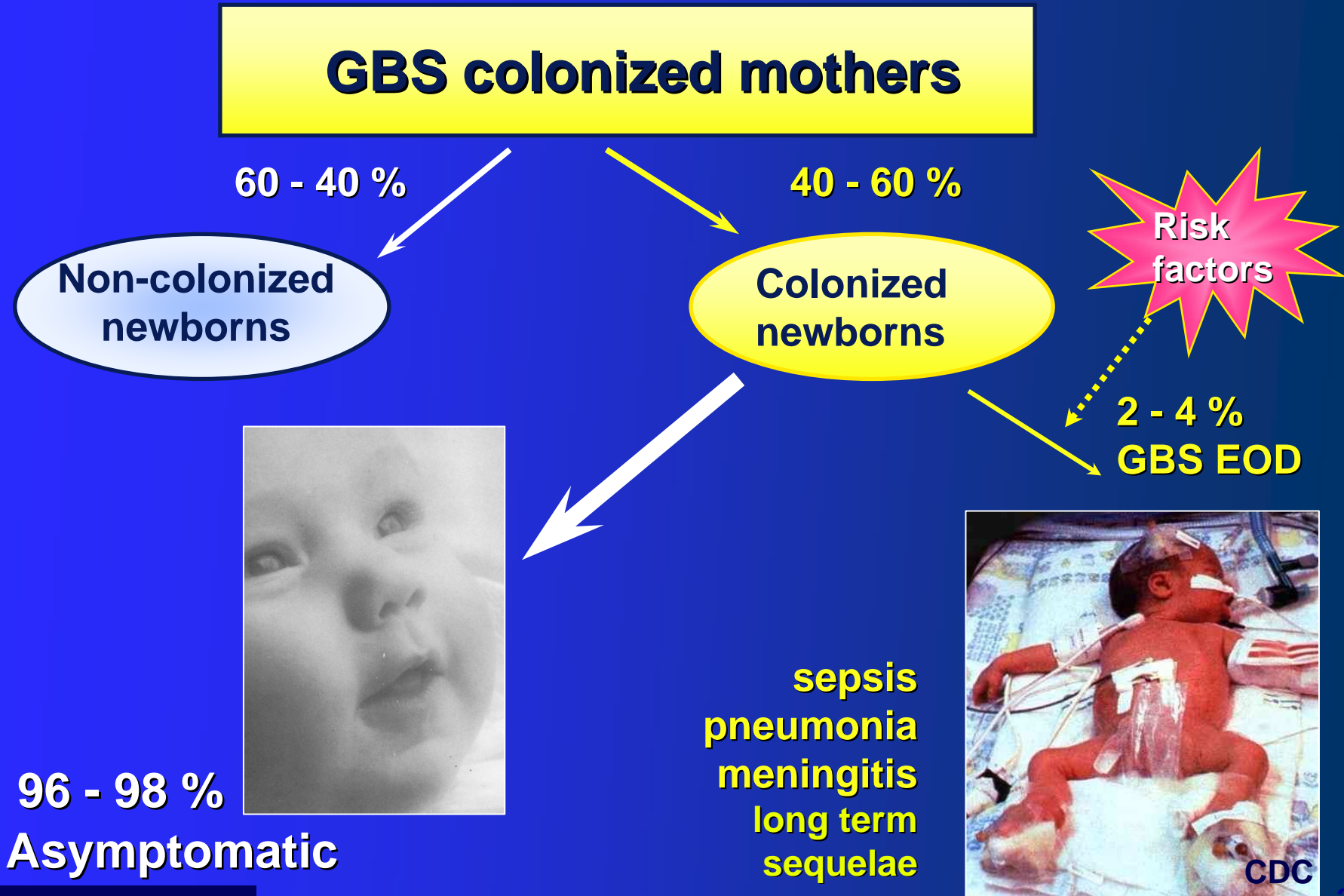


***GBS antenatal  
Screening cultures  
Specimen collection***

***Pierrette Melin  
National Reference Centre for GBS  
Medical Microbiology, University  
Hospital of Liege***



# EOD: GBS VERTICAL TRANSMISSION



# GBS vertical transmission

- **Vertical transmission of mother's GBS**
  - **By contact and aspiration**
    - In utero after rupture of membrane
    - In utero through intact membrane
    - By passage through birth canal
  - **By hematogenous transmission**

