CRITERIA

Blood sugar below 40 mg% pre Rx (if obtained) and 80 post Rx
Symptoms ameliorated with administration of glucose
Type I or Type II Diabetes

EXCLUSION CRITERIA

Intentional overdosage of hypoglycemic medications
Use of long acting oral hypoglycemic agent such as diabeta
Insufficient change in symptoms with administration of glucose
Fever, hypothermia (T < 35□ C or T > 38□ C)
Requirement of D5-D10 drip

OBSERVATION UNIT INTERVENTIONS

Dietary food tray
Serial exams and vital signs
IV hydration, K administration or electrolytes as indicated
Serial lab - repeat glucose as indicated
IV Glucose administration for hypoglycemic glucose
Diabetic counseling as needed

DISPOSITION CRITERIA

Home	Resolution of symptoms
	Capable adult supervision
	Blood sugars over 80 mg%
	Resolution of precipitating factor
Hospital	Deterioration of clinical signs
	Persistent deficits in neurological
	Blood sugars < 80mg

Observation Unit Protocol - Hyperglycemia

Admission Criteria

- Blood sugar > 300mg%, < 600mg%
- Normal to near normal pH and electrolytes
- Readily treatable cause (i.e. medication non-compliance, UTI, abscess)

Exclusion Criteria

- DKA (pH < 7.20, total CO_2 < 18, elevated serum acetone)
- Hyperosmotic non-ketotic coma
- Blood glucose > 600mg%
- Precipitating cause unknown or not readily treatable

Observation Unit Interventions

- IV hydration, 0.9NS at 150-250 cc/hr
- Change IV to D/5-0.45NS when glucose < 250mg%
- Green top serum glucose q-1-2-h, green room panel (Na, K, Glc, Hgb) q-4-h
- Regular Insulin 0.1units/kg/hr by infusion or IVP, titrate to blood glucose
- Treat precipitating cause (antibiotics, I&D abscess, etc.)
- Diabetic counseling

Discharge Criteria

- Blood glucose < 200-250mg%
- Resolution of symptoms
- Stable vital signs
- Successful treatment of precipitating cause
- Tolerating PO fluids

Admission Criteria

- Worsening symptoms
- Unstable vital signs
- Blood glucose uncontrolled, labile, remains > 250mg%
- Development of DKA
- Unable to tolerate PO fluids

Blood and Blood product transfusion

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 otherwise stable

OBSERVATION UNIT TREATMENT

IV started, IV hydration as needed
Type and Crossmatch sent if not previously done
Transfuse only leukocyte-reduced red cells or platelets per Nursing protocol - if not available a leukocyte-reduction filter (i.e., Pall or Sepacell) should be provided by the Blood Bank with the component to be transfused.
Repeat CBC following 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

TIME FRAME 4-12 Hours

Spontaneous Pneumothorax

[CASP (Aspiration of Pneumothorax)]

TRANSFER CRITERIA

- Diagnosis of simple pneumothorax (PTX) made in ED, CASP catheter placed
- CXR #2 * shows complete or substantial resolution of PTX (< 5-10%)
- Vital signs and pulse oximeter stable
- Patent tolerates CASP catheter without significant respiratory distress or pain
- CXR #1 and #2 accompany patient to Observation Unit (Obtain from EC or radiology if needed)

EXCLUSION CRITERIA

- Tension PTX
- PTX as result of trauma or fractured rib
- Unstable VS, hypoxia, respiratory distress
- Bleeding dyscrasia
- Underlying pulmonary disease (COPD, pulmonary fibrosis, asthma)
- Need for chest tube or pleurodesis

INTERVENTIONS

- Maintain CASP in place, vital signs q 2 hours
- CXR #3 - 4 hrs after CASP has been placed
  - If CXR #3 shows continued resolution or no worsening of PTX, then CASP catheter is removed by the EC physician
  - If CXR #3 shows worsening, attach CASP (or place chest tube) to pleurevac, ADMIT.
- CXR #4 - is obtained 2 hrs. after removal of the CASP catheter
  - If CXR #4 shows continued resolution or no worsening of PTX 2 hrs after removal of the catheter then repeat CXR (#5) in 12 hours.
  - If CXR #4 shows worsening, place CASP (or place chest tube) to pleurevac, ADMIT.
- CXR #5 – obtained 14 hours after CASP removal.
  - If CXR #5 shows continued resolution or no worsening of PTX 14 hrs after removal of the catheter then discharge home.
  - If CXR #5 shows worsening, place CASP (or place chest tube) to pleurevac, ADMIT.

