EQIC OPIOID "ROADE" WORK

Reducing Opioid Adverse Drug Events

Webinar 3: Opioid adverse drug events, pain management and opioid alternatives

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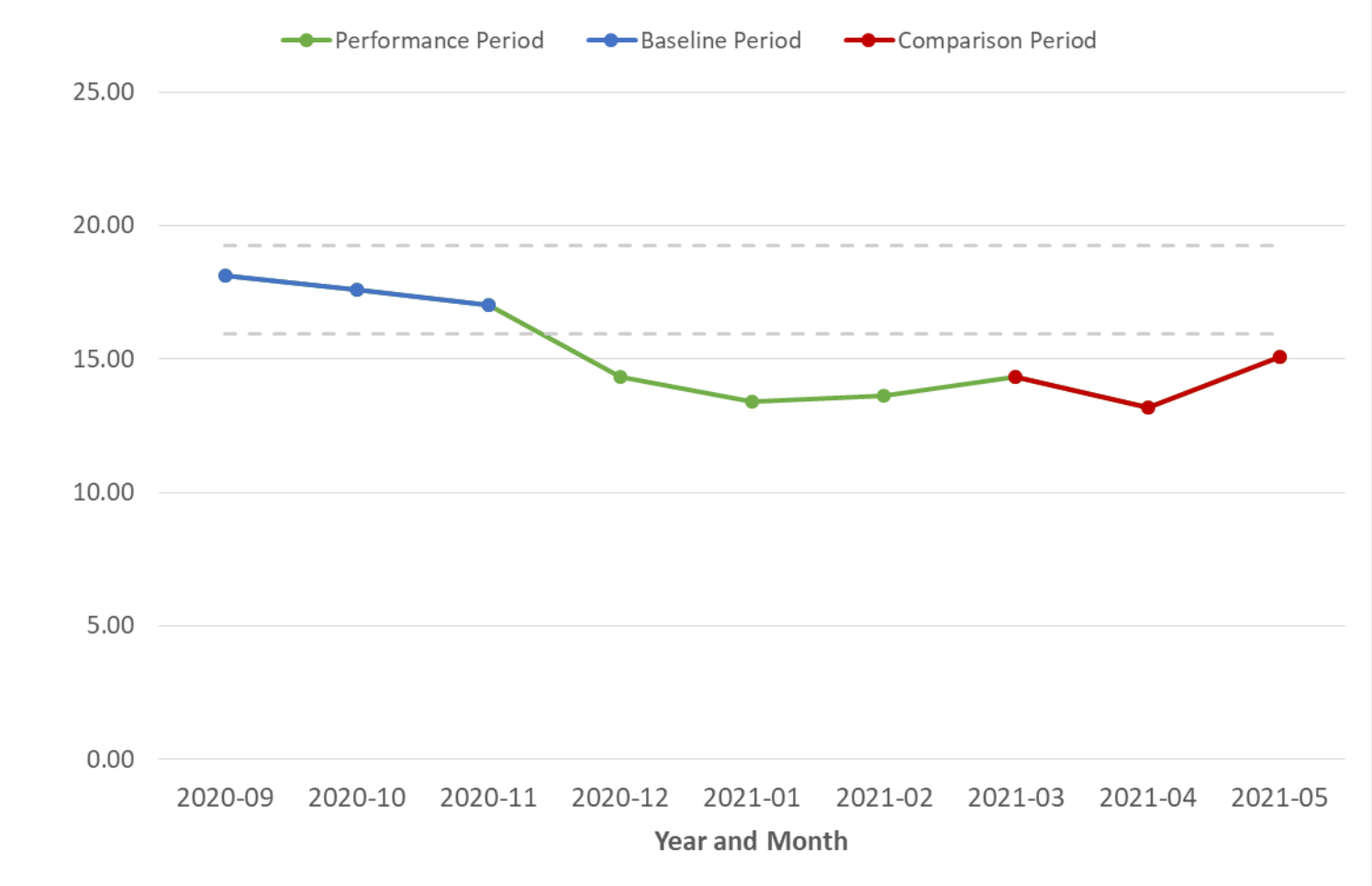
EASTERN US QUALITY IMPROVEMENT COLLABORATIVE

