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Philadelphia University +
Thomas Jefferson University

# CDU Curriculum: SYNCOPE

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A 1744 oil painting by Pietro Longhi called *Fainting*

# Epidemiology of Syncope

- Syncope accounts for 1-3% of all emergency department visits
- Syncope accounts for 6% of all hospitalizations.
- Nearly ¼ of the population experience syncope during their lifetime.
- Approximately ⅓ of all syncope visits result in hospitalization.

# Syncope Defined

- Transient loss of postural tone and consciousness due to cerebral hypoperfusion



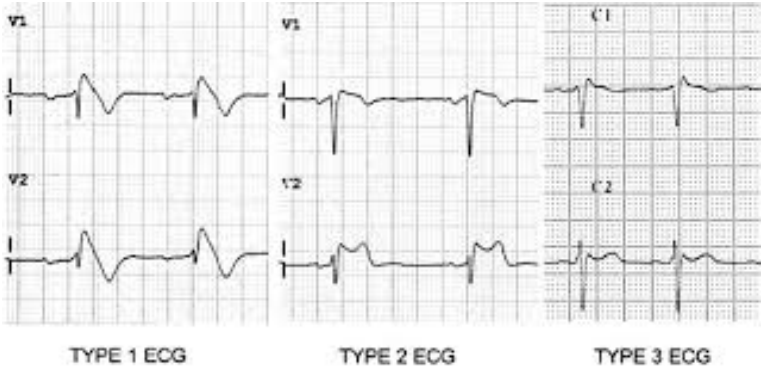
Syncope and pre-syncope assessed similarly

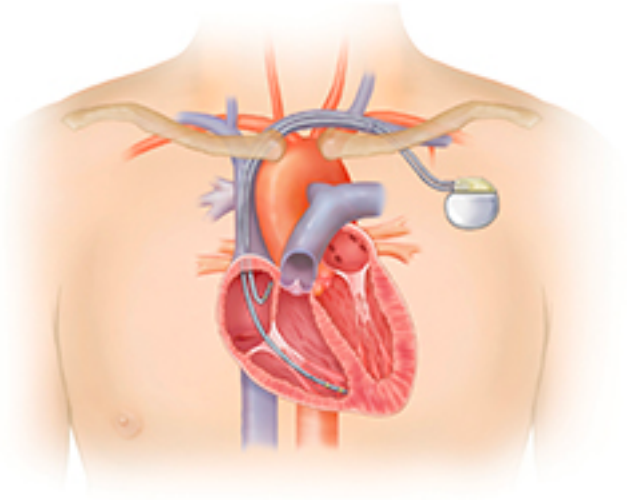
# Causes of Syncope

- Cardiovascular
  - Electrical
  - Structural
- Neurologic
  - Vasovagal
  - Cerebral perfusion
- Orthostatic
  - Vasovagal
  - Cerebral perfusion

# Causes of Syncope

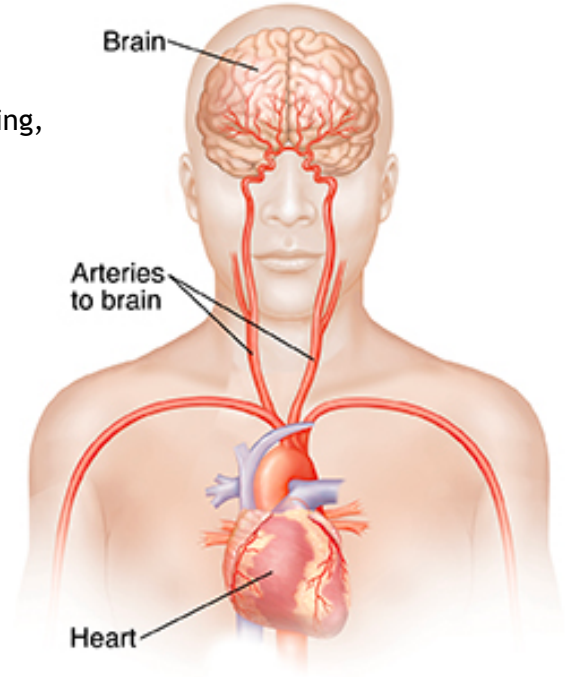
- Cardiovascular
  - Electrical
    - WPW
    - Long QT Syndrome
    - Brugada Syndrome
    - 2nd/3rd AV Block
    - Afib/aflutter
    - Vtach/torsades
    - Sick sinus syndrome
    - Arrhythmogenic right ventricular dysplasia
  - Structural
    - Valvular disease



