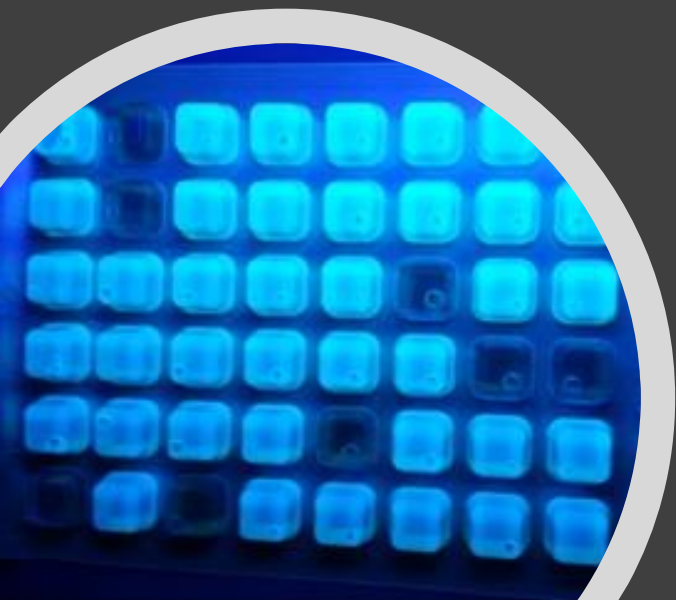
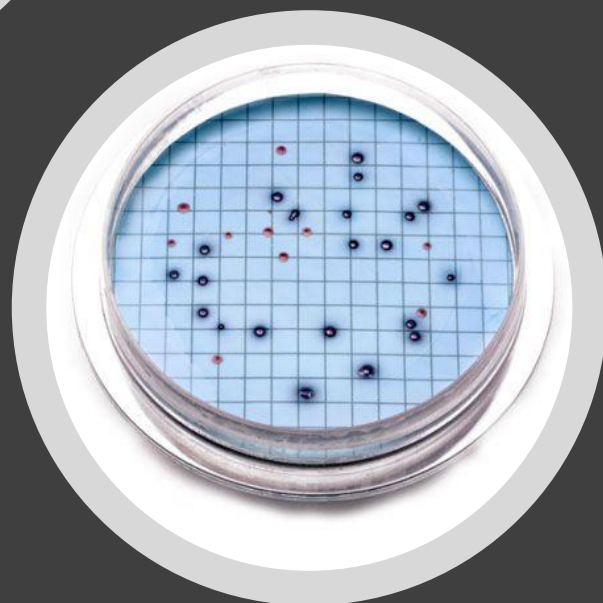


## What's the deal with E coli – Part one

- RT Krueger President
- Northern Lake Service, Inc
- WWOA 55<sup>th</sup> Annual Conference
- October 8th, 2021



