

# Steroids in Critical Illness

*Are they here to pump YOU up?*

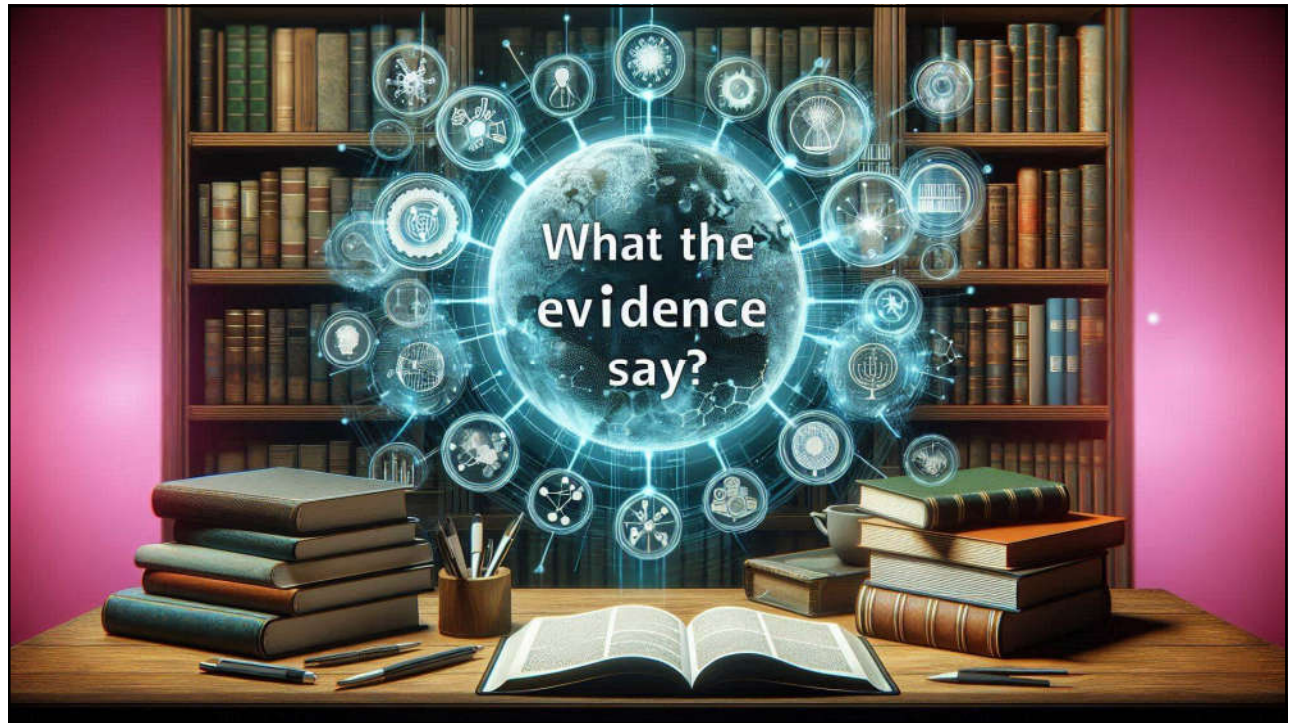
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No disclosures

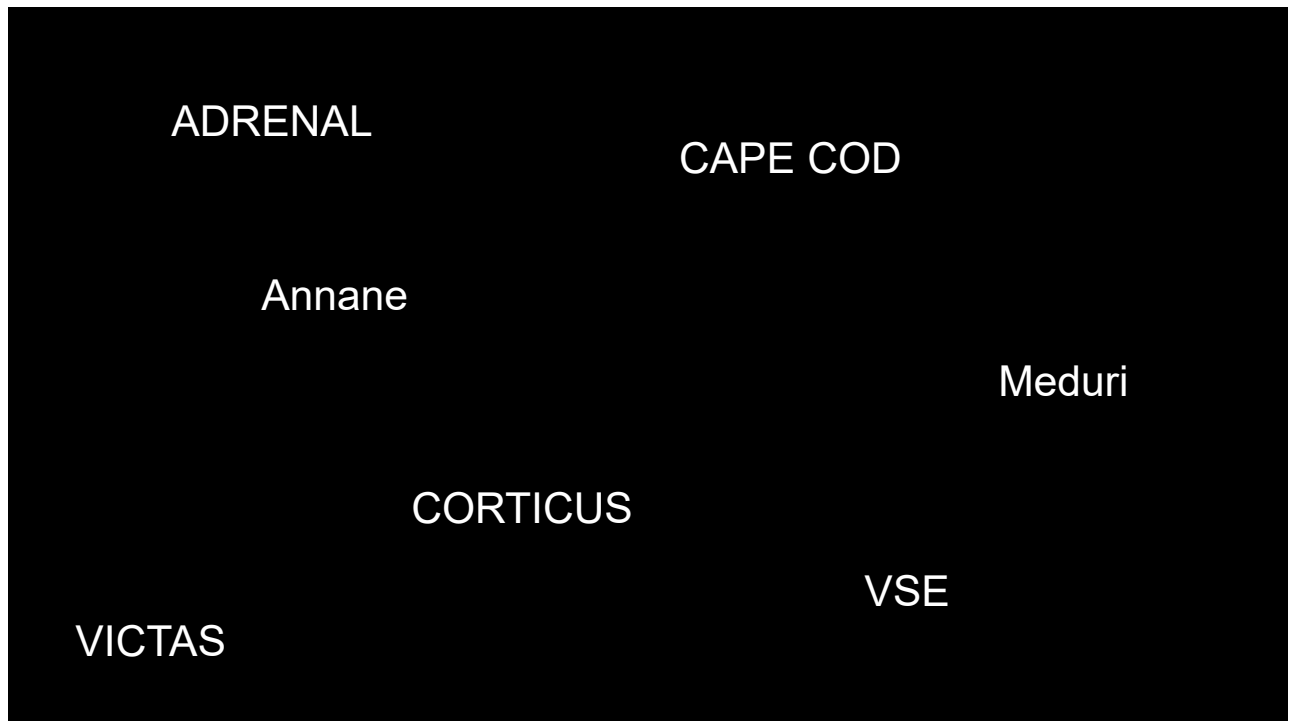
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ICU Trials			
A-Z	By Specialty	By Disease	By Interv.
Q Steroid			
<b>A</b>			
<b>ADRENAL</b>	Hydrocortisone therapy for septic shock	2018	
<b>Annane 2002</b>	Hydrocortisone therapy for septic shock	2002	
<b>APROCCHSS</b>	Hydrocortisone therapy for septic shock	2018	
<b>B</b>			
<b>Bone 1987</b>	Early, high-dose methylprednisolone for severe sepsis and septic shock	1987	
<b>Bozzette 1990</b>	Adjunct corticosteroids for PJP	1990	
<b>Bracken I (NASCIS)</b>	Methylprednisolone for acute spinal cord injury	1984	
<b>Bracken II (NASCIS)</b>	Methylprednisolone, naloxone for acute spinal cord injury	1990	
<b>Bracken III (NASCIS)</b>	Methylprednisolone, tirilazad for acute	1997	

