Plötsligt medvetslös

SFAI & AnIva veckan 2023

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Sahlgrenska, Sverige och världen

Patientfall (mkt bortaget)

- HLR
  - Artärnål (bra pulsationer)
  - Utbyte CO2
  - Mätbara blodtryck
- Perimortem snitt
  - Inget blod eller ablatio
  - Peanger över kärl och packar buk
- Adrenalin 1 mg x 8
- Calcium
- Tribonat
- Blodgas
- Svårt med nålar
- Tilltagande stor blödning uterus
  - 2 st 0 neg blod

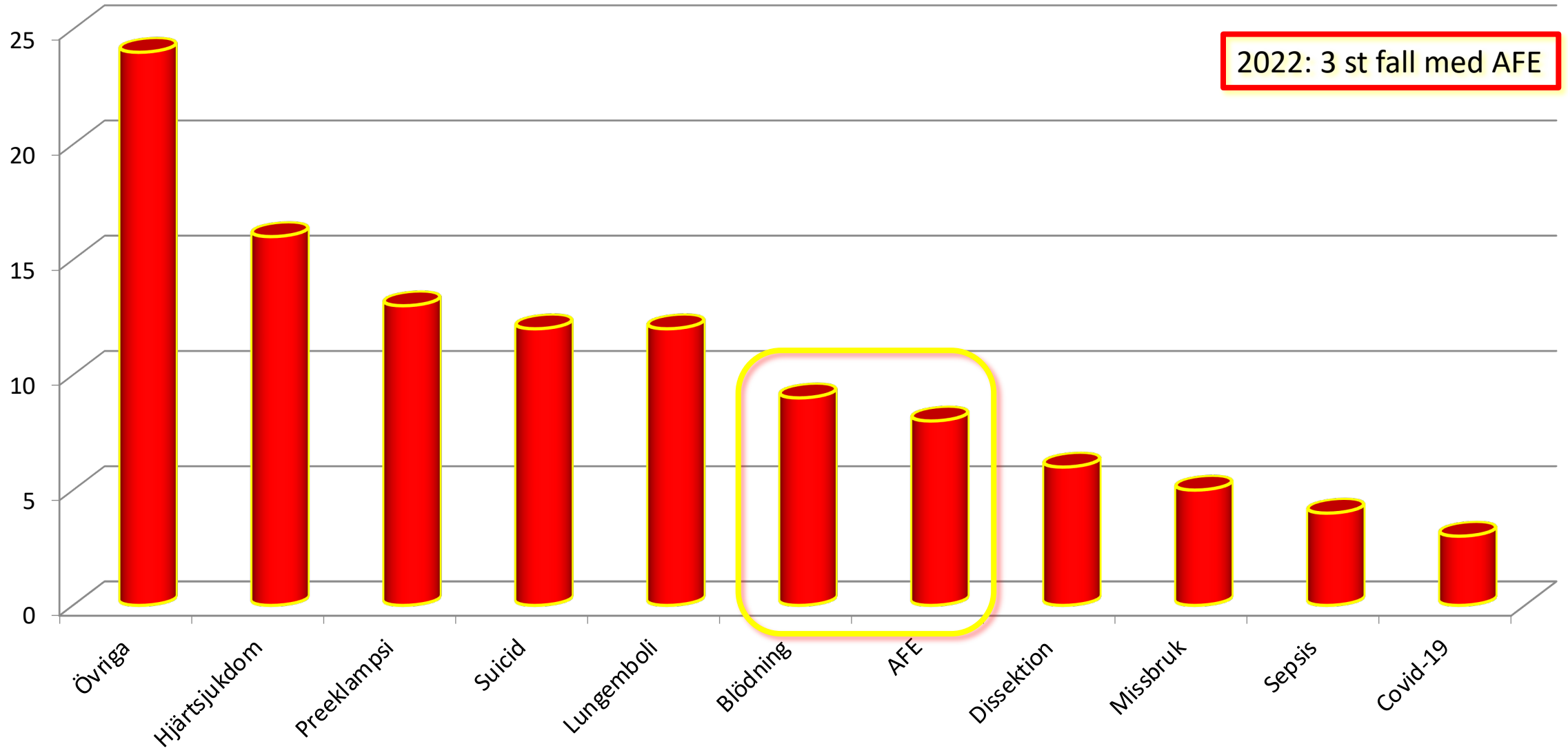
Vecka

- UCG (ej hjärtprob)
  - Ev vätske spatium perikard
  - Upprepade gånger
  - Total akinesi
- Perikardtappning x 2
  - Indikation: ev behandlingsbar åtgärd
  - 30-40 ml + 20 ml
- HLR lugn och systematisk
- Avbryter HLR efter 40 min
- Postop summerad blödning 4120 ml

