

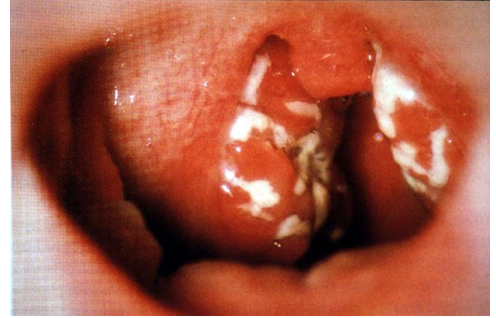


# Guidelines for workup of Throat and Genital Cultures

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# Acute Pharyngitis

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- By far the most common infection of the upper respiratory tract
- Viral infection is by far the most common cause of pharyngitis
- The most important bacterial pathogen in pharyngitis is *Streptococcus pyogenes* (GAS)
  - 20-30% children / 5-15% in adults



# Group A *Streptococcus* Pharyngitis

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- Group A *Streptococcus* (GAS) is the only common cause of acute pharyngotonsillitis that routinely requires antibiotic treatment
- Accounts for 15% to 30% of sore throats in children and 5% to 10% in adults
- Highest rates of infection are in children aged 5 to 11 years

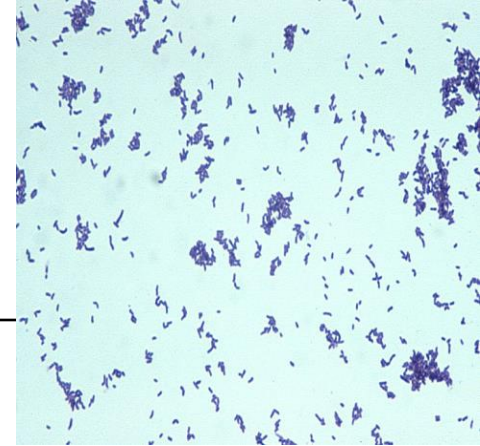
# Streptococcal Pharyngitis

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- Other  $\beta$ -haemolytic streptococci produce symptoms similar to, but more mild than those of GAS
- These other strains are usually NOT associated with rheumatic fever as a noninfectious sequela ...
- GAS can occasionally colonize the oropharynx in small numbers, However → Groups C & G streptococci are regular colonizers
  - Therefore → difficult to determine clinical significance
  - If in pure culture or as a predominating organism, might be reasonable to report their presence

# Pharyngitis (cont'd)

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## *Arcanobacterium haemolyticum*

- Formerly known as *Corynebacterium haemolyticum* (small GPB), cat -,  $\beta$  hem.
- Rarely causes pharyngitis
- Symptoms closely mimics GAS pharyngitis
  - Exudative pharyngitis
  - Lymphadenopathy
  - Scarlatiniform rash frequent (scarlet fever?)
- Primarily affects teenagers and young adults
  - 10-30 year old groups