HQIC | Hospital Quality Improvement Contractors
CENTERS FOR MEDICARE & MEDICAID SERVICES iQUALITY IMPROVEMENT & INNOVATION GROUP

Data picture

Opioid-Related Adverse Drug Event Rate per 1,000 Discharges



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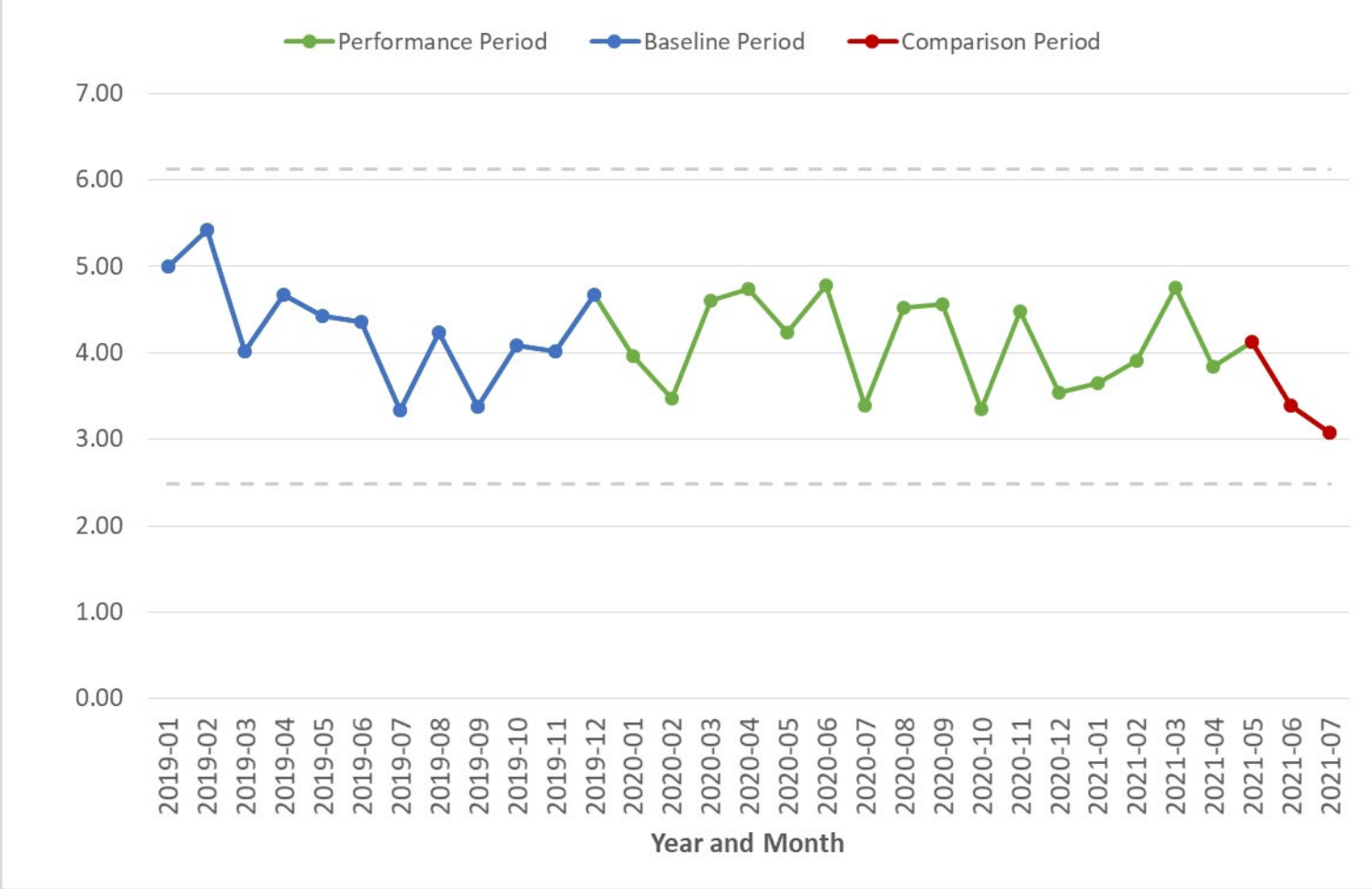
Data picture

