Successful Strategies to Improve Surgical ICU Documentation

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Learning Objectives

- At the completion of this educational activity, the learner will be able to:
  - Explain the types of surgical ICU patients and OR documentation challenges
  - Define respiratory failure and shock
  - Describe typical documentation challenges in rapidly changing ICU patients while working with trainees
  - Recognize strategies to improve communication between coders and physicians

University of Iowa Hospitals and Clinics

- 711-bed hospital, including 190-bed children’s hospital
  - Only academic medical center in Iowa
- Hospital statistics
  - Over 32,000 inpatient admissions
  - Over 59,889 emergency-trauma visits
  - 157 intensive care beds
  - 27,875 major surgical operations
  - Level I trauma center
  - Comprehensive certified stroke center
- FY 2013 surgical/neurosciences ICU
  - 36 beds
  - 890 admissions
  - 2,907 transfers into SNICU
  - 80% occupancy
Operating Room

OR Documentation Challenges

• Dynamic environment in OR
  – Problems arise and are treated/resolved quickly by anesthesia
  – Primarily flow sheet documentation without diagnoses

• Anesthesia provider often diagnoses and treats common problems:
  – Anemia
  – Hypotension
  – Lactic acidosis
  – Hypothermia
  – Atelectasis
  – Low urine output
Anemia

- Various causes
  - Anemic prior to surgery due to trauma or chronic disease
  - Due to blood loss during surgery
- Diagnosis through lab test or visual
- Treat through transfusion
- Anemia can cause coagulopathy, and this is treated with FFP, cryo, or platelets
- Due to flow sheet documentation you will find lab and blood loss tallies and treatments
- Anesthesia relies on surgeons to document actual diagnoses

Hypotension

- Various causes:
  - Secondary to certain anesthetic medications
  - Hypovolemia
  - Shock
- Diagnosis through hemodynamic monitors or lab results.
- May treat quickly with a fluid bolus or medication. It may require a drip.
- Hypotension can cause poor perfusion of end organs:
  - Acute kidney injury
  - MI
  - Stroke
- Due to flow sheet documentation it might be hard to identify boluses or other treatment.
Lactic Acidosis

- Various causes
  - Hypovolemia/under resuscitation
  - Anemia
  - Low cardiac output
  - Various forms of shock
- Diagnosis through lab tests
- Treat the cause of the acidosis
- Severe acidosis can impair how the body uses the medications (i.e., pressors will not work)
- Due to flow sheet documentation you may only find a lab test and a fluid bolus
- This condition can usually be diagnosed and treated quickly, so the surgeon may not be aware to document the diagnosis

Hypothermia

- Various causes
  - Trauma
  - Cold ORs or fluids
  - Patients come in cold
- Diagnosis through temperature probe
- Warm patient through fluids or heating devices
- May increase the risk of surgical site infections, delays awakening, and impacts the metabolism of drugs
- Due to flow sheet documentation you will find low temps and documentation of warming device
Atelectasis

- Various causes
  - Occurs in 90% of all anesthetized patients
  - Longer OR cases
  - Major cause of postoperative hypoxia is atelectasis

- Diagnosis through a slow drop in O2 sat
  - Chest x-ray but this isn’t routinely done in the OR

- Adjust the vent, recruitment maneuvers, or increase PEEP
- May increase the work of breathing or risk of reintubation
- This is a major concern with morbidly obese patients
- Atelectasis combined with partial neuromuscular blockade and opioids can lead to acute respiratory failure


Low Urine Output

- Various causes:
  - Catheter occlusion
  - Renal or pre-renal conditions

- Diagnosis through low urine output. You will not see an increase in creatinine that soon.

- Identify the cause – check catheter, determine patient volume status.

- Could potentially increase risk for acute kidney injury.
Intensive Care Unit

Main Types of Surgical ICU Patients

• Wide variety of patients that require surgical/medical intensive care
  – Level I trauma center
    • Blunt force trauma
    • MVA
    • Farm accidents
    • Self-inflicted GSW
  – Certified comprehensive stroke center/neurosurgery
    • Biggest population
    • All types of strokes
    • Subarachnoid hemorrhage
    • Postop neurosurgical care
  – Postoperative care for complex surgical patients
    • Ventilatory support
    • Hemodynamic monitoring
    • Vasoactive agent management
    • Transplant management
  – Other
    • ECMO
    • Overdoses
    • Overflow medical ICU patients
    • Goals of care/end-of-life care
Trauma Patient Admission Challenges

