TCU Current Protocols

1. Abdominal Pain Protocol
2. Allergic Reaction Protocol
3. Asthma/COPD Protocol
4. Cellulitis Protocol
5. CHF Protocol
6. Dehydration Protocol
7. Chest pain Protocol
8. Community-acquired Pneumonia Protocol
9. Generic Protocol
10. Headache Protocol
11. Hyperglycemia Protocol
12. Hypoglycemia Protocol
13. Pyelonephritis Protocol
14. Renal Colic Protocol
15. Seizure Protocol
16. Syncope Protocol
17. TIA Protocol
18. Transfusion Protocol

EDOU ABDOMINAL PAIN PROTOCOL

1. Inclusion Criteria
    a. Stable VS
    b. Ancillary Signs/Sx - anorexia, N&V, fever, elevated WBC
    c. Negative pregnancy test
    d. Non-surgical abdomen
    e. High likelihood (~70%) of discharge within 15 hours
    f. Physician Discretion

2. Exclusion Criteria:
    a. Unstable VS (HR >110, SBP<100, RR > 22)
    b. Immuno-compromised patient (T-cells < 200, chemo, transplant)
    c. Pregnant patient
    d. Bowel obstruction (even partial) or ileus
    e. Acute Cholecystitis
    f. Surgical abdomen - free air, rigidity, rebound tenderness
    g. Hx of frequent ED visits for abdominal pain – suspected habitual patient / narcotic abuse

3. TCU Management
    a. Analgesics/ Antibiotics
    b. NPO, IV hydration, repeat CBC if indicated
    c. Serial VS
    d. Serial exams Q2-4 hours while awake and as indicated
    e. Surgical or GI consultation as needed

4. Disposition
    a. Discharge home:
        1. Pain and / or tenderness resolved or significantly improved
        2. VS acceptable
        3. No diagnosis requiring hospitalization
    b. Admission:
        1. Persistent vomiting
        2. Pain not resolving or worsening
        3. Unstable VS
        4. Clinical condition or positive testing that merits hospitalization
        5. Surgical abdomen

TCU ALLERGIC REACTION PROTOCOL

1. Inclusion Criteria
    a. Allergic reaction with response to therapy in ED
    b. Erythroderma, urticaria, or angioedema present
    c. If angioedema present, surgical airway deemed **highly** unlikely
    d. Minimum 1 hour of stability/improvement in ED after treatment
    e. Physician discretion

2. Exclusion Criteria:
    a. Stridor or respiratory distress at time of transfer to TCU
    b. Tachypnea, room air oxygen saturation <92%
    c. Hypotension
    d. EKG changes (if done)

3. TCU Management
    a. Vitals/reassessment Q4 hours
    b. If upper airway involvement, at least Q2H reassessments and documentation of clear airway
    c. IV fluids as needed
    d. Antihistamines
    e. Corticosteroids
    f. Respiratory treatments as needed
    g. Repeat doses of intramuscular epinephrine (1:1000 0.3mg IM)
    h. Continuous pulse oximetry and cardiac monitoring, as needed
    i. Epinephrine auto-injector education

4. Disposition
    a. Discharge home:
        1. Resolution or improvement in clinical condition
        2. Acceptable VS
        3. Provide Rx for oral antihistamines, steroids, and epinephrine auto-injector, as appropriate

    b. Admission:
        1. Delayed reaction or reoccurrence
        2. Persistent wheezing or stridor
        3. Persistently abnormal VS: SBP <100 or RR>24
        4. Inability to tolerate PO

TCU ASTHMA/COPD PROTOCOL

1. Inclusion Criteria
    a. Alert and oriented, acceptable vital signs (PO2>90, HR<100, RR<24, SBP>100)
    b. Intermediate response to therapy (ie. Improving but still wheezing)
    c. Beta 2 agonist nebs (3 treatments) + steroids given in the ED
    d. Minimum ED treatment time > 2.5 hours
    e. Chest X-ray with no acute findings (ie. Pneumonia, pneumothorax, CHF)
    f. Physician discretion

2. Exclusion Criteria:
    a. Unstable VS or clinical condition- severe dyspnea, confusion, drowsiness
    b. Poor response to initial ED treatment: Persistent use of accessory muscles, RR >28, or use of accessory muscles
    c. O2 sat < 90% on room air, unless documented chronic hypoxia
    d. Suspicion of ACS, new onset CHF, pneumonia

3. TCU Management
    a. Serial treatments with nebulized Beta 2 agonist q2-4 hr, and ipratropium q 6 hours
    b. IV Magnesium sulfate, as needed
    c. Steroids q4-6 hours
    d. Reassessment q4 hours
    e. BNP if needed
    f. Pulse oximetry, ABG, and oxygen with cardiac monitoring, as needed