Obduktion

- Lungkärl: skivepitel färgat pos för CK 5/6 AE1/3, inga tromber
- Fostervattenembolisering

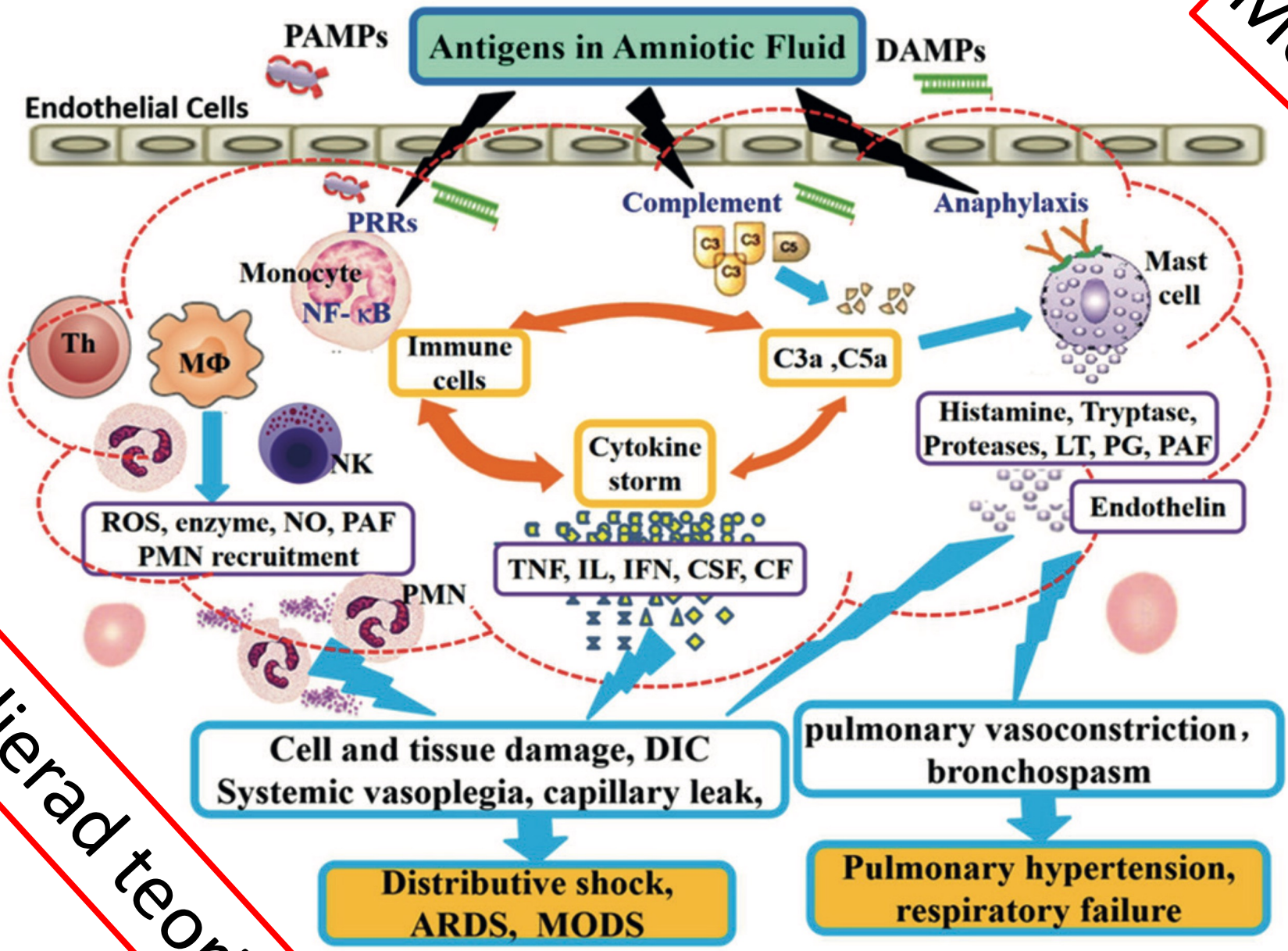
Mödradödlighet Sverige 2007-2022



Lönar det sig att arbeta med det?