# Causes of Syncope

- Neurologic
- Vasovagal:
  - Fear, pain, emotion, valsalva, breath-holding spell
  - Coughing, micturition, defecation, vomiting, swallowing, postexercise
  - Carotid sinus stimulation
  - Autonomic dysreflexion
- Cerebral perfusion:
  - Stroke
  - SAH
  - TIA
  - Vertebrobasilar insufficiency
  - Orthostatic:
- Orthostatic
  Volume depletion:
  - Dehydration (vomiting, diarrhea)
  - Hemorrhage
  - Sepsis

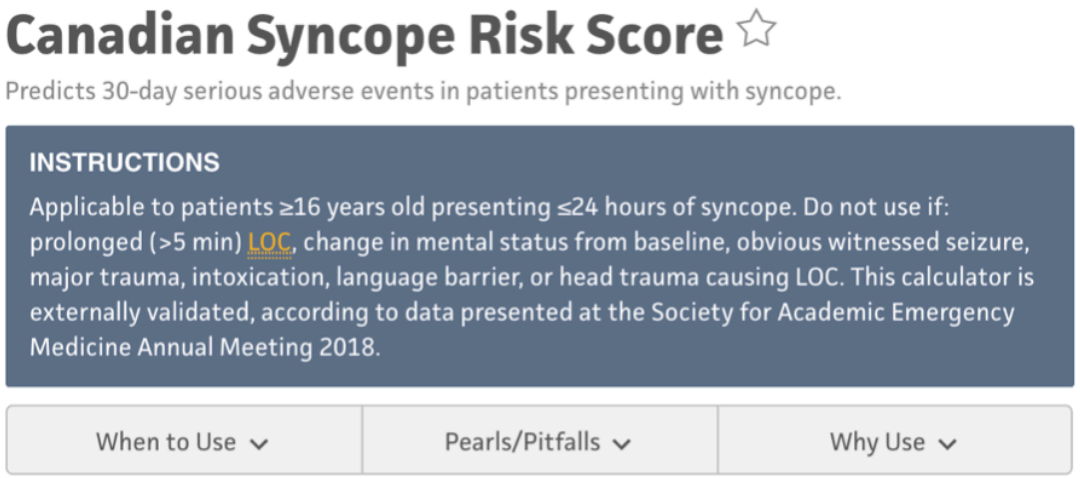


# Syncope Work up

Consider work up based on symptoms:

- ECG
- CBC
- BMP
- Troponin
- CXR
- Orthostatics
- Guaiac

# Risk stratification of Syncope

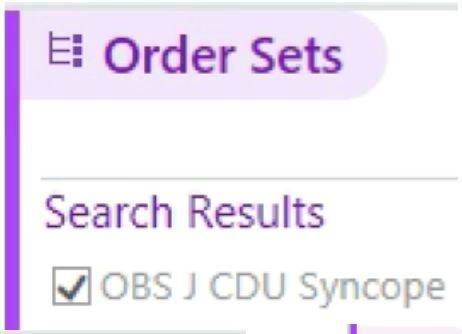



Predicts risk of 30-day serious adverse events associated with syncope, defined as any of the following: death, arrhythmia, non-arrhythmic cardiac causes, or non-cardiac causes