# Pharyngitis (cont'd)

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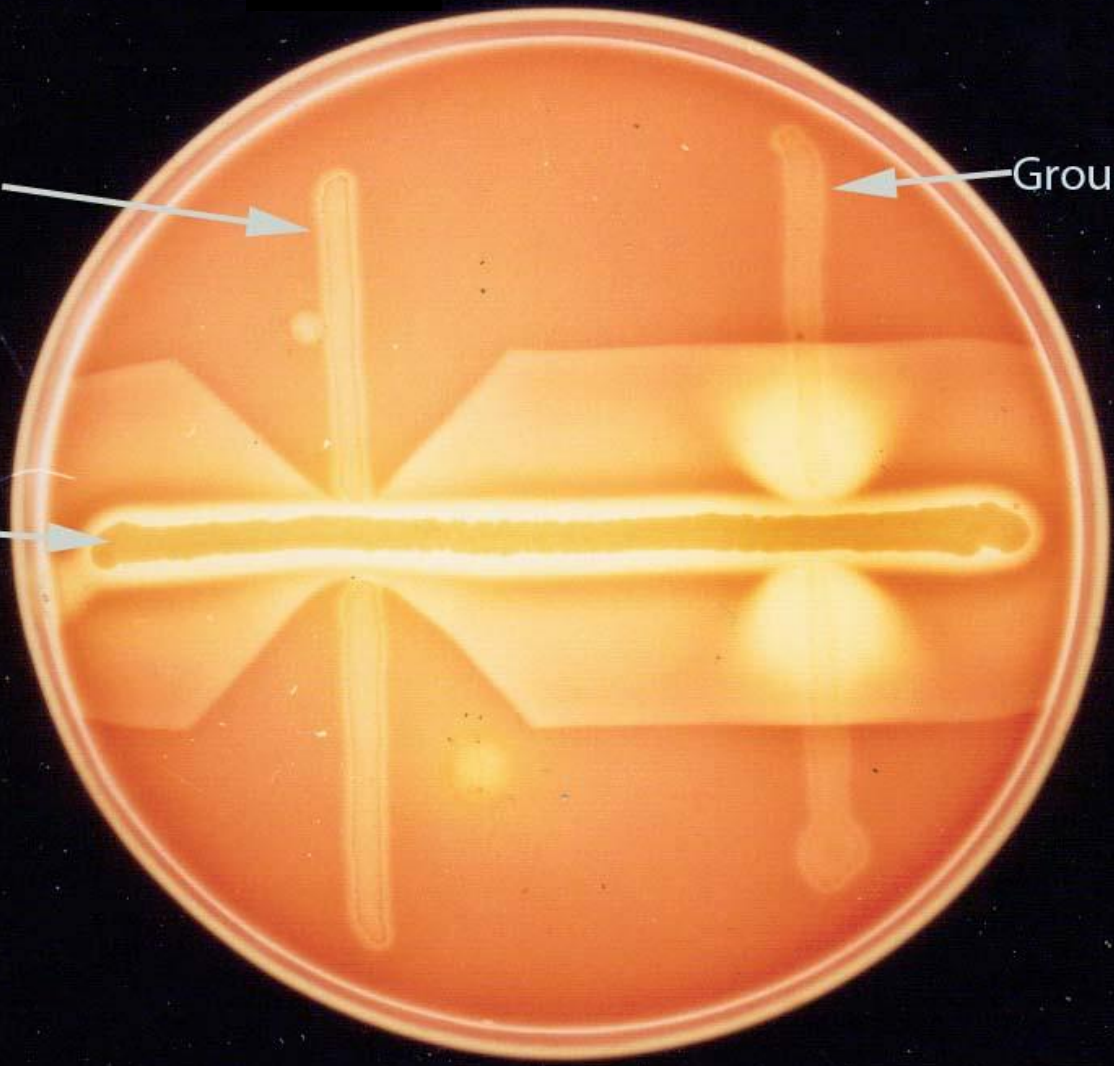
## *Arcanobacterium haemolyticum*

- Reverse CAMP positive
  - The  $\beta$ -hemolysin of *S.aureus* on blood agar is inhibited by the phospholipase of *A.haemolyticum*
  - Appears as an arrow-head-shaped **nonhemolyzed** area between *S.aureus* and *A.haemolyticum* streaked at right angles to each other
- Additional ID tests:
  - LAP +

