

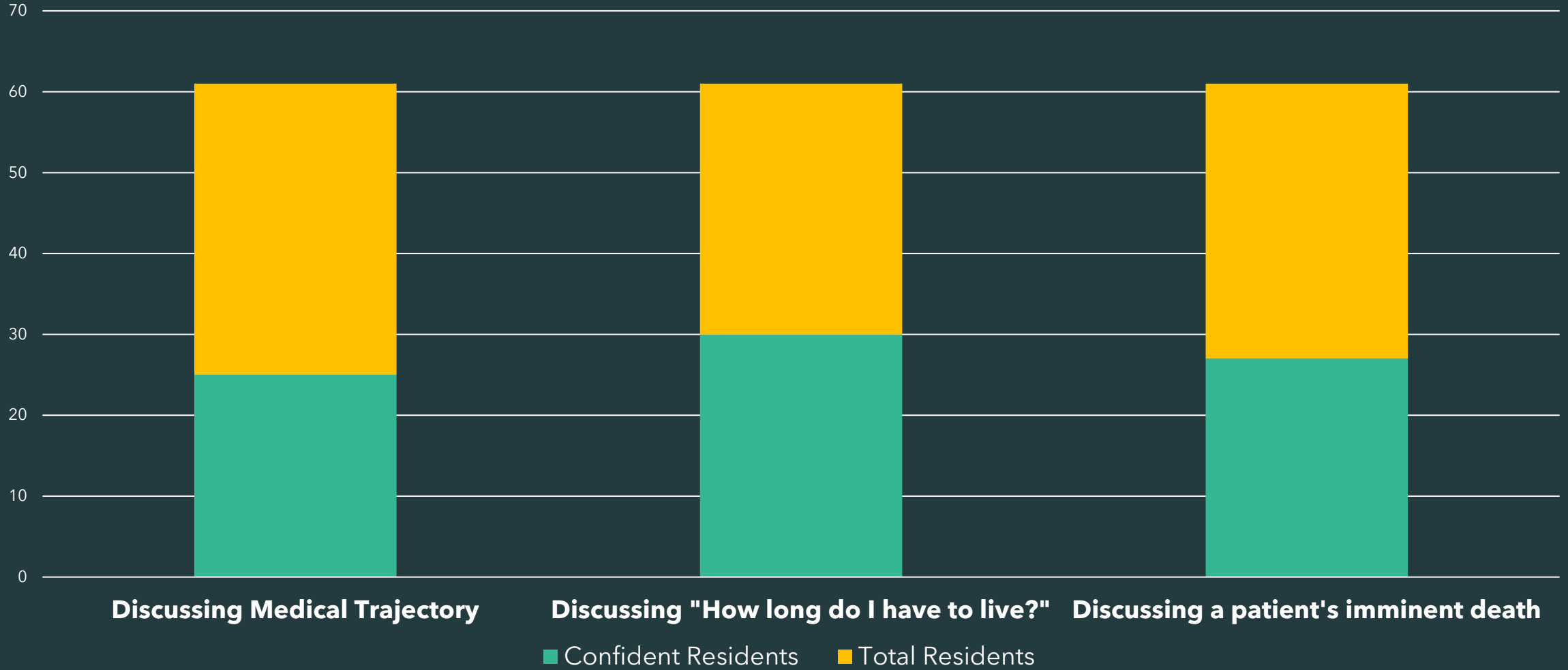


# Chief Lecture: Prognosis

Rachael Petry, MD

Maie El-Sourady, MD

# IM PCEC Data 2021



# Objectives

By the end of this lecture, residents will be able to

- Define prognostication.
- Develop a system for prognostication based on expert guidance.
- Perform a self-evaluation of your own personal barriers to communicating prognosis.

GOAL: Build confidence when discussing prognosis with patients and use those conversations to drive clinical diagnostics and management.

But first...  
an introduction!

Dr. Maie El-Sourady



**Assistant Professor, Internal Medicine, Pediatrics and Palliative Care**  
**Director of Palliative Care Education**  
**Assistant Program Director, Hospice and Palliative Medicine Fellowship**  
**Diversity Liaison**

# Prognostication, a definition

A **prognosis** is the relative probability of various outcomes of an illness. **Prognostication** is made up of 2 parts:


- Foreseeing = **formulation** of a prognosis
- Foretelling = **communication** of that prognosis

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Let's take a break  
for pre-rounding

# A typical day on Morgan Patient #1

83 y/o lady with PMH SLE, A-fib, Hypothyroidism and h/o DVTs/PEs who presented from GI clinic yesterday for poor PO intake, >20 lb weight loss, weakness and abdominal pain. CT A/P from overnight with 6.1 x 4.9 cm pancreatic mass with metastatic disease (liver and gastric lymph node).





## Patient #2

46 y/o morbidly obese (BMI 76) gentleman with PMH of NASH cirrhosis c/b HE, EV s/p banding 10 days prior to arrival, and CKD. Transferred from OSH yesterday with anuria x2 days despite "HRS protocol" (albumin challenge → midodrine + octreotide).

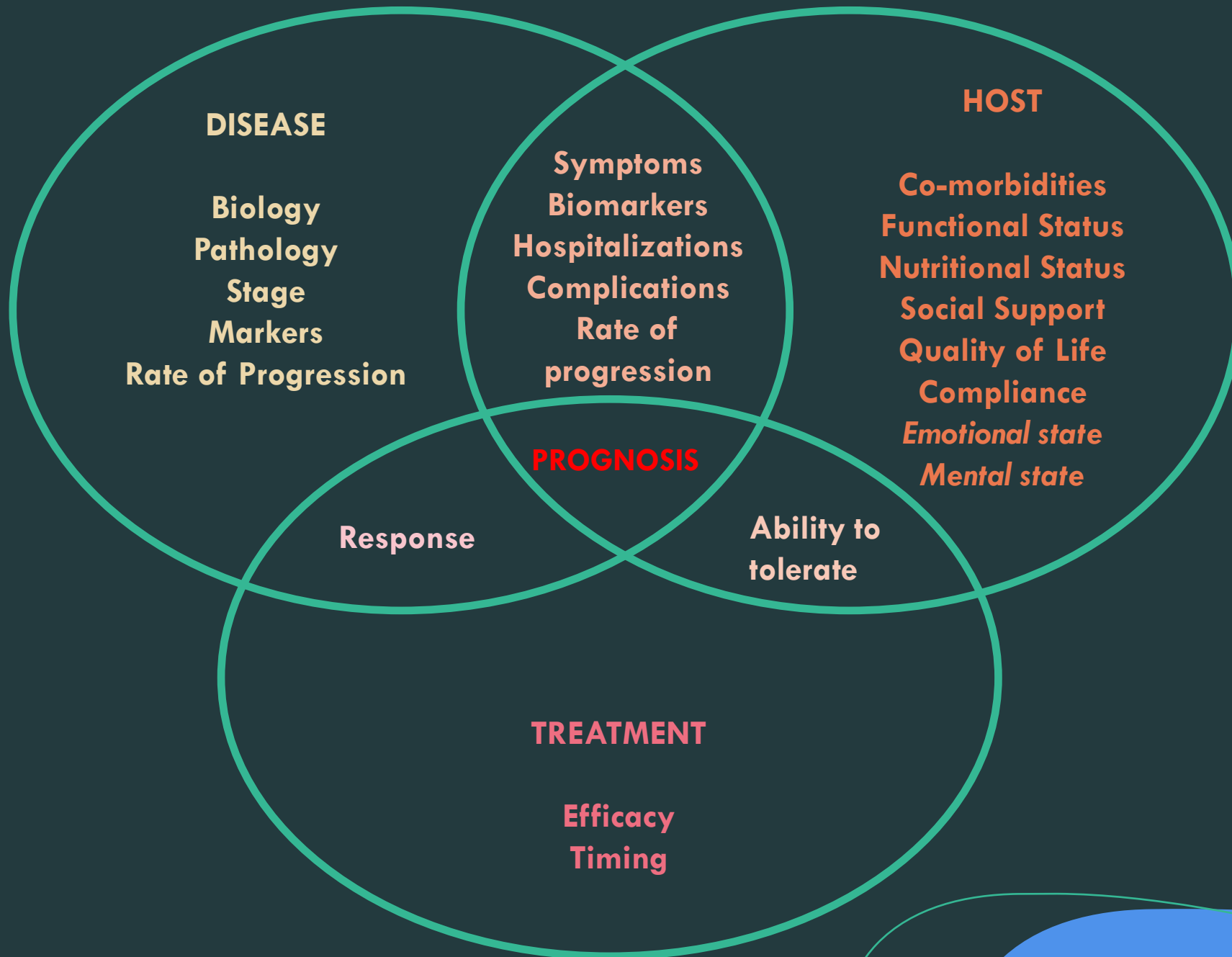
Creatinine today is 5.57, MELD-Na 41.

