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Antimicrobial Treatment: Urinary Tract Infections & Sexually Transmitted Diseases

This presentation clarifies the use of targeted antimicrobial agents for common infections. We will cover both Urinary Tract Infections and Sexually Transmitted Diseases. These conditions represent significant public health concerns in the US.

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Understanding Urinary Tract Infections (UTIs)

UTIs are common, predominantly bacterial. *Escherichia coli* causes about 80% of uncomplicated UTIs. Key symptoms include dysuria, frequency, urgency, and suprapubic pain. Accurate diagnosis is crucial for effective treatment.



Key Diagnostic Indicators

- Urinalysis for leukocyte esterase and nitrites.
- Urine culture to identify bacteria and quantity.



Antimicrobial Regimens for Uncomplicated UTIs

1 First-line Options

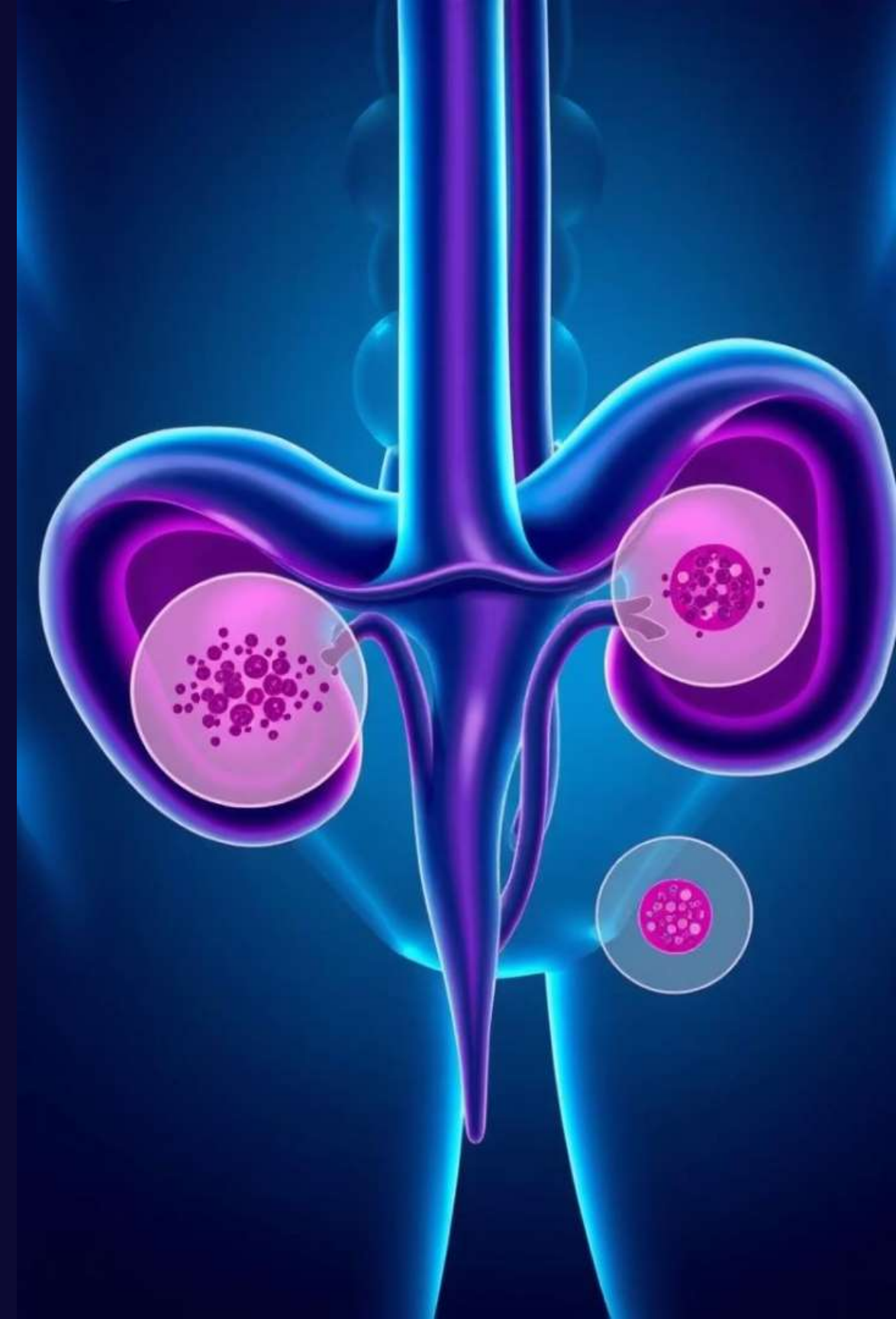
Nitrofurantoin (100mg BID x 5 days) or Trimethoprim-Sulfamethoxazole (TMP-SMX, 160/800mg BID x 3 days) are preferred treatments.

