Ward Rounds: Cases in Hospital Medicine

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April 5, 2024

Learning Objectives

1

Update knowledge of current trends in inpatient medicine

2

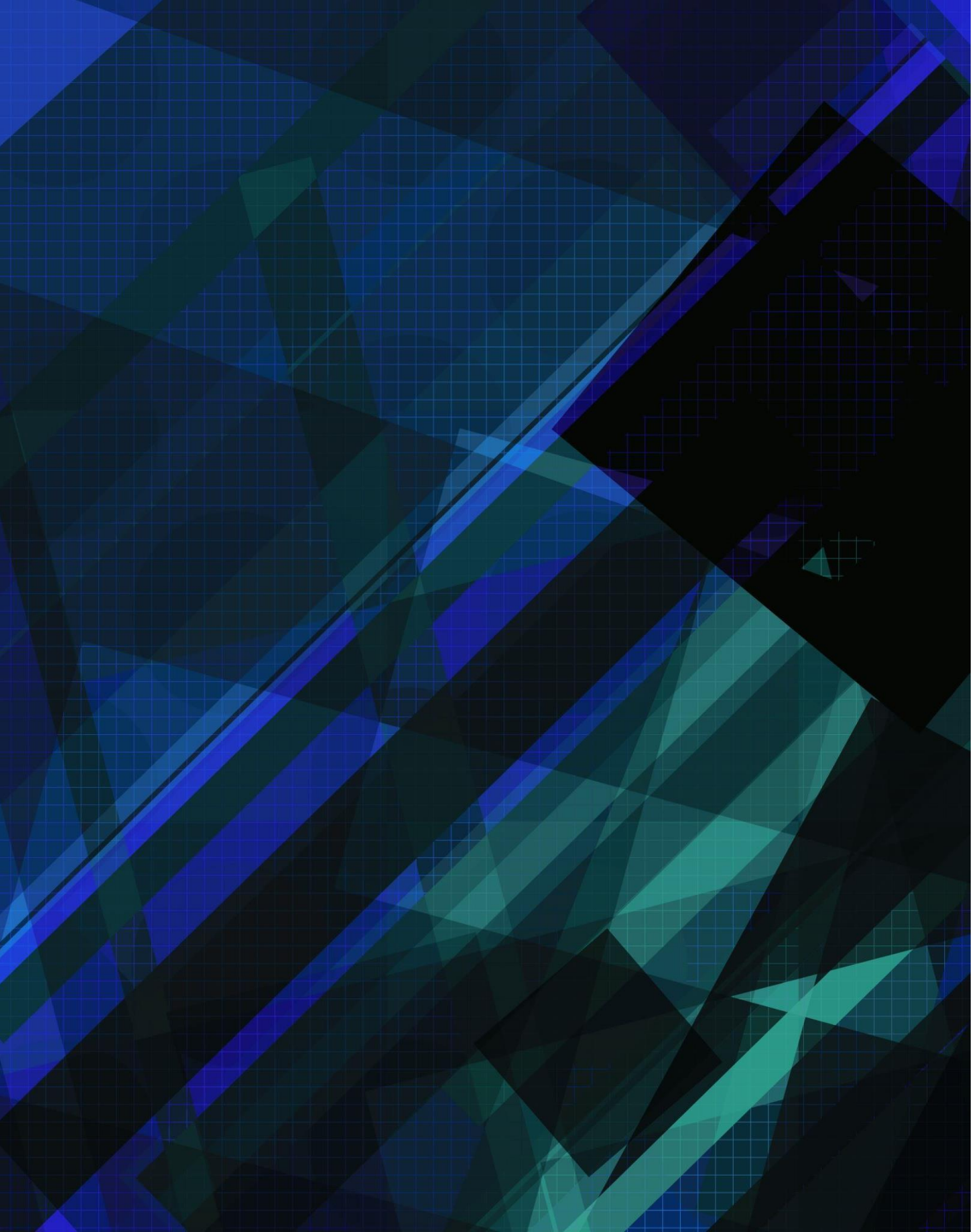
Explore the variety and complexity of acute disease presentation in a population with multiple comorbid chronic illnesses

3

Review current systemic factors impacting the care of patients in the hospital setting

Disclosures

No relevant financial disclosures



Case #1

+ 54 year old female
+ Presenting to the ED with fatigue, dyspnea and increased heart rate for the last two days
+ Hx notable for fibromyalgia, CRPS of left arm, idiopathic intracranial hypertension and obesity
+ COVID infection about 3 weeks prior to presentation, mild constitutional symptoms without hypoxia
    - Treated with Paxlovid

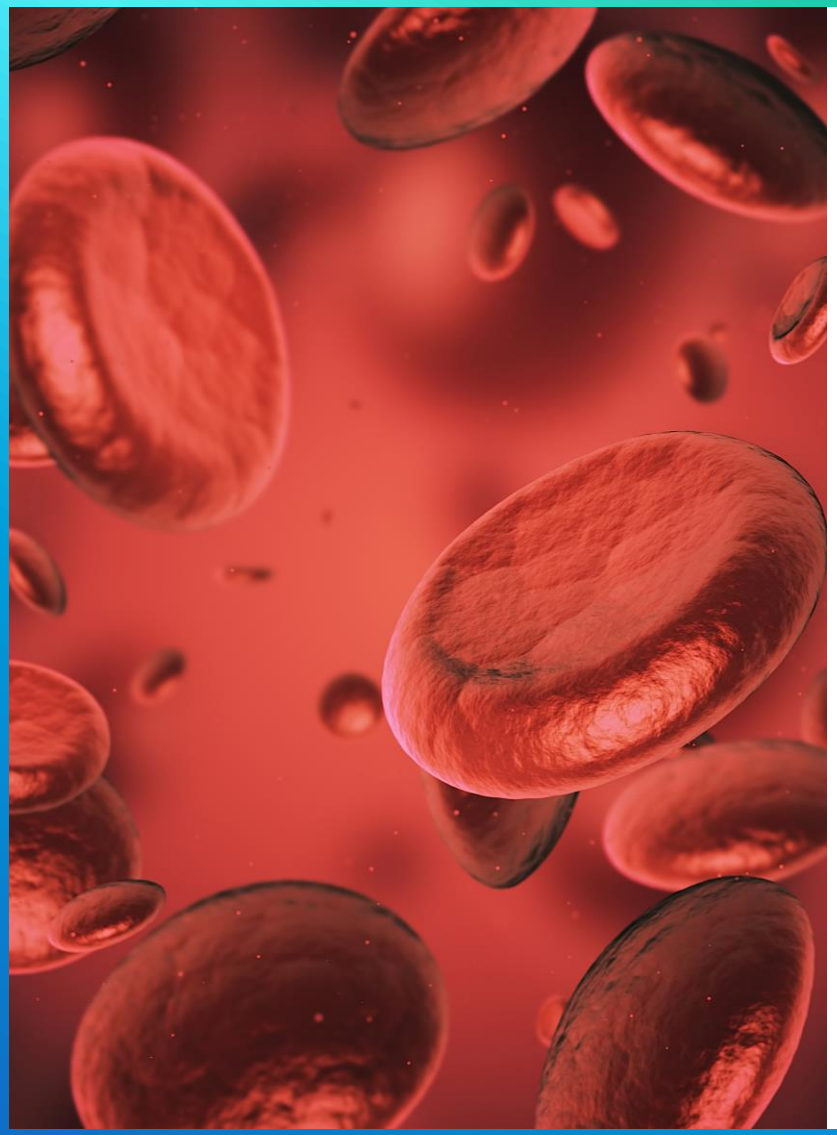
T 37.6 HR 106 BP 123/88 R 24 O2 sat 100% on RA

