Neonatal Health: The Impact of Group B Streptococcus Screening, NAAT-based Detection, and Prophylactic Interventions

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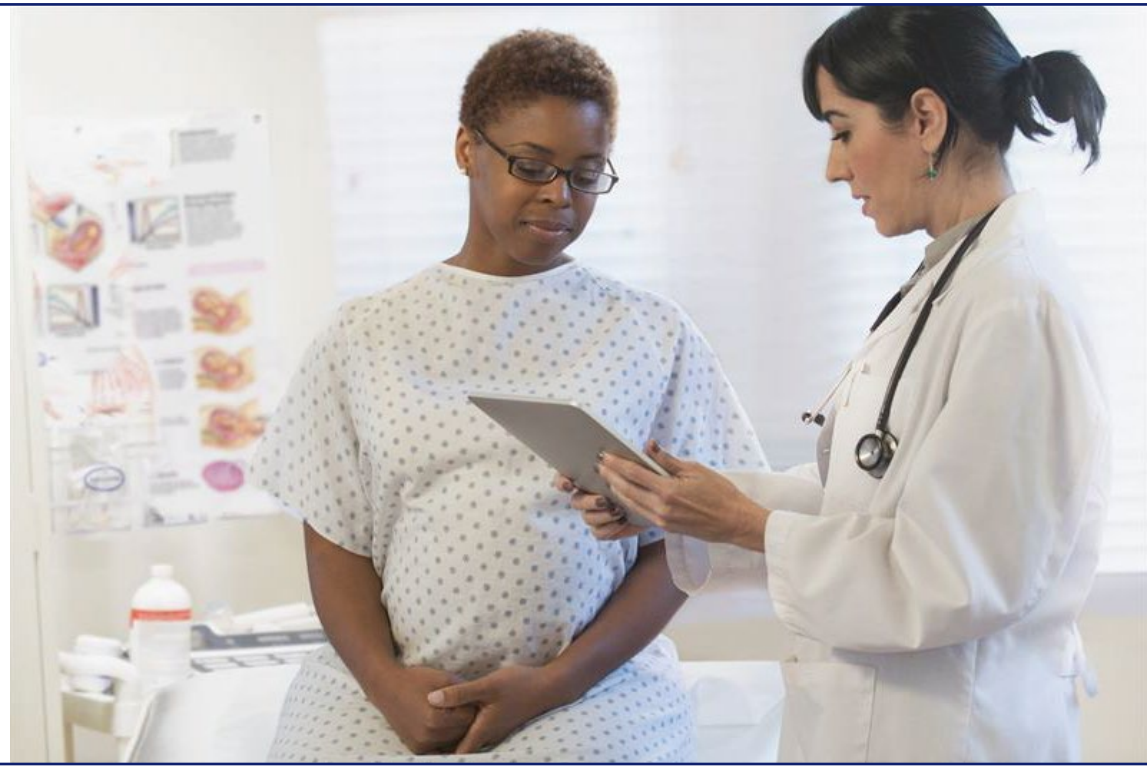
Medical Science Liaison

Medical Education

Program Objectives

- **Review of Group B strep (GBS)**
  - Causes
  - Risks
  - Symptoms
- **Guidelines**
  - ASM
  - ACOG
- **Diagnostic Testing Methods**
  - Culture
  - Nucleic Acid Amplification Testing (NAAT)
- **Screening Success Examples**



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Prevention of group B streptococcal early-onset disease in newborns. ACOG Committee Opinion No. 797. American College of Obstetricians and Gynecologists. Obstet Gynecol 2020; 135:e51-72

GBS Overview

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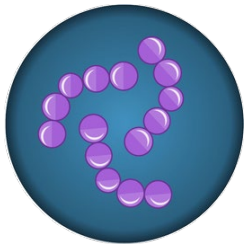
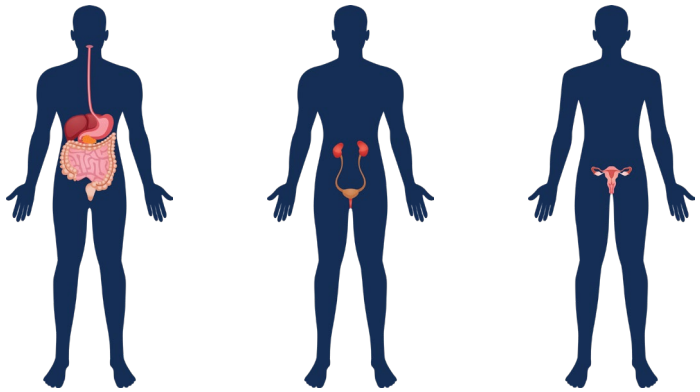
Group B *Streptococcus* (GBS), *Streptococcus agalactiae*

Gram-positive cocci[1]



Unknown exposure route

Commensal – GI and Urogenital Tracts[2]



Digestive System

Urinary System

Female Reproductive System

Opportunistic Infection

Skin and Soft Tissue[2]

Bone and Joint[2]

Pneumonia[2]

Bacteremia[2]

Meningitis[2]

1. Verani JR et al. Prevention of perinatal group B streptococcal disease--revised guidelines from CDC, 2010. MMWR Recomm Rep. 2010 Nov 19;59(RR-10):1-36. 2. CDC. About Group B Strep Disease. Published January 3, 2024. Accessed February 4th, 2026. https://www.cdc.gov/group-b-strep/about/index.html.

GBS During Pregnancy

Prevalence of GBS

- GBS can asymptomatically colonize genitourinary and gastrointestinal tracts in 10-30% of pregnant women[1]
- Prevalence in women can vary by race and geographic location[1]

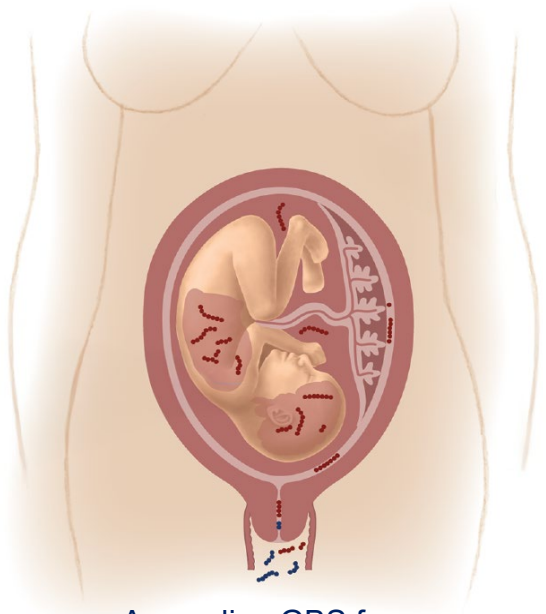
Approximately 50% of women colonized with GBS will transmit the bacteria to their newborns[1]

Routes of transmission[2-4]

- Vertical
  - Ascending, during pregnancy
  - Ascending, during labor
  - Inoculation in the birth canal
- Horizontal
  - From mother, hospital/community environment

1. Prevention of group B streptococcal early-onset disease in newborns. ACOG Committee Opinion No. 797. American College of Obstetricians and Gynecologists. Obstet Gynecol 2020; 135:e51-72. 2. Verani JR et al. Prevention of perinatal group B streptococcal disease--revised guidelines from CDC, 2010. MMWR Recomm Rep. 2010 Nov 19;59(RR-10):1-36. 3. Berardi et al. Group B Streptococcus Late-Onset Disease: 2003–2010. Pediatrics February 2013; 131 (2): e361–e368. 10.1542/peds.2012-1231. 4. Delara M et al. Strategies to Prevent Early and Late-Onset Group B Streptococcal Infection via Interventions in Pregnancy. Pathogens. 2023 Feb 1;12(2):229.

GBS During Pregnancy



Ascending GBS from lower genital tract

Pregnancy-related infections and complications include[1-2]:

Bloodstream infections (including sepsis)	Endometritis
Intraamniotic infection	Preterm delivery
Urinary tract infection	Stillbirth

Image adapted from: Brokaw A, Furuta A, Dacanay M, Rajagopal L and Adams Waldorf KM (2021) Bacterial and Host Determinants of Group B Streptococcal Vaginal Colonization and Ascending Infection in Pregnancy. Front. Cell. Infect. Microbiol. 11:720789.

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GBS in Newborns

Symptoms:[1]

- Fever
- Difficulty feeding
- Urinary tract infection
- Irritability or lethargy (limpness or hard to wake up the baby)
- Difficulty breathing
- Blue-ish color to skin

Medical Education

1. CDC. Symptoms of Group B Strep Disease. Published May 1st, 2025. Accessed February 4th, 2026. . https://www.cdc.gov/group-b-strep/symptoms/index.html

GBS in Newborns

Early Onset Disease (EOD):[1]

- Vertical transmission during labor/birth
- Presents < 7 days old

Late Onset Disease (LOD):[1]

- Horizontal transmission (mother)
- Environment
- Presents 7-89 days old

EOD and LOD

- Both EOD and LOD can manifest as bacteremia, sepsis, pneumonia, and meningitis[2]

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1. Prevention of group B streptococcal early-onset disease in newborns. ACOG Committee Opinion No. 797. American College of Obstetricians and Gynecologists. Obstet Gynecol 2020; 135:e51-72. 2. . CDC. Clinical Overview of Group B Strep Disease. Published January 3, 2024. Accessed December 17, 2024. https://www.cdc.gov/group-b-strep/hcp/clinical-overview/index.html

Risk Factors for EOD

Primary Risk Factor: Maternal GBS colonization of the genitourinary or GI tract in current pregnancy.[1]

Women with a history of GBS colonization in a prior pregnancy have a high risk of being recolonized in subsequent pregnancies (50.2%).[1]

Other Risk Factors Include:[1]

Maternal Risk Factors	**Intrapartum** Risk Factors	**Neonatal** Risk Factors
• Young maternal age • Maternal black race • Previous child affected by EOD • GBS bacteriuria in pregnancy	• Intraamniotic infection • Intrapartum fever • Preterm prelabor rupture of membranes (PPROM) • Prolonged rupture of membranes	• Gestational age <37 weeks • Very low birth weight

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Consequences of GBS Disease in Neonates

4-6%

of newborns who develop GBS disease die[1]

Potential long term adverse health outcomes include:

vision loss[2], hearing loss[1], developmental disabilities[1], cerebral palsy[2]