Percentage of Patients Prescribed Co-Occuring Opioids and Benzodiazapines at Discharge (Medicare FFS)



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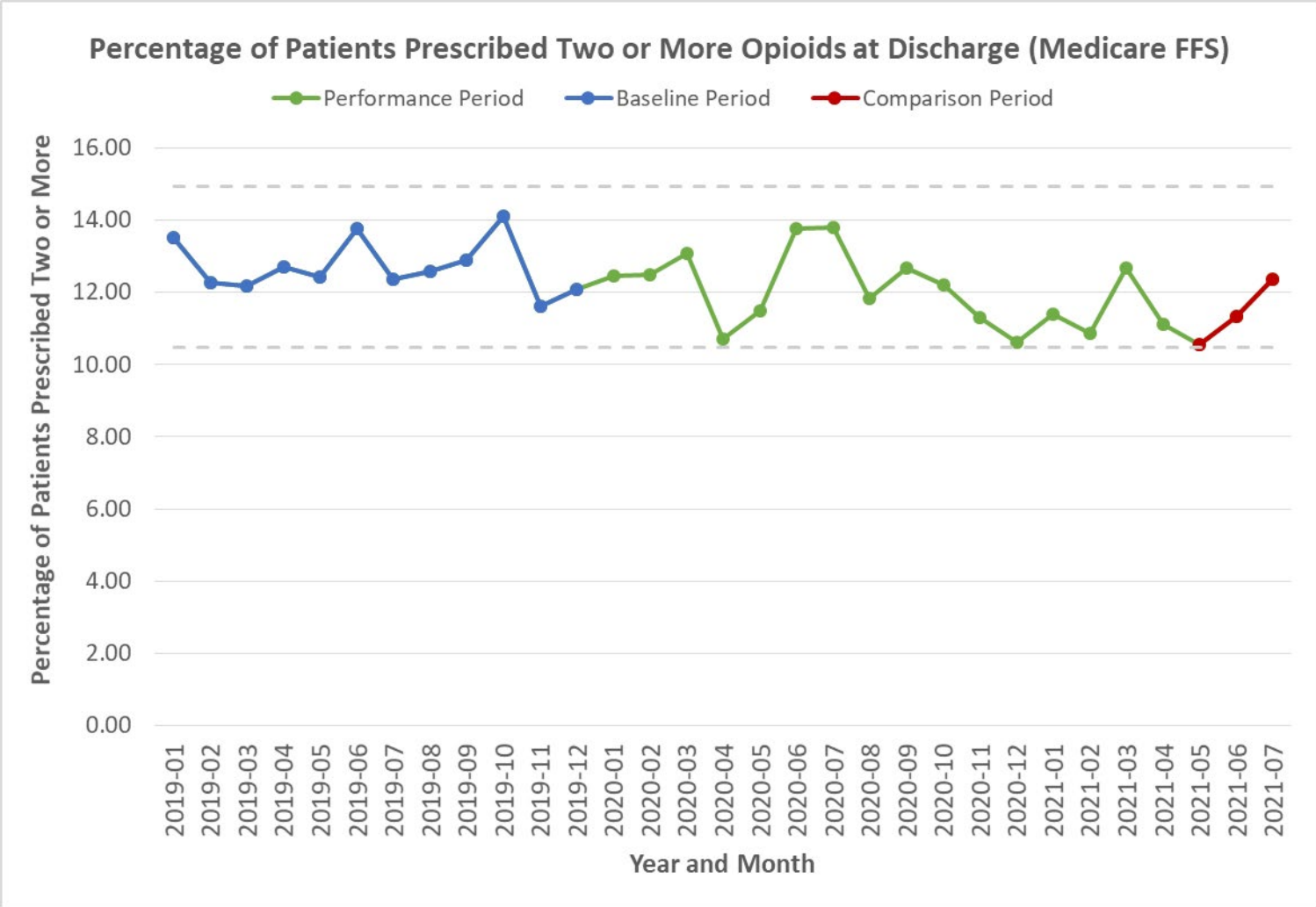
Data picture