• Present on admission
  – Many patients are unable to communicate on admission
  – Family unavailable
  – Resuscitation is needed to correct:
    • Hypovolemic shock
    • Lactic acidosis
    • Hypothermia
    • Coagulopathy
      – Be resolved prior to ICU admission
      – Return depending on patient’s injuries
  – Comorbid conditions are unknown

• Glasgow Coma Scale of less than 8
  – Quick indicator of neurological status
  – Intubate patient due to increased risk of aspiration or decreased drive to breathe
  – Increased intracranial pressure could result in brain herniation, compression, or brain death

Stroke Patient Challenges

• Patient neurological or medical status can frequently change
  – Fully awake to obtunded (coma)
  – Loss of airway (acute respiratory failure)

• tPA can cause further bleeding or intracranial hemorrhage
  – CT scan 24 hours after tPA to evaluate for hemorrhage

• Tend to let the blood pressure run higher without treatment
  – Goal is to perfuse the injured brain

• Will allow sodium to run higher to aid with cerebral edema
Shock 101

Understanding Shock

- Shock and resuscitation is something that is treated frequently in the ICU or OR setting
- Signs of shock in intubated/sedated patients
  - Lactic acidosis
  - Hypotension
  - Low urine output
  - Tachycardia
- There are different types of shock, and it may be difficult to diagnose the type
- Main types are hypovolemic, cardiogenic, obstructive, distributive
Understanding Shock

• State of low perfusion is essentially shock
  – Pump = heart
  – Tubes = blood vessels
  – Fluid = blood

• Perfusion to the organs is impacted if the pump, tubes, or fluid are impacted

Hypovolemic Shock

• Loss of intravascular volume
  – Hemorrhage or dehydration
  – Involves the blood or fluid, and without this blood pressure drops
  – Cardiac output drops
    • Common in bleeding trauma patient

• Treat the cause by replacing the volume

• Blood loss anemia with lactic acidosis following a trauma – query about hypovolemic shock
Cardiogenic Shock

- Loss or damage of pump (i.e., heart)
  - Myocardial infarction (MI)
  - Cardiac contusion
  - After heart surgery
  - Infections
  - Overdose on certain medications
- Treat the cause by inotropes, balloon pumps, ECMO
- MI with a lactic acidosis and hypotension – query for cardiogenic shock

Obstructive Shock

- Blood is not circulating or outflow is obstructed
  - Pulmonary embolus
  - Tension pneumothorax
  - Pericardial tamponade
- Diagnosed by CT or echocardiogram
- Treated by draining the tamponade, chest tube for pneumothorax, anticoagulation for the pulmonary embolus
- Shock unspecified code can be used in these instances
Distributive Shock

- This involves the vessels themselves. The vessels are dilated and bigger, so it takes more fluid to fill them.
  - Septic and anaphylactic shock

- Caused by infection or serious allergic reaction.

- Treat the cause:
  - Infection – antibiotics, resuscitation, surgery
  - Allergic reaction – epinephrine

Septic Shock

- Life-threatening drop in blood pressure that can lead to lung, kidney, or liver failure.

- Sometimes difficult to find the source of the infection, or to culture an organism.

- Presumed to be septic shock due to elevated white count and fever.

- Cardiac output is high in this instance. This is different from other types of shock.
Sepsis

Definitions

• Bacteremia
  – Bacteria in the blood

• SIRS – Systemic Inflammatory Response Syndrome
  – Inflammatory response to anything
  – 2 or more of the following:
    • Temp > 38°C or < 36°C
    • Heart rate > 90
    • Resp rate > 20 or PaCo2 < 32
    • White blood cell count > 1200 or < 4000, or 10% bands

Sepsis Definition

- Overwhelming immune response to infection:
  - Commonly caused by bacterial infections
  - Other causes appendicitis, pneumonia, meningitis, or a urinary tract infection
- Chemicals released into the blood to fight the infection or chemical released by bacteria cause widespread inflammation.
- Inflammation may cause organ damage. Blood clotting during sepsis can reduce blood flow to organs or extremities.

Sepsis Definition

- Sepsis
  - The body’s response to an INFECTION
  - 2 or more of the following:
    - Temp > 38°C or < 36°C
    - Heart rate > 90
    - Resp rate > 20 or PaCo2 < 32
    - White blood cell count > 1200 or < 4000, or 10% bands

Severe Definitions

• Severe sepsis
  – Sepsis with organ dysfunction
    • Poor perfusion
    • Lactic acidosis
    • Low urine output
    • Altered mental status


Septic Shock Definition

• Septic shock
  – Hypotension from sepsis despite adequate volume resuscitation with perfusion problems
    • Lactic acidosis
    • Low urine output
    • Altered mental status
    • May require pressors

Other Definitions

- Sepsis-induced hypotension
  - A systolic blood pressure < 90 mm Hg or a less than 40 mm Hg from baseline when there is no other cause for the hypotension

Case Study

- 63 y.o. male with DM Type II comes to ED with infection on his arm. Pt. has a fever and "feels terrible." RR 35, BP 95/67, HR 130, temp 38.9. Initial lactate is elevated with a metabolic acidosis and an elevated WBC. Pt. is to go to the OR for debridement of necrotizing fasciitis.

