



CENTER FOR
STEWARDSHIP
IN MEDICINE

February 16, 2023

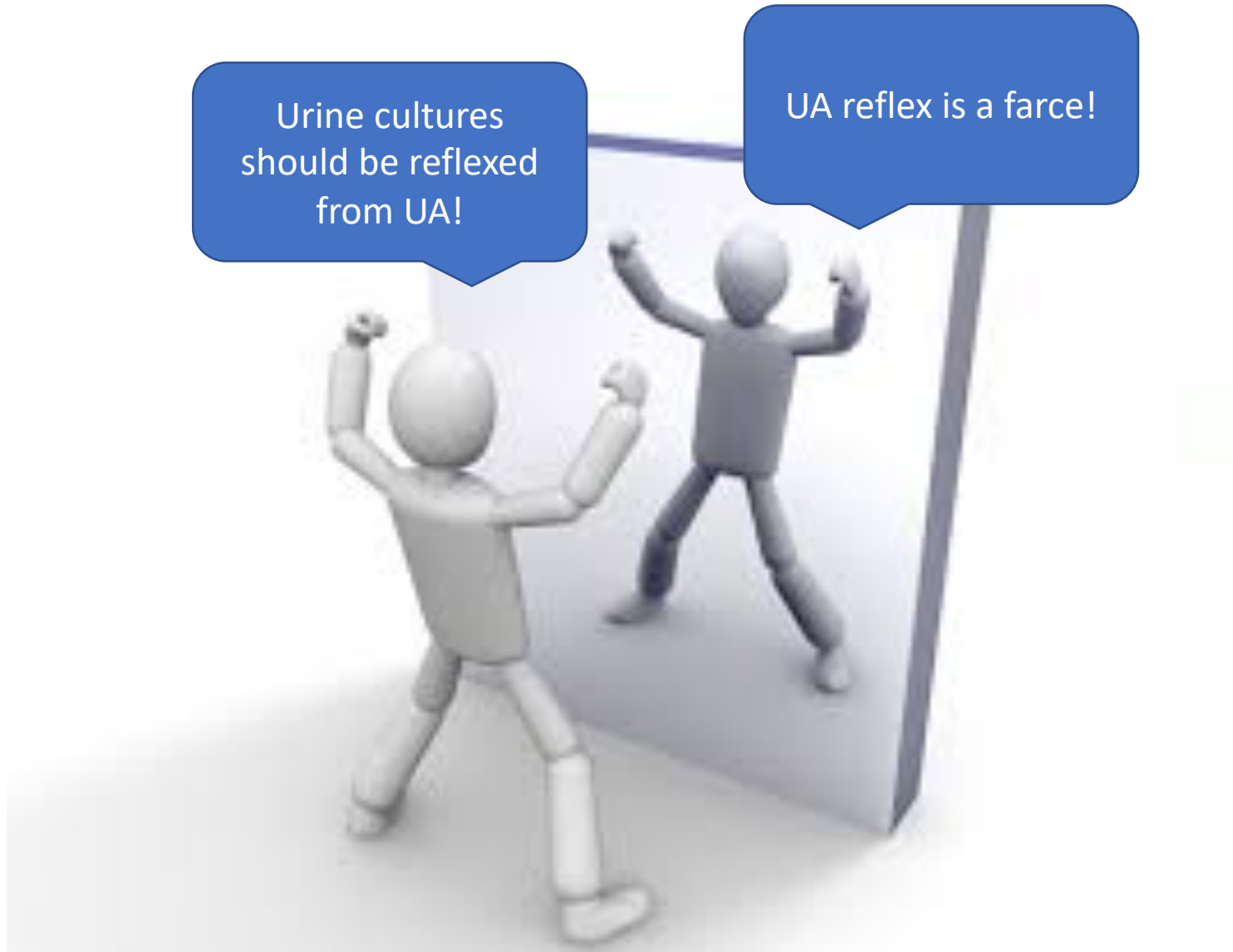
Reflecting on Reflexing: A Pro-Con Debate

- Chloe Bryson-Cahn, MD
- Alyssa Castillo, MD

Reflecting on Reflexing

Urine cultures
should be reflexed
from UA!

UA reflex is a farce!

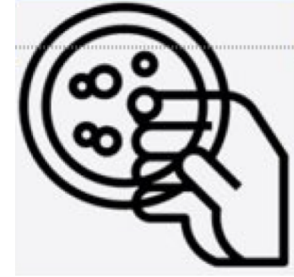


Diagnostic Tests



URINALYSIS

- Point-of-care:
 - **Leukocyte esterase, nitrite**
 - Specific gravity, pH, protein, glucose, crystals, ketones, blood
- Automated:
 - **WBC**
 - RBC, bacteria, epithelial cells



URINE CULTURE

- Quantitative measure of predominant bacteria in the urine
- Sometimes non-significant:
 - "Normal GU flora"
 - "Polymicrobial"
 - "Yeast"

What do I do with these results?