# GBS vertical transmission

- **40-60 % according to density of colonization**
  - **Higher probability of transmission**
    - Higher GBS inoculum
    - Longer elapse time of rupture of membrane before delivery
    - Monitoring intra-utero
    - Multifactorial
- **Determination of transmission rate**
  - **By culturing muco-cutaneous swabs and gastric fluid at birth**
    - Umbilic, ear canal, throat, ...

**Not predictive of EOD !**

# Required RF for GBS EOD

*Vaginal (rectal) GBS colonization at delivery*

- **GBS carriers**
  - **GI tract = natural reservoir**
  - **10 - 35 % of women (vagina/rectum)**
  - **Clinical signs not predictive**
    - Typically asymptomatic
  - **Dynamic condition**
    - Transient – chronic – intermittent

# Prevention of perinatal GBS EOD

- **Intrapartum antibiotics**
  - **Highly effective at preventing EOD in women at risk of transmitting GBS to their newborns ( $\geq 4$  h)**  
« At risk » = GBS colonized at « time of delivery » with/without other RF

## INTRAPARTUM ANTIMICROBIAL PROPHYLAXIS

### Main goal :

- **To prevent 70 to 80 % of GBS EO cases**

### Secondary :

- **To reduce peripartum maternal morbidity**



# MMWR™

Morbidity and Mortality Weekly Report

Recommendations and Reports

August 16, 2002 / Vol. 51 / No. RR-11

## Prevention of Perinatal Group B Streptococcal Disease

Revised Guidelines from CDC



CENTERS FOR DISEASE CONTROL AND PREVENTION  
SAFER • HEALTHIER • PEOPLE™

**CDC, USA, MMWR, Vol 51  
(RR-11) August 2002**

*Endorsed by AAP  
and by ACOG  
in 2002*

**CSS, Belgium July 2003**

 Conseil Supérieur  
d'Hygiène

PRÉVENTION DES INFECTIONS PÉRINATALES  
À STREPTOCOQUES DU GROUPE B

.be

**How could you  
know if my mom  
is GBS-colonized?**





# Prenatal GBS culture Screening

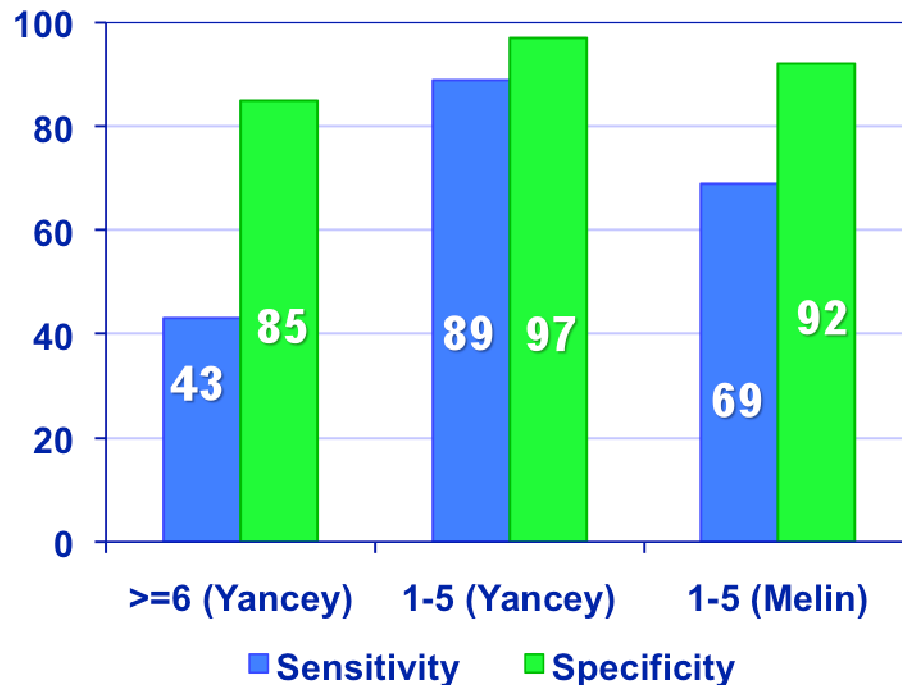
- **Critical factors influencing accuracy**
  - **Timing of sampling**
  - **Swabbed anatomic sites**
  - **Screening methods**
    - **Culture media**

