



Observation Medicine and Clinical Decision Units



Across the country, hospital emergency departments are being stretched beyond capacity. Increased emergency room admissions lead to bottlenecks, overcrowding, longer wait times, and inefficient use of resources.



Principles of observation medicine

- Extension of ED services
- Improve patient care by **continuing the evaluation and management** of selected ED patients who would **otherwise require admission**
- Short-term services for up to 24 hours
- Names given to observation units:
 - chest pain unit
 - clinical decision unit
 - rapid diagnostic treatment unit

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- Observation, like resuscitation, involves the management of time-sensitive conditions
 - This continuum extends from resuscitation
 - When performed well, observation services have been shown to :
 - Improve diagnostic accuracy
 - Improve treatment outcomes
 - Decrease costs
 - Improve patient satisfaction
 - Shorter length of stays
 - Improved use of hospital resources



- **Not** a holding unit:

- Stems from hospital overcrowding
- Area where patients admitted to the hospital are held passively until they can be transferred to an inpatient hospital bed

Observation medicine encompasses the management of selected patients for a time frame of 6 to 24 hours to assess their need for inpatient admission



2. Why should you do it?

- Better patient care
- Improved ED and hospital operations
- Economic benefits to patients, hospitals, payers

Why should you do it? Because it improves patient care!

- “Observation” is part of emergency medicine
- Fewer inappropriate discharges
- Fewer unnecessary admits
- Shorter length of stay
- Decreased cost
- Better patient and physician satisfaction
- Avoided “rework” by another department
- Improve hospital operations

3. How do you do it?

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

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



4. Do you get “Financials”

- Physician staffing models
- Coding and billing
- Equity analysis
- Cost sharing opportunities



The goal we've set is to get patients seen, treated, and released as efficiently as possible, to avoid extended wait times and the excessive use of resources, and generally streamline what happens once a patient arrives at the ED



With observation units, physician and nurse care of these patients will be more structured, and patients will have clearer expectations for care. Historically, non-inpatient patients have been integrated into inpatient areas, and their care has been less standardized and protocol driven.”

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- Developing 20 diagnosis-driven protocols (which correspond to the most common reasons for emergency room visits) for observation medicine for emergency department observation units.
 - “For instance, if an observation unit patient has cellulitis, a common and potentially serious bacterial infection, there’ll be a protocol for this



Team are striving to make that process 100 percent protocol driven. Those protocols will ensure that what happens during the patient's stay, from emergency department admission to diagnosis, treatment, release, and follow-up, is well scripted and driven by best practices.



CLINICAL CONDITIONS



BOX 196-1**CONDITIONS APPROPRIATE FOR OBSERVATION****Evaluation: Critical
Diagnostic Syndromes**

Abdominal pain
Chest pain
DVT
Gastrointestinal bleed
Syncope
Trauma
Blunt abdominal
Blunt chest
Penetrating abdominal
Penetrating chest
Head injury

**Treatment: Emergency
Conditions**

Asthma
Atrial fibrillation
Congestive heart failure
Dehydration
Infections
Pneumonia
Pyelonephritis

DVT, deep vein thrombosis.

Abdominal Pain

BOX 196-2

OBSERVATION CRITERIA FOR ABDOMINAL PAIN

Vital signs stable

Intermediate probability of appendicitis

or

Low probability of appendicitis with risk factor

Risk Factors

Pregnant

Elderly (>65 yr)

Young (<3 yr)

Abdominal Pain

- NPO & IVF
- Serial abdominal examinations are repeated at 4 hour intervals and laboratory tests repeated
- Imaging and consultations
- hospitalized
 - have no improvement
 - have clinical deterioration
 - have surgical pathology diagnosed by testing

Chest Pain

BOX 196-3

OBSERVATION CRITERIA FOR CHEST PAIN

Nontraumatic chest pain

Low probability of disease or risk of adverse event

Stable vital signs

Normal cardiac markers

Nondiagnostic electrocardiogram

Cocaine-induced chest pain

Chest Pain

- Low-intermediate risk of AMI
- Serially tested with cardiac markers and ECGs
- CK-MB estimation at 0, 3, 6, and 9 hours after presentation has 100% sensitivity, 98% specificity, and 100% negative predictive value in the detection of AMI.
- Monitored with continuous ECG monitors

Chest Pain

- After evaluation to exclude AMI, the patient is **evaluated for possible** acute coronary ischemia.
- Performed **before release** of the patient from the observation unit or at follow-up evaluation **within 72 hours of discharge**
- Most common testing modality used: exercise stress testing.
- Patients who obtain their target heart rate without ECG evidence of ischemia can be released home.