	UA	Interpretation
Symptomatic	Positive	Possible UTI
Symptomatic	Negative* (*Caution in neutropenia, classic sx)	? Not UTI
Asymptomatic	Positive	Not UTI
Asymptomatic	Negative	Not UTI

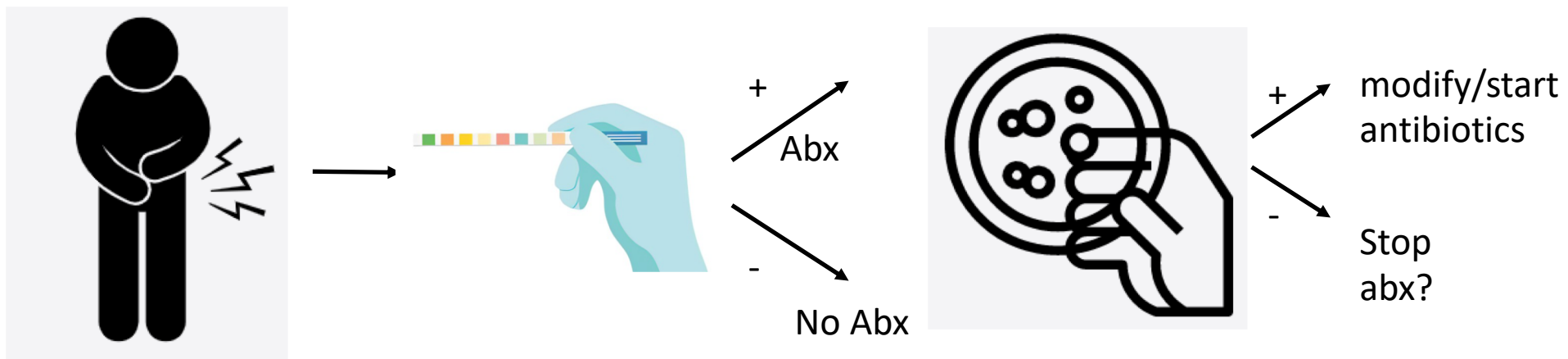
	Urine Culture	Interpretation
Symptomatic	Positive	UTI
Symptomatic	Negative	Not UTI
Asymptomatic	Positive	Not UTI
Asymptomatic	Negative	Not UTI

The interpretation of a positive test depends on symptoms

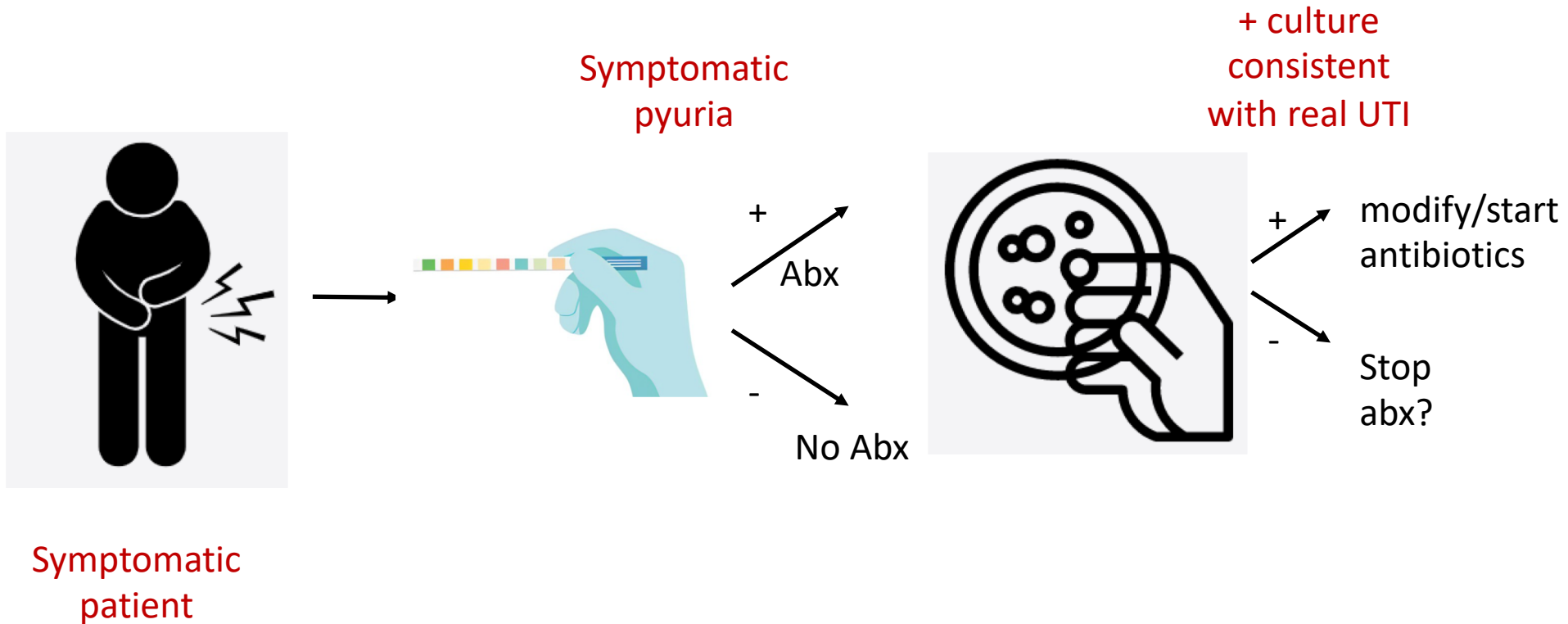
Neither test in isolation can RULE IN infection.

Both are very good at RULING OUT infection!