## Patient #3

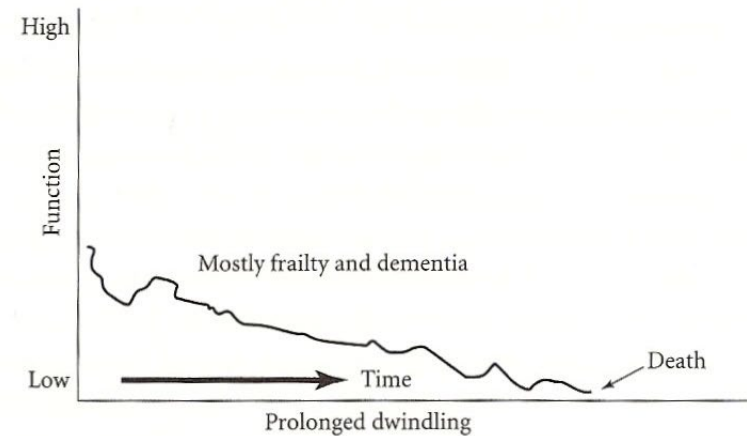
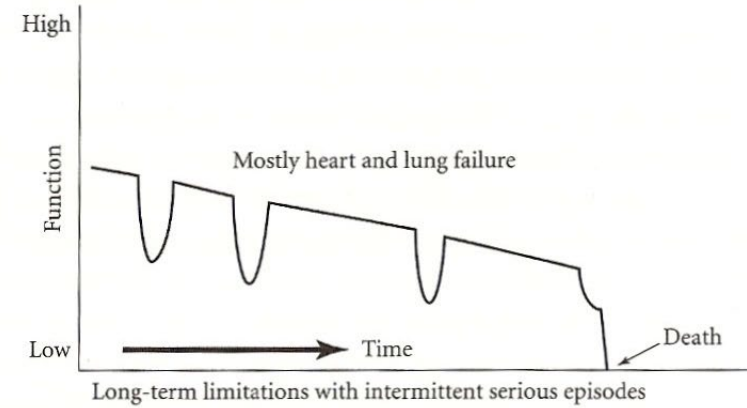
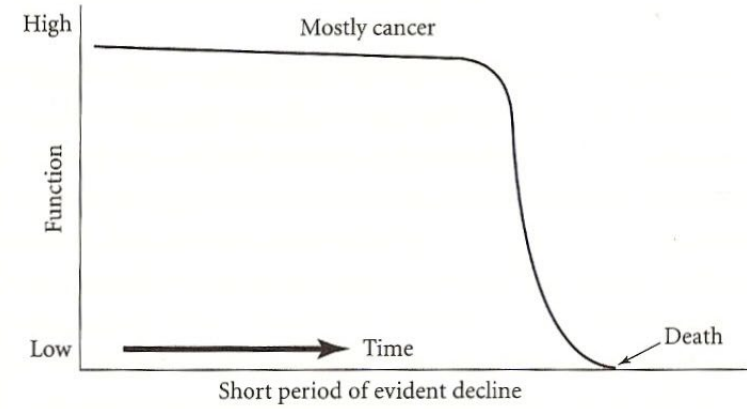
85 y/o previously ferociously independent lady with PMH bladder and cervical cancers (now s/p pelvic radiation (in 1980), ileal conduit (in 2009), ileocolic resection (in 2009) with presence of ostomy and known enterovesicular fistula) who initially presented with inability to perform ADLs due to right leg pain and intense weakness. Found to have extensive RLE DVT, metabolic acidosis with AKI, and MRI pelvis revealed osteomyelitis of pelvis due to new fistula connection. Not interested in further surgical procedures. ID note from yesterday stated, "recommend palliative care consult as this infection is likely not curable given the ongoing fistula."

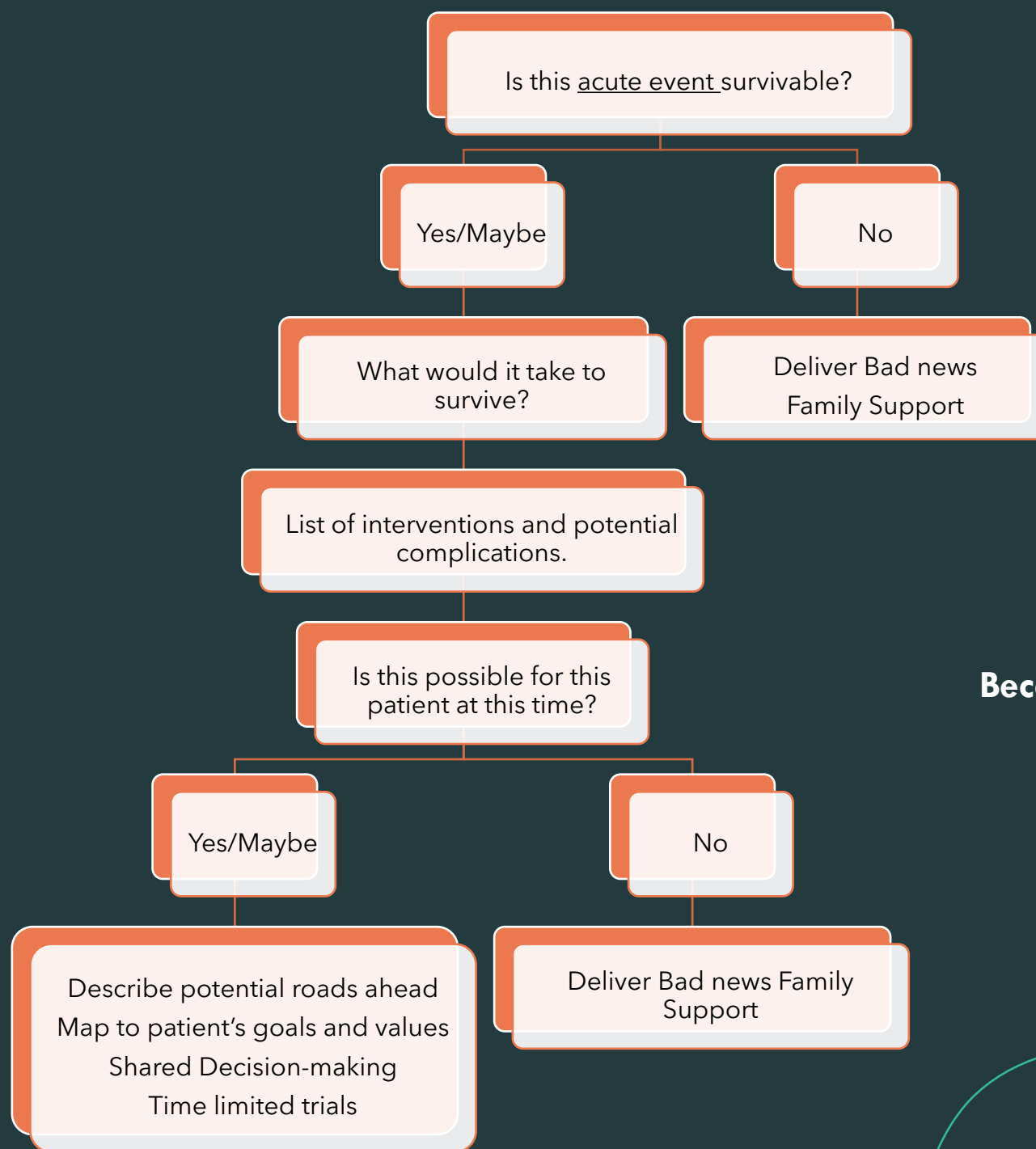


# An Expert Approach to Prognostication



# Medical Trajectory





**Because you all love a good algorithm!**

# Shifting to the foretelling



*"I'm right there in the room, and no one even acknowledges me."*

*The New Yorker, 9/18/06*

# Preparing to Deliver Prognosis

- Ensure your facts are correct
- Estimate average survival and “ballpark” range
- Invite key people
- Protect time
- Think through what you will say!