5



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## 2024 Focused Update: Guidelines on Use of Corticosteroids in Sepsis, Acute Respiratory Distress Syndrome, and Community-Acquired Pneumonia

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Dibavan Chaudhuri, MD, MSc.

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6

 | **Take Home Points**

<b>Sepsis</b>	<ul style="list-style-type: none"><li>• Septic shock – probably yes</li><li>• Other septic states – meh</li></ul>
<b>ARDS</b>	<ul style="list-style-type: none"><li>• Yes</li><li>• Dosing and which steroid are controversial</li></ul>
<b>CAP</b>	<ul style="list-style-type: none"><li>• Severe cap – yes</li><li>• Non-severe cap – probably no</li></ul>

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7



8

# Steroids in Sepsis

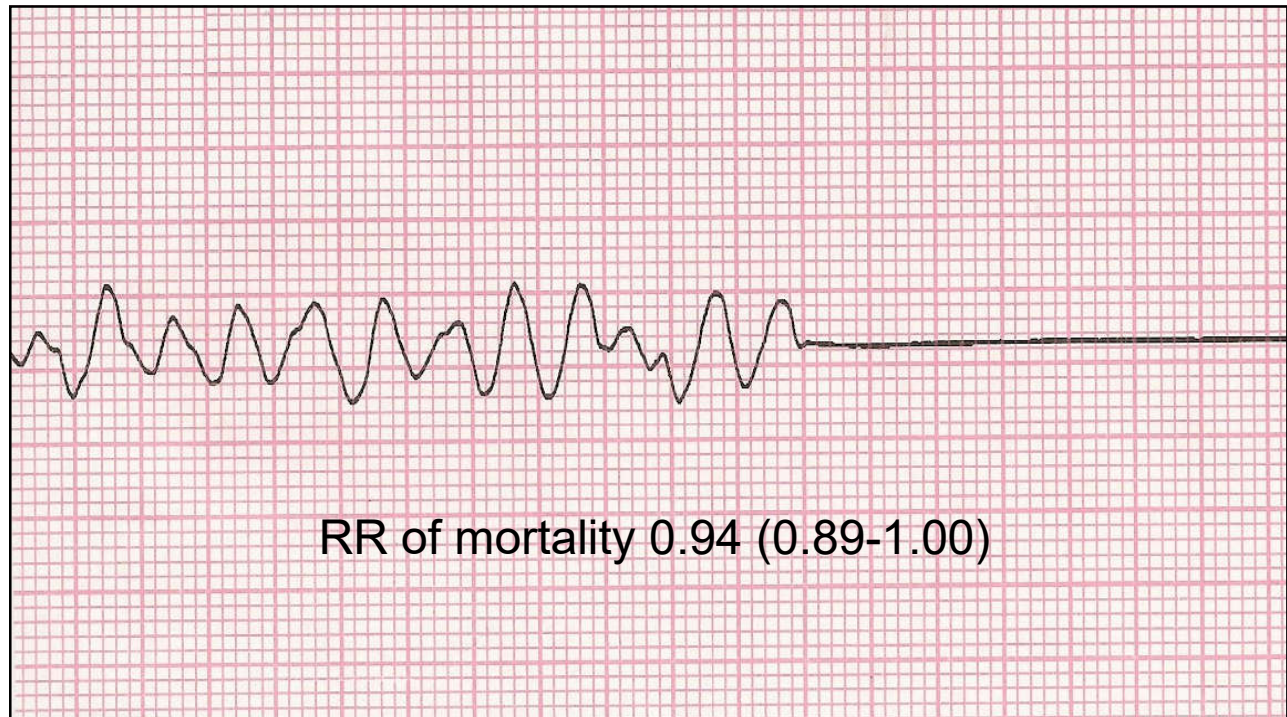
“Dysregulated host response” = inflammation