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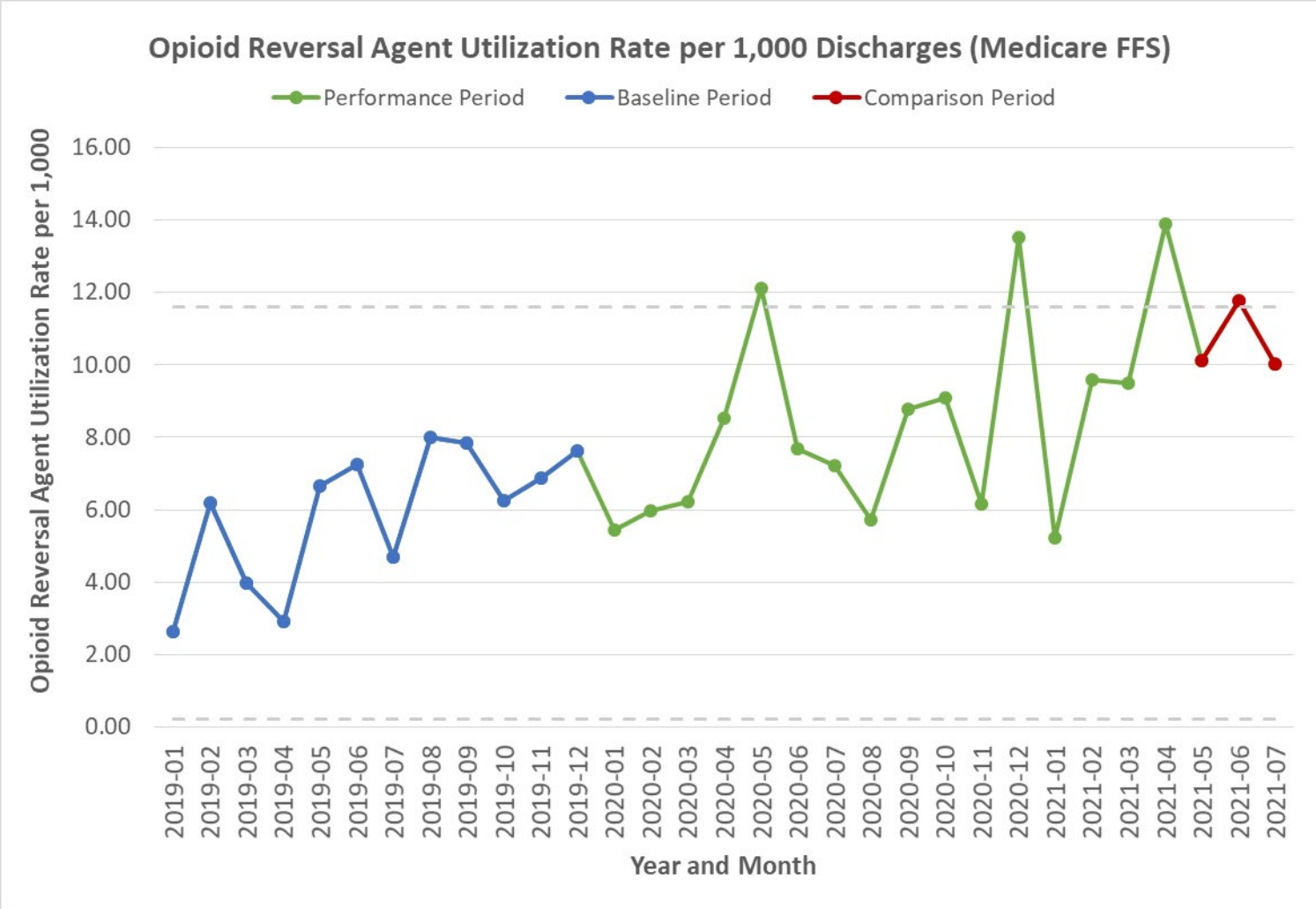
Data picture



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Objectives

1. Revisit discussion on the importance of reducing opioid prescribing.

2. Review best practices for addressing opioid ADE screening and monitoring.

3. Discuss managing complications.

4. Review pain management strategies and alternatives to opioids.

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Q&A

Discussion about barriers or successes in your local hospital.

What areas do you need more assistance?

Any questions from previous EQIC presentations?

Quick quiz

Which of the following are validated scales for measuring serial sedation on inpatients?

