Perinatal Care in High-Risk Pregnancies

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About High-Risk Pregnancy

- A high-risk pregnancy is one in which the mother, her fetus, or both are at higher risk for health problems during pregnancy or labor than in a typical pregnancy.
- Women whose pregnancies are considered high risk may need specialized care or treatment to have healthy pregnancies and deliveries.
- Just because a pregnancy is considered high risk does not mean that a problem will occur.

A risk is characterized by to 2 parameters

1. Its **severity**:
2. Its **probability of occurrence**:

→ **Level of risk**

risk is not a physical reality, its an indicador

Risk for .....bleeding ? Death? Prematurity? RFG? Asphyxia ? Several? All?

No risk does not exist !

What is modern obstetrics?

1. **Identification of risk factors** (before pregnancy if possible)
2. **Prediction** (if possible)
3. **Prevention** by undertaking the necessary measures (when existing) to reduce the prevalence of the disease.
4. **Early diagnosis**
5. Medical care and decisions when the disease appears: (Follow **guidelines (**updated), **team working, Multidisciplinary** support, timing and localization for delivery
6. **Evaluation** care, Adapted **monitoring** elements

Risk factors

- Maternal age <16 or >35
- Chronic disease – hypertension, diabetes, cardiovascular or renal disease, thyroid disorder
- Preeclampsia- abn hypertension during pregnancy
- Rh isoimmunization- neg and pos in blood → coagulation
- History of stillbirth
- IUGR- baby is smaller than needs to be; Growth Retardation
- Postterm pregnancy – 2wks past the due date
- Multiple gestation
- History of preterm labor
- Previous cervical incompetence

1. **Risk factors**
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Risk factors for pre eclampsia

Risk factor	Relative risk [95 % CI]
Previous history of preeclampsia	7.19 [5.85,8.83]
Antiphospholipid antibodies	9.72 [4.34,21.75]
Pre-existing diabetes	3.56 [2.54,4.99]
Multiple pregnancy	2.91 [2.04, 4.21]
Nulliparity	2.91 [1.28, 6.61]
Family history of pre-eclampsia	2.90 [1.70, 4.93]
Elevated BMI >25	2.47 [1.66, 3.67]
Maternal age ≥40	1.96 [1.34, 2.87]
Diastolic BP ≥ 80 mmHg at booking	1.38 [1.01, 1.87]

Detection rate (<10% false +) **20%**

Mostello, D., et al. (2008). "Recurrence of preeclampsia
Am J Obstet Gynecol **199**(1): 55 e51-57.

Prediction of preeclampsia
Measurement of uterine artery PI (UTPI)

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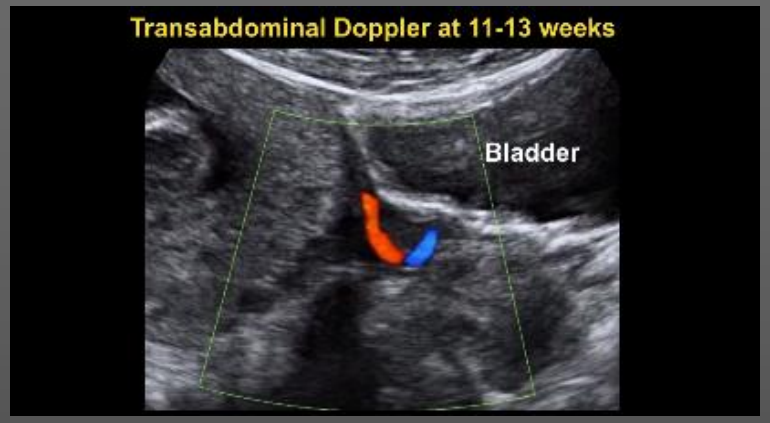

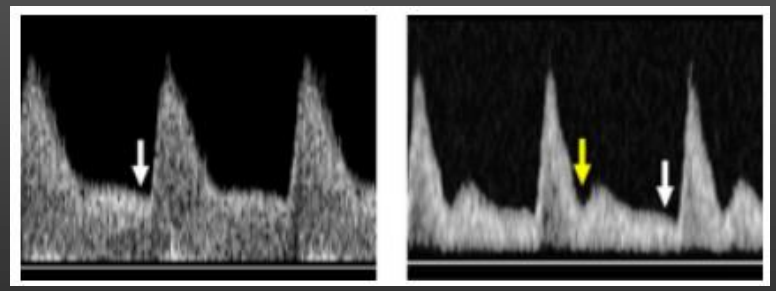

Pulsatility index

Week	n	Mean	SD	5th percentile	95th percentile
11	61	1.6	0.5	0.8	2.5
12	188	1.5	0.6	0.7	2.6
13	133	1.4	0.4	0.8	2.2
14	27	1.3	0.4	0.7	1.9

