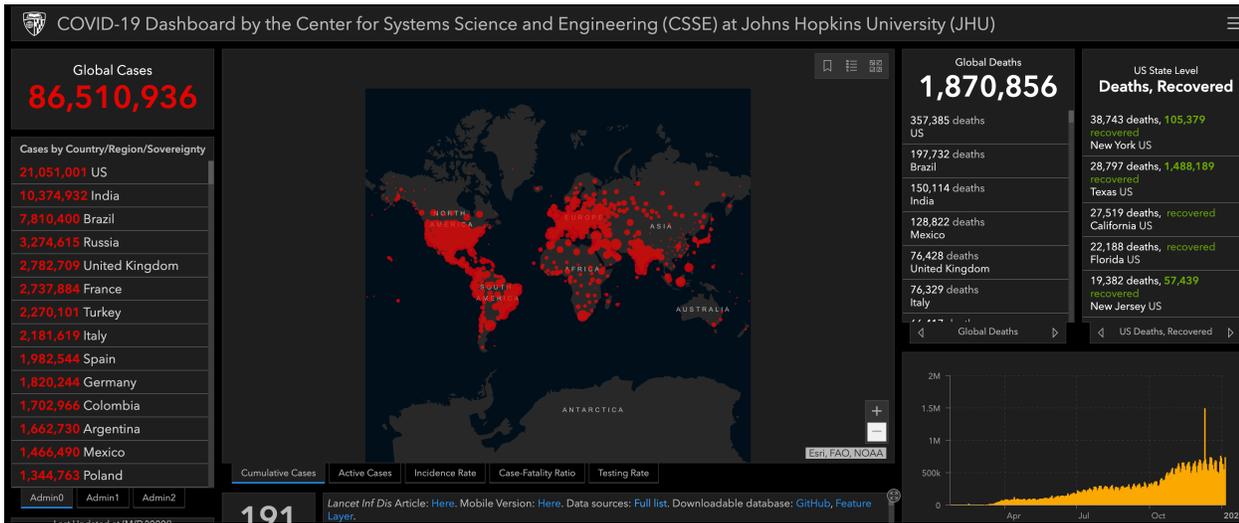
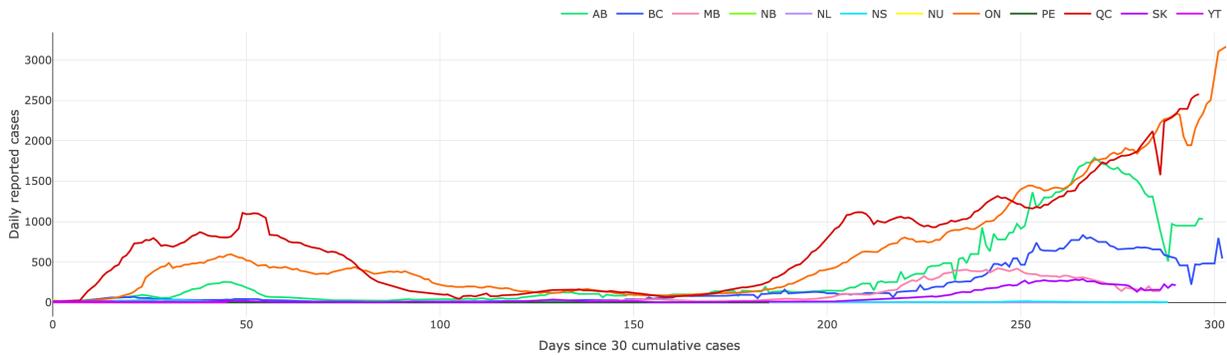