A.haemolyticum  
Reverse CAMP

Group B streptococcus  
CAMP

S.aureus





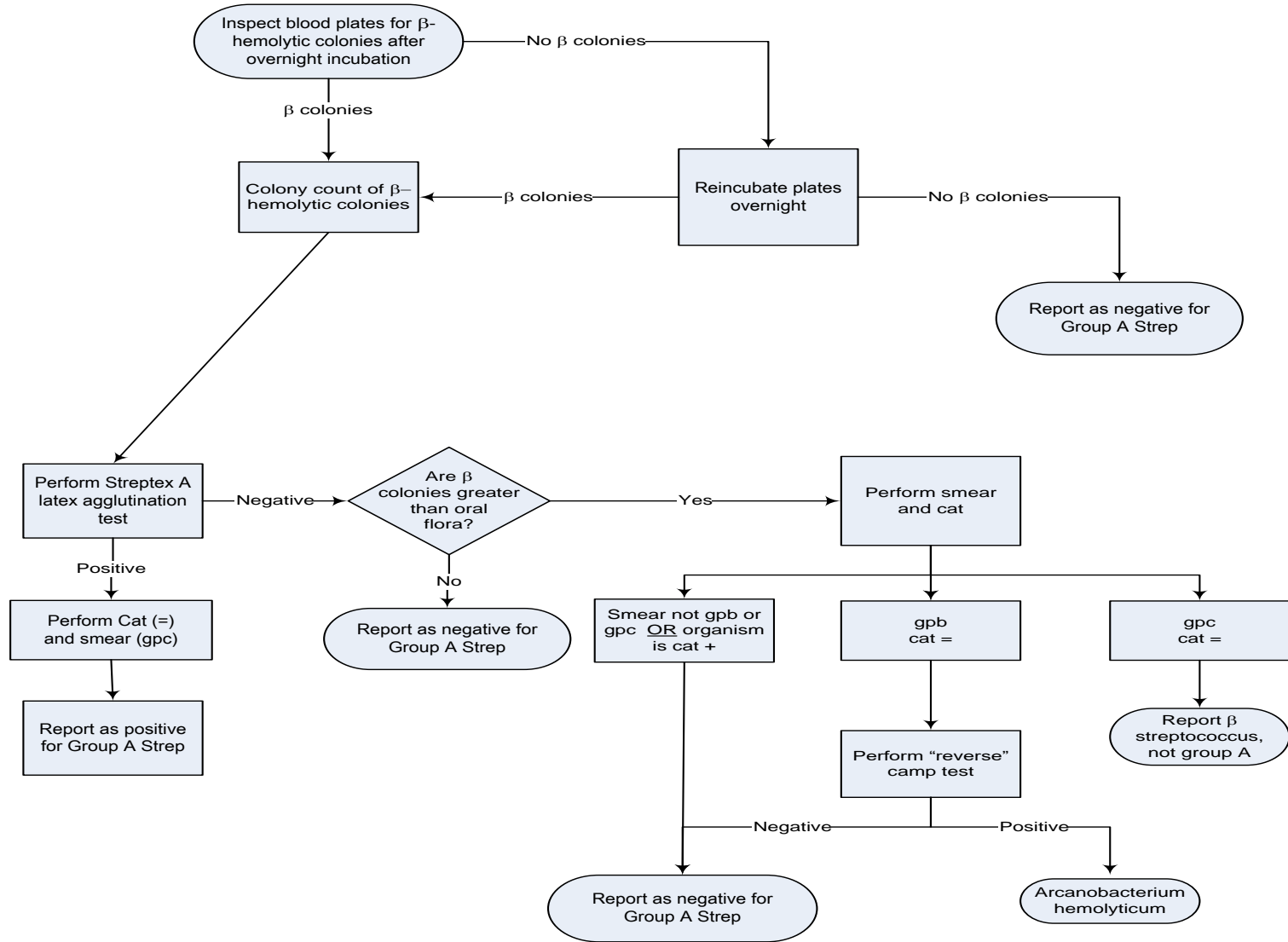


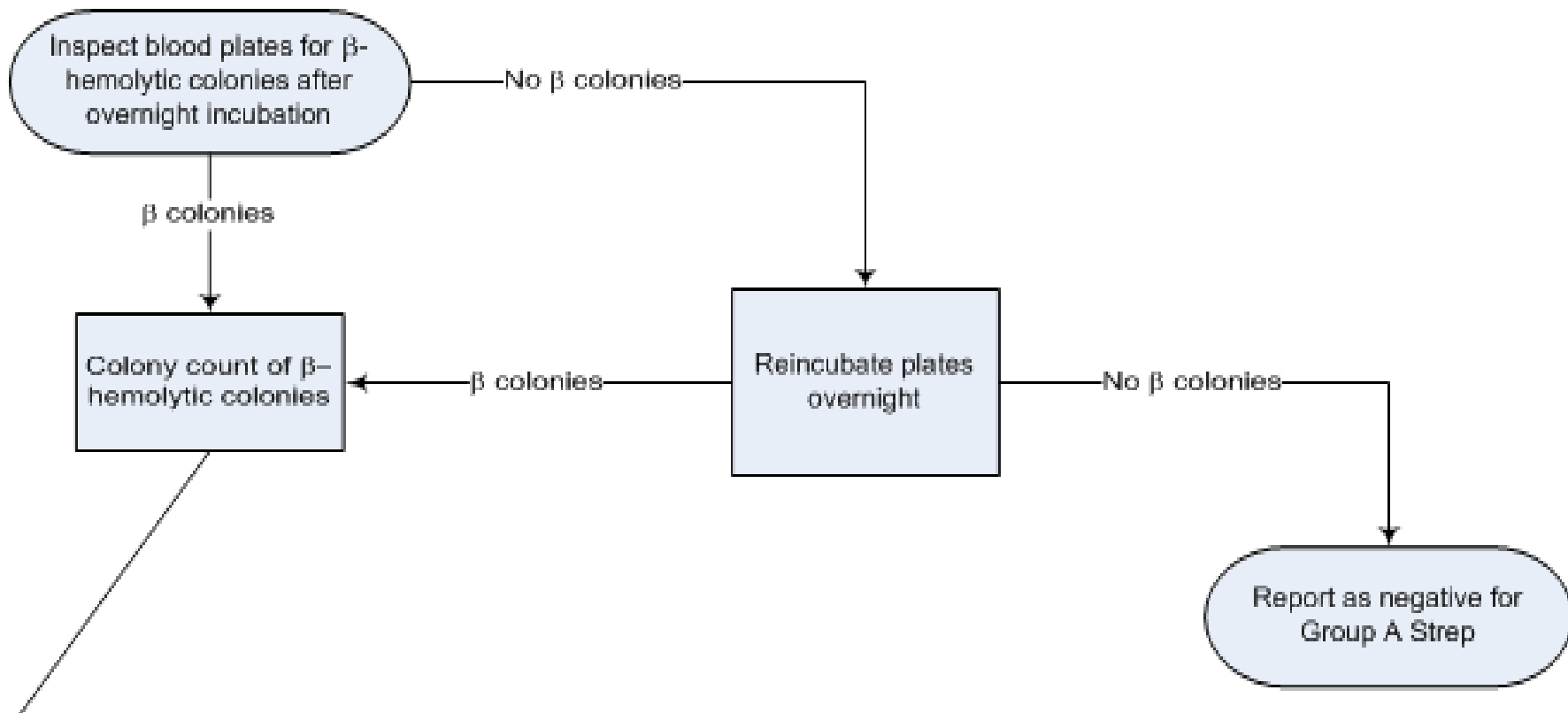
# Throat cultures:

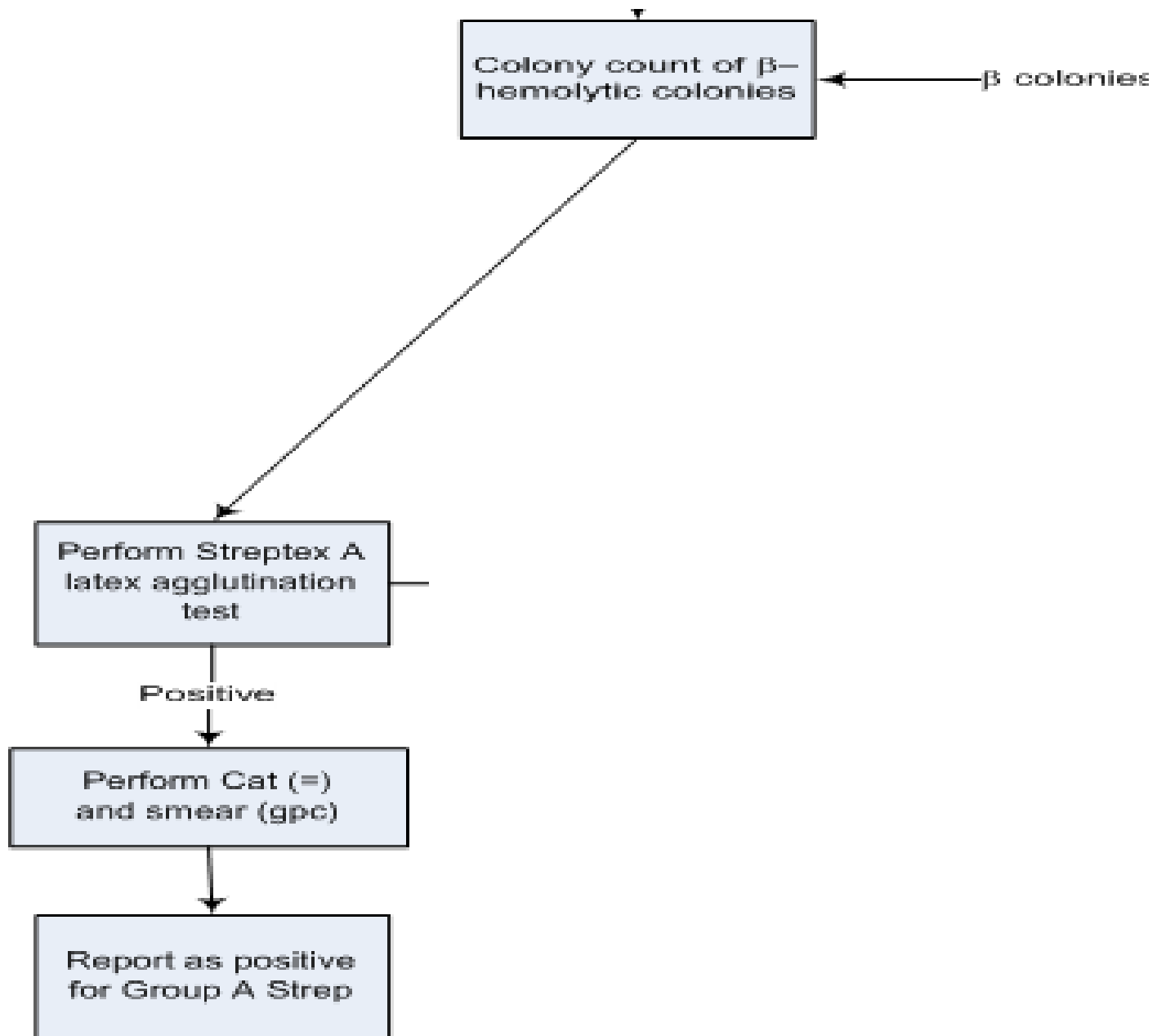
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