

# When life isn't fair

BVN herfstvergadering – 10/11/2022

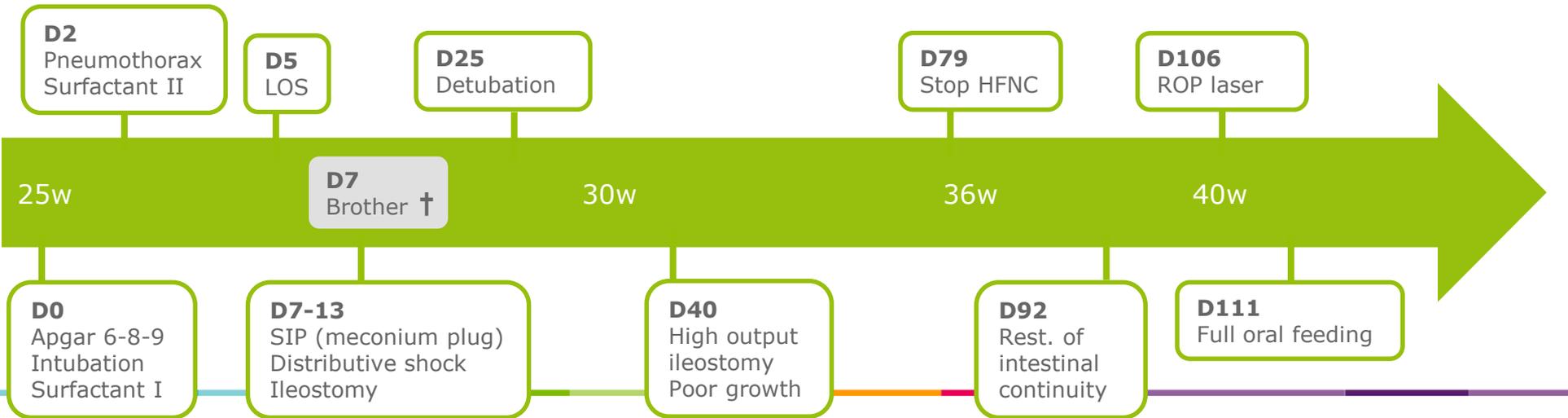