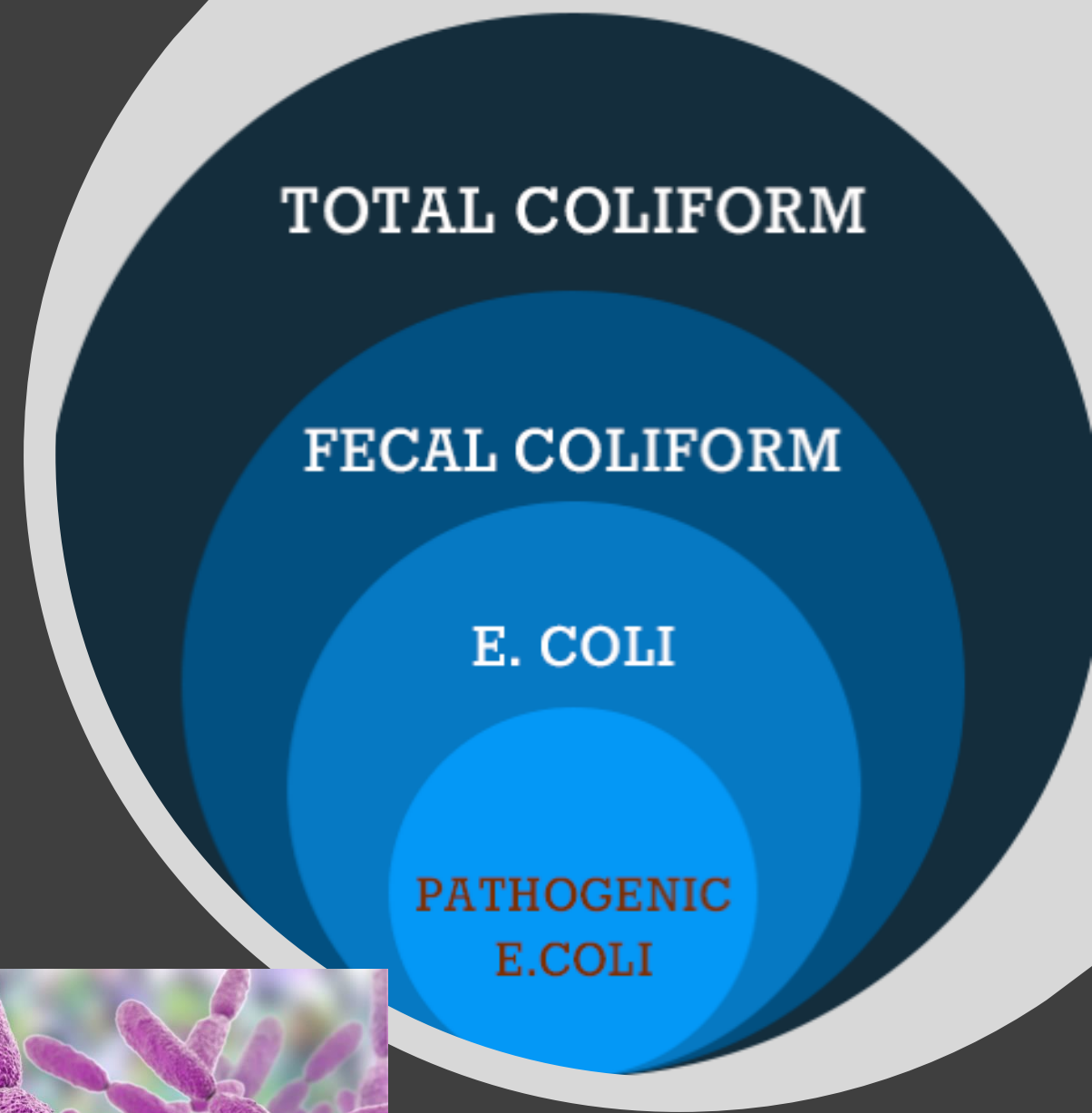
# How we got here

- Clean Water act
- Bacterial component
- Use of fecal coliform



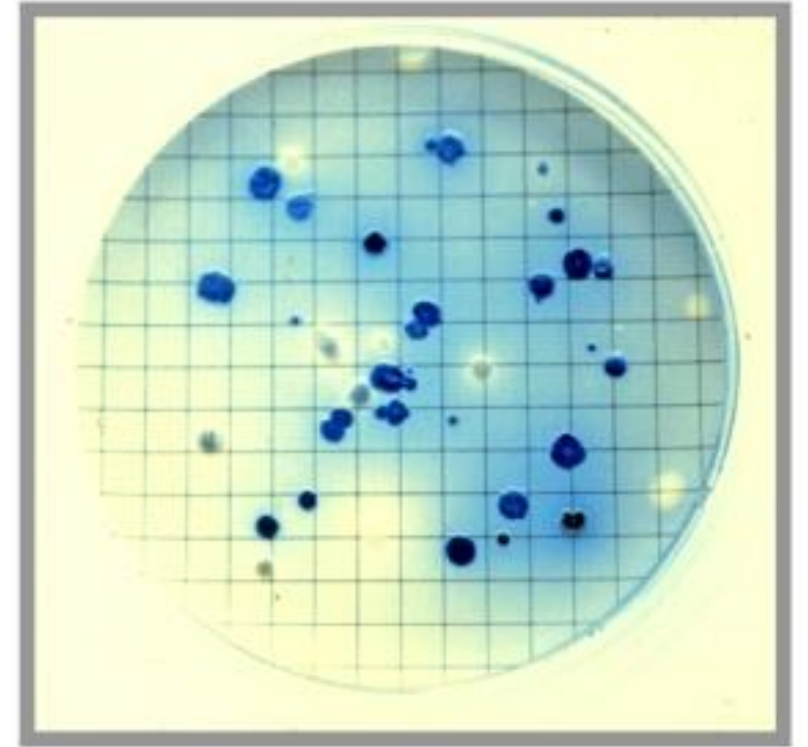
# What is fecal coliform

- Total coliform – gram-negative rods
- Fecal coliforms – coliforms that can tolerate high temps .... associated with warm blooded animals
- E coli – a “species” of fecal coliform strongly associated with the feces of warm-blooded animals