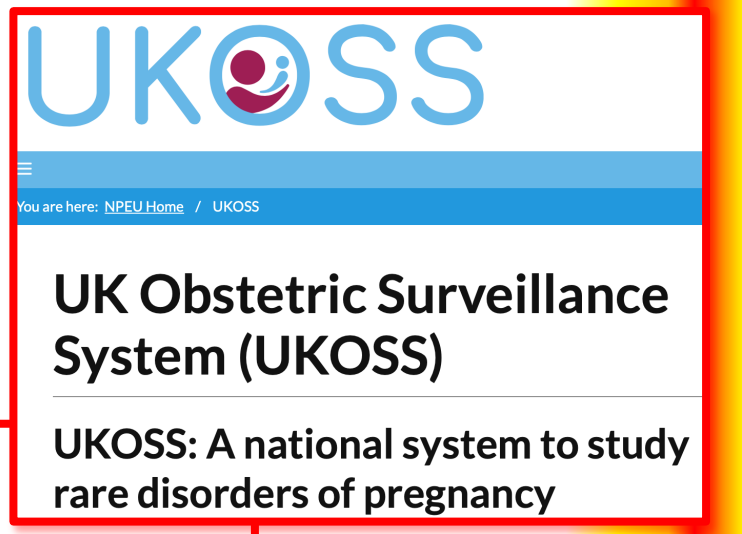
Mekanisk teori

Immun medierad teori



Diagnos

- Klinisk diagnos
- Uteslutningsdiagnos
- Obs peripartal kollaps

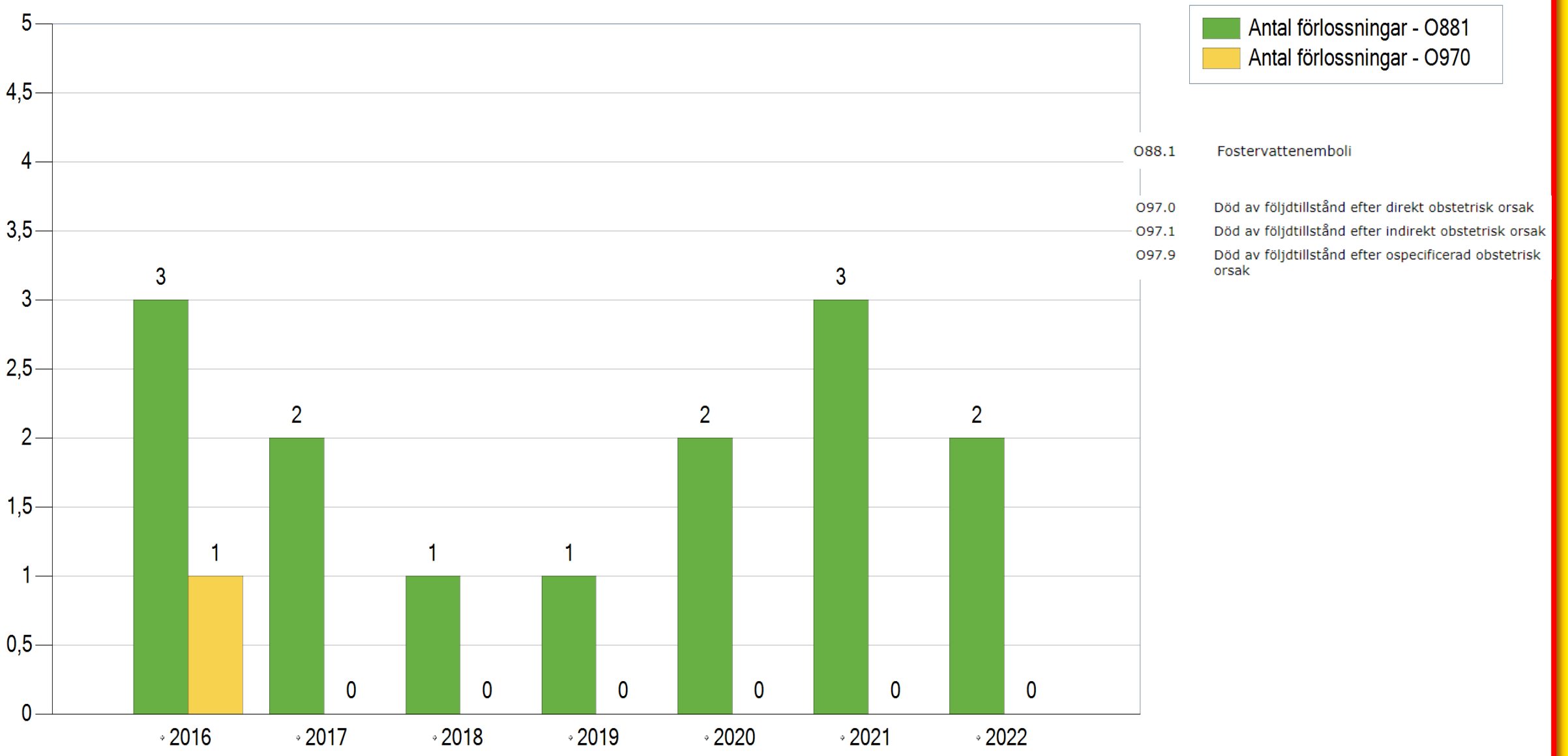


1. Maternell kollaps + en/flera:
   - Fetal distress
   - Hjärtstopp
   - Arytmi
   - Koagulopati
   - Hypotension