# Determination of GBS colonized status at time of delivery

- **Culture at time of delivery**
  - Results after 18 – 48 hours
  - Not useful
- **Prenatal cultures at 26-28 weeks gestation**
  - As in the first guidelines (AAP) in the 1990s
- **Prenatal cultures late in pregnancy**
  - More or less reliable and accurate
    - Critical factors
  - Not standard procedure for vaginal culture
    - To specify on analysis request form

# Optimal time for screening 35-37 weeks gestation

Culture-based screening done 1 to 5 or  $\geq 6$  weeks before delivery (*Yancey, 860 cases; Melin, 531 cases*)

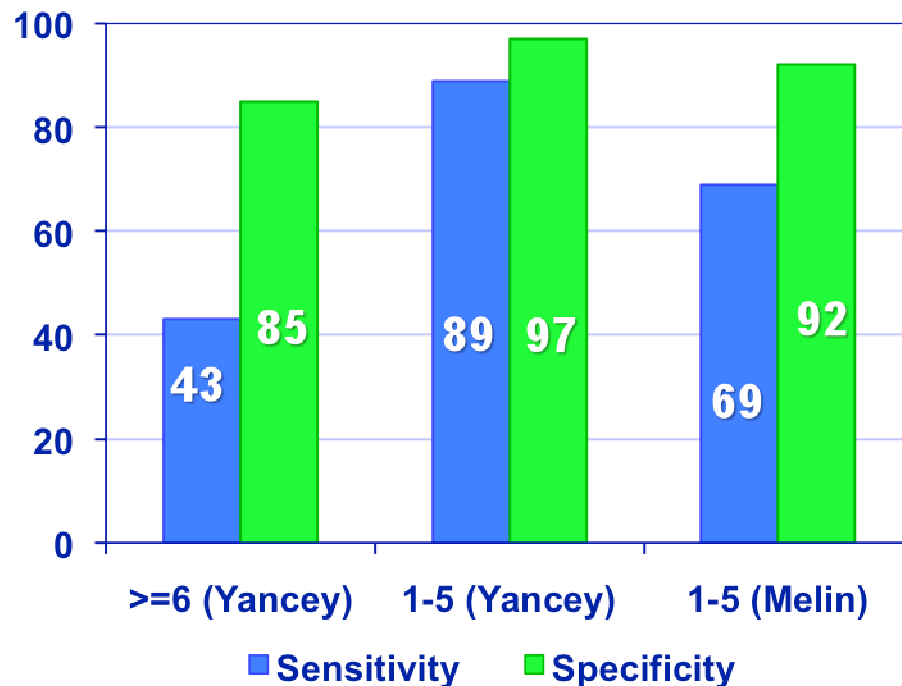


*Yancey MK et al. Obstet Gynecol 1996;88:811-5*

*Melin et al. ICAAC 2000* 11

# Optimal time for screening 35-37 weeks gestation

Culture-based screening done 1 to 5 or  $\geq 6$  weeks before delivery (Yancey, 860 cases; Melin, 531 cases)



**Melin, 13-16% GBS Pos**

**PPV= 56%**

**NPV= 95%**

**or 5% False negative**

**or 30% of GBS pos in labor not detected with prenatal screening !**

*Yancey MK et al. Obstet Gynecol 1996;88:811-5*

*Melin et al. ICAAC 2000*

# Choice of the anatomic sites

## Vagina + rectum

**Vagina & rectum > vagina or rectum > cervix**

*Badri et al., J Infect Dis 1977;135:308-12*

- **Rectum (swab inserted through anal sphincter)**
  - = reservoir, source of vaginal colonization
- **Rectum GBS positive and vagina negative**
  - 15 to 20% of GBS positive pregnant women
- **Lower vaginal area**
  - To exclude use of speculum for collection