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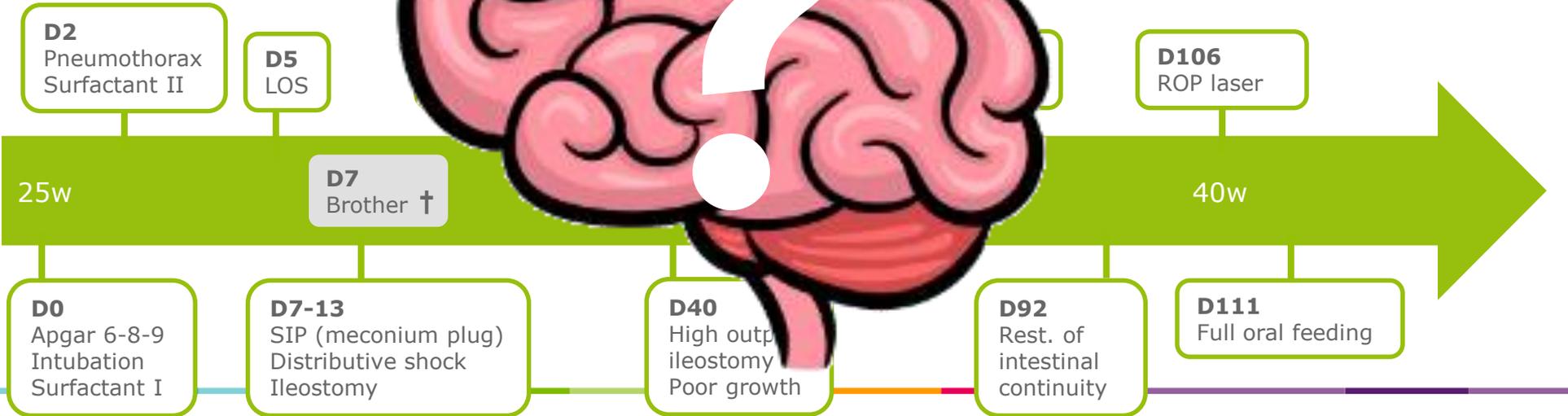
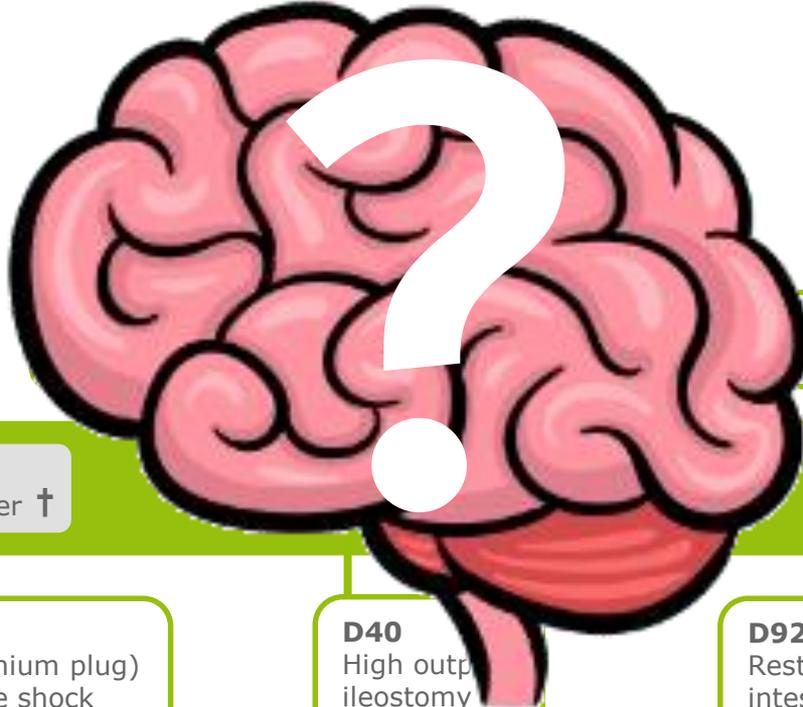