- Pasero Opioid-Induced Sedation Scale
- Richmond Agitation Sedation Scale
- Ramsey Sedation Scale
- Minnesota Sedation Assessment Tool
- Critical-care Pain Observation Tool

CPOT is a validated tool for measuring pain in delirious patients

Sessler CN, Grap MJ, Ramsay MA. Evaluating and monitoring analgesia and sedation in the intensive care unit. *Crit Care*. 2008;12 Suppl 3(Suppl 3):S2. doi:10.1186/cc6148

Quick quiz

Which of the following can increase risk for opioid-related adverse drug effects?

- Chronic heart failure
- Obstructive sleep apnea
- Psychiatric illness
- Acute hip fracture
- Acute kidney injury

Acute pain may be a reason to consider opioid therapy for pain relief

Screening and monitoring

Screening patients

- Chronic opioid use risk
  - Screener and Opioid Assessment for Patients with Pain—Revised (SOAPP-R)
  - Opioid Risk Tool
  - Screening Tool for Addiction Risk (STAR)
- Opioid use disorder
  - DSM V criteria
- True allergy to opioid
  - Not pruritis

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Steven D. Passik, PhD, Kenneth L. Kirsh, PhD, David Casper, BA, Addiction-Related Assessment Tools and Pain Management: Instruments for Screening, Treatment Planning, and Monitoring Compliance, *Pain Medicine*, Volume 9, Issue suppl_2, July 2008, Pages S145–S166, https://doi.org/10.1111/j.1526-4637.2008.00486.x

High-risk medical conditions

- Obesity
- Pulmonary disease
- Cardiac disease
- Renal disease
- Chronic pain
- Hepatic disease
- Substance abuse
- Major Mental Illnesses
- Elderly

Chronic medical problems and opioids

- Obesity
  - Retained drug and metabolites in adipose tissue
  - Fentanyl is retained for prolonged period
- Cardiac disease
  - Indirectly affects cardiac output through pulmonary disease
- Pulmonary disease
  - Reduced respiratory drive
    - Respiratory acidosis develops
- Psychiatric disease
  - Increased risk of addiction
  - May limit self monitoring

Chronic medical problems and opioids

- Liver disease
  - Poor metabolism, increased ADEs
- Renal disease
  - Retention of active metabolites
  - Morphine and Meperidine renally excreted active metabolites
- Elderly
  - Susceptible to ADEs at higher rate
  - Metabolism and excretion may be slowed
  - Delirium more common

Obstructive sleep apnea

- Most severe comorbid condition with opioid use
  - Increased risk of type III respiratory failure
  - Consider additional monitoring when present
  - CPAP while sleeping is a must with opioid administration
- Screening can guide pain management and monitoring
  - Stop-BANG – highest sensitivity (96%), low specificity (16%)
  - Epworth Sleepiness Scale – highest specificity (67%)
  - Outpatient diagnosis, so just trying to find those at risk

STOP-Bang

1. Snoring
2. Tired
3. Observed (apnea)
4. Blood Pressure
5. BMI > 35
6. Age > 50
7. Neck > 17in
8. Gender (male)

Equal or greater than 3 is positive (>5 is high positive)

Opioid monitoring

- Naïve and tolerant patient are monitored the same
  - Vital signs, pain measure, monitor sedation, evaluate underlying conditions
- Pain monitoring
  - CPOT
    - Critically ill, delirious or demented
  - Numeric Pain Score
    - Raw measurement, meets bare minimum requirement
    - Reactionary measure
  - Functional goal measurement
    - Patient-oriented measure
    - Goal directed, not reactionary

Opioid monitoring

- Sedation
  - POSS
    - Awake, alert, interactive patient
  - Richmond Agitation and Sedation Score
    - Intubated and sedate patients
  - Ramsay Sedation Score
    - Sedate patients and patients awaking from sedation
- Evaluate underlying clinical problem that may increase or cause pain
  - Surgery, fracture, infection, cancer, etc.
- Evaluate with continuous pulse ox, if high-risk patient

Opioid monitoring

- Sedation assessments
  - More frequently at first (15-30 mins after first dose)
  - May check more routinely after dose and use is stable for 24hrs
    - Nighttime sedation assessments are still important in the first 24hrs
  - Assess with pain measure, vitals and pulse ox to assure complete evaluation
  - Shift change is a chance to establish norms
  - Increase frequency if other adverse events increasing or clinical status changes
- PCA monitoring
  - Initially hourly, may reduce to every 4 hours once stable
  - Capnography beneficial in this group