# Crucial conditions to optimize SCREENING

- ❖ **WHEN** 35-37 weeks
- ❖ **WHO** ALL the pregnant women
- ❖ **Specimen** Vaginal + rectal swab(s)
- ❖ **Collection** WITHOUT speculum
- ❖ **Transport** Transport/collection device  
(non nutritive medium: Amies/Stuart)
- ❖ **Request form** To specify prenatal « **GBS** »  
screening + *expected address  
for delivery*

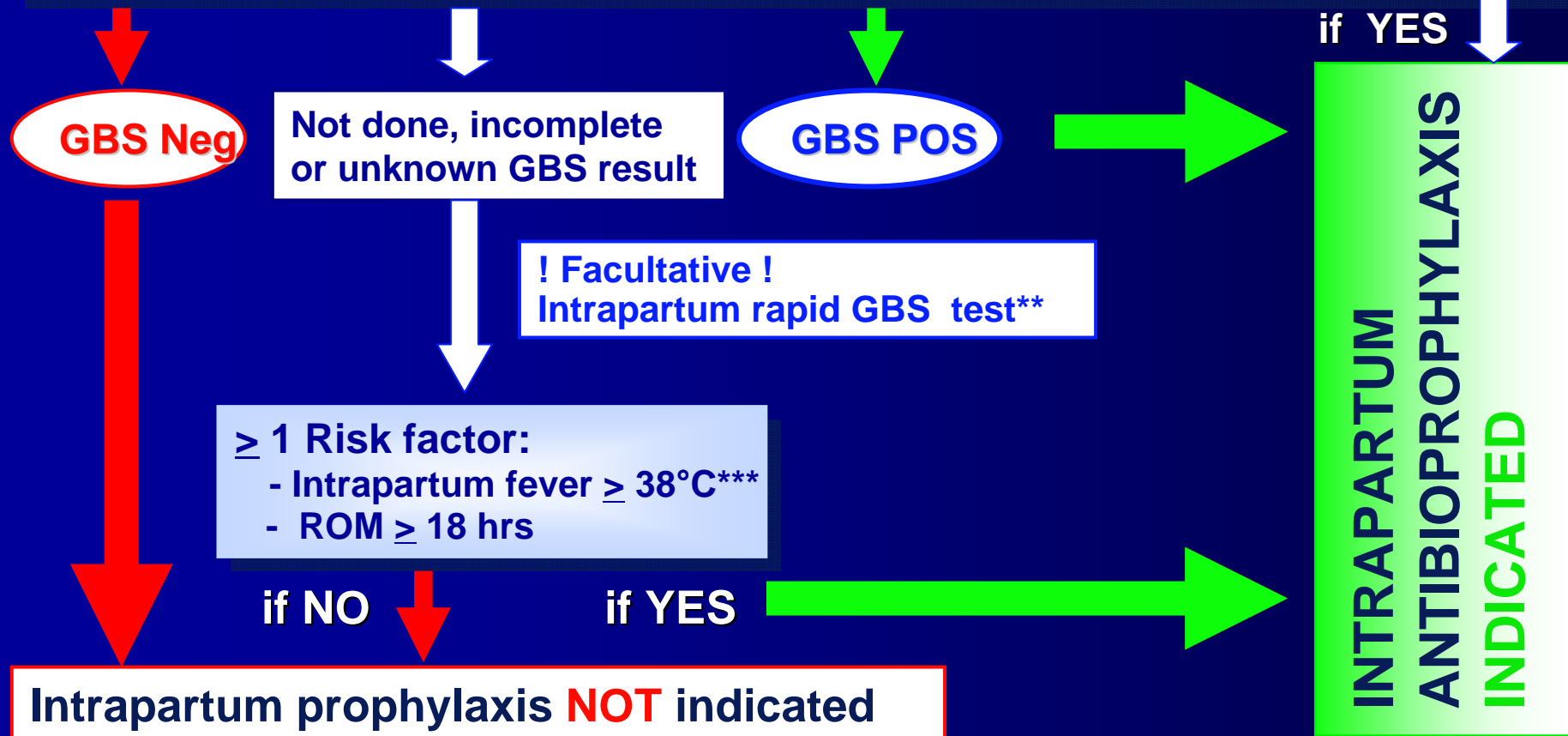
*(CDC 2002 - Belgian SHC 2003 - Spanish guidelines)*