# Foretelling

## Three fundamental skills

	Example	Notes
<b>Tell me more</b>	"Tell me more about..."	Use when you are not sure what someone is talking about (rather than jump to an assumption).
<b>Ask-tell-ask</b>	"What do you think about..." "Here's what the tests show" "Does that make sense...?"	Related to Assess-Knowledge-Respond in SPIKES. Think of this as one unit of information transfer
<b>"I wish" statements</b>	"I wish I could say that the chemo always works"	Enables you to align with the patient while acknowledging the reality of the situation

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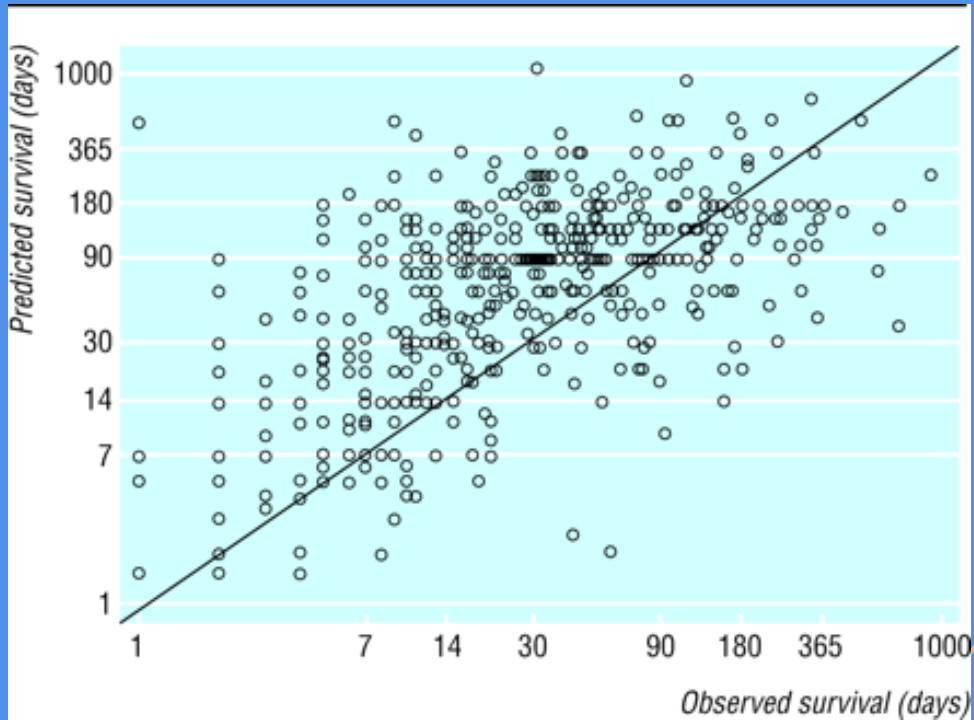


## Barriers to prognostication

- Emotional barriers.
- Concern that you aren't an "expert" in the field—you may be incorrect in your assessment.
- How to form a "ballpark" estimate without clear data?

# Emotional Barriers

- Fear of upsetting patients and family
- Fear of depriving patients and family of hope
- Lack of training and comfort with prognostication

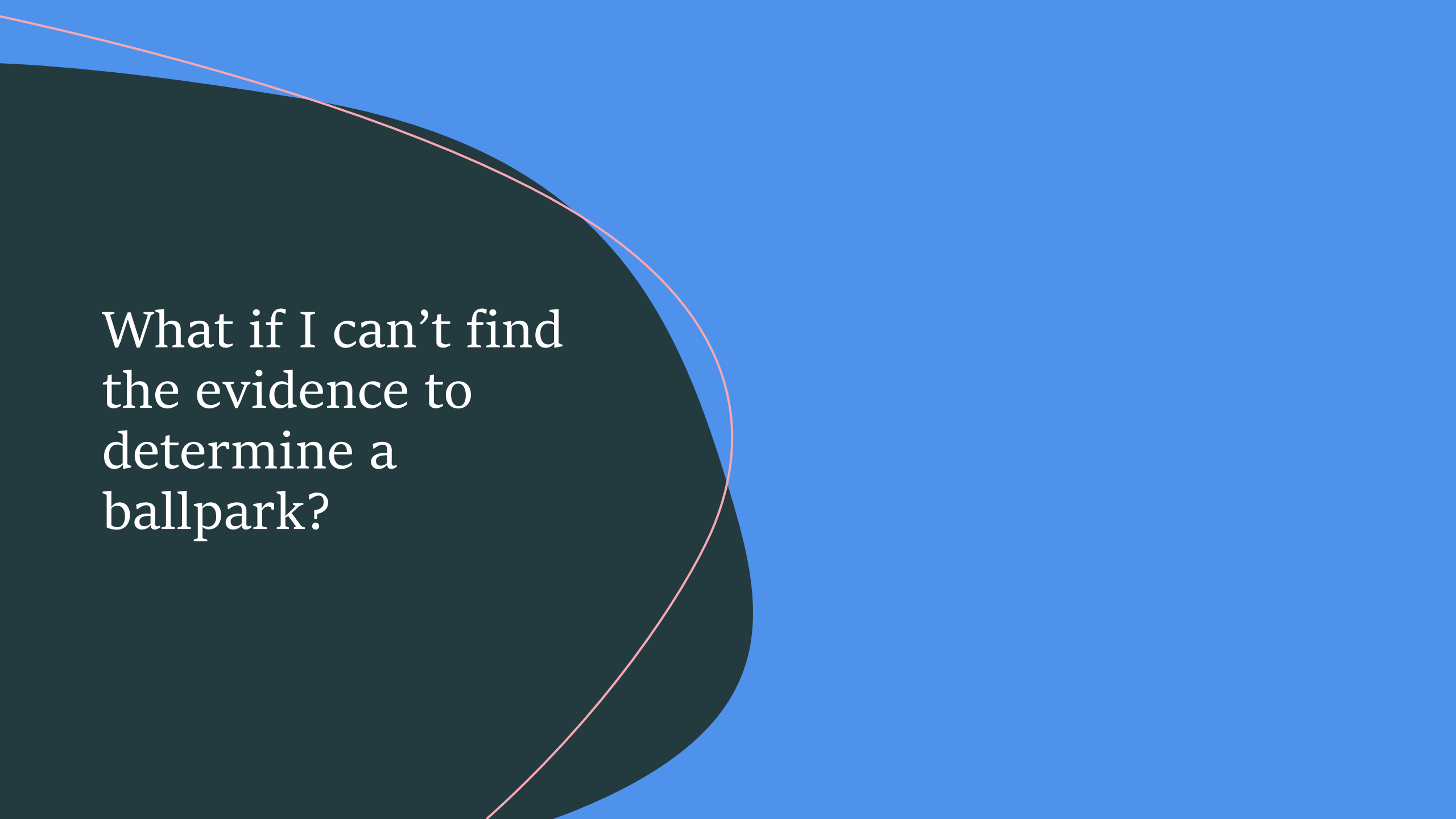


## What if I'm wrong?

You probably will be—but typically you will over-estimate rather than under-estimate survival.