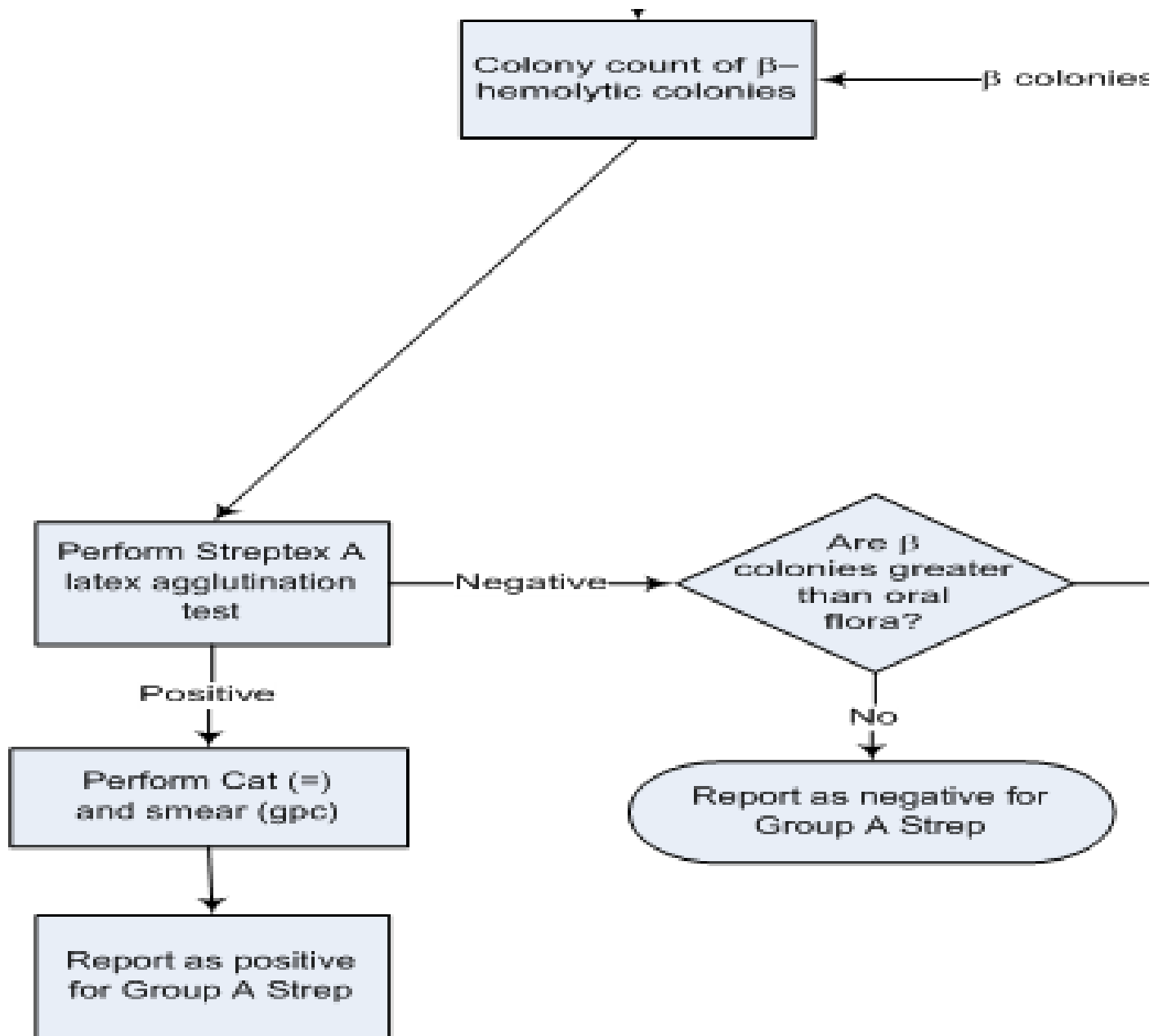
So what to do?