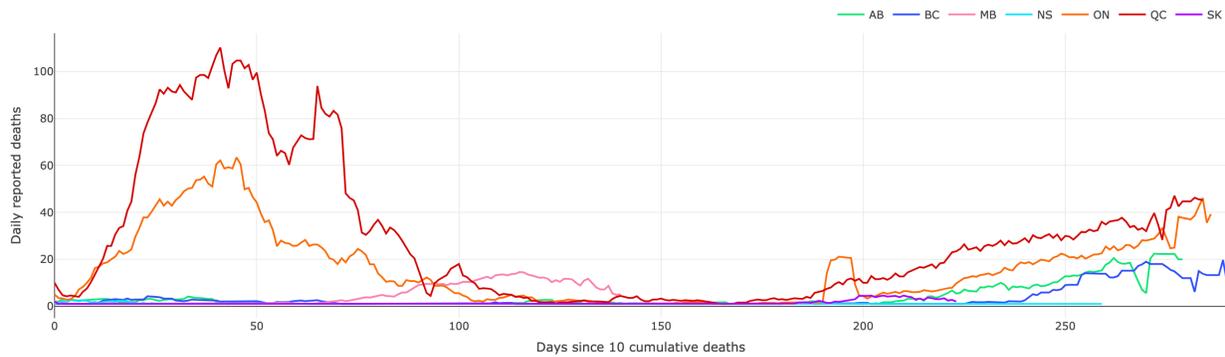
# BC Critical Care Network Update - December



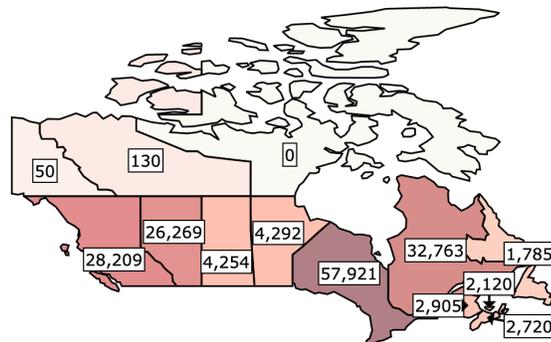
Daily reported cases by province (7-day rolling average)



Daily reported deaths by province (7-day rolling average)



Vaccine doses administered by province/territory in the last 23 days



## COVID Literature

### CPR Outcomes

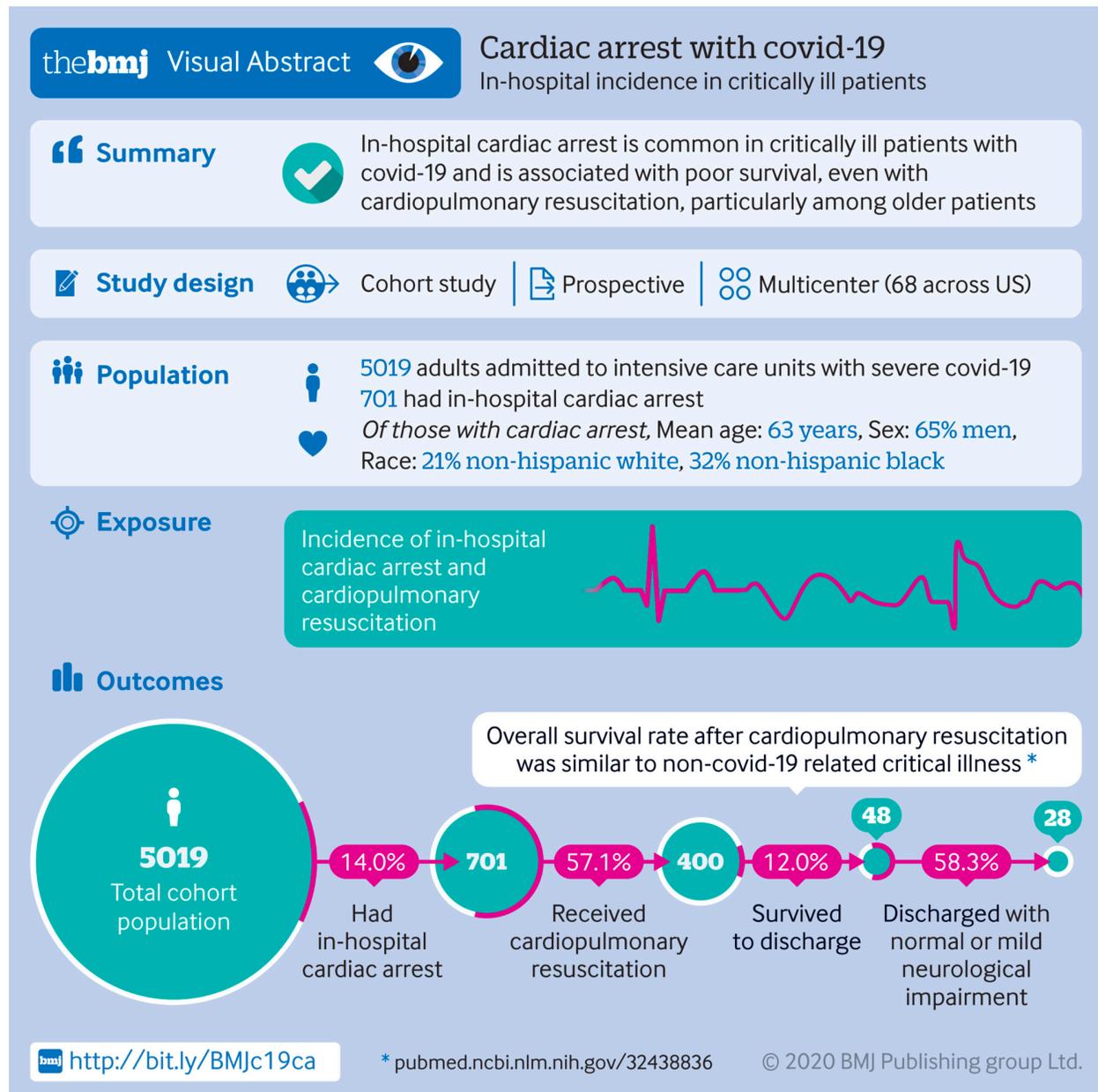
[In this US Cohort of 5019 COVID-19 patients](#), authors looked at patients with lab confirmed covid within 14 days of admission in 68 hospitals.