Worry about secondary infection, hyperglycemia, hypernatremia

Landmark trials:

<b>Bone (1987)</b>	Methylprednisolone. No benefit, trended toward harm
<b>Annane (2002)</b>	Hydrocortisone improved mortality (amongst stim test responders)
<b>CORTICUS (2008)</b>	Hydrocortisone. Quicker shock resolution, no meaningful outcome benefit
<b>COITSS (2010)</b>	Adding fludrocortisone and insulin to patients on hydrocortisone. No benefit, but more secondary infections
<b>HYPRESS (2016)</b>	Hydrocortisone, pre-shock. No benefit.
<b>ADRENAL (2018)</b>	Hydrocortisone. Quicker shock resolution, but no meaningful outcome benefit
<b>APROCCHSS (2018)</b>	Hydrocortisone/Fludrocortisone, sick pts than ADRENAL. Improved mortality

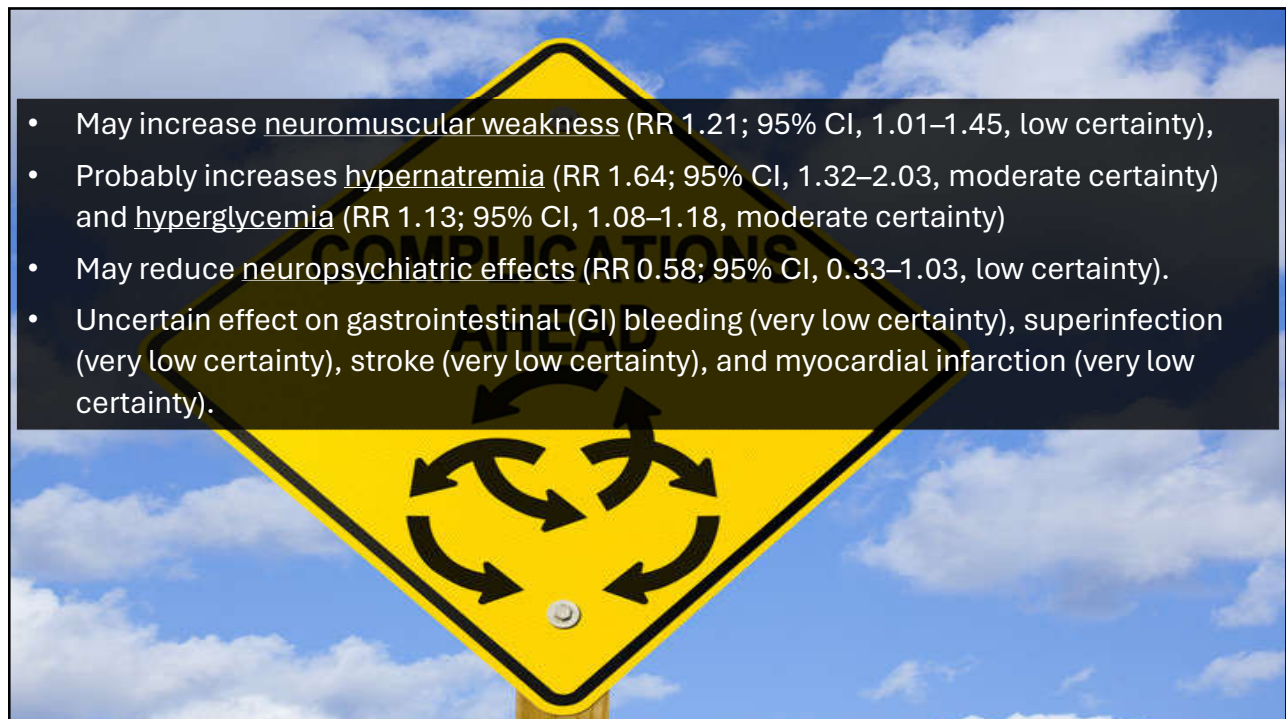
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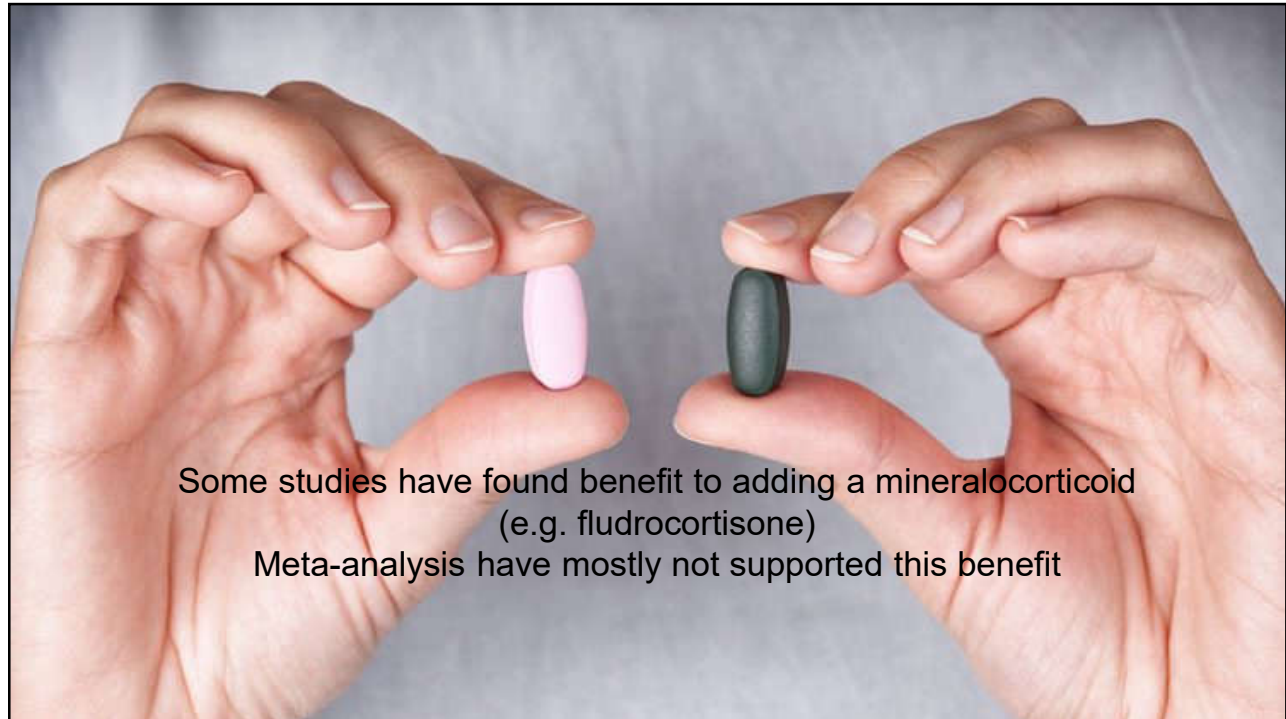
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 | **Recommendations**