2 Alternative Treatment

Fosfomycin (3g single dose) offers a convenient, effective option for patients.

3 Reserved Use

Fluoroquinolones like Ciprofloxacin are generally reserved due to rising resistance and potential side effects.

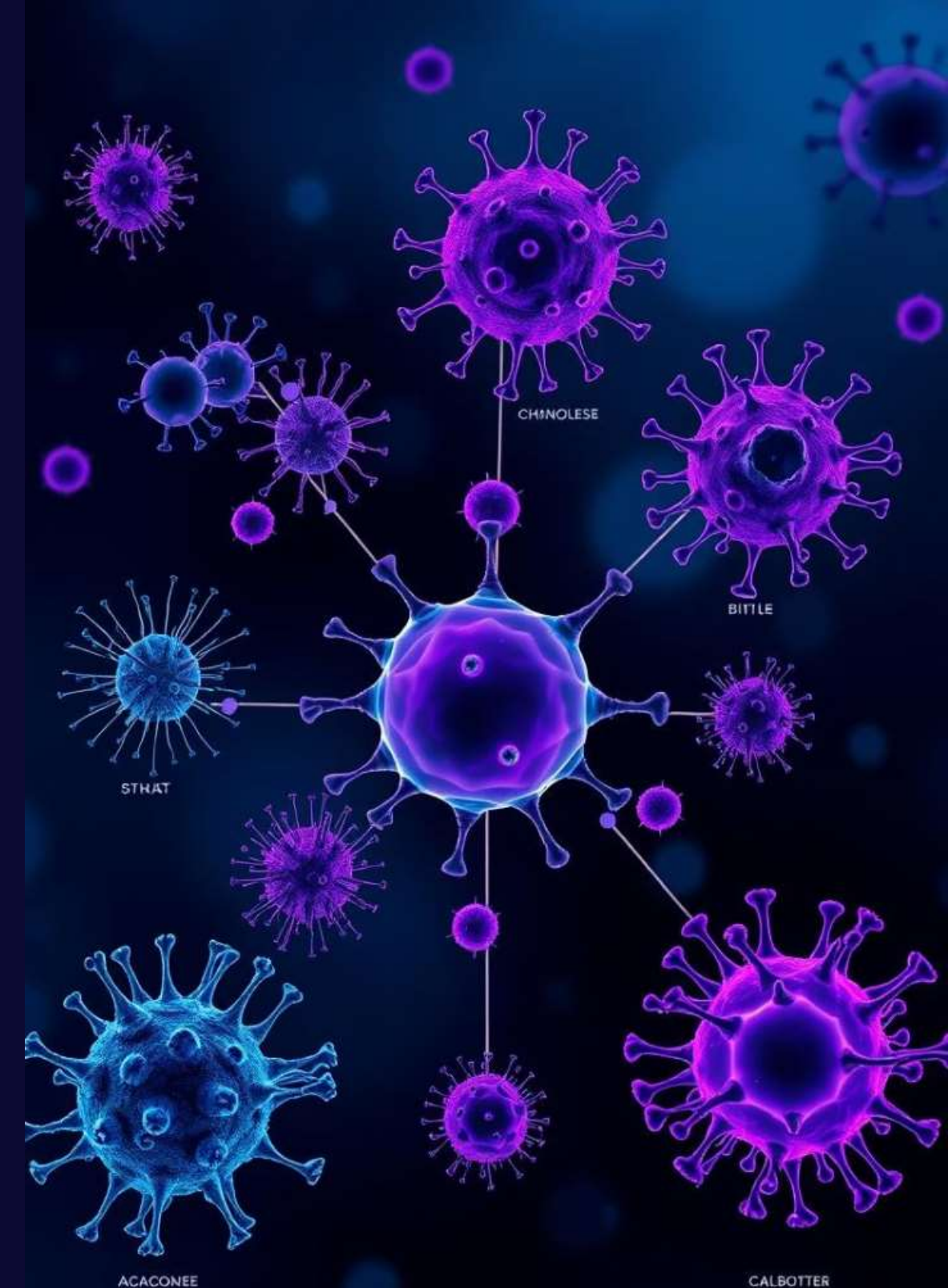




Sexually Transmitted Diseases (STDs): An Overview

Chlamydia	1.6M	Most reported bacterial STD.
Gonorrhea	710,000	Increasing antimicrobial resistance.
Syphilis	Rising	Congenital cases increased 10-fold.