- 14% had IHCA, with only 57% getting CPR.

- Patients with IHCA more likely to be older (63), Co morbid, and in hospital with little ICU resources.

- PEA most common rhythm (49%) and Asystole (23.8%)

- 33% ROSC, 12% survived to discharge with 7% survived Neuro intact (21% for patients under 45, 2.9% for >80) [editor: compare to HYPERION of 5-10% Neuro intact survival]



## Ventilation Outcomes

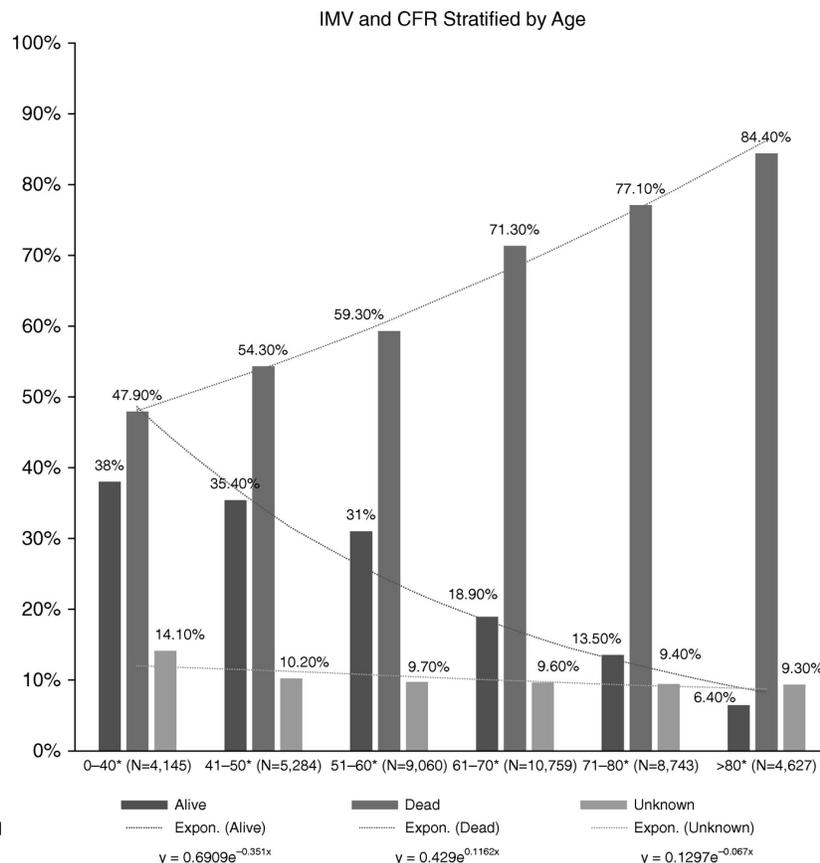
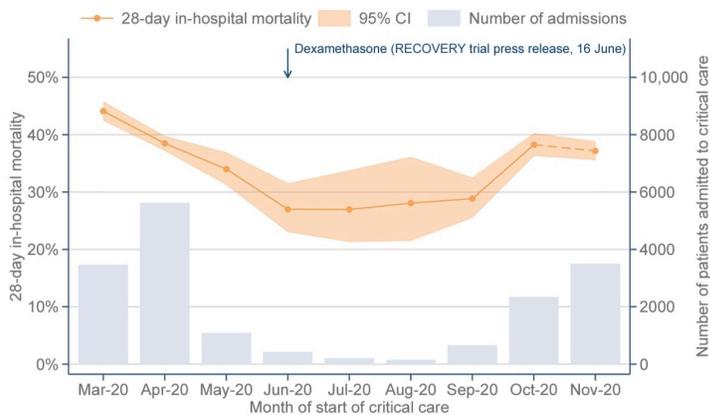
[In this US Cohort](#) of >38k patients with COVID-19, mortality ranged from 9-15%.