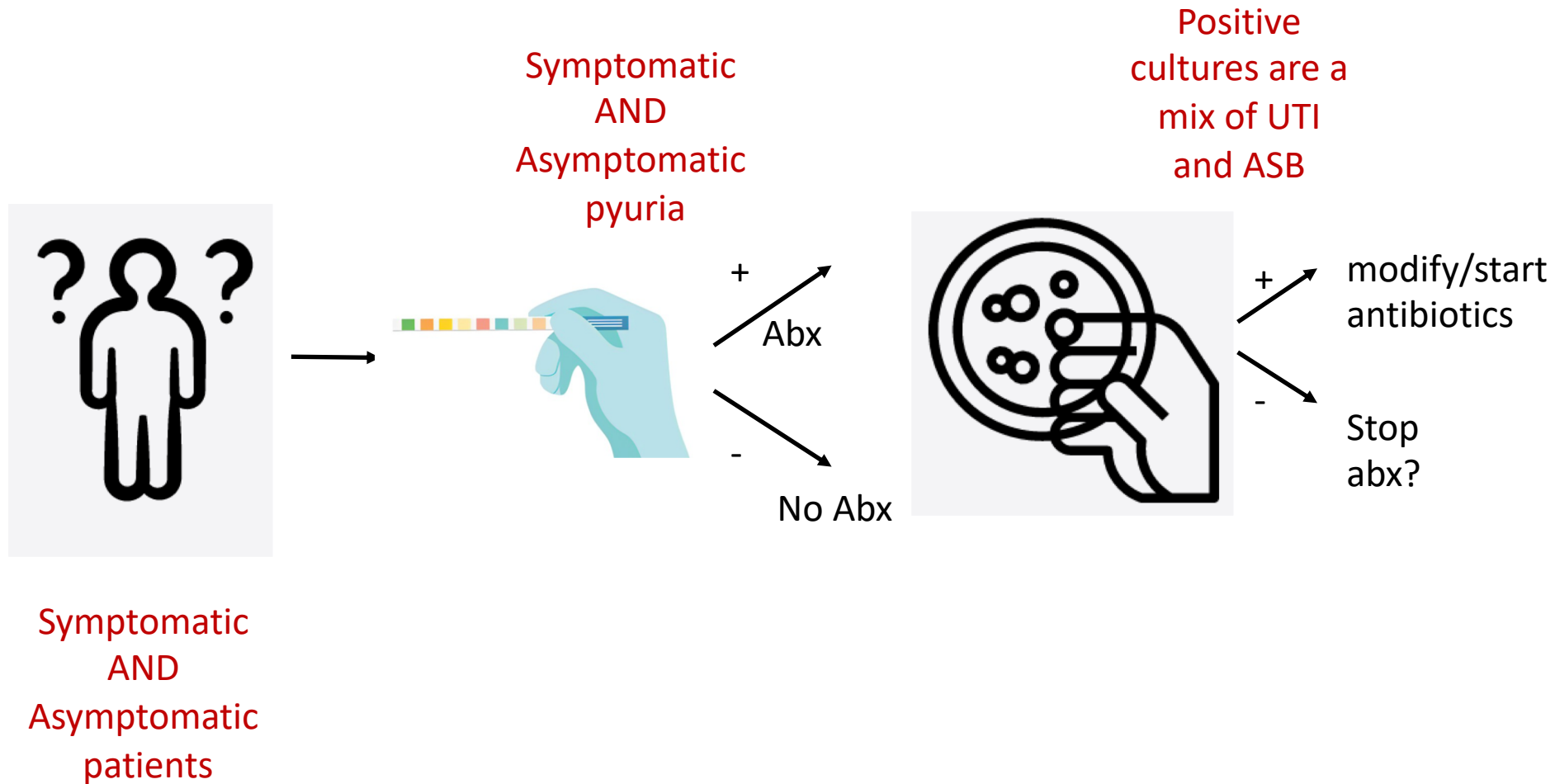
The Paradigm (non-sepsis)



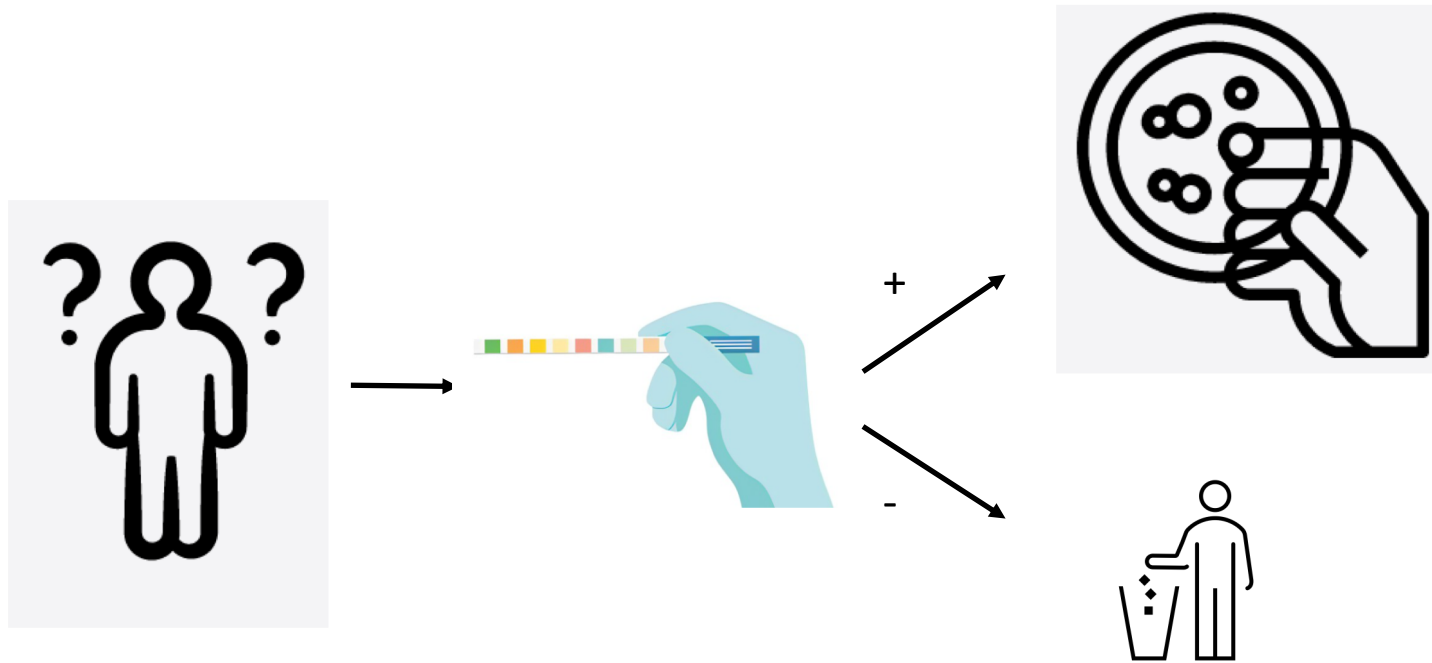
Ideal State (non-sepsis)