Prediction of preeclampsia
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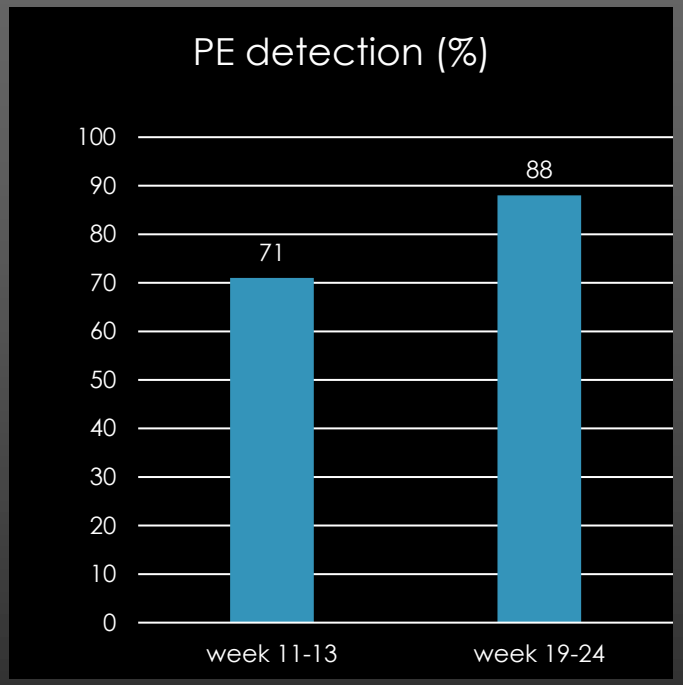
The detection rate, (at a 10% false-positive rate), for early onset PE (delivering < 32 weeks) was

- **71%** at 11-13 weeks
- **88%** at 19-24 weeks,



O'Gorman, N., et al. (2016). "Uterine artery pulsatility index at 12, 22, 32 and 36 weeks' gestation in screening for pre-eclampsia." Ultrasound Obstet Gynecol **47**(5): 565-572.

Prevention of PE

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Bed rest and dietary manipulations

The rate of PE is not reduced by:

- Bed rest or restriction of physical activity.
- Restriction of salt intake.
- Supplementation with magnesium, zinc, folate, vitamins C and E or fish oil.

The rate of PE is halved by:

- Dietary calcium (1.2 - 2.5 g/d) in women with low calcium intake (<600 mg/d).

Hofmeyr, G. J., et al. (2018). "Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems." Cochrane Database Syst Rev **10**: CD001059.

