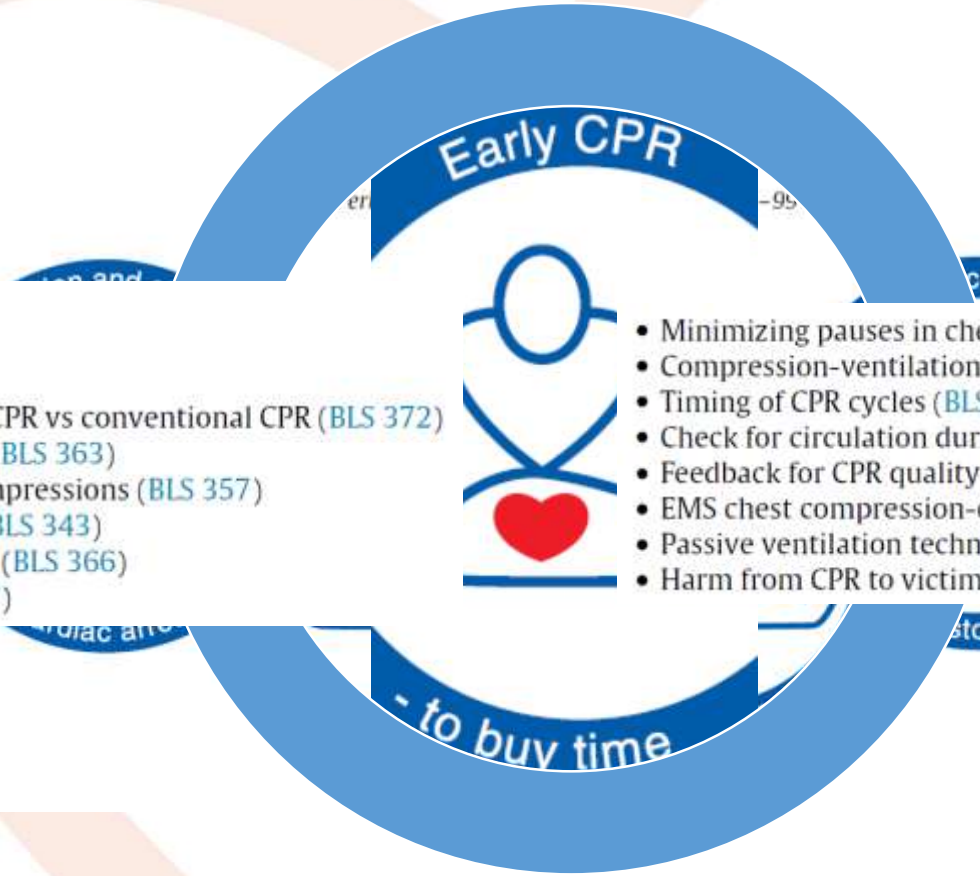
Compressioni e **ventilazioni** per il **laico** e per il **sanitario**: come e cosa?

ANCORA?

Andrea Scapigliati

Roma

Compressioni e Ventilazioni LG2015



Early, High-Quality CPR

- Starting CPR (BLS 661)
- Chest compression-only CPR vs conventional CPR (BLS 372)
- CPR before defibrillation (BLS 363)
- Hand position during compressions (BLS 357)
- Chest compression rate (BLS 343)
- Chest compression depth (BLS 366)
- Chest wall recoil (BLS 367)

- Minimizing pauses in chest compressions (BLS 358)
- Compression-ventilation ratio (BLS 362)
- Timing of CPR cycles (BLS 346)
- Check for circulation during BLS (BLS 348)
- Feedback for CPR quality (BLS 361)
- EMS chest compression-only versus conventional CPR (BLS 360)
- Passive ventilation technique (BLS 352)
- Harm from CPR to victims not in cardiac arrest (BLS 353)

Linee Guida 2015

- **Profondità**

circa 5 cm ma non più di 6 cm

- **Frequenza**

100-120/minuto

- **Riespansione**

completa del torace dopo ogni compressione

- **Rapporto**

compressioni/ventilazioni 30:2

- **Ventilazioni**

1 ventilazione = 1 secondo (< 10 sec per 2 ventilazioni)

- **Interruzioni**

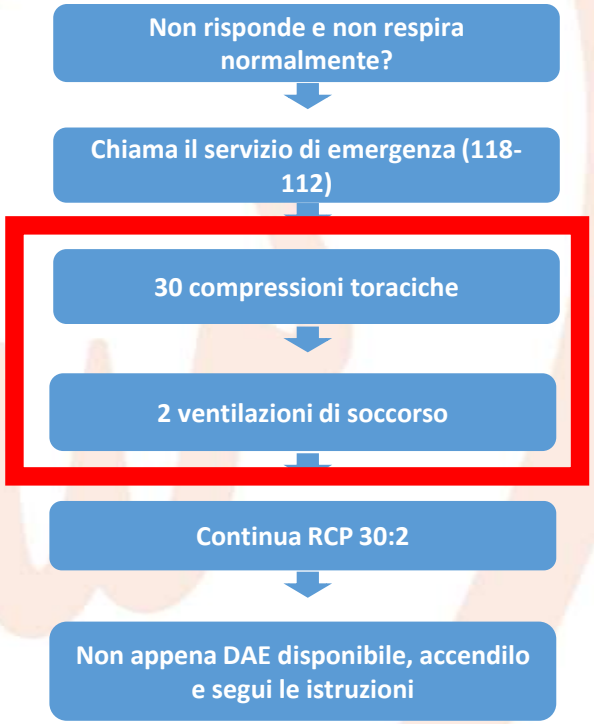
minime (pausa pre/post-shock < 10 sec)

Algoritmo BLS

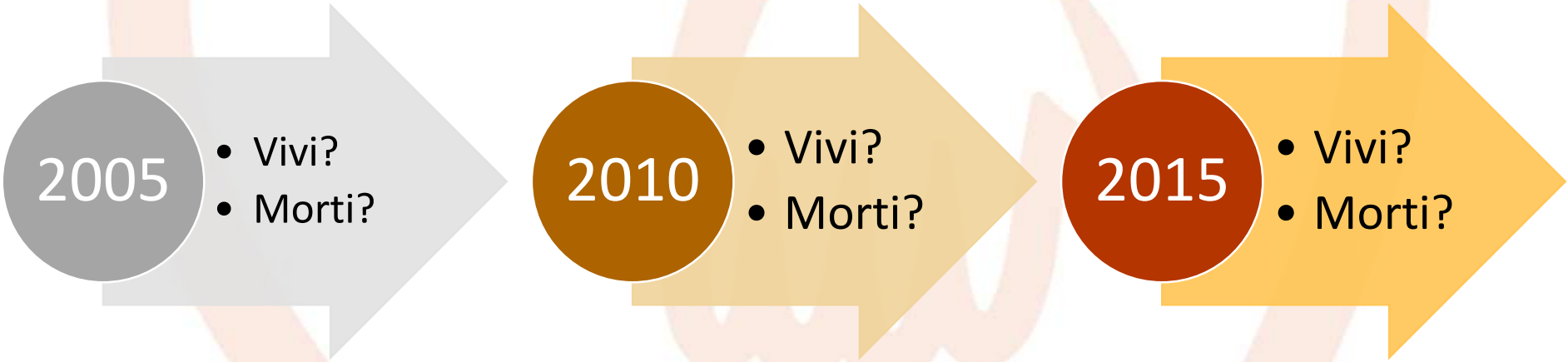
2005/2010

Quality CPR

2015



Ma le LG funzionano?