4. Disposition
    a. Discharge home:
        1. Discharge on steroids, nebs with follow up and smoking cessation
        2. Acceptable VS- HR < 100, RR <20 after ambulation
        3. Pulse ox >95% on RA (or return to baseline on 02)
        4. Resolution of bronchospasm or return to baseline status

    b. Admission:
        1. Progressive deterioration in clinical status or VS
        2. Failure to resolve bronchospasm within 15 hours
        3. Hypoxic despite therapy, if not chronic state

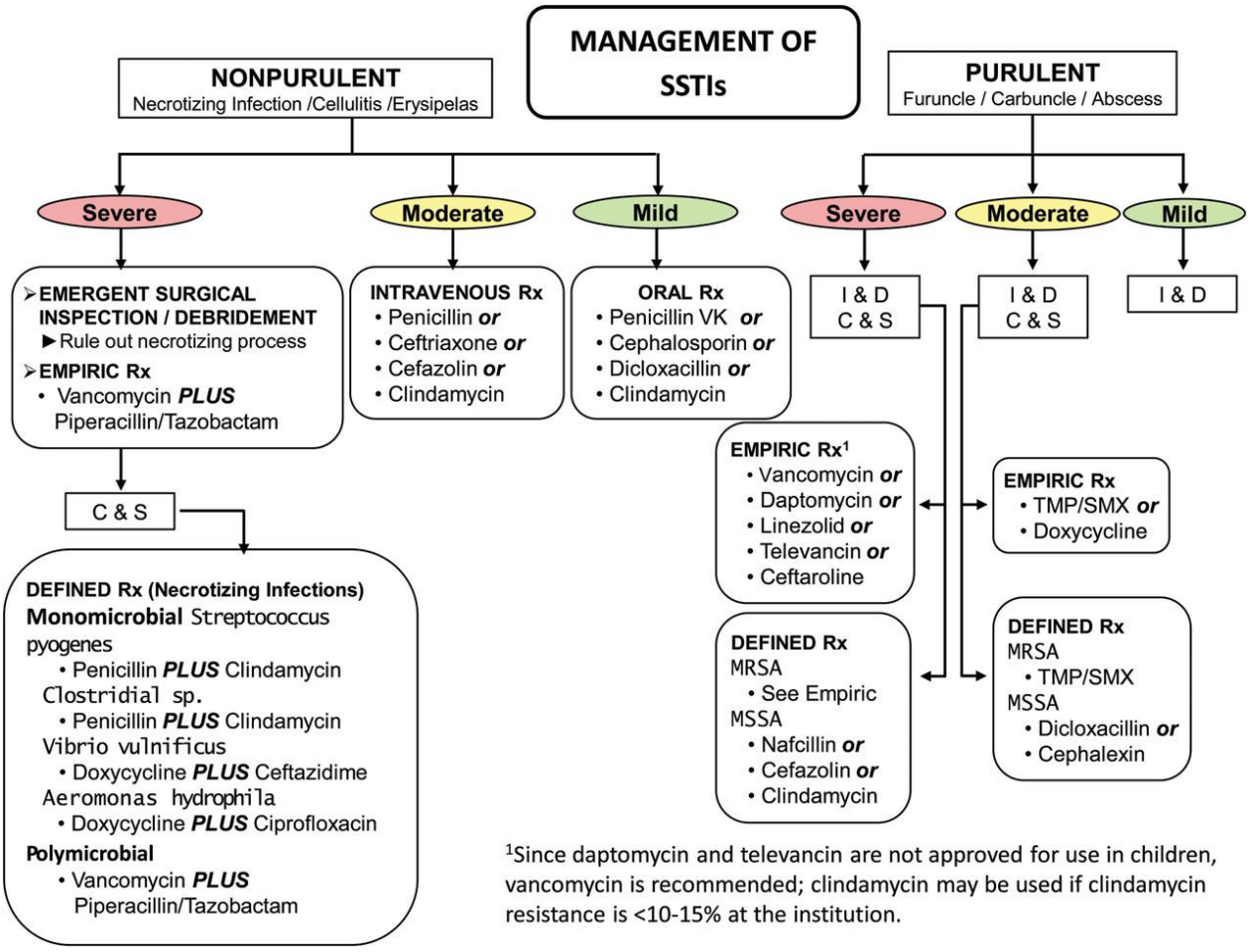
TCU CELLULITIS OBSERVATION PROTOCOL

1. Inclusion Criteria
    a. Adult patient (≥21 years of age)
    b. Physician discretion
    c. Moderate non-purulent ABSSSI per 2014 IDSA Guidelines
        1. Cellulitis/erysipelas with signs or symptoms of systemic infection

2. Exclusion Criteria:
    a. Mild infection – discharge home with oral antibiotics
    b. Severe infection ABSSSI per 2014 IDSA guidelines –
        1. Hemo-dynamically unstable
        2. Signs of severe sepsis or septic shock
        3. Immuno-compromised
        4. Involves peri-orbital or orbit, neck, or >9% TBSA
        5. Extensive tissue damage, sloughing
        6. Deeper process: extensive abscess, osteomyelitis, deep wound, suspicion of necrotizing fasciitis
        7. Patient unable to care for self at home
        8. Bite or puncture wound
        9. Diabetic wound infection
        10. Uncontrolled co-morbidities
        11. Need for surgical intervention