We “suggest” administering corticosteroids to adult patients with septic shock (conditional recommendation, low certainty)

We “recommend against” administration of high dose/short duration corticosteroids (> 400 mg/d hydrocortisone equivalent for < 3 d) for adult patients with septic shock (strong recommendation, moderate certainty).

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14

14



15

## Steroids in ARDS

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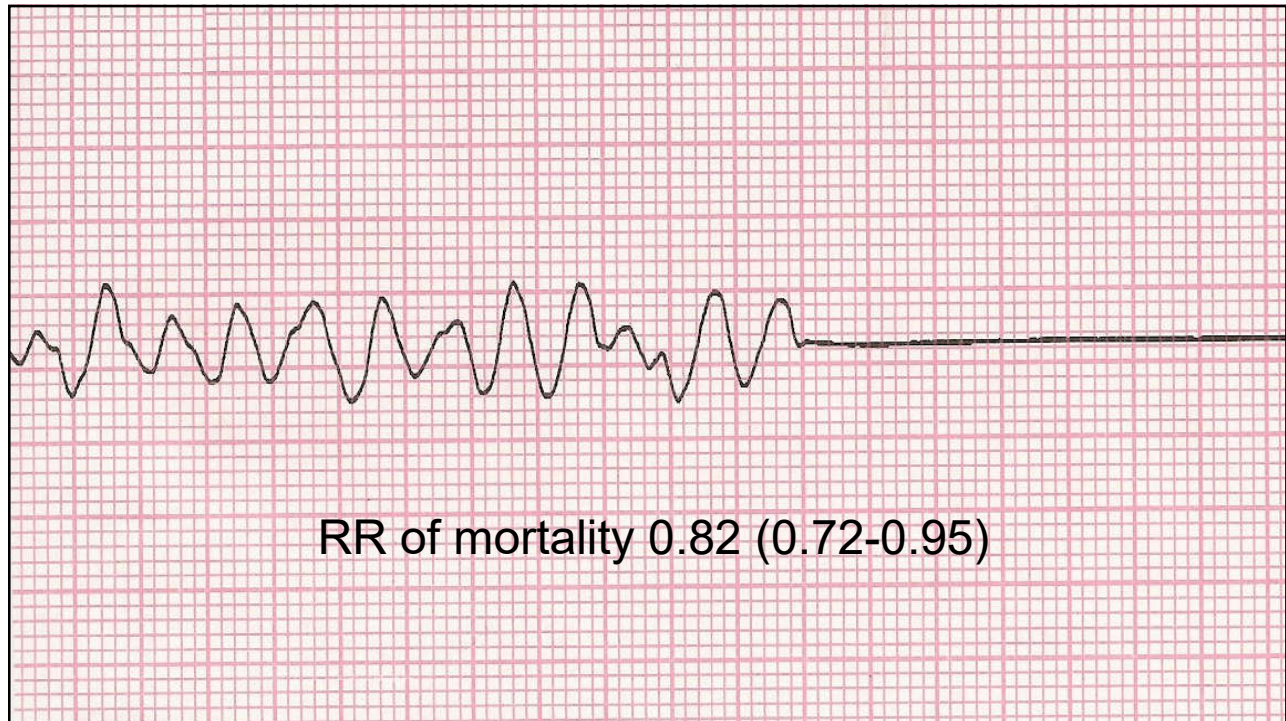
ARDS is another hyperinflammatory state