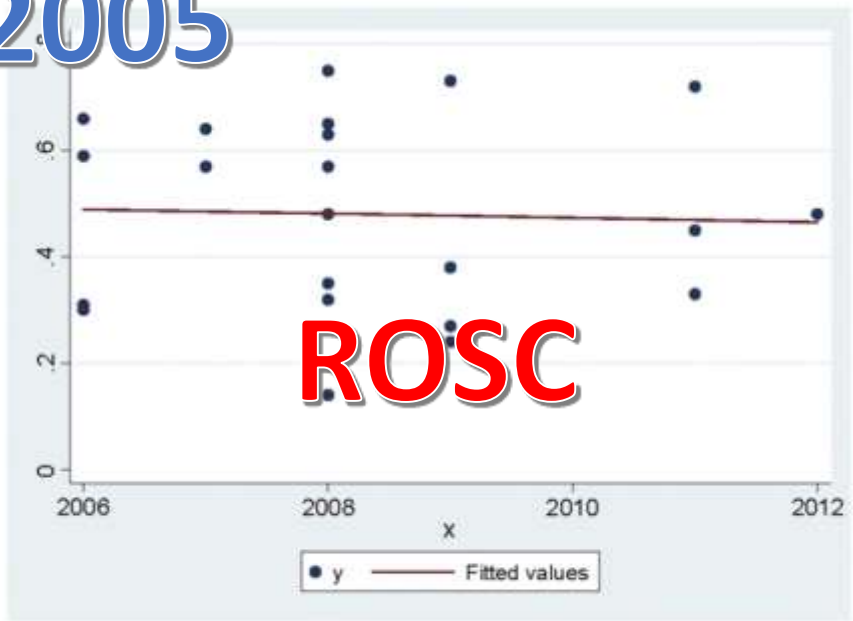


Meta-analysis of outcomes of the 2005 and 2010 cardiopulmonary resuscitation guidelines for adults with in-hospital cardiac arrest☆

Aiqun Zhu, MD [a,b], Jingping Zhang, MD [a,*]

American Journal of Emergency Medicine 34 (2016) 1133–1139

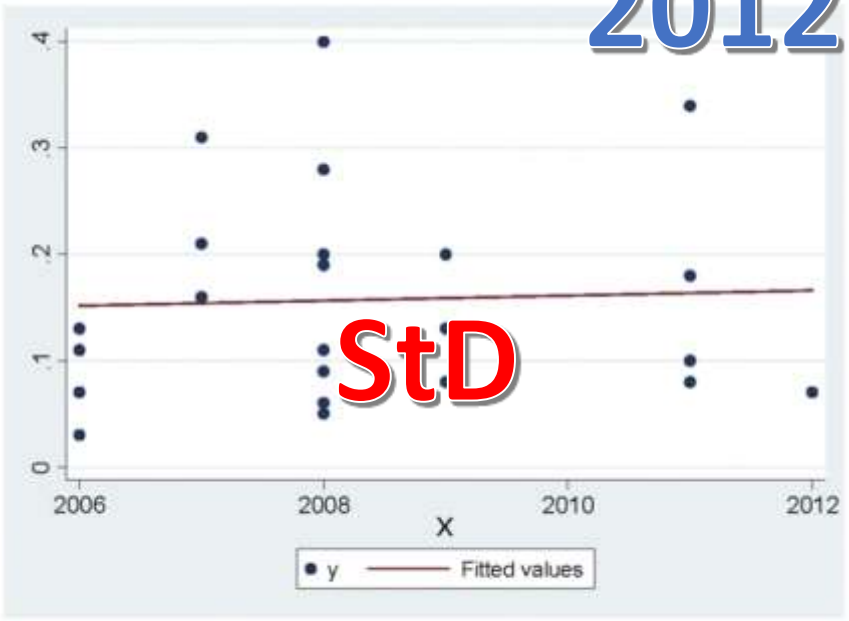
2005



ROSC

Fig. 3. Percentage ROSC by starting year of study.