STDs affect millions, with varying transmission routes. Chlamydia and Gonorrhea remain highly prevalent, while Syphilis shows a concerning rise in congenital cases. Understanding these trends is critical for public health.





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Antimicrobial Treatment for Bacterial STDs



Chlamydia

Doxycycline (100mg BID x 7 days) or Azithromycin (1g single dose) are effective.



Gonorrhea

Ceftriaxone (500mg IM single dose) with Doxycycline (100mg BID x 7 days) is standard.



Syphilis (Early)

Penicillin G Benzathine (2.4M units IM single dose) is the primary treatment.





Antiviral & Antiprotozoal Treatments for Other STDs



Genital Herpes (HSV)

Acyclovir (400mg TID x 7-10 days) or Valacyclovir manages outbreaks effectively.



Trichomoniasis

Metronidazole (2g single dose) or Tinidazole (2g single dose) provides a cure.



HPV

Prevention is key with vaccination (e.g., Gardasil 9), offering high efficacy against related cancers.



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The Growing Threat of Antimicrobial Resistance

2.8M

Infections Annually

Antibiotic-resistant infections in the US.

35,000

Deaths Annually

From antibiotic-resistant infections.

20%

E coli Resistance

To TMP-SMX in many regions.

Antimicrobial resistance poses a severe threat. Gonorrhea resistance to Ciprofloxacin is widespread. Inappropriate antibiotic use significantly drives this global health crisis, leading to alarming rates of resistant infections and deaths.



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Diagnostic Approaches and Guidelines

NAATs for STDs

Nucleic Acid Amplification Tests are the gold standard for diagnosing Chlamydia and Gonorrhea due to their high sensitivity and specificity.

Syphilis Testing

Rapid Plasma Reagin (RPR) is used for initial screening, followed by specific treponemal tests for confirmation.

CDC Guidelines

The CDC STI Treatment Guidelines (2021) provide comprehensive, tailored recommendations for diagnosis and management, ensuring best practices.