# Risk stratification

| | | |
|---|---|---|
| Predisposition to vasovagal symptoms<br>Triggered by being in a warm crowded place, prolonged standing, fear, emotion, or pain | **No 0** | Yes -1 |
| Predisposition to vasovagal symptoms<br>Triggered by being in a warm crowded place, prolonged standing, fear, emotion, or pain | **No 0** | Yes -1 |
| Heart disease history<br>CAD, atrial fibrillation or flutter, CHF, valvular disease | **No 0** | Yes +1 |
| sBP <90 or >180 mmHg<br>On any reading | **No 0** | Yes +2 |
| Elevated troponin<br>>99th percentile of normal population | **No 0** | Yes +2 |
| Abnormal QRS axis<br><-30° or >100° | **No 0** | Yes +1 |
| QRS duration >130 ms | **No 0** | Yes +1 |
| Corrected QT interval >480 ms | **No 0** | Yes +2 |
| ED diagnosis<br>Based on ED evaluation | **Vasovagal syncope** | -2 |
| | Cardiac sycope | +2 |
| | Neither | 0 |

# Syncope Order set




Orders

Clear All Orders

OBS J CDU Syncope

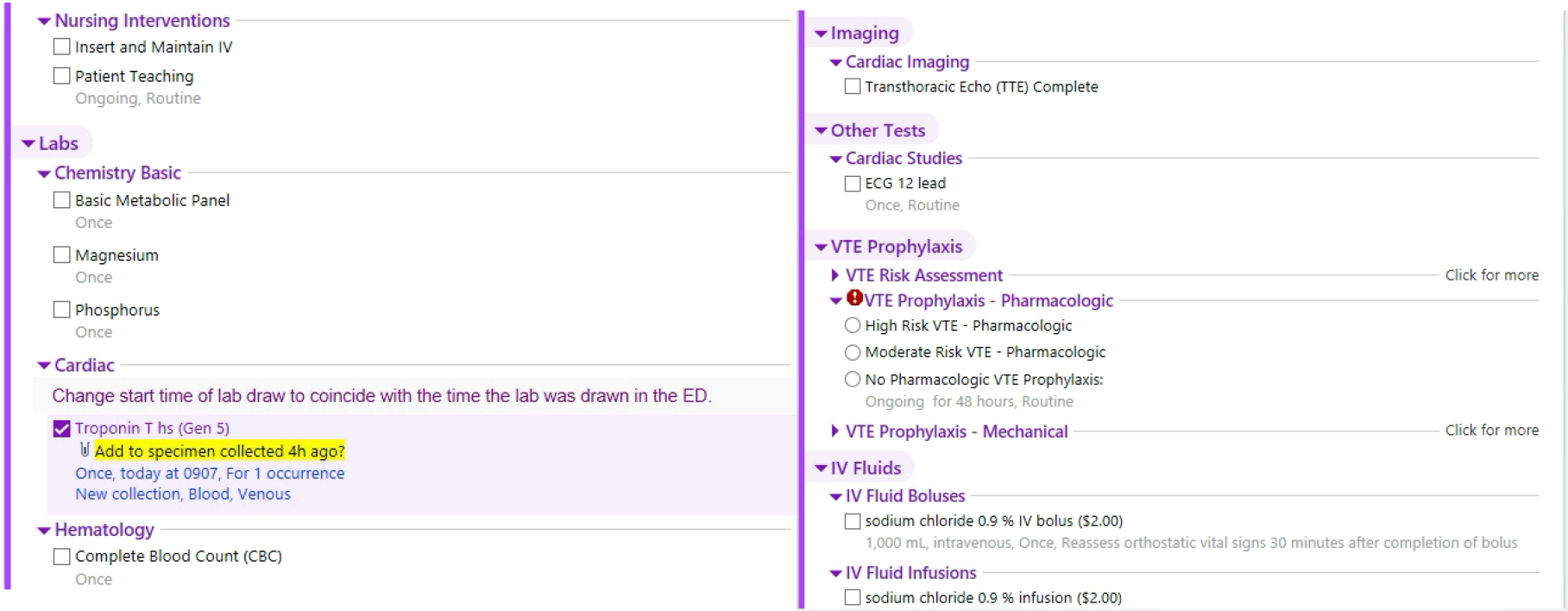
**General**

- Admission Status — Click for more
- Code Status — Click for more
- Diet and Nutrition
  - ○ Diet
    Diet effective now
  - ○ Diet with Supplement Panel
  - ○ NPO
    Diet effective now
  - ○ NPO at Midnight Panel
  - ○ Tube Feed without Tray
    Diet effective now, Routine
  - ○ Tube Feed with Tray Panel
- Activity
  - ☐ OOB; Ad lib; Ambulate/VTE Prevention; 5-10 minutes TID
    Ongoing, Routine
  - ☐ OOB; With assistance; Ambulate/VTE Prevention; 5-10 minutes TID
    Ongoing, Routine
  - ☐ Bedrest