# What if I'm wrong?

- Start with the **caveat**, "It is impossible to predict for any one individual with 100% certainty, but ..."
- Using **ballpark estimates** is important—speaking in terms of "days to weeks", "weeks to months", "months to years" is important.
- Always acknowledge **exceptions** in both directions—ex. a small percent will live longer and a small percent will not have that much time.

A dark teal curved shape on a blue background with a thin red line.

What if I can't find  
the evidence to  
determine a  
ballpark?

# Online Calculators

- **Pallimed**
  - [www.pallimed.org/2007/05/prognosis-links.html](http://www.pallimed.org/2007/05/prognosis-links.html)
  - Multiple prediction tools
  - Last updated 2008
- **Memorial Sloan Kettering Cancer Center (MSKCC)**
  - [www.mskcc.org/nomograms](http://www.mskcc.org/nomograms)
  - Multiple cancer calculators
- **Eprognosis**
  - <http://eprognosis.ucsf.edu/>
  - Incorporates functional data and sorts to different calculators



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The image features a dark teal background. On the left side, there is a large, solid blue shape that resembles a stylized speech bubble or a rounded rectangle with a curved right edge. A thin, light blue line follows the inner curve of this shape. Centered within the blue area is the text "Now, time for rounds!" in a white, serif font.

Now, time for  
rounds!

