IMPLEMENTING ABCDEF BUNDLE

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February 25th, 2020

Allina Health

DISCLOSURE

- No disclosures

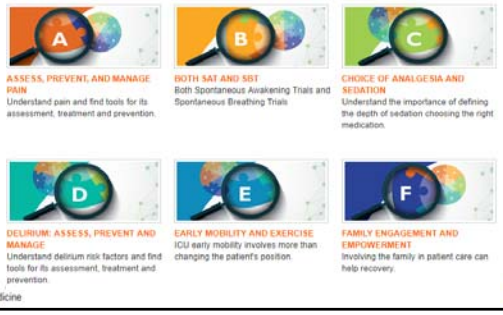
OBJECTIVES

- Purpose: To provide members of the care team with evidence-based interventions to improve outcomes of critically ill patients.
- Goal: The care team member will integrate evidence-based interventions into their clinical practice to improve critically ill patient outcomes.

- At the end of the presentation, the learner will:

1. List five benefits of the ABCDEF bundle for patients and family members critical illness.
2. Describe six interventions to incorporate into critical care nursing practice.
3. Apply the ABCDEF bundle to a patient scenario.

Evidence-based care that helps reduce long-term consequences for adult ICU patients - pain, delirium, PICS…



ABCDEF Bundle - Evidence

- An evidence-based inter-professional approach to symptom assessment, prevention, and management during critically illness.
- Applicable to every ICU patient, every day.
- Bundle use has been associated with improvements in:
  - Survival
  - Mechanical ventilator use
  - Coma
  - Delirium and PICS
  - Restraint-free care
  - ICU readmissions
  - Post-ICU discharge disposition
- Dose-response relationship
  - **higher proportion bundle performance = improvement in above clinical outcomes**

(Balas et al., 2012; Devlin et al., 2018; Pun et al., 2018)

ABCDEF Bundle – System Quality Improvement

- Isolated work on the ABCDEF bundle at each hospital.
- LOS data showing discrepancy in performance at each location. Resulted in open discussion across the system.
- Tools – collaboration with IT to develop
- Standardized education for multidisciplinary team
- Critical Care Program
- The higher proportion of bundle compliance, the better the patient outcomes.
- Our goal is to create an interdisciplinary team approach, transitioning from order driven assessment and interventions to policy driven assessment and interventions.

A - assess, prevent, and manage pain

- Assess- Stepwise Approach:
  1. Self-report of pain (0-10 and yes or no) – Numerical Rating Scale (NRS)
  2. Assess for behavioral changes – Critical Care Observation Tool (CPOT)
  3. Family can assist in identifying pain behaviors, when patient is unable to self-report
  4. Identify sources of pain when patient is unable to self-report or exhibit behaviors = Assume pain is present
- Treat:
  - Pharmacological treatment: Use a multimodal approach
  - Non-pharmacological treatment includes aromatherapy, massage, music, cold therapy, relaxation techniques.
- Prevent:
  - Administer pre-procedural analgesia and/or non-pharmacological interventions
  - **Time procedural pain interventions to peak effect.**
  - **Treat pain first, then sedate**

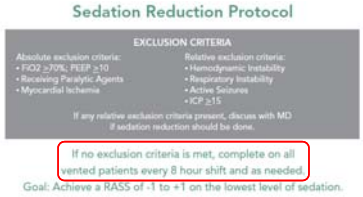
(Barr et al., 2013; Devlin et al., 2018; Herr et al., 2011; Puntillo et al., 2012, 2013)

B - both **Spontaneous Awaking** & breathing trials

- Goals of Sedation
  - Calm
  - Comfortable
  - Cooperative
  - Reduce anxiety and agitation
  - Facilitate mechanical ventilation
  - Decrease traumatic memory of ICU stay and procedures

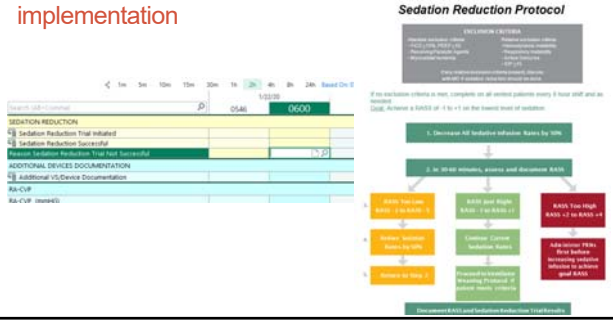
(SCCM, n.d., slide 5)

B - both **Spontaneous Awakening** & breathing trials



- Transitioned spontaneous awakening and breathing protocols to a system policy, allowing nurse and respiratory therapy driven assessment and interventions.