   - Blödning
   - Kramp
   - Dyspné
   - Prodromal symtom (upp till 4 t)
2. Postmortem diagnostik

Differential diagnoser

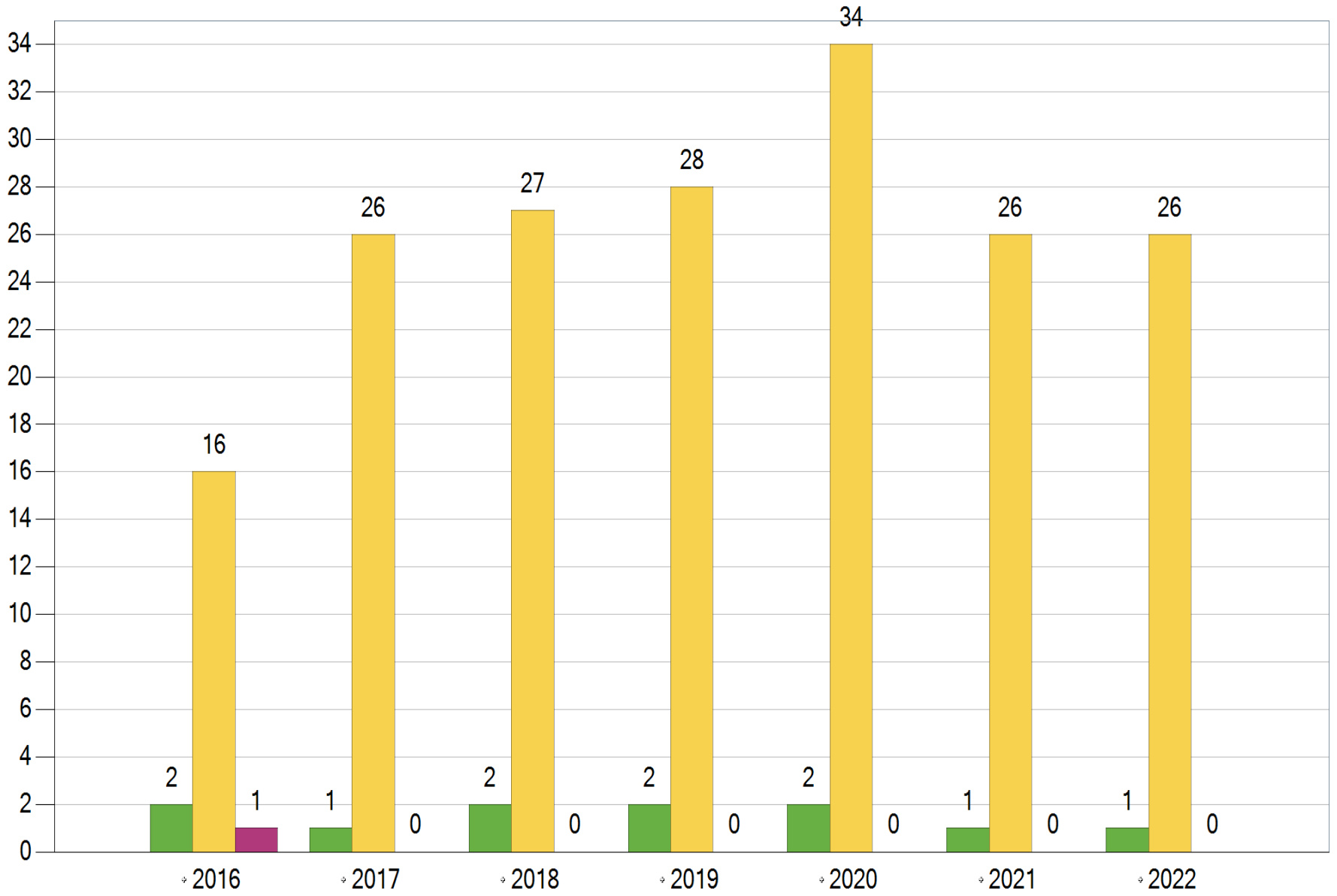
- Lungemboli
  - Hela graviditeten/pp
- Peripartum kardiomyopati
- Sepsis
- Hjärtinfarkt
- Luftemboli
- Eklampsi
- Anafylaxi
- Total spinal