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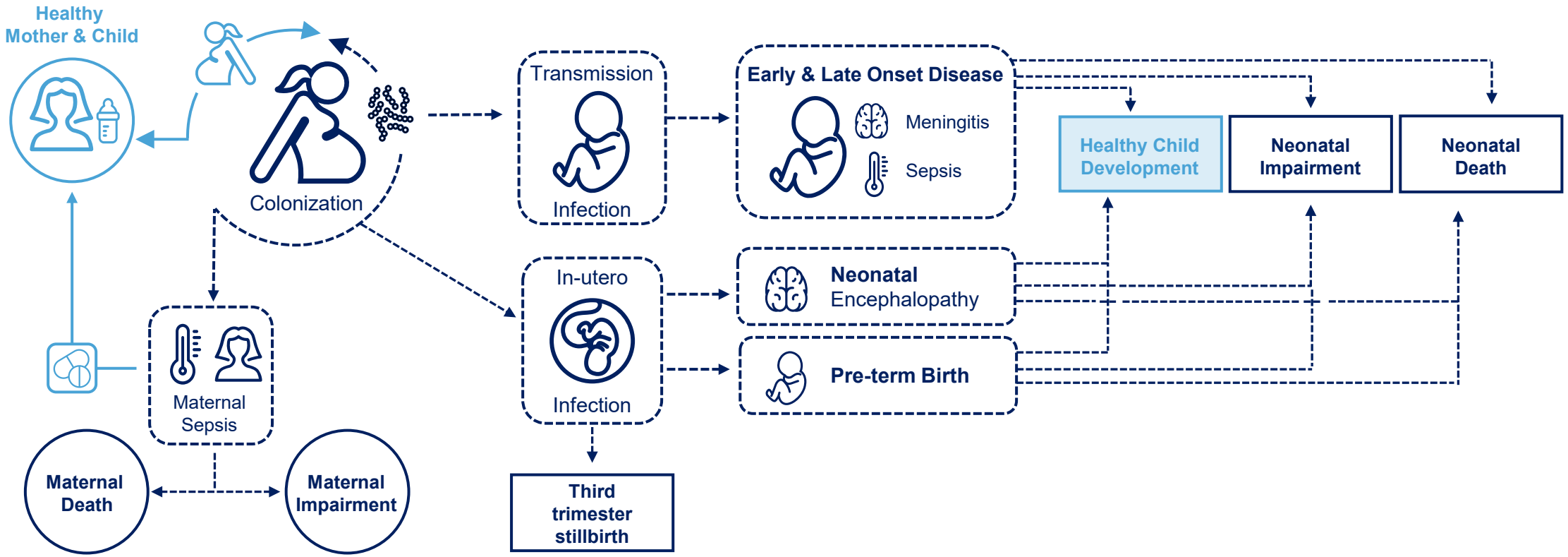
1. CDC. Symptoms of Group B Strep Disease. Published January 3, 2024. Accessed January 7, 2025. https://www.cdc.gov/group-b-strep/symptoms/index.html 2. CDC. Symptoms of Group B Strep Disease. Published May 1st, 2025. Accessed February 4th, 2026. . https://www.cdc.gov/group-b-strep/symptoms/index.html.

Outcomes of Perinatal GBS Infection



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Adapted from Paul et al. 20 million pregnant women with group B streptococcus carriage: consequences, challenges, and opportunities for prevention. Curr Opin Pediatr . 2023 Feb 16;35(2):223–230.

GBS Intervention

Intrapartum Antibiotic Prophylaxis (IAP)

What is IAP?	Clinical Utility
The administration of intravenous antibiotics to a pregnant woman during labor to prevent the transmission of GBS to her newborn, thereby reducing the risk of EOD[1]	An effective intervention to prevent EOD in neonates[1] Effective strategies to prevent LOD have not yet been identified[2]

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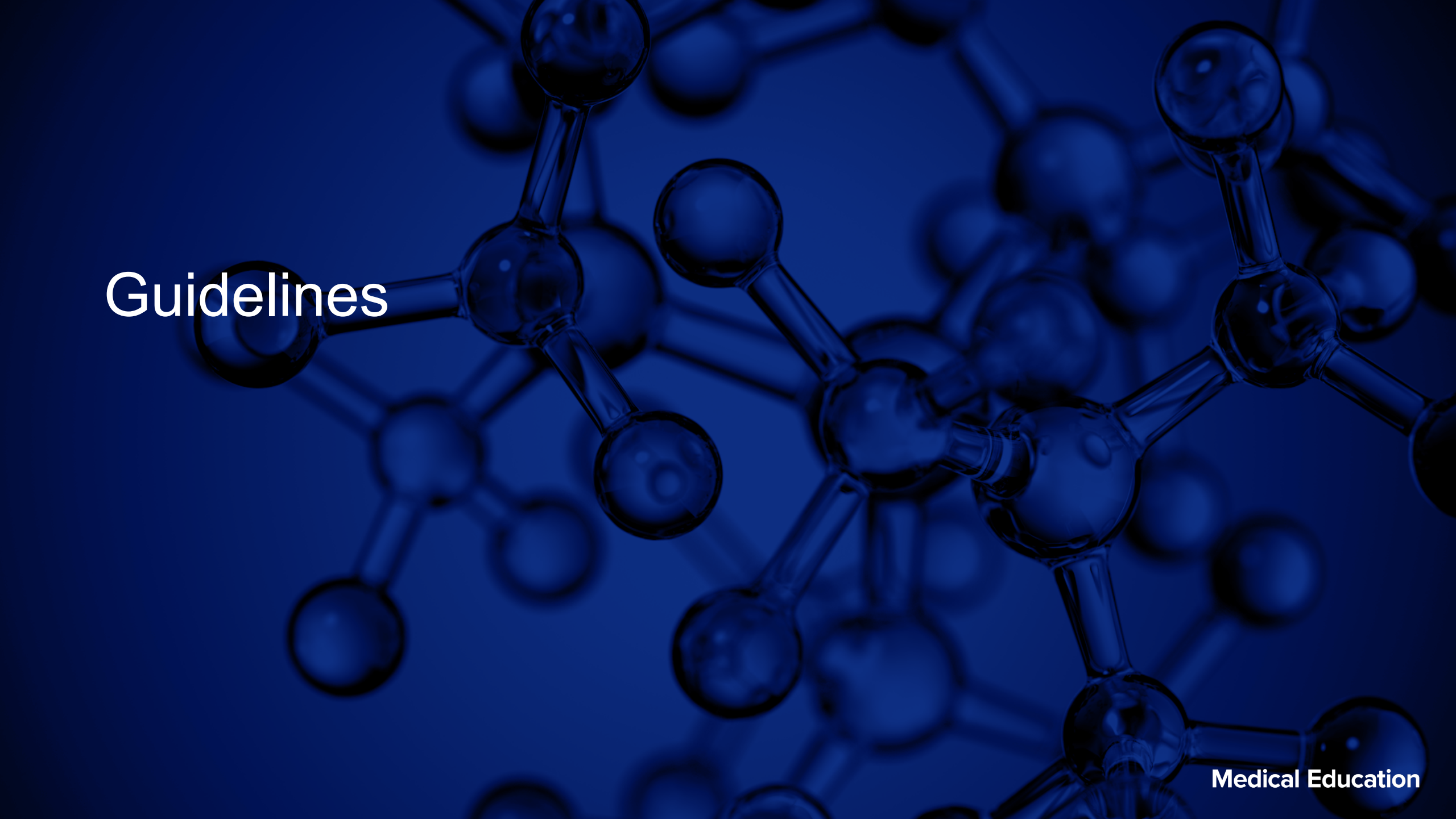
Guidelines



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Collaboration for Prevention

Since 1996

The CDC has published recommendations for GBS screening in collaboration with several professional societies since 1996.[1]

Today

CLINICAL GUIDELINES
responsible for **guidelines for prophylaxis, treatment** of GBS infection in pregnant women and newborns

LABORATORY GUIDELINES
responsible for **guidelines for standard laboratory practices** related to detection and identification of GBS

Medical Education

1. Filkins L, Hauser J, Robinson-Dunn B, Tibbetts R, Boyanton B, Revell P. Published 10 March 2020. Updated 23 July 2021. Guidelines for the Detection and Identification of Group B Streptococcus. American Society for Microbiology. https://asm.org/Guideline/Guidelines-for-the-Detection-and-Identification-of.

ACOG Prophylaxis and Treatment Guidelines

“Prevention of Group B Streptococcal Early-Onset Disease in Newborns”

ACOG Committee Opinion

February 2020

Medical Education

Prevention of group B streptococcal early-onset disease in newborns. ACOG Committee Opinion No. 797. American College of Obstetricians and Gynecologists. Obstet Gynecol 2020; 135:e51-72

ACOG Guidelines for EOD Prevention

"Key components of screening and prophylaxis for Group B streptococcal (GBS) early-onset neonatal disease include:

Targeted intravenous intrapartum antibiotic prophylaxis (IAP) has demonstrated efficacy for prevention of GBS early-onset disease (EOD) in neonates born to women with positive antepartum GBS cultures and women who have other risk factors for intrapartum GBS colonization. …"

Medical Education

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ACOG Guidelines for EOD Prevention

IAP INDICATED*

Maternal History

- Previous neonate with invasive GBS disease

Current Pregnancy

- Positive Maternal Screening Test: GBS+ by culture/ NAAT at ≥ 36 0/7 weeks
- GBS bacteriuria in any trimester

Intrapartum

Unknown GBS status at onset of labor (GBS maternal screening not done or result not known) –AND– any of the following:

- Gestational age < 37 0/7 weeks
- Amniotic membrane rupture ≥ 18 hrs
- Maternal Fever: ≥ 100.4°F (≥ 38.0°C)**
- Intrapartum GBS NAAT result: positive
- Intrapartum GBS NAAT result: negative, but risk factors listed above develop
- Known GBS positive status in previous pregnancy

*Unless a cesarean birth performed before labor onset with intact amniotic membranes
**If intraamniotic infection is suspected, broad-spectrum antibiotic therapy that includes an agent known to be active against GBS should replace GBS prophylaxis

Medical Education

Prevention of group B streptococcal early-onset disease in newborns. ACOG Committee Opinion No. 797. American College of Obstetricians and Gynecologists. Obstet Gynecol 2020; 135:e51-72.

ACOG Guidelines for EOD Prevention

IAP NOT INDICATED

Maternal History

- GBS colonization during a previous pregnancy

Current Pregnancy

- Negative GBS status at ≥ 36 0/7 weeks*
- Cesarean birth performed before labor onset with intact amniotic membranes, regardless of maternal GBS colonization status or gestational age

Intrapartum

- Negative GBS status at ≥ 36 0/7 weeks, regardless of intrapartum risk factors
- Unknown GBS status at onset of labor, NAAT result negative and no intrapartum risk factors present, including:
  - Gestational age < 37 0/7 weeks
  - Amniotic membrane rupture ≥ 18 hrs
  - Maternal Fever: ≥ 100.4°F (≥ 38.0°C)

*Assuming last GBS testing was performed <5 weeks prior

Medical Education

Prevention of group B streptococcal early-onset disease in newborns. ACOG Committee Opinion No. 797. American College of Obstetricians and Gynecologists. Obstet Gynecol 2020; 135:e51-72.