3. TCU Management
    a. Vitals q4
    b. Repeat CBC, BMP, Lactate in 6 hours
    c. 2nd dose of antibiotic
    d. Elevate effected extremity
    e. Consult case management

4. Disposition
    a. Discharge home:
        1. Normal vital signs
        2. Improved clinical condition, pain resolved or significantly improved
        3. No other diagnosis requiring hospitalization
        4. Able to perform wound care at home or home care arranged as necessary
        5. Tolerating adequate diet and able to take oral medications
        6. Adequate follow-up plan established (24-72 hours)
            1. PCP: Schedule follow-up appointment with PCP
            2. Insurance, no PCP: Consult case management to arrange follow up appointment with Family medicine
        7. No insurance and no PCP: Contact case management
    b. Admission:
        1. No response to IV therapy (increase pain or area of cellulitis, persistent fever, tachycardia, rising WBC count or lactate)
        2. Inability to take oral medications or fluids
        3. Unable to care for self, no home care



Purulent skin and soft tissue infections (SSTIs). Mild infection: for purulent SSTI, incision and drainage is indicated. Moderate infection: patients with purulent infection with systemic signs of infection. Severe infection: patients who have failed incision and drainage plus oral antibiotics or those with systemic signs of infection such as temperature >38°C, tachycardia (heart rate >90 beats per minute), tachypnea (respiratory rate >24 breaths per minute) or abnormal white blood cell count (>12 000 or <400 cells/μL), or immunocompromised patients. Nonpurulent SSTIs. Mild infection: typical cellulitis/erysipelas with no focus of purulence. Moderate infection: typical cellulitis/erysipelas with systemic signs of infection. Severe infection: patients who have failed oral antibiotic treatment or those with systemic signs of infection (as defined above under purulent infection), or those who are immunocompromised, or those with clinical signs of deeper infection such as bullae, skin sloughing, hypotension, or evidence of organ dysfunction. Two newer agents, tedizolid and dalbavancin, are also effective agents in SSTIs, including those caused by methicillin-resistant *Staphylococcus aureus*, and may be approved for this indication by June 2014. Abbreviations: C & S, culture and sensitivity; I & D, incision and drainage; MRSA, methicillin-resistant *Staphylococcus aureus*; MSSA, methicillin-susceptible *Staphylococcus aureus*; Rx, treatment; TMP/SMX, trimethoprim-sulfamethoxazole.

TCU CHF PROTOCOL

1. Inclusion Criteria
    a. Vital signs: SBP >120, HR < 130 , RR < 32 and not requiring noninvasive ventilation at time of EDOU
    b. Known history of CHF
    c. Pulse ox >90% on RA after initial treatment
    d. No acute comorbidities
    e. High likelihood of correction to baseline within 24 hours
    f. Physician discretion

2. Exclusion Criteria:
    a. New onset CHF
    b. EKG – ischemic changes
    c. Lab abnormalities: Creatinine >3, Na <130 ,Hgb <8, Troponin >0.01, Required vasoactive infusion
    d. Evidence of poor perfusion (altered mental status, cool extremities)
    e. Acute comorbidities (sepsis, pneumonia)
    f. CRF requiring dialysis
    g. CXR: infiltrates
    h. Fever > 101.3

3. TCU Management
    a. Observation management
        1. Repeat Troponin at 3 and 6 hours
        2. Repeat EKG at 6 hours
        3. Repeat electrolytes at 6 hours
        4. Ejection fraction, measured by echocardiography, unless systolic HF is known, or diastolic HF was diagnosed within 6 months
        5. Sleep apnea evaluation
            1. STOP Bang form
        6. Device Interrogation
        7. Cardiology (HF) -
            1. Heart Failure consult required for any RWJMG or unassigned patients
            2. Established cardiologist – phone discussion
            3. No established cardiologist, but PMD – HF consult required by cardiologist requested by PMD, if none RWJMS Heart failure consult
        8. Case Management – discharge planning /tracking for all patients
        9. CHF education (skylight tablet , in person)

4. Disposition
    a. Discharge home:
        1. Subjective improvement: no CP, orthopnea or DOE above baseline
        2. Negative troponins
        3. Stable electrolytes
        4. Room air O2 saturation >94 unless on home O2
        5. Vital Signs: HR <100, SBP >100 or baseline, RR <20
        6. Total urine output >1000 cc and no new decrease in urine output below 30 cc/hr (or <0.5 cc/kg/hr)
        7. Echo results reviewed and within acceptable parameters for patient
        8. Follow up within 7-10 days (may be adjusted - sooner based on consult)
        9. CHF education
        10. Physician discretion

    b. Admission:
        1. Persistent hypoxia, rales, dyspnea
        2. No subjective improvement
        3. Inadequate diuresis
        4. Positive troponin or EKG changes
        5. Poor home support
        6. Physician judgment