The Problem



Reflexing to culture



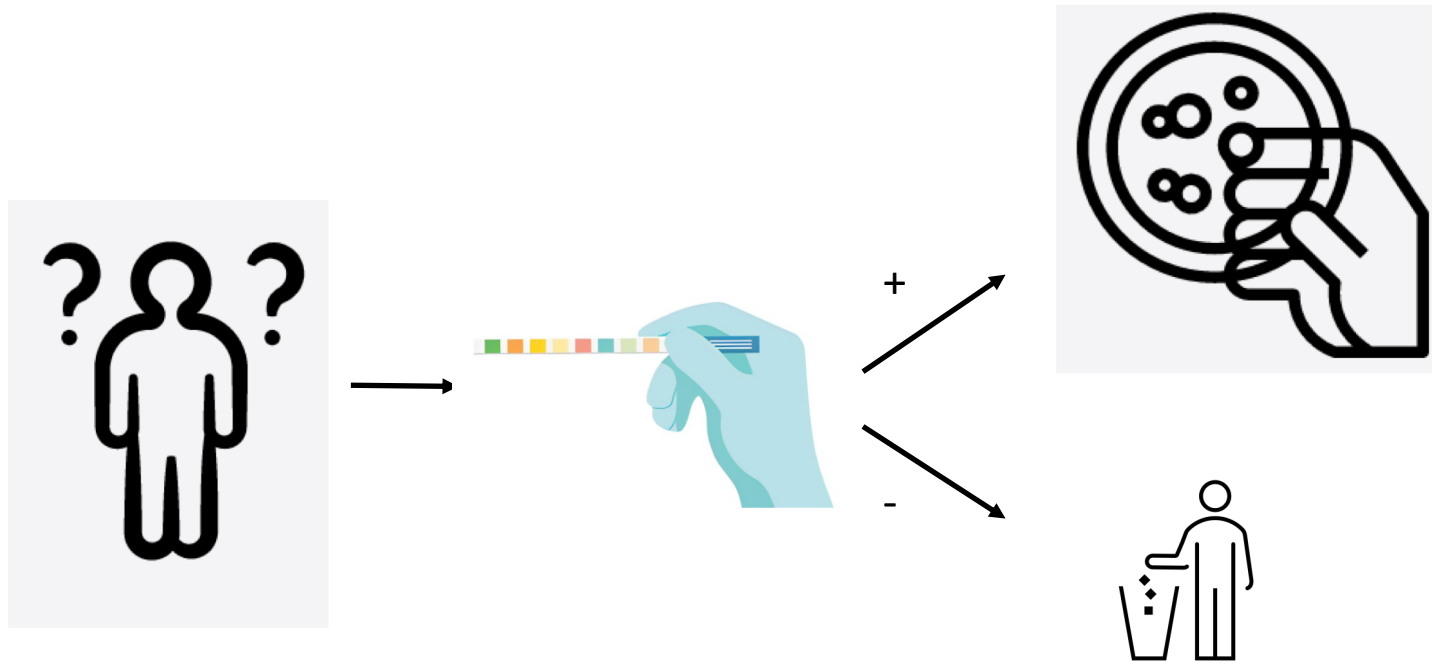
Symptomatic
AND
Asymptomatic
patients

**Premise: UA without LE,
nitrite, or WBC is unlikely UTI**

PRO: Reflex Urine Cultures are a Diagnostic Stewardship Intervention

Alyssa Castillo, MD

