

SALA CONCORDIA B

EMERGENZA PRE-OSPEDALIERA

Moderatori: Lorenzo Iogna Prat – Silvia Scelsi

Federica Stella

Se la gravida va in arresto?



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SE LA GRAVIDA VA IN ARRESTO?

dr.ssa Federica Stella
Centrale Operativa 118 Venezia



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“la medicina di emergenza
rappresenta i 15 minuti più
interessanti di ogni altra specialità”

Dan Sandberg, 2014

“la gravida in arresto cardiaco in
ambito extra-ospedaliero rappresenta i
15 minuti più agghiaccianti della
medicina d'emergenza”

Federica Stella, 2022

ARRESTO CARDIACO IN GRAVIDA

1/12.000 (USA)

Sopravvivenza materna e fetale variabile

Cause standard + particolari

ARRESTO CARDIACO IN GRAVIDA

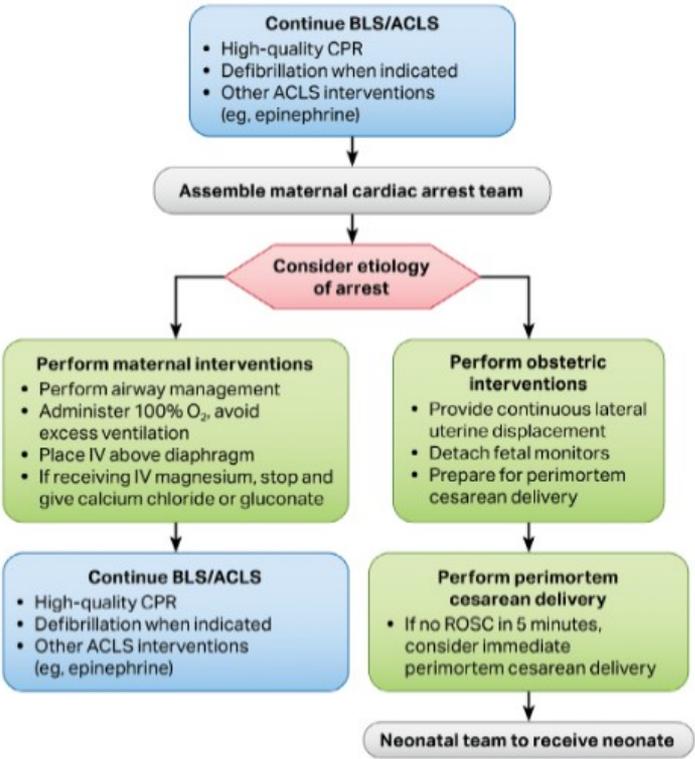
1/12.000 (USA)

Sopravvivenza materna e fetale variabile

Cause standard + particolari

- sanguinamento
- embolismo da liquido amniotico
- tossicità da farmaci (Mg)
- cardiopatia peripartum
- eclampsia
- iatrogene (anestesiologiche)

Cardiac Arrest in Pregnancy In-Hospital ACLS Algorithm



Maternal Cardiac Arrest

- Team planning should be done in collaboration with the obstetric, neonatal, emergency, anesthesiology, intensive care, and cardiac arrest services.
- Priorities for pregnant women in cardiac arrest should include provision of high-quality CPR and relief of aortocaval compression with lateral uterine displacement.
- The goal of perimortem cesarean delivery is to improve maternal and fetal outcomes.
- Ideally, perform perimortem cesarean delivery in 5 minutes, depending on provider resources and skill sets.

Advanced Airway

- In pregnancy, a difficult airway is common. Use the most experienced provider.
- Provide endotracheal intubation or supraglottic advanced airway.
- Perform waveform capnography or capnometry to confirm and monitor ET tube placement.
- Once advanced airway is in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions.

Potential Etiology of Maternal Cardiac Arrest

- A** Anesthetic complications
- B** Bleeding
- C** Cardiovascular
- D** Drugs
- E** Embolic
- F** Fever
- G** General nonobstetric causes of cardiac arrest (H's and T's)
- H** Hypertension