ACOG Guidelines for EOD Prevention

Other specific scenarios covered in the ACOG Guidelines include:

- Management of preterm labor
- GBS bacteriuria management
- Management of PPROM
- Planned cesarean birth

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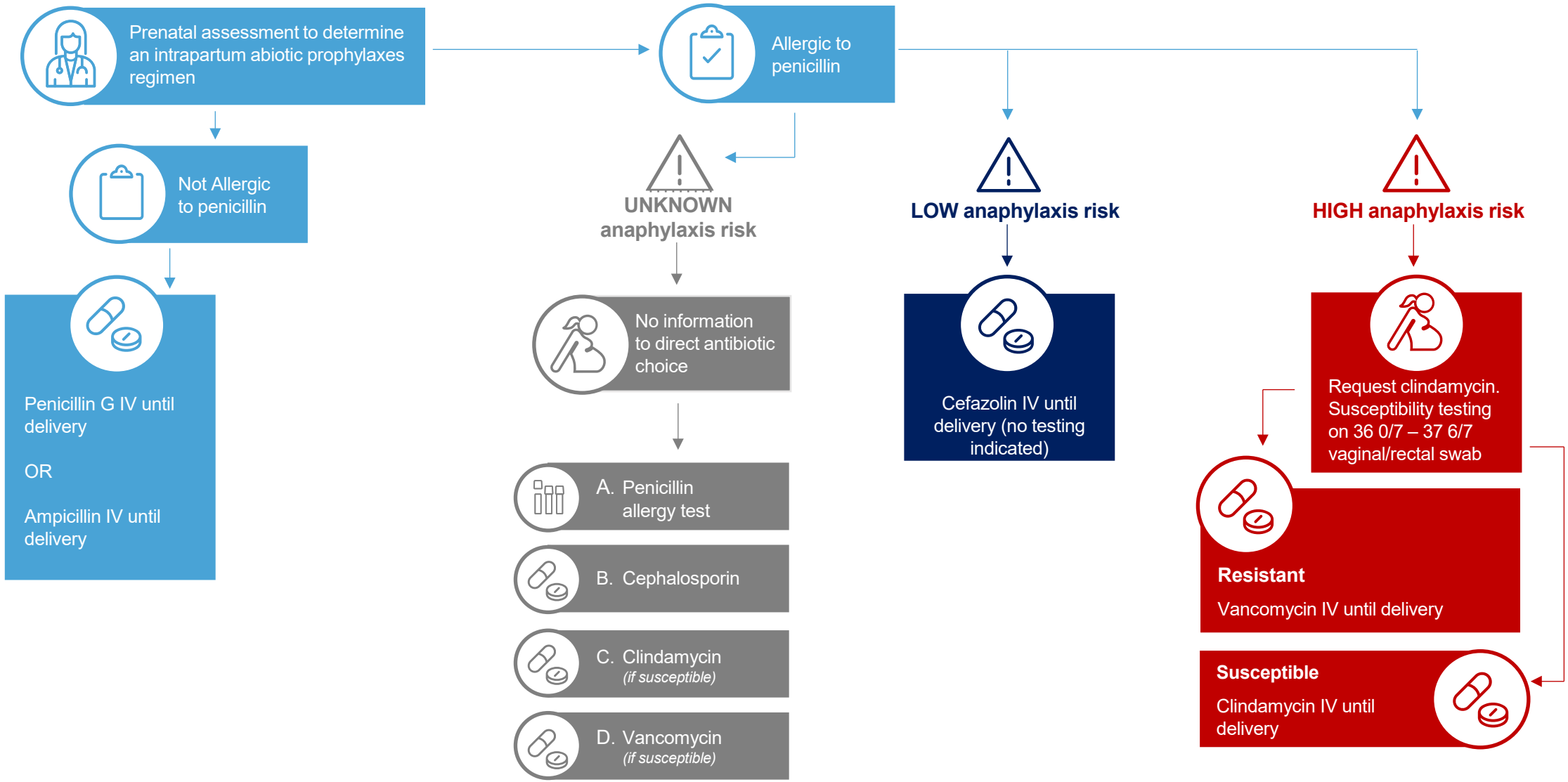
Recommended IAP Regimens



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Penicillin Allergy and Anaphylaxis Risk

Risk	Definition
Low Risk	• Nonspecific symptoms unlikely to be allergic (gastrointestinal distress, headaches, yeast vaginitis)
	• Nonurticarial maculopapular (morbilliform) rash without systemic symptoms*
	• Pruritis without rash
	• Family history of penicillin allergy but no personal history
	• Patient reports history but has no recollection of symptoms or treatment
High Risk 	• High risk for anaphylaxis: A history suggestive of an IgE-mediated event†: pruritic rash, urticaria (hives), immediate flushing, hypotension, angioedema, respiratory distress or anaphylaxis‡
	• Recurrent reactions, reactions to multiple beta-lactam antibiotics, or positive penicillin allergy test
	• High risk for severe non IgE-mediated reaction: Severe rare delayed-onset cutaneous or systemic reactions, such as eosinophilia and systemic symptoms/drug-induced hypersensitivity syndrome, Stevens-Johnson syndrome, or toxic epidermal necrolysis§

Medical Education

Prevention of group B streptococcal early-onset disease in newborns. ACOG Committee Opinion No. 797. American College of Obstetricians and Gynecologists. Obstet Gynecol 2020; 135:e51-72.

ASM Laboratory Guidelines

“Guidelines for the Detection and Identification of Group B *Streptococcus*”

Laura Filkins, PhD, D(ABMM), et al.

Initial Release: March 10, 2020

Updated: July 23, 2021

Medical Education

Filkins L, Hauser J, Robinson-Dunn B, Tibbetts R, Boyanton B, Revell P. Published 10 March 2020. Updated 23 July 2021. Guidelines for the Detection and Identification of Group B Streptococcus. American Society for Microbiology. https://asm.org/Guideline/Guidelines-for-the-Detection-and-Identification-of.

ASM Guidelines for GBS Screening

Sections of Guidelines

Collection, storage, and transport

Maximize GBS recovery

1. Single swab, **dual site** sampling **vagina followed by rectum**
2. **Flocked swab** (vs fiber wrapped)
3. Transport in **non-nutritive liquid media**
4. Transport samples to lab **within 24 hrs**

Detection

Maximize GBS detection

1. Incubate in **selective enrichment** broth prior to plating or NAAT
2. Include both **hemolytic and non-hemolytic strains** in detection
3. **Report GBS in urine** at any quantity, any trimester

Identification

1. **NAAT-based identification** from enrichment broth is an acceptable identification method (reflex AST only as needed*)
2. Phenotypic and proteomic ID methods = CAMP test, latex agglutination, mass spectrometry
3. Latex agglutination direct from enrichment or direct-from-specimen are not acceptable

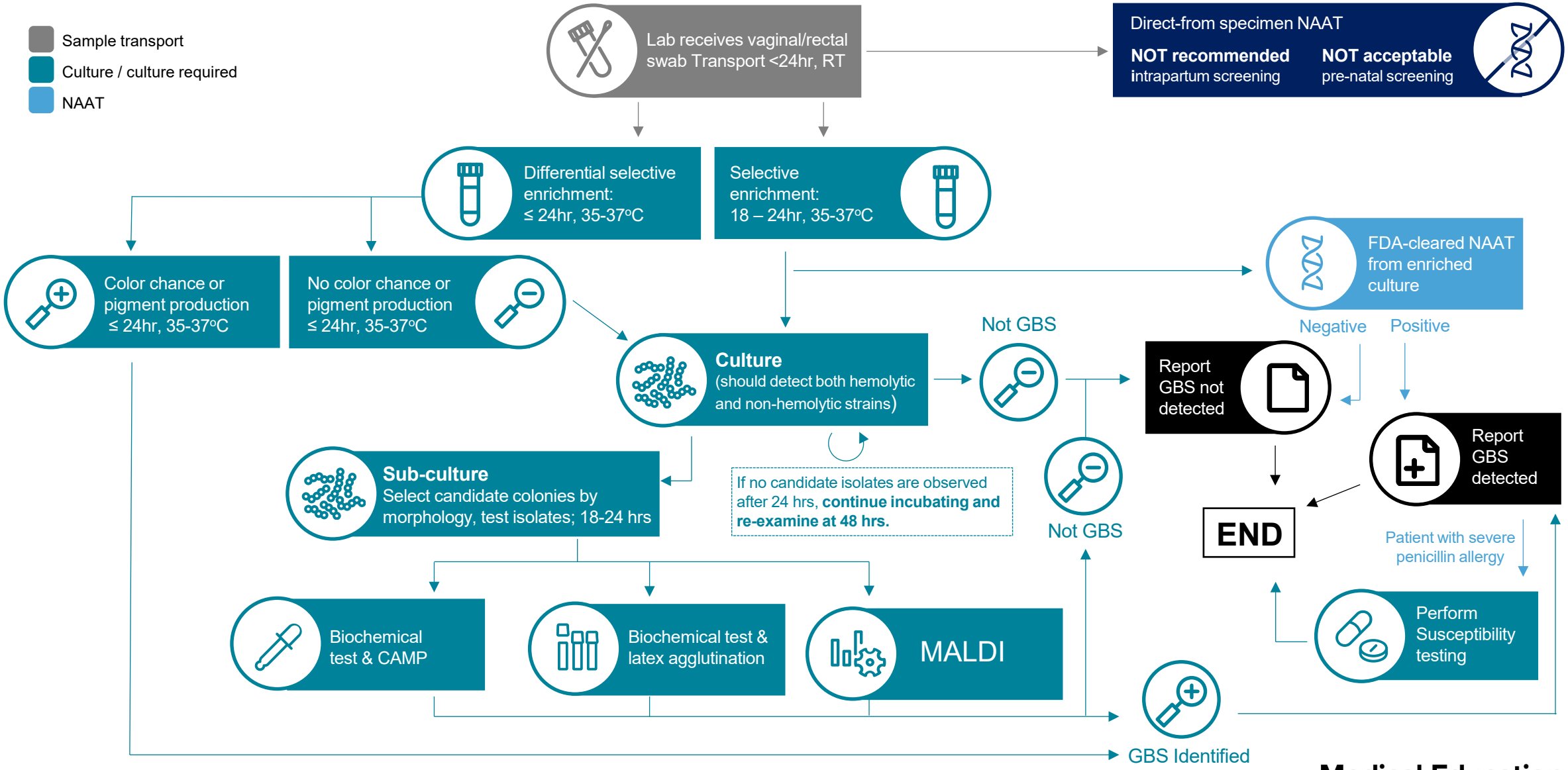
AST

1. *Perform antimicrobial susceptibility testing (AST) on all GBS isolates from pregnant women with severe **penicillin allergy**
2. Clindamycin is the preferred antibiotic for women with severe penicillin allergy, but rates of resistance are rising, and **susceptibility should be confirmed to guide IAP**

Medical Education

Filkins L, Hauser J, Robinson-Dunn B, Tibbetts R, Boyanton B, Revell P. Published 10 March 2020. Updated 23 July 2021. Guidelines for the Detection and Identification of Group B Streptococcus. American Society for Microbiology. https://asm.org/Guideline/Guidelines-for-the-Detection-and-Identification-of.