Fatigued but non-toxic in appearance

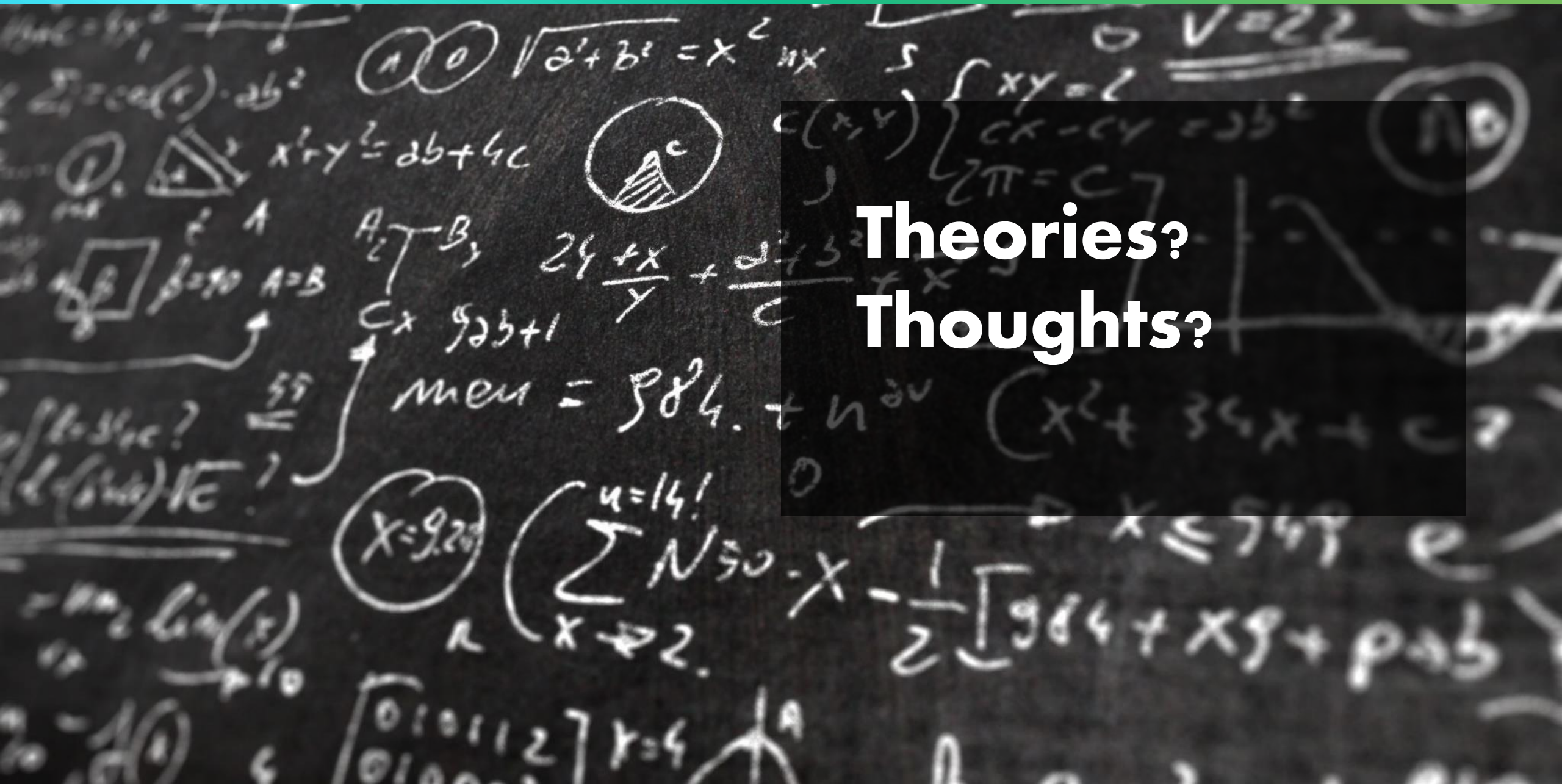
Mild tachypnea with increased work of breathing; lungs clear

Mild tachycardia with regular rhythm and no murmurs

Remainder of exam benign

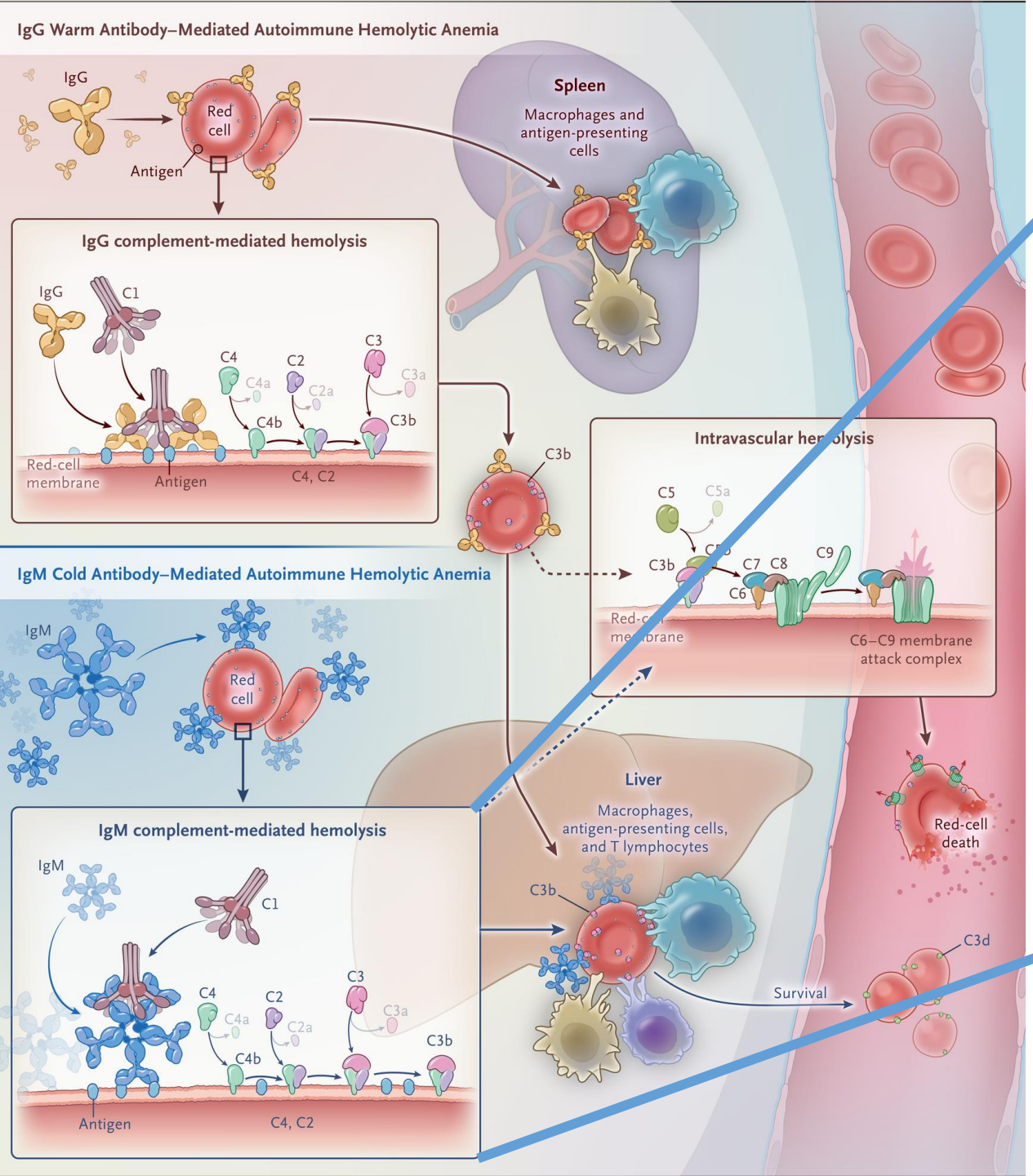


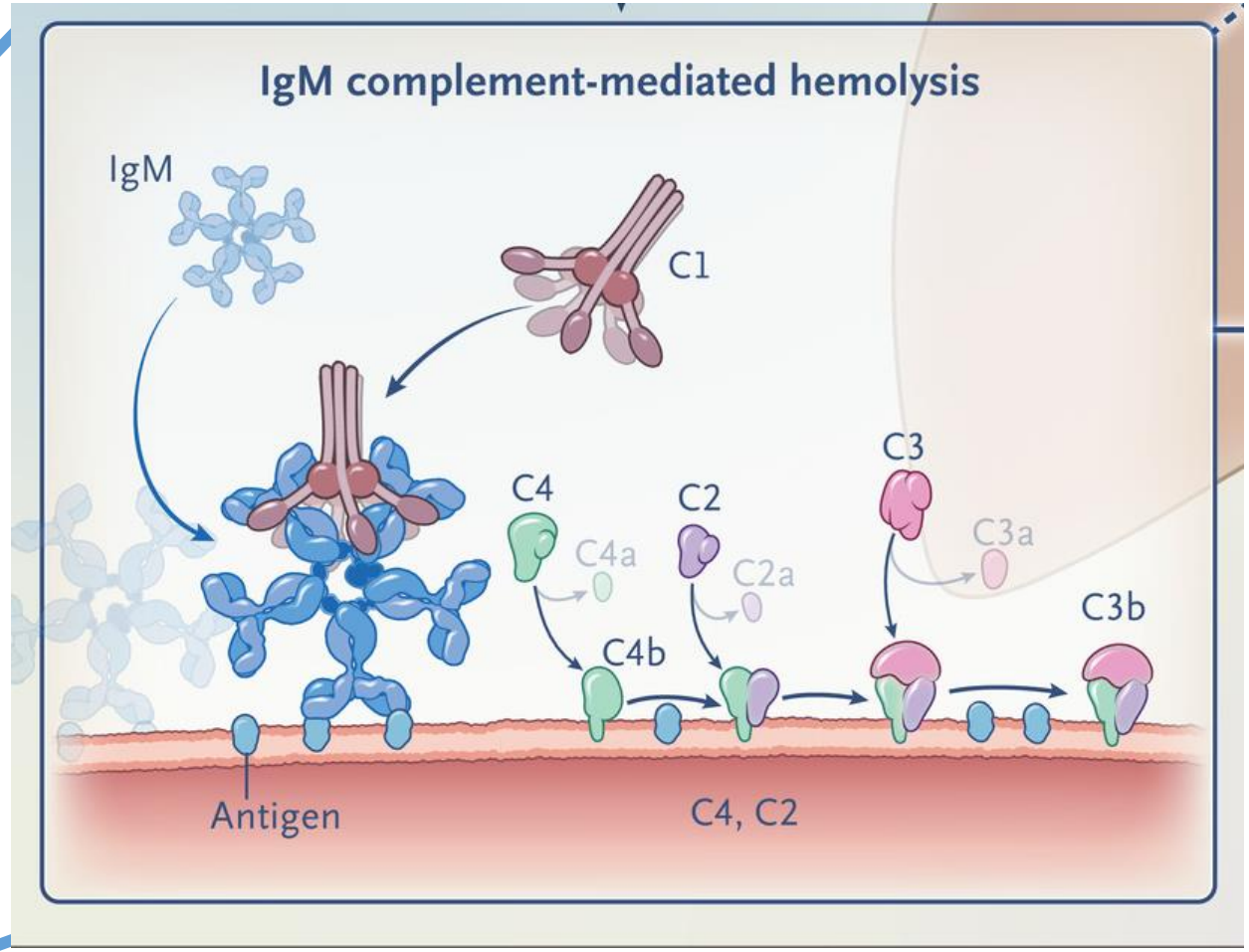
Today	• Hemoglobin 6.1 mg/dL
Three weeks ago	• Hemoglobin 12.6 mg/dL


Theories?
Thoughts?

