



**Brigham and Women's Hospital**

Founding Member, Mass General Brigham

# **Palliative Care in the ICU**

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Pulmonary & Critical Care Fellowship at BWH  
Hospice & Palliative Care Fellowship at  
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Instructor at HMS

- Clinical focus: Critical Care
- Research focus:  
Palliative Care in Chronic Critical Illness



# DISCLOSURES

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None.

Some slides were adapted from Dr. Joshua Lakin, who also has no disclosures and to whom I am grateful.



# OBJECTIVES

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- Define palliative care & the patients who may benefit from it
- Apply symptom management approaches to ICU patient cases
- Review palliative care communication techniques to improve goal-concordant care in the ICU



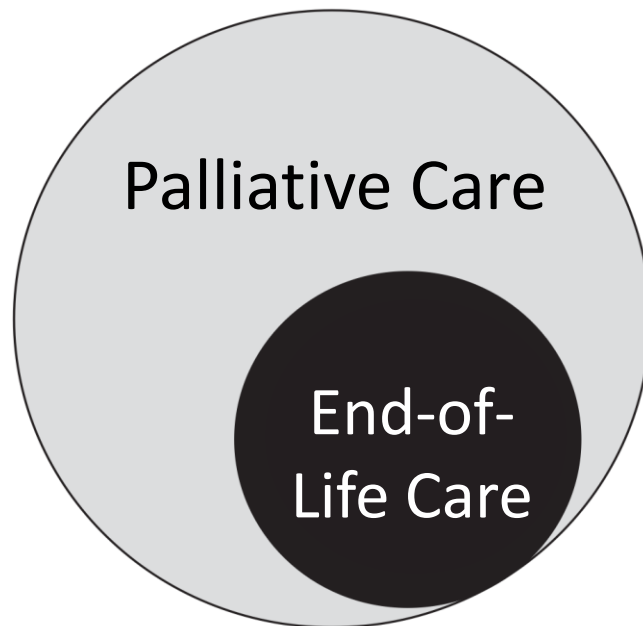
# Palliative Care

Specialized medical care for patients with serious illness

Provide relief from:

- symptoms
- stress of the illness

Goal: improve quality of life



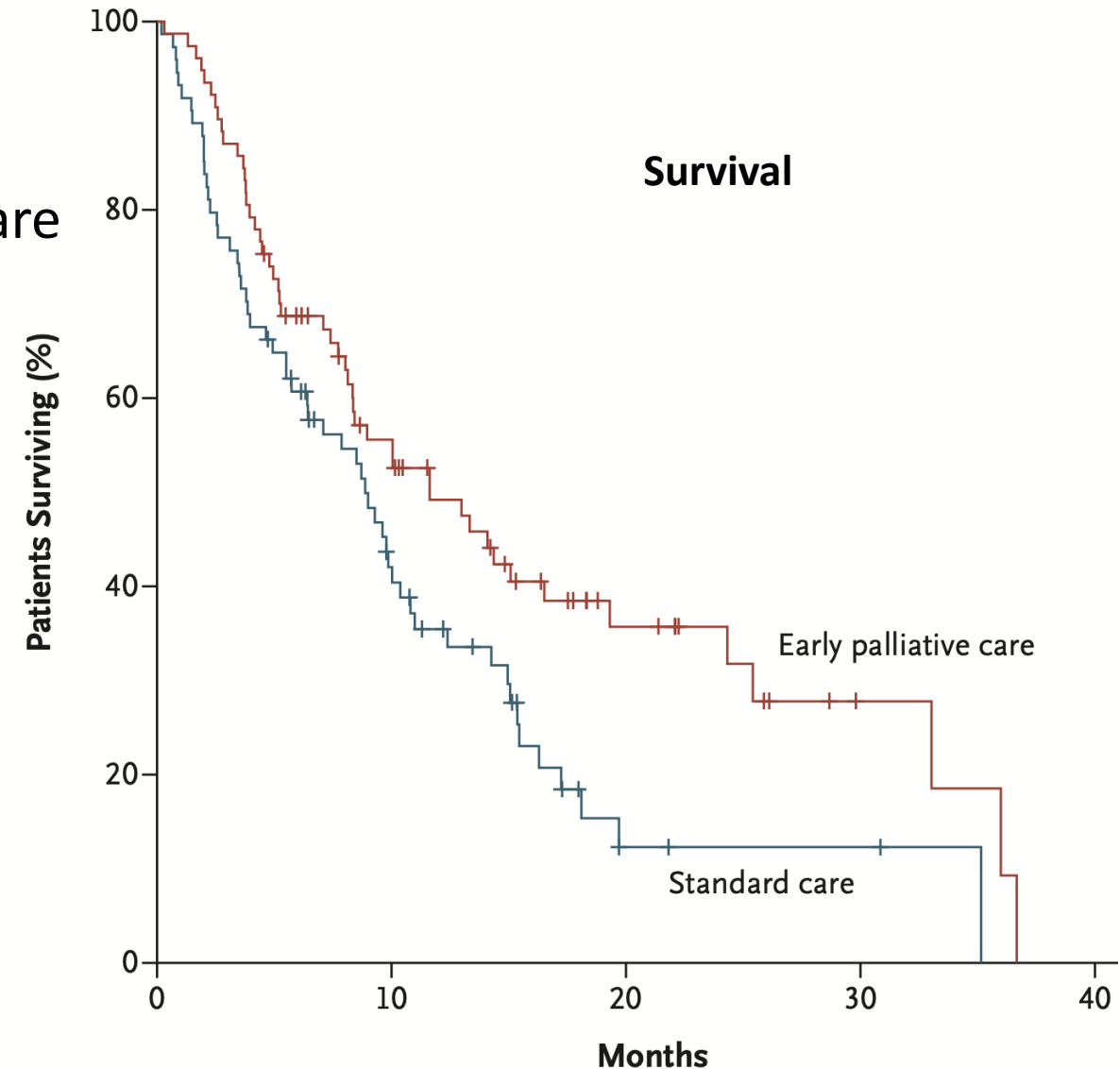
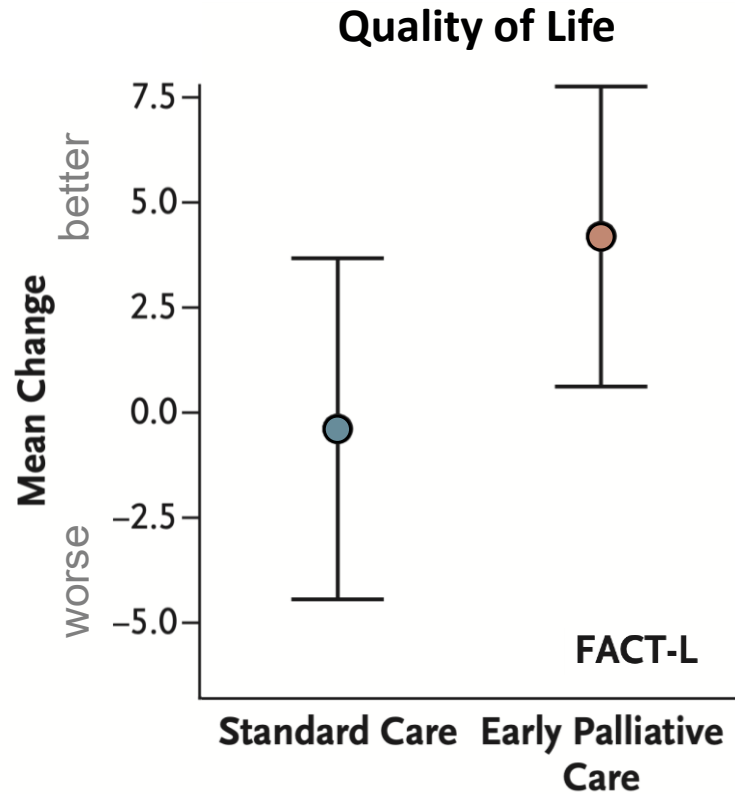
Definition adapted from The Center for the Advancement of Palliative Care

Images from [seriousillnessmessaging.org](https://www.seriousillnessmessaging.org)