aspirin (150 mg/day) or placebo from 11-14 weeks' gestation until 36 weeks

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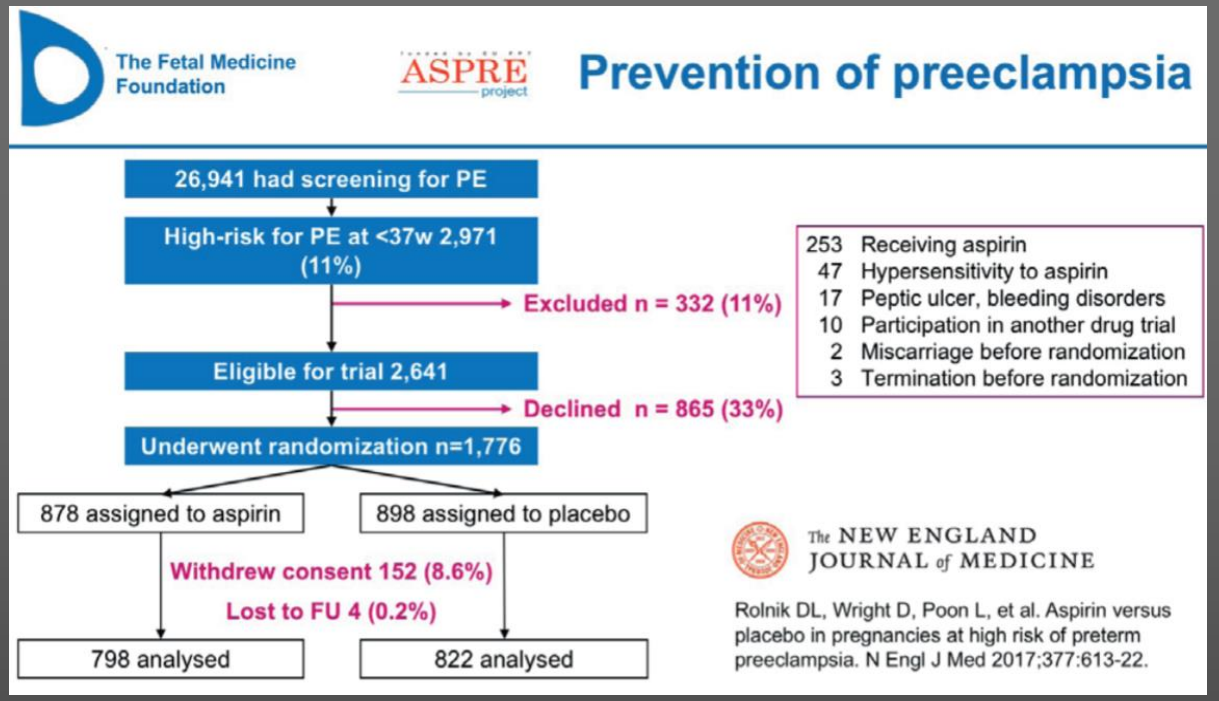