  What is the diagnosis?
Respiratory Failure

Defining Acute Respiratory Failure

- Our institution had to define acute respiratory failure (ARF)
- Physicians were documenting ARF on patients that were left intubated after surgery for a non-respiratory reasons such as:
  - Two-stage procedures
  - Late surgery end time
  - Prolonged surgery
  - Concern about neck swelling
  - Concern about airway edema
  - Residual neuromuscular blockade
  - Difficult intubations
  - Aspiration risk
  - Chronic lung disease
- Identified opportunity while reviewing the AHRQ Patient Safety Indicator of postoperative respiratory failure
Documentation Needs for ARF

- Is the respiratory failure acute or acute on chronic?
- Was the respiratory failure present on admission (POA)?
- What caused the respiratory failure? Note any acute conditions in relation to chronic disease.
- Note the presence of hypoxemic, hypercapnic, or mixed respiratory failure.
- Note clinical signs, symptoms, or any lab findings that support the diagnosis.
- Tip: ARF frequently coexists with severe CHF, pneumonia, COPD, or asthma.

Acute Respiratory Failure

Adults
- Shortness of breath, dyspnea
- Unable to speak in complete sentences
- Respiratory rate > 24
- Use of accessory muscles to breathe, labored breathing at rest, tripod position
- Hypoxemia, cyanosis
- Diagnosed airway edema
- Increased oxygen requirements (mask or nasal cannula)
- Need for continuous nebs, Bi-PAP/C-PAP or control ventilation or for intubation
- Confusion/altered mental status/obtunded, consider if Glasgow Coma Scale < 8
- Inability to protect airway (i.e., overdose, neurological conditions), unable to extubate

Arterial blood gas (ABG) parameters for acute respiratory failure
- pH of < 7.30 or > 7.50
- pCO2 of > 50
- pO2 of < 60 or pulse ox < 88%
- In patients with preexisting lung disease:
  - pH < 7.35
  - pCO2 markedly elevated from baseline or pO2 lower than baseline
Acute Respiratory Failure

**Pediatrics**
- The patient should have **one or more of** the following indicators:
  - Shortness of breath, dyspnea
  - Unable to speak in complete sentences
  - Use of accessory muscles to breathe, labored breathing at rest, tripod position
  - Hypoxemia, cyanosis
  - Airway edema and stridor
  - Increased oxygen requirements (mask or nasal cannula)
  - Need for continuous nebs, Bi-PAP/C-PAP or control ventilation or for intubation
  - Confusion/altering mental status/obtunded, consider if Glasgow Coma Scale < 8
  - Inability to protect airway (i.e., overdose, neurological conditions), unable to extubate
  - Pulse ox 5%–10% below baseline in patients with cyanotic heart defect or initiation/escalation of oxygen therapy
    in a patient with known cyanotic heart defect when etiology of new hypoxemia is pulmonary

**Arterial blood gas (ABG) parameters for acute respiratory failure**
- pH of < 7.30
- pCO2 of > 50 or 10 higher than baseline
- pO2 of < 60 or pulse ox < 88%
- In patients with preexisting cyanotic heart defect, PaO2 below baseline or saturations 5%–10% below baseline
  of pulmonary etiology
- In patients with preexisting lung disease:
  - pH < 7.35
  - pCO2 markedly elevated from baseline or pO2 lower than baseline

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Acute Respiratory Failure After Surgery

**Adults**
- The patient should have **one or more of** the following indicators:
  - Unanticipated use of mechanical vent beyond 48–72 hours post-surgery
  - Unanticipated use of high-flow O2 (i.e., > 3L) > 48–72 hours post-surgery in patient without history of chronic lung disease or previous O2 requirement
  - Patient was intubated in field for unresponsiveness, agonal breathing, alcohol or shock, etc. prior to arriving at the hospital

**Pediatrics**
- The patient should have **one or more of** the following indicators:
  - Unanticipated use of mechanical vent beyond 48–72 hours post-surgery
  - Unanticipated use of high-flow O2 or noninvasive positive pressure support (i.e., > 3L) > 48–72 hours post-surgery in patient without history of chronic lung disease or previous O2 requirement

