

Man vs Machine: Evidence and Deliberate Decision Making in OHCA

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Disclosure

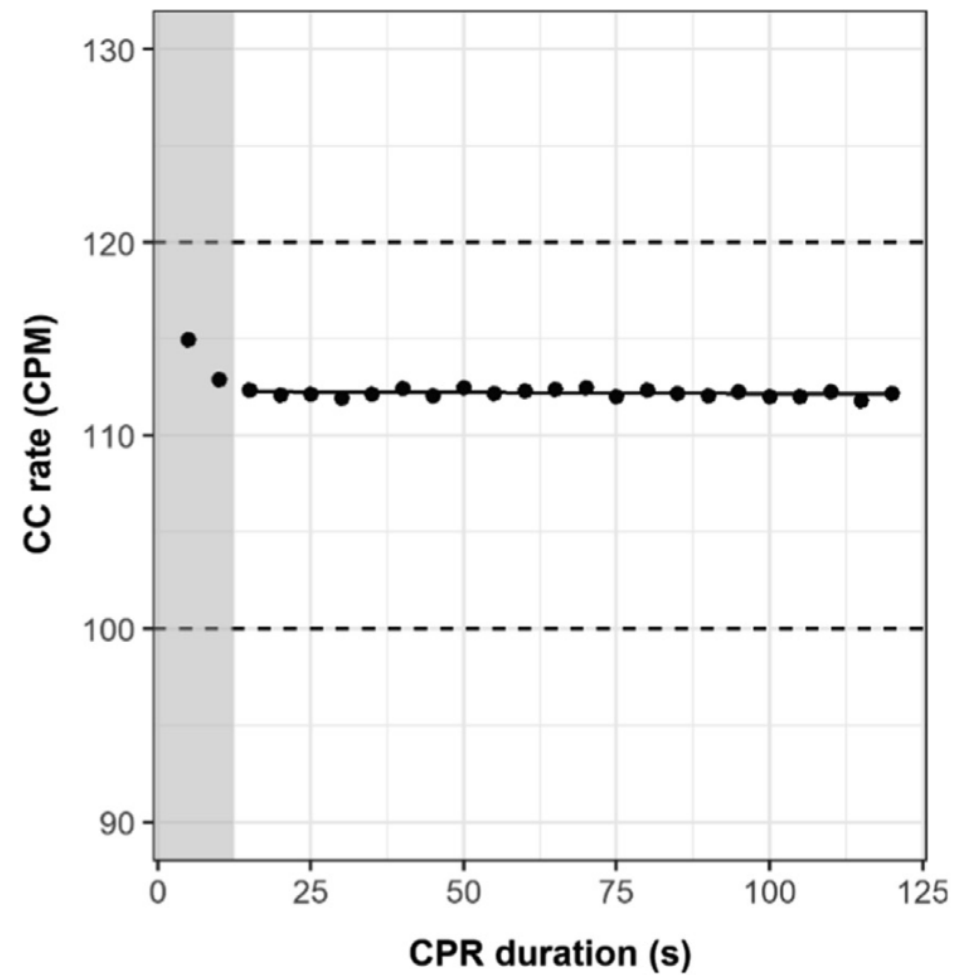