2012



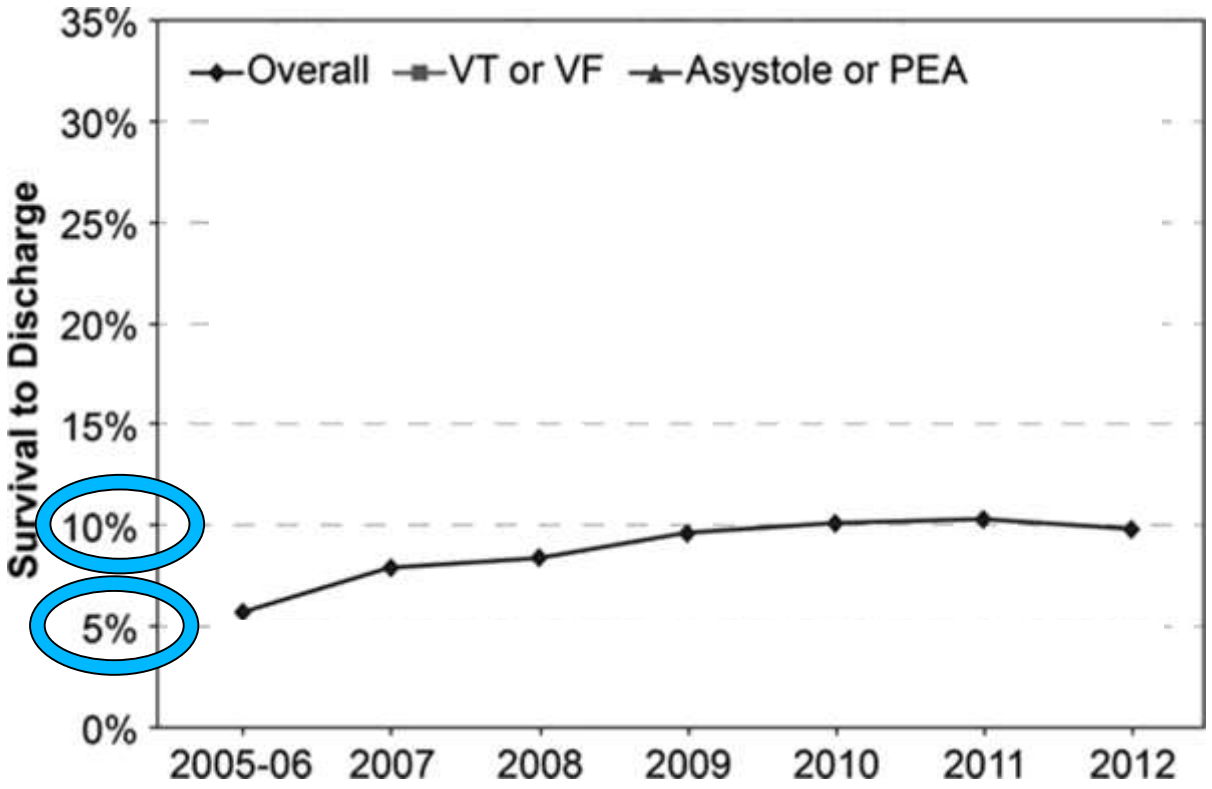
StD

Fig. 5. Percentage survival to discharge by starting year of study.

Recent Trends in Survival From Out-of-Hospital Cardiac Arrest in the United States

Paul S. Chan, MD, MSc; Bryan McNally, MD, MPH; Fengming Tang, BS; Arthur Kellermann, MD, MPH; for the CARES Surveillance Group

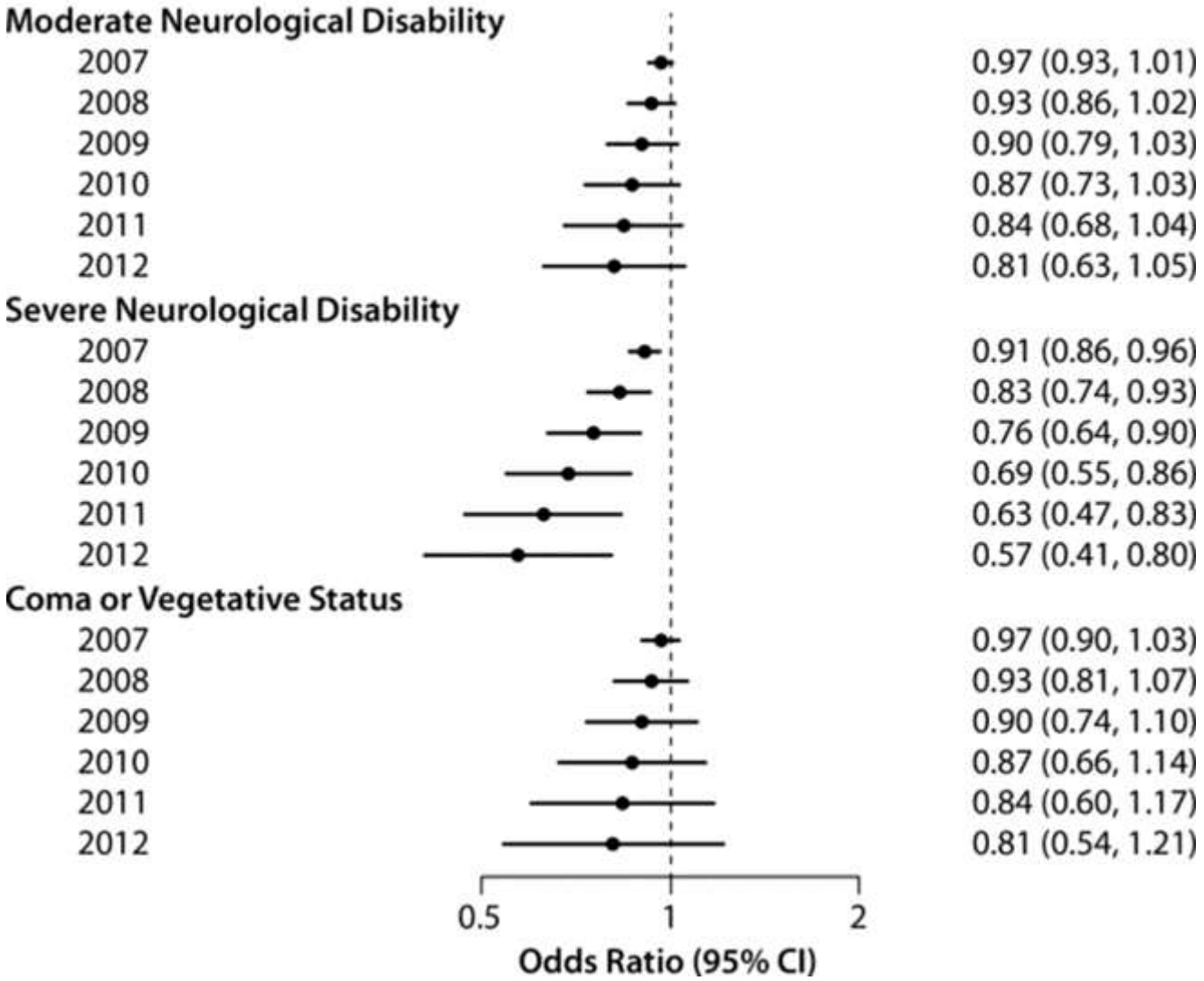
Unadjusted rates of survival to hospital discharge by calendar year.



DAE!

Paul S. Chan et al. Circulation. 2014;130:1876-1882

Temporal Trends in Neurological Disability



Paul S. Chan et al. Circulation. 2014;130:1876-1882

J Cardiovasc Med. 2014 Aug;15(8):609-15.

Positive trend in survival to hospital discharge after out-of-hospital cardiac arrest: a quantitative review of the literature.

Savastano S1, Klersy C, Raimondi M, Langord K, Vanni V, Rordorf R, Vicentini A, Petracci B, Landolina M, Visconti LO.

RESULTS:

- We considered 38 of 201 studies for a total of 156 301 patients. Survival to hospital discharge rate was 5.0% [95% confidence interval (CI) 4.9-5.2) in group 1; 6.1% (95% CI 5.9-6.4) in group 2; and 9.1% (95% CI 8.9-9.4) in group 3 ($P < 0.001$). A statistically significant decrease in risk of mortality in group 2 vs. group 1 (risk ratio 0.988, 95% CI 0. 985-0.0.992, $P < 0.001$) and in group 3 vs. group 2 (risk ratio 0.967, 95% CI 0.964-0.971, $P < 0.001$) was observed. Similar trends were observed for return of spontaneous circulation and survival to hospital admission.