Graphic adapted from J. Randall Curtis, *Eur Respir J* 2008

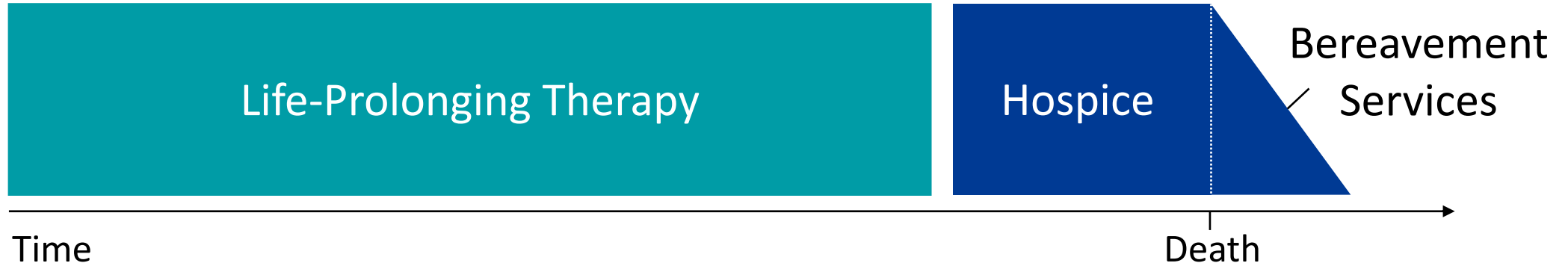
# Early Palliative Care Improves Outcomes in Lung Disease

- 151 patients
- New metastatic non-small cell lung cancer
- Early integrated palliative care vs standard of care



# Palliative Care is Appropriate at Any Stage of Serious Illness

Old  
concept:



(Sort of) new  
concept!



# Symptom Management: Practice Question 1

An 87-year-old man is admitted to the intensive care unit with septic shock, urinary tract infection, and acute renal failure after being found on the floor by his niece. Fluid resuscitation, vasopressor support, and antibiotics do not improve his clinical status. His goals of care shift to focus on comfort only. On exam, he is lethargic, unable to follow commands, and moaning. In addition to optimizing non-pharmacologic end-of-life care, you would like to start a medication for pain. His niece tells you that he took codeine a year ago without issues.

What pain medication should you order for this patient?

- A. Morphine IV
- B. Codeine PO
- C. Fentanyl IV
- D. Acetaminophen IV or PO instead of opioids because he is already lethargic.





# Opioids Have Differing Safety in Kidney or Liver Impairment

## Kidney Impairment:

| Opioid Dosing in Renal Impairment |                                                          |                                                     |                                                                 |                                                                                     |
|-----------------------------------|----------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Agent                             | Renal Impairment                                         |                                                     | Dialysis                                                        | Renal Excretion Percentage                                                          |
|                                   | GFR 10 – 50 mL/min*                                      | GFR < 10 mL/min*                                    |                                                                 |                                                                                     |
| Codeine                           | Do not use                                               |                                                     |                                                                 |                                                                                     |
| Morphine                          | Reduce dose by 25 – 50% if used                          | Avoid use; reduce dose by 50 – 75% if necessary     | Use cautiously<br><br>Dialyzable                                | ~ 90%<br><br>Not recommended in ESRD due to accumulation of drug & metabolites      |
| HYDROmorphine                     | Reduce dose by 25 – 50% if used                          | Reduce dose by 50% if used; prolong dosage interval | Dialyzable                                                      | Hydromorphone: 75%                                                                  |
| HYDROcodone                       | Reduce dose by 25 – 50% if used; prolong dosage interval | Reduce dose by 50% if used; prolong dosage interval | Use cautiously                                                  | Hydrocodone: 6.5%<br><br>Inactive metabolites may accumulate in renal insufficiency |
| OxyCODONE                         | Reduce dose by 50% if used                               | Use cautiously & prolong dosing interval            | Use cautiously<br>& prolong dosing interval                     | 75 – 85%<br><br>↓ excretion of metabolites & ↑ T ½ in uremia                        |
| FentaNYL                          | May reduce dose by 25%                                   | Reduce dose by 50%                                  | Overall not dialyzable<br><br>May be dialyzable by some filters | 75%<br><br>No clinically active metabolites                                         |

## Liver Impairment:

| Opioid Dosing in Hepatic Impairment |                                                                     |                                                                |                                                                                                                                                             |
|-------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agent                               | Degree of Hepatic Impairment                                        |                                                                |                                                                                                                                                             |
|                                     | Mild                                                                | Moderate                                                       | Severe                                                                                                                                                      |
| Codeine                             | Avoid use                                                           |                                                                |                                                                                                                                                             |
| Morphine                            | Prolong dosage interval or reduce doses, titrate slowly             | Avoid use                                                      | Avoid Use<br>↑ bioavailability, ↑ T ½, ↓ clearance                                                                                                          |
| OxyCODONE                           | Reduce dose by 25-50%<br>prolong dosage interval                    | Avoid use                                                      | Less Safe<br>↑ T ½, ↓ clearance<br>Unpredictable serum levels                                                                                               |
| HYDROcodone                         | No adjustment required                                              | Initiate at 50% dose                                           | Less Safe                                                                                                                                                   |
| HYDROmorphine*                      | No adjustment required                                              | Reduce dose by 25-50%                                          | Reduce dose by 50%,<br>prolong dosage interval                                                                                                              |
| Methadone*                          | No adjustment required                                              | No adjustment required                                         | Avoid use – if needed, careful titration                                                                                                                    |
| Buprenorphine                       | TD: Start with lowest dose (5 mcg/hr)<br>SL: No adjustment required | TD: Avoid use<br>SL: Reduce dose by 50%                        | Safety considerations vary<br>Low 1 <sup>st</sup> pass metabolism → significant absorption from GI tract<br>↑ T ½, ↓ clearance                              |
| FentaNYL*                           | TD: Reduce dose by 50%<br>IV bolus: No dose adjustments required    | TD: Use with caution<br>IV bolus: No dose adjustments required | Most Safe via IV bolus<br>Less Safe via IV infusion<br>IV infusion: ↑ T ½ due to lipophilicity & ↑ active drug due to decreased metabolism to inactive drug |



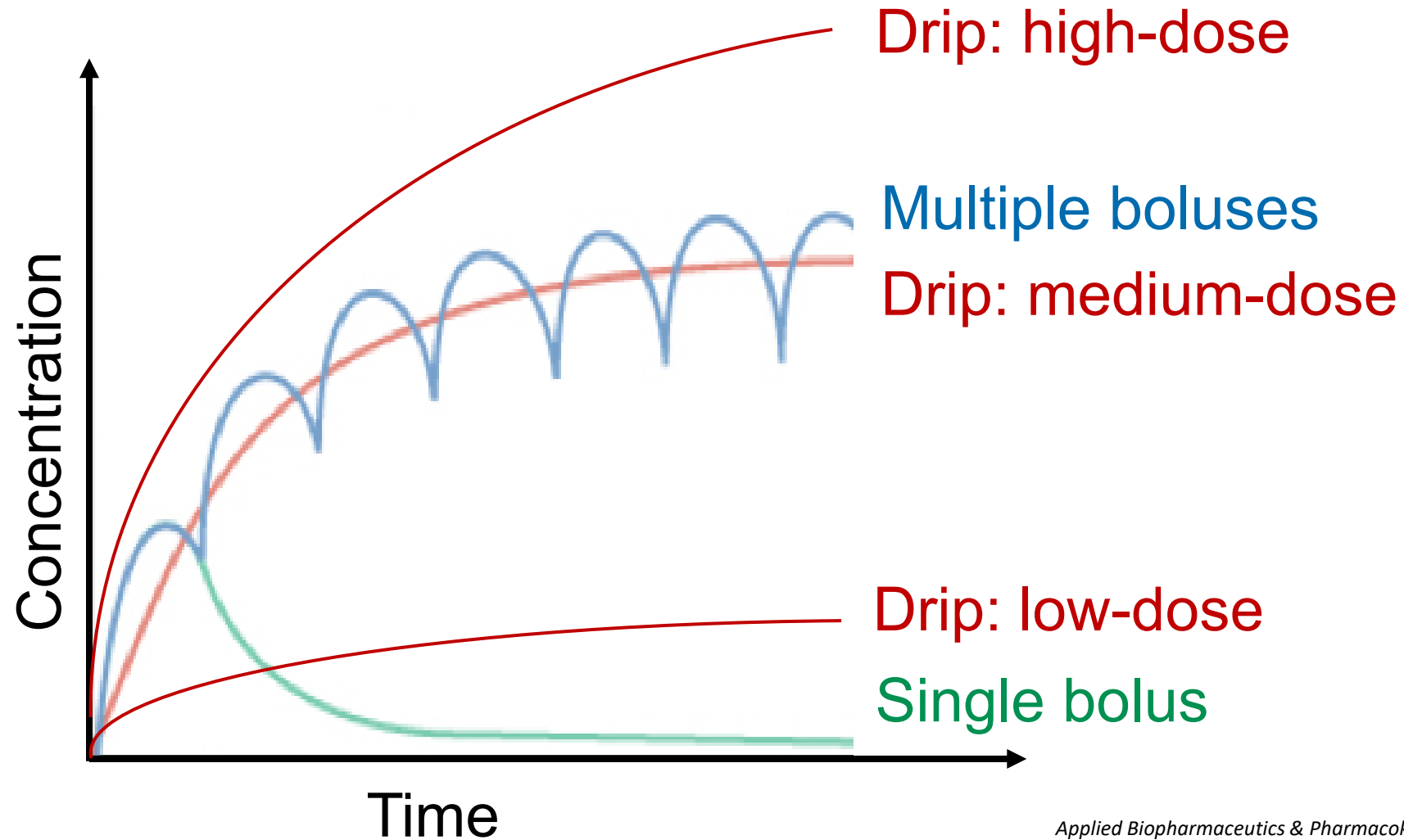
# Symptom Management: Practice Question 2