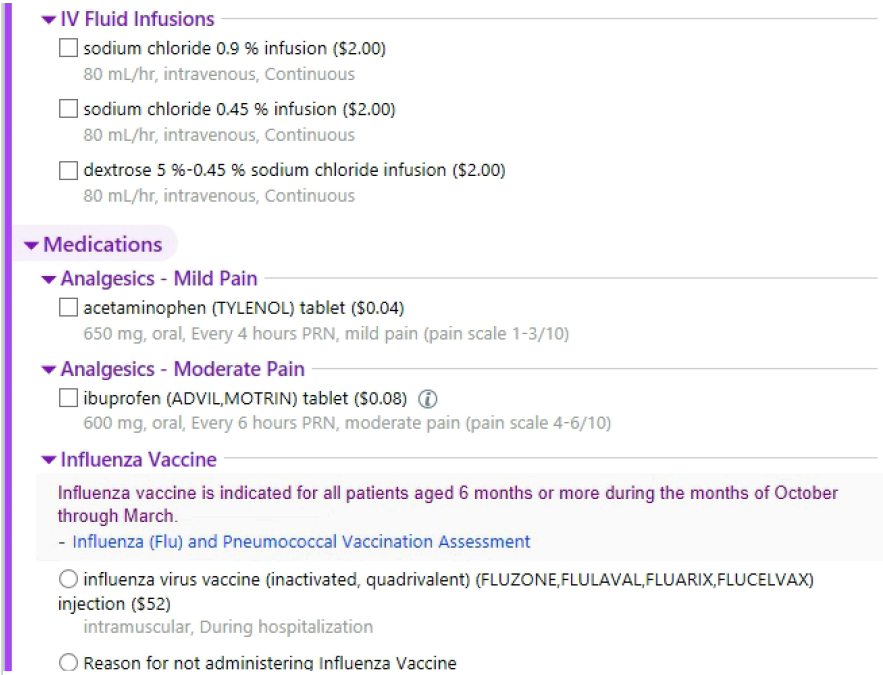
**Nursing**

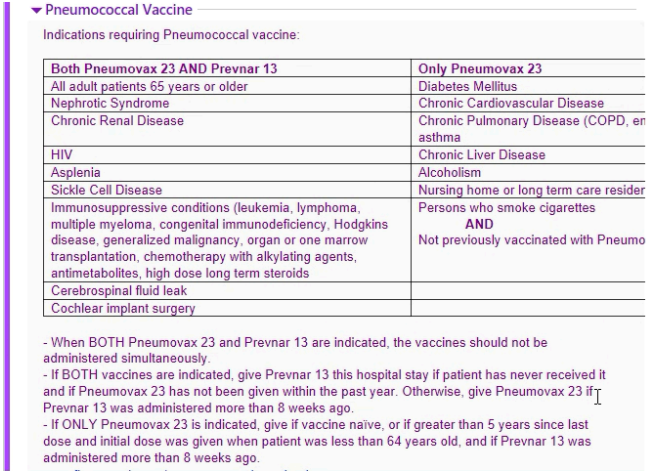
- Vital Signs
  - ☑ Vital Signs: Q4H SCH
    Every 4 hours scheduled, First occurrence today at 1200, As Scheduled
  - ☑ Pulse Oximetry Q4H SCH Notify provider if pulse ox less than: 94 %
    Every 4 hours scheduled, First occurrence today at 1200, As Scheduled, Routine
    Notify provider if pulse ox less than: 94 %
  - ☑ Cardiac Monitoring Panel
    - ☑ Cardiac Monitoring by Protocol
      Ongoing, Starting today at 0907, Until Specified, Routine
      Protocol Document: \\tjh.tju.edu\Epic\prod-shares\internal\Orders_Protocol\CARDIAC MONITORING BY PROTOCOL - TJU\NUR436 Clinical Protocol 2-041 approval date 10 14 2019.pdf
    - ☐ May Travel Unmonitored
  - ☐ Orthostatic Vital Signs
    Once, Routine, BP and HR
- Notify Provider
  - ☐ Notify Provider for the following parameters:
    PRN, Routine
  - ☐ Notify Provider For
    Routine, PRN
- Nursing Communication
  - ☐ Nursing Communication