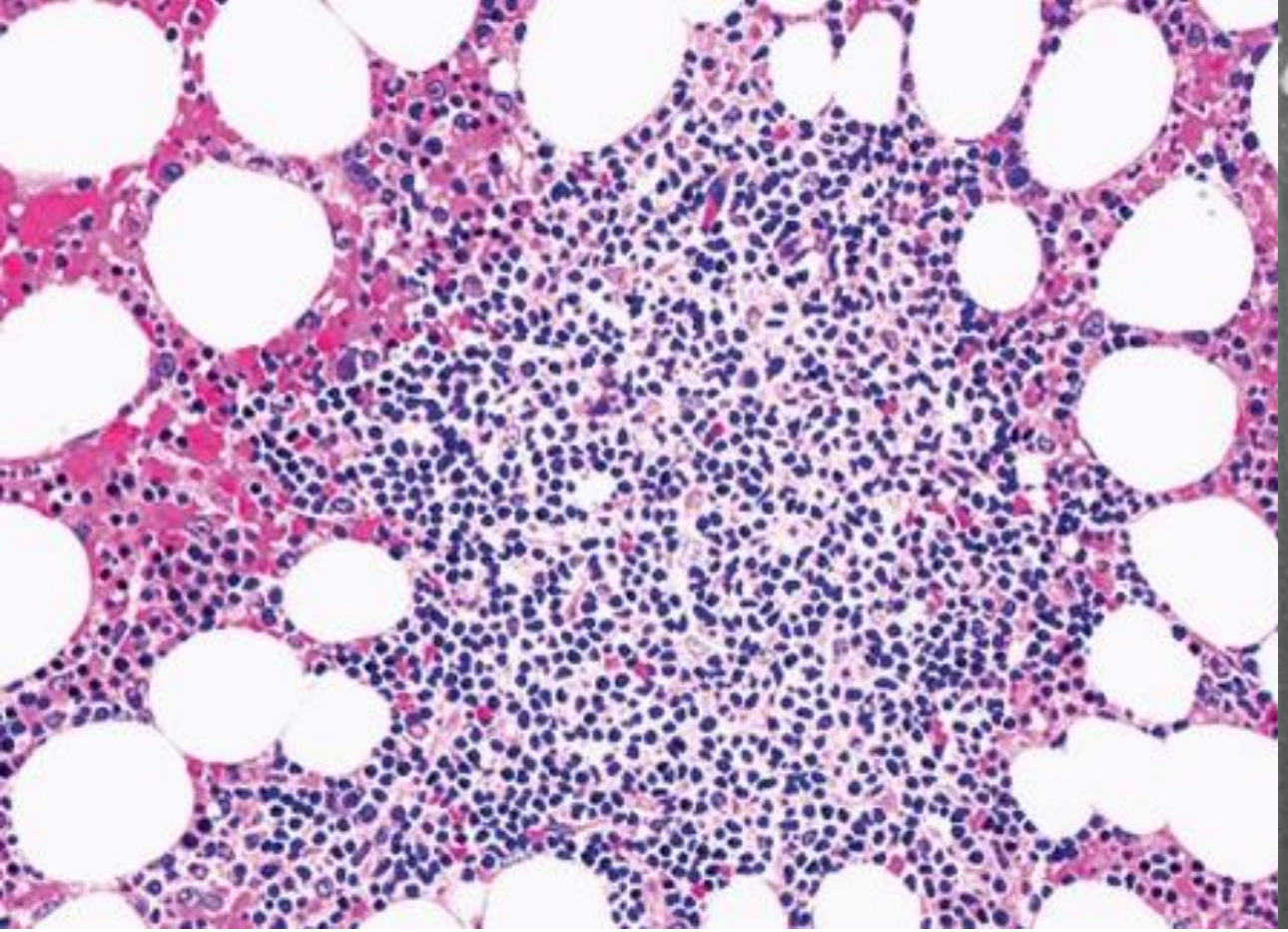
WBC 18.4; Platelets 389K
MCV 94.6 (nL)
RDW 10.6%
LDH 675
Haptoglobin <20
Bilirubin 2.3
No schistocytes

DAT
C3D Positive
IgG Negative





N Engl J Med 2021; 385:1407-1419



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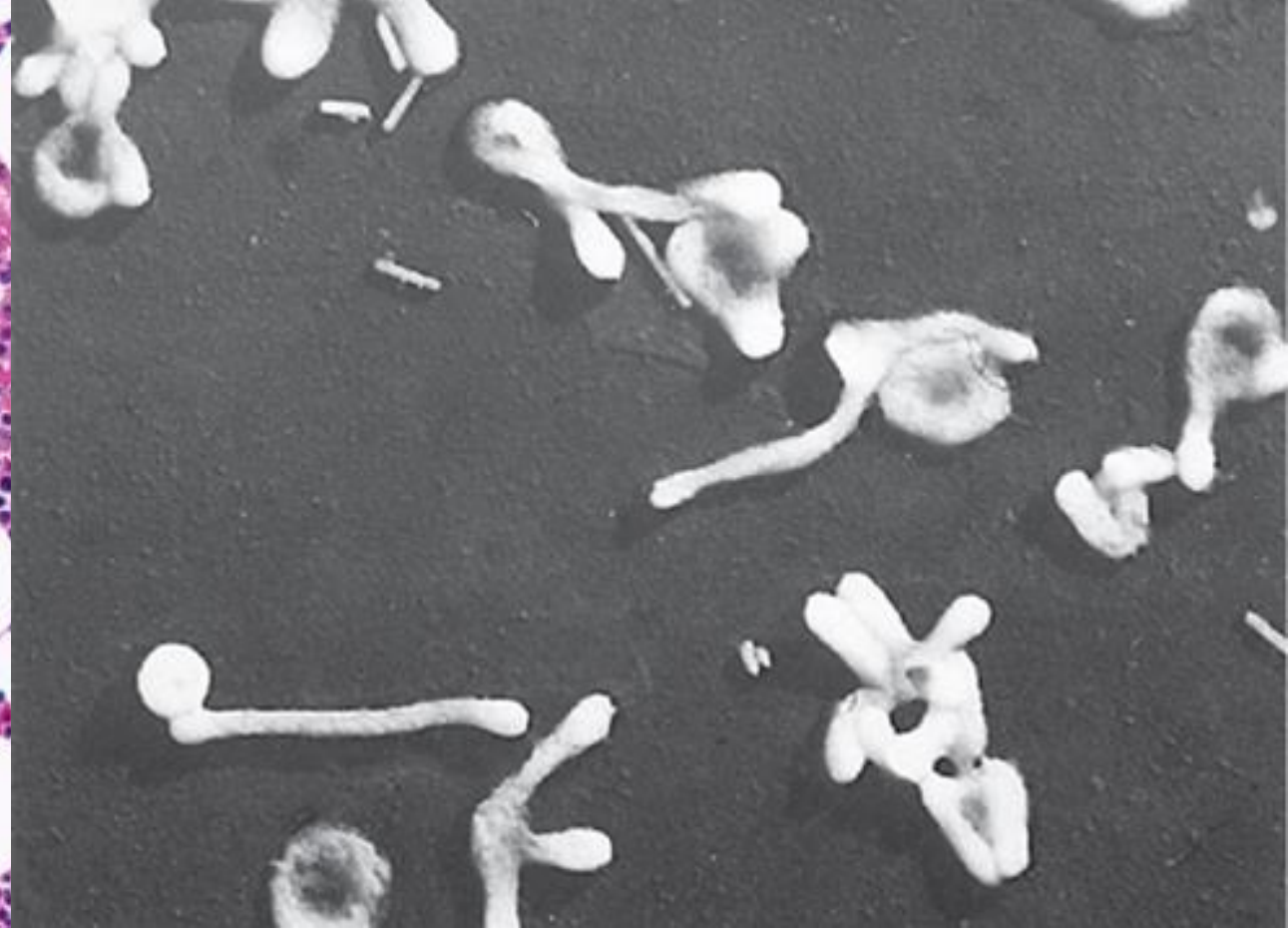


Jelwetz, Melnick & Adelberg's Medical Microbiology, 28e

Cold Agglutinin Disease

Secondary Cold Agglutinin Syndrome

Management

- Supportive Care
  - Transfusion
  - Warmth
  - VTE Prevention
- Second-line therapies (limited efficacy)
  - Steroids
  - IVIG
  - Rituximab