An 87-year-old man is admitted to the intensive care unit with septic shock, urinary tract infection, and acute renal failure after being found on the floor by his niece. Fluid resuscitation, vasopressor support, and antibiotics do not improve his clinical status. His goals of care shift to focus on comfort only. On exam, he is lethargic, unable to follow commands, and moaning. In addition to optimizing non-pharmacologic end-of-life care, you would like to start an opioid medication for pain. His niece tells you that he took codeine a year ago without issues. He is transferred out of the ICU for end-of-life care. The policy on his new unit does not allow IV fentanyl but allows IV hydromorphone or transdermal fentanyl.

Which of the following regimens is best for starting an opioid in this patient?

- A. Transdermal fentanyl, 12 mcg / hr patch
- B. IV continuous infusion hydromorphone, 1 mg / hr
- C. IV bolus hydromorphone, 2 mg every 3 hr as needed for signs of pain
- D. IV bolus hydromorphone, 0.5 mg every 20 min as needed for signs of pain

# IV Opioid Boluses Control Acute Pain Better Than A Continuous Infusion



# Symptom Management: Start with PRN in nearly all cases

- Pain / Agitation\*

Mild → Acetaminophen (unless liver failure), often scheduled Q8h

Severe → Opioid, start PRN

Once you have 'use data' → schedule ~2/3 of the total PRN use

- Anxiety / Agitation\* → anxiolytic (often benzodiazepines)
- Delirium / Agitation\* → antipsychotic (i.e. haloperidol)
- Secretions → anti-muscarinic (i.e. glycopyrrolate, scopolamine)



\* Sometimes it's hard to know what is causing agitation!

# Communication: Practice Question 3

A 65-year-old woman with end-stage kidney disease, peripheral artery disease, diabetes and emphysema is admitted to the intensive care unit for sepsis and acute respiratory failure due to left leg cellulitis and aspiration. After 14 days of intubation, she has not liberated from the ventilator or weaned off sedation. She had not previously stated her preferences about tracheostomy or prolonged mechanical ventilation. Her husband, who is her legal healthcare proxy, does not know what to decide. What is the next best step?

- A. Proceed with tracheostomy as an emergency treatment to see if the patient can regain decisional capacity off sedation.
- B. If the husband is uncomfortable with the decision, see if there is a different person who can make the decision about tracheostomy.
- C. Ask the husband what is important to the patient and make a recommendation about tracheostomy based on those values.
- D. Consult the hospital ethics team.

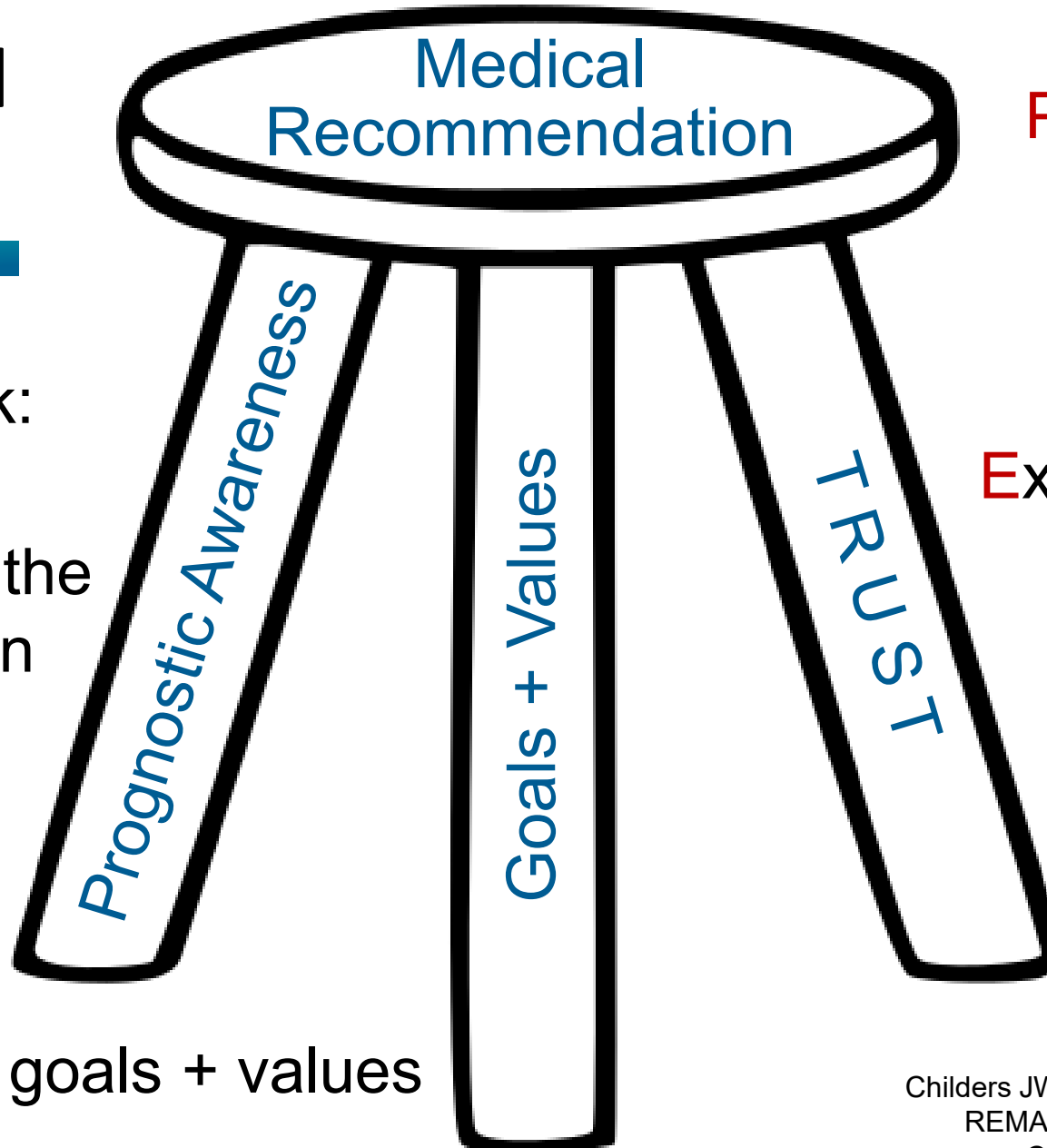
# Build the Foundation for Successful Medical Recommendations

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REMAP Framework:

Reframe the  
situation

Map goals + values



Propose a plan

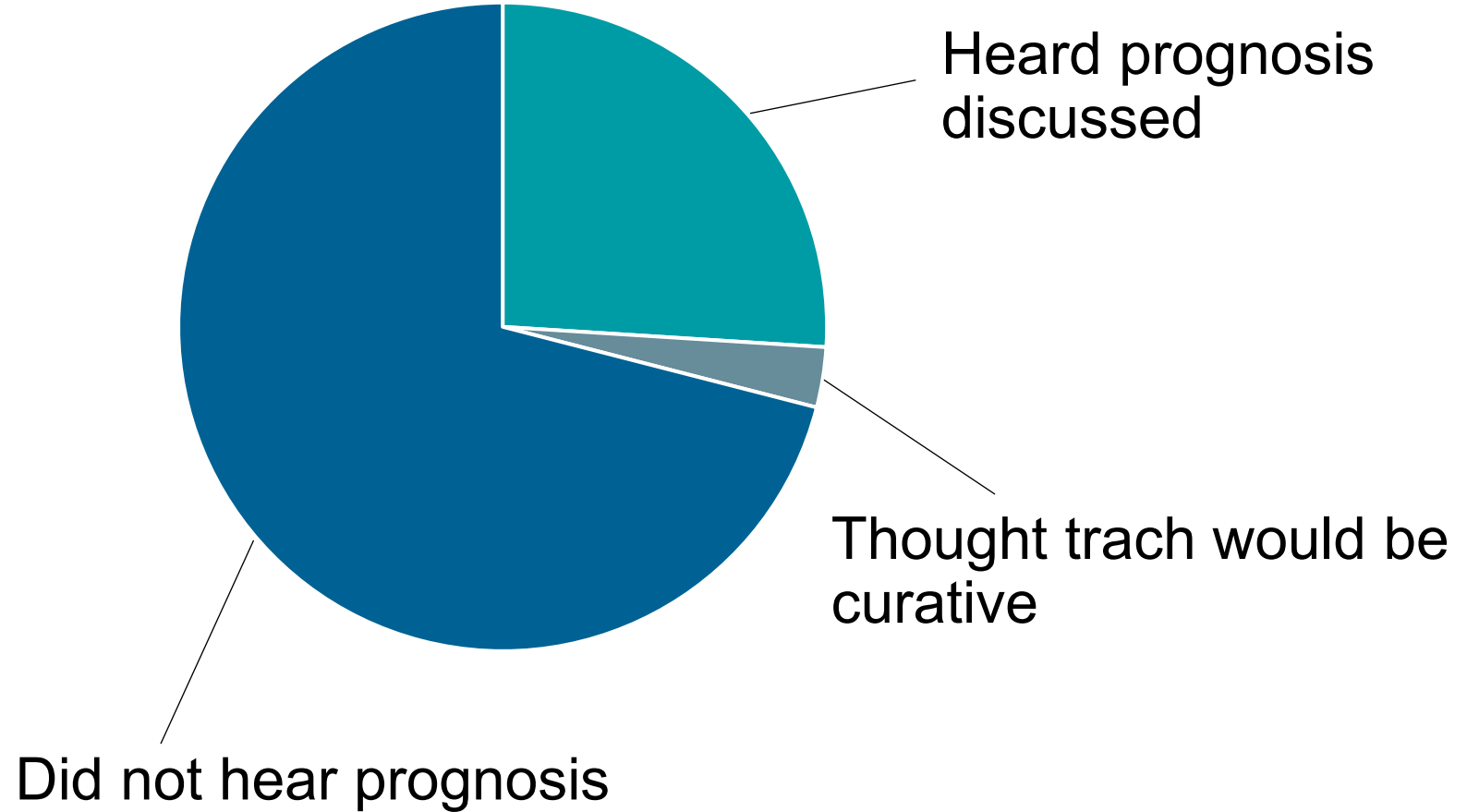
Expect Emotion

Align hope

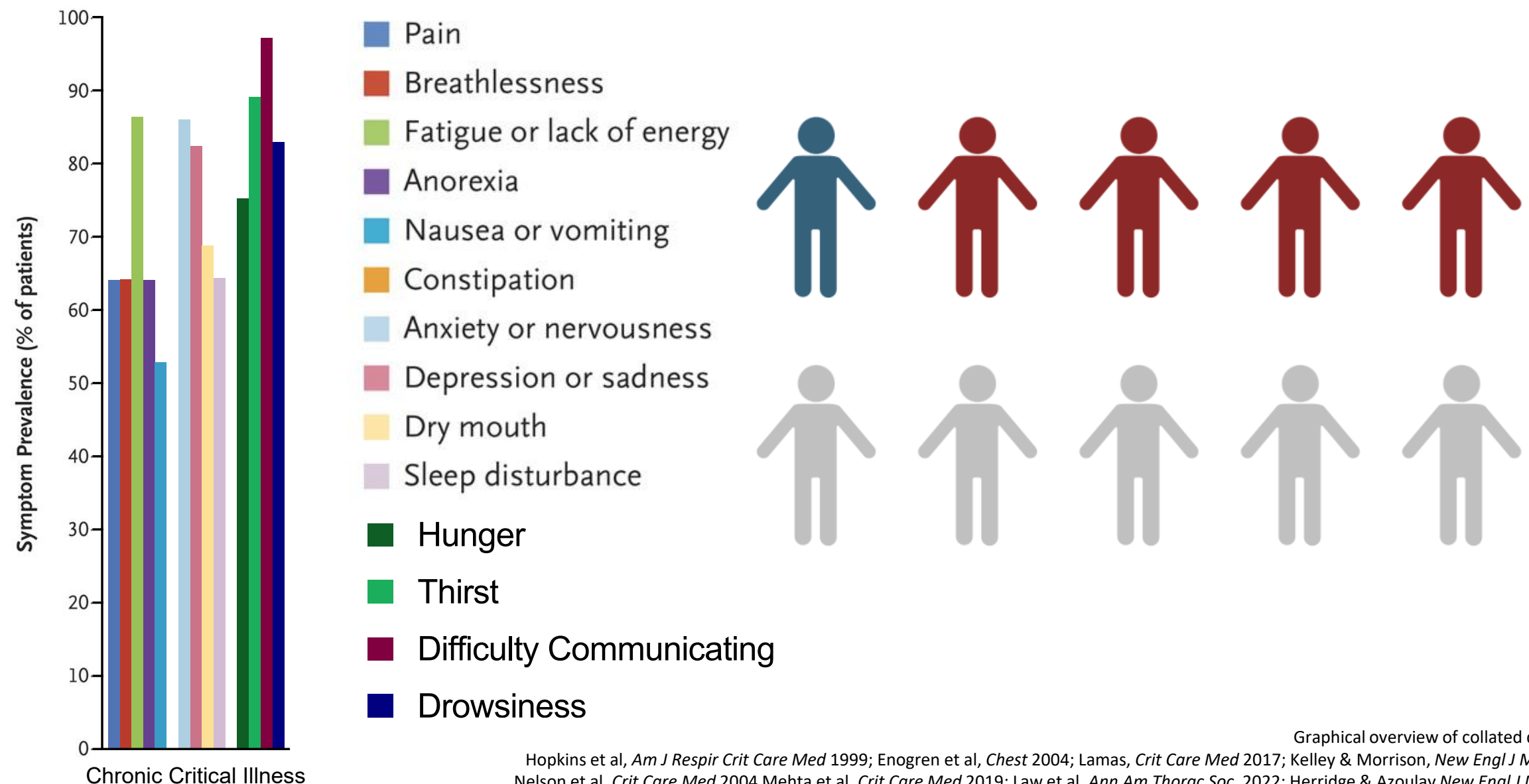


# Assess Understanding, Reframe the Situation

Surrogates of  
126 ICU patients  
at time of trach



# Offer Information to Patients & Surrogates



Graphical overview of collated data from  
Hopkins et al, *Am J Respir Crit Care Med* 1999; Enogren et al, *Chest* 2004; Lamas, *Crit Care Med* 2017; Kelley & Morrison, *New Engl J Med* 2015;  
Nelson et al, *Crit Care Med* 2004 Mehta et al, *Crit Care Med* 2019; Law et al, *Ann Am Thorac Soc.* 2022; Herridge & Azoulay *New Engl J Med* 2023



# Expect Emotion, Respond with Empathy

## Name

- I notice your hands are clenched.
- I see this is upsetting.

## Understand

- I can't imagine how hard this must be.

## Respect

- I admire how much you are advocating for your loved one.

## Support

- Our team will be here all night.
- We will check in again tomorrow.

## Explore

- Could you tell me more about what worries you the most?