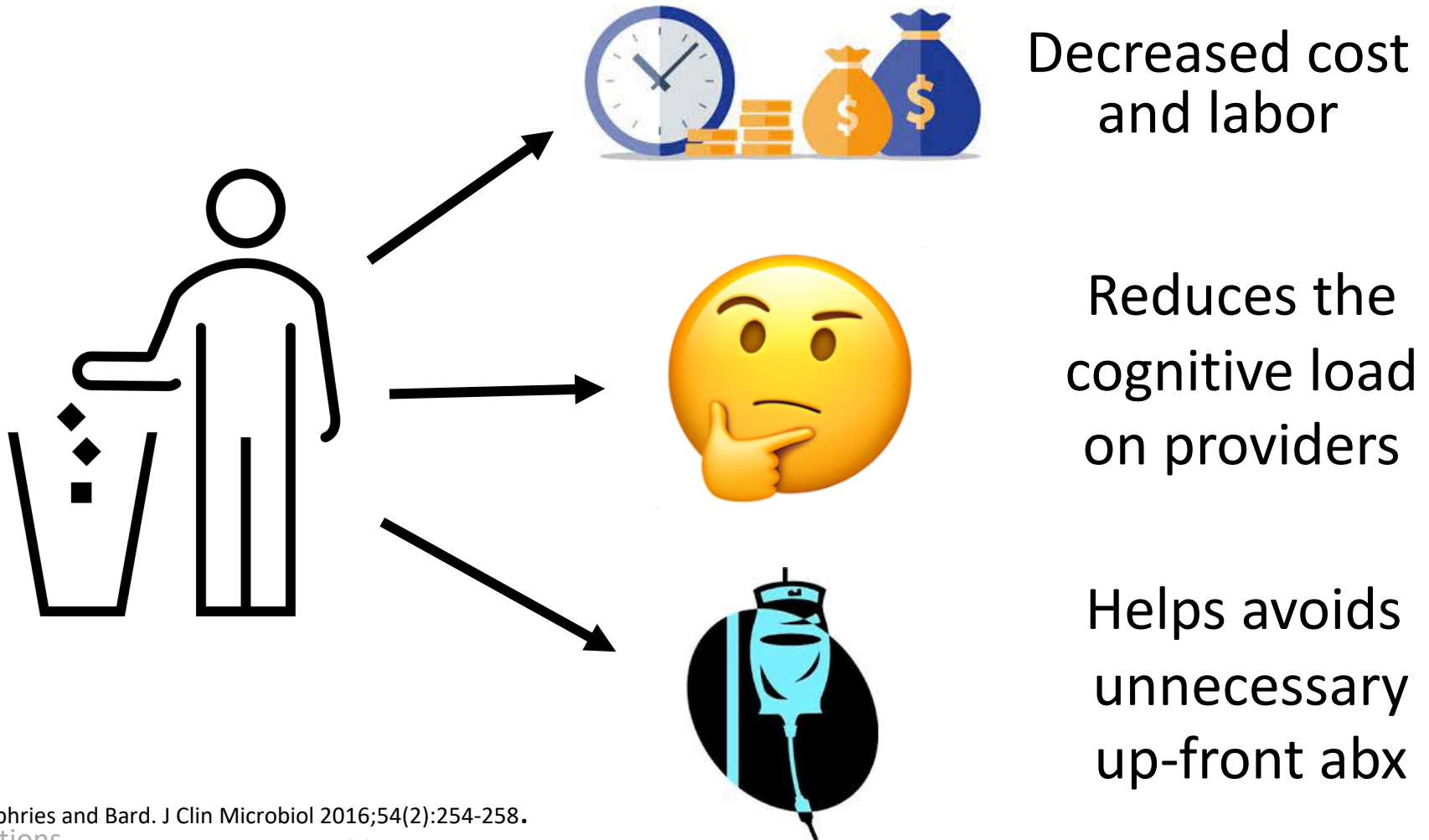
Reflexing to culture



Symptomatic
AND
asymptomatic
patients

**These cultures were unlikely to
be positive – why send them?**

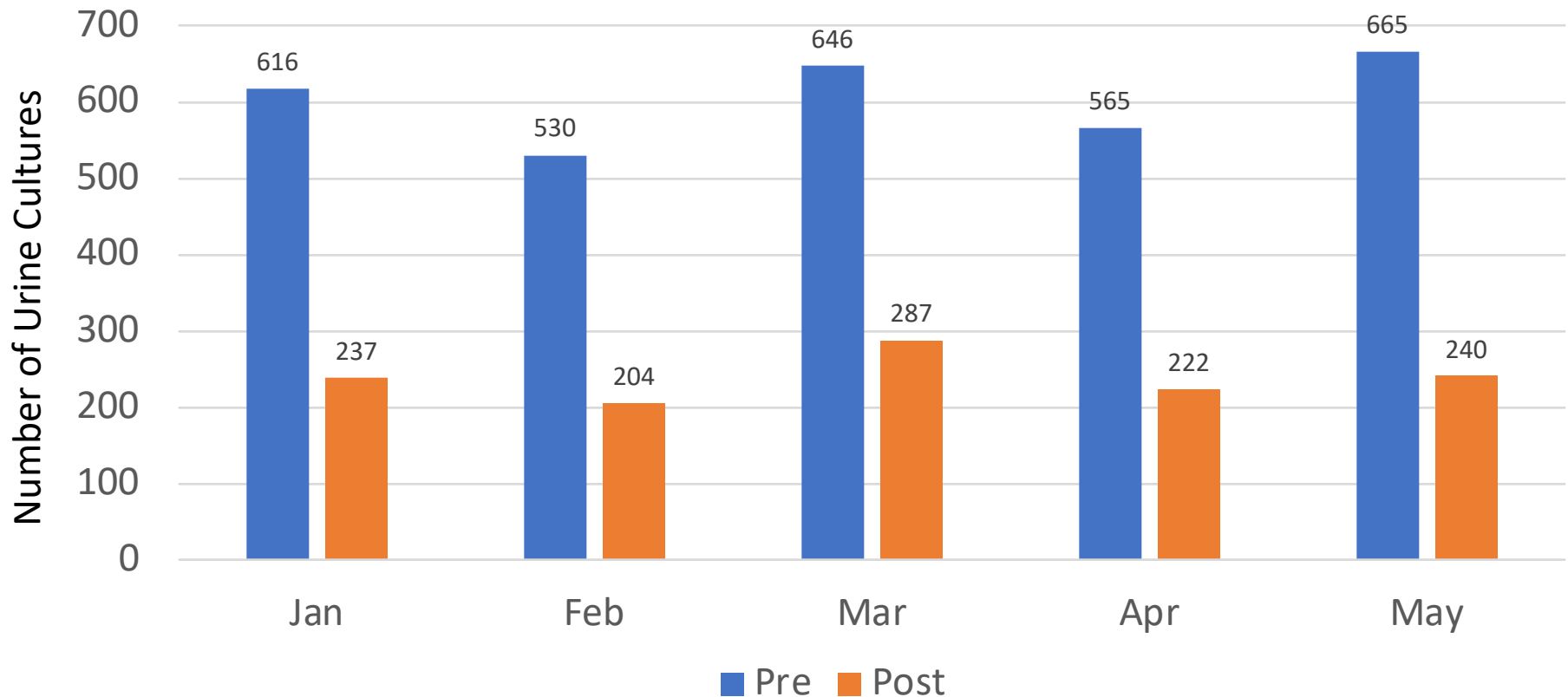
Benefits of Reflexing



Reflexing in Action!