# Fecal coliform - Traditional methods

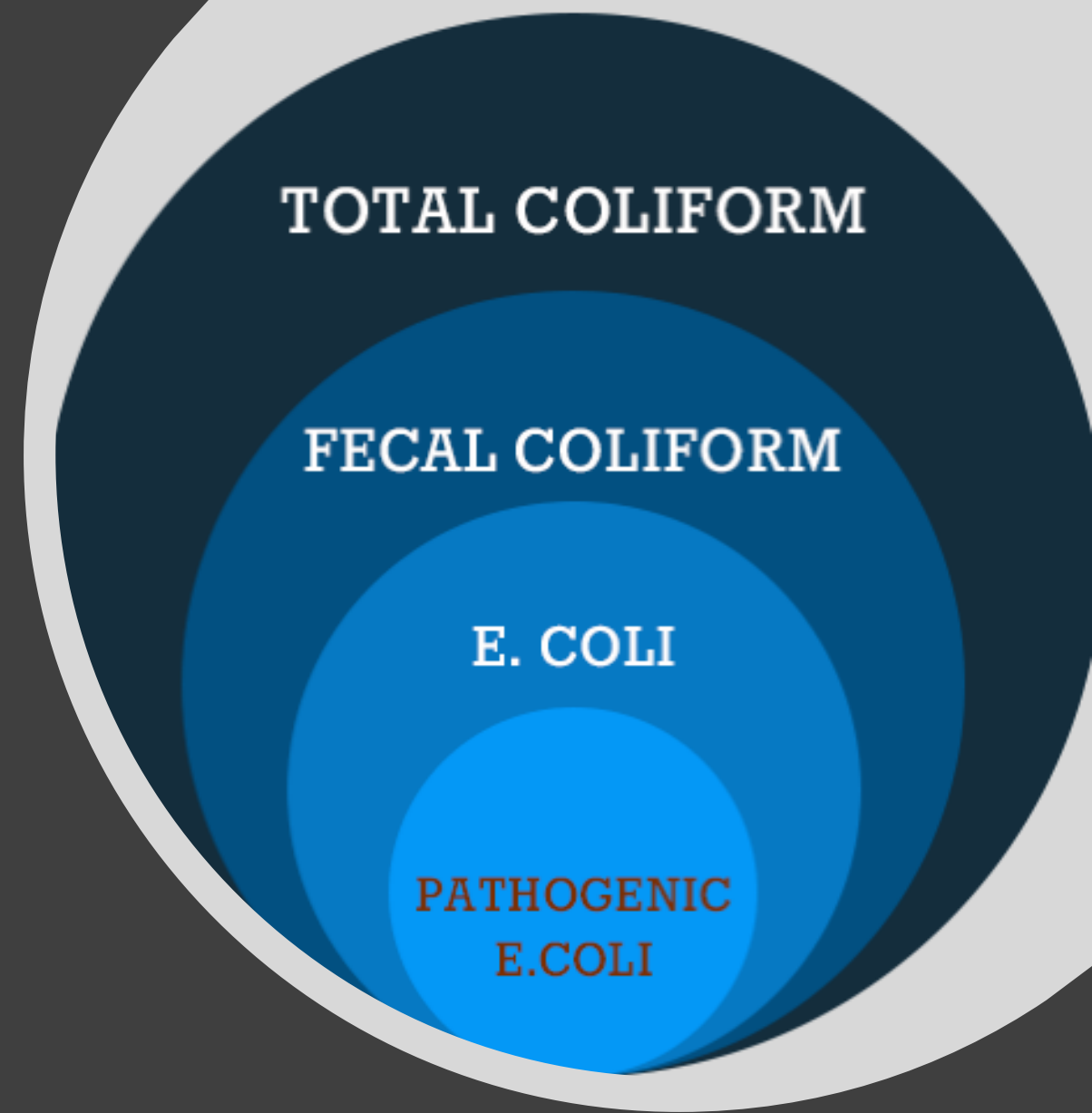
- Filter method
- Easy and inexpensive
- Filter, incubate, count
- .... Direct count