ASM Workflow for GBS Screening



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Diagnostic Testing Methods

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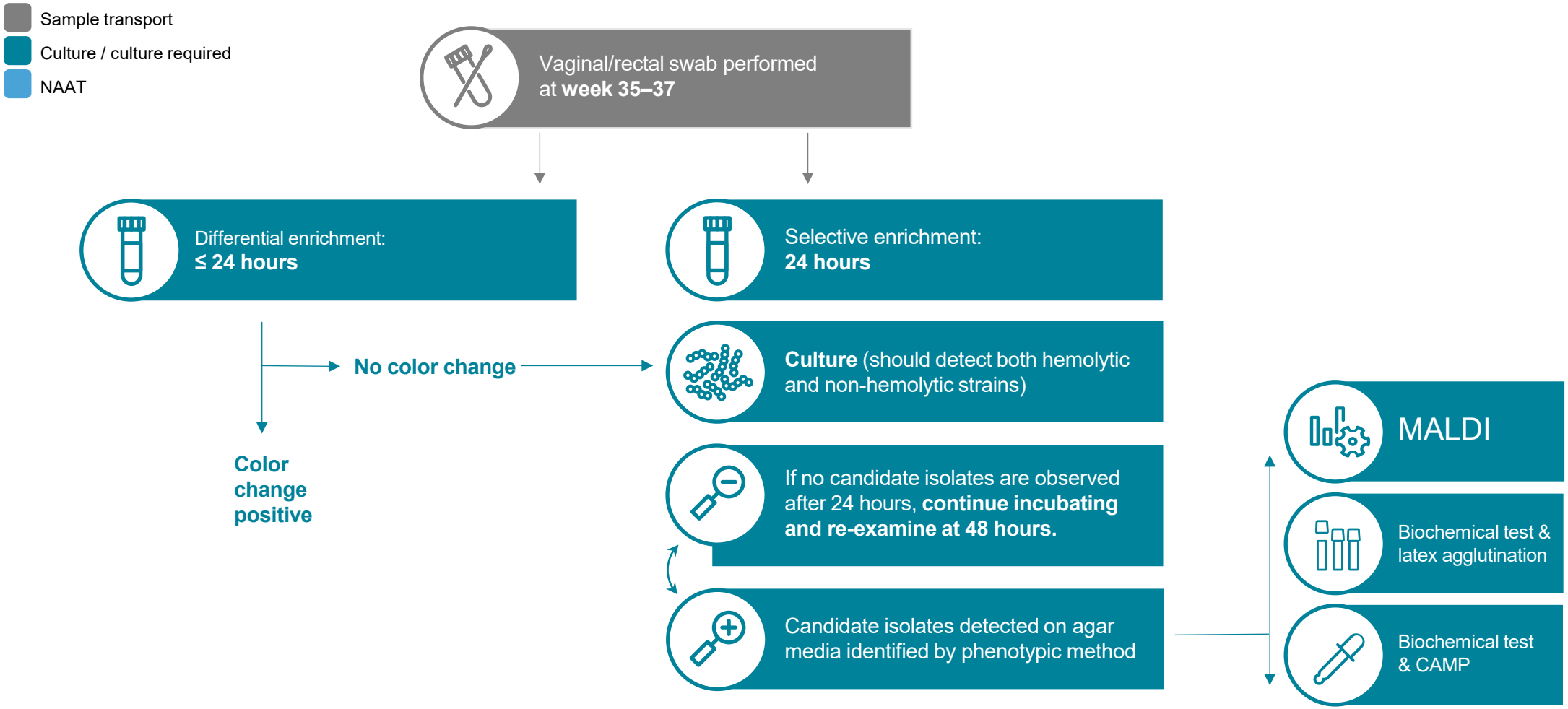
Traditional Culture Workflow



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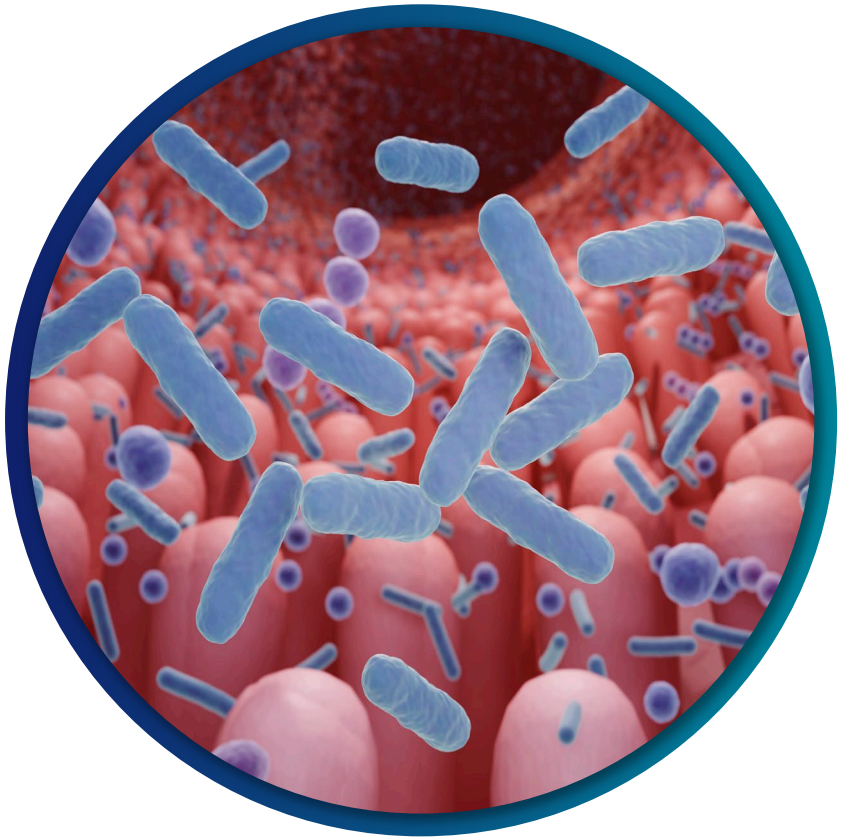
Selective Enrichment

- **Selective broths inhibit the growth of enteric organisms and some Gram-positive bacteria**

- **Recommended selective enrichment broths include:**
  - Trans-Vag Broth (Todd-Hewitt broth with gentamicin and nalidixic acid)
  - Lim Broth (Todd-Hewitt broth with colistin and nalidixic acid)

- **Despite being selective, other microorganisms commonly found in vaginal-rectal specimens may still grow[3]:**
  - *Enterococcus* faecalis
  - Other *Streptococcus* species
  - Some strains of *Staphylococcus* and *Corynebacterium*
  - Resistant Gram-negative rods
  - Yeasts

- **Recommended culture conditions in selective enrichment broth:**
  - When collected with Eswab, inoculate 1:10-1:20 volumetric ratio of specimen to enrichment broth medium[1]
  - Incubate for 18-24 hours at 35-37°C in ambient or 5% CO_2 conditions[1]

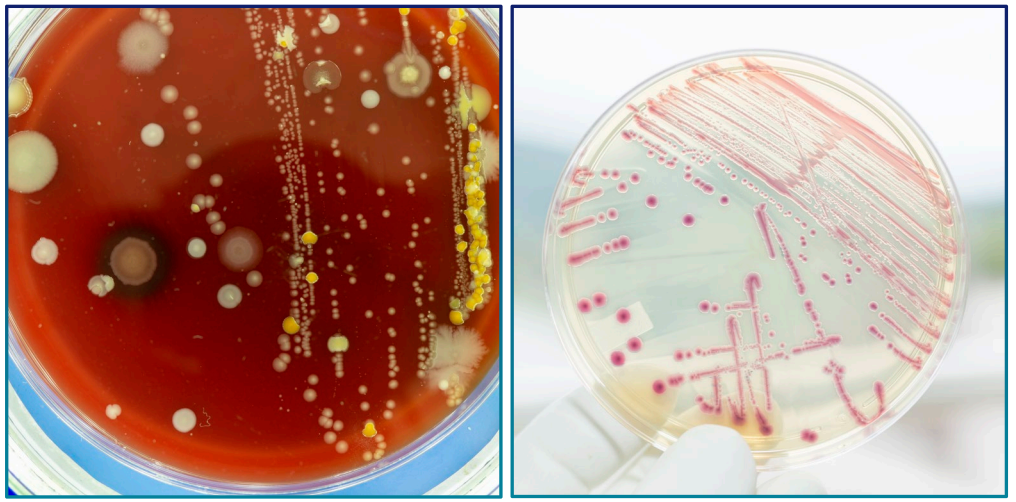


Incubation in broth media increases sensitivity of screening methods **two-fold** compared to direct plating[1,2]

1 Filkins L, Hauser J, Robinson-Dunn B, Tibbetts R, Boyanton B, Revell P. Published 10 March 2020. Updated 23 July 2021. Guidelines for the Detection andIdentification of Group B Streptococcus. American Society for Microbiology. https://asm.org/Guideline/Guidelines-for-the-Detection-and-Identification-of. 2 Philipson E, Palermino D, Robinson A. 1995. Enhanced Antenatal Detection of Group B Streptococcus Colonization. Obstet Gynecol 3 Choi Y, Han HS, Chong GO, Le TM, Nguyen HDT, Lee OE, Lee D, Seong WJ, Seo I, Cha HH. Updates on Group B Streptococcus Infection in the Field of Obstetrics and Gynecology. Microorganisms. 2022 Dec

Culture on Solid Media After Selective Enrichment

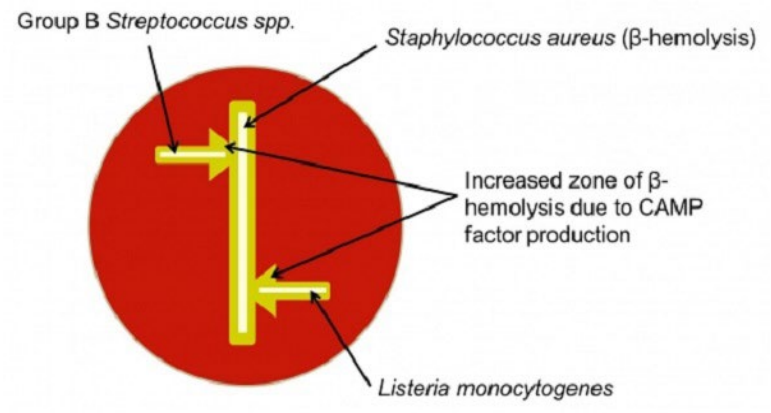
- **Acceptable agar media include[1]:**
  - Tryptic Soy Agar or Columbia Agar with 5% Sheep's blood (Non-selective)
  - Columbia Agar with colistin and nalidixic acid (CNA) (Selective)
  - Differential Chromogenic medias
- **Selective medias further reduce growth of other flora making isolation of GBS easier[1]**
- **Non-selective media may require higher number of candidate isolate screening[1]**
- **Chromogenic medias facilitate GBS detection[2]**
  - Many chromogenic medias fail to identify non-hemolytic strains
  - Susceptibility testing cannot be performed from chromogenic media