Cold Agglutinin Disease

Rituximab
Cytotoxic Chemotherapy
Complement Inhibition

Course

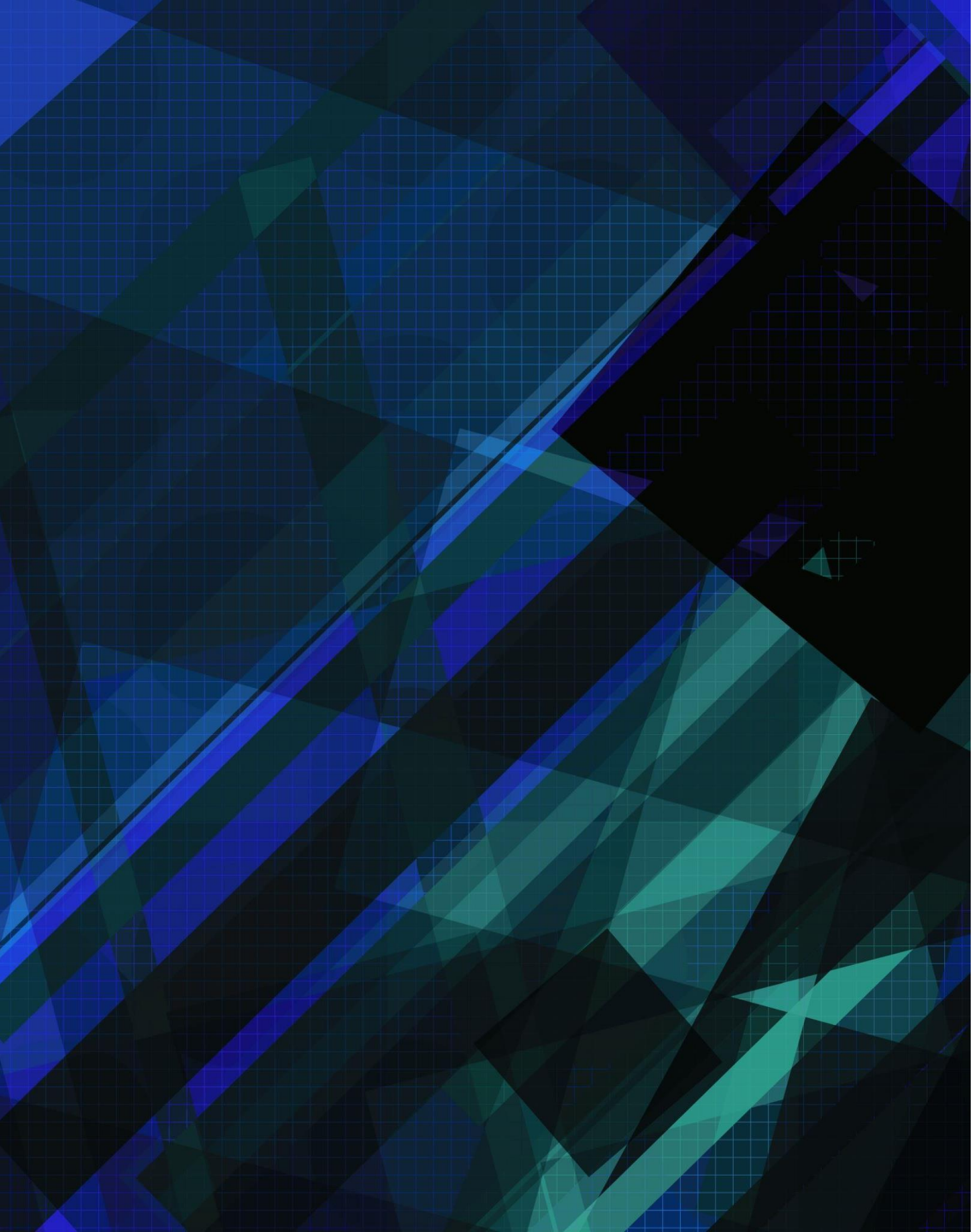
+ Received two units warmed PRBCs
+ Blood counts stabilized
+ Readmitted one week later with recurrent anemia and evidence of DVT
+ Treated with IVIG x 2 days
+ Resolution of hemolysis without further therapy within 4 weeks of initial presentation

Hemolytic Anemia and COVID-19

- SARS-COV2 is a recognized trigger for secondary cold agglutinin anemia
- Both COVID vaccination and COVID infection can precipitate exacerbation of a variety of chronic autoimmune hemolytic anemias, particular cold agglutinin disease

Hospital Medicine Theme #1

+ The face of COVID admissions is changing
+ **Much** less severe lung disease
+ A lot more general medical sequelae



Case #2

- 78 year old female
- Presenting to the ED with progressive dyspnea requiring BiPap for respiratory support
- Hx notable for HFrecEF, remote cardiomyopathy, mild cognitive impairment, chronic obstructive pulmonary disease
- Six ED visits for respiratory concerns in the last 3 months

T 37 HR 80 BP 98/61 R 25 O2 sat 98% on BiPap

Awake and alert, oriented to self and hospital

Tachypneic with limited air movement. Barrel chest. Scattered wheezing

Regular rhythm and no murmurs

Remainder of exam benign

VBG 7.30/54/42/26

Trop 16 --> 12

COVID/Flu negative

CBC/CMP WNL

NT-Pro-BNP 293

ECG NSR with chronic LBBB


CC6
L
AP-PORT-UPRIGHT sitting
773
KVP:110kV
Exposure:1.2mAs
AcquisitionTime:20:29:48

Course

+ Dx on presentation with COPD exacerbation
+ Brisk response to bronchodilators, prednisone and azithromycin
+ AM Rounds: Doing well, on room air, pleasant and conversant


What now?

Later that day

+ Intern called to the bedside
  - Patient upset that she has not seen a doctor that day

Assessment of Cognitive Status

MOCA
14/30

No evidence of delirium

Family Perspective

+ Daughter lives nearby and provides additional history
  - Patient forgot that she quit smoking and has been caught with cigarettes recently
  - Manages own meds – has never filled her prescribed inhalers
  - Exhibiting paranoia about her daughter's efforts to help
  - Has been working with PCP on cognitive testing and ALF placement

Patient Perspective

+ Daughter trying to control her
+ Manages her medications well and has no issues
+ Would like to return home
+ Not sure why she is in the hospital

Original Research

Medically Ready for Discharge: A Multisite "Point in Time" Assessment of Hospitalized Patients

Design

Cross-sectional point in time survey

15 academic hospitals in the United States

Fall 2022

35% Ready for Discharge

44.4% of those with major discharge barriers spent >1 month medically ready

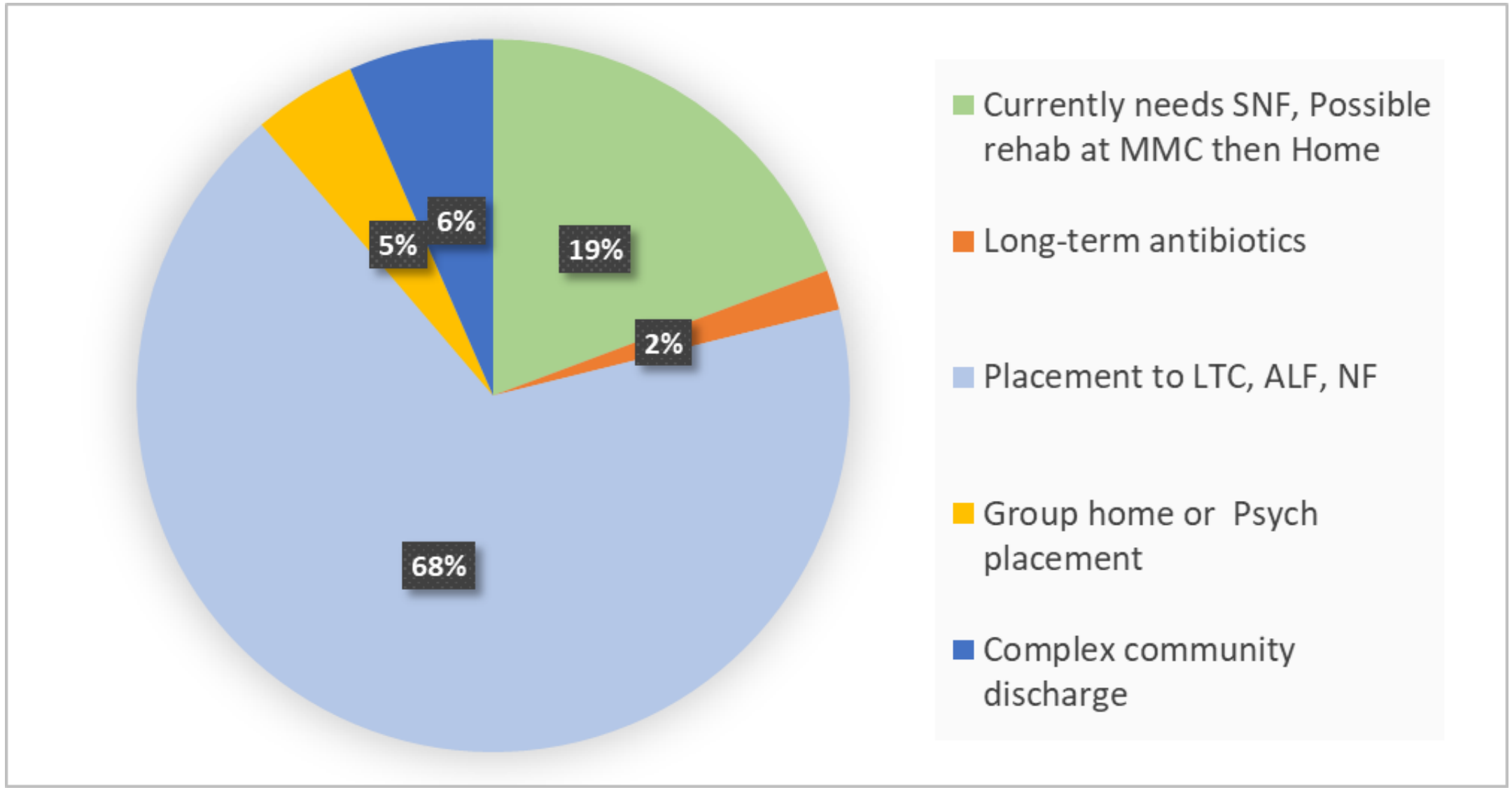
9.8% of Patients had Major Discharge Barriers