Circulation

Part 3: Adult Basic and Advanced Life Support

2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care

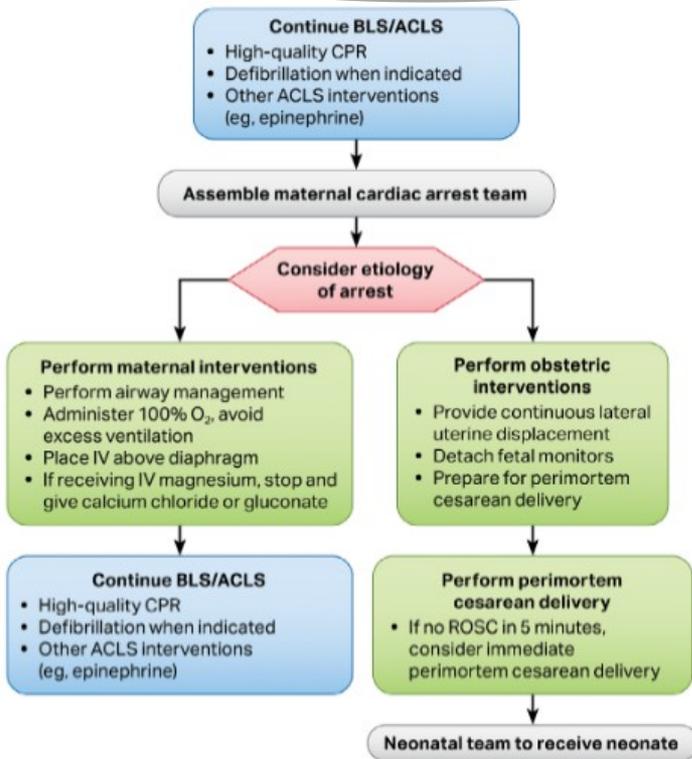


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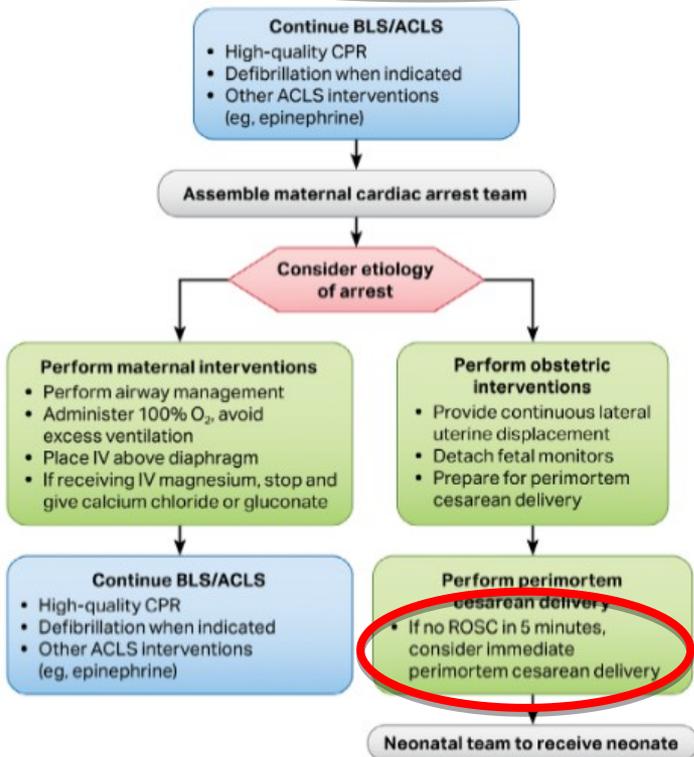


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GESTIONE EXTRA-OSPEDALIERA DELL' ARRESTO CARDIACO IN GRAVIDA

~~EVIDENCE
BASED
MEDICINE~~



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Circulation

Volume 132, Issue 18, 3 November 2015; Pages 1747-1773

<https://doi.org/10.1161/CIR.0000000000000300>



AHA SCIENTIFIC STATEMENT

Cardiac Arrest in Pregnancy

A Scientific Statement From the American Heart Association



CLINICAL PAPER | VOLUME 132, P127-132, NOVEMBER 01, 2018

Incidence, outcomes and guideline compliance of out-of-hospital maternal cardiac arrest resuscitations: A population-based cohort study

Alain A. Lipowicz • Sheldon Cheskes • Sara H. Gray • ... Cathy Zhan • Laurie J.