# Case (J. ♀) in a nutshell

- Born extremely premature (25w 2d) due to cervical insufficiency
- ICSI pregnancy, G2P1A1, antenatal steroids ++
- First of DCDA twins, BW 740g



# How about the brains ?



# How about the



**D2**  
IVH gr 2-3 L+R  
Inf V termin L

**D2**  
Pneumothorax  
Surfactant II

**D5**  
LOS

**D25**  
Detubation

**D79**  
Stop HFNC

**D106**  
ROP laser



25w

30w

36w

40w

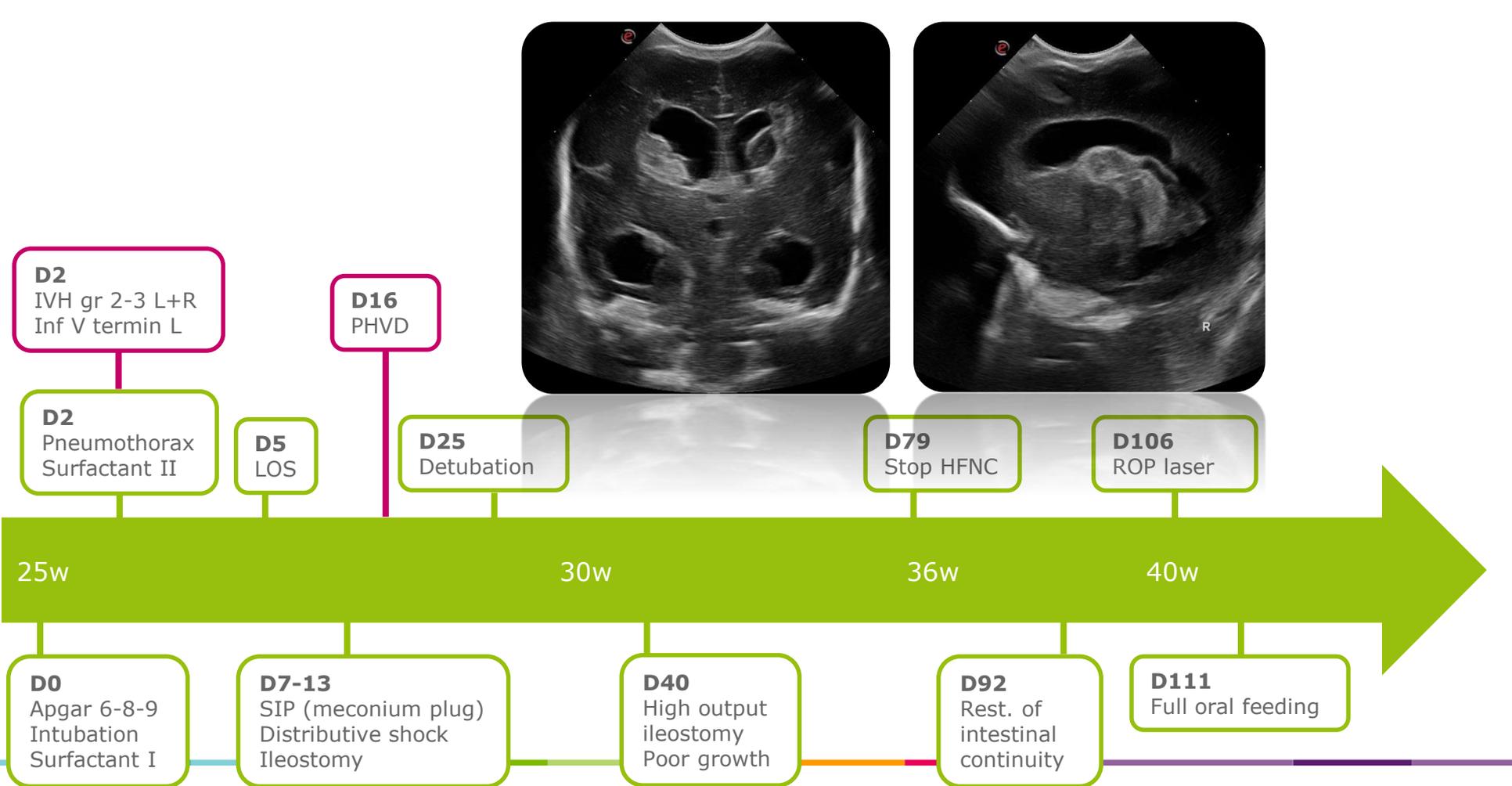
**D0**  
Apgar 6-8-9  
Intubation  
Surfactant I