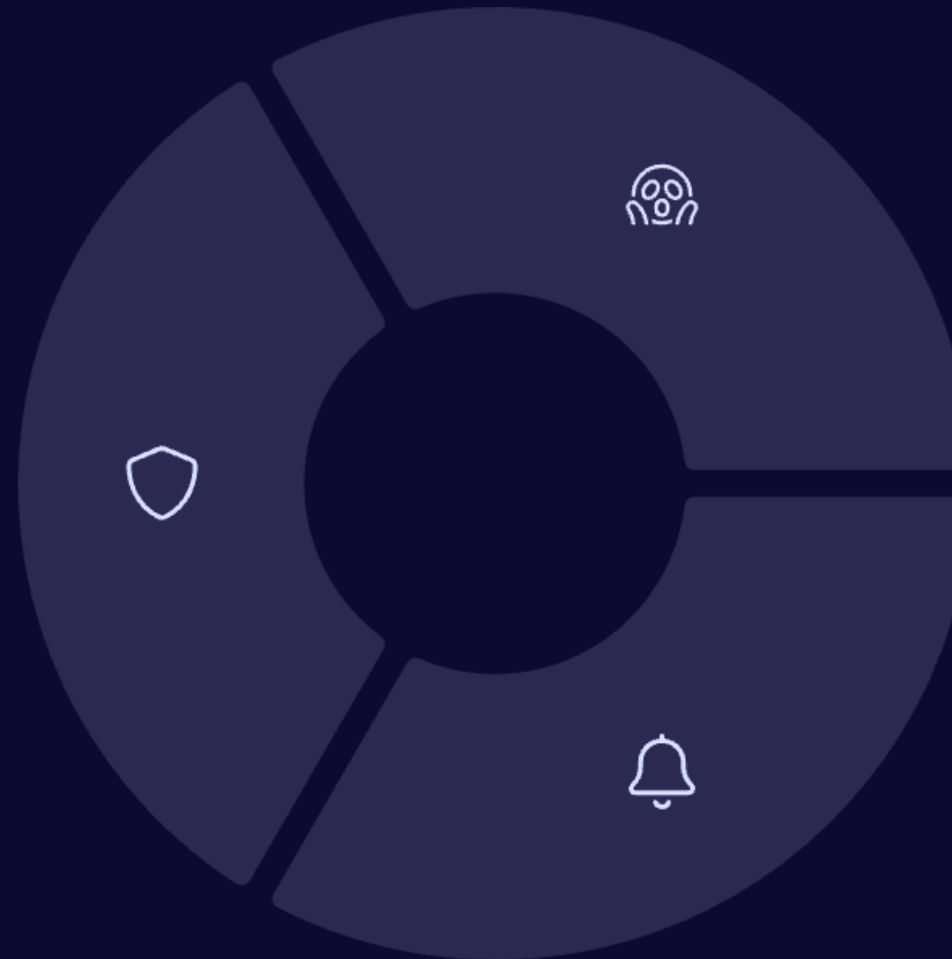




Prevention, Public Health, and Education

Condom Use

Reduces STD risk by approximately 85% for HIV. Effectiveness varies for other STDs.



Routine Screening

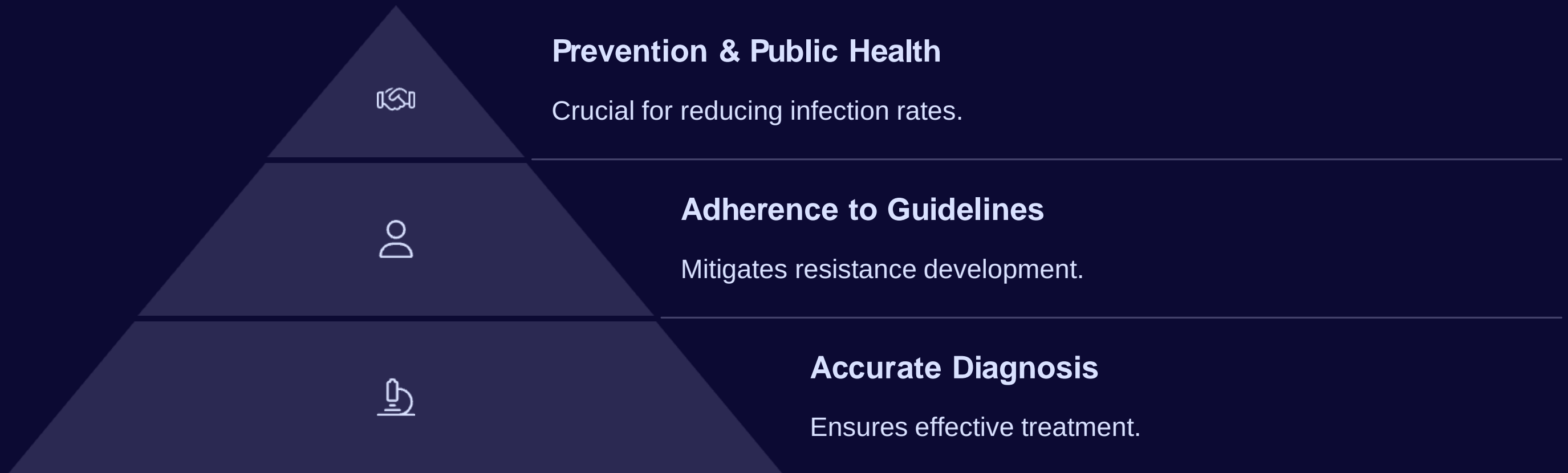
Recommended for sexually active individuals, particularly annual Chlamydia/Gonorrhea screening for women under 25.

Partner Notification

Crucial for preventing further transmission. Expedited partner therapy (EPT) allows partners to be treated promptly.



Conclusion: Strategic Antimicrobial Stewardship



Effective antimicrobial stewardship requires a multifaceted approach. Accurate diagnosis and appropriate treatment are foundational. Adhering to established guidelines helps combat resistance. Moreover, robust prevention strategies, including vaccination and public health initiatives, are essential for controlling these infections.