## Silence

- [Sit together]
- [Give time for processing]



# Map Goals & Values: in Context of Prognosis

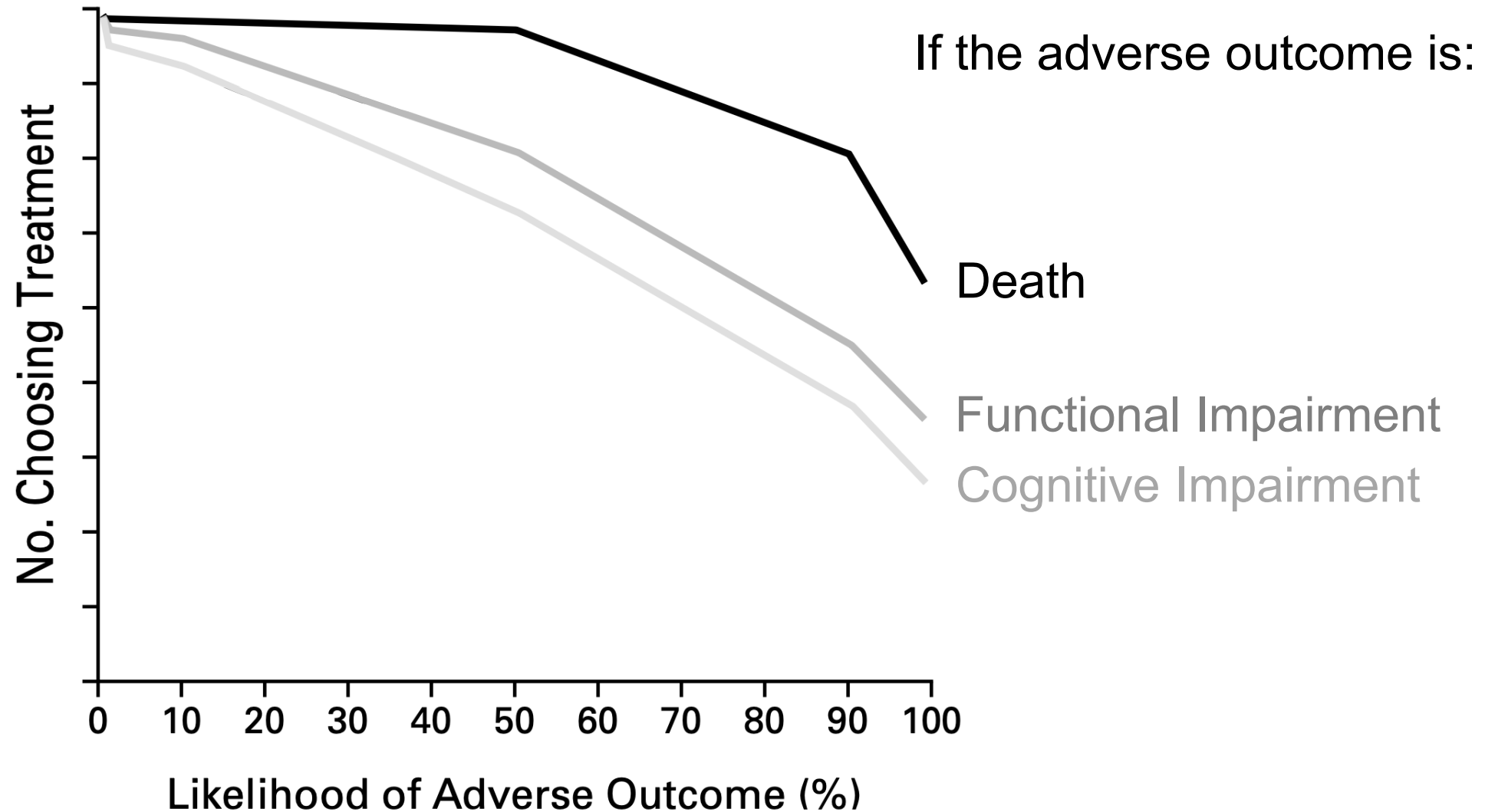
What's most important to you?



Photograph shared with permission  
Statements adapted from *What's in the Syringe?*  
*Principles of Early Integrated Palliative Care* by  
Jacobsen, Jackson, Greer & Temel



# Patients Have Competing Goals: Survival is Not Always Most Important



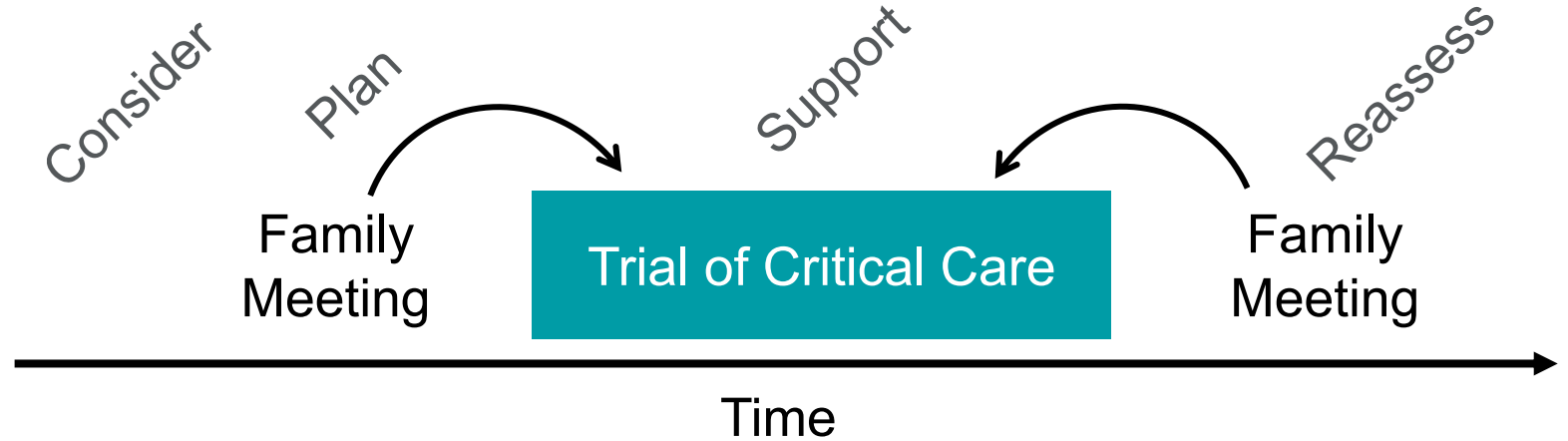
# Align Hope

## Communication

- “I hope” / “I wish”
- “I worry”