**D7-13**  
SIP (meconium plug)  
Distributive shock  
Ileostomy

**D40**  
High output  
ileostomy  
Poor growth

**D92**  
Rest. of  
intestinal  
continuity

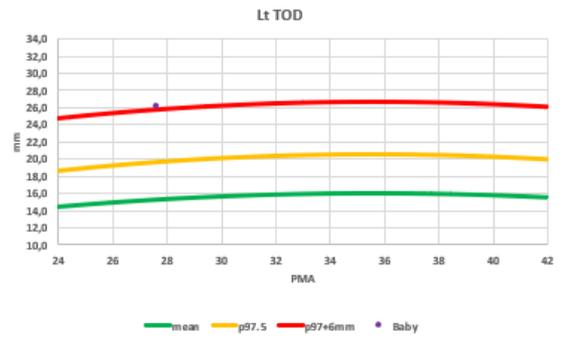
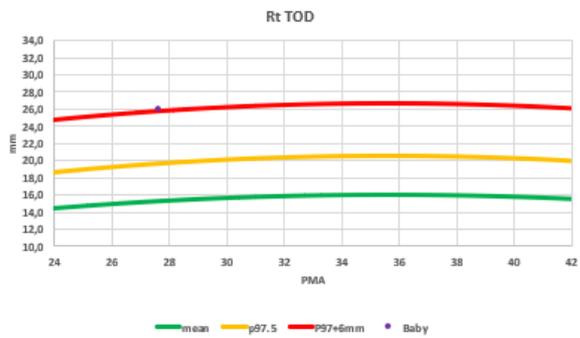
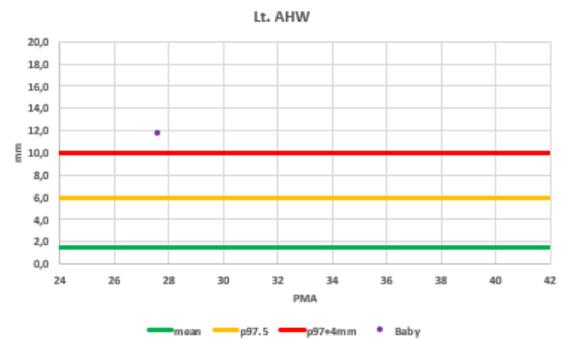
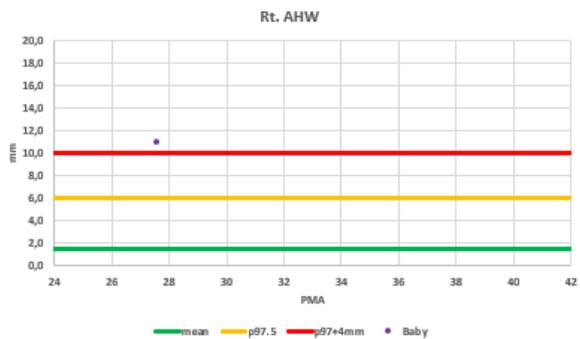
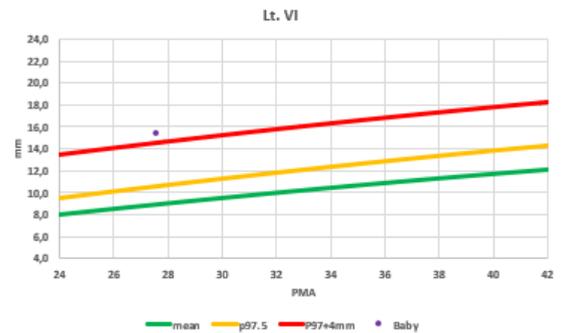
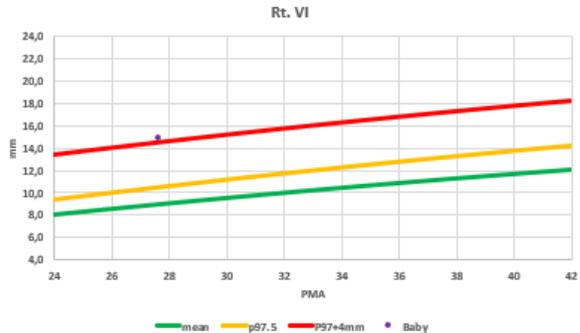
**D111**  
Full oral feeding



# Q - What to do?

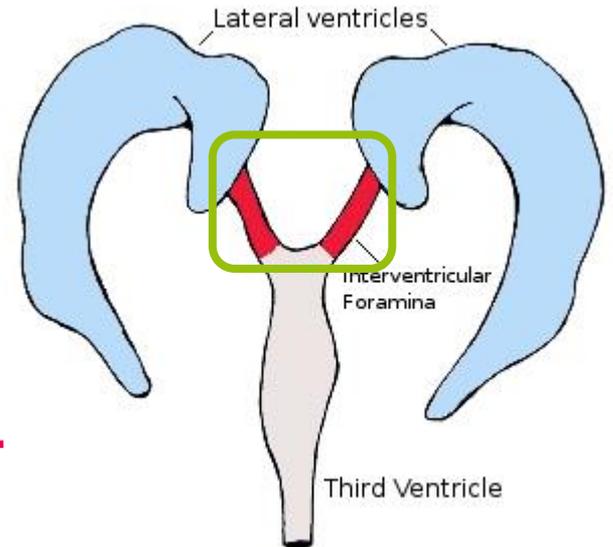
1. No need to intervene without symptoms
2. Intervene if ventricles enlarge further
3. Lumbar puncture trial to release pressure
4. Rickham® drain immediately, LP won't be sufficient anyway
5. Can't tell without ventricle measurements

