

Critical Care Management of COVID 19 Patients



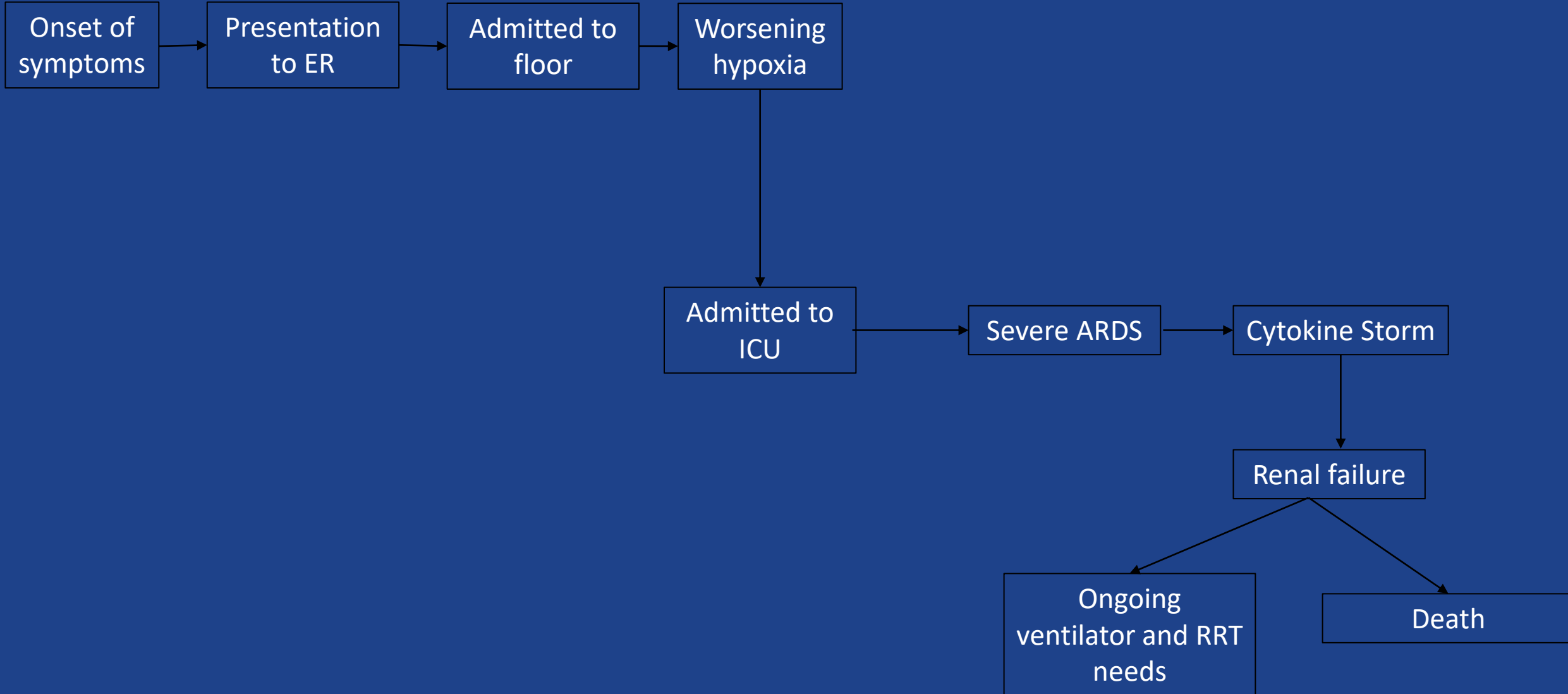
Vikram Mukherjee, MD