## Time-Limited Trial

- Consider
- Plan: *discuss what improvement means*
- Support
- Reassess



2021 Trial, *JAMA*:

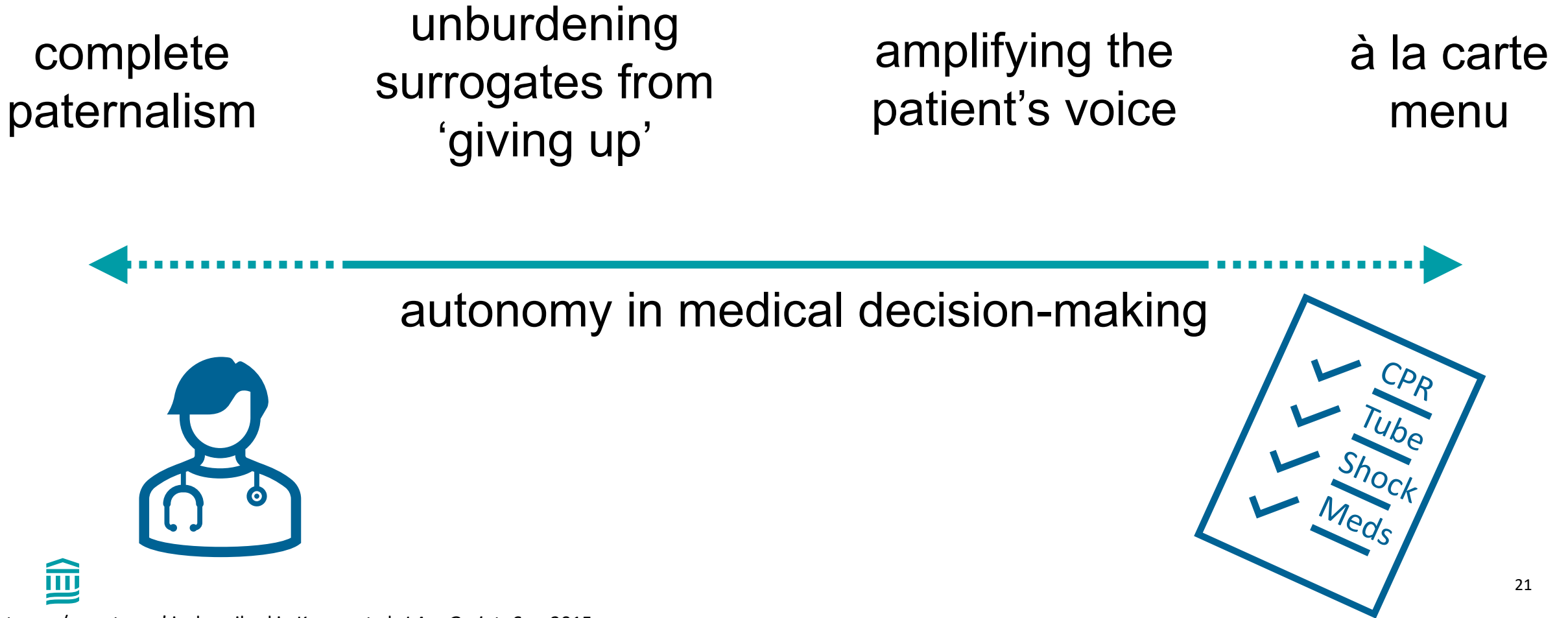
N=209 patients

↑ Communication

↓ LOS

∅ Δ Mortality

# Propose a Plan: Titrate Shared Decision-Making



# Unburden Surrogates: Ask Permission, Then Recommend

## Open the conversation

"I'd like to talk about what is ahead with your illness. Would that be ok?"

## Assess prognostic awareness

"What is your **understanding** of your illness?"

"Looking to the future, what are your **hopes** about your health?" "What are your **worries**?"

## Share hope and worry

"Would it be ok if we talked more about what lies ahead?"

Function: "I hear you're **hoping** for \_\_\_\_\_ and I **worry** the decline we've seen is going to continue."

Time: "I hear you're **hoping** for \_\_\_\_\_ and I **worry** something serious may happen in the next few (wks/mths/yrs)."

## Align

"I **wish** we didn't have to worry about this."

## Explore what's important

"If your health worsens, what is most important to you?"

"How much do your family or friends know about your priorities and wishes?"

## Close the conversation

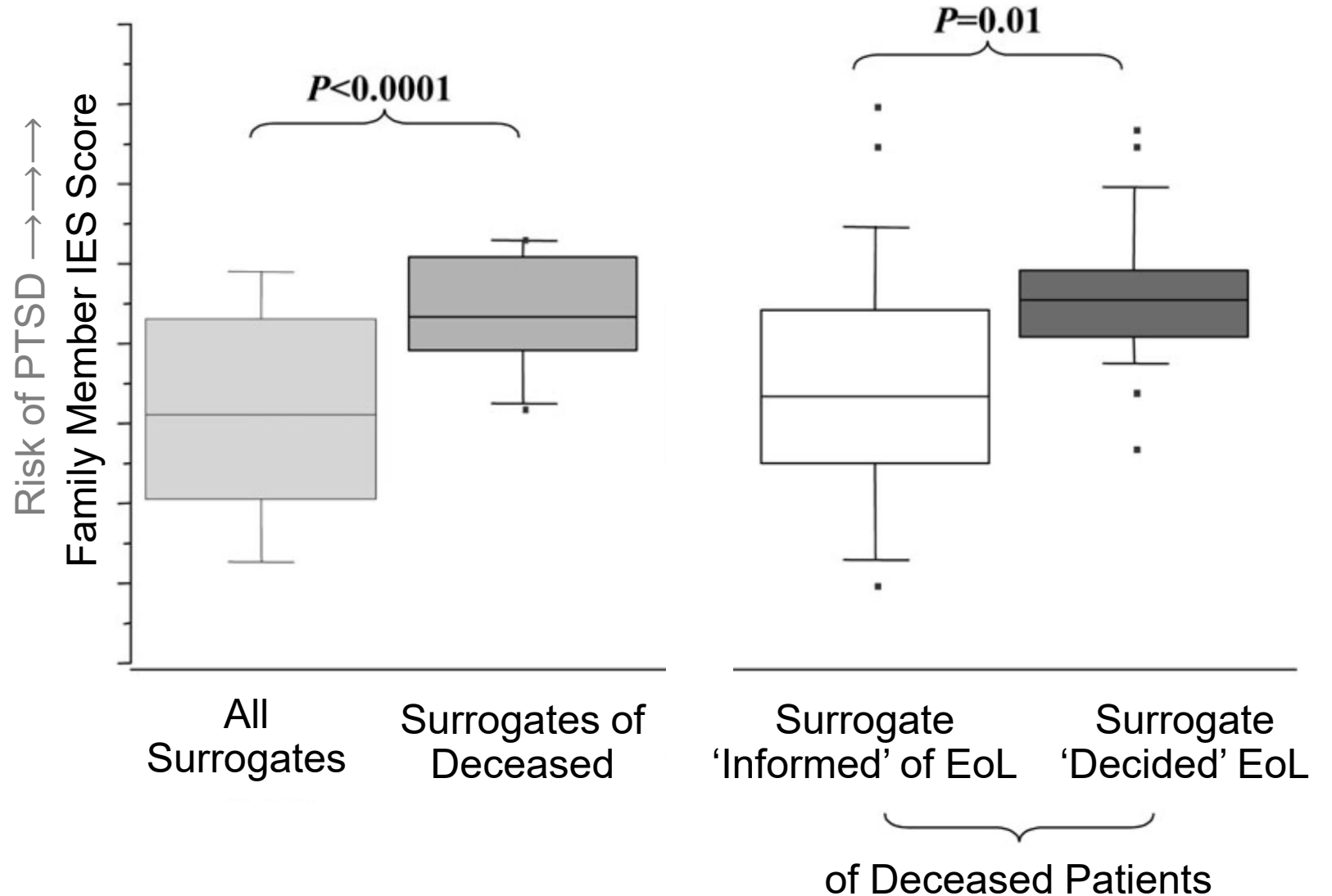
"It sounds like \_\_\_\_\_ is very important to you."

"Given what's important to you, I would recommend..."



# ICU Decisions are Traumatizing

- 281 surrogates of ICU patients
- Interviewed 90 days after ICU discharge or death
- Impact of Events Scale: severity of post traumatic stress reactions
- Identified patient & surrogate risk factors for PTSD



# Take-Home Points

- Palliative Care is specialized medical care for patients with serious illness, at any stage of illness, to improve quality of life by reducing symptoms and stress of illness. It can improve outcomes!
- Symptom management includes careful selection of medication, route, dose, and frequency – all adjusted for the patient's organ failure(s) – and most commonly starts with frequent PRN dosing
- Serious Illness Communication frameworks:
  - Reframe the situation
  - Expect & respond to emotion
  - Map goals & values, given prognosis
  - Align hope
  - Propose a plan
    - Titrate Shared Decision-Making