Urine cultures before & after change in UA reflex criteria



Valley Medical Center. Urine cultures reflexed from UA before and after UA criteria change. Jan-May 2021. Data complements of Zahra Kassamali-Escobar.

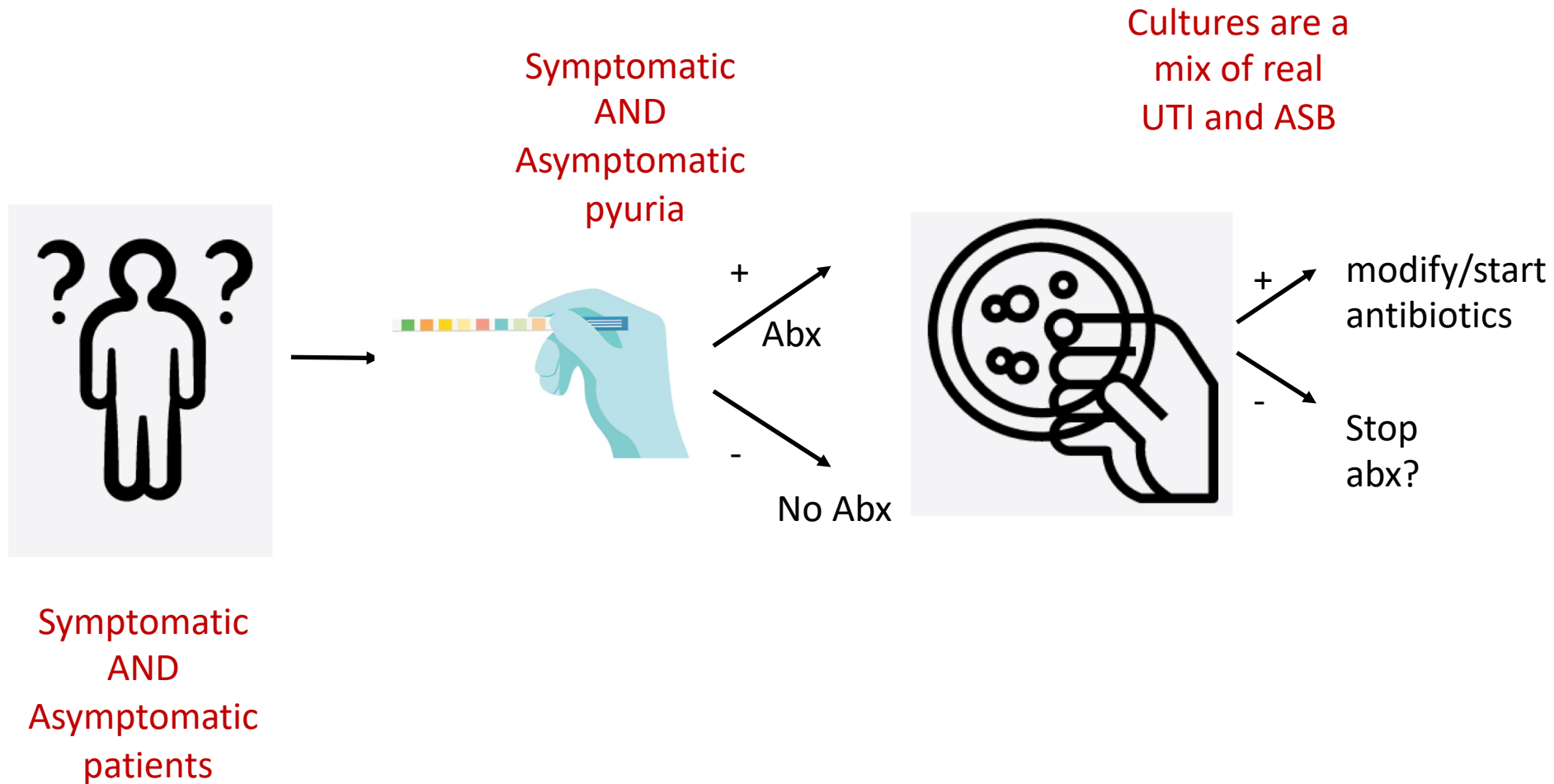
Reflex Urine Cultures are a Powerful Diagnostic Stewardship Intervention

- Sending ONLY urine samples with positive urinalysis to culture can lead to:
 1. Reduced cost + laboratory labor/time
 2. Decreased reliance on providers to correctly interpret UAs
 3. Provides point-of-care data to help avoid initiation of abx in patient with low risk of UTI