[In this Blue Journal meta-analysis](#), with over 57k patients, case-fatality rate was reported as ranging from 47% in younger patients (<40) vs 84% in older patients (>80).

[Compare this to older patients](#) admitted to ICU WITHOUT COVID-19, with in hospital mortality reported as 10-76%.

**Table 2. Risk Standardized 30-Day Mortality or Referral to Hospice Rates or Risk-Standardized 30-Day Mortality Rates Overall and During the Early and Late Periods**

Quintile	RSER (95% CI)		
	Overall (N = 955)	Early period (n = 398)	Late period (n = 398)
<b>Mortality or referral to hospice</b>			
Q1	9.06 (8.96-9.16)	12.19 (11.97-12.42)	6.88 (6.73-7.03)
Q2	10.28 (10.24-10.33)	14.13 (14.04-14.23)	8.11 (8.06-8.17)
Q3	11.36 (11.31-11.41)	15.78 (15.66-15.90)	8.99 (8.92-9.05)
Q4	12.74 (12.68-12.81)	17.95 (17.80-18.10)	9.99 (9.92-10.07)
Q5	15.65 (15.34-15.96)	22.73 (21.99-23.48)	12.47 (12.10-12.84)



Age	Alive n (%), 95% CI	Dead n (%), 95% CI	Unknown n (%), 95% CI
≤40* (N=4,145)	1,575 (38.0, 36.5–39.5)	1,985 (47.9, 46.4–49.4)	585 (14.1, 13.1–15.2)
41–50* (N=5,284)	1,872 (35.4, 34.1–36.7)	2,870 (54.3, 53.0–55.7)	542 (10.2, 9.5–11.1)
51–60* (N=9,060)	2,809 (31.0, 30.1–32.0)	5,373 (59.3, 58.3–60.3)	878 (9.7, 9.1–10.3)
61–70* (N=10,759)	2,033 (18.9, 18.2–19.6)	7,676 (71.3, 70.5–72.2)	1,050 (9.6, 9.2–10.3)
71–80* (N=8,743)	1,180 (13.5, 12.8–14.2)	6,740 (77.1, 76.2–78.0)	823 (9.4, 8.8–10.0)
>80* (N=4,627)	295 (6.4, 5.7–7.1)	3,903 (84.4, 83.3–85.4)	429 (9.3, 8.5–10.1)