Supplemental oxygen

- Opioids and supplemental oxygen can be a very dangerous combination
  - Measuring more than oxygen saturations is important
  - Limit supplemental oxygen to those that need it only
  - Set upper limits of supplement (92-95%)
- Capnography
  - Increased safety in patients at risk for respiratory failure
    - Consider in patients that have demonstrated symptoms of respiratory depression
  - Measuring CO2 levels with oxygen saturations
  - More intensive and more intrusive for the patient

Respiratory failure type II – Limitation of pulse oximetry

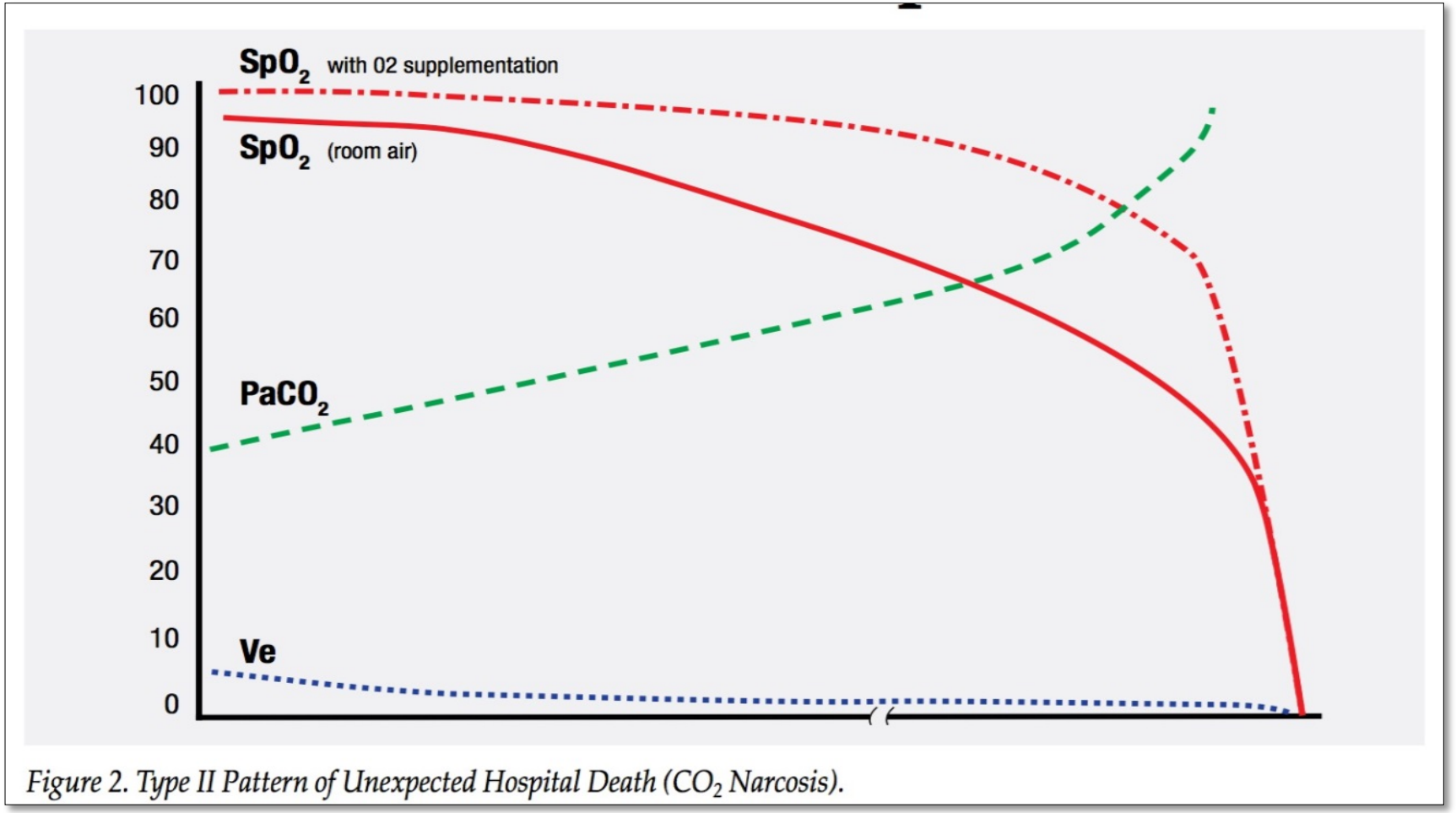

Figure 2. Type II Pattern of Unexpected Hospital Death (CO_2 Narcosis).