Deep Vein Thrombosis

- Role
 - diagnostic testing
 - initiation of therapy using LMWH
 - patient education
- Present when definitive tests for DVT are not available
- Short term with 1 dose of LMWH until the diagnosis can be clarified
- If the diagnosis is confirmed, the patient can be admitted or treated as an outpatient based on hospital protocol.

Upper Gastrointestinal Bleeding

- Outpatient management is possible if patients at
- High risk for further bleeding can be identified
- In an attempt to refine diagnostic accuracy, risk assessment, and disposition, several scoring systems have been developed.
- Some use a period of observation with early endoscopy to identify the patient who can be discharged early.

Syncope

BOX 196-4

OBSERVATION CRITERIA FOR SYNCOPES

Low to intermediate risk of adverse event

Stable vital signs

Loss of consciousness <10 min

No focal acute neurologic signs

Normal electrolytes and blood count

No objective evidence of ischemia or injury by
electrocardiographic or cardiac markers

No history of congestive cardiac failure

Syncope

- 1-year risk of dysrhythmia or death
 - abnormal ECG, history of ventricular dysrhythmia, history of heart failure, and age >45 years
- None of these risk factors
 - 4.4% rate of adverse events at 1 year
 - outpatient evaluation
- 3-4 risk factors
 - 58% adverse outcome rate
 - admitted to the hospital
- 1-2 risk factors
 - intermediate risk
 - outpatient evaluation with observation

Syncope

- Continuous ECG monitoring
- • consultation
- • serial cardiac enzymes
- • further tests: echography
- • psychiatric assessment (25%)
- • tilt table testing

Transient Ischemic Attack

- Traditionally: hospitalized
 - serial clinical evaluations
 - neurology consultation
 - carotid Doppler testing
 - Echocardiography
 - cardiac monitoring

Transient Ischemic Attack

- Recommendations regarding the disposition of ED patients with transient ischemic attack remain **vague**.
- Treatment of transient ischemic attack patients in an EDOU has been suggested as an **alternative**.

Blunt Abdominal Injury

- No clear evidence of serious injury on physical examination but remain at risk
- Evaluations during observation for up to 23 hours
 - repeat physical examinations, laboratory testing, imaging, and specialty consultations

Penetrating Abdominal Injury

- A period of observation can identify those patients who do not require surgical intervention.
- Serial examinations by the physician, further diagnostic testing, and specialty consultation
- Stab wounds to the abdomen with peritoneal breach but a negative finding on diagnostic laparoscopy or imaging with CT scan or ultrasonography
- Tangential gunshot wounds can avoid surgery with observation if they are hemodynamically stable and have initial negative test findings

Blunt Chest Trauma

- Isolated BCT who are otherwise stable with normal ECG are suitable for a period of observation to exclude myocardial injury
- Monitored with continuous ECG, specifically assessing for dysrhythmias
- Serial enzyme determinations
- Sternal fractures or other evidence of higher risk of intrathoracic injury ☐ transesophageal echocardiogram

Blunt Chest Trauma

- Negative evaluations during the period of observation ☐ released home for outpatient follow-up
- Patients who have isolated chest wall contusions and no abnormality of serial CK-MB, troponin, or
- ECG abnormalities or dysrhythmia during **6 to 12 hours of ECG monitoring** are unlikely to have complications.