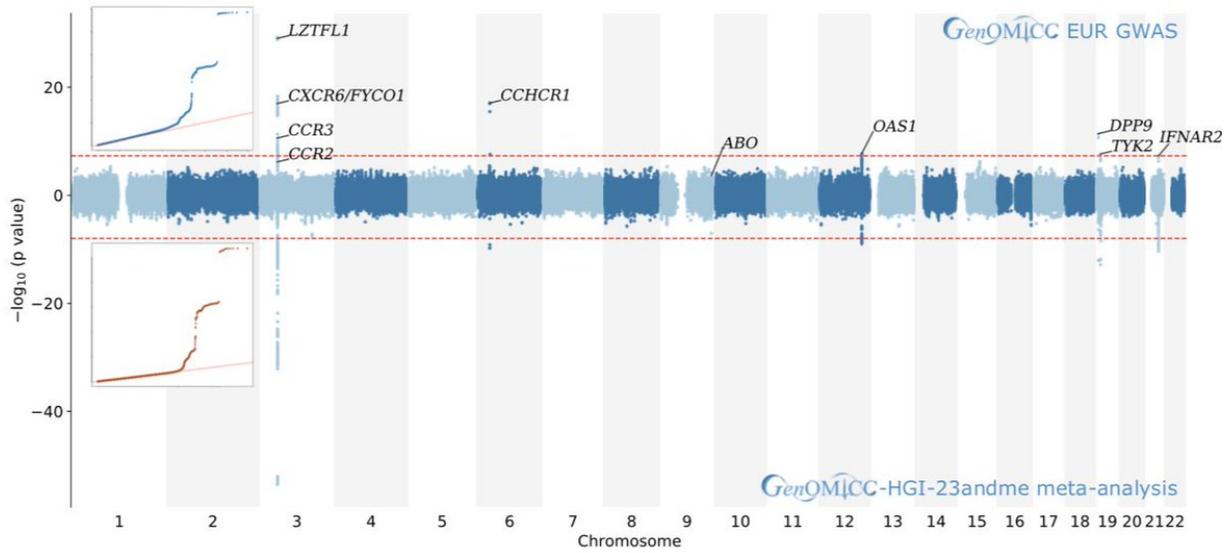
**Figure 37. Number of admissions and 28-day in-hospital mortality by month**

Number of admissions and 28-day in-hospital mortality for patients critically ill with confirmed COVID-19 by month of start of critical care.

Estimates of 28-day in-hospital mortality based on Kaplan-Meier survival analysis. Patients last reported to be still receiving critical care censored on the most recent date of data submission by the treating unit. Patients discharged from acute hospital within 28 days assumed to survive to 28 days. Please note that these estimates are not adjusted for changes in patient characteristics (see Tables 1-3).

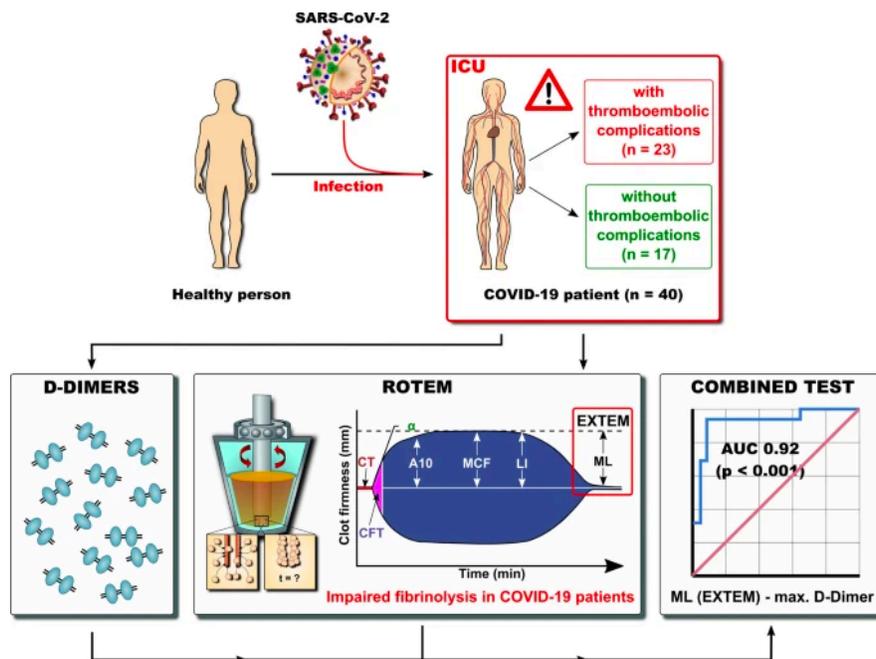
### Severe COVID-19 Illness and genetic predisposition:

[In this nature paper](#), 2244 critically ill COVID-19 patients were genetically sequenced. 5 positions are associated with severe disease. Lower TYK2 levels are associated with less disease (good news JAK inhibitors inhibit this pathway)



### COVID-19 and Thrombosis: D-Dimer & ROTEM?

[In this small](#), hypothesis generating exploration, the combination of ROTEM EXTEM ML and D-Dimer a AUC of 0.92 for macro-vascular thrombosis was found.