TCU DEHYDRATION PROTOCOL

1. Inclusion Criteria
    a. Self-limiting or treatable cause not requiring hospitalization
    b. Mild to moderate electrolyte abnormalities
    c. Evidence of dehydration- vomiting/diarrhea, high BUN/Cr ratio, orthostatic changes, poor skin turgor, high urine specific gravity, hemo-concentration, etc. (hyperemesis gravidarum)
    d. Physician discretion

2. Exclusion Criteria:
    a. Dehydration is not clearly present
    b. Persistent unstable VS (hypotension and tachycardia)
    c. Cardiovascular compromise
    d. Severe (>15%) dehydration
    e. Severe electrolyte abnormalities (K > 5.2, < 2.8; Na >148, <130)
    f. Associated cause no amenable to short term treatment:
        1. Bowel obstruction, appendicitis, bowel ischemia, DTs, DKA, sepsis, etc.

3. TCU Management
    a. IV hydration as dictated by clinical senario
    b. Anti-emetics
    c. Serial exams, monitor intake and output, vital signs q4hr

4. Disposition
    a. Discharge home:
        1. Acceptable VS
        2. Resolution of symptoms, able to tolerate oral fluids
        3. Normal electrolytes

    b. Admission:
        1. No improvement/inability to tolerate at 18 hours
        2. Unstable VS (persistent tachycardia, hypotension systolic <100)
        3. Associated cause found requiring hospitalization

TCU LOW RISK CHEST PAIN PROTOCOL

1) Inclusion Criteria
   a) Complaint consistent with potential ACS
   b) Initial Troponin normal
   c) Initial EKG without signs of ischemia
   d) HEART score 0-6
   e) Initial ED evaluation fails to determine definitive etiology for chest pain
   f) Physician discretion

2) Exclusion Criteria:
   a) Symptoms that are not suggestive of ACS
   b) EKG with signs of ischemia (proceed with appropriate protocol)
   c) Positive Cardiac Markers (proceed with AMI protocol)
   d) Co morbidities requiring admission regardless of presence of ACS
   e) Continued significant chest pain
   f) HEART score of 7 or greater

3) TCU Management
   a) Admit to TCU
   b) Cardiology consult
      - Discuss case with primary cardiologist
      - Discuss case with primary physician and get cardiologist for consult
      - Call UCG cardiology if no primary physician or cardiologist
   c) Calculate HEART score
      - HEART score of 0-3
        - ♦ serial troponins q3h x2, repeat ECG and discharge
      - HEART score 4-6
        - ♦ serial troponins q3h x2, repeat ECG and provocative test
   d) Provocative testing
      - Exercise Stress test
      - Lexiscan – if unable to complete exercise
      - Discharge home if outpatient stress test can be arranged within 48 hours.

4) Disposition
   a) Discharge Home:
      - Negative troponins x3
      - Negative provocative testing
      - Outpatient follow up
   b) Admission:
      - Positive troponins
      - Recurrent chest pain unrelieved by standard treatments
      - Positive provocative testing

EDOU CAP PROTOCOL

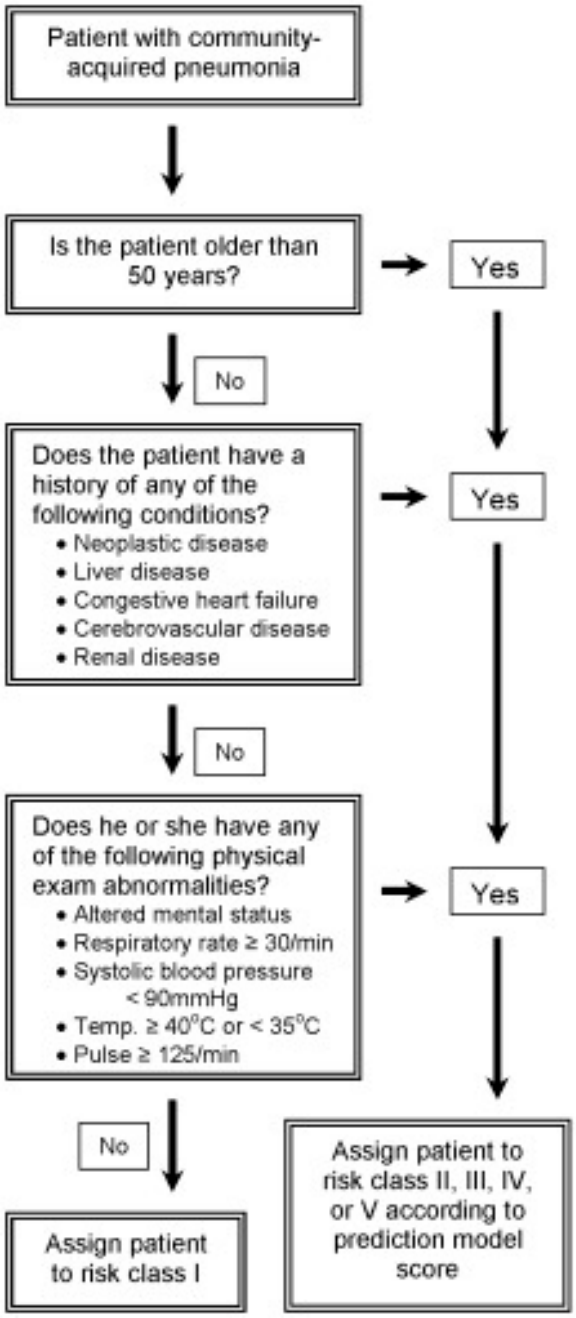
1. Inclusion Criteria
    a. History, exam, and CXR consistent with acute pneumonia
    b. PSI score class $\leq$3
    c. O2 saturation >92 % on room air at the time of TCU admission
    d. Able to return to previous living environment when discharged (outpatient support is present)
    e. Initial dose of antibiotics given in the ED
    f. Physician Discretion