Antal kvinnor med fostervattenemboli samt dödsfall i Sverige 2016-2022



O88.1	Fostervattenemboli
O97.0	Död av följdtillstånd efter direkt obstetrisk orsak
O97.1	Död av följdtillstånd efter indirekt obstetrisk orsak
O97.9	Död av följdtillstånd efter ospecificerad obstetrisk orsak

Antal kvinnor med lungemboli i Sverige 2016-2022



Antal förlossningar - I260
Antal förlossningar - I269
Antal förlossningar - O970

I26.9 Lungemboli utan uppgift om akut cor pulmonale
Internetmedicin (3) • 1177

I26.0 Lungemboli med uppgift om akut cor pulmonale
Internetmedicin (2) • 1177

O97.0 Död av följdtillstånd efter direkt obstetrisk orsak

O97.1 Död av följdtillstånd efter indirekt obstetrisk orsak

O97.9 Död av följdtillstånd efter ospecificerad obstetrisk orsak

Vad göra?

ABCDE ink
Perimortem snitt

Intensivvård
- Respiration
- Hjärta/cirkulation
- Hemostas

Patientnära instrument
- Ultraljud
- TEG/ROTEM
- Blodgas

Can J Anesth/J Can Anesth
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REVIEW ARTICLE/BRIEF REVIEW

Echocardiography findings in amniotic fluid embolism: a systematic review of the literature

Observations échocardiographiques lors d'une embolie de li amniotique : une revue systématique de la littérature

Daniel Wiseman, MD · Camille Simard, MD · Stephen S. Yang, MD, MSc · Maral Koolian, MD, MSc · Haim A. Abenhaim, MD, MPH · Jed Lipes, MD

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Abstract
Purpose *Amniotic fluid embolism (AFE) is a lead of obstetrical cardiac arrest and maternal morb*

- Pulmonell hypertension
- Hö kammar svikt
- Biventrikulär svikt
- HK-svikt risk hjärtstopp

Clinical Opinion ajog.org

Amniotic fluid embolism: principles of early clinical management

Luis D. Pacheco, MD; Steven L. Clark, MD; Miranda Klassen, BS; Gary D. V. Hankins, MD

Amniotic fluid embolism is an uncommon, but potentially lethal, complication of pregnancy. Because amniotic fluid embolism usually is seen with cardiac arrest, the initial immediate response should be to provide high-quality cardiopulmonary resuscitation. We describe key features of initial treatment of patients with amniotic fluid embolism. Where available, we recommend performing transthoracic or transesophageal echocardiography as soon as possible because this is an easy and reliable method of identifying a failing right ventricle. If such failure is identified, treatment that is tailored at improving right ventricular performance should be initiated with the use of inotropic agents and pulmonary vasodilators. Blood pressure support with vasopressors is preferred over fluid infusion in the setting of severe right ventricular compromise. Amniotic fluid embolism—related coagulopathy should be managed with hemostatic resuscitation with the use of a 1:1:1 ratio of packed red cells, fresh frozen plasma, and platelets (with cryoprecipitate as needed to maintain a serum fibrinogen of >150—200 mg/dL). In cases that require prolonged cardiopulmonary resuscitation or, after arrest, severe ventricular dysfunction refractory to medical management, consideration for venoarterial extracorporeal membrane oxygenation should be given.