## Non-Covid Literature

### Colloid vs Crystalloid: the battle continues

[In This retrospective study with >18k patients](#), the use of 5% albumin with saline was associated with less mortality and AKI than saline alone at 30days in critically ill patients requiring large volume resuscitation.

Critical Care Medicine

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Critical Care Medicine  
*The Academic Care Professionals*

Wolters Kluwer



Effects of 5% Albumin Plus Saline Versus Saline Alone on Outcomes From Large-Volume Resuscitation (LVR) in Critically Ill Patients



Retrospective cohort study in Western, PA



**Aim:** To determine the effect of LVR with 5% albumin & 0.9% NaCl vs 0.9% NaCl alone on mortality and AKI



#### Two Independent Cohorts



Multicenter (2009-2015)\*  
N = 16,201

Single center (2000-2008)  
N = 2,428

\*Results displayed are from 2009-2015\*

#### Inclusion/Exclusion



- ✓ Admitted to ICU and received  $\geq 60$  mL/kg of fluid in 24-hours
- ✗ Excluded patients with AKI prior to LVR

#### Study Results

##### Patient population



Saline alone: 88.8% (n = 14,387)  
Albumin + Saline: 11.2% (n = 1,814)

##### Mortality at 30-days



Albumin + saline was associated with  $\downarrow$  30-day mortality (HR 0.52; CI 0.44 – 0.62)

##### Major Adverse Kidney Events (MAKE) at 30, 90, 365 days



Albumin + saline associated with  $\downarrow$  MAKE but  $\uparrow$  AKI at 72 hours (OR 1.75; CI 1.5–1.9)



Compared to saline alone, the *addition* of 5% albumin for LVR was associated with  $\downarrow$  mortality and MAKE at 30, 90, and 365 days.

Although a higher rate of AKI was observed, this did not translate into persistent renal dysfunction.



Data from Gomez H, et al: *Crit Care Med*, 2021

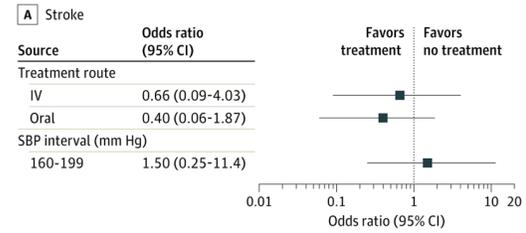
ccmjournal.org  
#CritCareMed

### Early TXA in Aneurysmal SAH does not improve outcomes

[In this "ULTRA" Trial Dutch RCT](#) of 955 patients, the use immediate use of TXA in ruptured SAH due to aneurysm had no impact on clinical outcome at 6 months. Rebleed rates were 10% vs 14% respectively

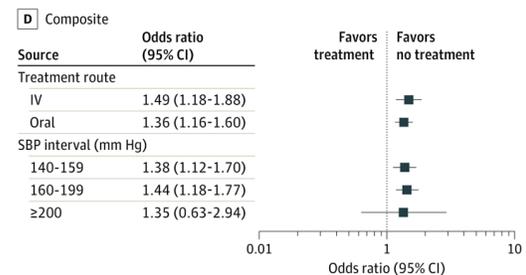
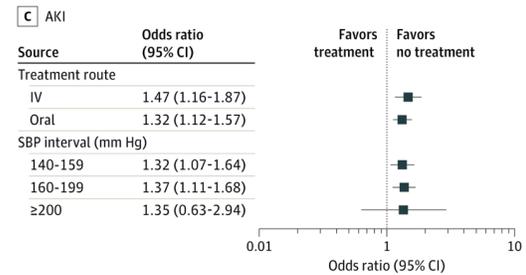
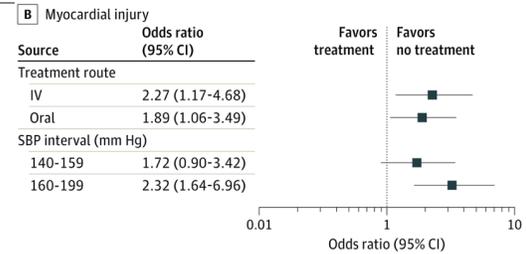
## No end organ problems? Let that HTN ride...