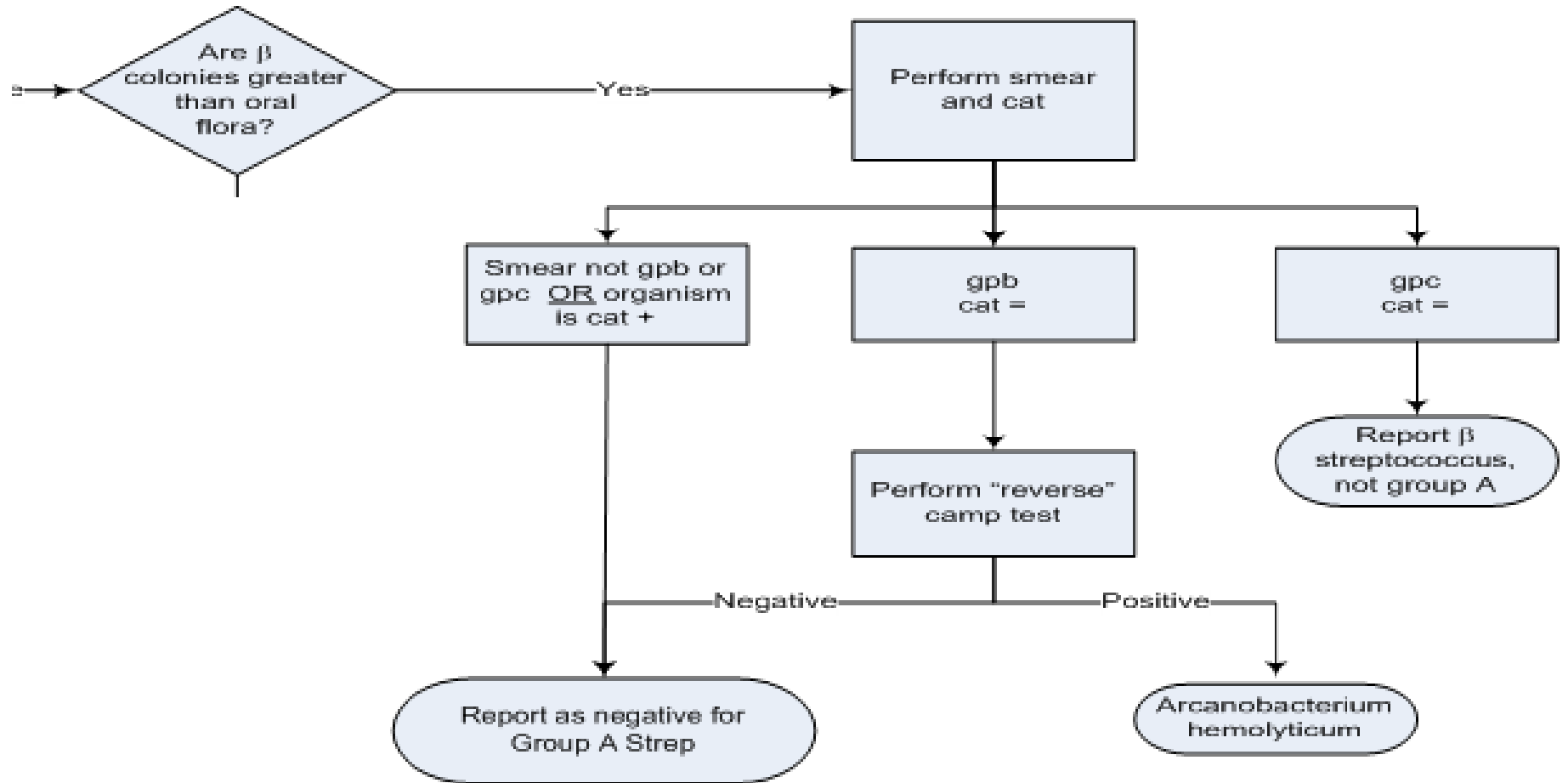
# Throat Culture











MALDI

# Throat cultures: Summary

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- Report any amount of GAS
- If > oral flora, report presence of:
  - *Arcanobacterium haemolyticum*
  - $\beta$ -streptococci, not GAS (may group/report C or G)
- Do not report:
  - *Neisseria* spp
  - *Haemophilus* spp.
  - *S.pneumoniae*
  - *S.aureus*

**No indication that growing these in tht cultures means anything in pharyngitis.**

# Rapid GAS antigen detection - appropriate utilization

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- Children/Adolescents
  - negative RADT results should be confirmed with a throat culture result
- Adults
  - low incidence of streptococcal infection
  - extremely low risk of rheumatic fever
  - negative RADT results do not need culture confirmation



# GAS Pharyngitis - Diagnosis

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## Rapid testing & when to back up with culture

### **Shulman et al, CID 2012. Clinical practice guideline for the diagnosis and management of group A streptococcal pharyngitis: 2012 update by the IDSA.**

- In children and adolescents, negative RADT tests should be backed up by a throat culture.
- In adults, negative RADT tests do not need to be backed up by a throat culture.
  - The risk of acute rheumatic fever is exceptionally low in adults

### **Abbott et al, CID 2014. Reflexive Culture in Adolescents and Adults With Group A Streptococcal Pharyngitis.**

- Culturing samples from adults with negative rapid antigen detection tests identified additional individuals who can benefit from treatment.

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### **Felsenstein et al, JCM 2014. Molecular and Clinical Diagnosis of Group A Streptococcal Pharyngitis in Children. (illumigene assay)**

- Rapid molecular assays are far superior to a RADT and culture for the detection of GAS, when testing is limited to patients presenting with clinical symptoms.

# Molecular detection for GAS (POC)

(culture back up necessary?) ✦





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# DISCUSSION

# Genital cultures

## What is “Vaginitis?”

- **By definition, vaginitis refers to vaginal irritation and discharge**
  - **Causes of vaginitis**
    - 3 agents cause > 90% of cases
      - Trichomonas
      - Yeast
      - Bacterial vaginosis (BV)
- } Wet prep  
Antigen detection  
NAAT
- **Cervicitis**
    - *Neisseria gonorrhoeae*
    - *Chlamydia trachomatis*
    - Herpes Simplex virus
    - Cytomegalovirus
- } molecular  
molecular  
culture or molecular  
culture or molecular

There really is no place for a routine vaginal culture.

# Vaginal cultures

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- **OK – That being said...**
  - **We are all pressured to do 'routine' vaginal cultures...**
  - **There is no clinical studies to show that other organisms cause vaginitis...**
  - **So, what should we do?**

# Vaginal cultures

Look for growth of any organism in quantities  $\geq$  the amount of normal vaginal flora present in the culture.

Note: *Gardnerella spp.* is considered normal vaginal flora.

Quantitate and report the amount of normal vaginal flora (VF) present.

If there is growth of the following in quantities  $\geq$  VF:

- Yeast  $\rightarrow$  quantitate and report "yeast"
- GBS ( $\beta$  or  $\gamma$ )  $\rightarrow$  quantitate and report "Group B streptococci"
- Enterics  $\rightarrow$  quantitate and report "enteric gram negative bacilli"

If there is overgrowth of any other organism  $\rightarrow$  consult

Do not perform susceptibilities on any organism.

Consult all cultures on patients  $< 15$  y.o.



# DISCUSSION