(Curry JP, Lynn LA. Threshold Monitoring, Alarm Fatigue, and the Patterns of Unexpected Hospital Death. *Anesthesia Patient Safety Foundation Newsletter*. 2011;26(2):32-35.)

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Pasero Opioid-induced Sedation Scale

5-point nursing assessment of opioid-related sedation

- S = Asleep but easy to arouse
- Level 1 = Awake and alert
- Level 2 = Slightly drowsy, easily aroused
- Level 3 = Frequently drowsy, arousable, drifts off to sleep during conversation
- Level 4 = Somnolent, minimal or no response to verbal or physical stimulation

Pasero Opioid-induced Sedation Scale

- S = Asleep but easy to arouse – *Acceptable; no action necessary; may increase opioid dose if needed*
- Level 1 = Awake and alert – *Acceptable; no action necessary; may increase opioid dose if needed*
- Level 2 = Slightly drowsy, easily aroused – *Acceptable; no action necessary; may increase opioid dose if needed*
- Level 3 = Frequently drowsy, arousable, drifts off to sleep during conversation – *Unacceptable. Hold until improved. Reduce dose 50%*
- Level 4 = Somnolent, minimal or no response to verbal or physical stimulation – *Unacceptable. Stop opioids, consider rapid response team*

Richmond Agitation and Sedation Scale

- Two categories – alert or not alert
  - 0 to +4 = alert → agitated
  - 0 to -5 = calm → comatose
- If not alert, it is further defined by response to verbal and/or physical stimuli
  - -1 to -3 = responds to verbal stimuli
  - -4 to -5 = physical stimuli required (-5 unresponsive)
- Use is most effective in the intubated/ventilated patients

Sessler CN, Gosnell M, Grap MJ, Brophy GT, O'Neal PV, Keane KA et al. The Richmond Agitation Sedation Scale: validity and reliability in adult intensive care patients. Am J Respir Crit Care Med 2002; 166:1338-1344.

Team approach

- Safe pain management is not the sole responsibility of the provider or the nurse
  - Team-based approach is important to success
  - Just Culture and TeamSTEPPS standards set a clear environment of care and communication
- Hospital care teams that work together improve reliability
  - Pharmacy – review home meds, review doses, suggest changes to appropriate opioid for patient, review meds at discharge
  - Provider – prescribe appropriate dose and route, evaluate chronic conditions and adjust treatment based on the individual
  - Nurse – review care plan with patient, assure orders are clear and meet the safety standards, monitor administration, evaluate condition after treatment, report response and any concerns
  - Administration – set clear tone for care environment, promote patient safety, develop policies and systems to safety.

Essentials of Good Pain Care: A Team-Based Approach Safely Manage Acute and Chronic Pain. https://edhub.ama-assn.org/steps-forward/module/2702759

Managing opioid ADEs and complications

Preventing and evaluating ADEs

- Prevent ADEs and tolerance
  - Screen for appropriate patients
    - SOAPP-R
  - Use lowest dose for shortest duration
  - Multimodal therapy
- Evaluate for adverse event
  - Monitor vital signs
  - Record ins and outs
  - Pre-operative ASA evaluation

Screening for ADE

- Expect opioid ADEs that may present
  - Serious ADEs
    - Respiratory depression, sedation and tolerance
  - Minor ADEs
    - Constipation, nausea, bladder retention, delirium, pruritis
- Most common adverse drug events
  - Constipation
  - Nausea
- Most severe adverse drug event
  - Respiratory depression

Opioid-related adverse drug events

- Central Nervous system
  - Sedation, respiratory depression, delirium, pruritis
- Gastrointestinal
  - Nausea, constipation
- Urinary
  - Urine retention
- Allergy
  - Pseudo vs. true allergy