DISPOSITION

- Home - CXR #3, 4, and 5 shows resolution or no change in PTX. No heavy lifting or physical activity, pain medications prn.

- Hospital – PTX worsens or reforms in any CXR, respiratory distress, or hypoxia.

* See flow sheet for CXR numbering and sequence

** The above criteria are guidelines only and are subject to physician discretion

PYELONEPHRITIS

TRANSFER CRITERIA

Vital signs and mentation otherwise stable when fever taken into account
Flank pain
Frequency, urgency, dysuria
Positive urinalysis for UTI (pyuria, nitrates, and/or leukocyte esterase)
Urine cultures obtained

EXCLUSION CRITERIA

Unstable BP, widening pulse pressure
Change in mentation
Underlying systemic disorder such as DM, renal failure, sickle cell
Immunosuppression
Anatomic abnormality to urinary tract or presence of stones
Males

OBSERVATION UNIT

Serial examination
IV fluid therapy
Antiemetics
Antipyretic
IV antibiotic
PO antibiotics

DISPOSITION CRITERIA

Home - Resolution or improvement of systemic symptoms
- Ability to take po medications
- Stable vital signs

Hospital - Worsening of systemic symptoms
- Inability to take po medications
- Unstable vital signs

RENAL COLIC

Transfer Criteria

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

Exclusion Criteria

Unstable VS
Associated fever, UTI, pyelonephritis, or sepsis
Relative - large proximal stone>5mm with high grade obstruction
Solitary kidney

Potential Intervention

IV Hydration
Parenteral narcotics, toradol
Parenteral antiemetics
Diagnostic tests - Delayed IVP films, ultrasound
Serial exams and vital signs
Strain urine, stone analysis, U/A if not yet done
Urology consultation

Disposition

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

Hospital - Persistent vomiting or uncontrolled pain after 16 hours
Diagnosis of coexistent infection
Change in diagnosis requiring further therapy or workup

RIB FRACTURES

TRANSFER CRITERIA

4 or fewer rib fractures (excluding 1st or 2nd)
Stable BP, RR<30, Pulse Ox>91% on no greater than 2L NC
Absence of PTX, Pulmonary contusion, widened mediastinum on CXR
Need for analgesia, pulmonary toilet
Consultation with Trauma Service

EXCLUSION CRITERIA

Hemodynamic instability, hypoxia on 2L NC
PTX, pulmonary contusion, wide mediastinum, pleural effusion
Thoracic/Gen surg want to admit
Significant other trauma (long bone fracture, head injury)
Abdominal pain/tenderness

EC OBSERVATION UNIT INTERVENTIONS

Vitals, pulse ox q2 hours
Analgesics
Pulmonary toilet, incentive spirometer instruction
Serial CXR (r/o PTX, contusion)
Trauma consult

DISPOSITION PARAMETERS

HOME

Stable vital signs
No evidence of PTX, Pulmonary contusion, Pneumonia
Adequate oxygenation on patients previous O_2 requirement
Pain controlled with oral medications
Adequate incentive spirometer usage

HOSPITAL

In adequate pulmonary toilet
Poor incentive spirometer usage
Intractable pain
Hypoxia(<91%) on base line O_2 requirement
Evidence of PTX, pulmonary contusion, pneumonia on repeat CXR

RULE OUT MYOCARDIAL CONTUSION

Transfer Criteria

Normal vital signs
Normal initial ECG (no new changes)
Monitor without significant arrhythmias
No other significant comorbidities
Non-displaced sternal fracture
Trauma surgeon, or senior surgical resident, agrees with plan to observe