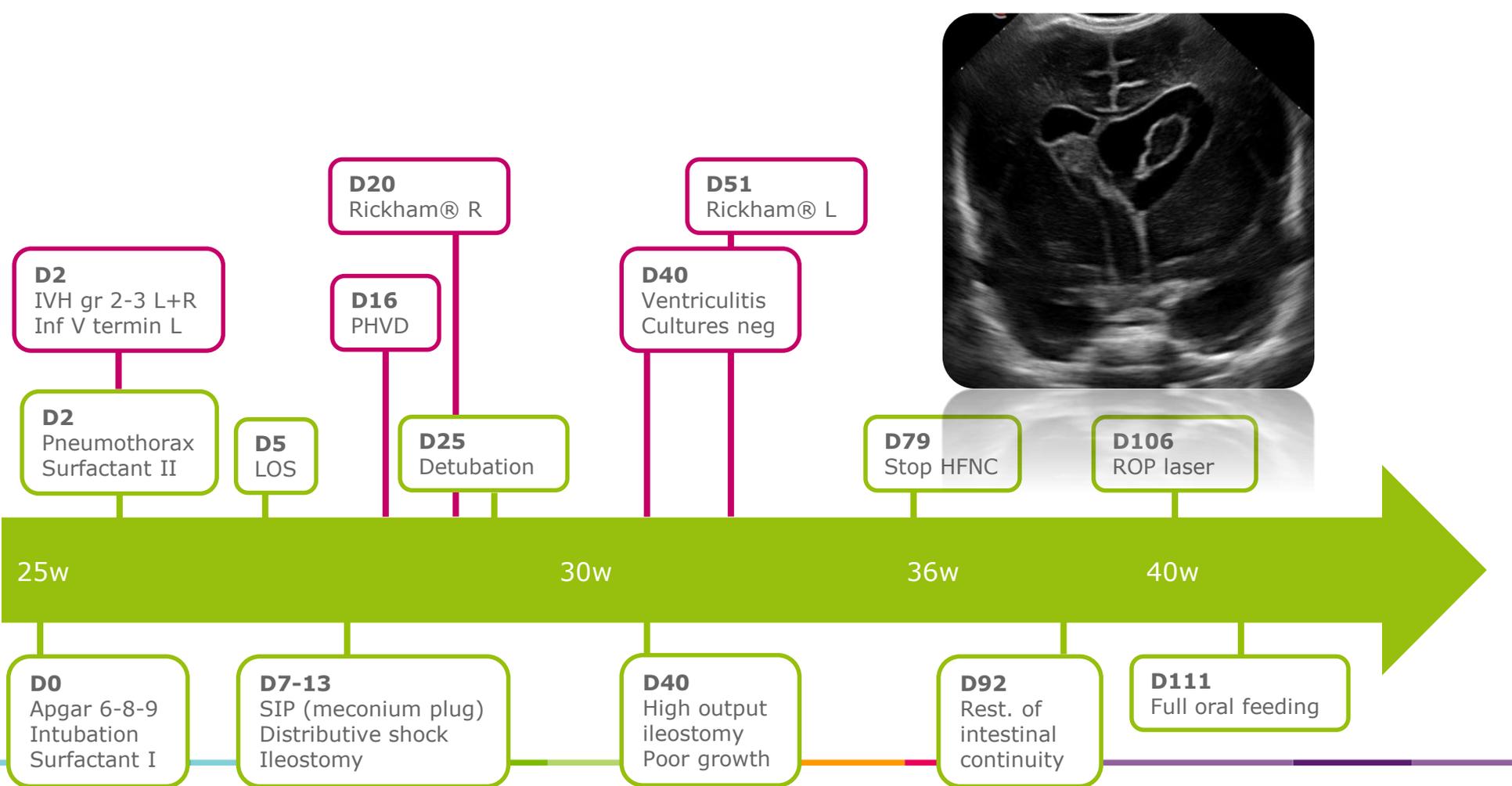


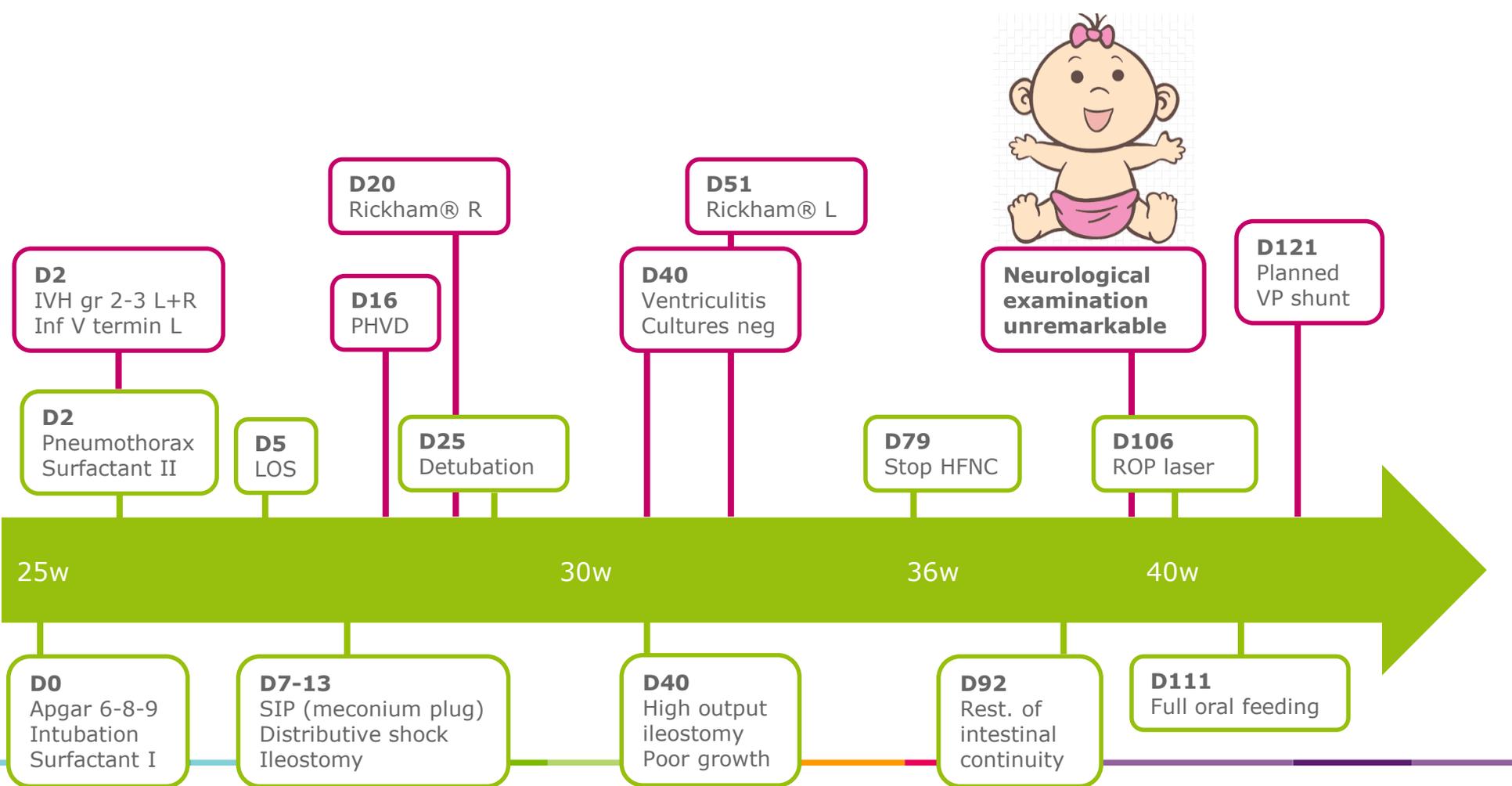


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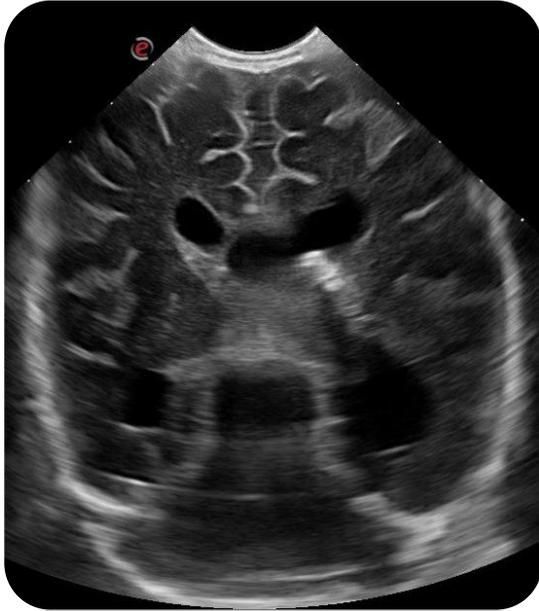