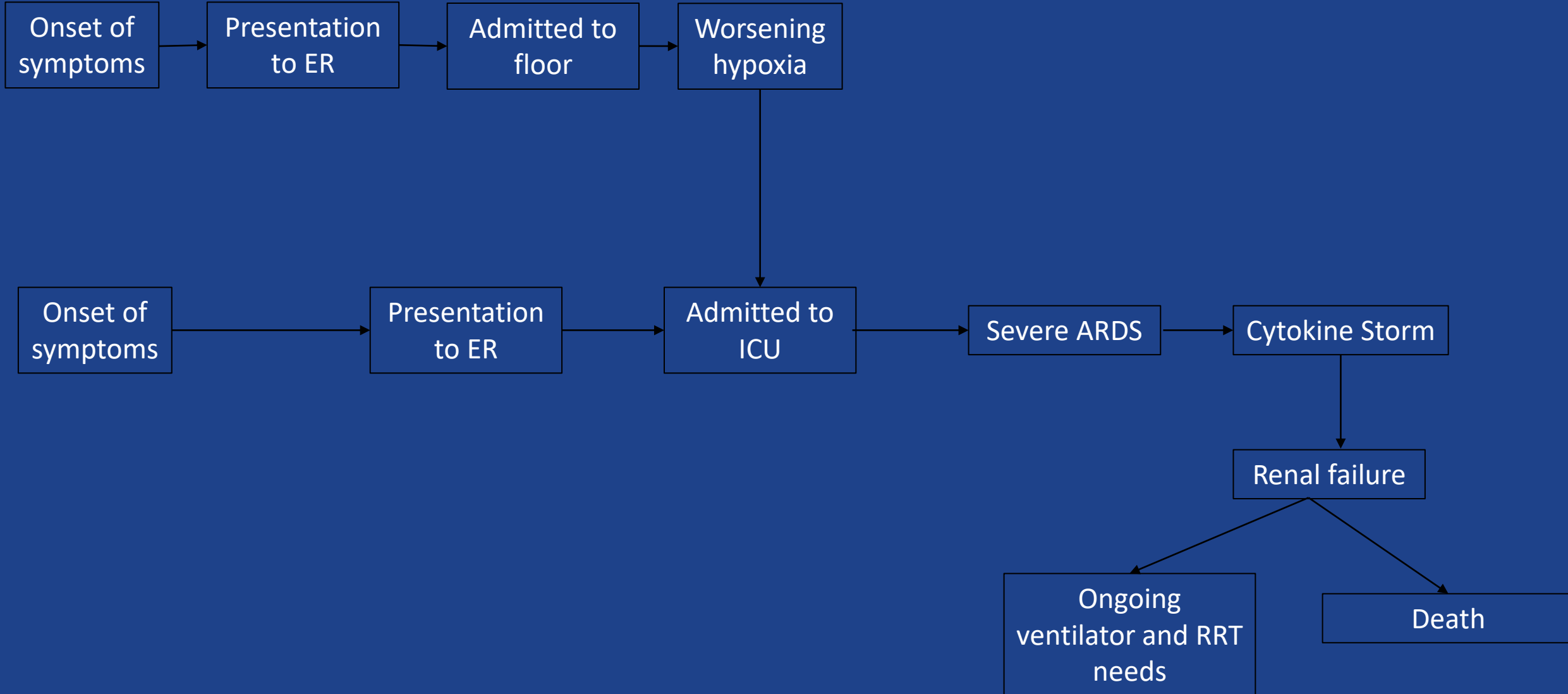
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Clinical aspects: overall impressions so far