Opioid "allergy"

- Allergic reaction
  - Pseudo-allergy vs. true allergy
  - Pseudo-allergic reactions - itching, rash, troubles breathing, and hypotension, caused by mast cell activation → histamine release, not immunologic reactions
    - Natural opioids cause more common/pronounced pseudo-allergic reactions than synthetic
  - Anaphylaxis (IgE mediated) anaphylactoid reactions and rare but can be severe - nasal congestion, flushing, pruritus, angioedema, nausea, vomiting, diarrhea, urinary urgency, bronchospasm, hypotension and death
  - Opioid classes
    - Phenanthrenes, Phenylpiperidine, Diphenylheptanes

Tolerance and dependence

- Tolerance
  - Diminished effect, increased dose required for same benefit
- Dependence
  - Physical – physiologic effect of chronic use of opioids on receptors, leads to withdraw symptoms when opioid is removed
    - Develops with even normal use of opioids
    - Upregulation of opioid receptors
  - Addiction – use despite negative social, physical or psychological effects
    - Genetic, physical, and environmental factors contribute

Naloxone

- Opioid antagonist (half-life 1 - 1.5hr)
  - Criteria for use
    - Sedation scale abnormal, respiratory rate < 8, pinpoint pupils
    - Use naloxone if 2/3 present
  - Reverses opioid sedation and respiratory depression
    - Half-life of opioid may be longer than naloxone
  - Continuous infusion for persistent ADEs (respiratory depression)
  - Careful use indicated, since induced withdraw is likely
    - Lowest necessary dose recommended
    - Not recommended for use in diagnosing delirium or coma
- Review of naloxone use beneficial in uncovering opioid use process deficits

Pain management and care delivery

Individualize treatment

- Use pain scales to determine need for opioids (moderate - severe)
- Acute pain vs. chronic pain
  - Rapid-acting, short duration therapy for acute pain
  - Lowest necessary dose with frequent benefit evaluation in chronic pain
- Naïve
  - Avoid early use of opioids
  - Alternate therapy with other modalities to reduce the overall opioid exposure
- Tolerant
  - Restart current opioids
  - Higher doses
  - Engage with multimodal therapy early

Duration and discontinuation

- Indication to reduce dose
  - Primary indication is resolved
  - Limited response to treatment
  - ADEs persistent or worsening
  - Signs of opioid use disorder
- Back down dose
  - If acute pain, may quit rapidly in 1-2 days
  - If chronic pain, need to start weaning or medication-assisted treatment to reduce dose without withdraw or addictive behavior
- Monitor for signs of withdraw
- Establish follow-up as outpatient for reassessment

Weaning vs. medication-assisted treatment

- Weaning
  - Mixed results
  - Success is not easy
- Medication-assisted treatment
  - Withdraw management treatment
  - Wean while reducing adverse effects
    - Buprenorphine and Methadone
    - Naltrexone ER injection
- Consider mental health support in both treatment plans
- Avoid starting opioids when not necessary

Multimodal management of acute pain

- Pharmacologic
  - Anti-inflammatory drugs/acetaminophen
    - Avoid in appropriate patients (renal dz, hepatic injury, elderly)
  - Neuropathic agents
    - Gabapentin, pregabalin
    - Potential for abuse
  - Muscle relaxers
    - Methocarbamol, baclofen, tizanidine
  - SSRI/Tricyclics
    - Duloxetine, amitriptyline
  - Local anesthetic
    - Regional blocks
    - Topical anesthetics

Multimodal management of acute pain

- Non-pharmacologic
  - Physical therapy
  - Dry needling
  - Aromatherapy
  - Acupuncture
  - Exercise
  - Yoga/Tai Chi
  - Music therapy
  - Massage therapy
  - Cognitive behavioral therapy
- Evidence exists for each of these, but penetrance is mixed
- Physical therapy has the broadest application

Discussion and questions

- Please enter questions about this content or previous EQIC presentations.
- Open forum for discussion about barriers or successes in your work.

Next steps

- Sign up for opioid listserv if you have not already.
- Register for the next webinar, November 30 at 1 p.m.
- Work with your project manager to implement screening and monitoring tools, continue PDSA cycles, focus on opioid alternatives that your hospital can incorporate.

Thank you.

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