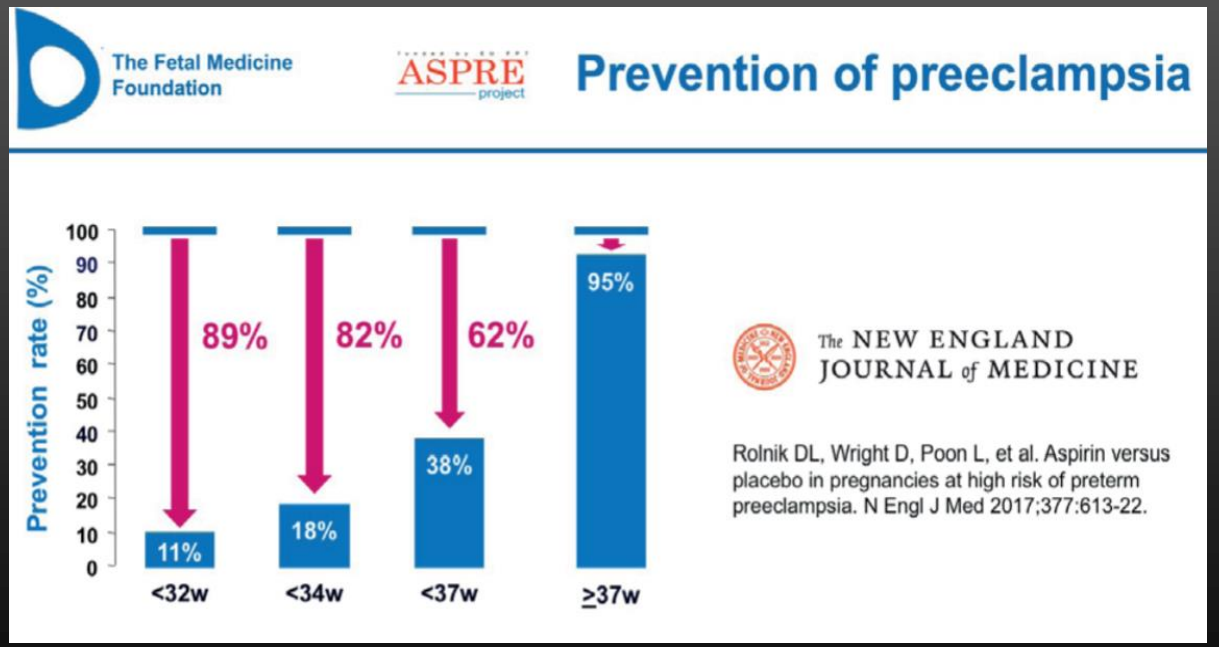

Aspirine for prevention of PE

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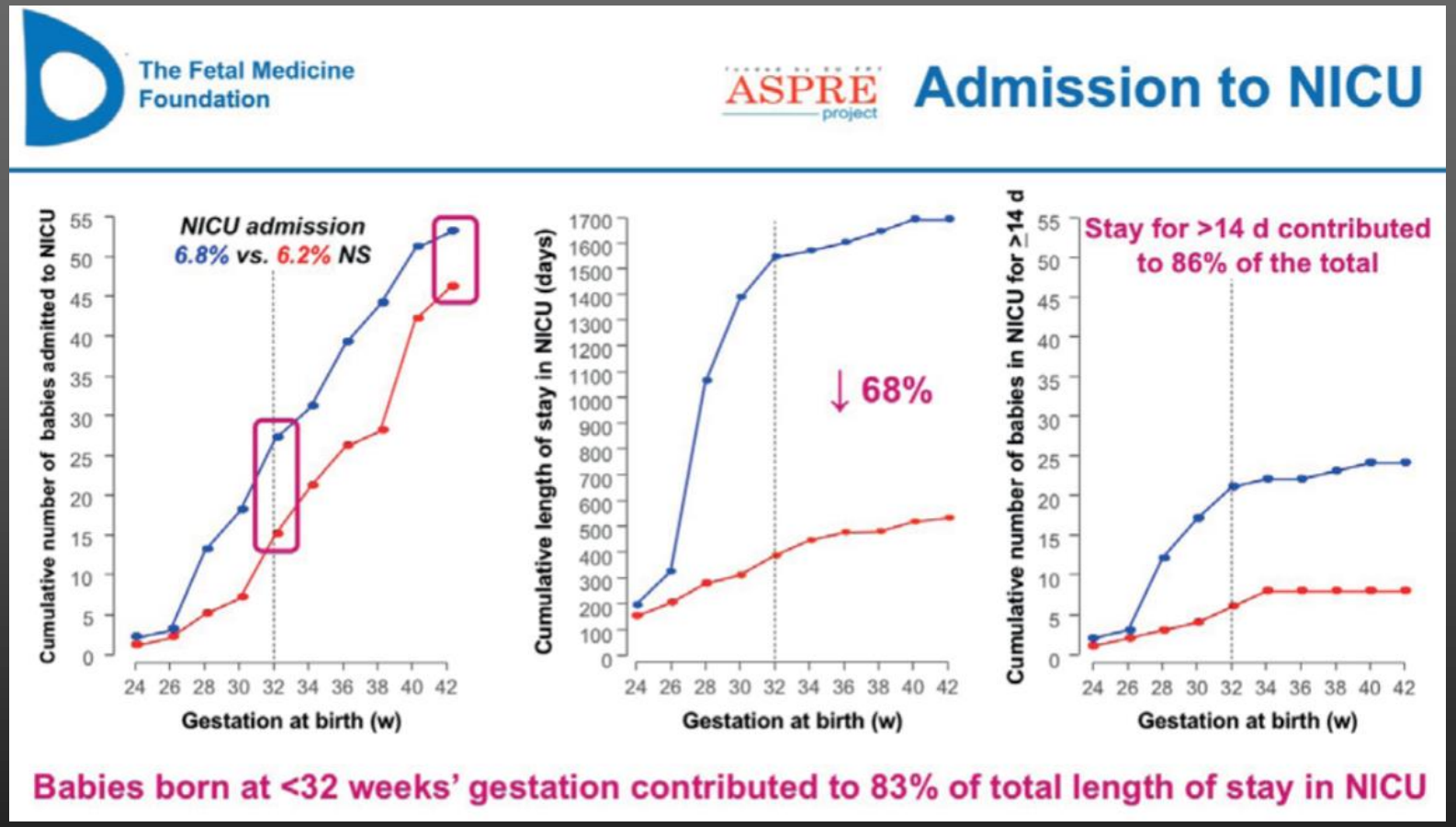