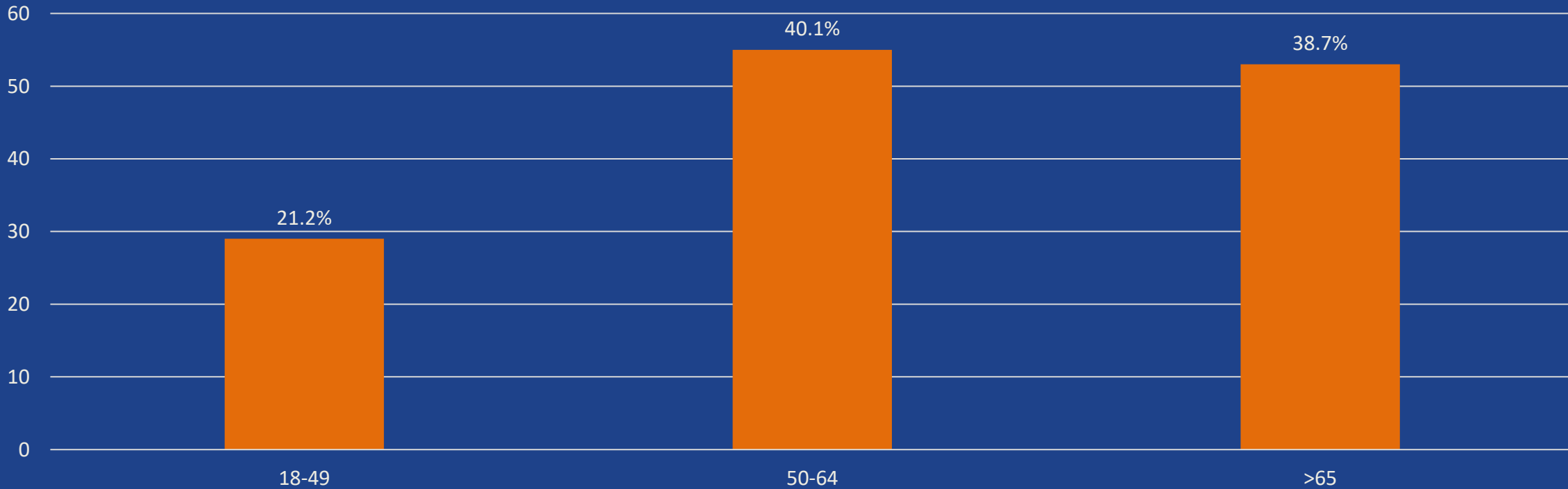
- Presentation
- Clinical Characteristics
- Organ dysfunction
- Outcomes