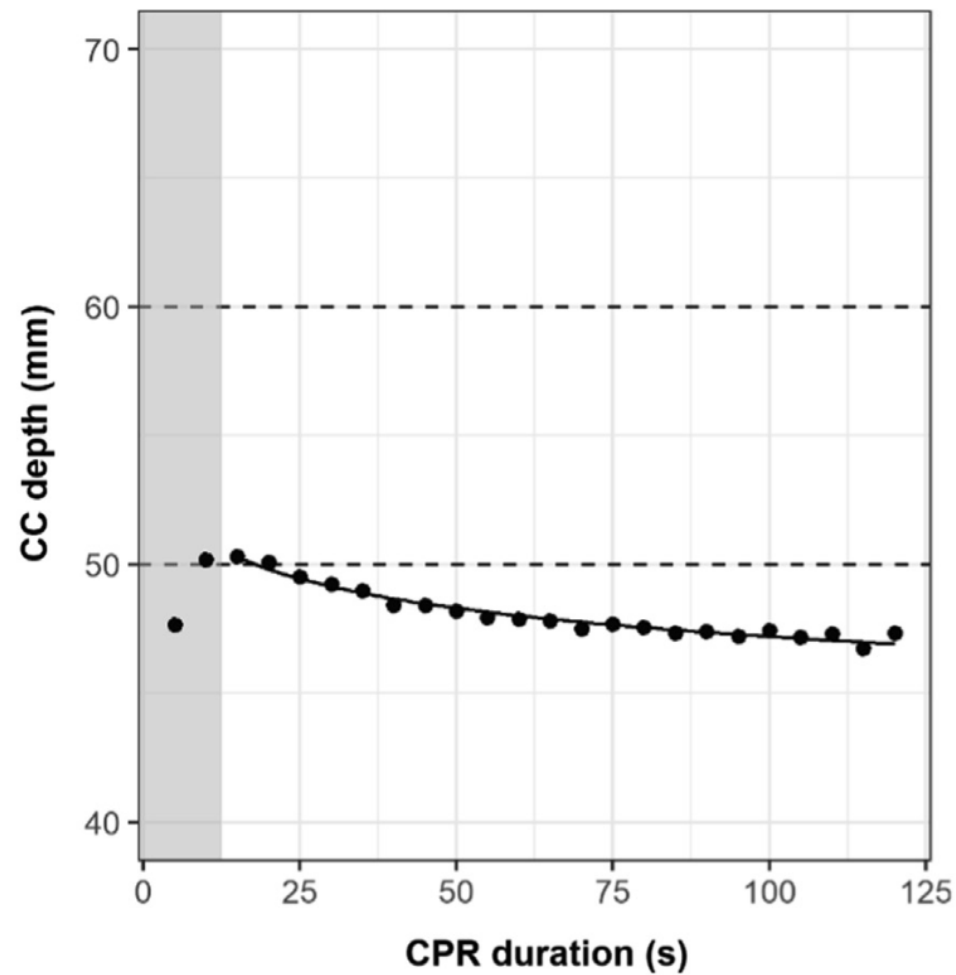
In the past 24 months, I have not had any financial relationships with any ineligible companies.