Key words: blood product, cardiac arrest, cryoprecipitate, coagulation, dobutamine, norepinephrine, platelet, right ventricular failure

described in cases of AFE may provide the best chance at improved maternal and fetal outcomes.[4] Although no data exist to document improved survival of such women with any specific treatment regimen, we describe here 1 organized, logical approach to the initial acute management of AFE that is recommended by the authors who have extensive experience in critical care obstetrics.

Cardiac arrest

Because AFE often presents with cardiac arrest, the initial immediate response should be to provide high-quality cardiopulmonary resuscitation (CPR). Without delay, chest compressions should be started, with the heel of the hand placed in the lower half of the sternum and a compression depth of

Diagnostik peripartal maternell kollaps

Ultraljud hjärta

- ***Högerkammarsvikt?***
- Ja → Fostervattenemboli alt lungemboli
- Nej → Diff diagnoser

TEG/Rotem

- ***Hemostaspåverkan?***
- Ja → Fostervattenemboli
- Nej → Lungemboli

niotic fluid embolism: principles of early

Check for updates

FIGURE 2
Immediate acute management of amniotic fluid embolism

Cardiorespiratory collapse from suspected amniotic fluid embolism

- Start immediate high-quality CPR.
- Chest compressions 100–120/min, and avoid hyperventilation.
- Defibrillate as indicated.
- Prepare for operative vaginal delivery (if indicated) and early perimortem cesarean delivery if ≥ 23 weeks.

- Early TTE, usually after return of spontaneous circulation.
- TTE may be used during CPR administration using the subxiphoid view or during the short pauses (< 10 seconds) used to check for a pulse (importantly chest compressions should NEVER be interrupted to obtain a TTE).

- If evidence of acute cor pulmonale, start treatment of right ventricular failure with vasopressors, inotropes, and pulmonary vasodilators.
- Avoid fluid boluses.

- In cases of coagulopathy and significant bleeding, early activation of massive transfusion protocols with the use of hemostatic resuscitation is fundamental.
- Use uterotonics and clinical criteria as indicated for the need of operative intervention to control bleeding (eg, uterine balloon tamponade or packing, repair of genital lacerations, or even laparotomy for hemostatic sutures or hysterectomy).

Persistent hemodynamic instability despite medical management or need for prolonged CPR may require consideration for VA ECMO.

TABLE
Pharmacologic agents used to treat acute right ventricular failure

Pharmacologic agent	Dosage
Norepinephrine (vasopressor)	0.05–3.3 μg/kg/min
Dobutamine (inotrope)	2.5–5 μg/kg/min (usually avoid doses >5 μg/kg/min because tachycardia at higher doses may limit right ventricular filling and consequently cardiac output)
Milrinone (inotrope)	0.25–0.75 μg/kg/min
Sildenafil (pulmonary vasodilator)	20 mg orally every 8 hrs
Inhaled nitric oxide (pulmonary vasodilator)	5–40 parts per million
Inhaled prostacyclin (epoprostenol, pulmonary vasodilator)	10–50 ng/kg/min
Intravenous prostacyclin (epoprostenol, pulmonary vasodilator)	Start at 1–2 ng/kg/min, titrate to desired effect

Pacheco. Immediate management of amniotic fluid embolism. Am J Obstet Gynecol 2020.

Patientfall (Mycket bortaget)

Okontaktbar och kramp, vad göra?

- Ringer efter hjälp
- Söver och intuberar ua
- Lättventilerad.
- Bradykardi
- Inget koldioxid utbyte
- Huuuuu, asystoli…