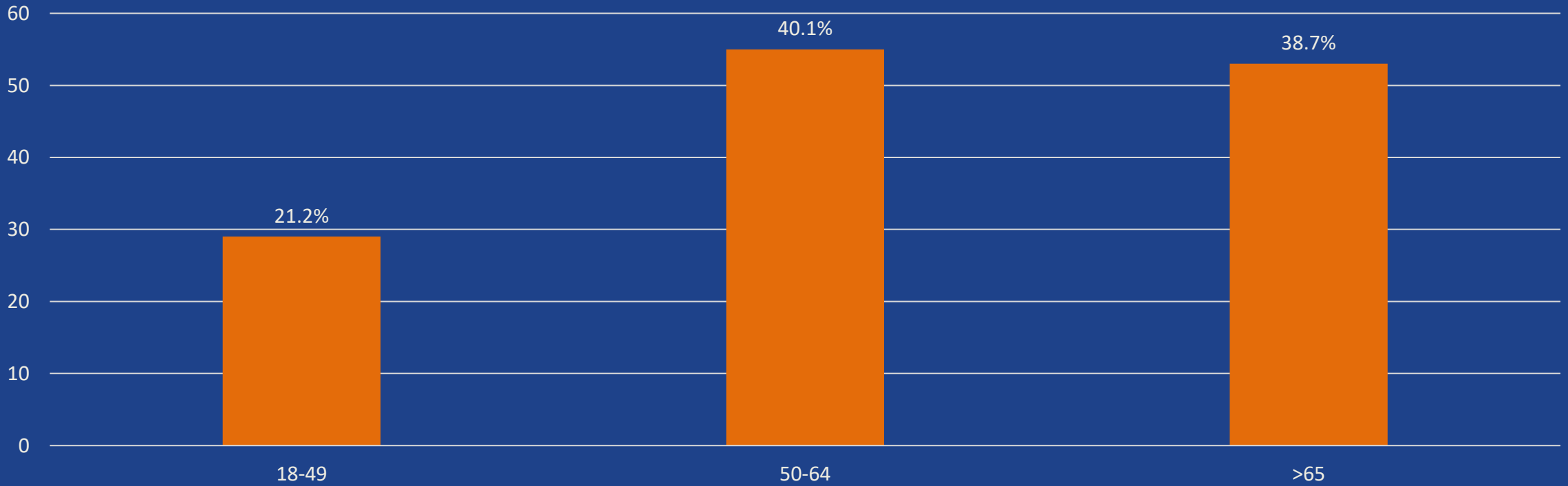


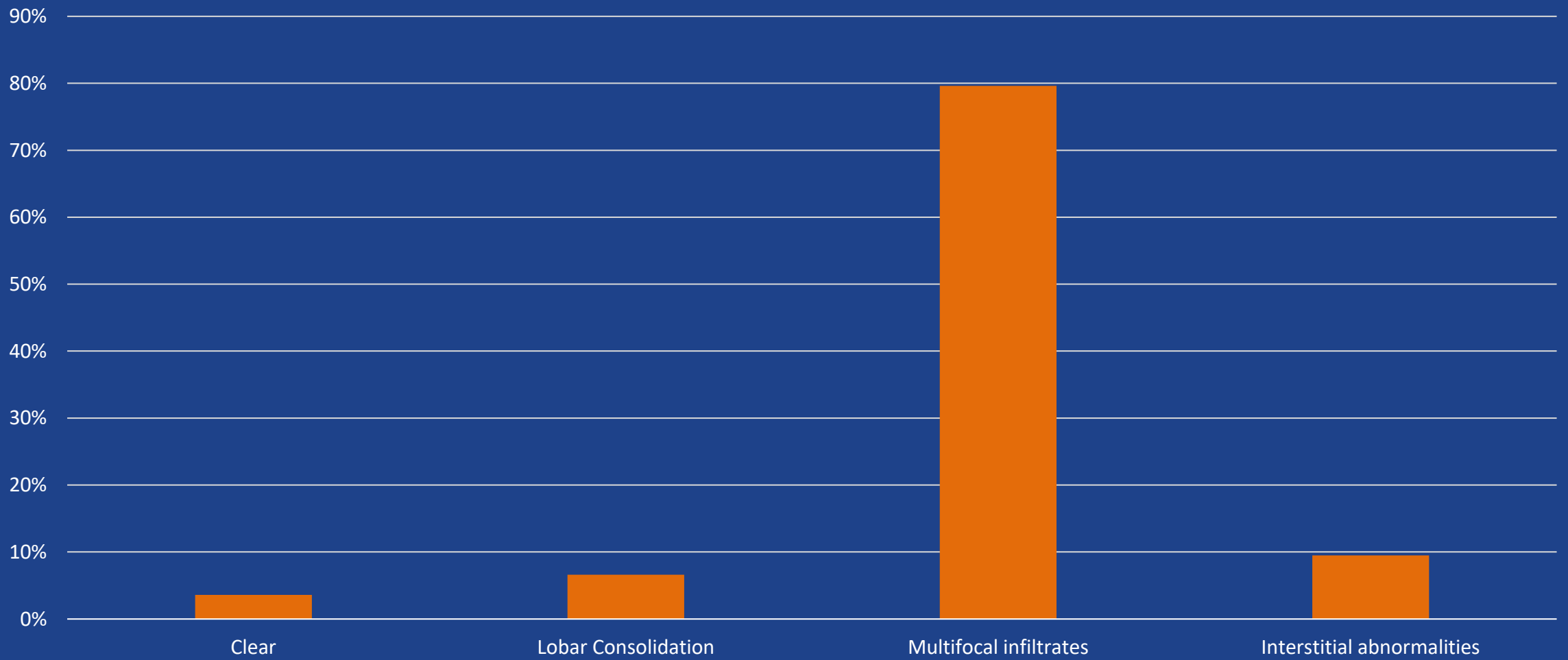
Age (y)