CONCLUSION:

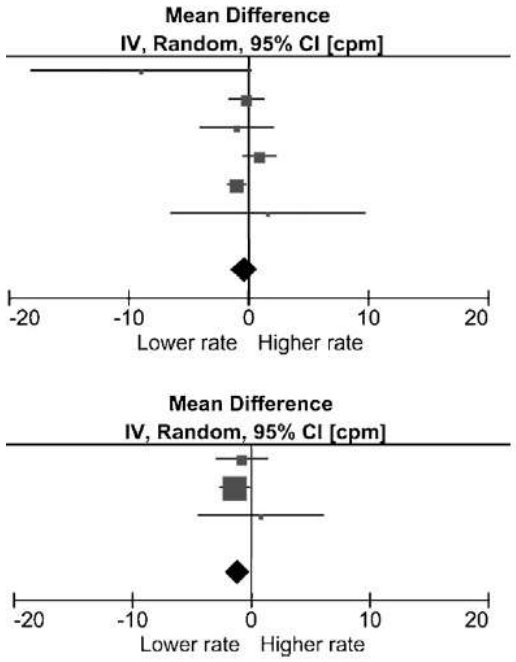
- Survival to hospital discharge after OHCA has significantly improved. Many aspects may influence survival, but surely, the reduction of time and an early and good quality CPR have positively influenced the outcome.

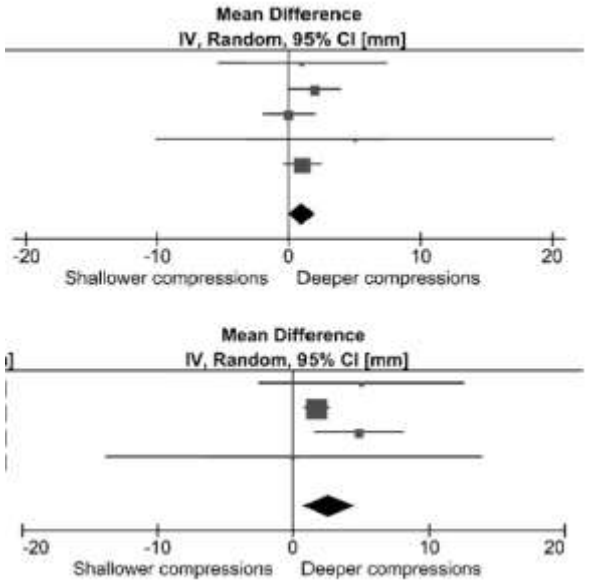
Ma siamo sicuri che le qualità delle compressioni aumenti la sopravvivenza?

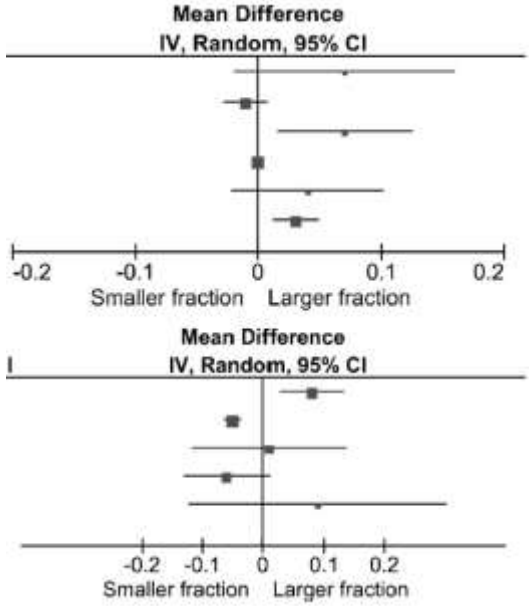
Cardiopulmonary resuscitation quality and patient survival outcome in cardiac arrest: A systematic review and meta-analysis☆

Milena Talikowska[a,*], Hideo Tohira[a], Judith Finn[a,b,c]

Resuscitation 96 (2015) 66–77







Frequenza

Profondità

Frazione di compressione

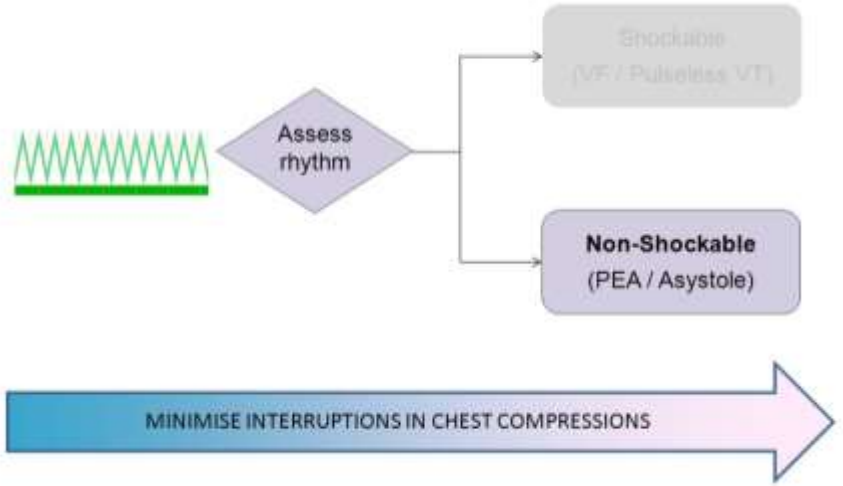
Why do some studies find that CPR fraction is not a predictor of survival?☆

Resuscitation 104 (2016) 59–62

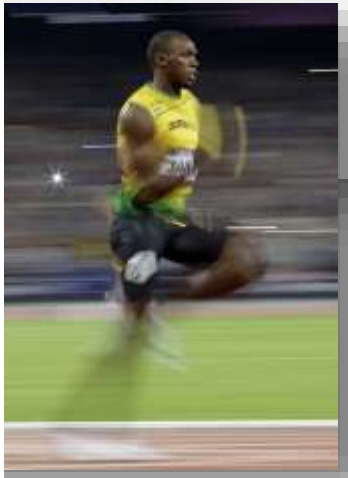
Lars Wik[a,*], Jan-Aage Olsen[a,b], David Persse[c], Fritz Sterz[d], Michael Lozano Jr.[e,k], Marc A. Brouwer[f], Mark Westfall[g,h], Chris M. Souders[c], David T. Travis[e], Ulrich R. Herken[i], E. Brooke Lerner[j]