Colony that are both red and blue

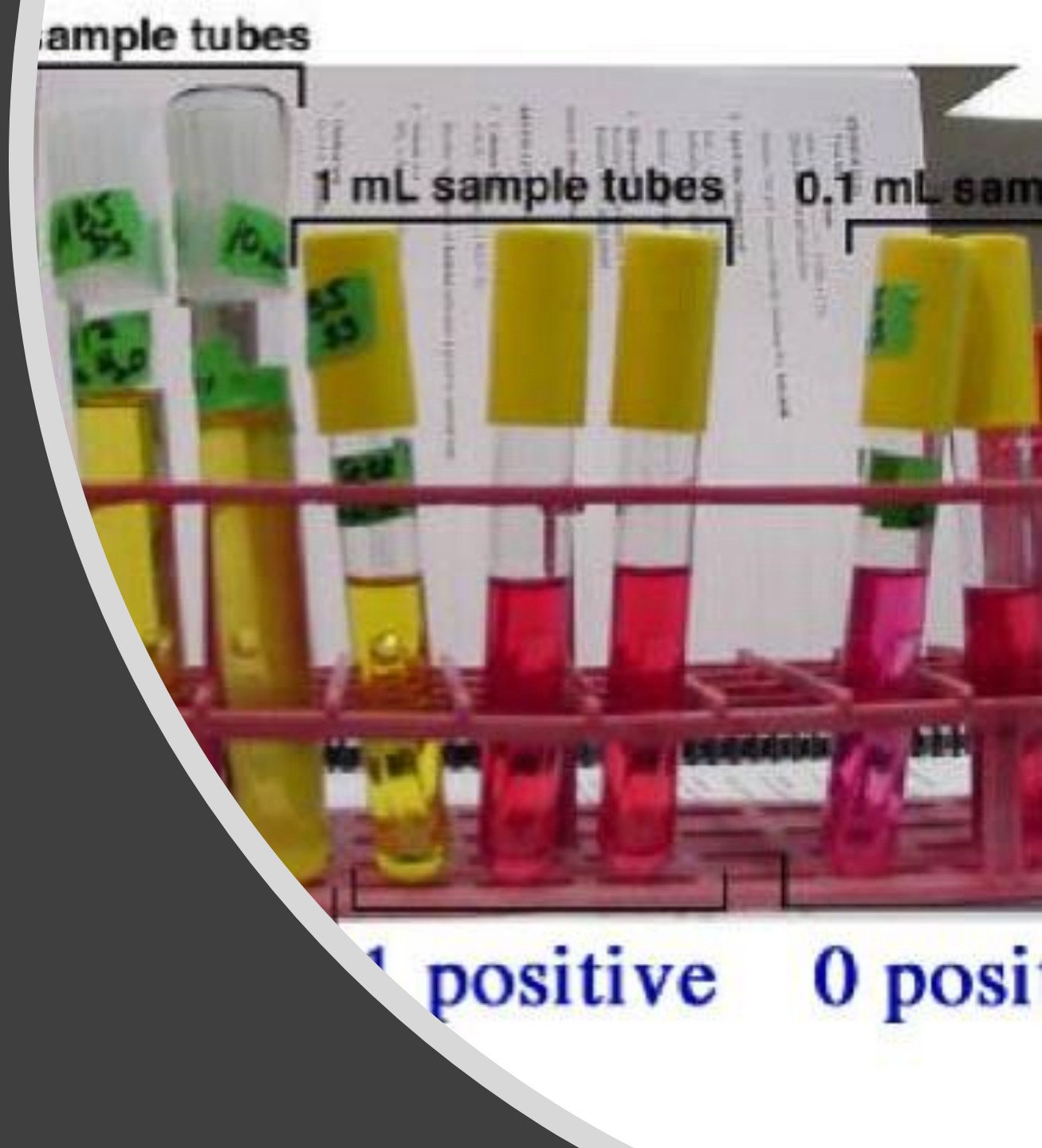
# Why change to E coli?