On behalf of the Rescu Investigators • Show all authors

Published: September 07, 2018 • DOI: <https://doi.org/10.1016/j.resuscitation.2018.09.001>

CLINICAL PAPER | VOLUME 135, P205-211, FEBRUARY 01, 2019

Maternal out-of-hospital cardiac arrest: A retrospective observational study

Olga Maurin • Sabine Lemoine • Daniel Jost • ... the Paris Fire Brigade Cardiac Arrest Work Group •

Lapostolle • Jean Pierre Tourtier • Show all authors

Published: December 15, 2018 • DOI: <https://doi.org/10.1016/j.resuscitation.2018.11.001>

RESUSCITATION 165 (2020) 112–118

Available online at www.sciencedirect.com

Resuscitation

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



ELSEVIER

Clinical paper

Analysis of prehospital perimortem caesarean deliveries performed by Helicopter Emergency Medical Services in the Netherlands and recommendations for the future

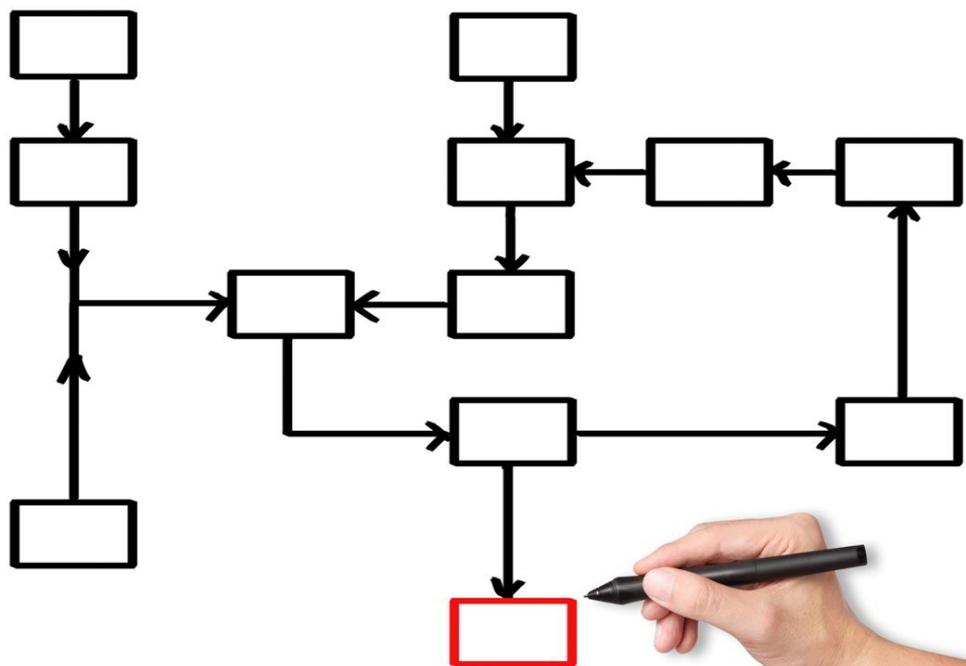
XRJ Moors^{a,b,*}, TH Biesheuvel^c, J Cornette^d, MG Van Vledder^{b,e}, A Veen^b, M de Quelerij^f, EEM Weelink^g, JJ Duvekot^d

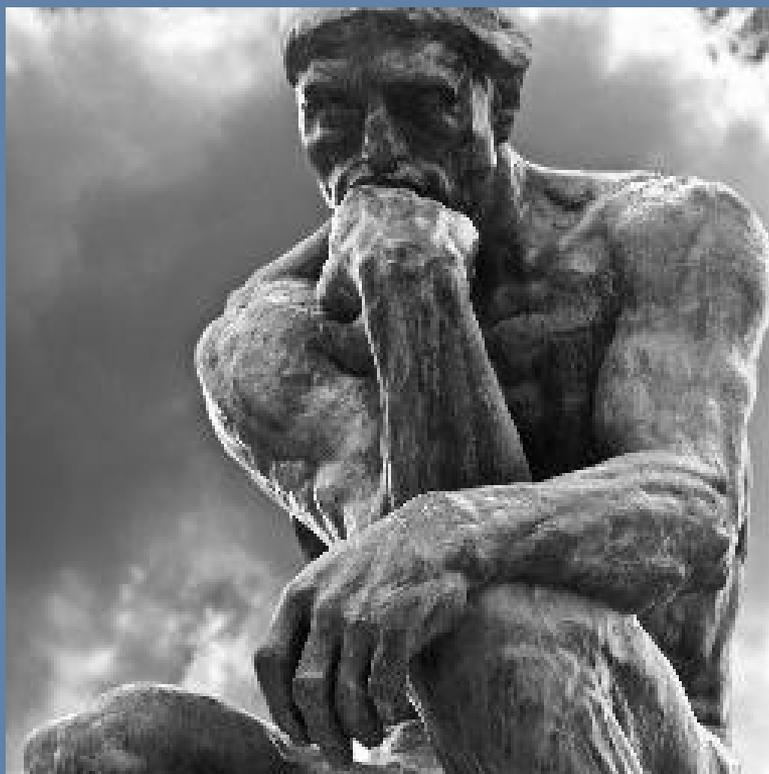


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UNO O DUE PAZIENTI?