Journal of Hospital Medicine

M Bann, September 2023
Visual abstract by @CatieGlatz

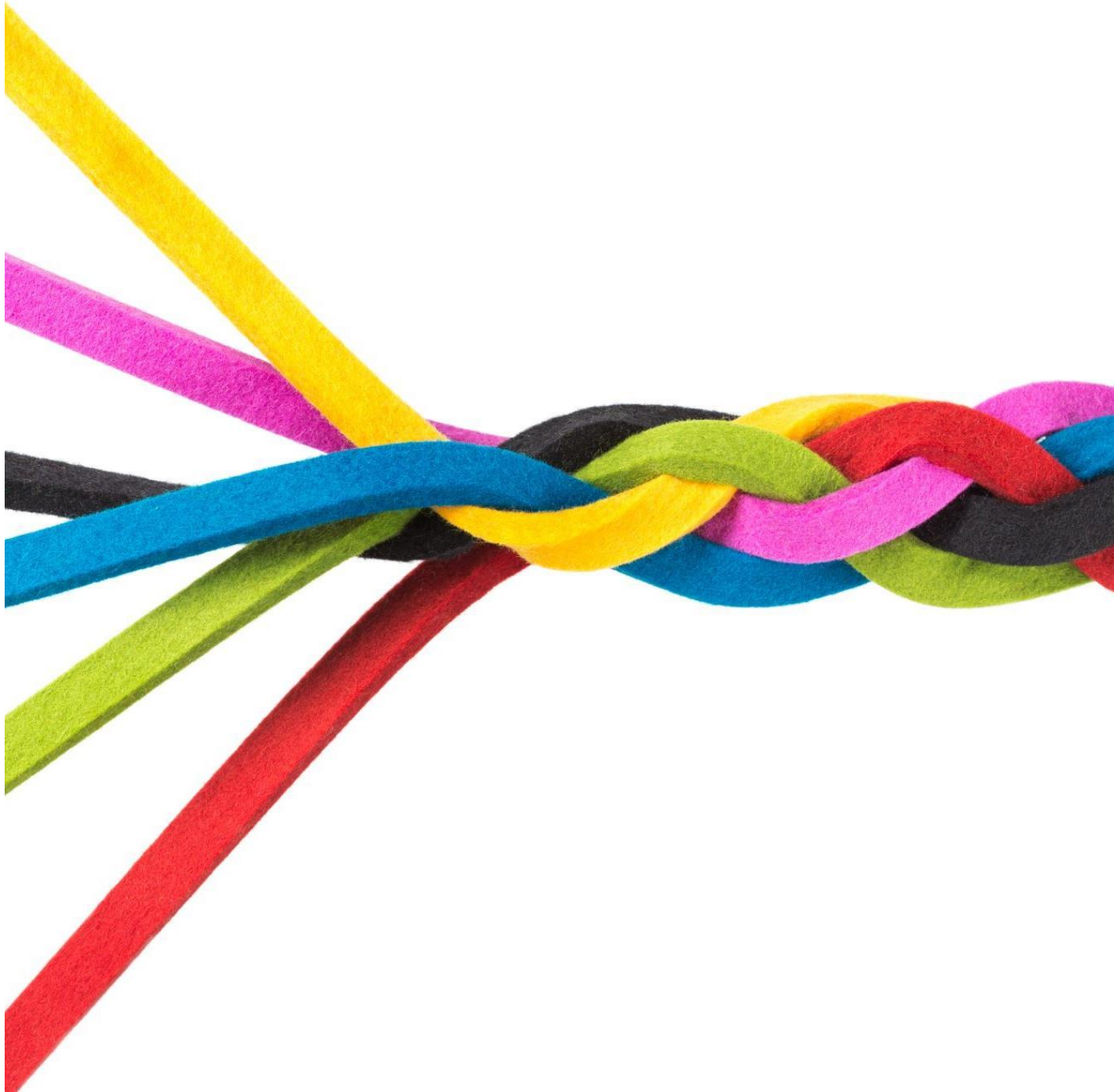
MMC Experience

- Over the last year, average census of 60 patients without post-acute care disposition (8% of bed capacity)
- Of those deemed medically ready for discharge
  - 21% stay longer than 20 days
  - 8% stay longer than 50 days


19%
2%
68%
5%
6%
Currently needs SNF, Possible rehab at MMC then Home
Long-term antibiotics
Placement to LTC, ALF, NF
Group home or Psych placement
Complex community discharge

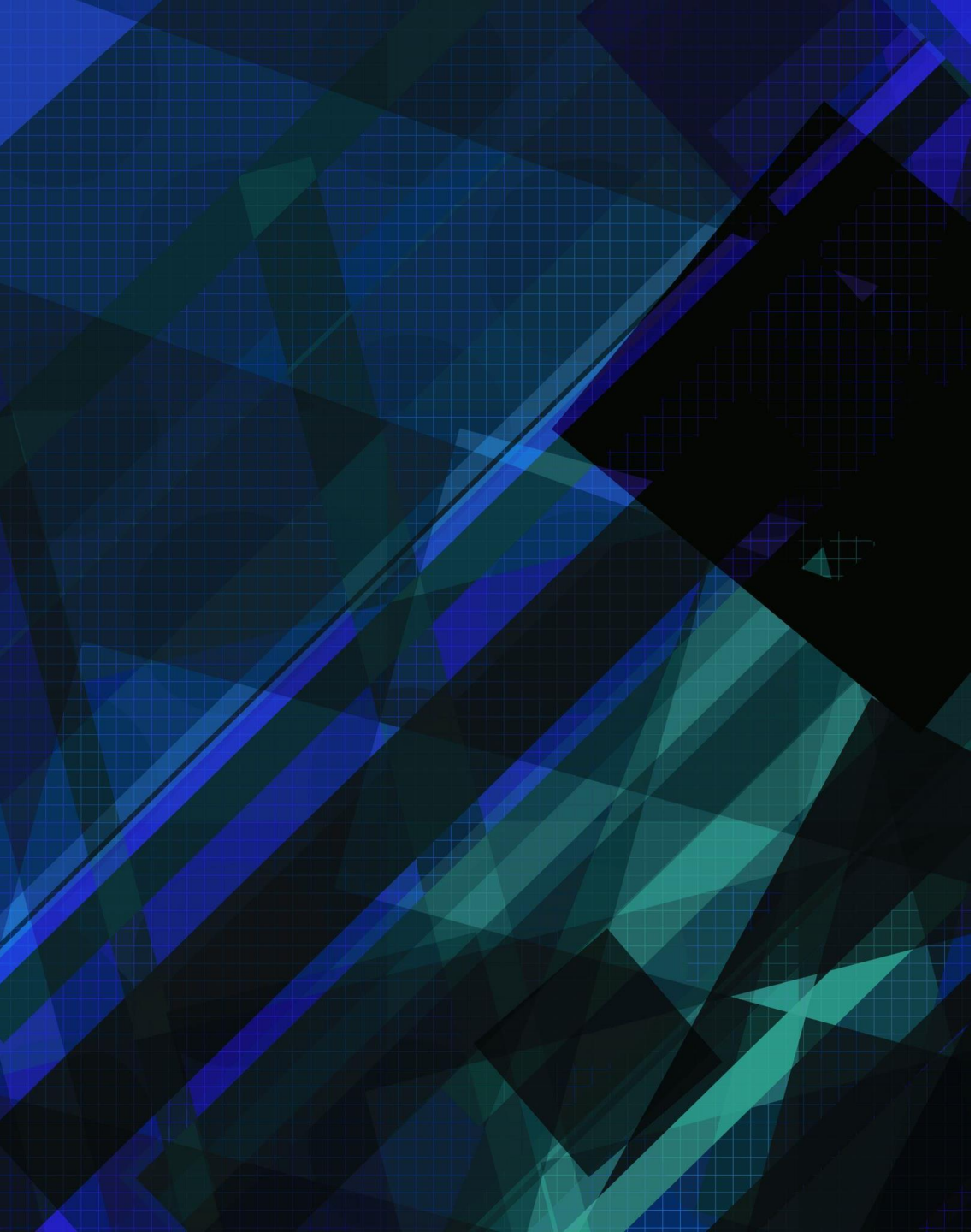
Initiatives

+ Long Stay Committee
+ Complex Care Management
+ Partnership with Local Facilities
+ Recuperative Care
+ Enhanced Continuity Teams



Hospital Medicine Theme #2

- Many patients who are medically ready for discharge have significant discharge barriers
- Lack of availability of post-acute care SNF and ALF are particular concerns
- Insufficient availability of in-home caregivers a limiter of efforts to encourage aging in place



Case #3

+ 68 yea old male
+ Presenting to the ED via EMS
+ Well the night prior to presentation
+ Morning of admission staggering, confused and shaking
+ Progressive somnolence while in ED as well as fever and hypertension

Medical History

- Coronary artery disease with PCI 2004 & 2012
- Hyperlipidemia
- Stable thoracic aortic aneurysm
  - 4.4 cm on CT
- S/P AVR - 1993 - Medtronic Hall mechanical aortic valve
  - Anticoagulated on Coumadin
- Mild mitral stenosis
- Hypertension
- Osteoarthritis
- Recurrent skin cancers
  - May 2023 - SCC underwent WLE/cervicofacial advancement flap, left ND (II-III) and left parotidectomy 05/01/23. Completed XRT left parotid/neck 08/2023.
  - Remote melanoma of face
- Chronic kidney disease, stage 3
- Lumbar stenosis with radiculopathy
- Chronic Obstructive pulmonary disease
- Anxiety
- Type 2 diabetes on insulin
- Sleep Apnea

Medications

Major Medications

Acitretin (Soriatane) 10 MG Cap daily

Insulin Glargine, Inject 12 Units into the skin every evening.