Penetrating Chest Injury

- Patients with evidence of a small pneumothorax or hemothorax can be monitored for deterioration.
- Monitored for respiratory or hemodynamic compromise
- Repeat chest radiographs can detect the development of hemothorax or pneumothorax

Penetrating Chest Injury

- Managing asymptomatic stab wound victims in the short-term observation unit
- Penetrating wounds to the cardiac area of the chest (between the nipples), the region of the great vessels, or the thoracoabdominal area
 - Echocardiography
- Patients with a negative echocardiography can be observed in the observation unit.

Asthma

- Extended, shortterm intensive protocol for **8-12 hours** in an observation unit

BOX 196-5

OBSERVATION CRITERIA FOR ASTHMA

Failed standard emergency department management

Stable vital signs

Peak flow after third beta-agonist >32% predicted

No concomitant illness (e.g., pneumonia, heart failure)

Successful emergency department management but high risk for relapse

Risk of relapse

Second visit to emergency department within 10 days

Previous intubation or intensive care unit admission

Hospitalization in past year

Three or more emergency department visits in 6 mo

Oral steroids for more than 6 mo

Asthma

- **Exclusion criteria**

- unstable vital signs
- evidence of impending respiratory failure
($P_{aCO_2} > 45$ mm Hg, $P_{aO_2} < 55$ mm Hg)
- severe airway restriction (PEFR < 80 L/min
after first inhaled beta-agonist treatment)

Asthma

- Continuation of ED treatment with handheld nebulized beta-agonists every 2-4 hours and repeated steroids at 6 hours after initial therapy
- Patients are managed up to 23 hours but generally are **admitted to the hospital if they do not respond within 12 hours.**
- D/C
 - not in respiratory distress, have minimal residual symptoms, and have a PEFr of $\geq 70\%$ of predicted or personal best

Atrial Fibrillation

- New and acute atrial fibrillation
- Period of observation: 8-12 hours
- Treated to rectify their dysrhythmia and evaluated for serious precipitants of their condition
- Used to detect structural heart disease with the use of echocardiography

Atrial Fibrillation

BOX 196-6

OBSERVATION CRITERIA FOR NEW-ONSET ATRIAL FIBRILLATION

Normal electrolytes and blood count

Stable vital signs

No physical finding of heart failure

Jugular venous distention, ankle edema, S3 gallop

No history of heart failure

No symptoms of myocardial ischemia

No objective evidence of ischemia by electrocardiographic
or cardiac markers

Atrial Fibrillation

- Spontaneous conversion rate
 - 50-70% within the first 24 hours
 - low rate of structural heart disease
- Those who do not spontaneously convert in the first 8 hours can be converted chemically or electrically.
- After cardioversion, the patient needs to be observed.

Congestive Heart Failure

BOX 196-7

OBSERVATION CRITERIA FOR HEART FAILURE

High probability of successful treatment

Physician clinical judgment that observation is safe and nil or one risk factor: hypoxia, hypotension or syncope, anasarca, pulmonary edema, or respiratory distress

No objective evidence of ischemia or injury:
electrocardiographic or cardiac markers

Congestive Heart Failure

- Patients with **BNP levels between 100 and 500 pg/mL** are suitable candidates for observation unit care
- Therapy and evaluation are a continuation of the initial 2- or 3-hour ED visit for up to 23 hours.
- Continuous ECG monitoring for dysrhythmias
- Continuous infusion of loop diuretic (0.05–0.1 mg/kg/hr) titrated hourly to **a net fluid balance of 1 mL/kg/hr**

Dehydration

BOX 196-8

OBSERVATION CRITERIA FOR DEHYDRATION

Stable vital signs

Limited or treatable cause of illness

Mild to moderate electrolyte abnormalities

No cardiovascular compromise

Hyperemesis gravidarum

Dehydration

- **Exclusion criteria**
 - high risk patients: renal failure, congestive heart failure, liver failure
 - hemodynamic instability
- Intravenous rehydration, serial examination and vital signs, and antiemetics

Pneumonia

BOX 196-9

OBSERVATION CRITERIA FOR PNEUMONIA

Low risk of death (1–5%): clinical judgment or severity index

No risk factors for poor outcome: immunocompromised, neuromuscular disorder, pulmonary tuberculosis, cystic fibrosis

No objective evidence of ischemia or injury: electrocardiographic or cardiac markers

Table 196-1

Use of Pneumonia Severity Index (PSI) for Admission Decisions

Step 1: Assess Arterial Oxygenation for All Patients

Is pulse oximetry < 90% or PO₂ < 60 mm Hg?