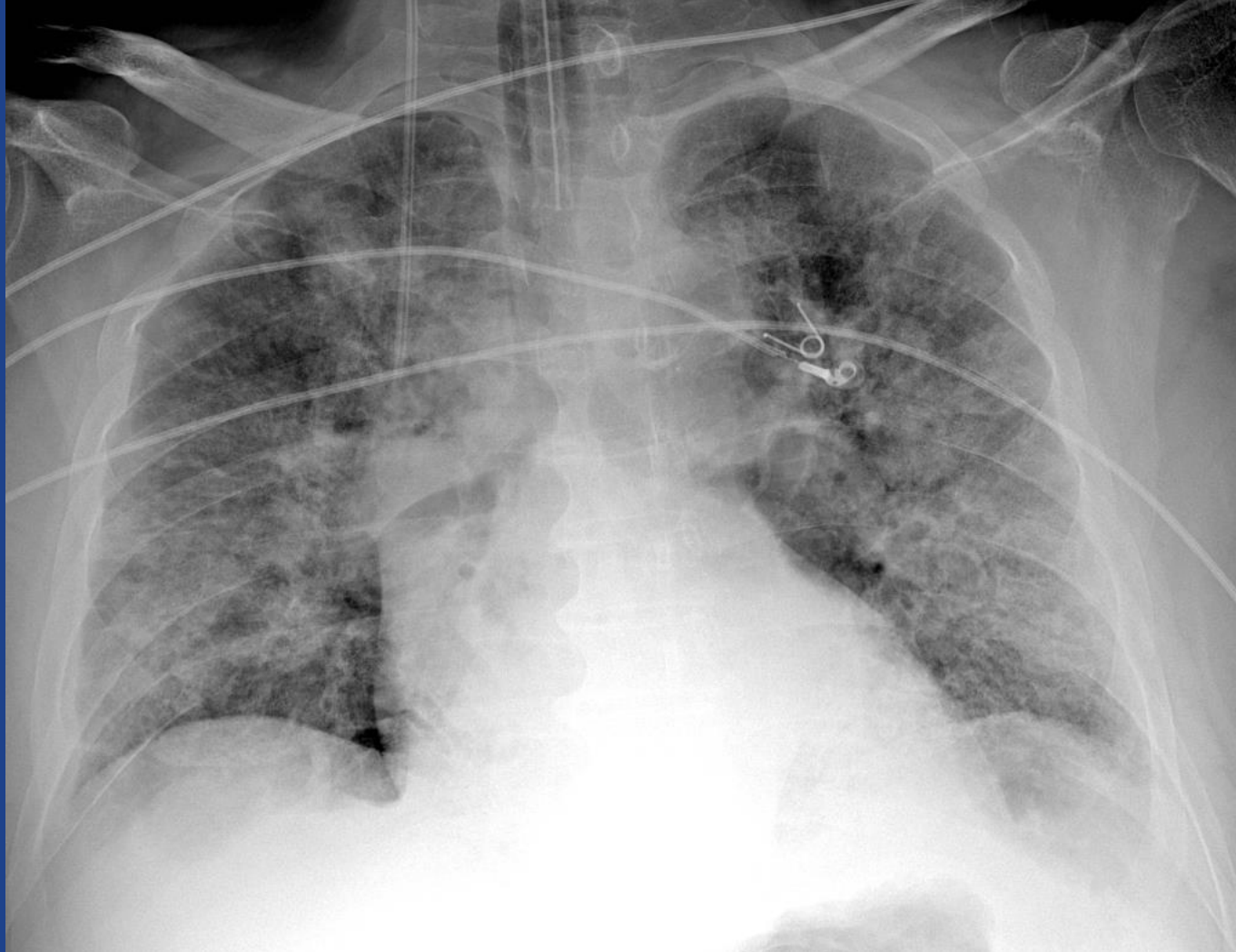
Age (y)