2. Exclusion Criteria:
    a. Persistently abnormal vitals – after ED treatment (O2 saturation <92% on RA, HR >120, SBP<100, RR >20, T<35 or >40 C)
    b. Significantly abnormal ABG – if done (pCO2>45, pH<7.35)
    c. Potential respiratory failure
    d. Multi-lobar pneumonia
    e. Unlikely to be discharged in 24 hours, poor candidate for outpatient therapy
    f. Immuno-compromised patients: AIDS, PCP pneumonia, chemotherapy, chronic corticosteroid use, active cancer, sickle cell disease, asplenic patients, cystic fibrosis.
    g. High risk patients: Nursing home patient, cancer, cirrhosis, ESRD, altered mental status, nosocomial etiology, aspiration risk
    h. 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)

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

4. Disposition
    a. Discharge home:
        1. Subjective and clinical improvement during TCU stay
        2. Acceptable vital signs during observation period
        3. Patient able to tolerate oral medications and diet
    b. Admission:
        1. Patient not subjectively improved enough to go home
        2. Lack of clinical progress or clinical deterioration.
        3. Unable to safely discharge for outpatient management
        4. Physician discretion

Pneumonia Severity Index



Characteristics	Points
Demographics	
Age	
Men	Age (in yrs)
Women	Age (in yr) – 10
Nursing home resident	+ 10
Coexisting illness	
Neoplastic disease	+ 30
Liver disease	+ 20
Congestive heart failure	+ 10
Cerebrovascular disease	+ 10
Renal disease	+ 10
Findings on physical examination	
Altered mental status	+ 20
Respiratory rate ≥ 30/min	+ 20
Systolic blood press. > 90mmHg	+ 20
Temperature ≥ 40°C or < 35°C	+ 10
Pulse ≥ 125/min	+ 10
Laboratory/radiographic findings	
Arterial pH < 7.35	+ 30
Blood urea nitrogen ≥ 30 mg/dl	+ 20
Sodium < 130 mmol/liter	+ 20
Glucose ≥ 250 mg/dl	+ 10
Hematocrit < 30%	+ 10
pO_2 < 60mmHg	+ 10
Pleural effusion	+ 10

Stratification of Risk Score

Class	Risk	Score	Mortality
I	Low	Algorithm	0.1%
II	Low	≤ 70	0.6%
III	Low	71-90	0.9%
IV	Moderate	91-130	9.3%
V	High	> 130	27.0%

Figure 2: Pneumonia Severity Index (PSI), a validated prediction tool to estimate prognosis and aid in admission decisions for patients with community-acquired pneumonia (CAP). The score was calculated by adding the patient's age (in years for men or in years − 10 for women) plus the points for each applicable characteristic. (Adapted from Halm EA, Teirstein AS. Management of community-acquired pneumonia. N Engl J Med. 2002;347(25):2039–2045 with permission.)

TCU GENERIC PROTOCOL

1. Inclusion Criteria
    a. VS SBP > 90 mmHg, HR >50 and <110, RR < 25, O2 sat > 92% on RA or NC
    b. Ambulatory or able to use a bedside commode with minimal assistance
    c. Clinically sober
    d. Clearly defined endpoint to observation admission

2. Exclusion Criteria:
    a. GCS of < 13
    b. Patient in restraints
    c. Acute intoxication
    d. Probability of discharge is <80%

3. TCU Management
    a. Analgesics as needed
    b. Anti-emetics
    c. Serial exams
    d. Telemetry and oxygen saturation monitoring
    e. Repeat imaging as needed
    f. Consultations and procedures as needed should be requested prior to transfer
    g. Care coordination/ social work consultation

4. Disposition
    a. Discharge home:
        i. Relief of symptoms
        ii. Negative testing
    b. Admission:
        i. Positive testing requiring further evaluation
        ii. Persistent symptoms without resolution
        iii. Worsening of clinical condition