In this thought provoking propensity matched cohort of 22k patients (non cardiac admissions), intensive BP management without end organ damage was associated with harm



## RELAX trial: no PEEP (0 to 5) vs low PEEP (8)

In this RCT of 980 IMV ICU patients without ARDS, a PEEP strategy of 0 - 5 was non inferior to 8cm H20, but associated with more hypoxemia and need for rescue. So... I'll stick to 5-8 as we all do.



**JAMA Network**

**QUESTION** In ICU patients who received invasive ventilation for reasons other than acute respiratory distress syndrome (ARDS), is a strategy with lower positive end-expiratory pressure (PEEP) noninferior to higher PEEP with respect to ventilator-free days at day 28?

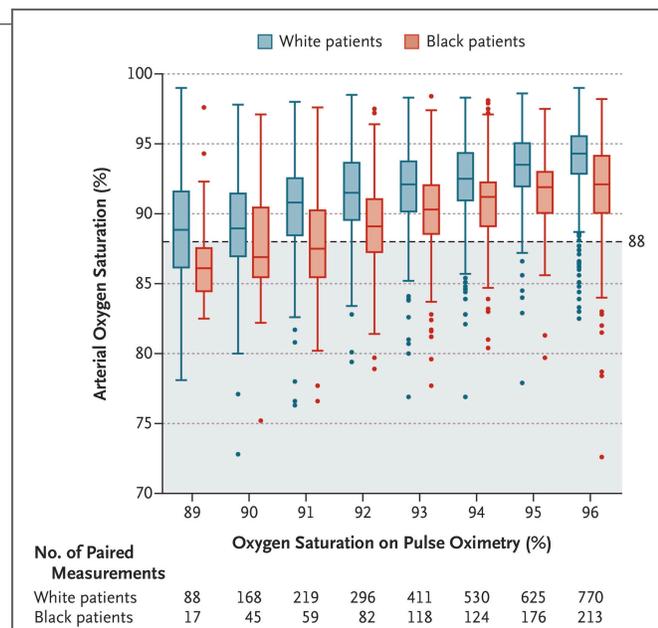
**CONCLUSION** This clinical trial found that among ICU patients receiving invasive ventilation, a strategy with lower PEEP was noninferior to a strategy using higher PEEP for the outcome of ventilator-free days, supporting the use of lower PEEP in patients without ARDS.

POPULATION	INTERVENTION	FINDINGS
<p>623 Men 346 Women</p> <p>Adults without ARDS expected not to be extubated within 24 hours of intubation</p> <p>Median age: 66 years</p> <p>8 ICUs in the Netherlands</p>	<p>980 Patients randomized 969 Patients analyzed</p> <p><b>Lower PEEP strategy</b> 476 patients Lowest level between 0-5 cm H<sub>2</sub>O</p> <p><b>Higher PEEP strategy</b> 493 patients 8 cm H<sub>2</sub>O</p>	<p>Median ventilator-free days by study day 28</p> <p><b>Lower PEEP strategy</b> 18 Days (IQR, 0-27)</p> <p><b>Higher PEEP strategy</b> 17 Days (IQR, 0-27)</p> <p>Lower PEEP strategy was within the noninferiority margin: mean ratio, <b>1.04</b> (95% CI, 0.95 to ∞); P = .007</p>

Writing Committee and Steering Committee for the RELAX Collaborative Group. Effect of a lower vs higher positive end-expiratory pressure strategy on ventilator-free days in ICU patients without ARDS: a randomized clinical trial. JAMA. Published online December 9, 2020. doi:10.1001/jama.2020.23517

## Pulse Oximetry and Racial bias

In this study out of Michigan, Black patients were 3 times more likely to have occult hypoxemia than matches white patients. Most often, darker skin will result in a true SPO2% ~2% lower.



## No need to Double Cover for MRSA bacteremia

[In this small RCT](#), double coverage with vanco/dapto and betalactam showed no true benefit over vanco/dapto (yet combination tx had higher cr)