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24

< 24 s.g.

**ARRESTO CARDIACO in GRAVIDA
con feto non suscettibile di manovre
rianimatorie**



**RIANIMAZIONE STANDARD sec. ACLS
DELLA DONNA**

> 24 s.g.

MATERNAL CARDIAC ARREST



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A photograph of a pregnant woman's belly. She is wearing a grey tank top and dark pants. A red curved line is drawn across her abdomen, indicating the level of the fetus at 24 weeks gestation. The text "24 settimane gestazionali" is written in red above the line.

**24 settimane
gestazionali**



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DOUBLE



TROUBLE



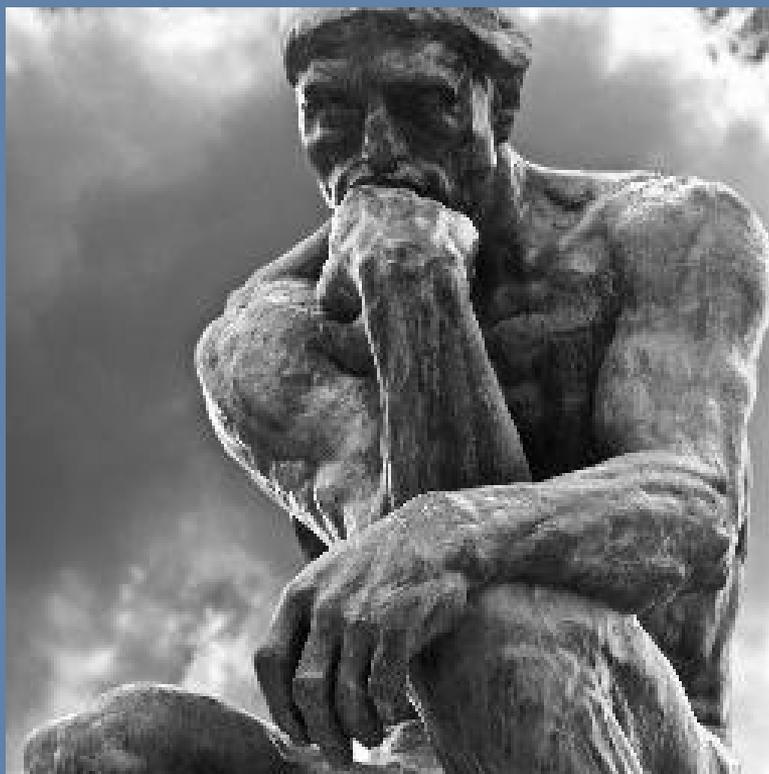
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UNO O DUE PAZIENTI?



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PERI-MORTEM CESAREAN SECTION

VEROSIMILE NECESSITA' DI RIANIMAZIONE
NEONATALE

NECESSITA' DI TRASPORTO DI MADRE E NEONATO
VERSO L'OSPEDALE PIU' VICINO



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LA RIANIMAZIONE DELLA MADRE E' LA MIGLIOR RIANIMAZIONE FETALE





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PROTOCOLLO NON MODIFICATO RISPETTO AD ACLS STANDARD





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ELEVATO CONSUMO DI OSSIGENO MATERNO-FETALE
→ NECESSITA' PRECOCE DI UNA VIA AEREA
DEFINITIVA