Landmark trials:

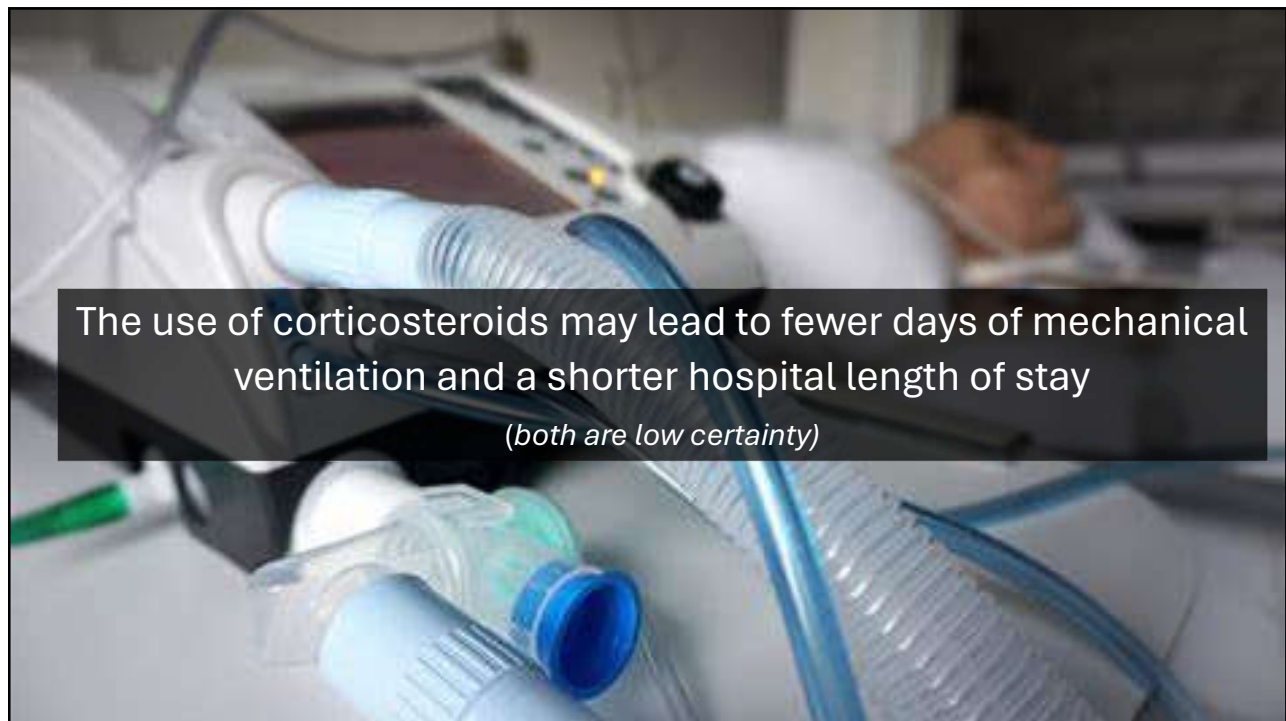
<b>Meduri (1998)</b>	24 patients. Methylpred 2 mg/kg with taper. Started at ARDS day 7. Mortality 0% vs 63% (!!!)
<b>Steinberg (2006)</b>	Late steroids in ARDS (start day 7-28). Methylpred 2 mg/kg with taper. No benefit. Caused harm in super-late (> day 14)
<b>Meduri (2007)</b>	Within 72hrs of ARDS onset. Methylpred 1 mg/kg with taper. Improved vent-free days and ICU survival, but no impact on hospital mortality
<b>DEXA-ARDS (2020)</b>	Improved vent-free survival. Dexamethasone 20mg daily x 5 days, then 10 mg daily x 5 days (stop if extubated). Trial stopped early
<b>RECOVERY (2021)</b>	COVID, not ARDS per-se. Improved mortality. Dexamethasone 6 mg for up to 10 days. Only beneficial if needing O2