B - both **Spontaneous Awakening** & breathing trials implementation

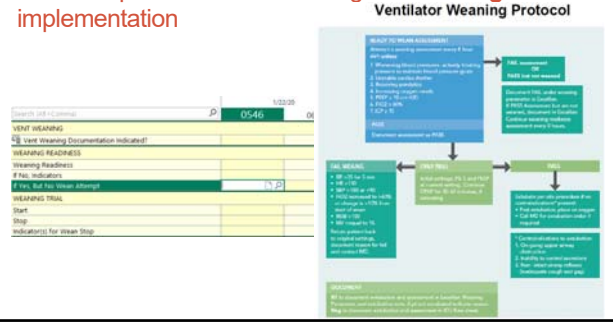


B - both **Spontaneous Awakening Trials (SAT)** & **Spontaneous Breathing Trials (SBT)**

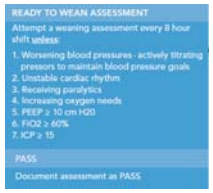
- SAT/SBT Outcomes
  - Decreased days of mechanical ventilation
  - Reduced weaning time
  - Reduced reintubation rate
  - Fewer days with delirium
  - Decreased length of ICU stay
  - Decreased length of hospital stay

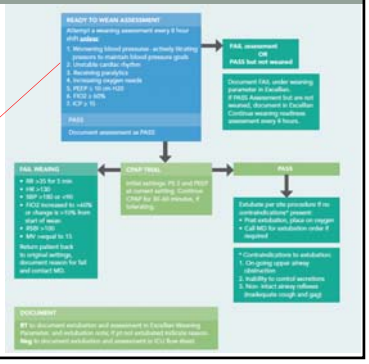
(Ely et al., 1996; Esteban et al., 1997, 1999; Girard et al., 2008)

B - both spontaneous awakening & **Breathing Trials** implementation



B - both spontaneous awakening & **Breathing Trials**





B - Both Spontaneous awakening & breathing trials

- Things to Consider: Barriers
  - Challenges of coordination between RN and RT
  - Workload and productivity concerns
  - Fear of patient discomfort and asynchrony
  - Fear of inadvertent extubation
  - Fear of self-extubation during decreased sedation
  - Excuses: "Let's just give it one more day" or "It's late in the day, and we don't have coverage tonight."

(Guttormson et al., 2010; Ostermann et al., 2000; Tanios et al., 2009)

C - choice of analgesic and sedation

- Target light sedation
- Concept of basal/bolus sedation/analgesia; treating acute agitation/pain with a bolus from bag versus infusion increase
- Treat pain first, analgesia
- Propofol/dexmedetomidine over benzodiazepine
- Propofol over benzodiazepine for CV Surgery population
- BIS is best suited for titration of sedation in deep sedation

(Barr et al., 2013; Devlin et al., 2018)

C - choice of analgesic and sedation

Which Patient Gets the Higher Dosage?

Math problem around giving bolus from infusion bag vs. titrating infusion for acute agitation.
70kg patient on Propofol infusion:

Scenario 1 - titrate infusion from 30 to 40 mcg/kg/min
- 2.1mg/min to 2.8mg/min increase
  = 0.7mg/min increase

- Scenario 2 - give 10-20mg bolus from the infusion bag (pump delivers over 30 seconds)
  = 10-20mg in 30 seconds

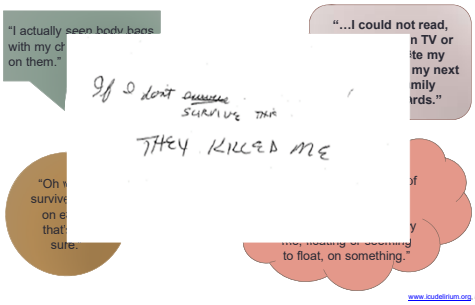
Delirium - assess, prevent, and manage

- An <u>acute confusional state</u> characterized by:
  - Attention and awareness disturbances (reduced ability to focus, direct, shift attention)
  - Cognitive or perceptual disturbance (memory deficit, disorientation, language disturbances, delusions, hallucinations)
  - Short onset with a fluctuating pattern
  - Not explained by preexisting neurocognitive disorder

- Delirium subtypes include- hyperactive, hypoactive and mixed

APA, DSM-5 (2013); Barr, et al (2013)