ACCESSO VASCOLARE AGLI ARTI SUPERIORI

PARTICOLARE ATTENZIONE ALLE CAUSE
CORREGGIBILI E PARTICOLARI

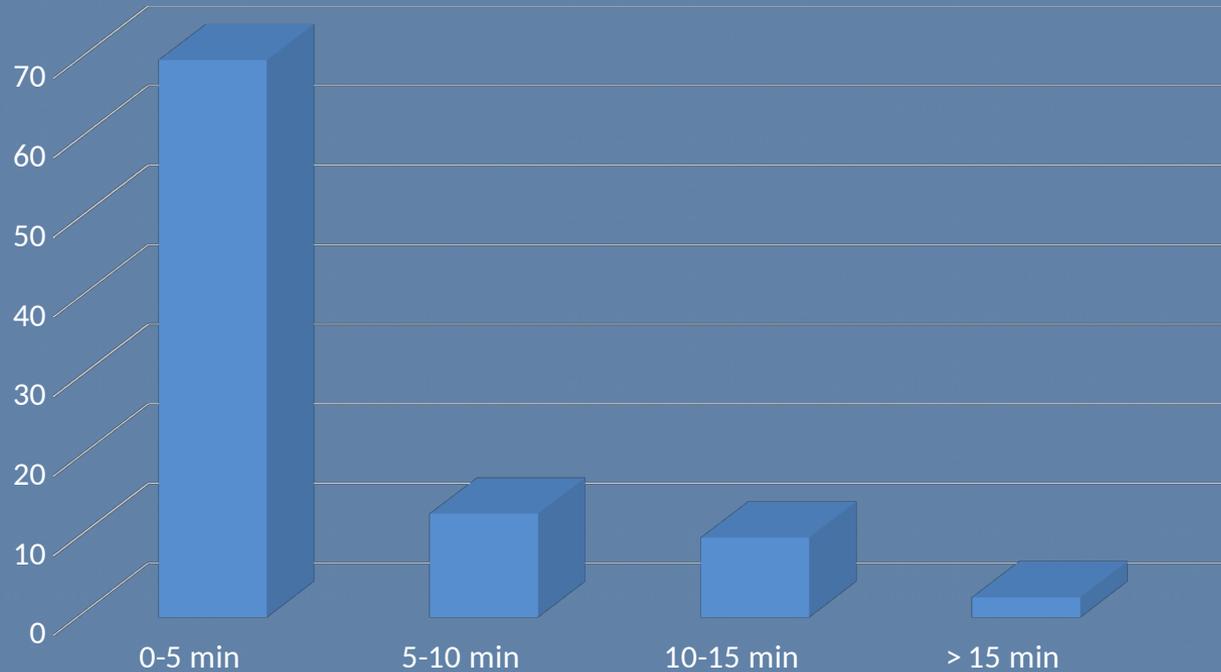


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% di neonati con deficit neurologico in base al tempo della nascita dall'esordio dell'arresto cardiaco nella madre



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Recommendations

1. If resources are available, EMS response to a maternal cardiac arrest should include the appropriate complement of staff to ensure that BLS and ACLS actions can be performed, including chest compressions, LUD, defibrillation when indicated, and management of the difficult airway (*Class I; Level of Evidence C*).
2. If available, transport should be directed toward a center that is prepared to perform PMCD, but transport should not be prolonged by >10 minutes to reach a center with more capabilities (*Class IIb; Level of Evidence C*).