**For adults and peds, do not use** acute respiratory failure for patients that have no clinical criteria or ABG signs of respiratory failure
Acute Respiratory Insufficiency After Surgery

Adults

• The patient should have **one or more of** the following indicators:
  – Mild to moderate respiratory distress
  – Elevated RR > 24, use of accessory muscles, labored breathing at rest
  – Patient needs increased continuous flow O2
  – Patient needs frequent nebulizers (i.e., albuterol q 2 hours)
  – Patient needs monitoring in a step-down unit because of respiratory status

Documentation Needs for Chronic Respiratory Failure

• What caused the respiratory failure? Note any acute conditions in relation to chronic disease.
  – i.e., pulmonary embolism, acute asthma/COPD exacerbation, hospital-acquired pneumonia, aspiration pneumonia, congestive heart failure
• Was the respiratory failure present on admission (POA)?
• Note the presence of hypoxemic, hypercapnic, or mixed respiratory failure.
• Note clinical signs, symptoms, or any lab findings that support the diagnosis.
Acute Respiratory Insufficiency After Surgery

**Adults**
- The patient should have **one or more of** the following indicators:
  - Elevated CO2 on ABG, and
  - Normal pH on ABG, and
  - Elevated bicarb (HCO3)
  - Continuous use/need for home oxygen
  - Chronic hypercarbia due to respiratory condition (i.e., pCO2 > 40)
  - Use of chronic steroids for underlying lung pathology
  - Use of BiPAP or CPAP for Obstructive Sleep Apnea

**Pediatrics**
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Case Study

- 19 y.o. male involved in an un-helmeted MCA. GCS of 3 at the scene and intubated. Went to OR for splenectomy. Required transfusion of 4 units of PRBCs for EBL of 1500cc. Now admitted to the ICU. Patient remains intubated. Has a BP of 126/83 requiring norepinephrine, has an elevated lactate, and patient is now following commands. He is on minimal vent settings.

What diagnosis?
End-of-Life Considerations

End-of-Life Care

• In the ICU setting goals of care can change to comfort measures

• Our goals are for patient comfort
  – We are no longer focused on cure
  – Some diseases that we are not curing have symptoms that can be treated in the comfort stage
  • Secretions
  • Pain
  • Anxiety
  • Delirium
  • Nausea/vomiting

• Palliative care consults may be a good source of documentation due to focused health history and patient's story
Documentation Challenges With New Trainees

Challenges

- Learning how to take care of patients
- Communicating with multiple services
- Lack of continuity in rotation schedules
- Selecting diagnoses from the EMR do not match what terms you were trained
- Lack of training in medical school on documentation and coding
- Busy schedules with restricted hours
- Varying backgrounds
- Trying to learn how to write notes
- Copy and pasting with EMR
- “What's in it for me?” or “It’s not my problem”
Strategies to Improve Communication

Communicating With the Physicians

- DRG nurses routinely attend bed huddles, physician rounds, and unit-based team meetings
  - Improves teamwork and communication
    - Multidisciplinary team members learn how each role impacts healthcare
    - Encourages ancillary services to assist in documentation improvement
      - Respiratory therapy, dietitians, social workers
    - Provides opportunity to clarify patient condition and treatments
    - Reinforces importance of accurate clinical documentation
Communicating With the Physicians

- Morbidity and mortality conference attendance
  - Quality/safety improvement staff listen for:
    - Documentation opportunities
    - Potential AHRQ patient safety metric triggers
      - Postop respiratory failure
      - Accidental puncture laceration
- ARNPs and ICU fellows increased continuity for documentation and problem list creation

Technology

- Electronic medical record
  - Specific inbox called “Doc Query” where all queries go from coding staff, quality office, and DRG nurses
  - Create service-specific preference lists to aid in problem list builds
  - Run data mining reports that look for query opportunities based on patient vitals, labs, and problem list entries
    - Ex: alkalosis, acidosis, chronic kidney failure, altered mental status, pancytopenia, shock
- Voalte phones
  - iPhones that only work in the hospital
  - Face time or text queries that are difficult to communicate via email
Teamwork

- Physicians, hospital coders, DRG nurses, IT, and quality office started talking!
  - Established multidisciplinary hospital clinical documentation improvement committee
    - Meets every other week
    - Forum to educate, communicate, and debate
    - Everyone has an equal voice

- Developed intranet site for documentation improvement
  - Performance metrics are updated weekly
    - Transparency encourages competition
  - References are readily available

Thank you. Questions?

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