LORazepam (Ativan) 0.5 MG Tab Take 0.5 mg by mouth 2 times daily as needed.

Omeprazole 40 MG CPDR Take 40 mg by mouth nightly

Pravastatin Sodium Take 80 mg by mouth nightly

Semaglutide Inject 2 mg into the skin every 7 days.

alirocumab (Praluent) Inject 150 mg into the skin every 14 days.

aspirin 81 MG: Take 81 mg by mouth nightly

cyclobenzaprine (Flexeril) 10 MG Tab Take 10 mg by mouth 3 times daily as needed for Muscle spasms

ezetimibe (Zetia) Take 10 mg by mouth daily.

glipiZIDE (Glucotrol) Take 10 mg by mouth 2 times daily.

icosapent ethyl Take 2,000 mg by mouth 2 times daily (with meals).

insulin aspart Inject 13 units at supper and before meals correction factor = 3 units/50 > 150, up to 20 units a day

losartan (Cozaar) 50 MG Tab TAKE ONE TABLET BY MOUTH ONE TIME DAILY

metFORMIN Take 500 mg by mouth 2 times daily

metoprolol succinate (Toprol-XL) Take 1 Tablet (50 mg total) by mouth daily.

montelukast Take 10 mg by mouth nightly.

niacinamide Take 1 Tablet (500 mg total) by mouth 2 times daily.

oxyCODONE (Roxicodone) Take 5 mg by mouth every 8 hours as needed for Pain.

pregabalin (Lyrica) Take 100 mg by mouth daily.

traZODone HCl (Desyrel) Take 150 mg by mouth nightly.

umeclidinium-vilanterol (Anoro Ellipta) 62.5-25 MCG/ACT Inhalation 1 Puff daily.

warfarin (Coumadin) as directed

BP 195/125 Pulse 117 Temp 39 ˚C Resp 20 SpO2 93% on RA

Awake and alert, but disoriented with difficulty speaking. Follows some commands.

Tachycardic with mechanical heart sound noted

Lungs clear with even, unlabored respirations

Abd soft and non-tender

Skin with multifocal irritated AKs and SCCs of face

Minimal speech. Tremor of bilateral hands, moderately anxious/restless in bed. Mild rigidity with passive ROM. Able to maintain resistance to gravity with prompting.

Differential Diagnosis?

- CMP with glucose 365
- CBC unremarkable – WBC 8
- CRP <3
- Troponin negative
- Lactate 2.3
- INR 3

Additional Negative Studies:

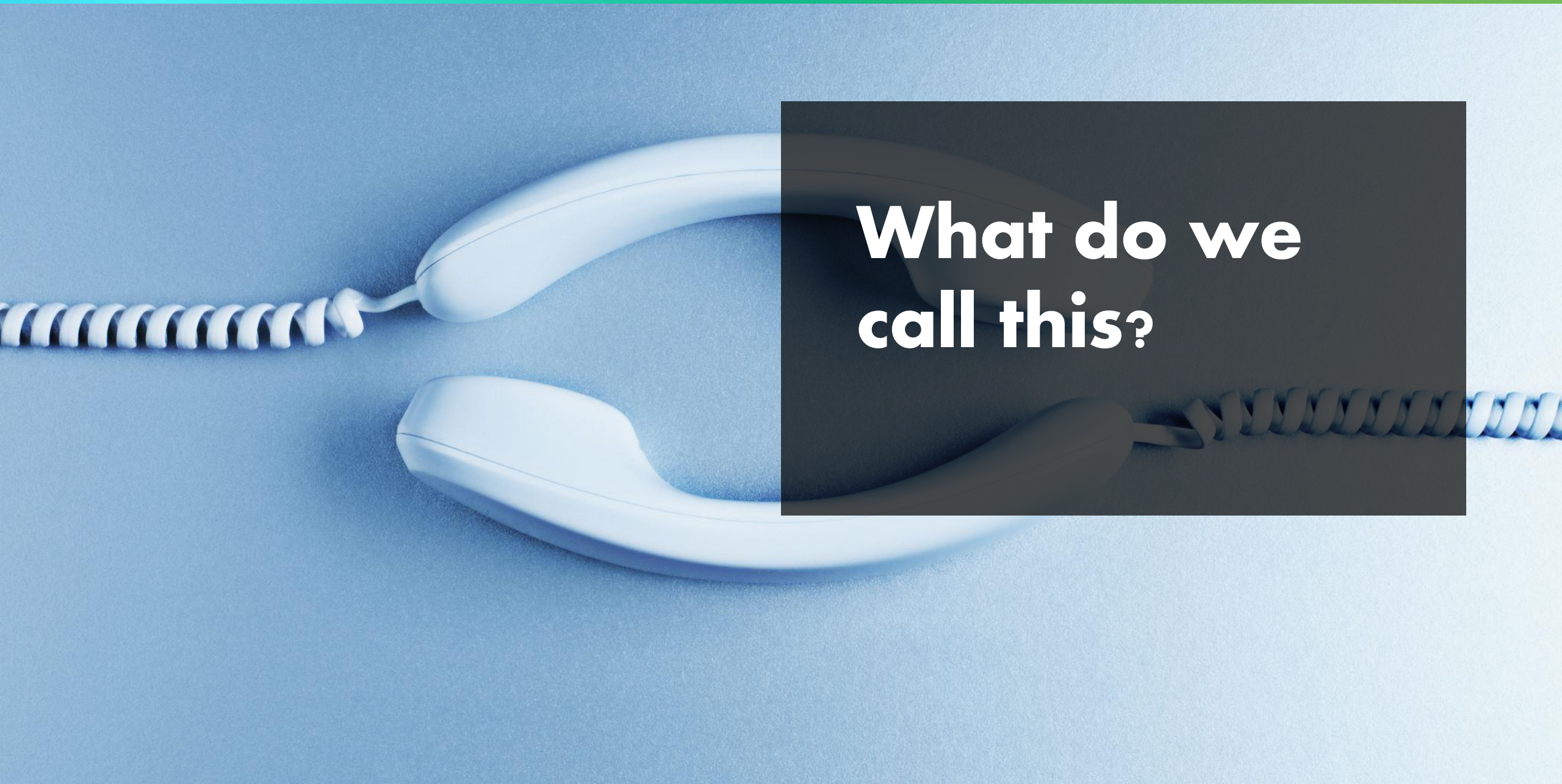
CTA head
Urinalysis
CXR
ECG

Hospital Day #2

- Ongoing confusion, though somewhat improved
- No further rigidity or tremor
- Persistent high fevers
- Hypertension improving with treatment
- MR Brain with punctate infarcts of left centrum semi-ovale. Indeterminate area of increase signal in cerebellum possibly consistent with cerebritis
- TTE Normal LVEF. Mitral valve - Mildly thickened anterior leaflet. Moderately calcified posterior leaflet. Severe posterior mitral annular calcification. Severe stenosis. MV mean gradient is 11 mmHg.
- CT Chest/Abdomen/Pelvis - Splenic infarct
- Blood cultures negative, repeat CRP <3

Hospital Day #3-5

+ No further fevers
+ Ongoing improvement in mental status, back to baseline except mild word finding difficulties
+ TEE without evidence of endocarditis
+ MR spine without sign of infection
+ Initial and repeat blood cultures negative



What do we call this?

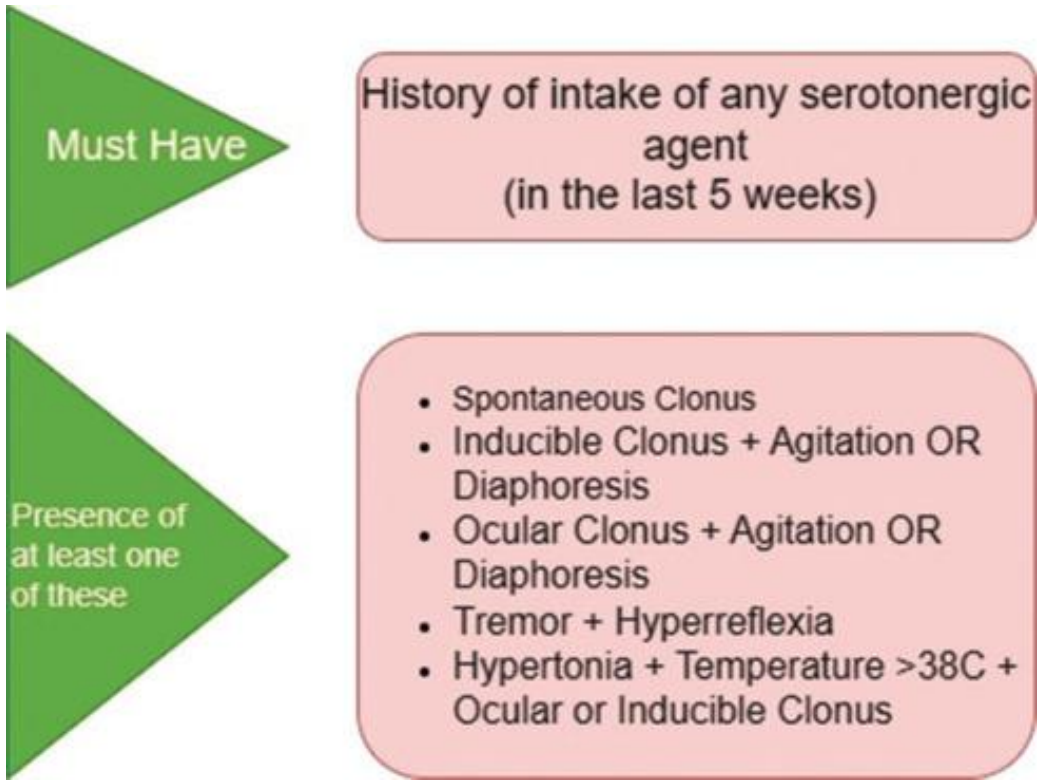
Serotonin Syndrome Risk

+ 'Definitely' Taking
  - Cyclobenzaprine - inhibition of serotonin transport and serotonin receptor agonist
  - Trazodone – serotonin re-uptake inhibition
+ Maybe Taking (also in the cooler)
  - Duloxetine - serotonin re-uptake inhibition
  - Tramadol - increases serotonin concentration at synaptic cleft