16

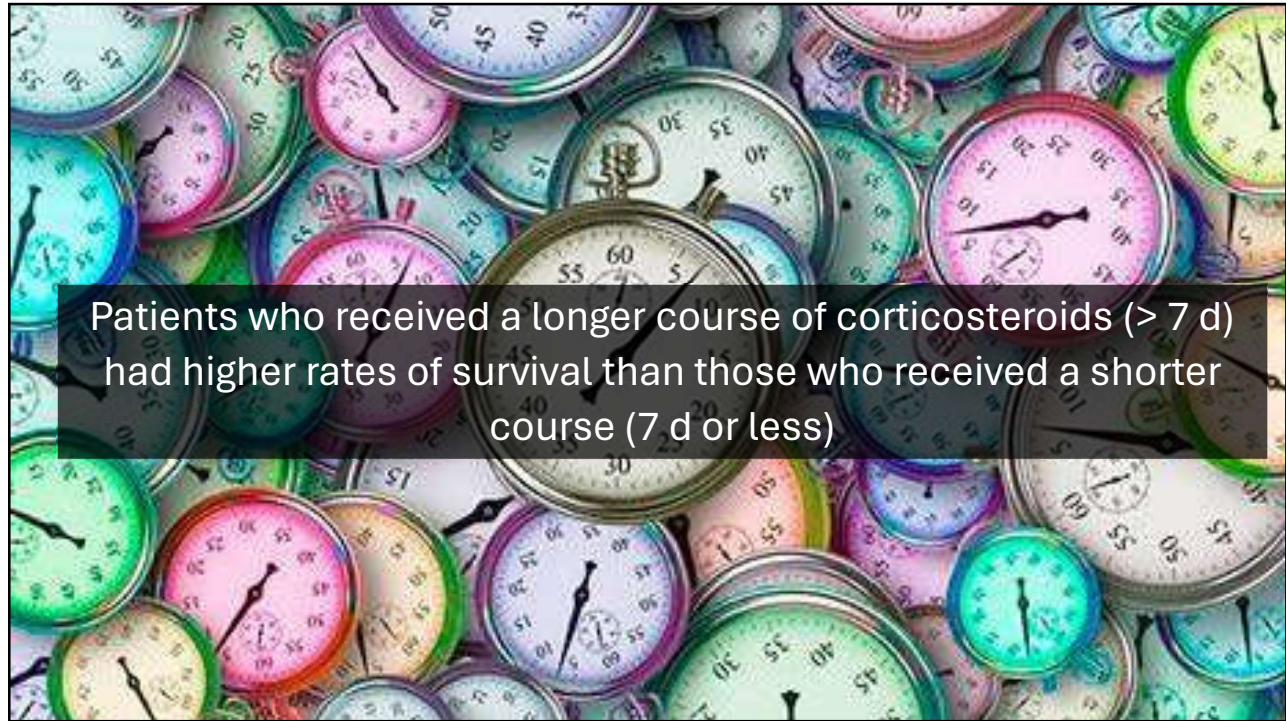




17



18



Patients who received a longer course of corticosteroids (> 7 d) had higher rates of survival than those who received a shorter course (7 d or less)

19



## Recommendations

We “suggest” administering corticosteroids to adult critically ill patients with ARDS (conditional recommendation, moderate certainty)

P:F requirement (previously < 200) was removed in this iteration

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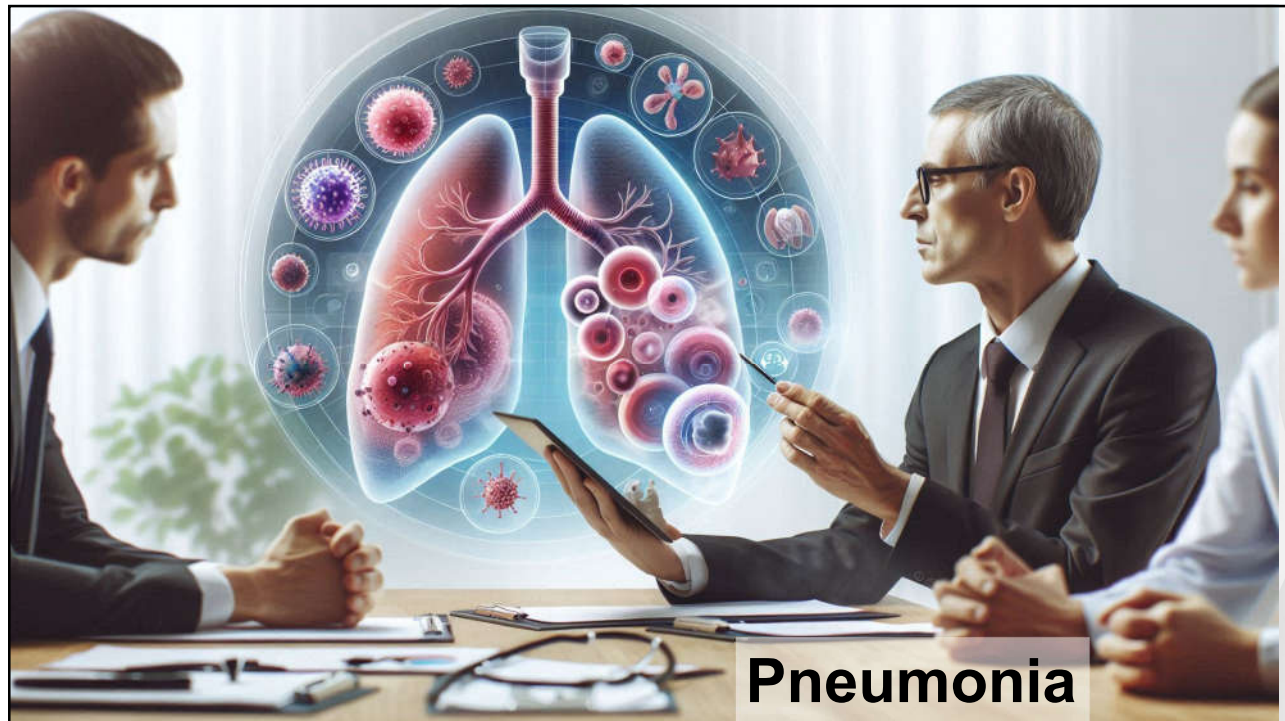
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20