Exclusion Criteria

Significantly abnormal vital signs
Significantly abnormal admission ECG (ie new ST or T wave changes, AV blocks)
Significant cardiac arrhythmias (i.e. frequent ventricular ectopy, tachy or brady arrythmias)
Evidence of an aortic tear (i.e. wide mediastinum on CXR)
Significant other injuries (i.e. Pelvic or c-spine fx, Hemothorax, significant pneumothorax, displaced sternal fracture, etc.)
ECP or trauma surgeon prefer admission

EC Observation Unit Interventions

Cardiac arrhythmia / ST monitoring
Vital signs (BP, P, R) at least every 2 hours
Spot pulse ox as indicated
2D Echocardiogram only as indicated
Repeat Chest Xray only as indicated
Comparison repeat ECG at the end of observation period
(Note - cardiac enzymes generally not indicated)

Disposition parameters

Home

No significant arrhythmias or ECG changes over time in unit
Stable condition, normal vital signs at time of discharge
If appropriate - pain controlled with oral analgesics

Hospital

Significant ECG changes, or arrhythmias
Unstable clinical condition
Uncontrollable pain
Surgeon or private attending choose admission

SEIZURES

Transfer Criteria

- Past history of epilepsy with breakthrough seizure, and subtherapeutic anticonvulsant level
- Observation of a head injury after a seizure with a normal neuro exam and Head CT
- New onset seizures with a normal neuro exam and Head CT scan
- If clinically indicated, obtain any of the following:
- lytes, BUN, Cr, glucose, glucose, Mg, drug levels, pulse ox, and EKG / monitor

Exclusion Criteria

- Status epilepticus
- Meningitis, positive LP
- CVA, SAH documented, or suspected but not ruled out in EC
- Brain mass (tumor, abscess, blood)
- Positive CT scan
- Delirium Tremens
- Seizures due to toxic exposure (i.e. theophyline or carbon monoxide toxicity)
- Abnormal labs not readily treatable in Observation Unit
- Persistent focal neurological findings
- New EKG changes or significant arrhythmia
- Seizures due to hypoxemia
- Pregnancy or eclampsia

Interventions in the Observation Unit

- Seizure precautions
- Serial MSQ, Neuro checks, and vital signs
- EKG monitoring
- Pulse oximetery as indicated
- Toxicological testing as indicated
- IV hydration
- NPO, or clear liquid diet as indicated
- Medications, including anticonvulsants, as indicated
- EEG testing as indicated
- New onset seizures - Neuro or Med consult (phone acceptable)

Disposition parameters

Home

- No deterioration in clinical status
- Therapeutic levels of anticonvulsants (if indicated)
- Correction of abnormal labs
- Appropriate home environment

Hospital

- Deterioration of clinical status - abnormal mentation, vitals, or neuro exam
- Rule in for exclusionary causes
- Inappropriate home environment
- Recurrent seizures or status epilepticus

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
Continuing care consult available within 4 hours
Patients' condition does NOT require extensive nursing care in Obs unit
(i.e. very debilitated, or highly demented)

Exclusion Criteria

Inability to place pt. within 18 hour time frame
Home Care social worker unable to provide timely consult to Obs. Unit
Clinical or physical condition requires stabilization as in-patient
Patients' condition requires a higher intensity of service than Obs nursing can provide in unit (i.e. 1 on 1 nursing)

Interventions

Consult Home Care
Monitor vital signs, labs
Contact PMD for admission should Home Care not be able to place pt. within 18 hours
Patient should not require restraints or a sitter
Contact ATO prior to transfer to 1NW

Disposition

Home - Home assistance arranged
Family refuses N.H. placement
N.H. not available and family willing to take pt. home
Hospital - Unable to obtain N.H. placement or home assistance
Pt.'s physical status changes, unstable vitals

SYNCOPE

TRANSFER CRITERIA

Minimal EC interventions - Completed H&P (including stool guiac), orthostatics, complete vitals, EKG/monitor, IV, initial labs (include CBC & CK-MB) drawn
Loss of consciousness less than 10 minutes (If known)
No EKG changes, bifascicular block (new or old), or significant diagnostic arrhythmia (including EMS rhythm strips)
If done - acceptable CBC, lytes, dextrostick
Stable vital signs except mild to moderate postural changes
No acute neurologic deficits
Stable respiratory status