SSRI/SNRI
Buspirone
Ondansetron
Linezolid
Fluconazole
Methadone
Risperidone
Lithium
Dextromethorphan
Opiates
L-Dopa
Ecstasy
Cocaine
St. John's Wort

Classically: MOAI/TCA

Hunter's Criteria



84%
Sensitive
97%
Specific

J Family Community Med. 2024 Jan-Mar; 31(1): 1–8.

Rising Complexity

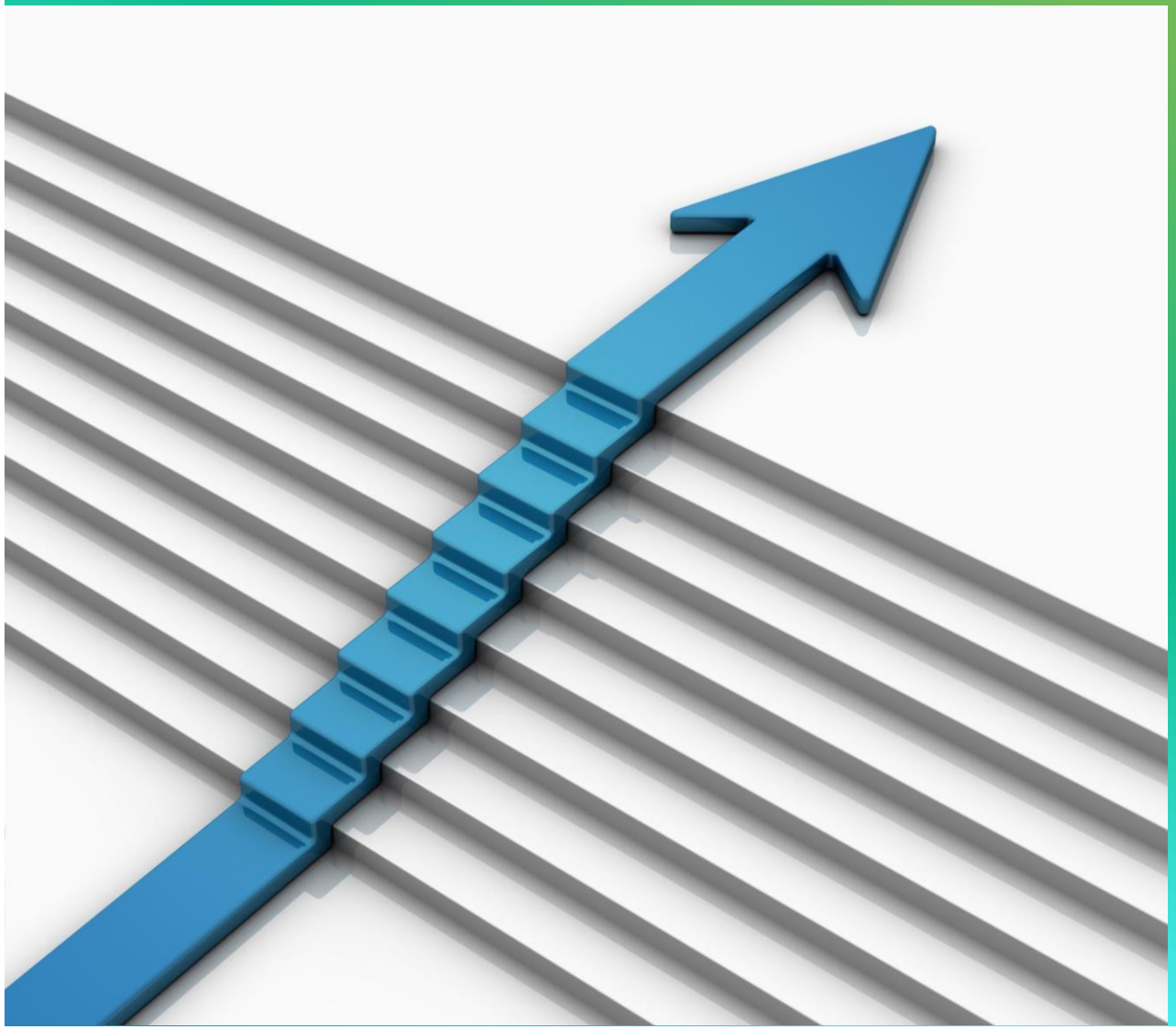
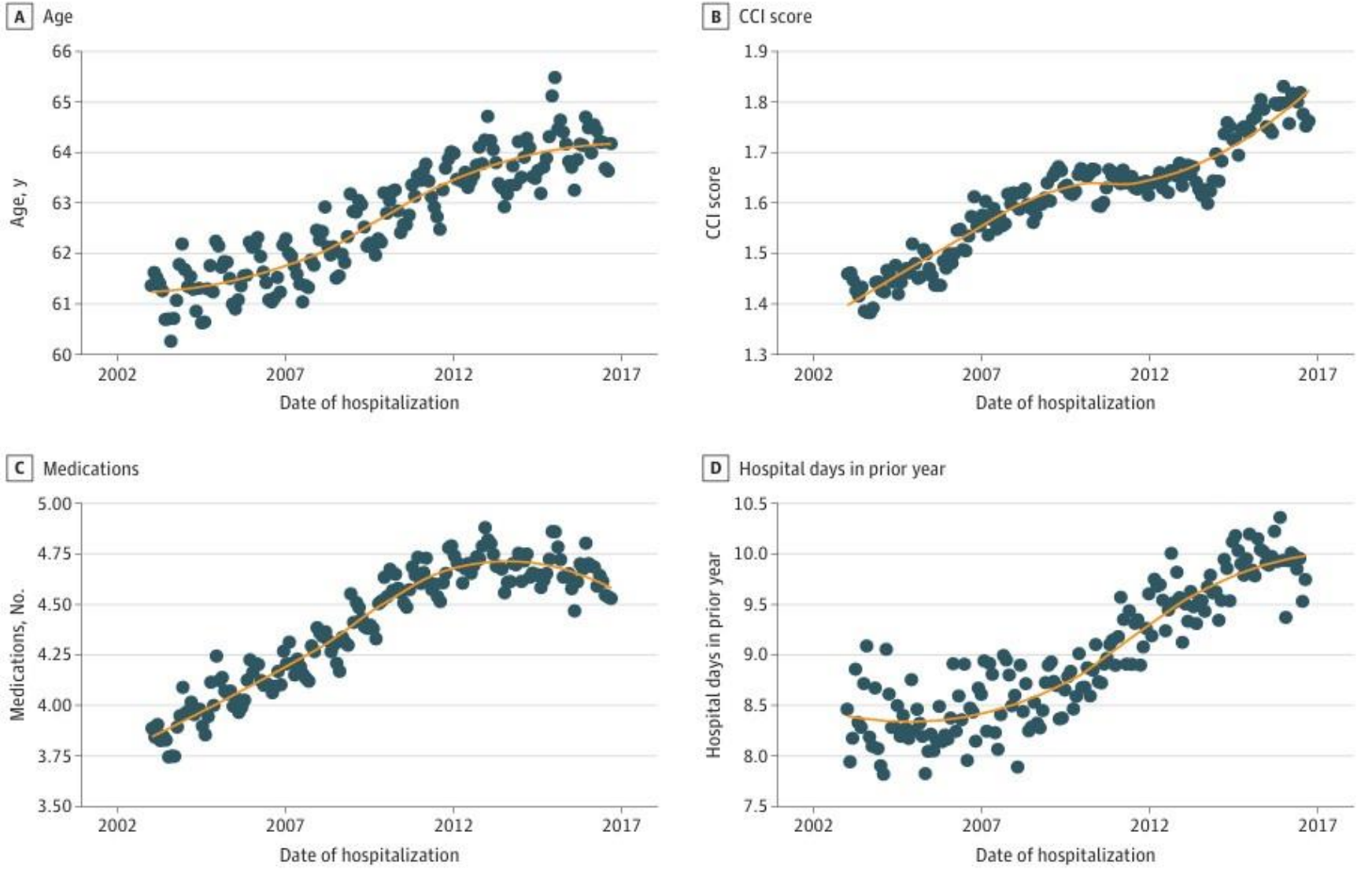