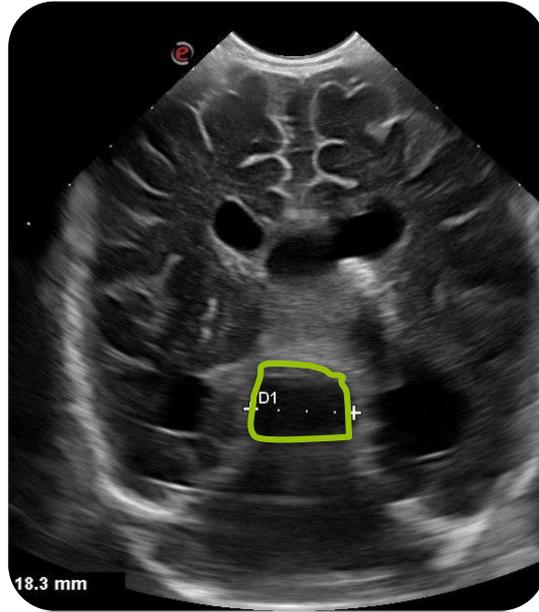
# 2 days before surgery...

- Agitated, more sleepy
- Slower feeding
- Central events during feeding and in between
- Clinical examination:
  - ABC: stable
  - D: Less reactive, comfortable. Fontanel full, not bulging.  
PEARL, setting sun sign absent. Normal tone and movements.