Cardiac Arrest in Pregnancy

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PERI-MORTEM C-SECTION

RIDUZIONE DEL FLUSSO EMATICO UTERINO

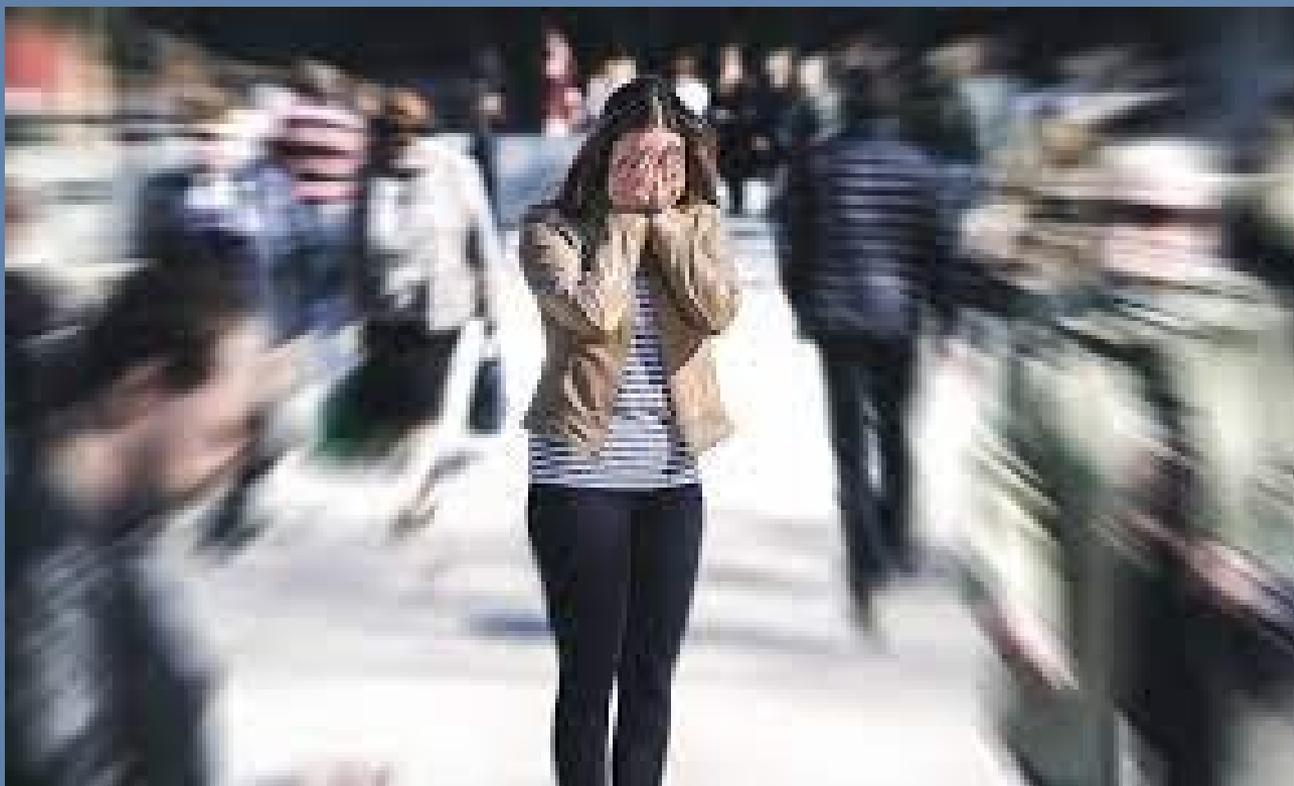
→ aumento ROSC materno

RIDUZIONE DELLA PRESSIONE DIAFRAMMATICA E
DELLA COMPRESSIONE AORTOCAVALE

→ aumento ROSC materno

NASCITA NENONATALE