M=72%

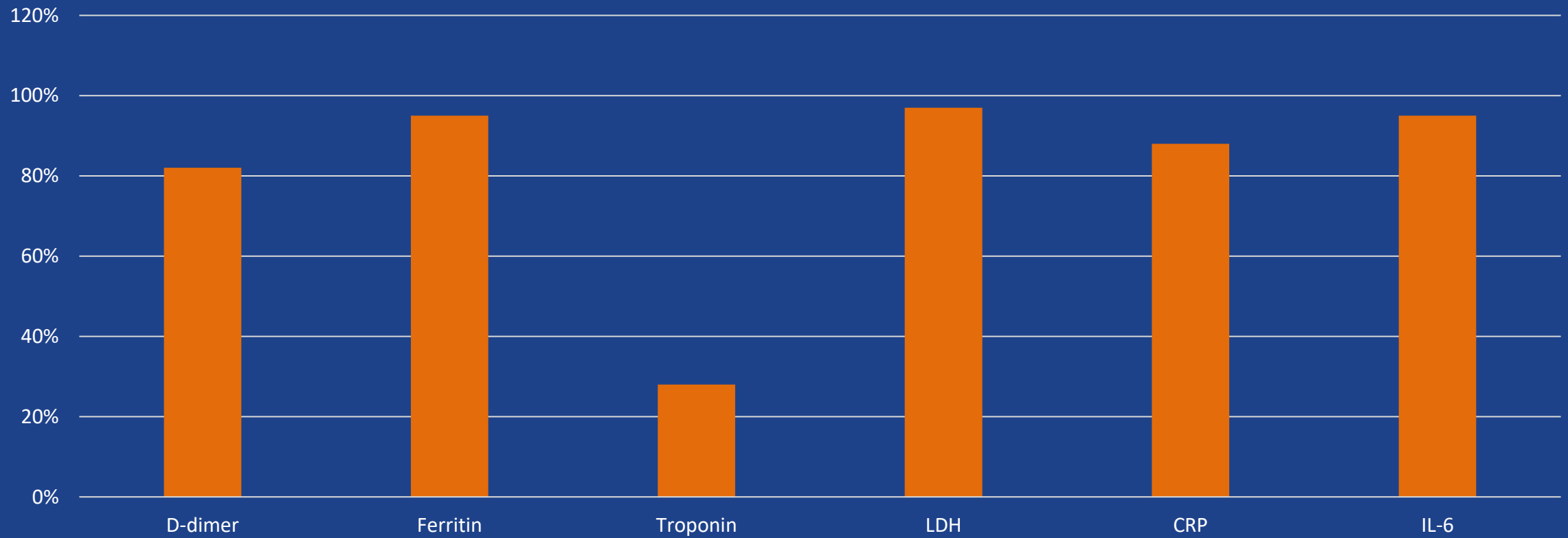




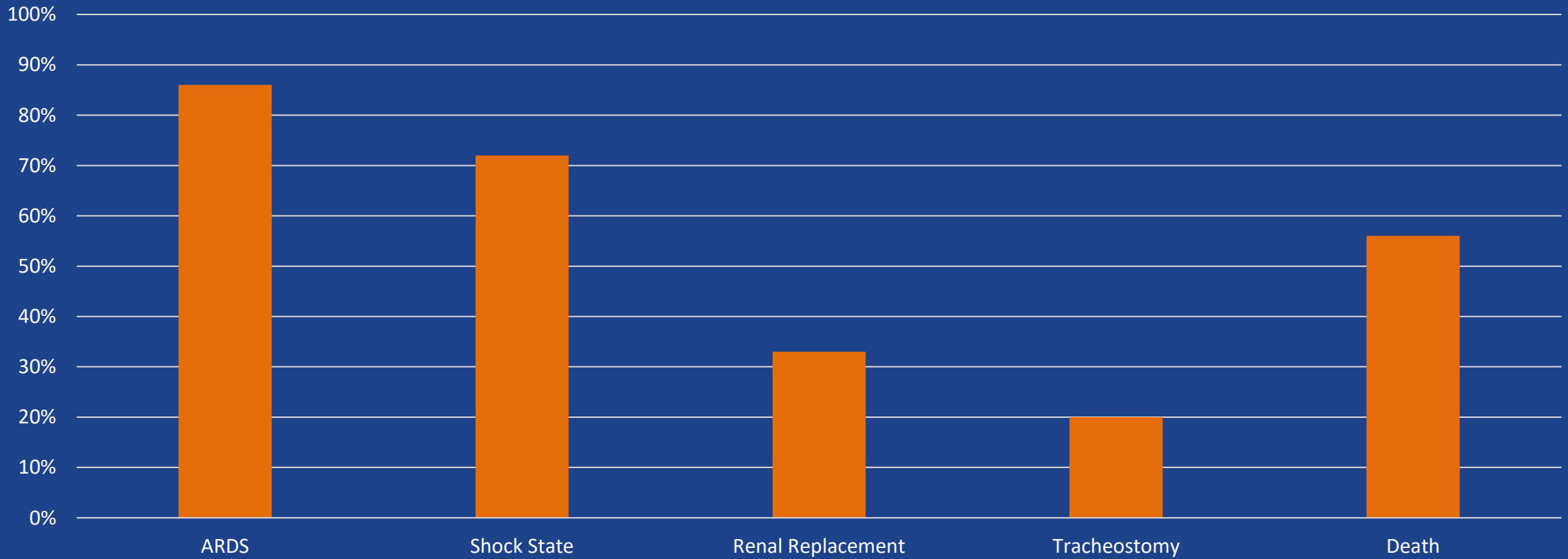
Bellevue



Inflammatory Surge



Clinical Characteristics



Organ Dysfunction

- ARDS
- Cytokine Storm
- Renal failure
- Hypercoagulable state



Severe ARDS

- Conventional management:
 - Trial of HFNC
 - Lung Protective Strategy
 - ARDSNET peep/fio2 ladder, though some patients improve on lower PEEPs
 - Account for insensible losses and undetected hypovolemia
 - Recruitment
 - Attention to fluid balance
 - Trial of antibiotics
 - Neuromuscular blockade and RASS-4 sedation
 - iNO for refractory hypoxia
 - Manual proning
 - ECMO



Severe ARDS

- Other issues
 - CVL and A-line in most patients
 - Prefer left IJ CVL
 - Many have substantial sedation requirements
 - Many need neuromuscular blockade to achieve ventilator dysynchrony
 - Tracheostomy team with protocolized bedside PDT
 - Plaquenil/Azithromycin
 - Watch Qtc
 - Family updates



Cytokine Release Syndrome

- Common to see the following a few days into ICU course
 - Recurring marked fevers in the absence of obvious infectious source
 - Tachycardia, tachypnea, diaphoresis
 - Elevated CRP, ferritin, LDH, IL-6
 - Trend daily (except IL-6)
 - D-Dimer
 - Progression to renal failure
 - ~30% of our ICU patients are in acute renal failure requiring RRT
- Unclear on how to mitigate
 - Steroids
 - Risks
 - Anti- IL6
 - No clear data on efficacy



Renal Replacement Therapy (RRT)

- High incidence of AKI requiring RRT
- Unclear etiology
- Role of Peritoneal Dialysis in crisis situations



Hypercoagulability

- High incidence of arterial and venous thromboembolism
 - Inflammatory milieu
 - Virus- induced endothelial damage
- D-dimer as a surrogate of clot formation
- Further studies ongoing to define risk & therapies



Other considerations

- No evidence based treatment
 - Critical care support is the mainstay of therapy
- Altered standard of care
 - Role of POCUS
- Things move slowly
 - Has repercussions on management choices
 - Levels of sedation
 - Timing of invasive interventions



Need for a multidisciplinary approach

- Tracheostomy team
- Proning team
- Palliative care team
- Procedure team
- Renal Replacement Therapy Team
- Site manager team



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