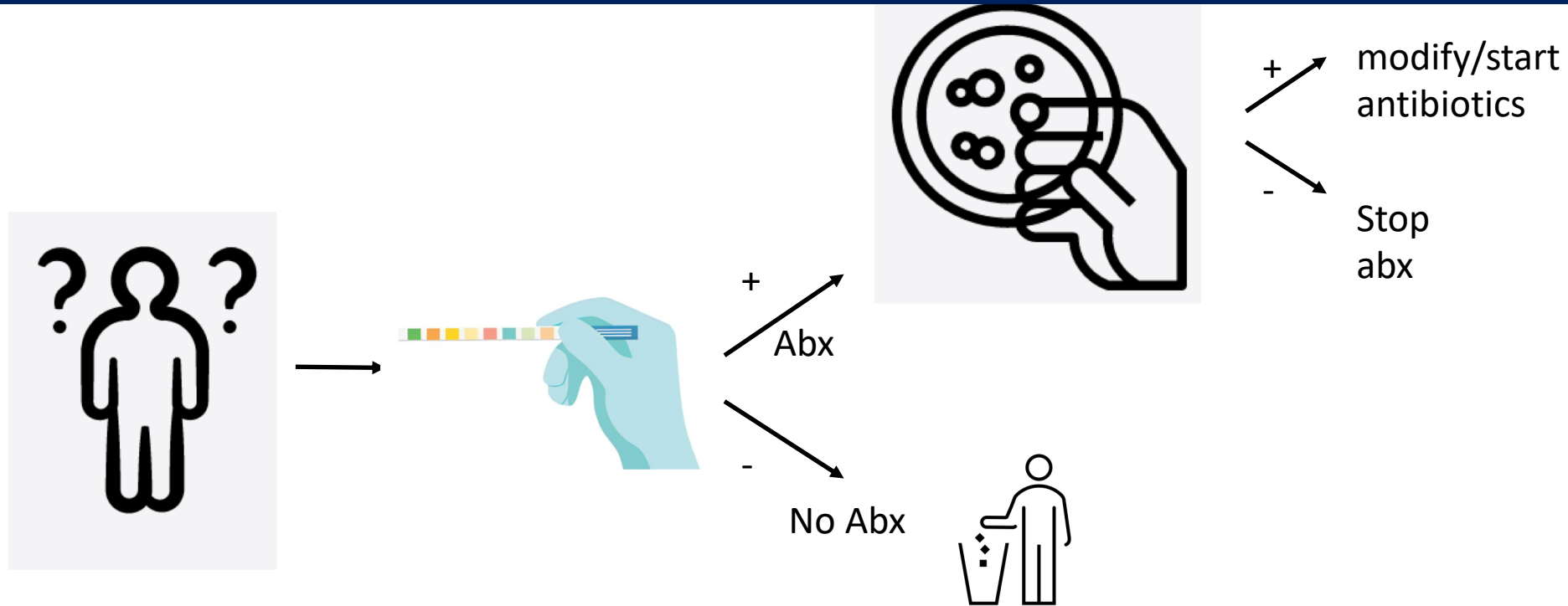
CON: **Reflexing to culture is NOT** **an AMS intervention**

Chloe Bryson-Cahn, MD

The Problem



The Fix? Reflex the Culture



Question: Does this prevent unnecessary antibiotics?

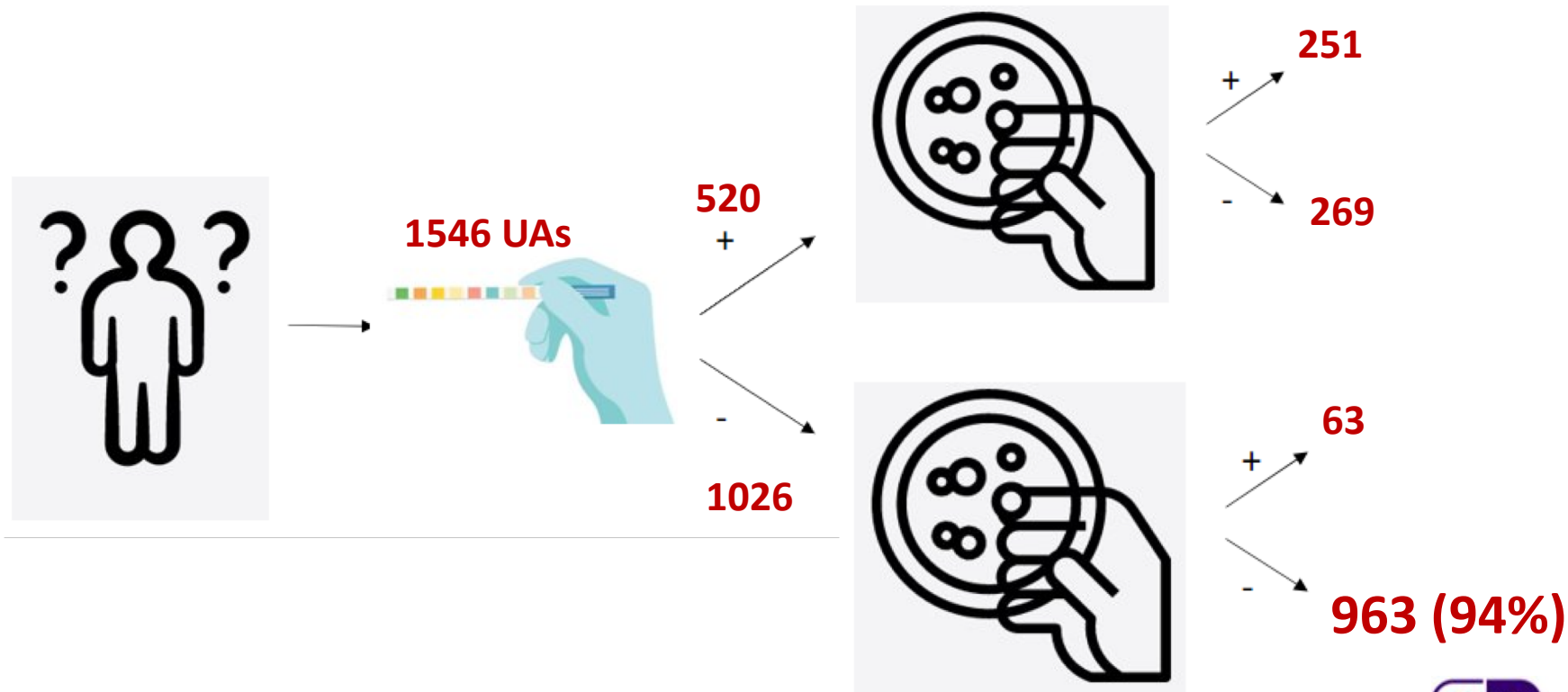
What is UA good for anyhow?