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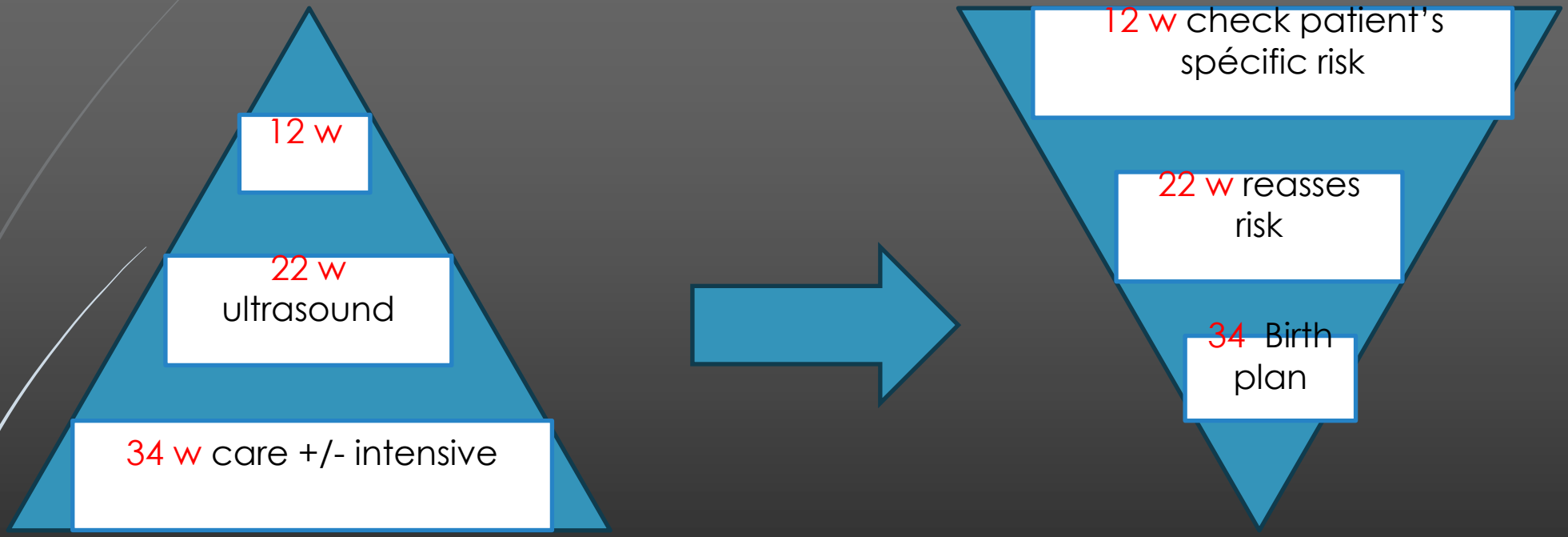
The Fetal Medicine Foundation

Prevention of PE: aspirin

Aspirin >100 mg onset at <16 w:

- Reduction in PE <32 w	90%
- Reduction in PE <34 w	80%
- Reduction in PE <37 w	65%
- Reduction in abruption	30%
- Reduction in LOS in NICU	65%

Inversion of pyramid of care



Diabetes

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- not only theoretically but based on Calmette's data from obstetrics and neonatology units

	nb
New born from diabetic mother	64
newborn from nondiabetic mother	124
All pregnancies obstet 2020	14 851

Diabetes = risk pregnancy

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	Newborn diabétic mother	Newborn non diabetic mother	All deliveries 2020
nb	64	124	14851
Macrosomia (> 4kg)	**28,1%**	2,4%	
Birth asphyxia	**12,5%**	6%	2,2%
Birth defect	**14%**	8%	1,9%
Cs	**71,9%**	46%	28%
Prematurity	**64%**	58%	11%

There is a linear association between glucose concentrations and perinatal outcomes

Every 1 mmol/L increase in fasting plasma glucose (FPG) was associated with an increase in birth weight, macrosomia, premature birth,

Farrar, D., et al., Hyperglycaemia and risk of adverse perinatal outcomes: systematic review and meta-analysis. BMJ, 2016. ***354****: p. i4694.*

Zhao, D., et al., Association between Maternal Blood Glucose Levels during Pregnancy and Birth Outcomes: A Birth Cohort Study. Int J Environ Res Public Health, 2023. ***20****(3).*