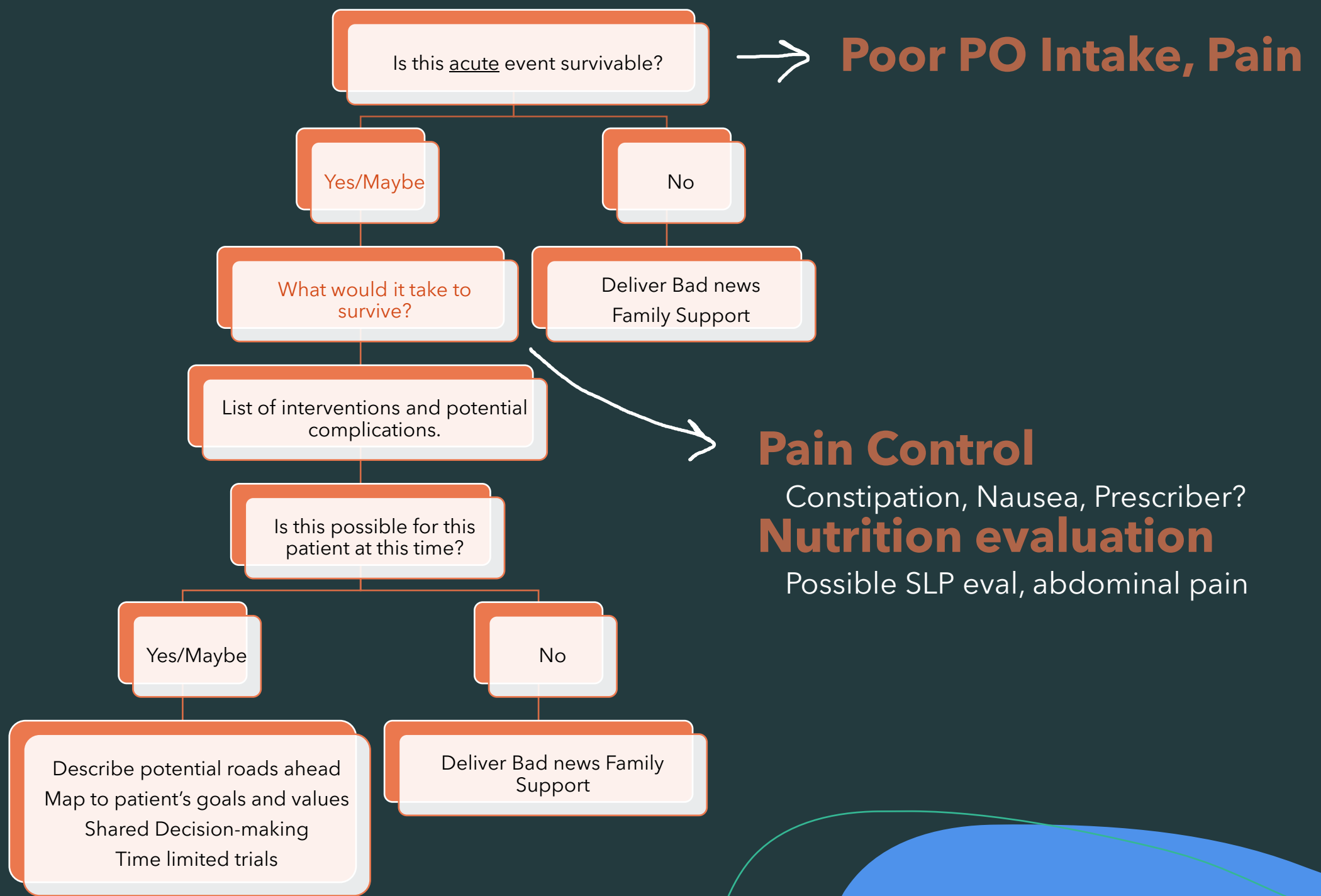


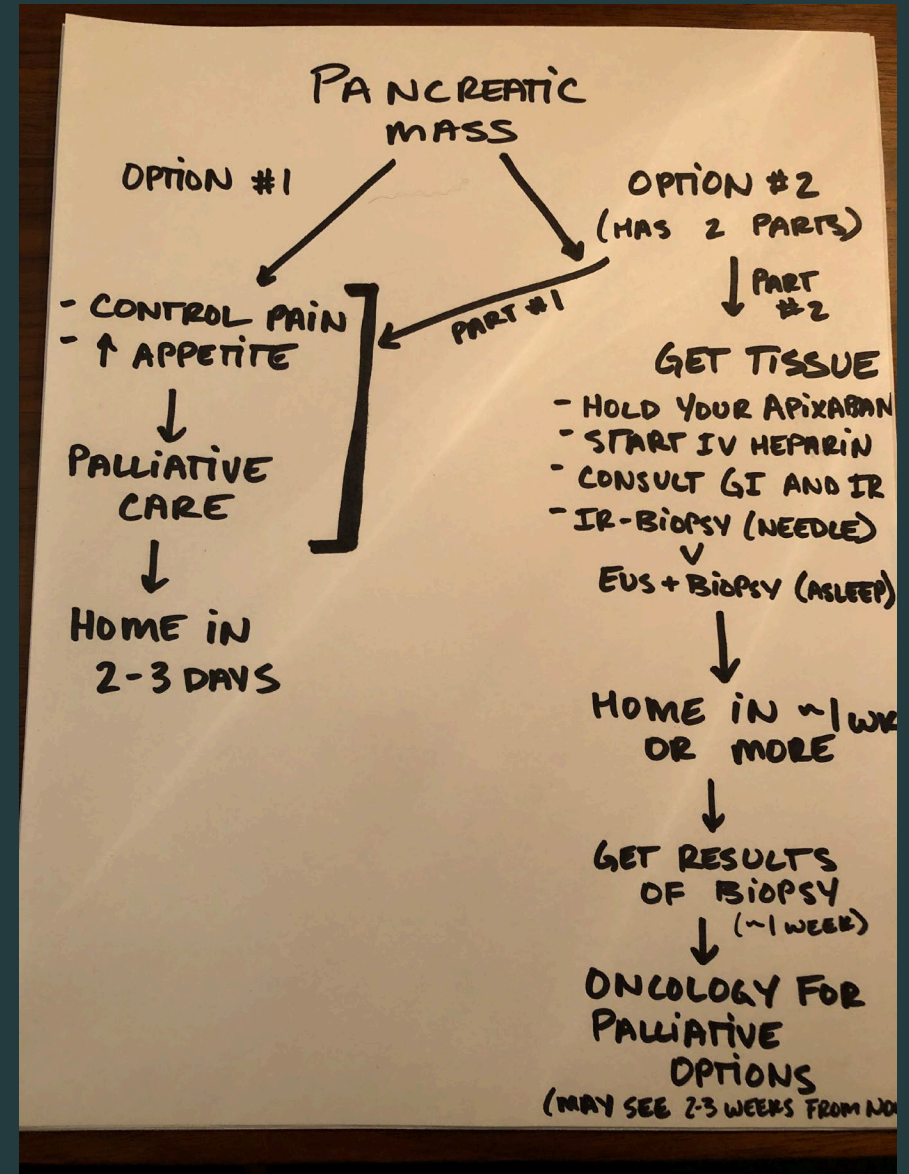
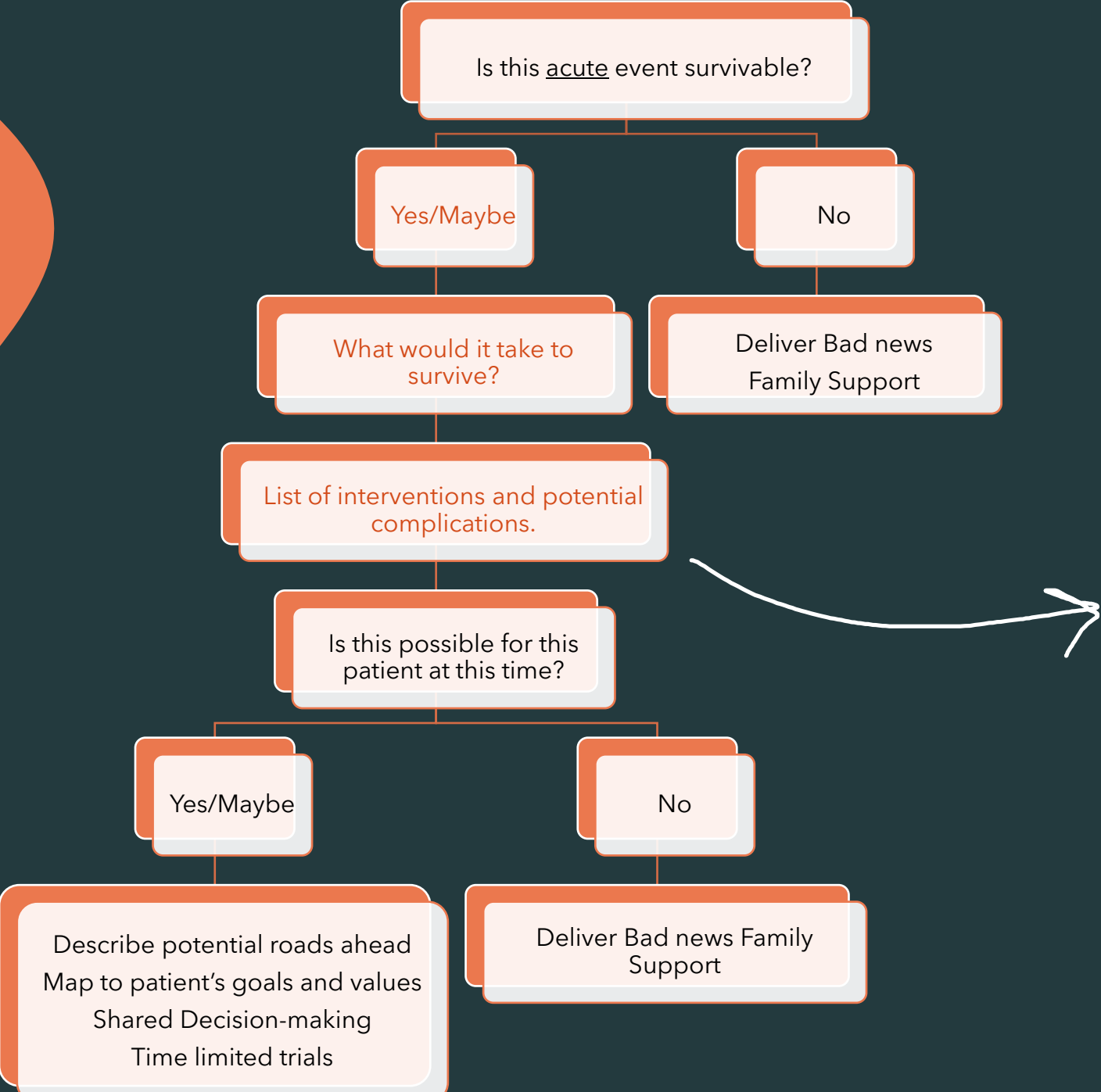
# Patient #1

Our 83 y/o lady with newly identified pancreatic mass with metastatic disease suggested on CT.

...yes, she was extremely nice.







Is this acute event survivable?



Poor PO Intake, Pain

Yes/Maybe

No

What would it take to survive?

Deliver Bad news  
Family Support

List of interventions and potential complications.

Is this possible for this patient at this time?

Yes/Maybe

No

Describe potential roads ahead  
Map to patient's goals and values  
Shared Decision-making  
Time limited trials

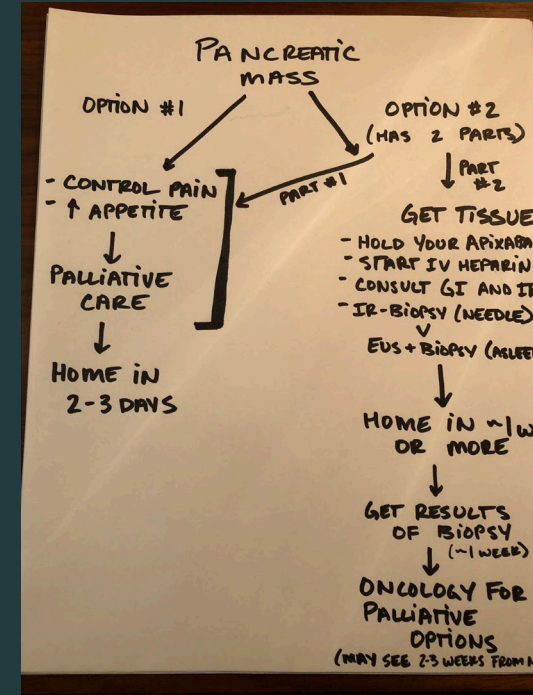
Deliver Bad news Family Support

## Pain Control

Constipation, Nausea, Prescriber?

## Nutrition evaluation

Possible SLP eval, abdominal pain



# Patient #1 – Prognostication

Our 83 y/o lady with newly identified pancreatic mass with metastatic disease suggested on CT. We felt it was very likely metastatic pancreatic carcinoma—and with her age and comorbidities (as well as weight loss and somewhat poor functional status currently), we felt she had **months to live** in the best case scenario.

The image displays two screenshots of a medical article from PubMed. The left screenshot shows the article's title, authors, and abstract. The abstract states: "Pancreatic cancer is a highly fatal disease with a 5-year survival rate of approximately 10% in the USA, and it is becoming an increasingly common cause of cancer mortality. Risk factors for developing pancreatic cancer include family history, obesity, type 2 diabetes, and tobacco use. Patients typically present with advanced disease due to lack of or vague symptoms when the cancer is still localised. High quality computed tomography with intravenous contrast using a dual phase pancreatic protocol is typically the best method to detect a pancreatic tumour and to determine surgical resectability. Endoscopic ultrasound is an increasingly used complementary staging modality which also allows for diagnostic confirmation when combined with fine needle aspiration. Patients with pancreatic cancer are often divided into one of four categories based on extent of disease: resectable, borderline resectable, locally advanced, and metastatic; patient condition is also an important consideration. Surgical resection represents the only chance for cure, and advancements in adjuvant chemotherapy have improved long-term outcomes in these patients. Systemic chemotherapy combinations including FOLFIRINOX (5-fluorouracil, folinic acid [leucovorin], irinotecan, and oxaliplatin) and gemcitabine plus nab-paclitaxel remain the mainstay of treatment for patients with advanced disease. Data on the benefit of PARP inhibition as maintenance therapy in patients with germline BRCA1 or BRCA2 mutations might prove to be a harbinger of advancement in targeted therapy. Additional research efforts are focusing on modulating the pancreatic tumour microenvironment to enhance the efficacy of the immunotherapeutic strategies." The right screenshot shows a section of the article discussing surgical resection and chemotherapy outcomes, mentioning a 11.1-month median survival for a specific regimen.