EDOU HEADACHE PROTOCOL

1. Inclusion Criteria
    a. Persistent pain in tension or migraine headache
    b. Hx of migraine with same aura, onset, location and pattern
    c. Drug related headache
    d. No focal neurological signs
    e. Normal CT scan (if done)
    f. 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)
    g. Neurology, Neurosurgery, Neuro-ophthalmology consult completed in ED for complicated cases
    h. Physician Discretion

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

3. TCU Management
    a. Serial exams including vital signs,
    b. Neuro checks: level of alertness, speech, motor function
    c. Analgesics, analgesics appropriate for a headache
    d. Neurology consult as indicated
    e. MRI/MRA/MRV Imaging as indicated

4. Disposition
    a. Discharge home:
        1. Resolution of pain
        2. Other to take patient home
        3. No deterioration in clinical course
    b. Admission:
        1. No resolution in pain
        2. Deterioration in clinical course
        3. Rule in of exclusionary causes

TCU HYPERGLYCEMIA PROTOCOL

1. Inclusion Criteria
    a. Blood glucose > 300 and < 600 following treatment in ED
    b. Readily identifiable/treatable etiology (i.e. non-compliance, UTI, abscess)
    c. New onset hyperglycemia
    d. Physician discretion

2. Exclusion Criteria:
    a. DKA: pH <7.30, HCO3 <18, AG >16
    b. Hyperosmolar hyperglycemic state
    c. Glucose > 600
    d. Serious precipitating cause
    e. Social issues – precluding adequate outpatient management

3. EDOU Management
    a. Vitals/reassessment Q4 hours
    b. IV hydration with 0.9% NS; bolus up to 2L followed by 150-250cc/hr
    c. Sliding scale insulin (use hospital guidelines)
    d. FSBG Q2H
    e. Replete electrolytes as needed
    f. Repeat electrolytes Q4H until stable if necessary
    g. Treat precipitating cause
    h. Diabetic counseling
    i. Initiate metformin therapy if new onset

4. Disposition
    a. Discharge home:
        1. Resolution of symptoms
        2. FSBG <300
        3. Tolerating PO
        4. Stable VS
        5. Successful treatment of precipitating cause (continue outpatient antibiotics as needed)
        6. If new onset, arrange PCP/endocrine follow-up within 72 hours

    b. Admission:
        1. Worsening symptoms
        2. Unstable VS
        3. Development of DKA
        4. Inability to tolerate PO

TCU HYPOGLYCEMIA PROTOCOL

1. Inclusion Criteria
    a. Blood glucose <40 pre-treatment (if obtained) and >80 post-treatment
    b. Significant improvement/resolution of symptoms after dextrose administration
    c. Known Type I or Type II diabetic
    d. Physician discretion

2. Exclusion Criteria:
    a. Intentional over dosage on hypoglycemic medications
    b. Insufficient resolution of symptoms with dextrose
    c. Fever or hypothermia (Temp <35C or >38C)
    d. Serious precipitating case (i.e. liver failure, insulinoma, sepsis)
    e. Inability to tolerate PO
    f. Requirement of D5 or D10 infusion

3. EDOU Management
    a. Vitals/reassessment Q4 hours
    b. Dietary food tray
    c. IV hydration, potassium or electrolyte supplementation as needed
    d. FSBG Q2-4H as indicated
    e. IV dextrose (or juice, if alert) as needed for hypoglycemia – notify physician

4. Disposition
    a. Discharge home:
        1. Resolution of symptoms
        2. Precipitating factor(s) addressed
        3. FSBG > 80
        4. Capable adult supervision
        5. Primary care follow up

    b. Admission:
        1. Clinical deterioration
        2. Persistent neurologic deficits/AMS
        3. FSBG consistently <80 despite appropriate treatment

TCU PYELONEPHRITIS PROTOCOL

1. Inclusion Criteria
    a. Acceptable vital signs and normal mentation
    b. Clinical evidence of pyelonephritis
    c. UA evidence of pyelonephritis (significant pyuria, nitrates, and/or leukocyte esterase
    d. Not suitable for discharge from the ED
    e. Urine cultures obtained
    f. Physician discretion

2. Exclusion Criteria:
    a. Pregnant patients
    b. Abnormal vital signs after ED treatment (SBP <90, HR > 120, T <95 or >104 C)
    c. Mental status changes
    d. Significant comorbidities – uncontrolled DM, renal failure, sickle cell disease
    e. Immunosuppressed patients- HIV, transplant patients, chronic high dose steroids, asplenic
    f. Urinary tract abnormality (solitary kidney, reflux, or indwelling device)
    g. Urethral or ureteral obstruction (i.e. kidney stones, urinary retention)
    h. Poor candidate for outpatient treatment (no home support)
    i. Patient resides in a long term care facility

3. TCU Management
    a. IV hydration, anti-emetics, antipyretics
    b. IV antibiotics based on current guidelines for pyelonephritis
    c. Imaging as needed