Ci sono pause buone e pause cattive

Più pause, migliore prognosi

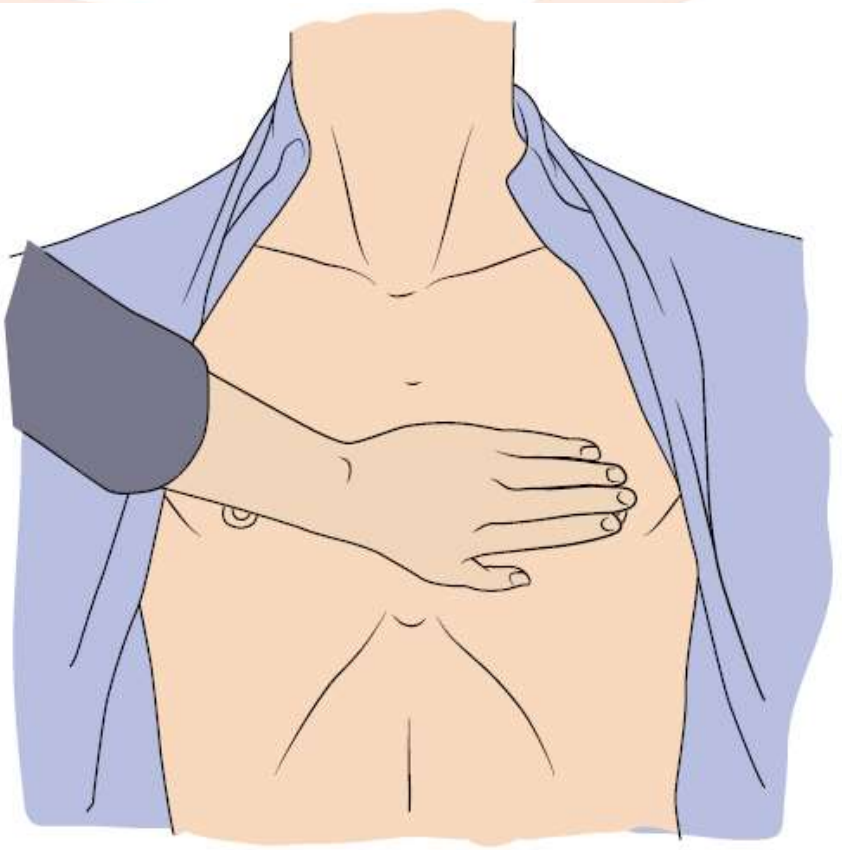


Meno pause, peggiore prognosi




60
40
20

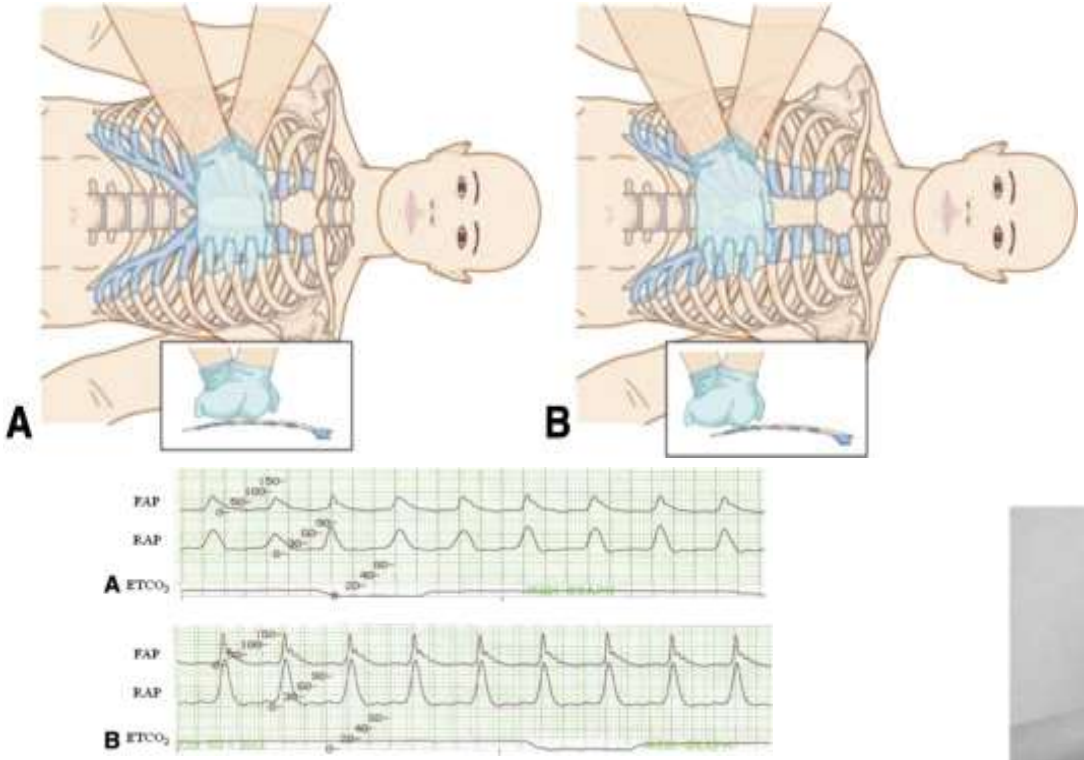
Hand position

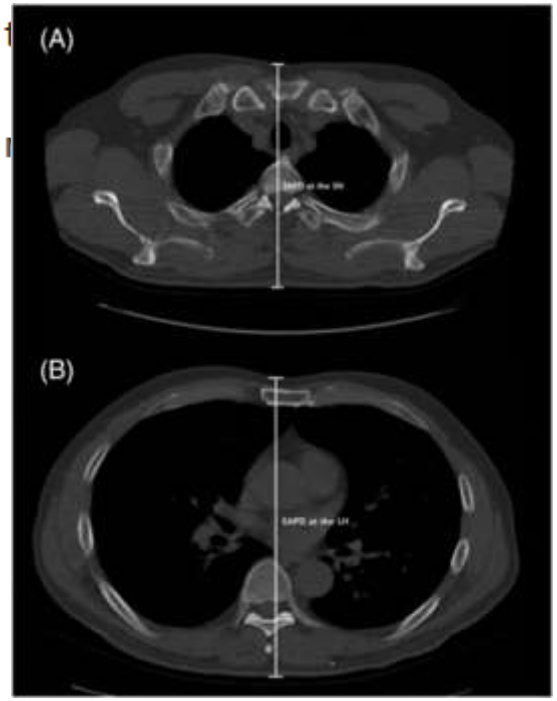


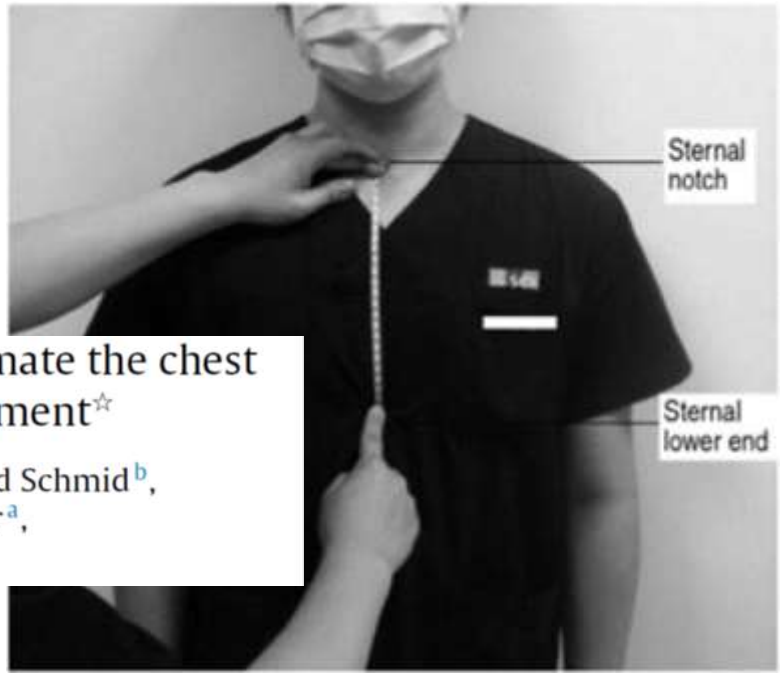
"place the heel of your hand in the centre of the chest with the other hand on top"

Hemodynamic Effect of External Chest Compressions at t Lower End of the Sternum in Cardiac Arrest Patients

Kyoung Chul Cha, MD*, Ho Jung Kim, MD†, Hyung Jin Shin, MD*, Hyun Kim, M
Kang Hyun Lee, MD*, Sung Oh Hwang, MD*,





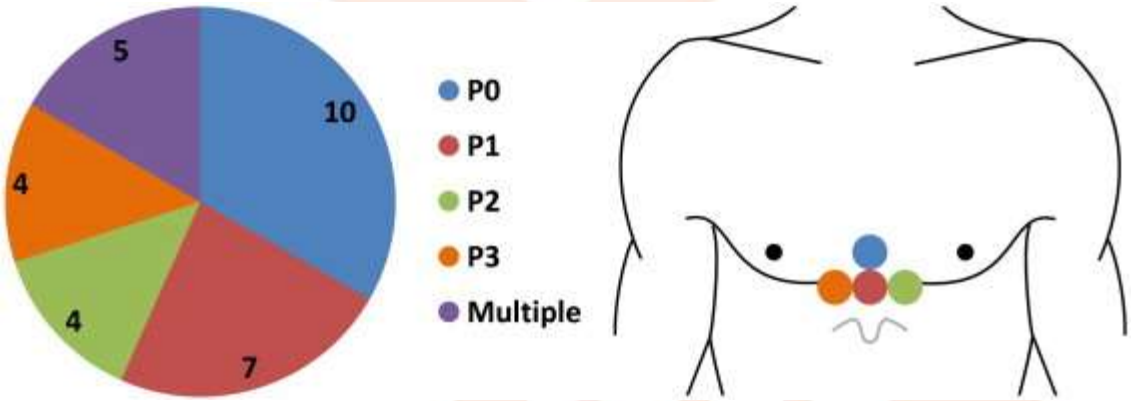


The capability of professional- and lay-rescuers to estimate the chest compression-depth target: A short, randomized experiment☆