With normal flora present, it may be difficult to identify GBS without differential media[3]

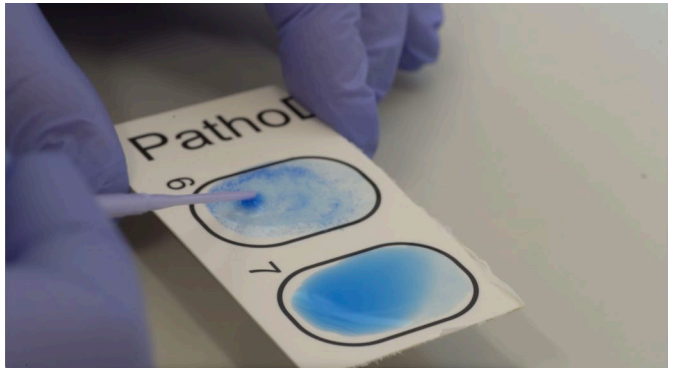
1 Filkins L, Hauser J, Robinson-Dunn B, Tibbetts R, Boyanton B, Revell P. Published 10 March 2020. Updated 23 July 2021. Guidelines for the Detection andIdentification of Group B Streptococcus. American Society for Microbiology. https://asm.org/Guideline/Guidelines-for-the-Detection-and-Identification-of. 2 Smith D, Perry JD, Laine L, Galloway A, Gould FK. 2008. Comparison of BD GeneOhm realtime polymerase chain reaction with chromogenic and conventional culture methods for detection of group B Streptococcus in clinical samples. Diagn Microbiol Infect Dis 3 Morita T, Feng D, Kamio Y, Kanno I, Somaya T, Imai K, Inoue M, Fujiwara M, Miyauchi A. Evaluation of chromID strepto B as a screening media for Streptococcus agalactiae. BMC Infect Dis. 2014

Phenotypic Identification Methods of GBS from Culture



Christie, Atkins, Munch-Peterson (CAMP) reaction:[1]

- Prior to MALDI-TOF was common identification method
- GBS isolates are CAMP positive and Catalase negative
- Increases time to results 18-24 hours[2]



Latex agglutination:[3]

- Detects groups of carbohydrate antigens known as Lancefield groups
- Performing PYR is recommended to distinguish from other *Streptococcus spp.*[2]

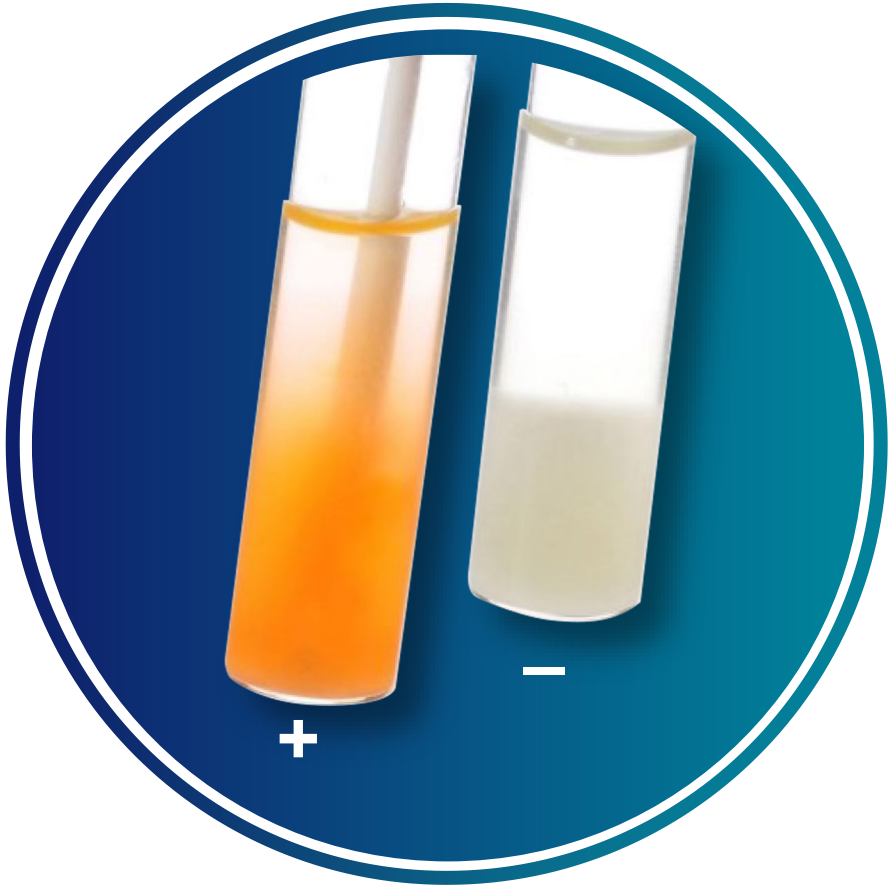
MALDI-TOF MS:[2]

- Most common method to identify GBS in culture

1 Christie K, Atkins N, Munch-Petersen E. 1944. A note on a lytic phenomenon shown by group B streptococci. Aust J Exp Biol Med Sci 22:197–200. 2 Filkins L, Hauser J, Robinson-Dunn B, Tibbetts R, Boyanton B, Revell P. Published 10 March 2020. Updated 23 July 2021. Guidelines for the Detection andIdentification of Group BStreptococcus.American Society for Microbiology. https://asm.org/Guideline/Guidelines-for-the-Detection-and-Identification-of. 3 Lancefield RC. 1933. A Serological Differentiation of Human and Other Groups of Hemolytic Streptococci. J Exp Med 57:571–595.

Differential Enrichment Medias

- **Types of broth enrichment medias:**
  - Granada liquid biphasic broths
  - Carrot Broth™ OneStep
- **Differential Enrichment medias change pigment to orange-red in presence of hemolytic GBS**
- **No pigment change is observed if GBS is not present OR non-hemolytic strain of GBS (5-6%)[1]**
- **Broth with no pigment change are subcultured to solid media after 24 hours of incubation to look for non-hemolytic strains**
- **Pigment change for positive results observed within 6-24 hours[2]**



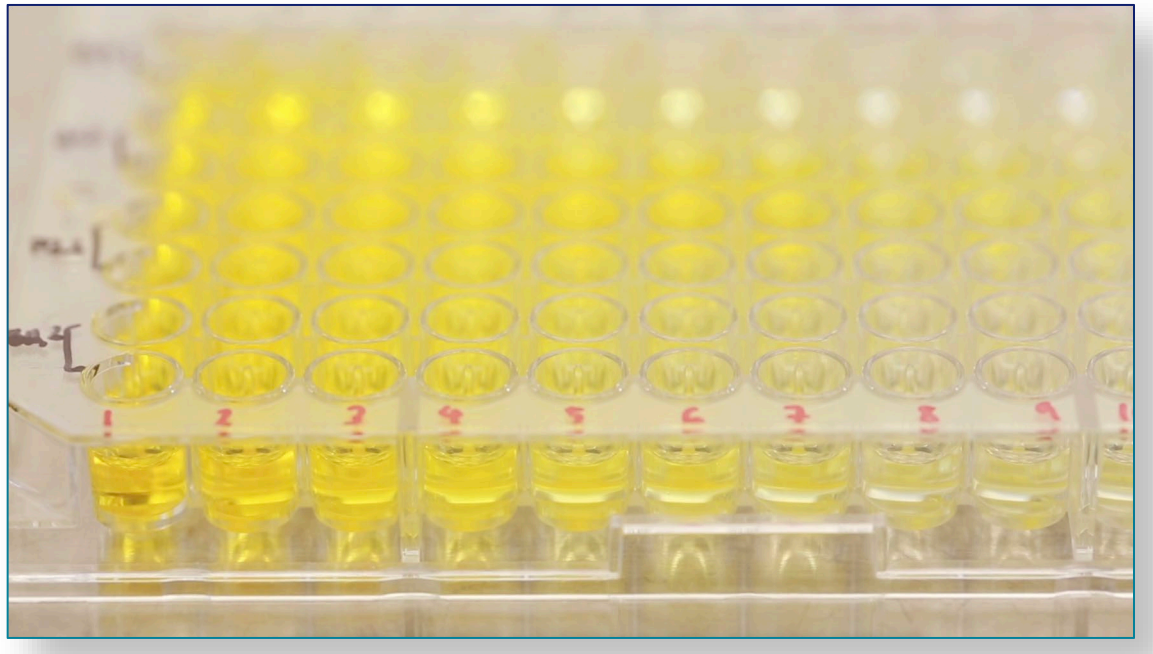
1 Nickmans S, Verhoye E, Boel A, Van Vaerenbergh K, De Beenhouwer H. 2012. Possible solution to the problem of nonhemolytic group B Streptococcus on Granada medium. J Clin Microbiol
2Filkins L, Hauser J, Robinson-Dunn B, Tibbetts R, Boyanton B, Revell P. Published 10 March 2020. Updated 23 July 2021. Guidelines for the Detection andIdentification of Group B Streptococcus.American Society for Microbiology. https://asm.org/Guideline/Guidelines-for-the-Detection-and-Identification-of.

GBS Susceptibility Testing Methods

Susceptibility testing is only performed for those with high risk of anaphylaxis

Disk Diffusion

Broth Microdilution



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Macrolide Induced Clindamycin Resistance

- In those with high risk of anaphylaxis, Erythromycin and Clindamycin should both be tested
- Erythromycin is NOT reported
- Isolates testing Erythromycin resistant and Clindamycin susceptible or intermediate should be tested for Macrolide Induced Clindamycin resistance

- Methods to test for Macrolide Induced Clindamycin resistance include:
  - D-Zone test
  - Broth microdilution
  - FDA-cleared automated AST methods

- Isolates positive for Macrolide Induced Clindamycin resistance should be reported as resistant