But CAN we and SHOULD we tell her this?

# Patient #1– Barriers to prognostication

- Lack of tissue/definitive diagnosis.
- Imposter syndrome (I'm not an oncologist).
- More difficult to communicate prognosis as life gets more limited.
- Clarification needed on functional status and social support.
- Questionable nutritional status.



# Patient #1– Outcome

- Patient expressed desire to proceed with biopsy for her (and her family's) peace of mind that this was 100% malignancy.
- Consulted palliative care for assistance with pain management and to set up outpatient follow up.
- IR guided biopsy of liver lesion demonstrated metastatic pancreatic adenocarcinoma.
- Oncology consulted and recommended outpatient follow-up for palliative chemotherapy.

## Patient #2

**Not transplant candidate**

46 y/o morbidly obese (BMI 76) gentleman with PMH of NASH cirrhosis c/b HE, EV s/p banding 10 days prior to arrival, and CKD. Transferred from OSH yesterday with anuria x2 days despite HRS protocol (albumin challenge → midodrine + octreotide).

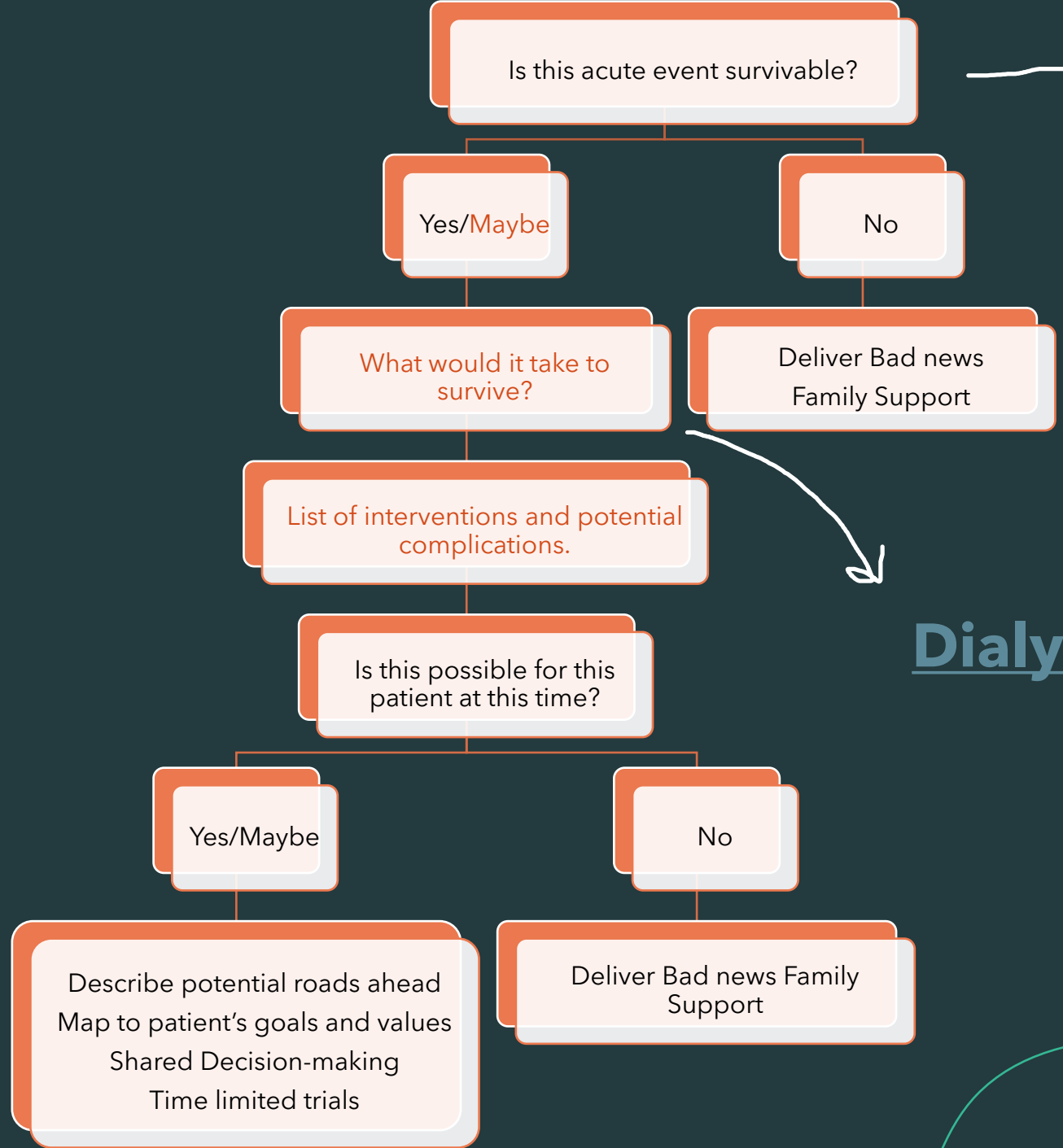
Creatinine today is 5.57, MELD-Na 41.

**Bad sign**

**Also a bad sign**

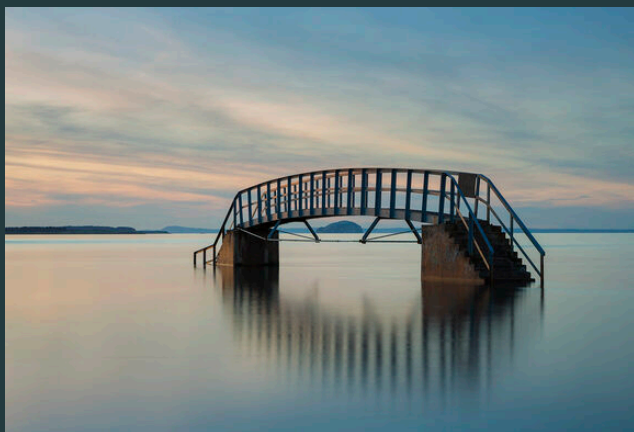
**(MELD-Na of 40 means  
71.3% estimated 3  
month mortality)**

# Anuric Renal Failure



Dialysis

# The dialysis question



## Prognosis of Patients with Cirrhosis and AKI Who Initiate RRT

Andrew S. Allegretti,<sup>1</sup> Xavier Vela Parada,<sup>1</sup> Nwamaka D. Eneanya,<sup>1</sup> Hannah Gilligan,<sup>1</sup> Dihua Xu,<sup>1</sup> Sophia Zhao,<sup>1</sup> Jules L. Dienstag,<sup>2</sup> Raymond T. Chung,<sup>2</sup> and Ravi I. Thadhani<sup>1</sup>