Raphael van Tulder[c,a], Roberta Laggner[a], Calvin Kienbacher[a], Bernhard Schmid[b], Andreas Zajicek[c], Jochen Haidvogel[c], Dieter Sebald[c], Anton N. Laggner[a], Harald Herkner[a,*], Fritz Sterz[a], Philip Eisenburger[a,d]

Clinical pilot study of different hand positions during manual chest compressions monitored with capnography ☆

Eric Qvigstad[a], Jo Kramer-Johansen[b], Øystein Tømte[c], Tore Skålhegg[d], Øyvar Sørensen[d], Kjetil Sunde[e], Theresa M. Olasveengen[b]



- *Inter-individual differences suggest optimal hand position might vary significantly among patients*
- *ALS team could find the better hand position for hemodynamics based on effects on EtCO2*

RCP in ambulanza

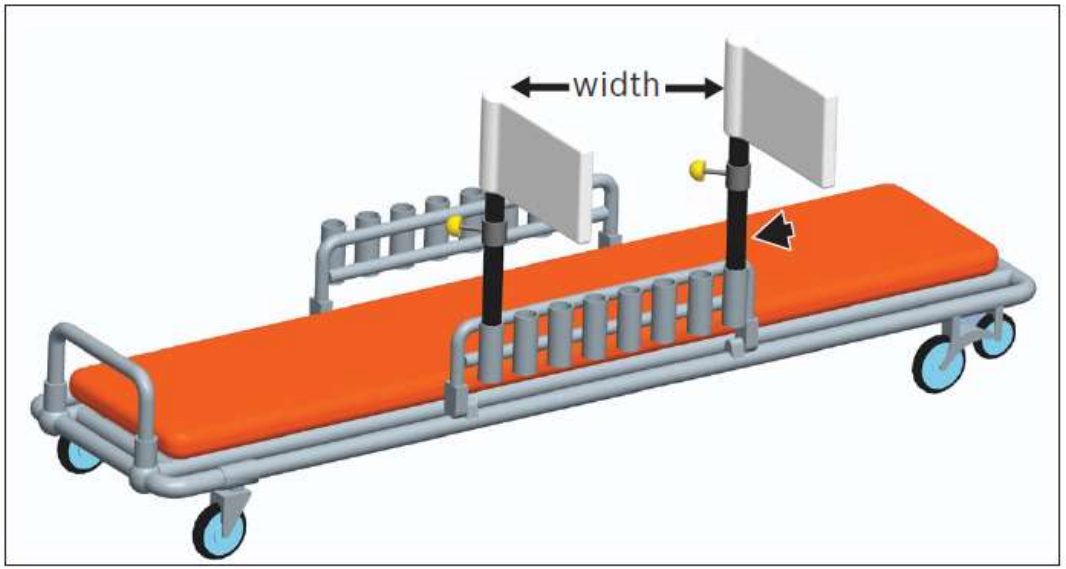


Fig. 1 Schematic diagram shows the proposed device attached to a stretcher. The pole of the device (arrowhead) enables it to be anchored to the stretcher. The width of the proposed device is decided based on the width of the performer's hips.