- A negative UA is very good at RULING OUT infection!
- AND very good at predicting that the culture will be negative
- That means:

Paradigm	UA	Urine Culture	Give Abx?
All pts get a UA and culture	Negative	Negative	No
All UAs get reflexed to culture only if positive	Negative	Trash Can	No

Show me the data

ED Review, 6 months
72% female, median 39 yrs
20% culture positive
Using WBC criteria >5



Show me the data

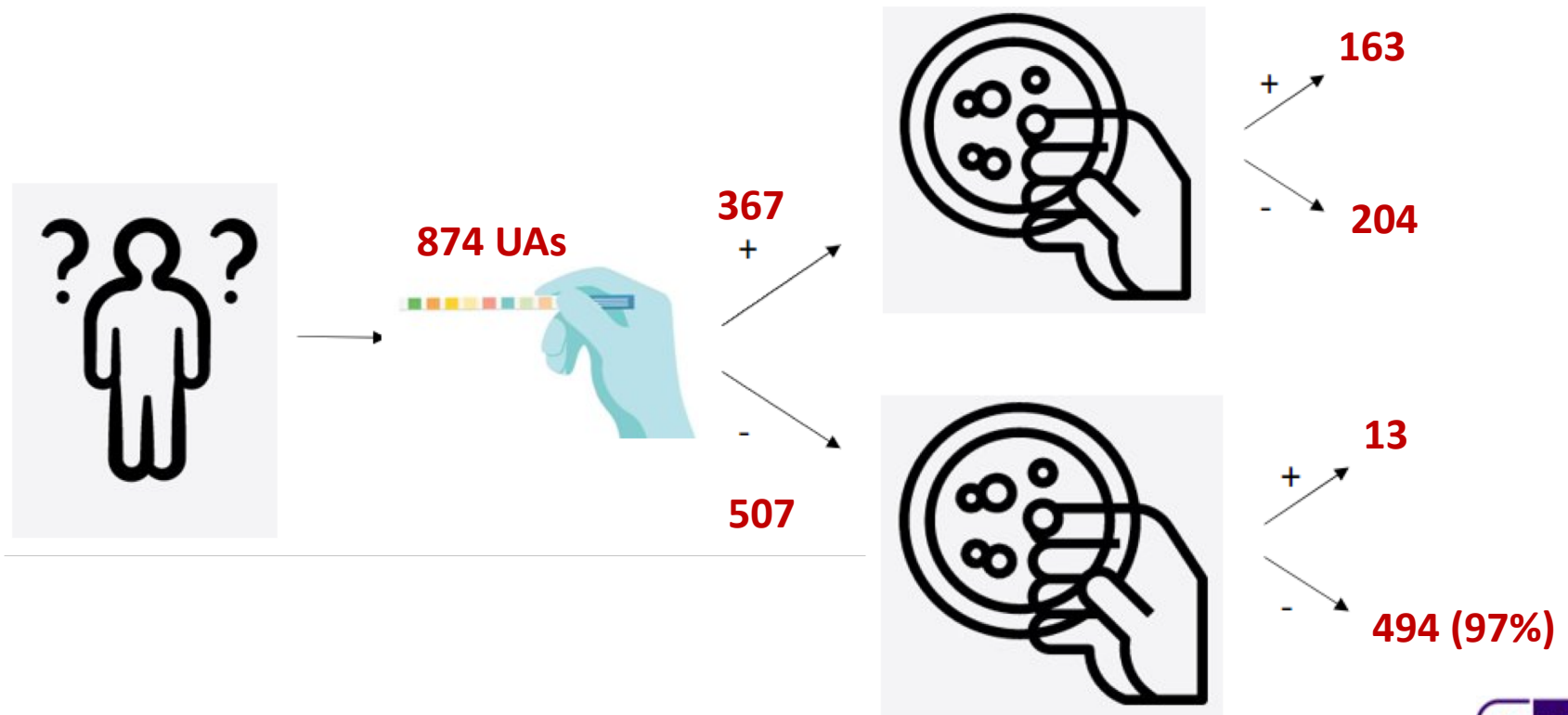
ED Review, 6 months
72% female, median 39 yrs
20% culture positive
Using WBC criteria >5

**63 Pts (4% of the total study)
had a NEGATIVE UA and a
POSITIVE culture**

**AT BEST: tossing the urine would have saved 4% of
patients from getting an antibiotic**

Show me the data

Urology clinic review, 2006
All male patients
20% culture positive
Using WBC criteria >5



Show me the data

Urology clinic review, 2006

All male patients

20% culture positive

Using WBC criteria >5

**13 Pts (2% of the total study)
had a NEGATIVE UA and a
POSITIVE culture**

**AT BEST: tossing the urine would have saved 2% of
patients from getting an antibiotic**

Reflex Urine Cultures are NOT an Antimicrobial Stewardship Intervention

- Trashing ONLY urine samples with negative urinalysis can lead to:
 1. Very small decreases, if any, in antibiotic prescribing
 2. Lots of your time spent creating and validating the criteria
 3. Overreliance of providers on a reflexed culture (it reflexed so it must mean it's a UTI)

What's the Verdict?

Reflexing positive UA to Urine Culture is ...

- An effective diagnostic stewardship tool
 - Decreases overall urine culturing – time and cost
- An ineffective antimicrobial stewardship tool
 - Has minimal impact on reducing antibiotic prescriptions

**WHAT IS THE GOAL OF
YOUR INTERVENTION??**