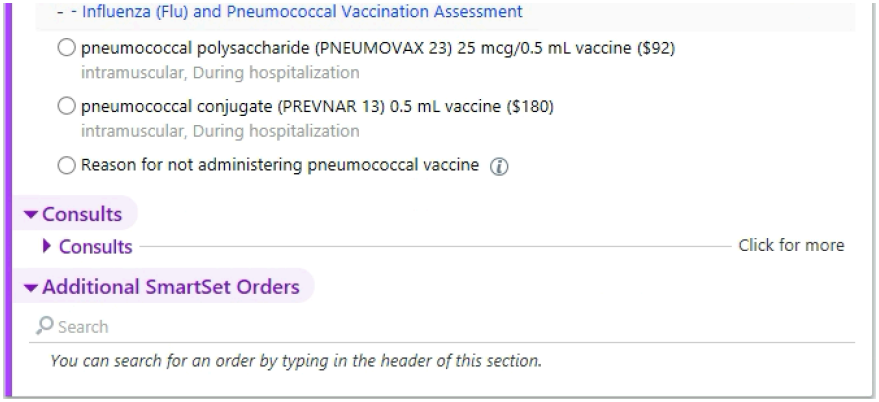
# Syncope Order set



# Syncope Order set



# Patient's appropriate for CDU post syncope

- Consider CDU admission for syncope work up for patient's who are at low risk for adverse outcomes based on history, physical, risk factors, and scoring systems such as the Canadian Syncope Risk Score.

| OK | NOT OK |
|---|---|
| EKG without significant. | Abnormal or evolving EKG |
| Stable vital signs | Unstable vitals |
| No recurring syncopal episodes | Recurring syncopal episodes |
| Return to baseline mental status | Altered mental status from baseline |

# Typical CDU Syncope Plan

Typical Observation Management

- Review ED diagnostic tests, lab work, and imaging for final results
- Monitor vital signs per floor protocol
- Neuro checks every 4 hours
- Telemetry
- Imaging to consider (ECHO/CThead/CTchest)
- Medications as per consultant recommendations
- Home care coordination as needed

Hospital Admission

- Abnormal imaging requiring hospitalization.
- EKG/telemetry with changes or evolution.
- Unstable vital signs, suspect SIRS or sepsis.
- Altered mental status
- LOS exceeding 23 hours

# Consults to consider

- Cardiology
    - Pt's with suspected cardiac cause based on history/labs.
    - Pt's with significant cardiac risk factors.
    - Pt's with abnormal ECHO/ECG.
    - Pt's with cardiac devices which need interrogation.
- PT/OT
    - Pt's with mechanical mechanism or ambulatory dysfunction.
- Social Work
    - Pt's with needs for placement based on inability to care for oneself

# Disposition

- Disposition from the CDU for patient's with stable vital signs, no recurrence of syncope, reassuring labs imaging, clinical improvement, and ability for close follow up.
- Secure follow up with appropriate providers.
- Make appropriate adjustments discharge medication list, with special considerations for medications that may play a role in pt's syncope/pre-syncope.

# Syncope Treatment

- Definitive treatment is based on etiology of syncope
  - If cardiac etiology, work with cardiology for best management plan.
  - If Neurologic etiology, work with neurology/neurosurgery for management.
  - If Orthostatic or hypovolemic, assess orthostatic vitals, replenish volume with IV fluids as needed, scrutinize medication list for potential causes.

# References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