Contents lists available at ScienceDirect

American Journal of Emergency Medicine

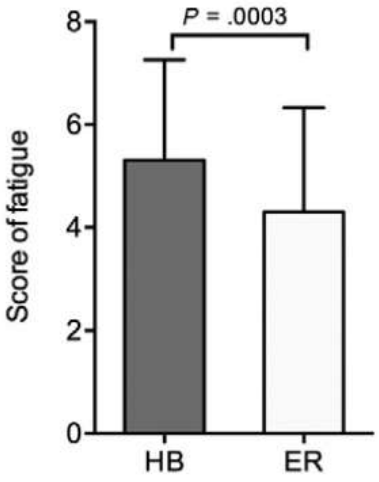
journal homepage: www.elsevier.com/locate/ajem

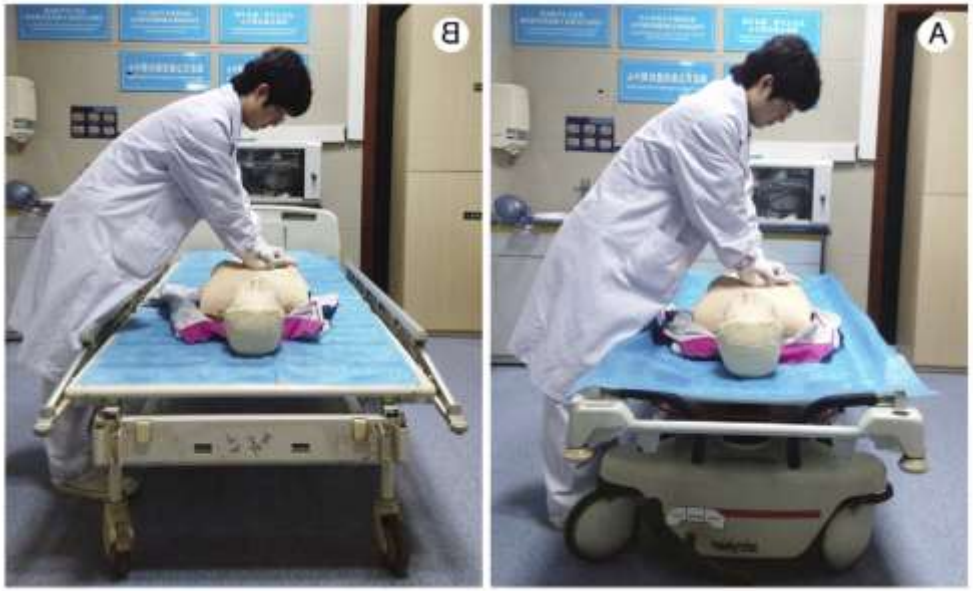
Original Contributions

Effect of bed width on the quality of compressions in simulated resuscitation: a randomized crossover manikin study☆

Xian-Long Zhou, MD [1], Li-Ping Sheng, MS [1], Jing Wang, MS, Shun-Qing Li, MS, Huang-Lei Wang, MD, Shao-Zhou Ni, MD, Shan Jiang, MD, Yan Zhao, MD *, Jun Shen, MD, Qi-Sheng Yang, MD, PhD

Emergency Centre, Zhongnan Hospital of Wuhan University, 169 Donghu Road, Wuhan, Hubei, 430071, China





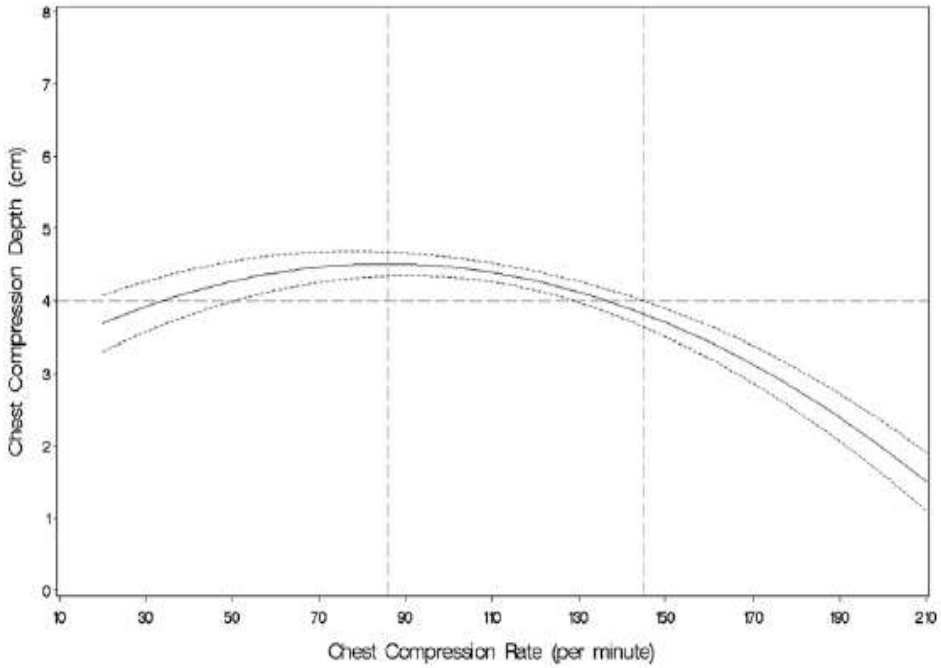
Conclusions: When rescuers performed chest compressions on an emergency stretcher, chest compression quality increased, and the fatigue of rescuers decreased compared with a standard hospital bed. Therefore, we propose a narrow bed for critically ill inpatients with high risk of cardiac arrest.