Patient Testimonials



www.icudelirium.org, anonymous patient letter

Delirium - assess, prevent, and manage

Prevalence:
- 60-80% of mechanically vented ICU patients
- 20-50% ICU patients, non vented

Associated outcomes:
- Increased mortality (threefold increase in 6 month mortality)
- Increased time on mechanical ventilation
- Increased risk long-term cognitive impairment and dementia development
- Increased risk of complication while hospitalized- falls, PU, infection
- Increased length of stay
- Increased re-admission
- Increased long-term care needs
- Increased caregiver burden

(Barr, et al 2013;Devlin, et al 2018; Farris, 2014; Inouye, 2014; O'Regan 2013)

Delirium- assess, prevent, and manage

PADIS Guideline recommendations:
- Routine monitoring of delirium for all adult ICU patients using a validated tool
  - ICDSC- Intensive Care Delirium Screening Checklist
  - CAM-ICU- Confusion Assessment Method for ICU
- Prevention is the key!
- Use multi-component non-pharmacologic interventions approach that is delivery by an interdisciplinary team
- Do NOT use pharmacologic agents to prevent delirium in adult ICU patients

(Devlin et al., 2018; Barr et al., 2013; Sendelbach et al., 2015)

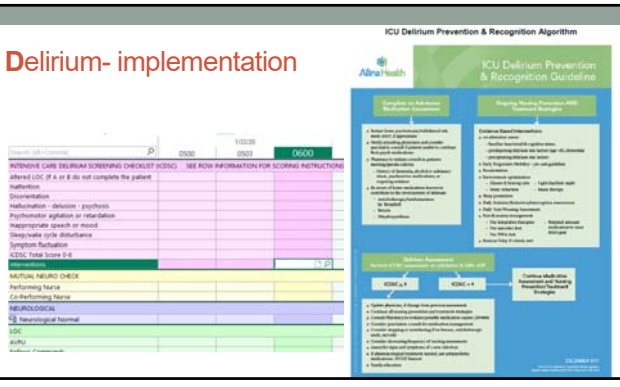
Delirium Prevention/Treatment

Non-pharmacological strategies
- Reduce modifiable risk factors (meds, foley, restraints, infection)
- Reorientation
- Cognitive stimulation
- Sleep promotion
- Improve wakefulness (reduce sedation)
- Visual and hearing aids
- Early Mobilization
- Environment modifications (noise reduction, lighting)

Pharmacological strategies
- No FDA approved medication for treatment of delirium
- Use medications only in the management of severely agitated patients who pose risk to self or others
  - At the lowest effective dose and for shortest duration
  - atypical antipsychotic medication demonstrated reduction of delirium symptoms
- Use dexmedetomidine for delirium in mechanically ventilated patients where agitation is precluding weaning/extubation

(Devlin et al., 2018; Barr et al., 2013; Farris et al., 2014; Sendelbach et al., 2015)

Delirium- implementation



Delirium Prevention/Treatment Strategies

Mobility:
- RCT- paired PT/OT with daily sedation interruptions vs. standard care of PT/OT delivered as ordered by care team

- Endpoints (n=104):
  - functional status at DC- 59% (29) vs. 35% (19)
  - Delirium duration- days with delirium 2 days vs. 4 days (median)
  - Vent-free days- 23.5 days vs. 21.2 days
  - LOS- same

(Schweickert et al., 2009)

E - Early Exercise & Progressive Mobility

- ICU-acquired weakness effects 25 - 50% of patients.
- Bedrest accelerates the loss of muscle and strength by ~1.5%/day.
- Lose up to 25% peripheral muscle strength within 4 days when on mechanical ventilation.
- Increased atelectasis, decreased cardiac and LV size, CO, SV, SVR, decreased insulin sensitivity.

(Devlin et al., 2018; Lach et al., 2014; Marra et al., 2017; Truong et al., 2009)

E - Early Exercise & Progressive Mobility

1
- Passive and assisted range of motion three times/day
- Turn every two hours side-to-side (No Time Supine)
- HOB 30-45° unless contraindicated or per provider order

Safety Screen:

$FiO_2 \leq 0.6$
PEEP < 10cm H_2O
Stable Hemodynamic Status
- No increase of vasoactive medication x 2 hours
- SBP > 90mm Hg and MAP > 60mm Hg

No evidence of active myocardial ischemia
Absence of symptomatic or unstable dysrhythmia
Stable ICP or vasospasm not requiring intervention
No interventions or therapies that contraindicate mobility

- Is the patient able to move leg against gravity?
- No, start at step 2.
- Yes, advance to step 4.