- Recommendations since the mid 1980s to do something different
- Presence of fecal coliform is an indicator of contamination by feces from warm blooded animals but
- Not necessarily a strong correlation with bacterially-related illness



....Do WHAT  
different?

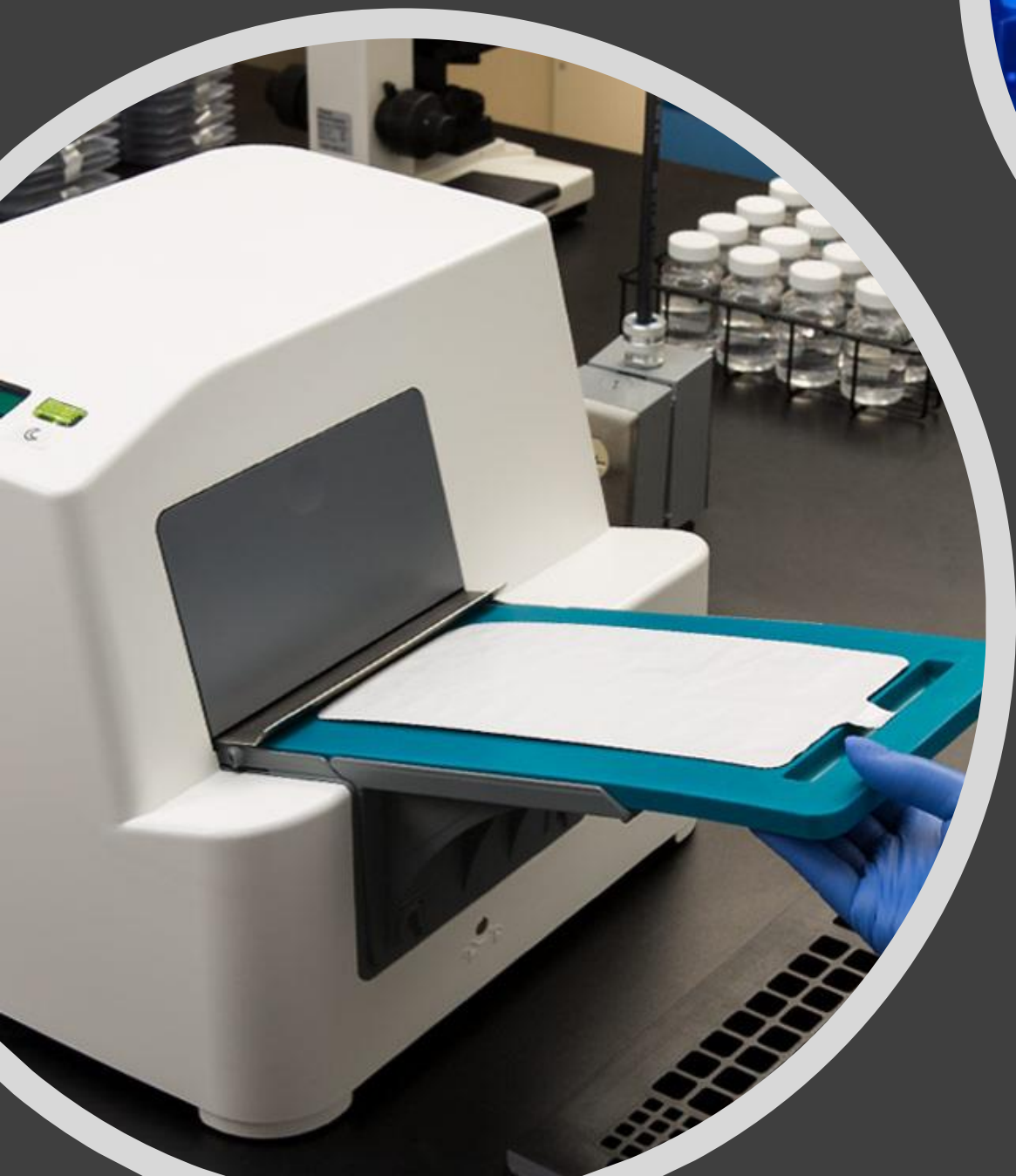
- Use E. coli
- Filtration
- Requires additional steps
- Not very productive