# References & Resources:



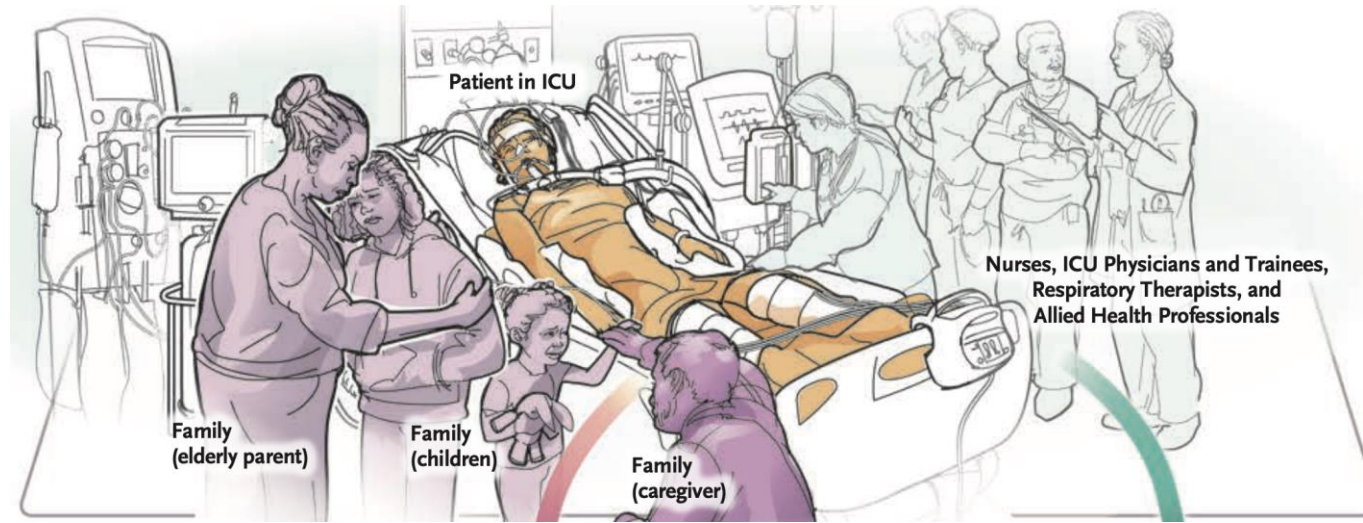
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# Additional Slides

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# Challenges to discussing the 'big picture' in the ICU



Anxiety / Stress / PTSD  
Setbacks & Recoveries  
'Positive Thinking'  
Decision-Making Trauma  
Prior discussions

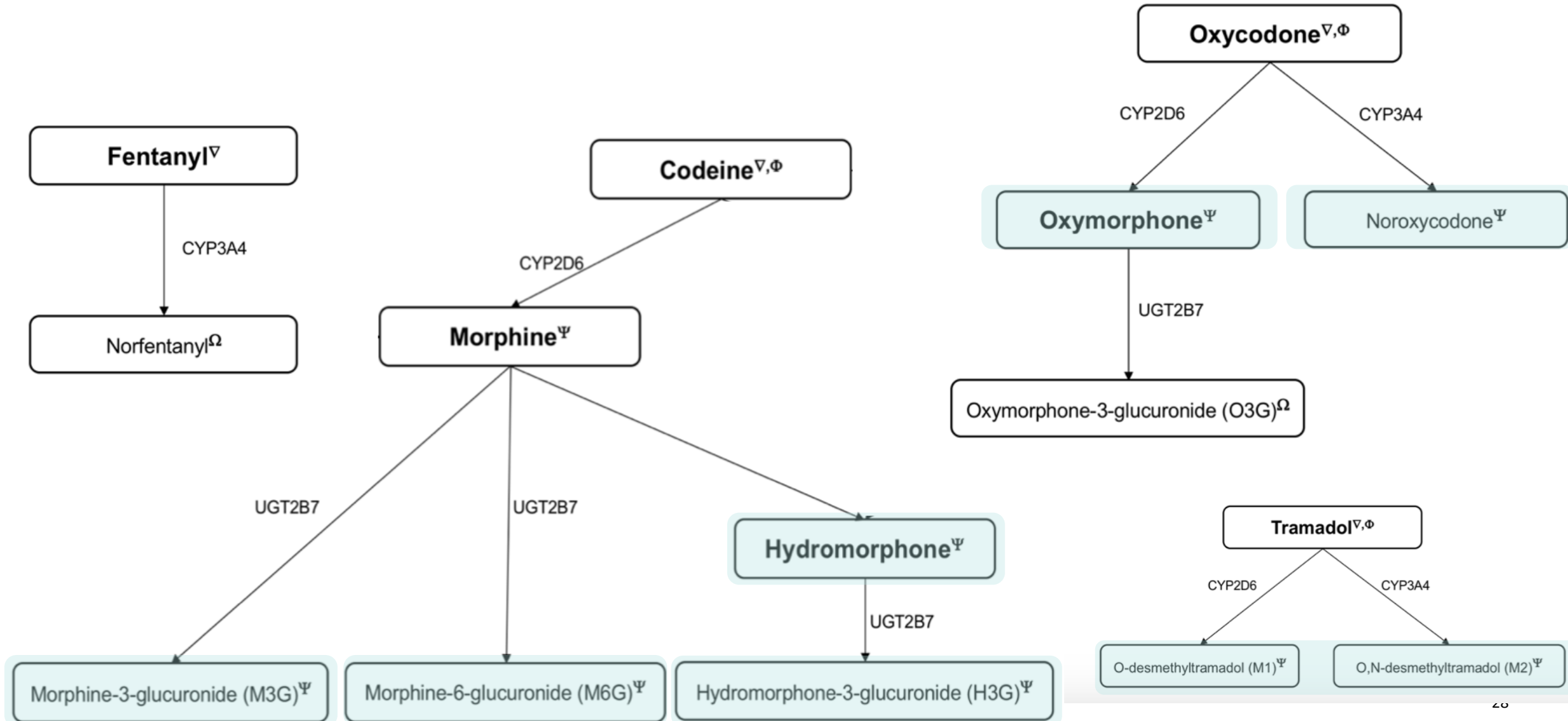
– what's different now?

Active Symptoms  
Ambivalence  
History of survival

Varied trajectories  
Subjectivity  
Structural Racism  
Therapeutic Nihilism  
Moral Distress  
Medical Hierarchy

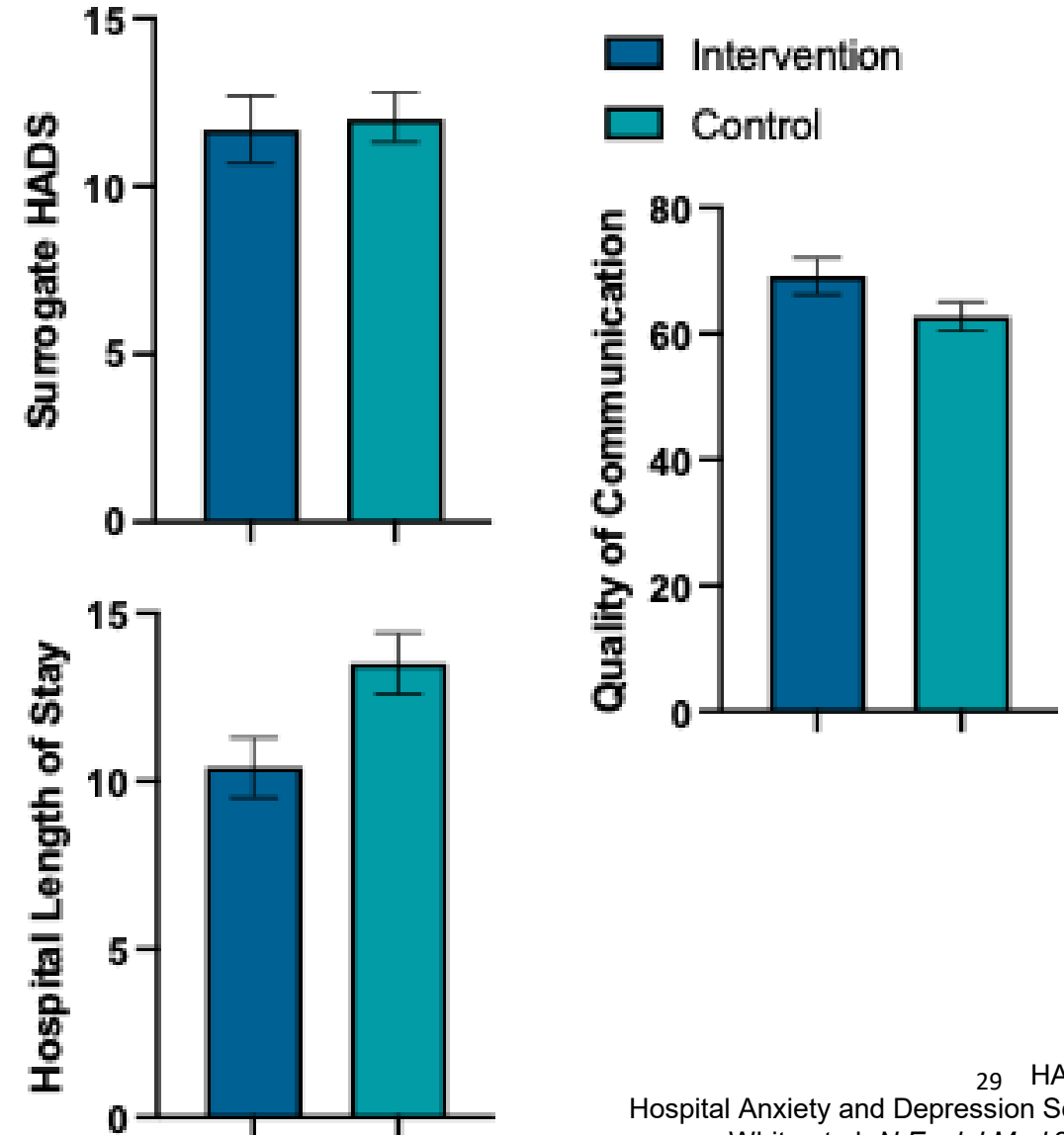


# Beware of Active Opioid Metabolites That Are Not Cleared



# Interprofessional Family Support in ICUs

- Nurse-led primary ICU team intervention
- No change in primary outcome: surrogate scores for anxiety and depression
- Statistically better scores for communication, patient-centeredness
- Shorter length of stay