4. Disposition
    a. Discharge home:
        i. Resolution or improvement of systemic symptoms
        ii. Ability to take oral medications
        iii. Stable vital signs
        iv. PCP follow up within 72 hours for culture results and repeat exam
    b. Admission:
        i. Clinical deterioration or lack of adequate improvement
        ii. Inability to tolerate oral medications or hydration
        iii. Unstable vital signs or evidence of septic shock
        iv. Abnormal imaging (i.e. ureteral obstruction, emphysematous pyelonephritis, solitary kidney)

TCU RENAL COLIC PROTOCOL

1. Inclusion Criteria
    a. Diagnosis of renal colic established by CT scan or ultrasound
    b. Uncomplicated stone
    c. Persistent pain or vomiting despite treatment
    d. Physician discretion

2. Exclusion Criteria:
    a. Unstable vital signs
    b. Clinical evidence of infection (fever, significant pyuria on a catheterized specimen)
    c. Solitary kidney
    d. Large proximal stone (> 6mm) with high grade obstruction
    e. Acute renal failure

3. TCU Management
    a. IV hydration
    b. Symptomatic treatment – IV pain control, anti-emetics, flomax
    c. Diagnostic testing as needed (US, CT)
    d. Strain urine for stone capture and analysis
    e. Urology consultation

4. Disposition
    a. Discharge home:
        i. Acceptable vital signs (SBP > 100, HR< 100, afebrile)
        ii. Pain and nausea resolved or controlled
        iii. Passage of stone
    b. Admission:
        i. Persistent vomiting or uncontrolled pain after 18 hours
        ii. Diagnosis of coexistent infection or significant abnormality
        iii. Change in diagnosis requiring further therapy or work up

EDOU SEIZURE PROTOCOL

1. Inclusion Criteria
    a. Past history of seizures with breakthrough seizure or sub-therapeutic anticonvulsant level
        1. Breakthrough seizure with non-surgical minor disability (i.e. concussion)
        2. Patient with 2 or more seizures in the past 24 hours
        3. Patient with seizure for more than 3 minutes duration and prolonged recovery time to neurologic baseline
    b. No seizure in last 2 hours
    c. New onset seizures with a normal neurologic exam, normal head CT, and neurology agreement
    d. Blood work: electrolytes, blood glucose, anticonvulsant levels (if appropriate), UDS / tox labs (as indicated).
    e. Physician discretion

2. Exclusion Criteria:
    a. Ongoing seizures or postictal state
    b. Persistent focal neurological findings (e.i. Todd's paralysis)
    c. Clinical suspicion of meningitis or new CVA
    d. Delirium of any etiology, including alcohol withdrawal syndrome / DTs
    e. Seizures due to toxic exposure (e.g. carbon monoxide toxicity) or hypoxemia
    f. Pregnancy beyond first trimester / eclampsia
    g. New findings on head CT
    h. New EKG changes or significant arrhythmias

3. TCU Management
    a. Appropriate anticonvulsant therapy
    b. Seizure precautions
    c. Cardiac and pulse oximetry monitoring
    d. Serial (q 2-4 hours) neuro checks and vital signs by RN
    e. For new onset seizures: if can not be done promptly as outpatient
        1. MRI Brain without contrast
        2. EEG
    f. NPO or liquid diet as indicated advance to regular diet
    g. Neurology consult if new onset seizures

4. Disposition
    a. Discharge home:
        1. No deterioration in clinical status
        2. Therapeutic levels of anticonvulsants
        3. Correction of abnormal labs
        4. Resolution of post-ictal or benzodiazepine-related sedation
        5. Appropriate home environment
    b. Admission:
        1. Deterioration of clinical status, mentation, or neurologic exam
        2. Rule in for exclusionary causes
        3. Inappropriate home environment
        4. Recurrent seizures or status epilepticus
        5. Not sufficiently alert for discharge after 18 hours observation

TCU SYNCOPE PROTOCOL

TABLE 1. Emergency Department Risk Stratification of Patients with Syncope of Unknown Cause

High-Risk Group	Intermediate-Risk Group	Low-Risk Group
Chest pain compatible with ACS Signs of congestive heart failure Moderate/severe valvular disease History of ventricular arrhythmias ECG/cardiac monitor findings of ischemia Prolonged QTc (>500ms) Tri-fasicular block or pauses greater than 2 and 3 seconds Persistent bradycardia between 40 and 60 Atrial fibrillation and non-sustained ventricular tachycardia without symptoms Cardiac devices(PPM or AICD) with dysfunction	Age > 50 yo With previous hx of: CAD MI CHF Cardiomyopathy without active symptoms or signs on cardiac medications BBB or Q-wave without acute changes on ECG Family hx of premature unexplained sudden death Symptoms not consistent with reflex-mediated or vasovagal causes	Age < 50 yo No CAD hx Symptoms consistent with reflex or vaso-vagal syncope Normal cardiac exam Normal ECG