Diabetes

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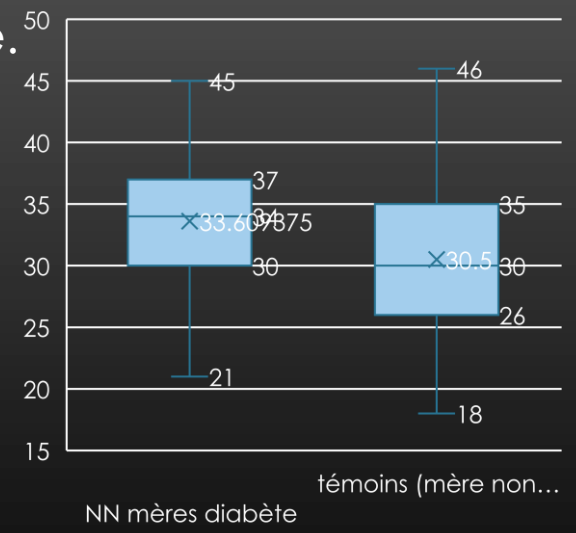
- overweight and obesity
- woman over 35 years old
- one of his first degree relatives (i.e. father, mother, brothers, sisters) has type 2 diabetes;
- gestational diabetes in a previous pregnancy
- woman has given birth in the past to a "large" baby (weight above the 90th percentile of the reference growth curve, i.e. above 4,000 g for a full-term baby);
- polycystic ovary syndrome.



In more than 50% of cases, known **before** pregnancy

Prevention, anticipation and early diagnosis

PREVENTING OVERWEIGHT AND OBESITY **STARTS IN CHILDHOOD**

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Diabetes preexisting type 1 & 2

- Prevalence 2%
- Pregnancy needs planification
- To reduce abortion and abnomalies: metabolic control **started before conception and continued during the first weeks of pregnancy** can prevent malformations

Gestational diabetes:

- Prevalence: 7,5% (10 -25%)
- Asymptomatic : need to be detected
- In **all** pregnancy

Fuhrmann K, Prevention of congenital malformations in infants of insulin-dependent diabetic mothers. *Diabetes Care.* 1983;6(3):219-223.

Should be done for every pregnancy

1st prenatal visit

	Mmol/L	Mg/dL	Daignostic et recommandations
Glycémie à jeun **HbA1c ≥ 6,5%**	≥ 7	**≥ 126**	Diabète manifeste Traitement et suivi comme diabète préexistant
Glycémie à jeun	< 7 mais ≥ 5,1	< 126 mais ≥ 92	Diabète gestationnel
Glycémie à jeun	< 5,1	**< 92**	OGTT entre 24 et 28 sem

24-28 weeks

	OGTT 75 g	
Glycémie (plasma)	Mmol/L	mg/dl
A jeun	5,1	**92**
1H après	10,0	**180**
2H après	8,5	**153**

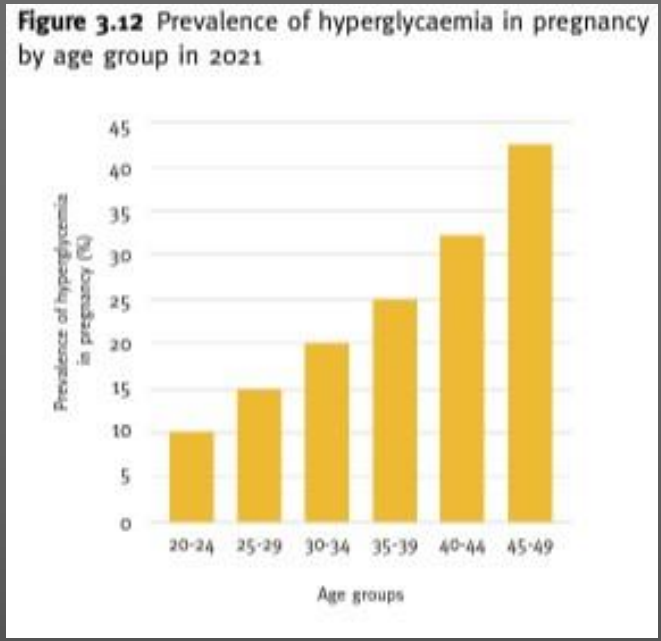
International association of diabetes and pregnancy study groups recommendations on the diagnosis and classification of hyperglycemia in pregnancy *Diabetes Care*. 2010;33(3):676-682.