Figure 3. Trends in Continuous Measures of Complexity, 2002-2017



JAMA Intern Med. 2024;184(2):183-192

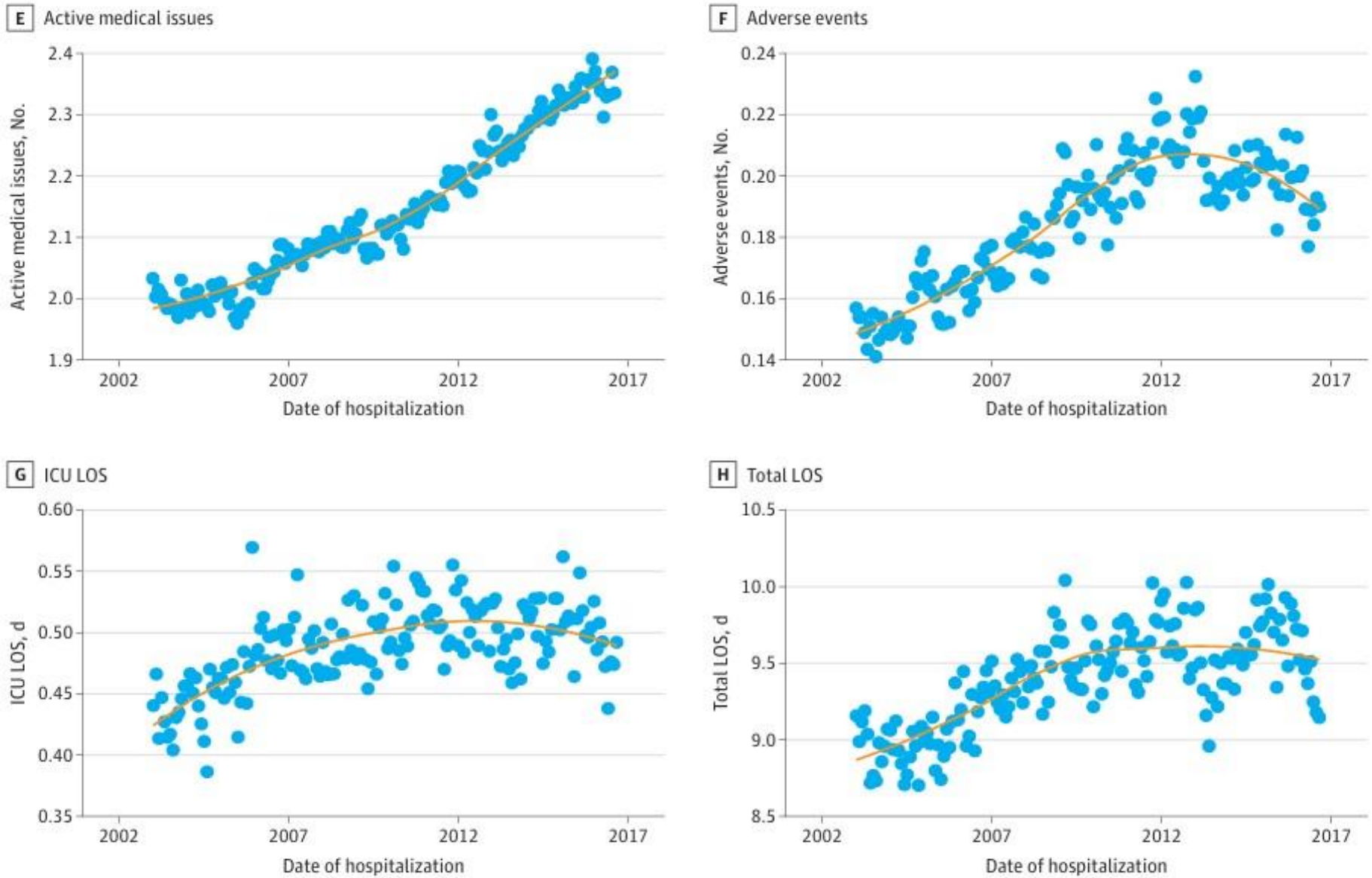
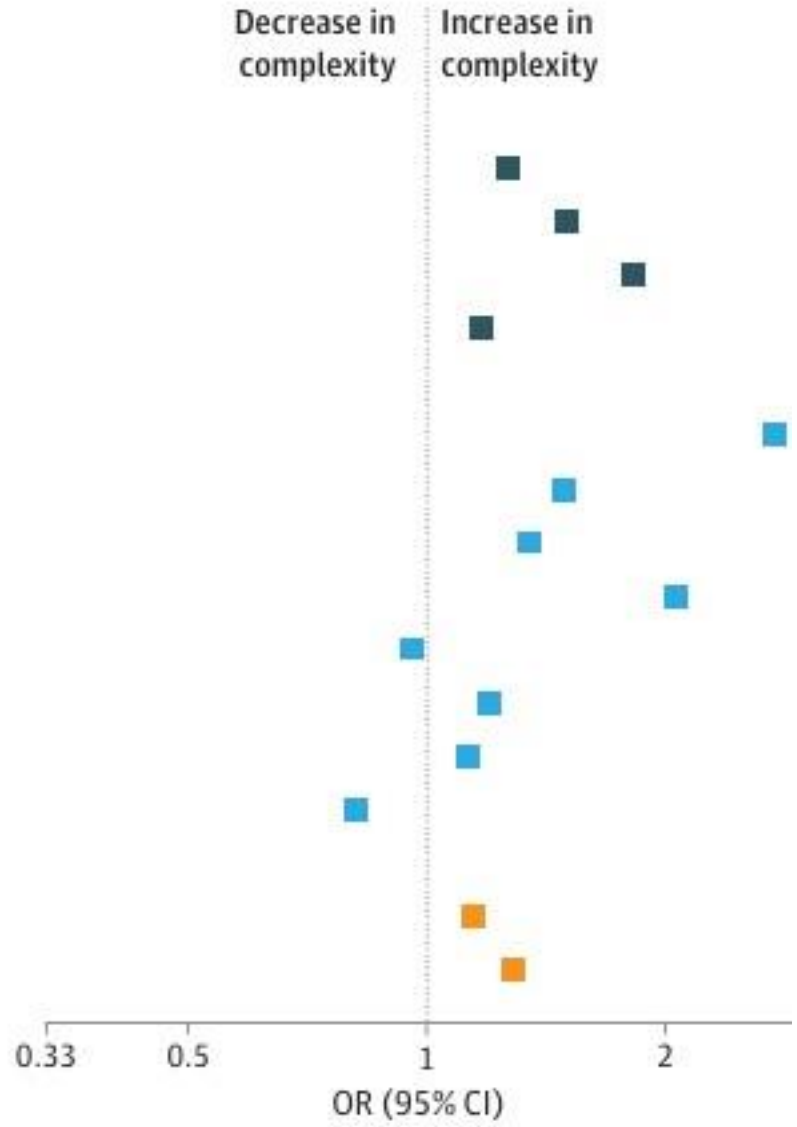

E Active medical issues
Active medical issues, No.
2.4
2.3
2.2
2.1
2.0
1.9
2002
2007
2012
2017
Date of hospitalization
F Adverse events
Adverse events, No.
0.24
0.22
0.20
0.18
0.16
0.14
2002
2007
2012
2017
Date of hospitalization
G ICU LOS
ICU LOS, d
0.60
0.55
0.50
0.45
0.40
0.35
2002
2007
2012
2017
Date of hospitalization
H Total LOS
Total LOS, d
10.5
10.0
9.5
9.0
8.5
2002
2007
2012
2017
Date of hospitalization

Figure 2. Changes in Dichotomized Measures of Complexity, 2002-2017

Factor	Baseline prevalence, %	Increase in prevalence, % (95% CI)	OR (95% CI)
Patient factors at admission			
Age ≥75 y	31.9	5.3 (5.1 to 5.5)	1.27 (1.25 to 1.28)
Multimorbidity	8.7	3.8 (3.7 to 3.9)	1.50 (1.47 to 1.53)
Polypharmacy	9.7	6.6 (6.5 to 6.7)	1.82 (1.78 to 1.85)
Hospitalization in prior year	49.4	3.9 (3.7 to 4.1)	1.17 (1.16 to 1.18)
Hospital course			
Admission via ED	79.0	12.2 (12.0 to 12.3)	2.74 (2.71 to 2.77)
Arrival via ambulance	42.1	9.9 (9.8 to 10.1)	1.49 (1.48 to 1.51)
Any interhospital transfer	25.7	6.1 (5.9 to 6.2)	1.35 (1.33 to 1.36)
Multiple acute medical problems	5.0	4.7 (4.6 to 4.8)	2.06 (2.02 to 2.09)
Any ICU stay	10.7	−0.4 (−0.5 to −0.3)	0.96 (0.95 to 0.97)
Any adverse event	9.1	1.6 (1.5 to 1.8)	1.20 (1.19 to 1.22)
Prolonged length of stay	23.9	2.3 (2.1 to 2.4)	1.13 (1.12 to 1.14)
Died in hospital	6.3	−1.1 (−1.2 to −1.0)	0.81 (0.80 to 0.83)
Outcomes within 30 d of discharge			
Unplanned readmission	14.4	1.7 (1.5 to 1.8)	1.14 (1.12 to 1.16)
Death	2.9	0.8 (0.7 to 0.9)	1.28 (1.25 to 1.31)



Hospital Medicine Theme #3

- Medical complexity of hospitalized patients is increasing
- This comes at a time where pressure to reduce length of stay and cost of care are also high

Summary

- Hospital medicine and primary care share several challenges
  - Ongoing COVID-related disease
  - Increasing medical and social complexity
  - Limited resources for aging populations with high needs
- Despite these challenges, generalists are well-poised to help our patients and their families navigate this complex world

Questions/Reflections