20



21

## Steroids in CAP

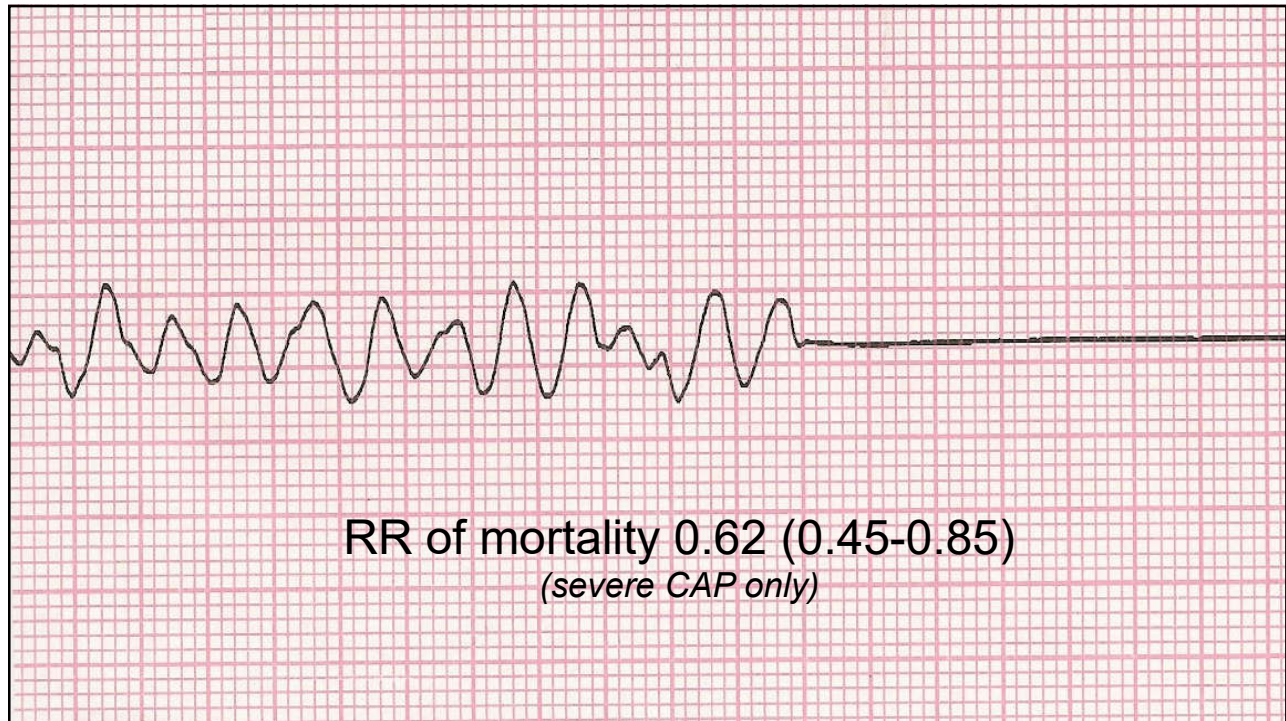
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Inflammation (sensing a theme?)

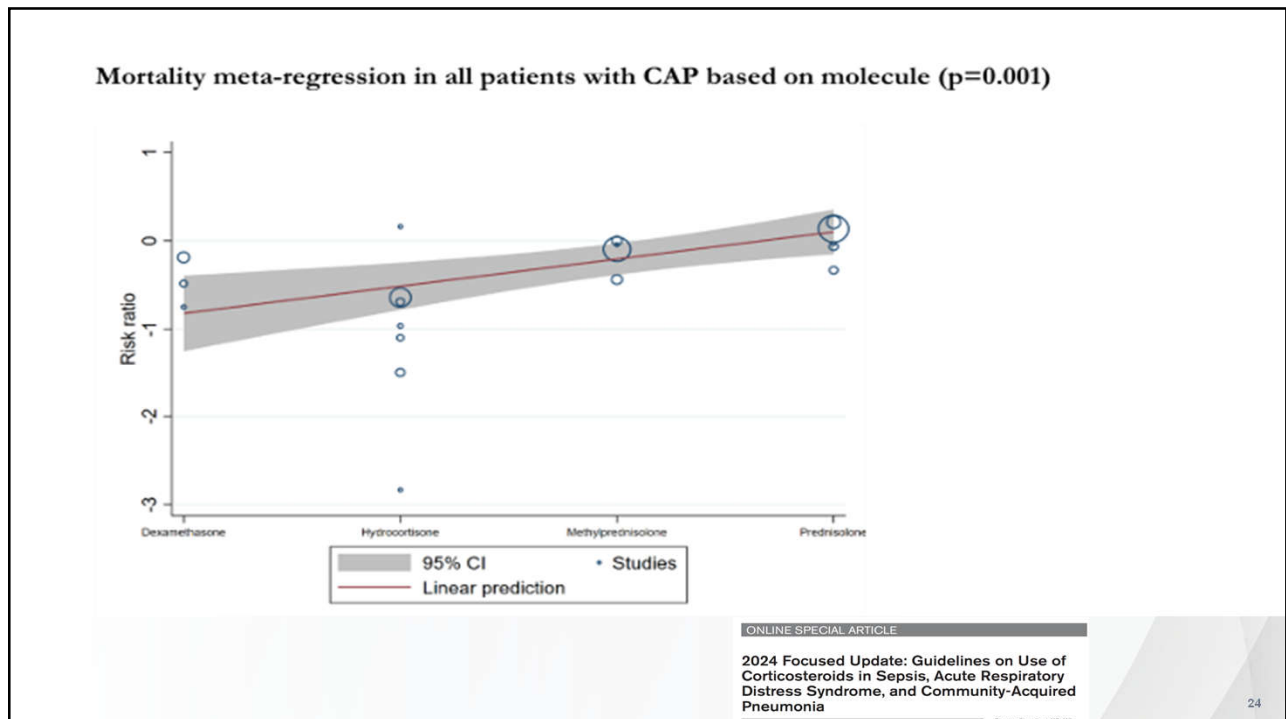
Landmark trials:

<b>Confalonieri (2005)</b>	Severe CAP, hydrocortisone 200 mg bolus followed by infusion. Improved mortality and LOS
<b>Sabry (2011)</b>	Severe CAP, hydrocortisone 12.5 mg/hr infusion. Reduced vent days and improved physiologic parameters (e.g. P:F), but not powered for mortality
<b>Meduri (2022)</b>	Severe CAP, methylpred 40 mg/day with taper. No benefit. Under-recruited. Study took place 2012-2016 at 42 VAs.
<b>CAPE COD (2023)</b>	Severe CAP (vent, HFNC w/ P:F < 300, or PSI class V). Early hydrocortisone 200mg/day infusion 8-14 days with taper (stop on ICU discharge) Improved mortality. Stopped early.

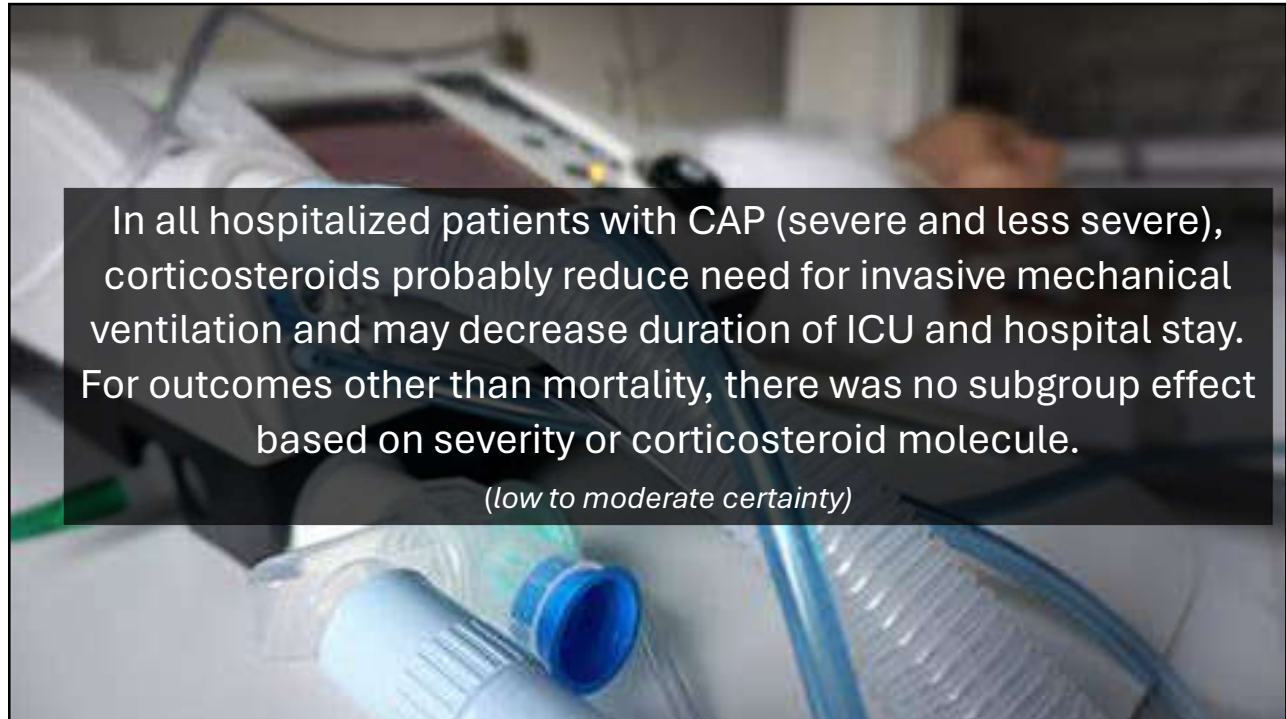
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23



24



25



26



## Recommendations

We “recommend” administering corticosteroids to adult patients hospitalized with severe bacterial CAP (strong recommendation, moderate certainty).

We “make no recommendation” for administering corticosteroids for adult patients hospitalized with less severe bacterial CAP.

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27

27



## Take Home Points

### Sepsis

- Septic shock – probably yes
- Other septic states – meh

### ARDS

- Yes
- Dosing and which steroid are controversial

### CAP

- Severe cap – yes
- Non-severe cap – probably no

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28

28