A Mechanical Siren Song

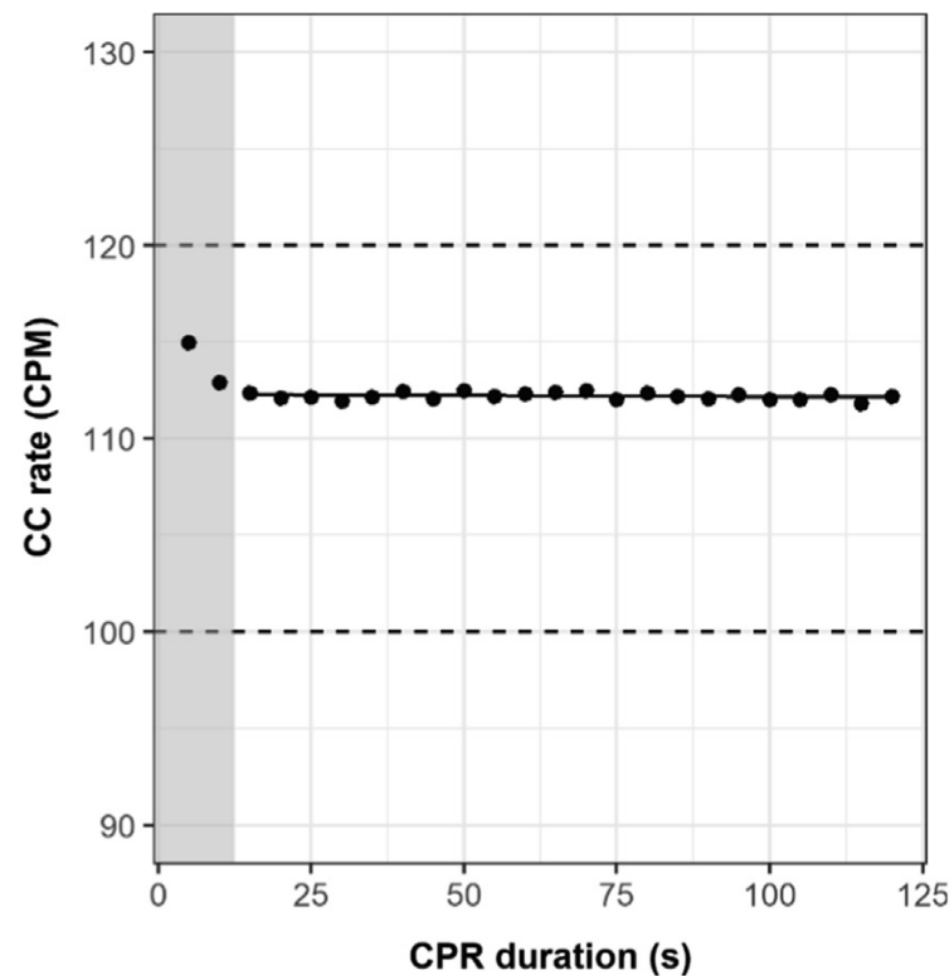
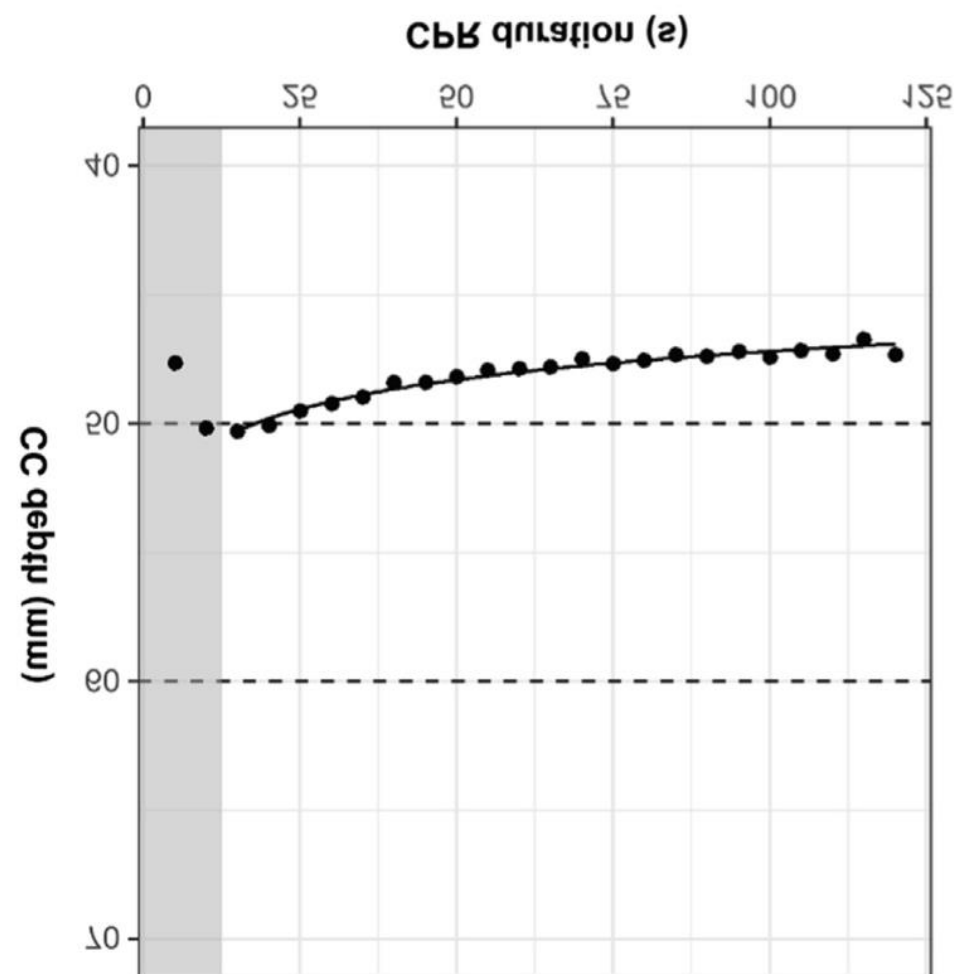
- CPR is the most important intervention
- Humans = weak and fatigable
- Machine = strong and reliable
- Right? **RIGHT?!**