### Abstract

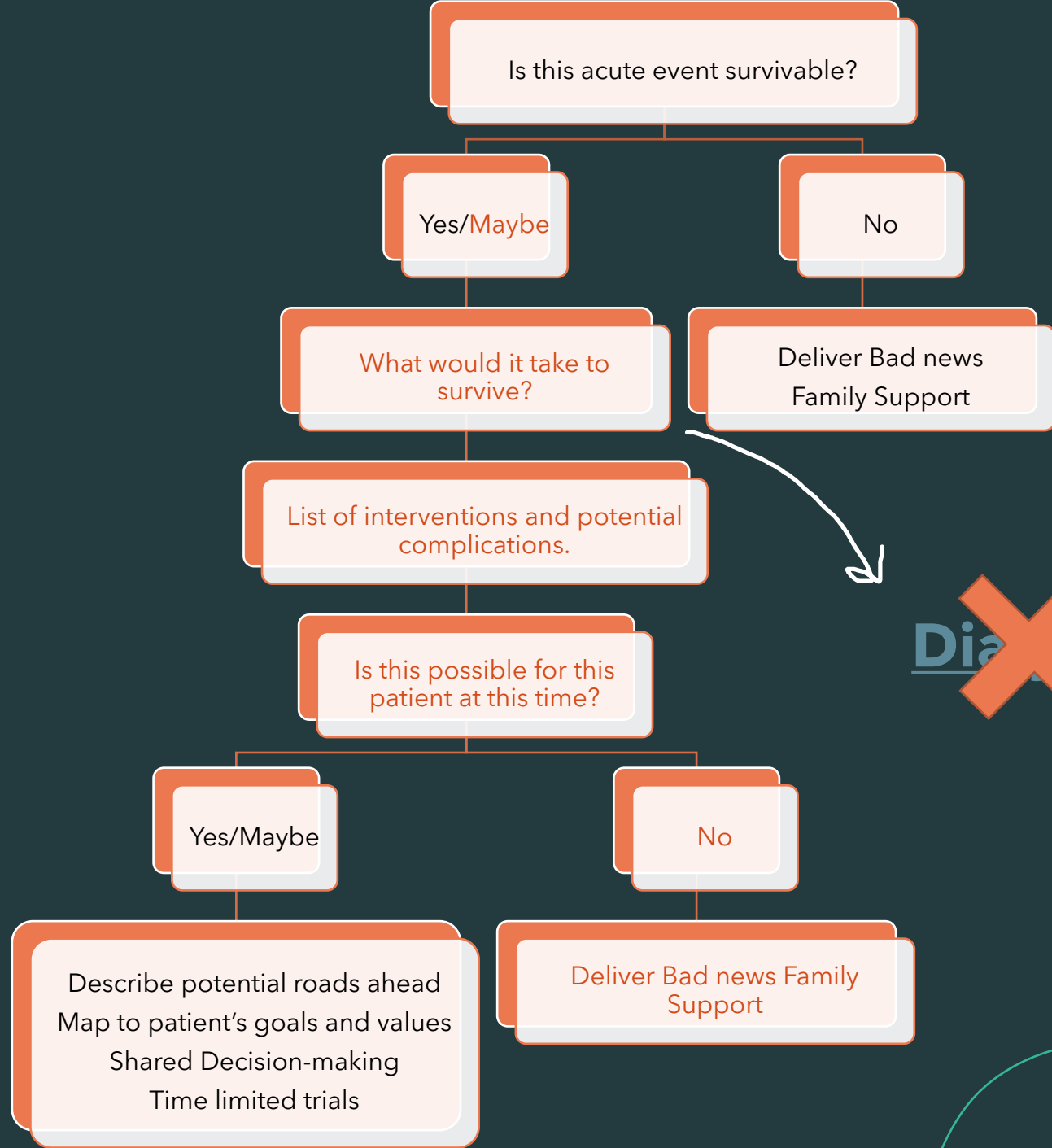
**Background and objectives** Literature on the prognosis of patients with cirrhosis who require RRT for AKI is sparse and is confounded by liver transplant eligibility. An update on outcomes in the nonlisted subgroup is needed. Our objective was to compare outcomes in this group between those diagnosed with hepatorenal syndrome and acute tubular necrosis, stratifying by liver transplant listing status.

**Design, setting, participants, & measurements** Retrospective cohort study of patients with cirrhosis acutely initiated on hemodialysis or continuous RRT at five hospitals, including one liver transplant center. Multivariable regression and survival analysis were performed.

**Results** Four hundred seventy-two subjects were analyzed (341 not listed and 131 listed for liver transplant). Among nonlisted subjects, 15% (51 of 341) were alive at 6 months after initiating RRT. Median survival was 21 (interquartile range [IQR], 8, 70) days for those diagnosed with hepatorenal syndrome and 12 (IQR, 3, 43) days for those diagnosed with acute tubular necrosis ( $P=0.25$ ). Among listed subjects, 48% (63 of 131) received a liver transplant. Median transplant-free survival was 15 (IQR, 5, 37) days for those diagnosed with hepatorenal syndrome and 14 (IQR, 4, 31) days for those diagnosed with acute tubular necrosis ( $P=0.60$ ). When stratified by transplant listing, with adjusted Cox models we did not detect a difference in the risk of death between hepatorenal syndrome and acute tubular necrosis (hazard ratio [HR], 0.81; 95% confidence interval [95% CI], 0.59 to 1.11, among those not listed; HR, 0.73; 95% CI, 0.44 to 1.19, among those listed).

**Conclusions** Cause of AKI was not significantly associated with mortality in patients with cirrhosis who required RRT. Among those not listed for liver transplant, mortality rates were extremely high in patients both with hepatorenal syndrome and acute tubular necrosis.

*Clin J Am Soc Nephrol* 13: 16–25, 2018. doi: <https://doi.org/10.2215/CJN.03610417>



~~Diagnosis~~

# Patient #2- Prognostication

46 y/o morbidly obese (BMI 76) gentleman with PMH of NASH cirrhosis c/b HE, EV s/p banding 10 days prior to arrival, now with anuric renal failure that did not respond to volume expansion and HRS protocol at OSH. As he was not a transplant candidate and had a MELD-Na >40, we did not feel dialysis was appropriate. As he was anuric for 2 days already, we felt his **life was limited to days at best.**

# Patient #2– Barriers to prognostication

- I am not the transplant board—I don't actually the final decision on who gets and does not get a liver.
- Consultant "Wild Card"—will nephrology offer RRT or HD?
- Emotional Barriers
  - Very young (<50 years old) and telling him he has days to live at most
  - Sent to our facility for hope, and I have to destroy it
  - What if he gets better? How is this decompensation different from past episodes?