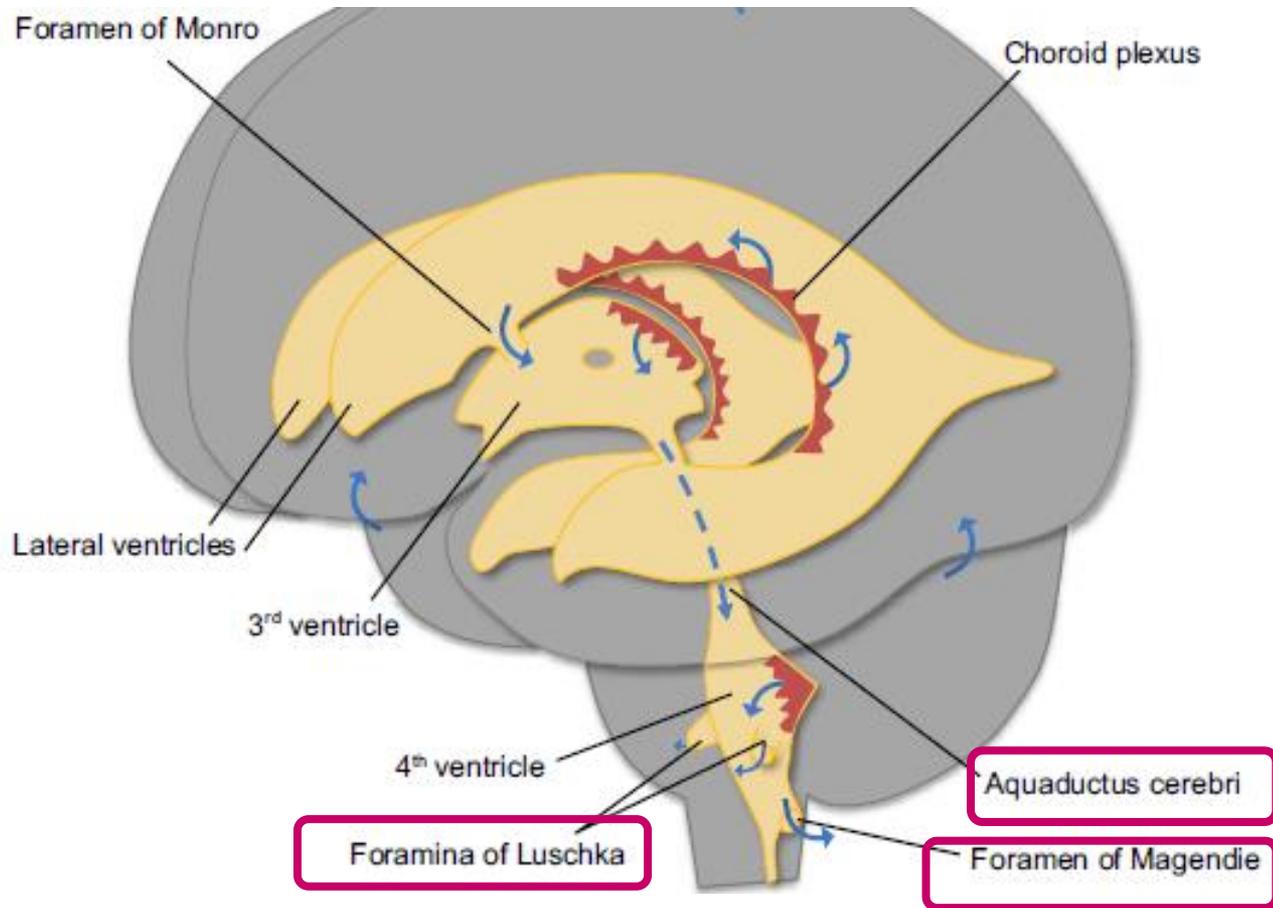
## 2 days before surgery...



## 2 days before surgery...



# Trapped 4th ventricle



# Trapped 4th ventricle – What happens ?

Obstruction

- Obstruction of all outlets
- Obstruction of aqueduct of Sylvius
- Ongoing (increased) CSF production

Dilation

- Progressive dilation of 4th ventricle

Compression

- Brain stem
- Cerebellum
- Lower cranial nerves

# Trapped 4th ventricle

Appears typically...

- In extremely preterms
- After successful PHVD drainage

Extremely difficult to treat

- Shunts
- Endoscopic fenestrations
- Aqueduct reconstructions
- Open surgical procedures
- Ultrasound ablation

Many complications

- Shunt dysfunction
- Shunt migration
- Infection
- Closure of fenestrations
- Cyst formation
- Loss of brain tissue
- Death

Related to inflammation  
(IVH, infection)

# Our patient ...

- ❑ 3th Rickham® drain in the 4th ventricle (urgently)
- ❑ Discussed with other centers/internationally
- ❑ Replacement of all Rickhams® by a double VP-shunt
- ❑ She recovered well, but then...
  - ❑ Shunt obstruction → revision
  - ❑ E. Coli ventriculitis → shunt removal
  - ❑ Severe brain damage
  - ❑ More inflammation and adhesions → cyst formation
- ❑ Decision for palliative care
- ❑ She passed away 2.5 months after diagnosis

# What are the chances ?

Preterm births in Belgium: 1% < 32 weeks  
<0,5% < 28 weeks

## IVH

- 20% in  $\leq 28$  weeks
- Up to 35-45% in  $\leq 750$  g

Grade III IVH : 25-30% PHVD

20-50% Rickham® → 50% VP-shunt

Trapped 4th ventricle :  
14% after Rickham® ?



# Take home messages

- Regularly **check that 4th ventricle** on ultrasound in every preterm with PHVD
- **Unfairness** in neonatology
  - Is real and frustrating
  - Gives us the drive to keep improving our care



**Thank you !**