# Screening-based strategy for prevention of GBS perinatal disease *(Belgian SCH, 2003)*

Recto-vaginal GBS screening culture at 35-37 weeks of gestation

For ALL pregnant women

*Unless patient had a previous infant with GBS invasive disease or GBS bacteriuria during current pregnancy or delivery occurs < 37 weeks' gestation \**



# Intrapartum antimicrobial prophylaxis-IAP

## Universal prenatal screening at 35-37 weeks gestation

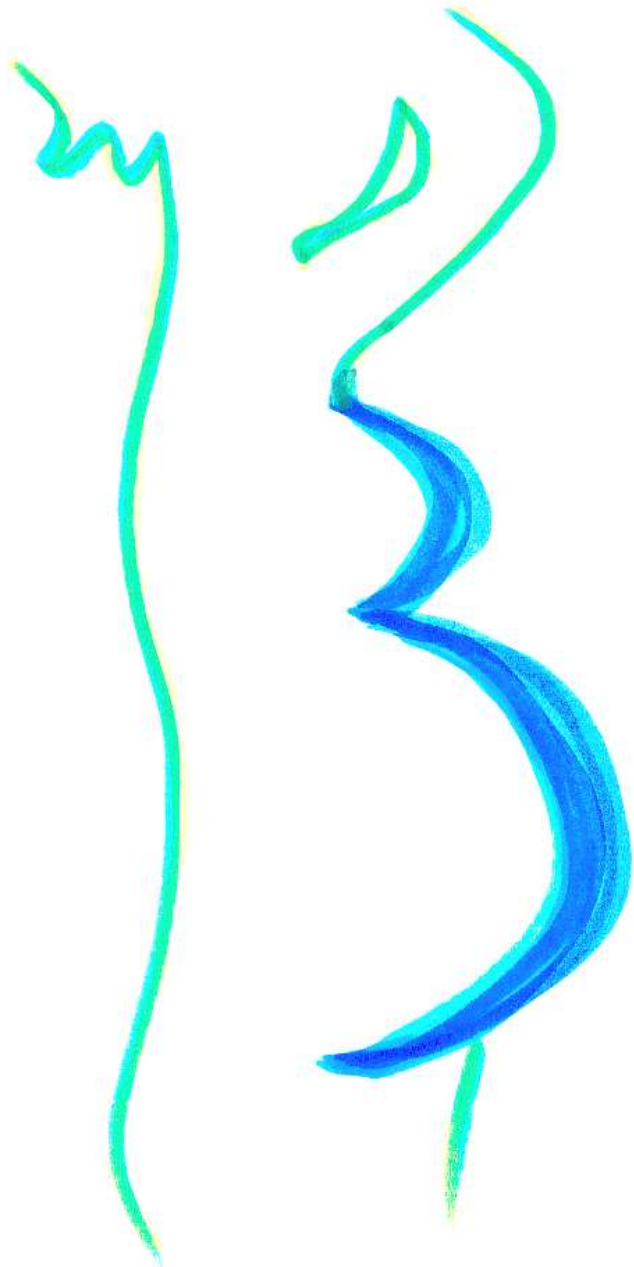
*Risk-based approach reserved for women with unknown GBS status at time of labor.*







**Adhesion to a common protocol is a key of success**  
**Multidisciplinary collaboration is mandatory**



## **Culture-based GBS prenatal screening To optimize critical factors**

- **Specimen collection**
  - 35-37 weeks gestation
  - Vagina + rectal swab(s)
- Specimen transport and storage
- Specimen processing