1. HLR och adrenalin
2. ROSC inom 2 minuter
3. Artärnål, blodgas
4. UCG
5. ROTEM

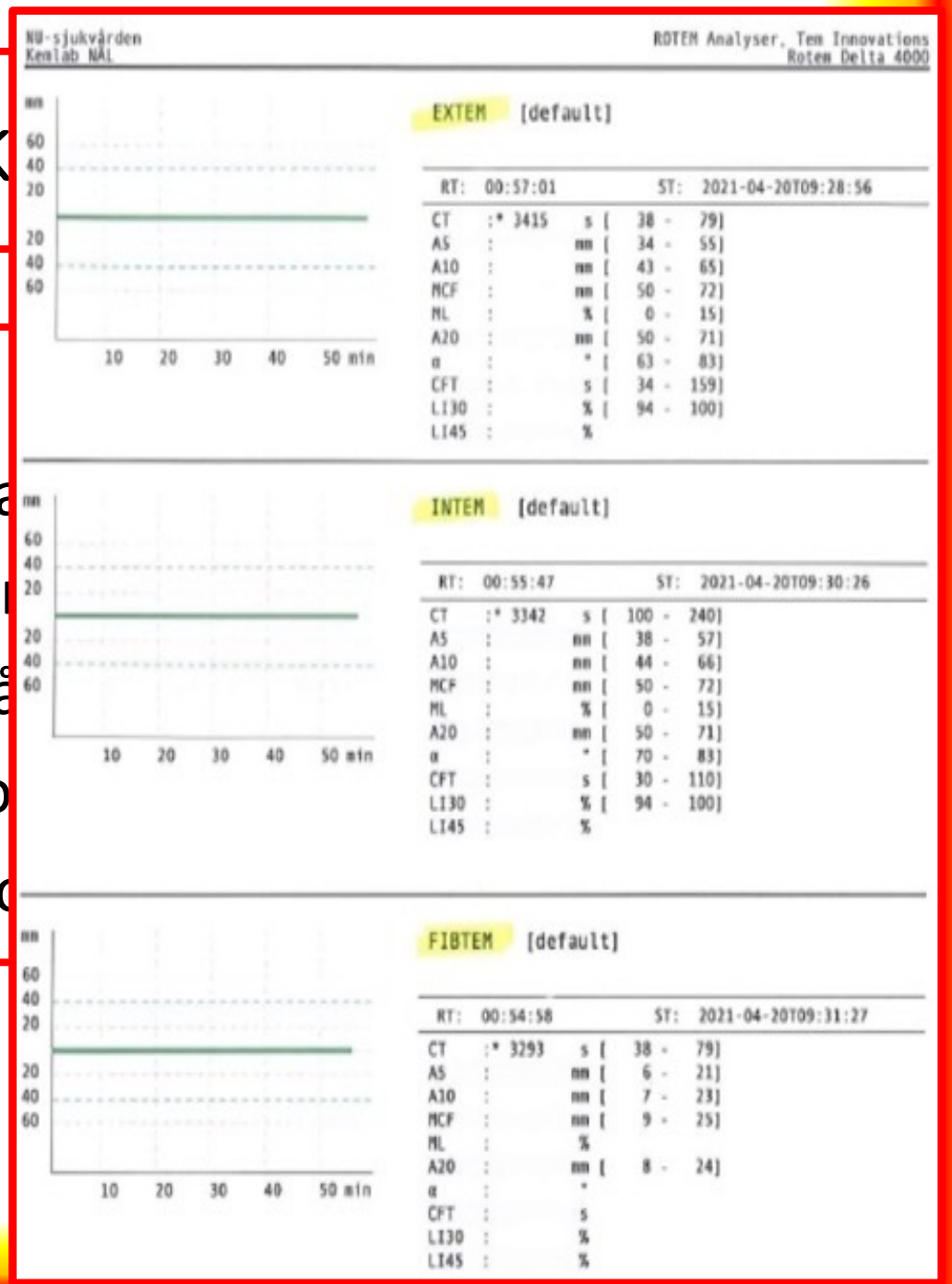
Patientfall

Maternell k

- Diagnos?
  - Hjärtstopp
  - Lungemboli
  - Cirkulations kollaps
  - Blödningschock
  - Allergisk chock
  - Fostervattenemboli