YES: Inpatient therapy recommended **NO:** Go to Step 2

Step 2: Are Any of the Following Present?

- Patient 51 years of age or older
- Coexisting medical conditions listed in Step 3
- Physical examination findings listed in Step 3

YES: Go to Step 3 **NO:** Risk Class I, go to Step 4

Step 3: Compute Risk Score (Sum of Applicable Points)

<i>Risk Factor</i>	<i>Points</i>
Demographic factors	
Age in years (age –10 for women)	
Nursing home resident	10
Coexisting medical conditions	
Neoplastic disease	30
Liver disease	20
Congestive heart failure	10
Cerebrovascular disease	10
Renal disease	10
Physical examination findings	
Altered mental status	20
Respiratory rate ≥ 30/min	20
Systolic blood pressure < 90 mm Hg	20
Temperature < 35° C or ≥ 40° C	15
Pulse ≥ 125/min	10
Laboratory and radiographic findings	
Arterial pH < 7.35	30
BUN ≥ 30 mg/dL	20
Sodium < 130 mEq/L	20
Glucose ≥ 250 mg/dL	10
Hematocrit < 30%	10
PO ₂ < 60 mm Hg or O ₂ sat < 90%	10
Pleural effusion by chest x-ray	10

Total score (sum of all points)

Step 4: Recommended Initial Site of Treatment

<i>Risk Score</i>	<i>Risk Class</i>	<i>Treatment Site</i>
Not applicable	I	Outpatient
<71	II	Outpatient
71–90	III	Observation
91–130	IV	Inpatient
>130	V	Inpatient

Pneumonia

- Antibiotics, oxygen therapy, and pulse oximetry monitoring
- After 10-12 hours of treatment in the observation unit, the patient is reevaluated and a decision about disposition is made.

Cellulitis

- **Exclusion criteria**

- severe pain (possible deep infection), tissue necrosis, neck abscess, peripheral vascular disease, foreign bodies, bite wounds, and specific locations (hand, orbit, joints, scrotum, neck)
- Immunocompromised: diabetics, cancer patients, patients on immunosuppressants, and patients with HIV
- Intravenous drug use, gender, a positive community-acquired MRSA culture, age, presence of medical insurance, drainage of an abscess in the ED, diabetes and WBC >15,000

Cellulitis

- Monitor for rapidly progressing cellulitis or necrotizing fasciitis

Pyelonephritis

- Appropriate for adult, nonpregnant women who appear to have uncomplicated pyelonephritis
- Initial dose of intravenous antibiotic, intravenous fluids, antiemetic, and antipyretic
- D/C
 - clinically stable and able to tolerate oral fluids after 12 hours of treatment

Pyelonephritis

- I/C
 - severe pain, vomiting and high fevers

Treatment of painful conditions

- Sickle cell disease, severe back pain, headache, urolithiasis, and orthopedic pain
- Pain management plan, perform patient controlled analgesia, and obtain consultation from specialists

Patients at risk for self harm

- Antidote administration, monitoring of serum drug levels and social and psychiatric management

Inclusion criteria

- asymptomatic adult patients (age ≥ 15 years) who presented after known or suspected potentially toxic deliberate ingestion

Patients at risk for self harm

Exclusion criteria

- Patients with isolated alcohol intoxication, ingestion of sustained release preparation, chronic drug intoxication, elevated drug levels requiring prolonged medical therapy, end organ toxicity upon arrival, persistent self injurious or violent behavior possessing a serious threat to safety of patient, nursing and ancillary staff
- Patients that exhibited high risk criteria for deterioration after ingestion of an antidepressant

Thank
you

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