1. Inclusion Criteria
    a. Patients presenting with a syncope who fall into the Intermediate risk group listed above
    b. Physician discretion
2. Exclusion Criteria:
    a. Acute confusional state or intoxication
    b. New focal neurologic deficit
    c. Significantly abnormal or unstable vital signs
    d. History of or highly suspected ventricular arrhythmia (i.e., EF ≤3 5%)
    e. Presence of cardiac device with dysfunction
    f. Exertional syncope
    g. Presentation concerning for ACS
    h. Severe cardiac valve disease
    i. ECG with QTc >500 ms, pre-excitation, non-sustained VT
    j. Probability of discharge home within 24 hours < 80%

3. TCU Management
    a. Serial vital signs standard telemetry (please obtain and document orthostatic vitals prior to Obs admission)
    b. IV hydration, if indicated
    c. Telemetry
    d. Serial cardiac troponins, q3hr x 2
    e. Cardiac stress testing, at the discretion of the attending
    f. Echocardiogram if indicated by history or exam
    g. Hold blood pressure medications, if appropriate

h. Serial Neuro checks as needed

4. Disposition
    a. Discharge home:
        1. Benign TCU course, normal vital signs
        2. No arrhythmia documented on monitor during observation
        3. Acceptable home environment
        4. Follow up arranged by case management in timely manner

    b. Admission:
        1. Deterioration of clinical course
        2. Significant testing abnormalities
        3. Unsafe home environment

TCU TIA PROTOCOL

1. Inclusion Criteria
    a. Transient ischemic attack- resolved acute deficit, not crescendo TIAs
    b. Negative Head CT
    c. Work up can be completed in ~18 to 23 hours
    d. Physician discretion

2. Exclusion Criteria:
    a. Head CT imaging positive for bleeding, mass, or acute infarction
    b. Known possible embolic source, including a history of atrial fibrillation, cardiomyopathy, artificial heart valve, endocarditis, known mural thrombus, patent foramen ovale, or a recent myocardial infarction
    c. Any persistent acute neurologic deficit
    d. Crescendo transient ischemic attacks
    e. Non-focal symptoms, ie, confusion, weakness, seizure, transient global amnesia
    f. Hypertensive encephalopathy
    g. Severe headache or evidence of cranial arteritis
    h. Fever or other acute medical problems requiring inpatient admission
    i. Previous large stroke, making serial neurologic examinations problematic
    j. Severe dementia or nursing home patient
    k. Social issues that make ED discharge or follow-up unlikely
    l. History of intravenous drug use (possible valvular heart disease)

3. TCU Management
    a. Carotid Imaging (Doppler, MRA) to detect significant carotid stenosis requiring surgery
    b. Echocardiography to detect a possible cardio-embolic source
    c. Serial clinical evaluation to detect subsequent stroke, crescendo TIAs, or other significant outcomes
    d. Cardiac monitoring for at least 12 hours to detect paroxysmal atrial fibrillation requiring anticoagulation, or other major dysrhythmias
    e. Neurology consult for every patient
    f. Appropriate antiplatelet therapy
    g. Stroke prevention education

4. Disposition
    a. Discharge home:
        1. No recurrent deficits, negative work up
        2. Clinically stable for discharge

    b. Admission:
        1. Recurrent neurologic symptoms or development of a stroke
        2. Significant carotid stenosis found on imaging requiring urgent revascularization
        3. Evidence of a thromboembolic source, requiring inpatient anticoagulation treatment with heparin
        4. Unable to complete the evaluation or be safely discharged home in 18 to 24 hours or physician discretion

TCU TRANSFUSION PROTOCOL

1. Inclusion Criteria
    a. Symptomatic anemia or thrombocytopenia
    b. Deficiency correctable by transfusion
    c. Stable vital signs with recent labs verifying need for transfusion
    d. Physician discretion

2. Exclusion Criteria:
    a. Acute or active bleeding
    b. History of severe transfusion reaction
    c. Fever or unstable vital signs
    d. Hgb <5
    e. Pregnant patients
    f. Probability of discharge within 24 hours <80%

3. TCU Management
    a. IV placed. pre-medicate and IV hydration as needed
    b. Type and cross match if not previously done
    c. Transfuse only leukocyte-reduced red cells or platelets per Nursing protocol
    d. Repeat CBC at least 2 hours following transfusion
    e. Telemetry and oxygen saturation monitoring
    f. Monitor for transfusion reactions
    g. Serial exams

4. Disposition
    a. Discharge home:
        1. Transfusion complete
        2. Target Hematocrit reached based on previous level or discussion with pmd
        3. No fever for 1 hour after 1 unit PRBC's or 1 dose of platelets, for 2 hours after 2 units PRBC's
        4. No evidence of fluid overload or CHF

    b. Admission:
        1. New fever
        2. Deterioration in clinical status
        3. Adverse reaction
        4. Renewed bleeding
        5. Fluid overload or CHF