### Opioid Dosing in Renal Impairment

- The degree to which renal impairment affects analgesia, side effects, and toxicity of opioids is not well understood due to the lack of sufficient evidence.
- Glomerular filtration rate (GFR) recommendations have been provided to correlate with literature; however, creatinine clearance (CrCl) should also be assessed for dose adjustments.

| Opioid Dosing in Renal Impairment |                                                                      |                                                     |                                                                      |                                                                                                               |                                                                                                                                                                      |
|-----------------------------------|----------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agent                             | Renal Impairment                                                     |                                                     | Dialysis                                                             | Renal Excretion Percentage                                                                                    | Comments                                                                                                                                                             |
|                                   | GFR 10 – 50 mL/min*                                                  | GFR < 10 mL/min*                                    |                                                                      |                                                                                                               |                                                                                                                                                                      |
| Codeine                           | Do not use                                                           |                                                     |                                                                      |                                                                                                               | <b>Do Not Use</b>                                                                                                                                                    |
| Morphine                          | Reduce dose by 25 – 50% if used                                      | Avoid use; reduce dose by 50 – 75% if necessary     | Use cautiously<br><br>Dialyzable                                     | ~ 90%<br><br>Not recommended in ESRD due to accumulation of drug & metabolites                                | <b>Avoid Use</b><br>If must be used, monitor closely for side effects and neurotoxicity                                                                              |
| HYDROmorphine<br>HYDROcodone      | Reduce dose by 25 – 50% if used; prolong dosage interval             | Reduce dose by 50% if used; prolong dosage interval | Dialyzable<br><br>Use cautiously                                     | Hydromorphone: 75%<br><br>Hydrocodone: 6.5%<br><br>Inactive metabolites may accumulate in renal insufficiency | <b>Less Safe</b><br>IV hydromorphone is <b>commonly used</b> in renal insufficiency in clinical practice<br><br>Side effects typically occur over prolonged exposure |
| OxyCODONE                         | Reduce dose by 50% if used                                           | Use cautiously & prolong dosing interval            | Use cautiously & prolong dosing interval<br><br>Partially dialyzable | 75 – 85%<br><br>↓ excretion of metabolites & ↑ T ½ in uremia                                                  | <b>Less Safe</b><br><br>Insufficient evidence for safety in renal impairment                                                                                         |
| FentaNYL                          | May reduce dose by 25%                                               | Reduce dose by 50%                                  | Overall not dialyzable<br><br>May be dialyzable by some filters      | 75 %<br><br>No clinically active metabolites                                                                  | <b>Most Safe</b>                                                                                                                                                     |
| Meperidine                        | Do not use (see <a href="#">page 6</a> )                             |                                                     |                                                                      |                                                                                                               | <b>Do Not Use</b>                                                                                                                                                    |
| Methadone                         | Dose reduction may be required alongside clinical assessment.        |                                                     | Not dialyzable                                                       | 21% as unmetabolized<br><br>No clinically active metabolites                                                  | <b>Safety considerations vary</b><br>Methadone is commonly used in renal insufficiency in clinical practice                                                          |
| Buprenorphine                     | Insufficient evidence for recommendations in renal insufficiency     |                                                     | Not dialyzable                                                       | 27 – 30%                                                                                                      | <b>Less Safe</b><br>Eliminated through the biliary system                                                                                                            |
| Tapentadol                        | No dose adjustment                                                   | Do not use                                          | Partially dialyzable                                                 |                                                                                                               | <b>Less Safe</b>                                                                                                                                                     |
| TraMADol                          | Reduce initial dose; prolong dosage interval to Q12H; max 200 mg/day | Do not use in GFR < 30 mL/min                       | 7% of drug and active metabolite removed by dialysis                 | 90% (30% as unmetabolized)<br><br>↑ T ½ in renal insufficiency                                                | <b>Less Safe</b><br>Do not use long-acting tramadol<br><br>Risk for seizures high with ↑↑ uremia & drugs that ↓ seizure threshold                                    |

\*Glomerular filtration rate (GFR) recommendation interpretation should be coupled with evaluating the degree and duration of renal dysfunction, such as AKI, CKD, vs. acute on chronic CKD.

| Opioid Dosing in Hepatic Impairment |                                                                     |                        |                                                                |                                                                                                                                                                           |
|-------------------------------------|---------------------------------------------------------------------|------------------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agent                               | Degree of Hepatic Impairment                                        |                        |                                                                | Comments                                                                                                                                                                  |
|                                     | Mild                                                                | Moderate               | Severe                                                         |                                                                                                                                                                           |
| Codeine                             | Avoid use                                                           |                        |                                                                | <b>Avoid Use</b>                                                                                                                                                          |
| Morphine                            | Prolong dosage interval or reduce doses, titrate slowly             |                        | Avoid use                                                      | <b>Avoid Use</b><br>↑ bioavailability, ↑ T ½, ↓ clearance                                                                                                                 |
| OxyCODONE                           | Reduce dose by 25-50%, prolong dosage interval                      |                        | Avoid use                                                      | <b>Less Safe</b><br>↑ T ½, ↓ clearance<br>Unpredictable serum levels                                                                                                      |
| HYDROcodone                         | No adjustment required                                              |                        | Initiate at 50% dose                                           | <b>Less Safe</b>                                                                                                                                                          |
| HYDROmorphine*                      | No adjustment required                                              | Reduce dose by 25-50%  | Reduce dose by 50%, prolong dosage interval                    | <b>Most Safe</b>                                                                                                                                                          |
| Methadone*                          | No adjustment required                                              | No adjustment required | Avoid use – if needed, careful titration                       | <b>Safety considerations vary</b><br>Low 1 <sup>st</sup> pass metabolism → significant absorption from GI tract<br>↑ T ½, ↓ clearance                                     |
| Buprenorphine                       | TD: Start with lowest dose (5 mcg/hr)<br>SL: No adjustment required |                        | TD: Avoid use<br>SL: Reduce dose by 50%                        | <b>Less Safe</b><br>Acute hepatitis has been reported with buprenorphine                                                                                                  |
| FentaNYL*                           | TD: Reduce dose by 50%<br>IV bolus: No dose adjustments required    |                        | TD: Use with caution<br>IV bolus: No dose adjustments required | <b>Most Safe via IV bolus</b><br><b>Less Safe via IV infusion</b><br>IV infusion: ↑ T ½ due to lipophilicity & ↑ active drug due to decreased metabolism to inactive drug |
| Meperidine*                         | Do not use (see <a href="#">page #6</a> )                           |                        |                                                                | <b>Do Not Use</b>                                                                                                                                                         |
| Tapentadol                          | No adjustment required                                              | Reduce doses           | Avoid use                                                      | <b>Less Safe</b><br>Extensive 1 <sup>st</sup> pass metabolism (32% bioavailability)                                                                                       |
| TraMADol                            | Prolong dosage interval to Q12H                                     |                        | Avoid long-acting tramadol                                     | <b>Less Safe</b><br>3.2-fold ↑ AUC, 2.6-fold ↑ T ½                                                                                                                        |

\* Heavily protein bound (>70%); serum levels may be increased in low albumin states.