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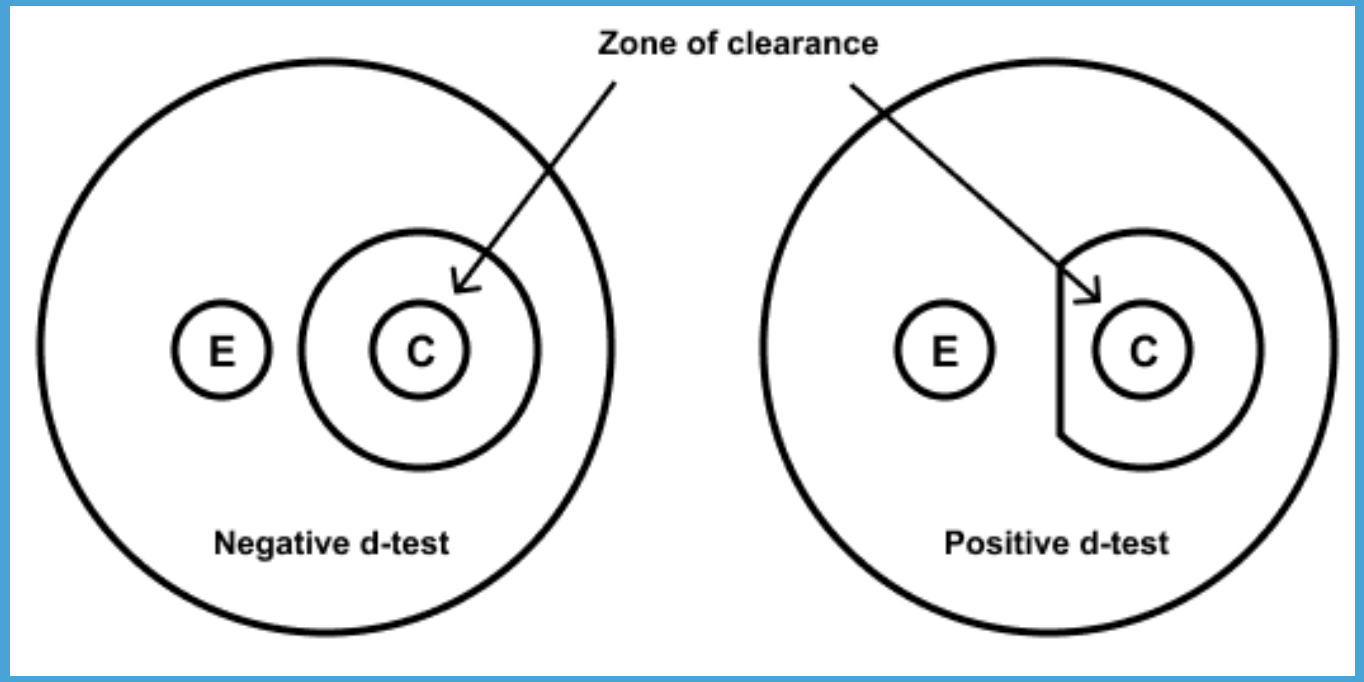
D-Zone test

E = Erythromycin
C= Clindamycin



Zone of bacterial killing maintained,
Negative D-Test:
No inducible resistance

Modified zone of bacterial killing
Positive D-Test:
Inducible resistance present

Medical Education

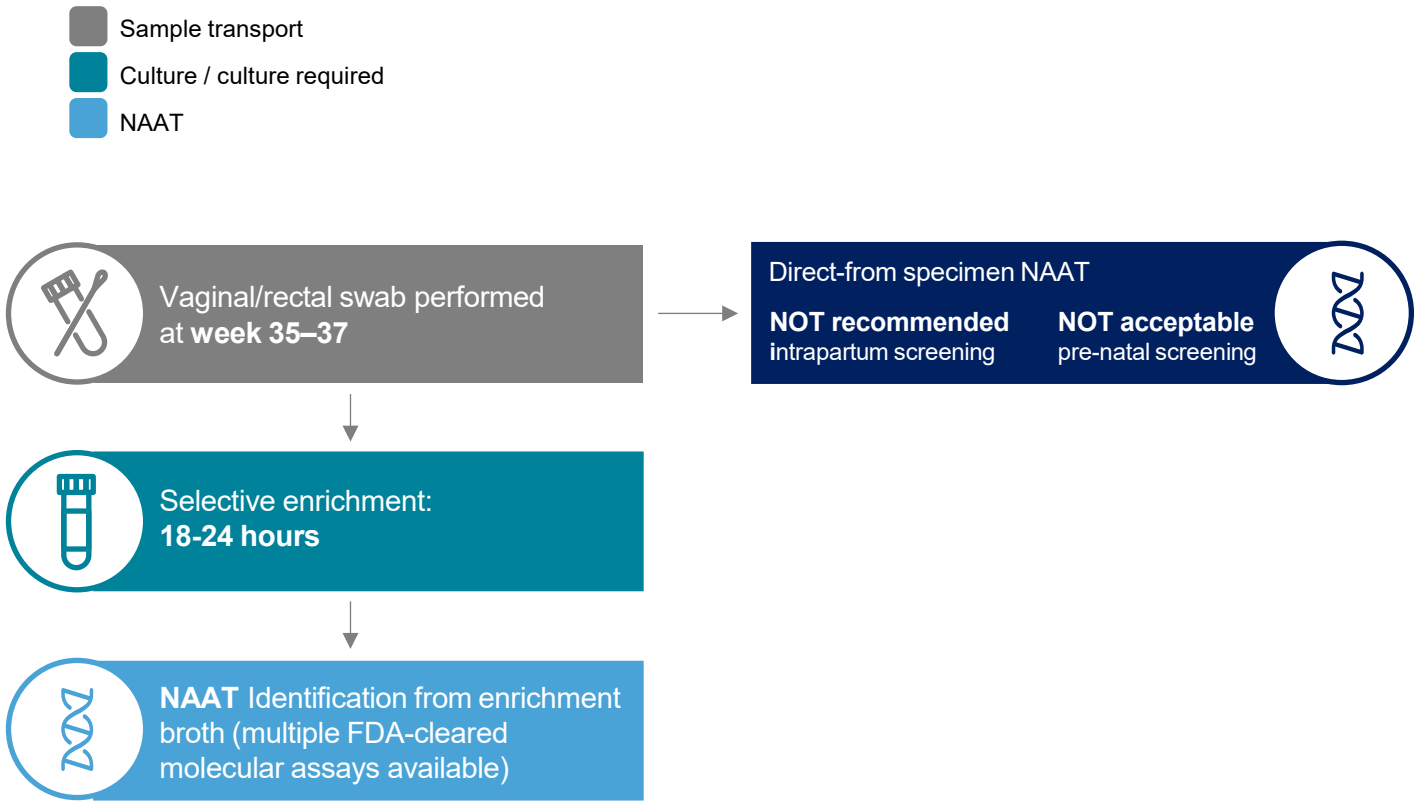
CLSI. Performance Standards for Antimicrobial Susceptibility Testing. 34th ed. CLSI supplement M100. Clinical and Laboratory Standards Institute; 2025.

Global Patterns of Antibiotic Resistance in GBS

Antibiotic	Susceptibility Rate (%)[1,2]
Penicillin	98.6 - 100
Vancomycin	98.7 - 100
Erythromycin	49.5 - 51.7
Clindamycin	62.8 - 72.1

1 Hsu CY, Moradkasani S, Suliman M, Uthirapathy S, Zwamel AH, Hjazi A, Vashishth R, Beig M. Global patterns of antibiotic resistance in group B Streptococcus: a systematic review and meta-analysis. Front Microbiol. 2025 2 Berg BR, Houseman JL, terSteeg ZE, LeBar WD, Newton DW. Antimicrobial susceptibilities of group B streptococcus isolates from prenatal screening samples. J Clin Microbiol. 2014

NAAT Workflow



"After consensus or discrepancy analysis, ***NAATs demonstrate improved detection of GBS*** *from enrichment broth culture of screening specimens.* ***Molecular assays typically require less than 5 minutes of hands-on-time*** *for a single sample and sample batching increases efficiency."*

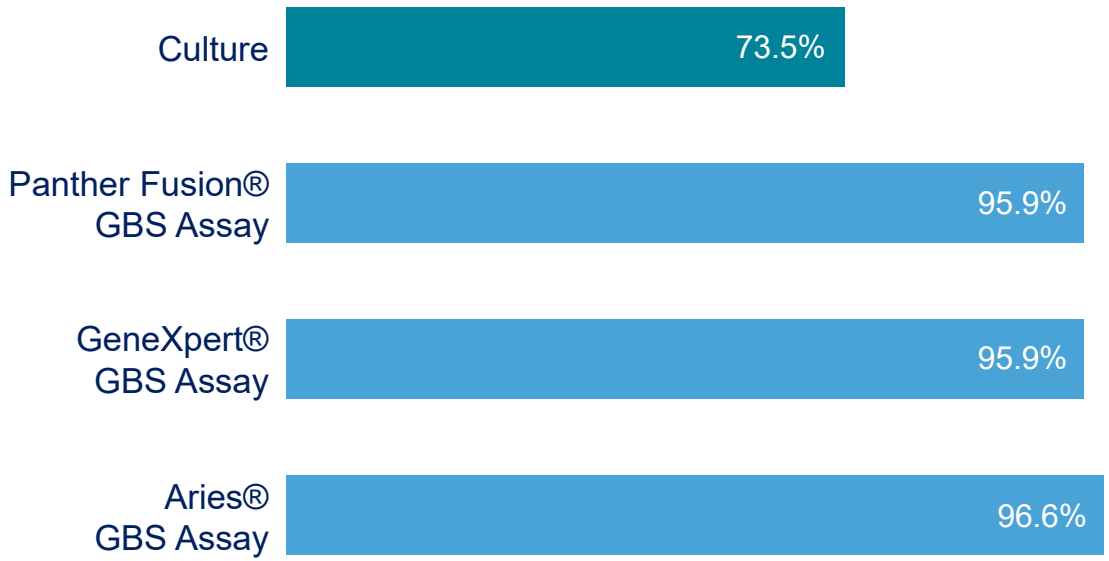
–Filkins et. al

Filkins L, Hauser J, Robinson-Dunn B, Tibbetts R, Boyanton B, Revell P. Published 10 March 2020. Updated 23 July 2021. Guidelines for the Detection and Identification of Group B Streptococcus. American Society for Microbiology. https://asm.org/Guideline/Guidelines-for-the-Detection-and-Identification-of.