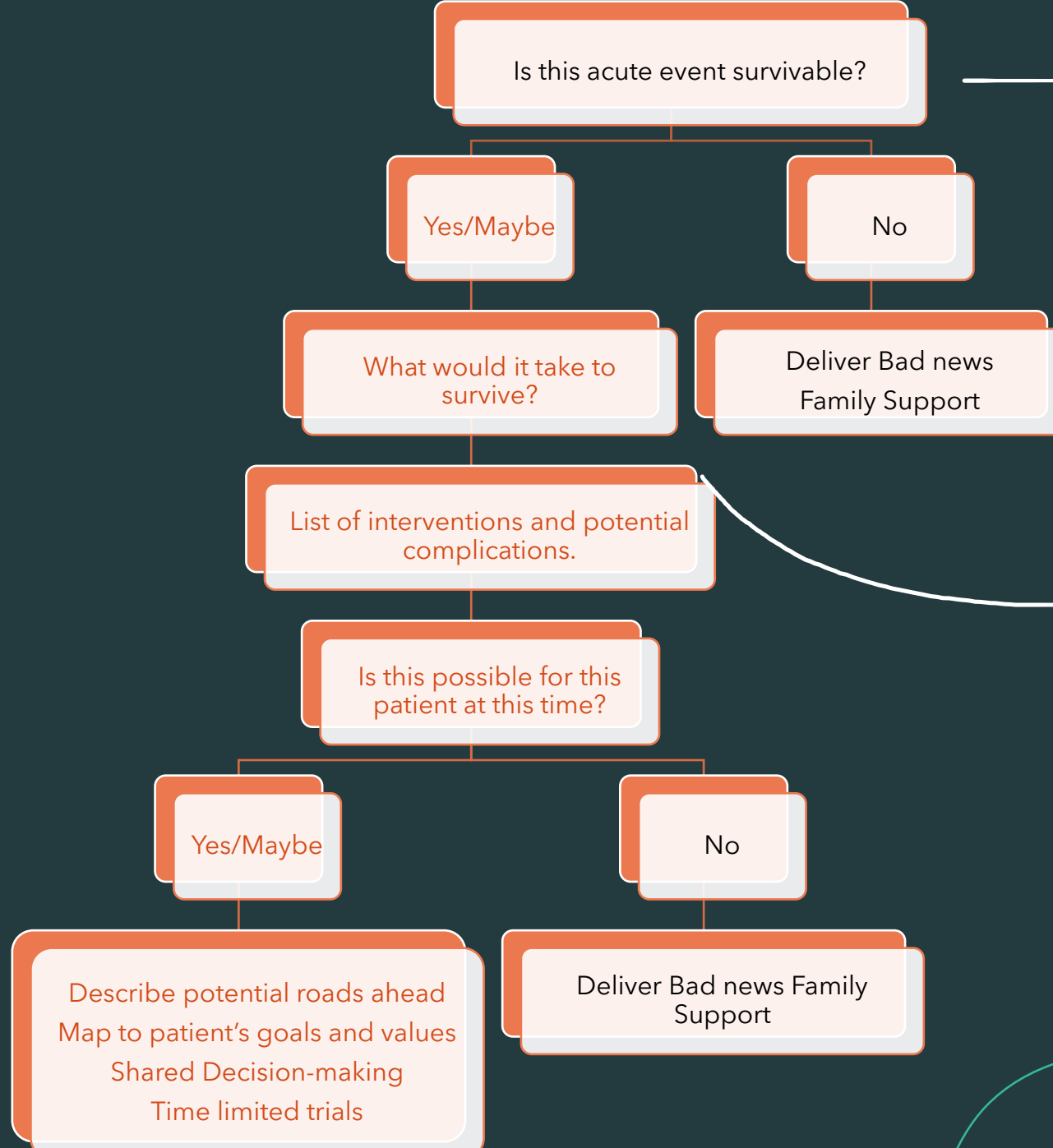
# Patient #2– Outcome

- Nephrology consulted at the request of his family and agreed with futility of HD. Was not offered. Recommended palliative care.
- Hepatology saw at the request of his family. Not transplant candidate, recommend palliative care.
- Palliative care consulted to help set up hospice.
- He died awaiting ambulance transport back to his home out of state.



## Patient #3

85 y/o previously ferociously independent lady with PMH extensive malignancy and cancer history found to have extensive RLE DVT, metabolic acidosis with AKI, and MRI pelvis revealed osteomyelitis of pelvis due to new fistula connection between vagina and pelvis. Not interested in further surgical procedures. ID note from yesterday stated, "recommend palliative care consult as this infection is likely not curable given the ongoing fistula."



→ **RLE Pain, Weakness**

- Anticoagulation**  
Possible Bleed
- Aggressive PT/OT**  
Worsened pain?
- Likely 24/7 care for remainder of her life**  
Loss of independence
- IV antibiotics (possibly forever)**  
Reliance on PICC line  
(possible infectious risk), IV  
abx side effects, possible CDI

# Patient #3 –Communicating Prognosis

85 y/o female with DVT, leg pain resulting in total care and inability to mobilize, and newly diagnosed incurable osteomyelitis of the pelvis due to fistulous connection from vagina to pelvis. Does not want surgery. AKI and Sepsis improving with IVF and antibiotics. Motivated to work with PT/OT but limited given her pain. We **did not know what to tell her** when she asked about prognosis but did share we felt she would **never return to her previous level of independence.**

# Patient #3 – Barriers to prognostication

- No formal guidance to help find the “ballpark”—can we extrapolate from non-operative hip fractures in the elderly?
- How long will ID allow her to go on on chronic antibiotics?
- When will her antibiotics fail?
- Patient motivation—she may want to walk but if she is refusing to work with PT/OT, this may worsen her prognosis.

## Nonoperative Geriatric Hip Fracture Treatment Is Associated With Increased Mortality: A Matched Cohort Study

Jesse D Chlebeck<sup>1</sup>, Christopher E Birch<sup>2</sup>, Michael Blankstein<sup>3</sup>, Thomas Kristiansen<sup>3</sup>, Craig S Bartlett<sup>3</sup>, Patrick C Schottel<sup>3</sup>

Affiliations + expand

PMID: 30844953 DOI: 10.1097/BOT.0000000000001460

### Abstract

**Objective:** To report the mortality data and life expectancy of geriatric hip fracture patients who underwent nonoperative management and compare that with a matched operative cohort.

**Design:** Retrospective cohort study.

**Setting:** Level 1 trauma center.

**Patients:** Geriatric (65 years of age and older) femoral neck or intertrochanteric fracture (OTA/AO 31A and 31B) patients.

**Intervention:** Operative treatment with either arthroplasty, cannulated screws, sliding hip screw device, or cephalomedullary nail compared with nonoperative cohort.

**Main outcome measurements:** In-hospital, 30-day, and 1-year mortality.

**Results:** Two hundred thirty-one patients, comprising 154 operative and 77 nonoperative patients, were compared. There were no significant differences among age, sex, fracture location, Charlson Comorbidity Index, preinjury living location, dementia, and history of cardiac arrhythmia between the 2 cohorts. Nonoperatively managed patients were found to have a significantly higher percent in-hospital (28.6 vs. 3.9;  $P < 0.0001$ ), 30-day (19.6 vs. 11.0;  $P < 0.0001$ ), and 1-year (84.4 vs. 36.4;  $P < 0.0001$ ) mortality. The mean life expectancy after a hip fracture for the nonoperative cohort was significantly shorter than the operative group (221 vs. 1024 days;  $P < 0.0001$ ).

**Conclusions:** Nonoperatively treated hip fracture patients had an 84.4% 1-year mortality that was significantly higher than a matched operative cohort. Our results demonstrate the bleak overall prognosis for nonoperatively treated geriatric hip fractures as well as the associated reduction in mortality with surgical treatment. Our findings offer helpful information by providing updated mortality data when discussing nonoperative hip fracture management with patients and their family.

## Palliative Performance Scale

- Population: Hospitalized patients with palliative care consultation
- Outcome: Median Survival in days
- Scroll to the bottom for more detailed information

### Risk Calculator

1. How ambulatory is this patient?

2. What is the patient's daily level of activity? Is there any evidence of disease?

3. How much self-care assistance does this patient require?

4. How much oral intake does this patient have?

5. What is this patient's level of consciousness?

Your best guess of median survival in days

Calculate risk

## Palliative Performance Scale

- Population: Hospitalized patients with palliative care consultation
- Outcome: Median Survival in days
- Scroll to the bottom for more detailed information

The PPS is 40%.

Worst Case	Most Likely Case	Best Case
Live 21 days	Live 31 days	Live 41 days

The worst case and best case represent the uncertainty in the study used to calculate life expectancy (95% Confidence Intervals).

# Patient #3– Outcome

- She went to a Rehabilitation Hospital where she remained for 2 weeks prior to transfer to SNF. She remains on IV antibiotics, awaiting ID follow up.
- Last PT note, “Attempted visit at 1300 and then again at 1500. Both times she said she was too tired and had too much to do.”
  - Was able to ambulate with contact assistance by time of discharge, but PT/OT notes cited decreased strength and endurance.
  - Still moderately dependent for assistance with self care.

# Tell us how we did!



GOAL: Build confidence when discussing prognosis with patients and use those conversations to drive clinical diagnostics and management.

# Sources

- Allegretti, A. S., Parada, X. V., Eneanya, N. D., Gilligan, H., Xu, D., Zhao, S., ... & Thadhani, R. I. (2018). Prognosis of patients with cirrhosis and AKI who initiate RRT. *Clinical Journal of the American Society of Nephrology*, 13(1), 16-25.
- Christakis NA, Lamont EB. Extent and determinants of error in doctors' prognoses in terminally ill patients: prospective cohort study. *BMJ*. 2000 Feb 19;320(7233):469-72.
- Glare, P., & Christakis, N. A. (Eds.). (2008). *Prognosis in advanced cancer*. Oxford University Press.
- Hauser CA, Stockler MR, and Tattersall MHN. *Support Care Cancer* (2006) 14:999.
- Lynn, J. (2001). Serving patients who may die soon and their families: the role of hospice and other services. *Jama*, 285(7), 925-932.
- Periyakoil, V.J. (2014). Prognostication. <https://palliative.stanford.edu/prognostication/>.