EXCLUSION CRITERIA

Unstable vital signs
Loss of consciousness greater than ***10 minutes, apnea, cyanosis***
Significant injury (i.e. fracture, SDH). Lacerations acceptable.
Significant known cause - ***MI, PE, GI Bleed, sepsis, AAA, etc.***
Significant history of heart disease. ***Any prior MI*** by history or EKG
Abnormal ***cardiac enzymes*** (if done in EC)
Abnormal EKG - New changes, bifascicular block, significant arrhythmia (2nd or 3rd degree block, brady or tachy arrhythmia) in EC or on EMS rhythm strip.
Acutely ***abnormal neurological*** exam or abnormal CT of brain (if done)
Significantly abnormal ***labs***
Unsafe home environment if discharged

OBSERVATION UNIT INTERVENTIONS

Serial vital signs, cardiac and ST segment monitoring
CK-MB and Troponin i at 0, 4, & 8 hours from arrival in EC.
Hgb (not CBC) Q6 x2 hours in Obs
If available, 2D echocardiogram. Repeat EKG at the end of course in Obs.
Appropriate IV hydration
ONLY if indicated by history or exam (not routinely):
- PE work up - ABG, V/Q scan (Doppler if indicated)
- GI work up - GI or surg consult for scope after MI ruleout
- Cardiovascular work up - consult for tilt testing. Arrange for home holter or king of hearts monitor for additional 24 hours.
- Psychiatric - psych consult

DISPOSITION PARAMETERS

Home - Benign observation course
- Negative testing results
- Stable vital sign
- Acceptable home environment
- IF indicated and follow up available, home with King of hearts or DCG monitor for additional 24 hours

Hospital - Deterioration of clinical course
- Unstable vital signs
- Significant testing abnormalities
- Unsafe home environment

UPPER GI BLEED

Admission Criteria

Abnormal Hct/Hg Values
Previous GI history
History of dark stool (not bright red) in last 24-48 hours
No more than 2 episodes of bright red blood
Guaiac positive NG drainage
Transfusion
Scheduled Endoscopy procedure within 24 hours
GI consulted

Exclusion Criteria

Unstable VS
More than 2 episodes of bright red bleeding
Active bleeding
EKG Changes
Temperature > 102.5
Drop of Hct>10 in 4 hours
Orthostatic changes (SBP≥20; standing pulse >110)
History of coagatopathy or esophageal bleeding

CDU Interventions

Serial Hct/Hgb Q12 hours
Guaiac stools/emesis prn.
IV Hydration and medication (H2 blockers)
Frequent VS Q 2
I & O
Possible preps for Endoscopy Procedures
NPO
Lab - T&S, PT, PTT
GI consult

Disposition

Home - Normal or stabilized serial exams
    Stable VS
    No deterioration in clinical condition
    If endoscopy - no active bleeding site.
Hospital - Continual decrease in Hct/Hg valves
    Increase in bright red bleeding
    Deterioration in clinical condition
    Active bleeding by endoscopy

Time frame - 18 hour observation

VERTIGO

INCLUSION CRITERIA

History and physical consistant with peripheral vertigo
(Sudden, severe, maybe intermittent, nystagmus horizontal or rotary, positional, may be suppressed by visual fixation)
Acceptable vital signs
Normal cerebellar exam (heel - shin, or finger nose testing)
Normal cranial nerve exam (corneal reflex, EOM intact)
Normal HCT (if age > 68)

EXCLUSION CRITERIA

Acute hearing loss, double vision, neuro deficits
Severe headache or head trauma associated with vertigo
Significant vital sign abnormalities (ie tachy or bradyarrythmias, persistant hypotension)
Fever (Temp of 38 C oral or greater)
High clinical suspicion of central vertigo
History of drop attacks (VBI)

OBSERVATION UNIT INTERVENTIONS

Medication - Benzodiazepines (Ativan, Valuim -low dose)
Anticholinergics (Antivert, benadryl)
Antiemetics (Phenergan, Compazine)
Appropriate IV hydration
Testing - If persistant and severe vertigo, head CT.
- Consider blood work - CBC, lytes, BUN/CR, Glucose, Ca, Mg, Urine
Advance diet and ambulate as tolerated

DISPOSITION CRITERIA

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 (ie 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.