→ aumento possibilità no deficit neuro del
neonato



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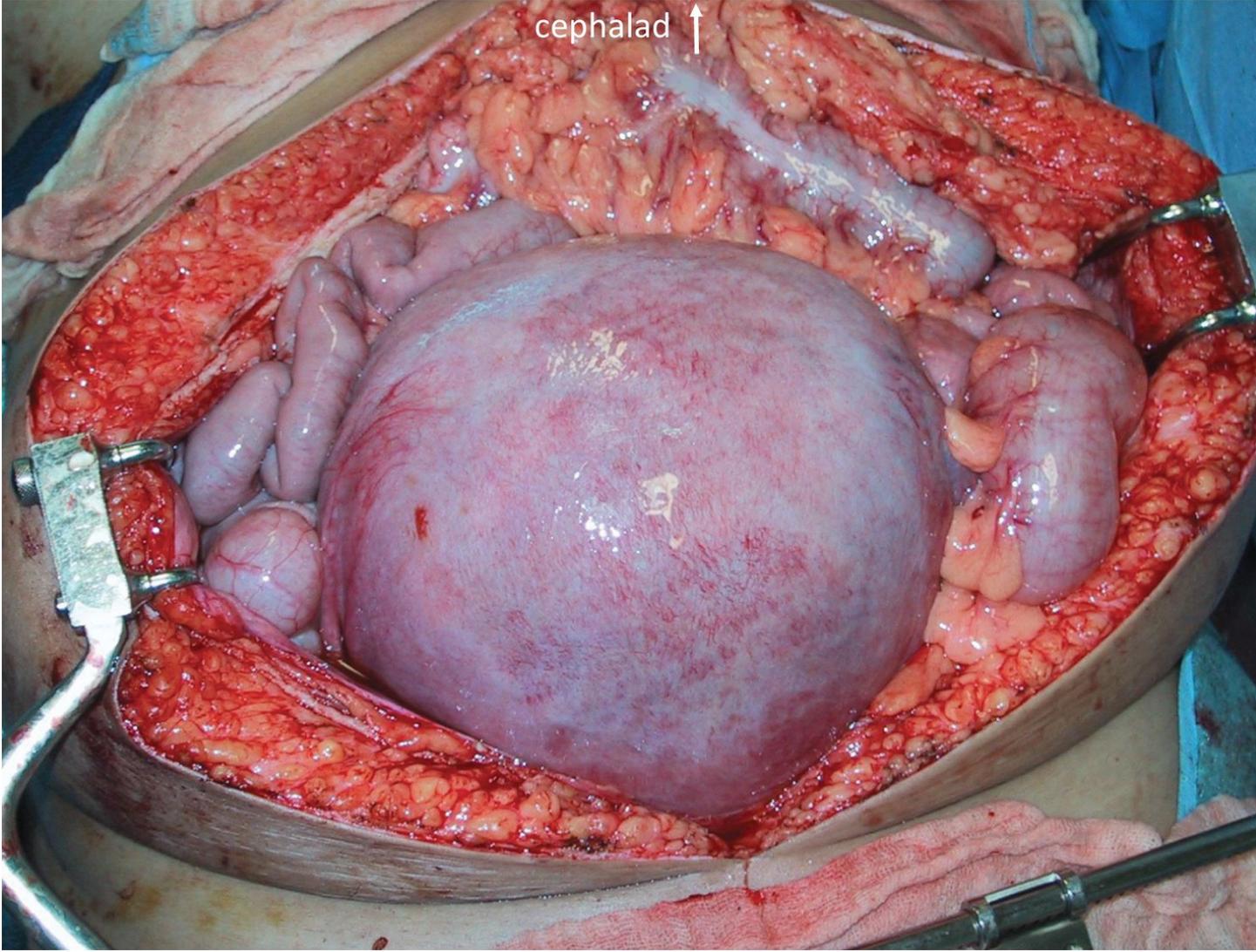
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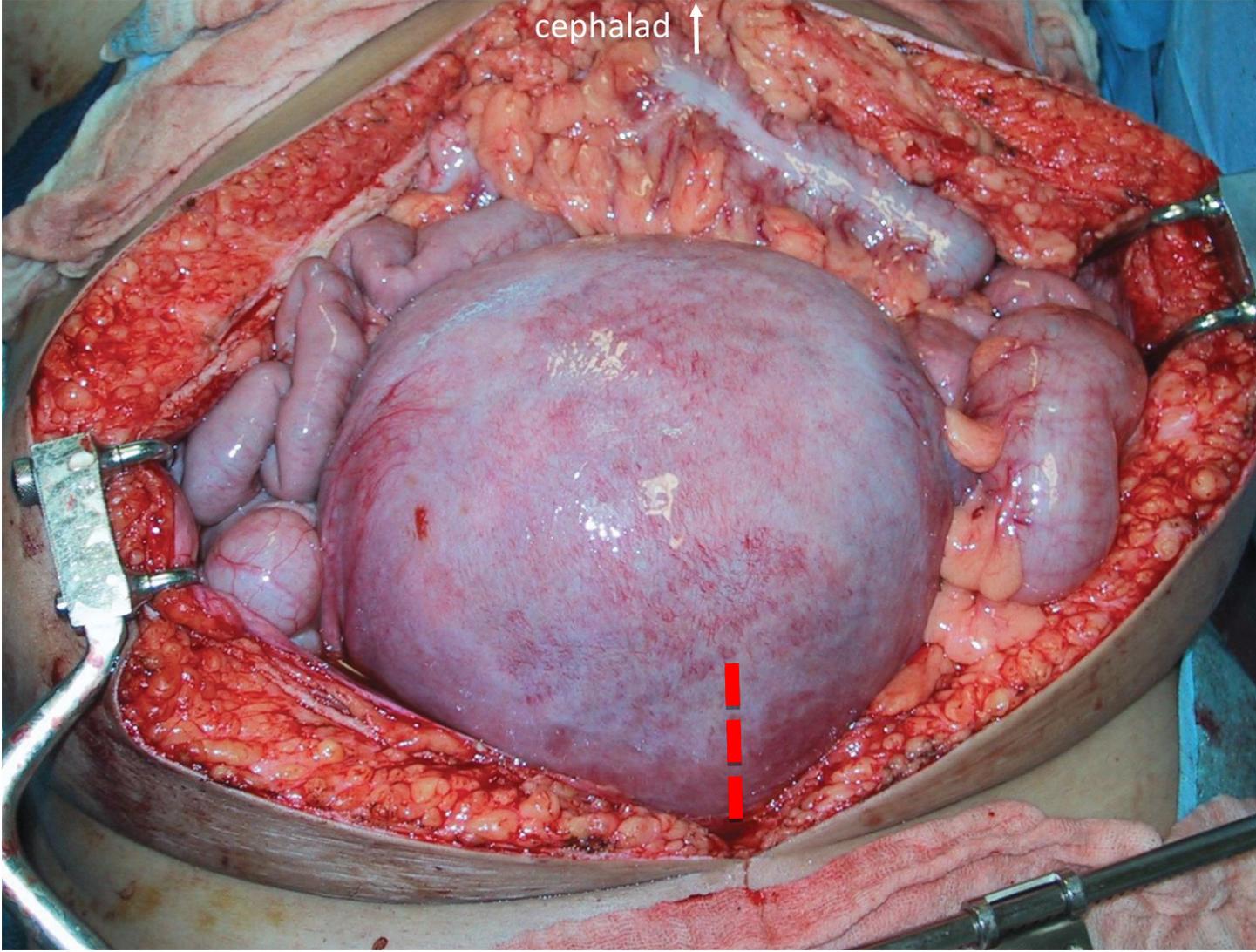
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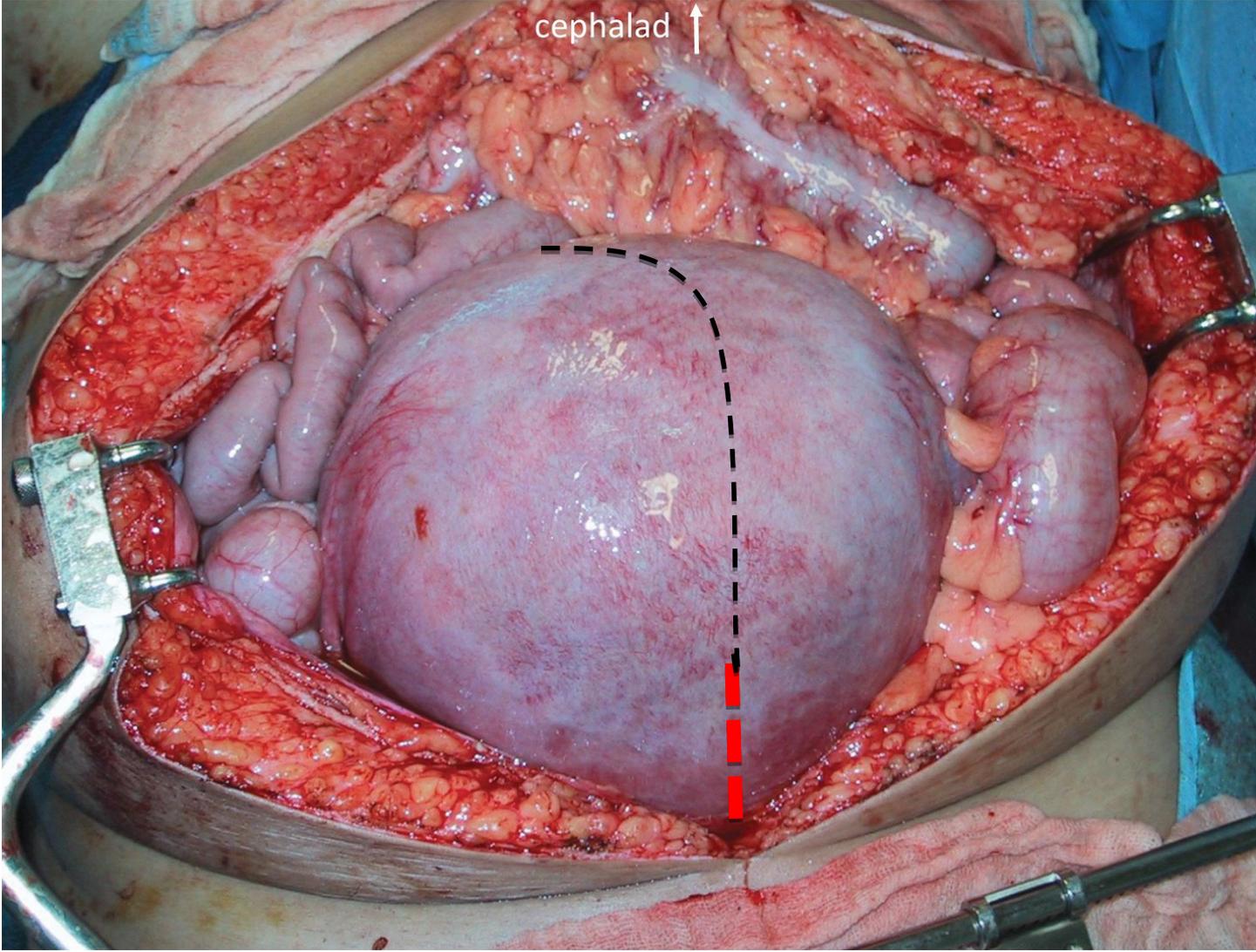
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RIASSUMENDO

1. VALUTARE L'ETA' GESTAZIONALE DELLA GRAVIDANZA
2. VALUTARE LA POSSIBILITA' DI SOPRAVVIVENZA DELLA MADRE
3. ACLS MODIFICATO PER GRAVIDANZA DI ALTA QUALITA' ED ATTENZIONE AI TEMPI
4. PERI-MORTEM CESAREAN SECTION

**GRAZIE PER
L'ATTENZIONE**