Comparison of Three NAAT and Culture for Detection of GBS from Enrichment Broth

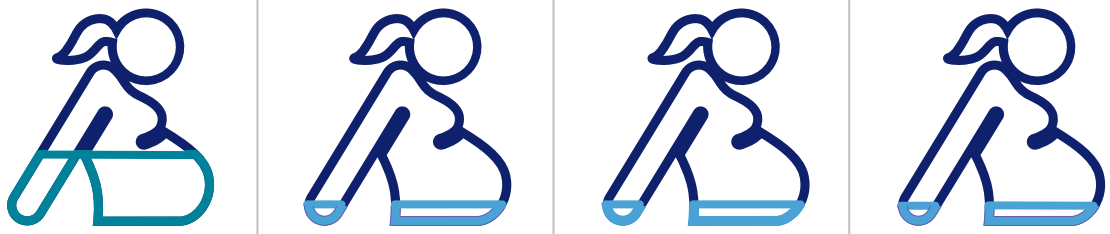
Study shows highly sensitive PCR NAATs are a preferred method for prenatal GBS screening[1]

Clinical Sensitivity (95% CI)



False Negatives

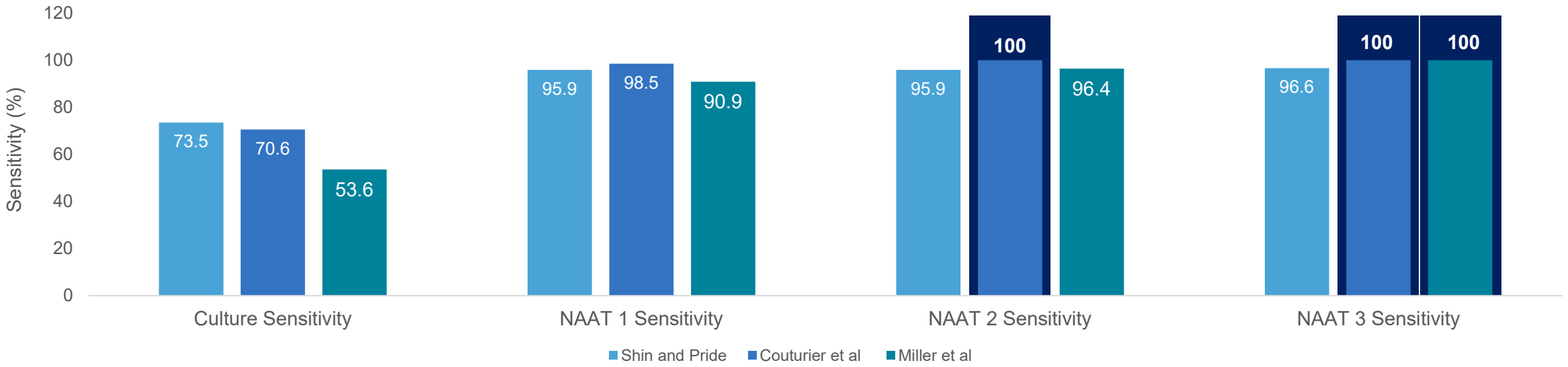
Culture	Panther Fusion® GBS Assay	GeneXpert® GBS Assay	Aries® GBS Assay
39 / 147	6 / 147	6 / 147	5 / 147



Medical Education

1Shin JH and Pride DT. Comparison of Three Nucleic Acid Amplification Tests (NAATs) and Culture for Detection of Group B Streptococcus (GBS) from Enrichment Broth. J Clin Microbiology. 2019;57(6):e01958-18.

Culture vs NAAT Study – Consistent Findings

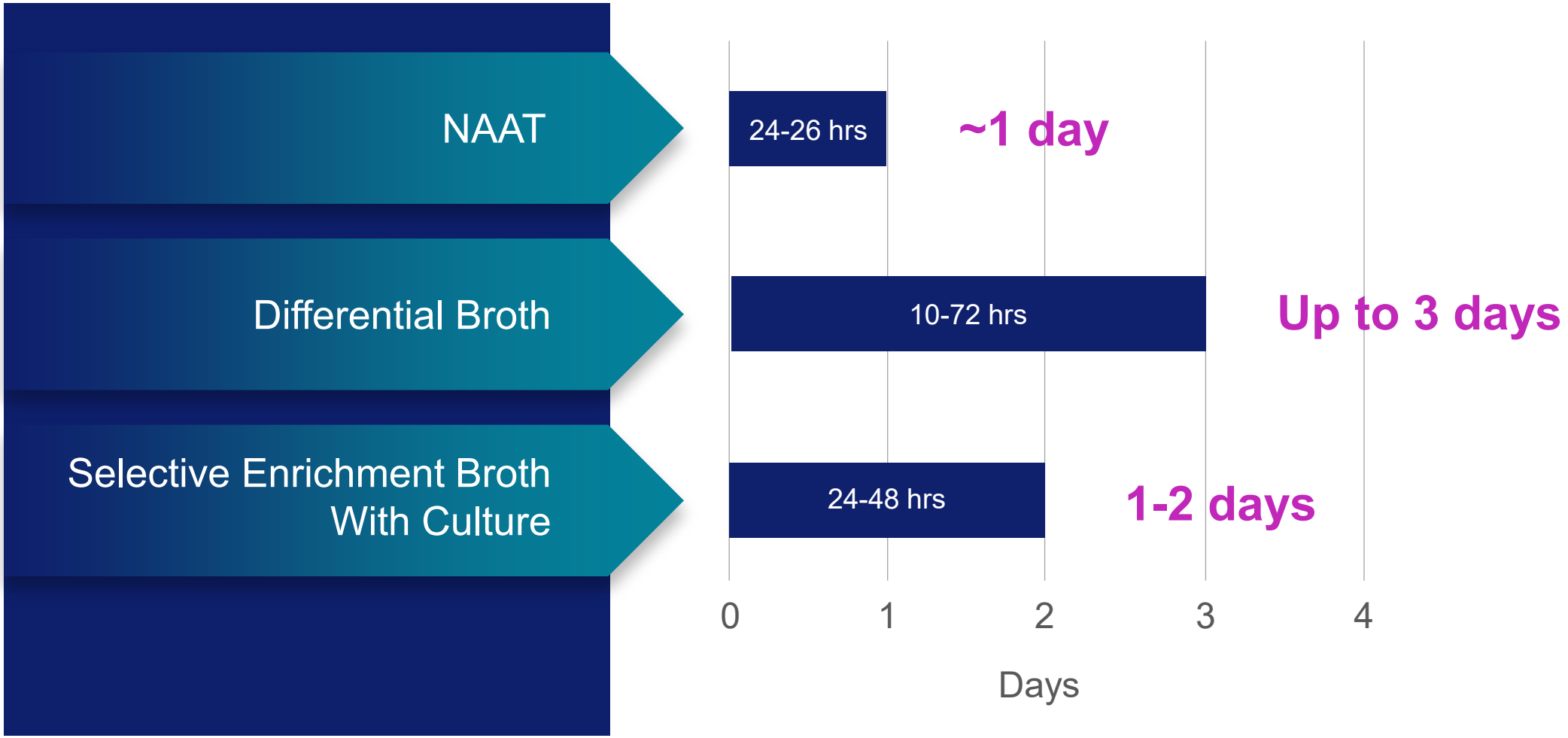


Collectively, these studies highlight the **underestimation of GBS colonization using culture** methods.

With better GBS detection than culture, **NAAT-based screening has the potential to significantly reduce the neonate morbidity and mortality** associated with EOD.[1-3]

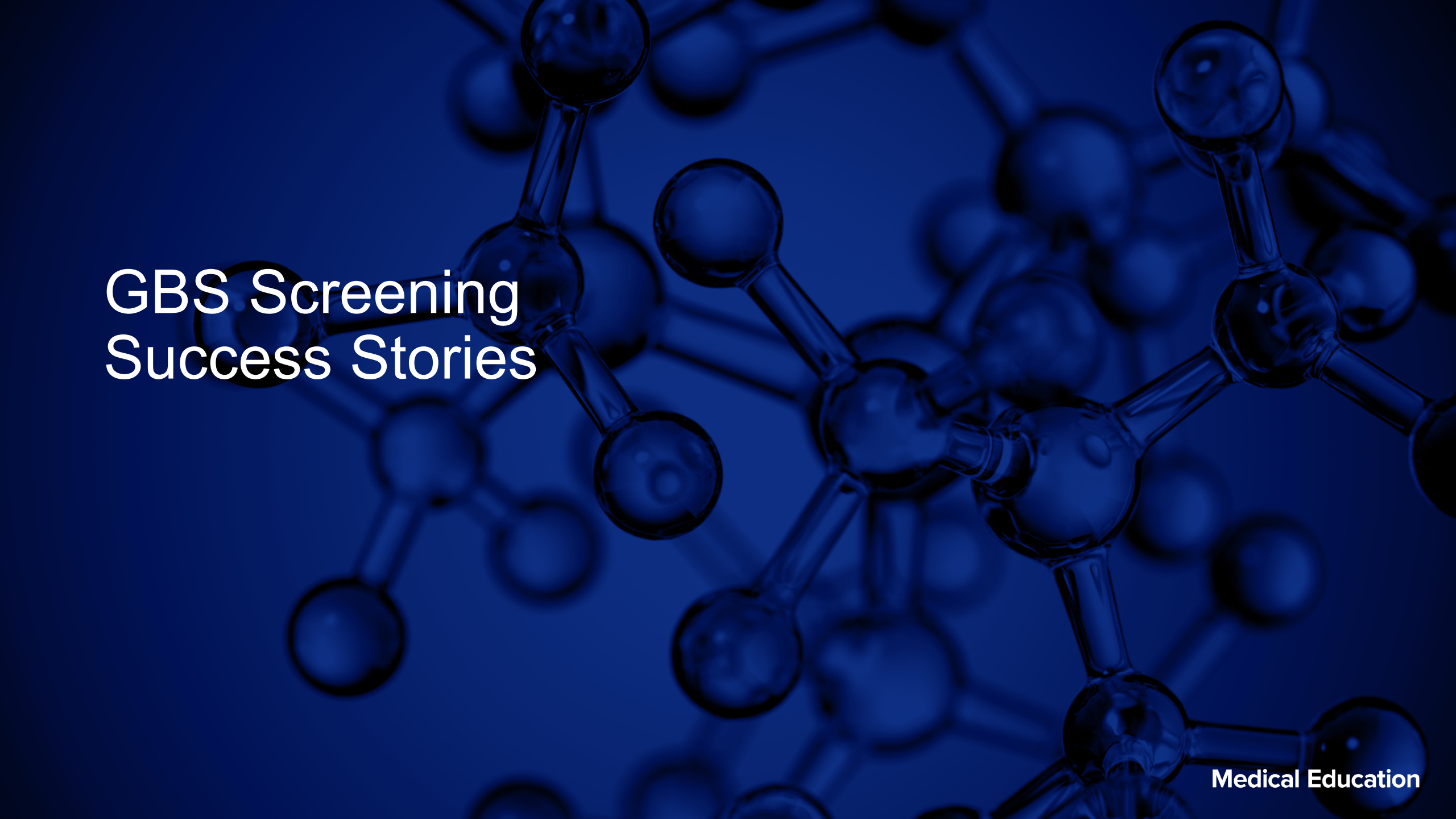
1. Shin JH and Pride DT. Comparison of Three Nucleic Acid Amplification Tests (NAATs) and Culture for Detection of Group B Streptococcus (GBS) from Enrichment Broth. J Clin Microbiology. 2019;57(6):e01958-18. 2. Couturier BA, Weight T, Elmer H, Schlaberg R. Antepartum screening for group B Streptococcus by three FDA-cleared molecular tests and effect of shortened enrichment culture on molecular detection rates. J Clin Microbiol. 2014 Sep;52(9):3429-32. 3 Miller SA, Deak E, Humphries R. Comparison of the AmpliVue, BD Max System, and illumigene Molecular Assays for Detection of Group B Streptococcus in Antenatal Screening Specimens. J Clin Microbiology. 2015; 53 (6):1938-1941.

Estimated Turn-around Times by Screening Methods[1]



Filkins L, Hauser J, Robinson-Dunn B, Tibbetts R, Boyanton B, Revell P. Published 10 March 2020. Updated 23 July 2021. Guidelines for the Detection andIdentification of Group B Streptococcus.American Society for Microbiology. https://asm.org/Guideline/Guidelines-for-the-Detection-and-Identification-of.