What is realy done

Data from Calmette hospital

- Newborn from diabetic mother: 64 : preexisting: 48 (75%), gestational : 16(25%)
- Control serie newborn from nondiabetic mothers: 124
- All pregnancies from obstetric ward in 2020: 14 851

Prevalence



- Theroric
  - Preexisting diabetes type I and II: 2%
  - Gestational diabetes: **>5%** (5-25%)

IDF Diabetes Atlas 2021
10TH edition

40% of pre-existing diabetes and 75% of gestational diabetes are ignored

Care : multidisciplinarity, team working

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1. Exercice & diet
2. Split your diet into 6 intakes
3. Consume carbohydrate with slow absorption
4. combine this type of carbohydrate with green vegetables
5. Limit sugar and very sweet products
6. Low fat meat and fish
7. Controlling the weight

Insuline

- Insulin does not cross the placenta and therefore has no action on the fetus
- The objective is to obtain a normal glycaemia (fasting glycemia close to 95 mg/dl and a postprandial (120')glycemia under 125)
- To achieve this result, we have to
  - 1 to use rapid-acting insulin
  - 2 and therefore to multiply the daily injections
  - 3 and self-checks 3 to 4 times a day
- Follow the endocrinologist's recommandations

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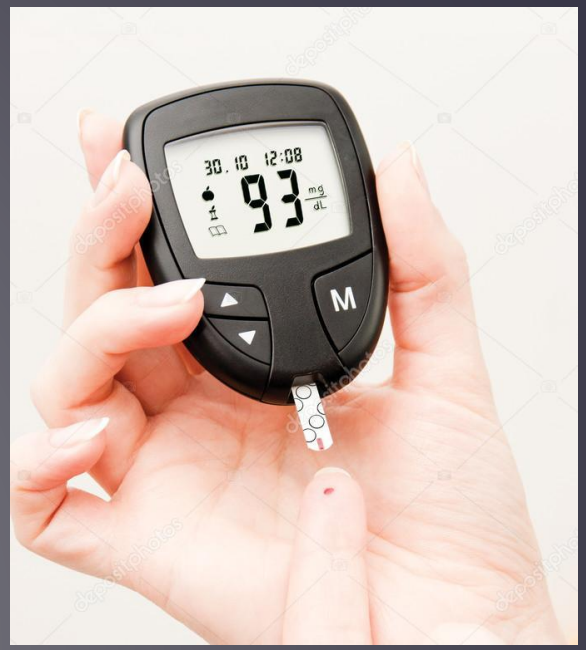
Adapted monitoring elements

- performing a fasting blood glucose test in the 1st trimester is a cost-effective measure
- blood glucose self-monitoring
- ultrasound detection of macrosomia
- consider risk factors

- **and above all analysis of your practices and your results**



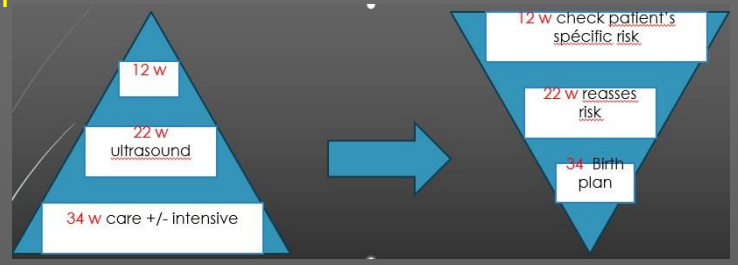
មន្ទីរពេទ្យ
កាល់ម៉ែត
HOPITAL
Calmette

WE NEED TO ACCELERATE PROGRESS AND INVESTMENT IN MATERNAL AND NEWBORN HEALTH NOW.

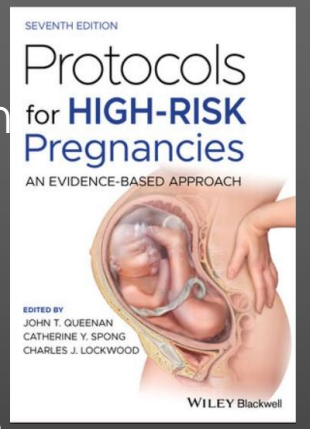
Organisation mondiale de la Santé

unicef
pour chaque enfant

1. early consultation assessing specific risk factors with orientation of patients to appropriate care pathways



2. Achieve good adequacy between a patient's risk level and level of care with possible transfers
3. follow national recommendations and care protocols



4. organization of professionals in a local or regional network (irrespective of the size of the maternity ward, the level of care and whether it is public or private). These networks implement national policy

5. National perinatal plan with precise indicators and quantified goals. In France a National plan for périnatalitét is updated every 5 years based on the results of a mandatory one-week investigation (data from mother newborn and from organization, equipments of all maternities)


Thank you for your attention