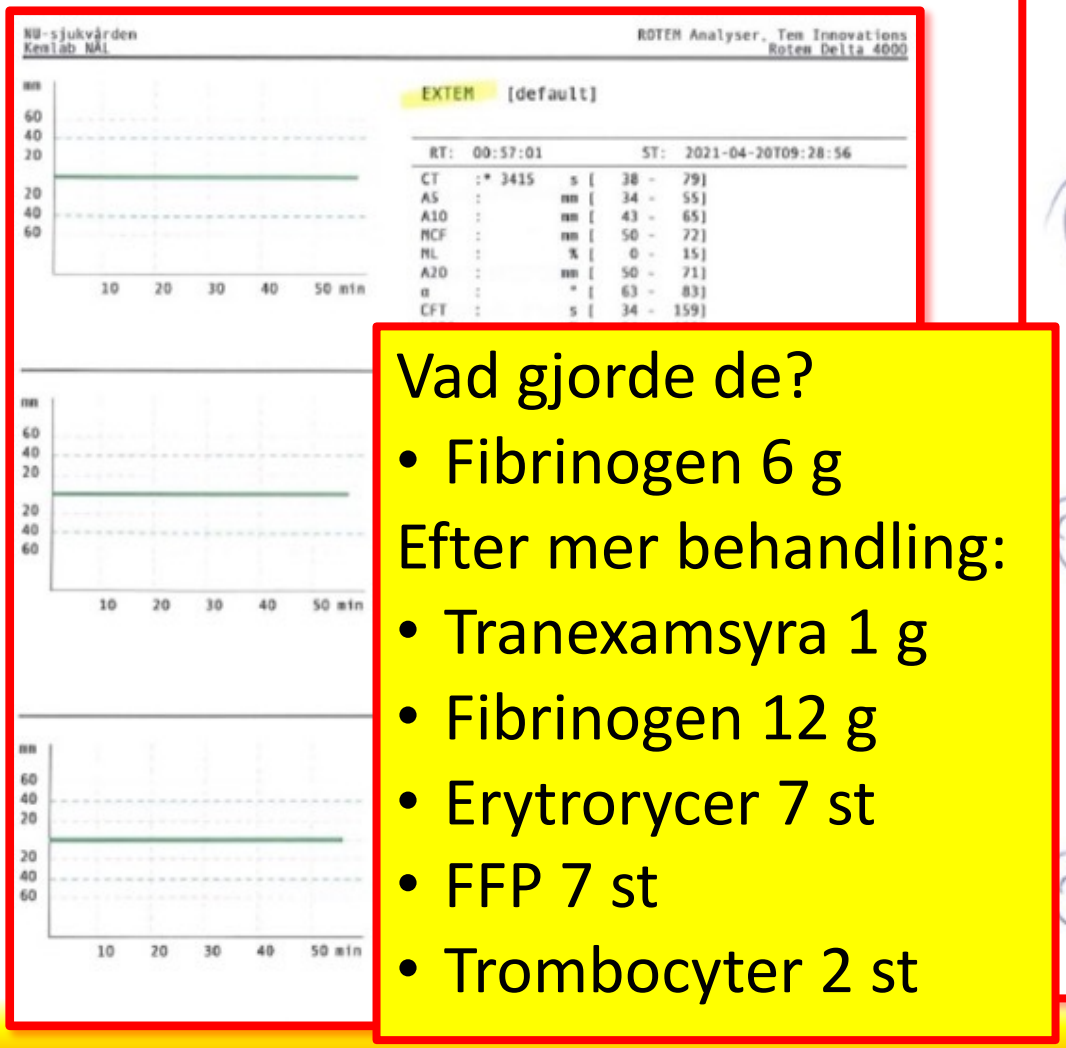
Vad göra?

- Obstetriker avsluta
- Viss atoni, oxytoci
- Viss blödning, 2 på
- Överväger trombo
- CT hjärna, thorax c



Patientfall

Maternell kollaps, Rotem



Vad gjorde de?

- Fibrinogen 6 g

Efter mer behandling:

- Tranexamsyra 1 g
- Fibrinogen 12 g
- Erytrorycer 7 st
- FFP 7 st
- Trombocyter 2 st

Patientfall

Maternell kollaps, IVA

- Lättventilerad
- Noradrenalin 0,4 mg/kg/min
- Fortsatt blödning
- Försök uterusballong
- Transfusion
  - Erytrocyter
  - FFP
  - Trombocyter

- Dag 1
  - Extuberad och till avd
- Dag 2
  - UCG ua
- Dag 5
  - Hem

Diagnos: Fostervattenemboli

- Maternell kollaps
- DIC

- ABCDE
- Perimortem snitt

Fostervattenemboli

- Ultraljud
- TEG/ROTEM

- Milrinon
- Noradrenalin

- Tranexamsyra
- 4:4:1
- Fibrinogen

- Prostac.
- NO
- ECMO