E - Early Exercise & Progressive Mobility

2
- Bed in the chair position or mechanical lift equipment to the bedside chair.
- Sitting upright* for 20 minutes three times/day.

3
- Sitting on the edge of the bed.

4
- Active transfer to the chair in an upright* position for 20 minutes three times/day.

5
- Ambulation**

Femoral Line

- Standing, walking, and physical therapy sessions are feasible and safe.

Perme, et al (2013); Winkelman (2011)

F - Family Engagement and Empowerment

Family Presence	Family Support	Family Communication
Open and flexible visitation	Participation in care	Routine family conferences
Participation in MDR	Family education	Structured communication
Presence during resuscitation	ICU Journals	Family resources

(Davidson et al., 2017)

PICS & PICS-F

- Post Intensive Care Syndrome (PICS) is defined as new or worse health problems after critical illness affecting mind, body, thoughts and/or feelings
  - Leads to- Intensive care unit (ICU) acquired weakness, cognitive dysfunction, anxiety, depression, or posttraumatic stress disorder
  - Symptoms often persist long after patient returns home
- Admission to ICU with a critical illness and delirium are the two risk factors most closely associated with risk for developing PICS.
- Other risk factors thought to contribute to the development of PICS include: mechanical ventilation during the ICU stay, older age, ICU stay >48 hours, a diagnosis of sepsis, and use of sedative medications.

(Bloom et al., 2019)

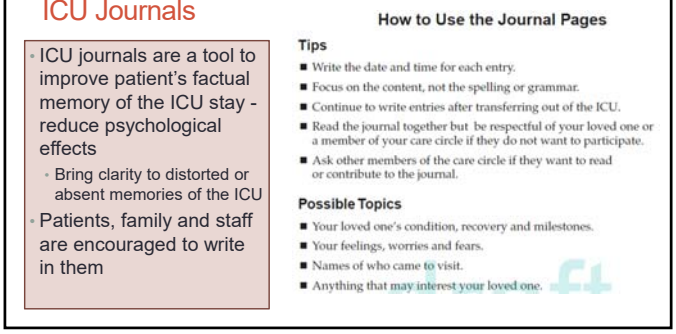
ABCDEF Bundle and PICS

- Conclusion: The ABCDE bundle in the ICU helped prevent PICS by reducing deep sedation and immobilization among intensive care patients.
- Impact: The ABCDE bundle was a suitable tool to support evidence-based practice in intensive care patients, including oversedation and immobilization, which is related to the prevention of PICS. Individual institutions will need to actively use the ABCDE bundle in the ICU, by developing protocols and testing their effectiveness.

Lee, Y., et al. (2019)

ICU Journals

- ICU journals are a tool to improve patient's factual memory of the ICU stay - reduce psychological effects
  - Bring clarity to distorted or absent memories of the ICU
- Patients, family and staff are encouraged to write in them



How to Use the Journal Pages

Tips

- Write the date and time for each entry.
- Focus on the content, not the spelling or grammar.
- Continue to write entries after transferring out of the ICU.
- Read the journal together but be respectful of your loved one or a member of your care circle if they do not want to participate.
- Ask other members of the care circle if they want to read or contribute to the journal.

Possible Topics

- Your loved one's condition, recovery and milestones.
- Your feelings, worries and fears.
- Names of who came to visit.
- Anything that may interest your loved one.

Allina Health Protocol/Guideline/Measure		
A	Assess, prevent, and manage pain	CPOT, Numeric Scale
B	Both spontaneous awakening & breathing trial	SAT: Sedation Reduction Protocol SBT: Mechanical Ventilator Weaning Protocol **Policy language allows RNs & RTs to enter these protocol orders on all vented patients (protocol/no cosign/follow up)
C	Choice of analgesia and sedation	Sedation/Analgesia Orders to Manage Mechanically Vented Patients • Light level of sedation • Analgesia first • Optimize boluses prior to increasing infusions
D	Delirium: assessment, prevent and manage	ICU Delirium Prevention & Recognition Guideline ICDSC - delirium assessment
E	Early mobility and exercise	Critical Care Early Progressive Mobility Protocol • Steps 1 - 5
F	Family engagement and empowerment	ICU Journals Evidence suggests regular family meetings/conferences

A.G. a 72yo F admitted with pneumonia to ICU, develops worsening respiratory failure requiring intubation.

- Propofol infusion/bolus with a RASS goal of -1 to -2 (light sedation) ordered for sedation management post intubation.

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