Loss of Depth



Loss of Depth



No Free Lunch

- Cost
- Training
- Traumatic Injuries
- **Time to apply**



The Literature



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LINC (2014)

- P: n = 2,589. Non-traumatic OHCA, EMS agencies in Sweden, Netherlands, and UK.
- I: 3 minutes of MCD CPR, “Blind” Shock
- C: Standard BLS
- O: 4-hour survival

LINC (2014)

- No difference at 4-hour survival or 6-month CPC 1-2
- Shock delayed 1.5 minutes
- 37% Inappropriate Shocks



PARAMEDIC (2015)

- P: n = 4,471. Non-traumatic OHCA, EMS agencies in UK
- I: LUCAS
- C: Manual CPR
- O: 30-day survival

PARAMEDIC (2015)

- No difference all comers
- VF/VT Sub analysis: **worse**
survival 24% vs 18% (NNH = 17)



Cochrane Review (2018)

- 11 trials 12,944 non-traumatic arrests
- No difference in ROSC or survival
- Increased sternum/rib fx

“The evidence **does not suggest that (...) MCDs are superior** to (...) manual chest compressions only. We conclude (...) that MCDs (...) are a reasonable alternative to manual chest compressions in settings where consistent, high-quality manual chest compressions are not possible or dangerous for the provider.”

The Austin Experience (2019)

- Highly choreographed pit crew CPR before MCD implementation
- Drop in survival after implementation
- Delays in application and shocks
- New choreography, training to get back to baseline
- Also... no difference

Piston vs Band (2026)

- Small decrease in band vs piston survival
- Large dataset
- Likely noise / confounding



Causal Mechanisms

- Hands off time to apply
- Delay in shock
- Malpositioning





Not If... When MCDs makes sense

- During Transport / Extrication
- Prolonged Resuscitation
- ECPR



Take Aways

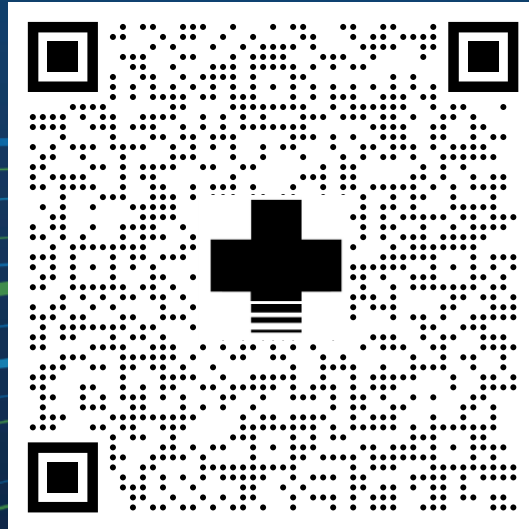
1. Stay On Scene → TOR
2. Manual CPR Up Front (15 min)
3. Apply in stages + neck strap
4. MCD Only for Transport / Prolonged Arrest
5. ECPR Will Change Everything

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