# New spin – enzymatic substrate

- Developed for drinking water
- Three components
- Easy and inexpensive for drinking water
- Easy but not so inexpensive for wastewater

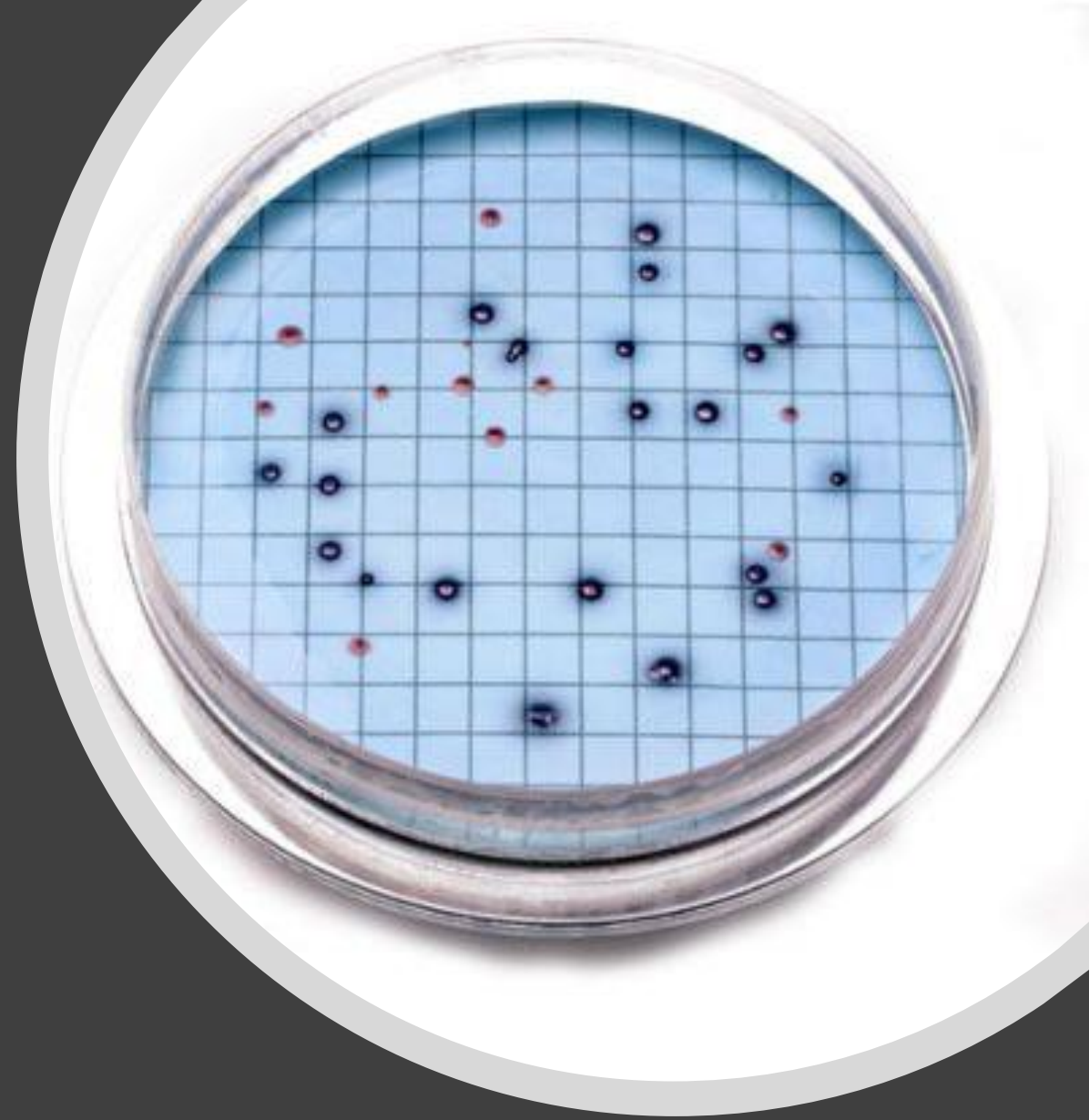




WW must  
quantitate

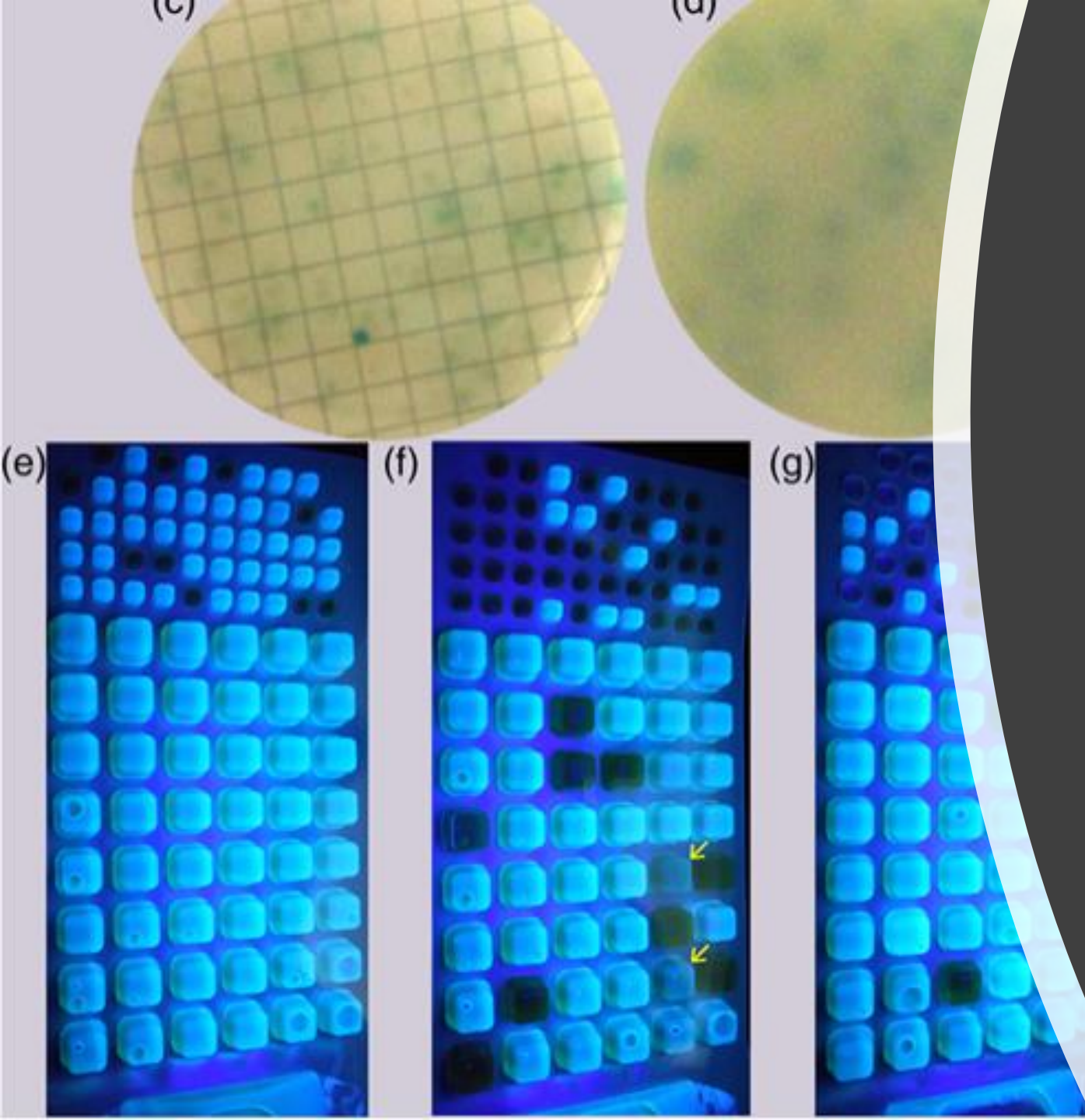
# New filtration methods

- Concept similar to previous



# Concerns and Considerations

- How can *E. coli* results be higher than coliform?
- They can't, but....
- Physical considerations
- Mathematical considerations
- Biological considerations
- Matrix considerations





Olstadt – A  
Comparison of  
Ten EPA  
Approved  
Methods for  
Coliform and E.  
coli



QUESTIONS?