Muscular fitness as a mediator of quality cardiopulmonary resuscitation☆

Angel López-González, PhD [a,*], Mairena Sánchez-López, PhD [b], Antonio Garcia-Hermoso, PhD [c], Jaime López-Tendero, MSci [b], Joseba Rabanales-Sotos, PhD [b], Vicente Martínez-Vizcaíno, MD, PhD [b,d]

Excessive chest compression rate is associated with insufficient compression depth in prehospital cardiac arrest☆

Koenraad G. Monsieurs[a,b,*], Melissa De Regge[c], Kristof Vansteelandt[d], Jeroen De Smet[e], Emmanuel Annaert[e], Sabine Lemoyne[e], Alain F. Kalmar[f], Paul A. Calle[b]



Resuscitation 2012


ABC
JeSö


ZOLL

Engan et al. BioMed Eng OnLine (2016) 15:95
DOI 10.1186/s12938-016-0218-6

BioMedical Engineering OnLine

RESEARCH Open Access

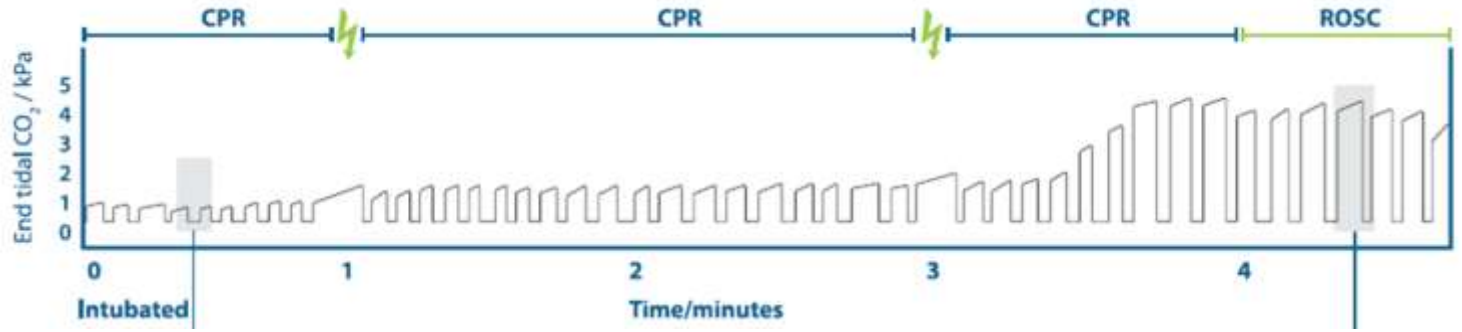
Chest compression rate measurement from smartphone video

Kjersti Engan[1*], Thomas Hinna[1,2], Tom Ryen[1], Tonje S. Birkenes[3] and Helge Myklebust[3]

Systematic review and meta-analysis of hemodynamic-directed feedback during cardiopulmonary resuscitation in cardiac arrest☆

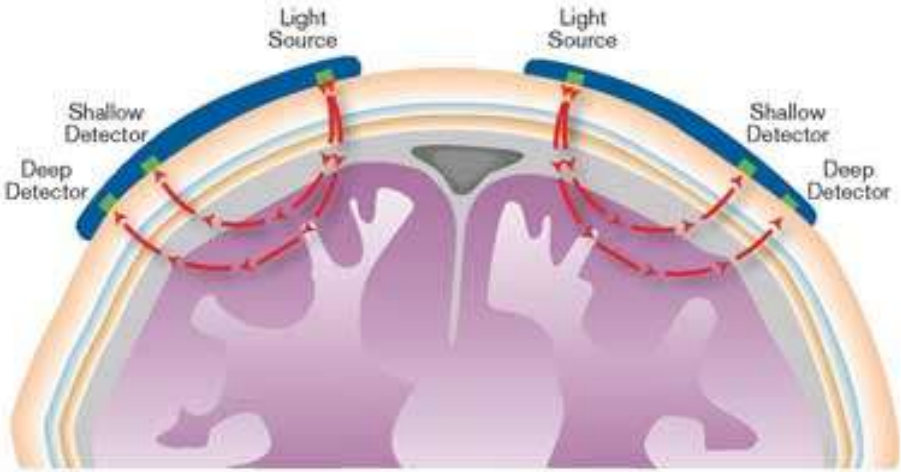
A.S. Chopra[a,*], N. Wong[a], C.P. Ziegler[b], L.J. Morrison[a,c]

Resuscitation 101 (2016) 102–107



Feasibility of absolute cerebral tissue oxygen saturation during cardiopulmonary resuscitation

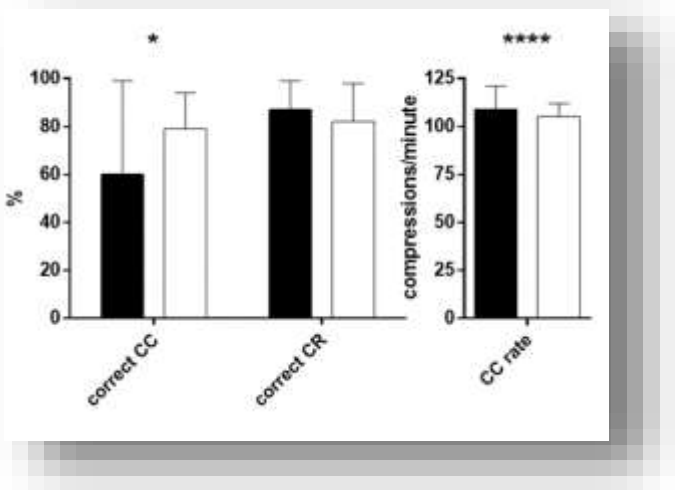
Ingrid Meex[1,3*], Cathy De Deyne[1,3], Jo Dens[2,3], Simon Scheyltjens[1]
Guy Vundelinckx[1], René Heylen[1] and Frank Jans[1,3]



- In generale **la qualità della RCP scarsa**, soprattuto la **profondità**

- Il **feedback device** è stato efficace e ha **migliorato la qualità** della RCP

- Le variabili associate alla qualità sono:
  - **peso**
  - **altezza**
  - **crtificazione**



Ci sentiamo divinità
ma siamo un po’ fragili

Original Investigation

Resuscitation Practices Associated With Survival After In-Hospital Cardiac Arrest

A Nationwide Survey

JAMA Cardiol. 2016;1(2):189-197.

Paul S. Chan, MD, MSc; Sarah L. Krein, PhD, RN; Fengming Tang, MS; Theodore J. Iwashyna, MD, PhD; Molly Harrod, MS; Mary Kennedy, BA; Jessica Lehrich, BS; Steven Kronick, MD; Brahmajee K. Nallamothu, MD, MPH; for the American Heart Association's Get With the Guidelines–Resuscitation Investigators

Key Points

Question What resuscitation practices are used by hospitals with higher survival rates for in-hospital cardiac arrest?

Findings In a cross-sectional study of 131 hospitals participating in a nationwide registry, 3 resuscitation practices were associated with significantly higher survival rates for in-hospital cardiac arrest: monitoring for interruptions in chest compressions, frequent review of cardiac arrest cases, and adequate resuscitation training.

Meaning These strategies can form the foundation for best practices for resuscitation care at hospitals given the high incidence and variation in survival for in-hospital cardiac arrest.

1. **Monitoraggio** delle **interruzioni** nelle CC
2. **Revisione** frequente **dei casi** di AC
3. **Formazione** adeguata

Rivoluzione?


JAM
5
5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