GBS Screening Success Stories



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GBS Screening: Implementation Success in the US

1970s

GBS emerges as leading cause of Infant infection[1]

1980s

Studies demonstrate IV antibiotics during labor could prevent invasive disease in newborns[1]

1996

Recommendation Intrapartum prophylaxis ACOG & CDC[1]

1997

1 **Consensus Guidelines** ACOG, AAP & CDC[1]

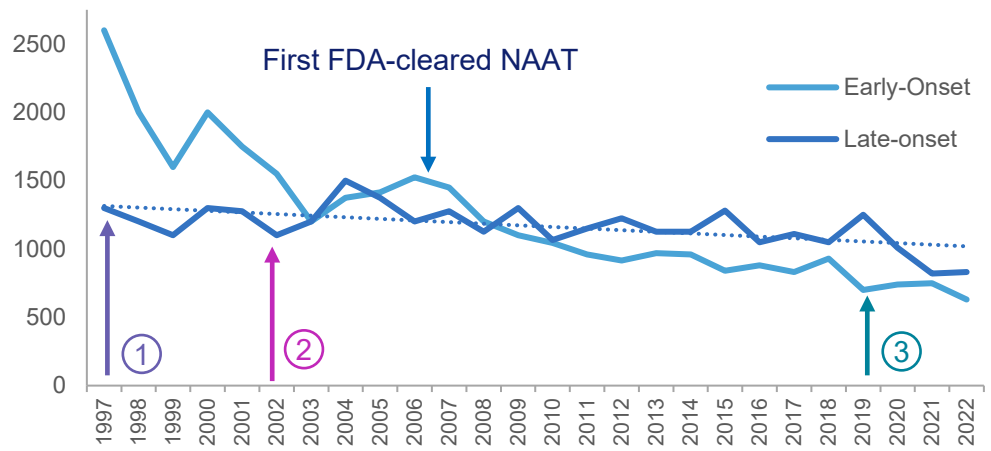
2002

2 **Universal Screening** ACOG, AAP & CDC[1]

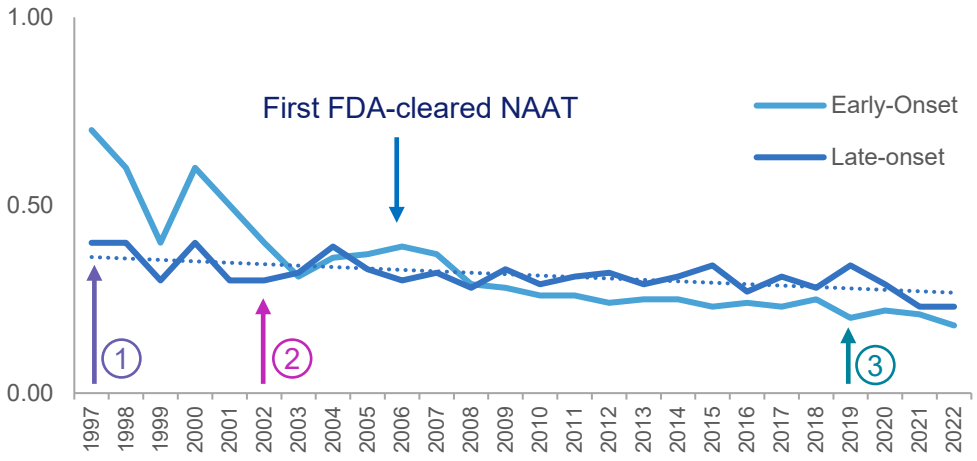
2019

3 **Guidelines transferred to** ACOG & ASM[2]

Estimated Total GBS infections Early – and Late-Onset[3]



Rates of GBS Early – and Late-Onset infections per 1,000 births[3]



1. Verani JR et al. Prevention of perinatal group B streptococcal disease--revised guidelines from CDC, 2010. MMWR Recomm Rep. 2010 Nov 19;59(RR-10):1-36. 2. Filkins L, Hauser J, Robinson-Dunn B, Tibbetts R, Boyanton B, Revell P. Published 10 March 2020. Updated 23 July 2021. Guidelines for the Detection and Identification of Group B Streptococcus. American Society for Microbiology. https://asm.org/Guideline/Guidelines-for-the-Detection-and-Identification-of. 3. CDC. Active Bacterial Core Surveillance (ABSc). Published May 22, 2024. Accessed February 4th, 2026. . https://www.cdc.gov/abcs/reports/

Medical Education

GBS Screening: Implementation Success in the US

"The adoption of universal screening protocols, led to an impressive **80% reduction of early-onset GBS disease in newborns**."[1]

Medical Education

Verani JR et al. Prevention of perinatal group B streptococcal disease--revised guidelines from CDC, 2010. MMWR Recomm Rep. 2010 Nov 19;59(RR-10):1-36. 2. Filkins L, Hauser J,Robinson-Dunn B, Tibbetts R, Boyanton B, Revell P. Published 10 March 2020. Updated 23 July 2021

GBS Screening: Implementation Success Globally

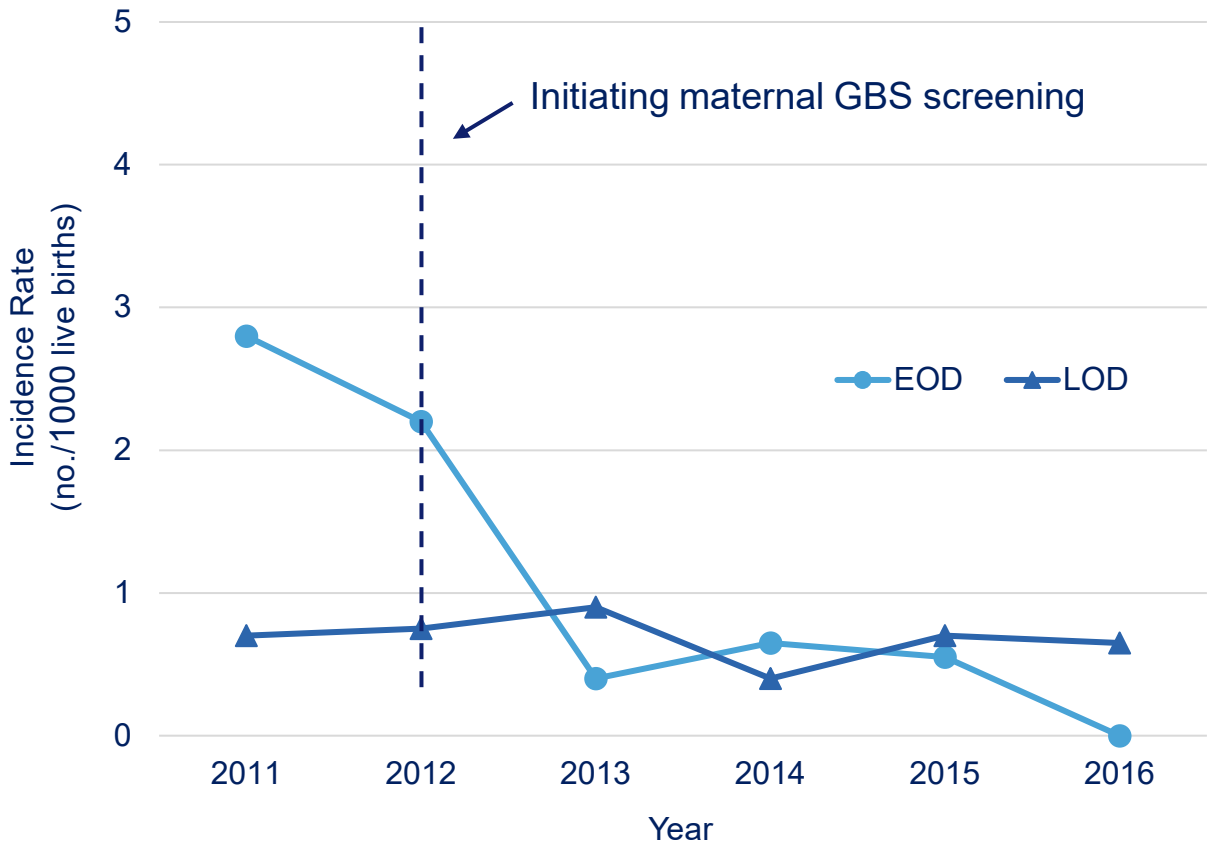
Australia and UK

Period **before** implementation of GBS screening (IAP used per risk-based strategy only):		Period **after** implementation of GBS screening:
AUS[1]	• 1994 – 2002 • GBS EOD Rate of 0.84 / 1,000 live births	• 2004 – 2006 • GBS EOD Rate of 0.00 / 1,000 live births in the screening group • **ZERO cases of GBS EOD in 8,303 live births**
UK[2]	• 2009 – 2013 • GBS EOD Rate of 0.99 / 1,000 live births	• 2014 – 2015 • GBS EOD Rate of 0.16 / 1,000 live births in the screening group • **5X lower rate of GBS EOD**

1. Angstetra, D., Ferguson, J. and Giles, W.B. (2007), Institution of universal screening for Group B streptococcus (GBS) from a risk management protocol results in reduction of early-onset GBS disease in a tertiary obstetric unit. Australian and New Zealand Journal of Obstetrics and Gynaecology, 47: 378-382. 2. Gopal Rao G, Nartey G, McAree T, et al. Outcome of a screening programme for the prevention of neonatal invasive early-onset group B Streptococcus infection in a UK maternity unit: an observational studyBMJ Open 2017;7:e014634.

GBS Screening: Implementation Success Globally

Taiwan



After implementation of universal GBS screening of expectant mothers in Taiwan in 2012, **the incidence rate of EOD declined** from 2.8 cases per 1,000 live births (2011) to 0 cases of GBS EOD (2016).

Medical Education

Ching-Yi Cho, et al. Group B Streptococcal infection in neonates and colonization in pregnant women: An epidemiological retrospective analysis, Journal of Microbiology, Immunology and Infection, Volume 52, Issue 2, 2019.

Key Takeaways

- GBS infections can have **serious, long-term negative health consequences** for mothers and newborns, including EOD.
- **IAP is an effective intervention** to prevent EOD in neonates.
- The CDC, ACOG, AAP, ASM **endorse universal GBS screening of pregnant women** to inform IAP use and aid in the prevention of neonatal EOD.
- With better detection than culture, NAAT-based screening has **the potential to reduce neonate morbidity** and mortality associated with EOD.[1]
- Implementation of universal GBS screening in pregnant women has **successfully decreased the burden of EOD** in many countries.

Medical Education

1. Shin JH and Pride DT. Comparison of Three Nucleic Acid Amplification Tests (NAATs) and Culture for Detection of Group B Streptococcus (GBS) from Enrichment Broth. J Clin Microbiology JCM.01958-18.