



Resistance Genes Measurement

Noelle Noyes

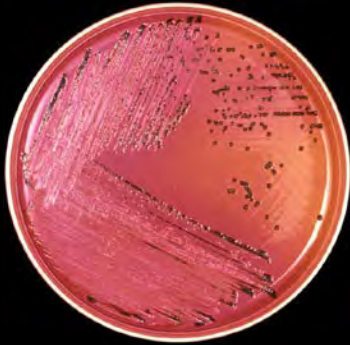


The Resistome

A new way to measure AMR

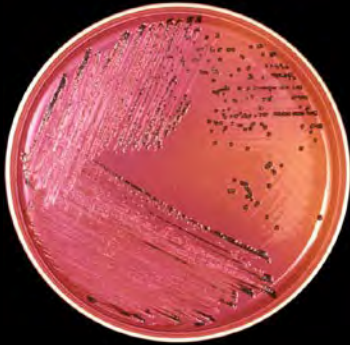
A brief history of AMR measurement

Culture



A brief history of AMR measurement

Culture

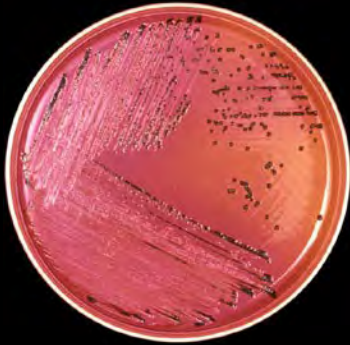


PCR

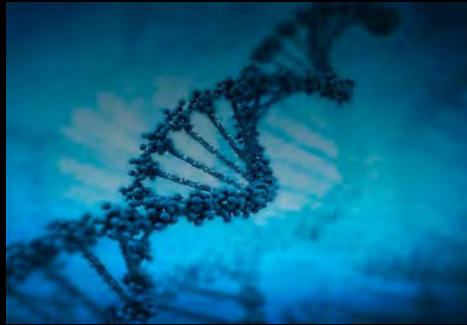


A brief history of AMR measurement

Culture



PCR



Metagenomics

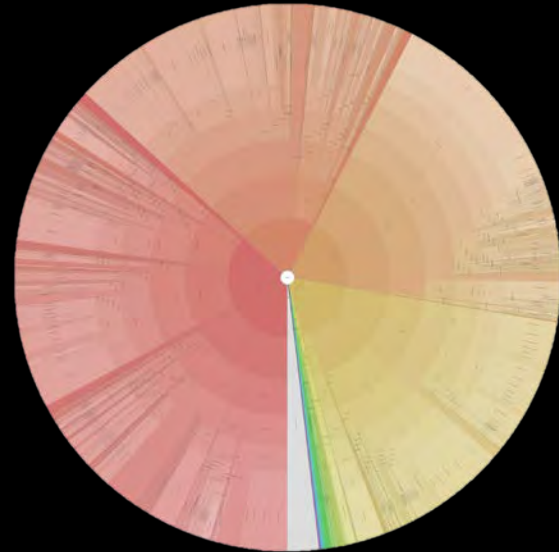
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125:C3MBUACXX:2:1101:2032:1948 1:N:0:CGATGT
GAGAATTGGAGCGTTATTTTAAACGTTTTTTCGATGATGCTCGT
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125:C3MBUACXX:2:1101:2200:1998 1:N:0:CGATGT
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The tool



The measurement

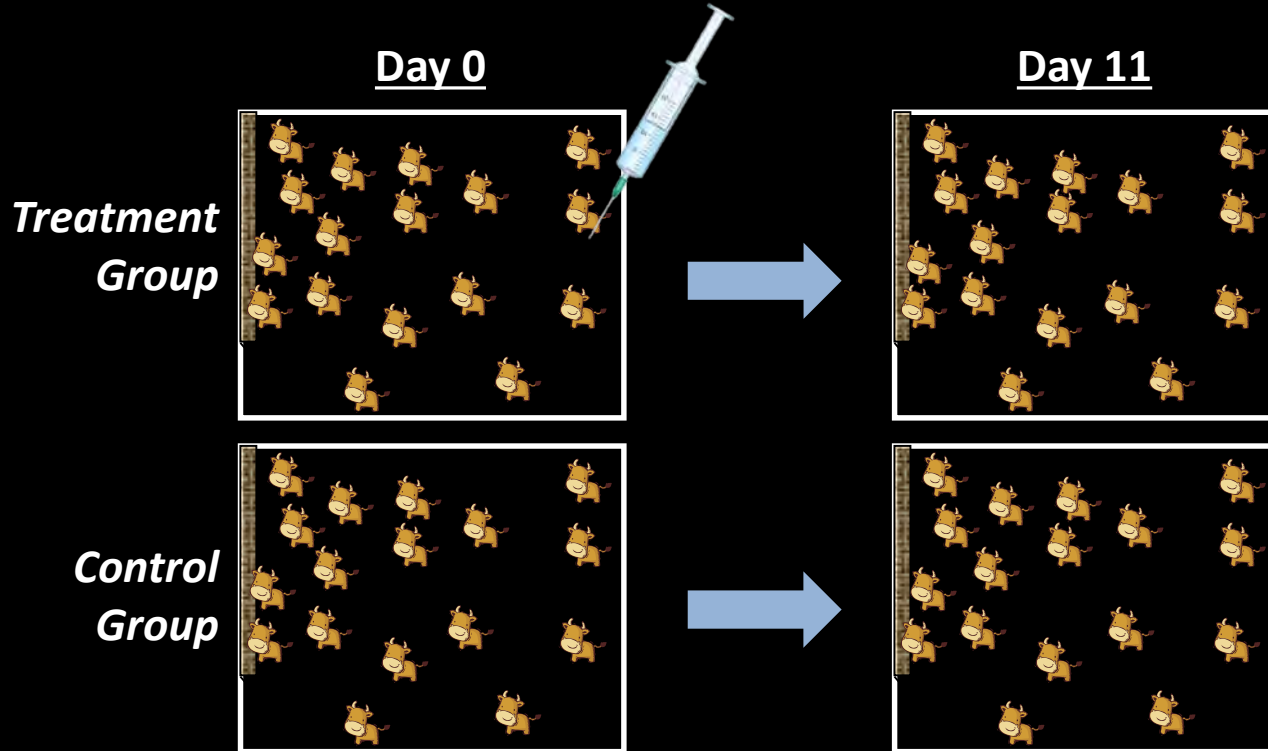
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```



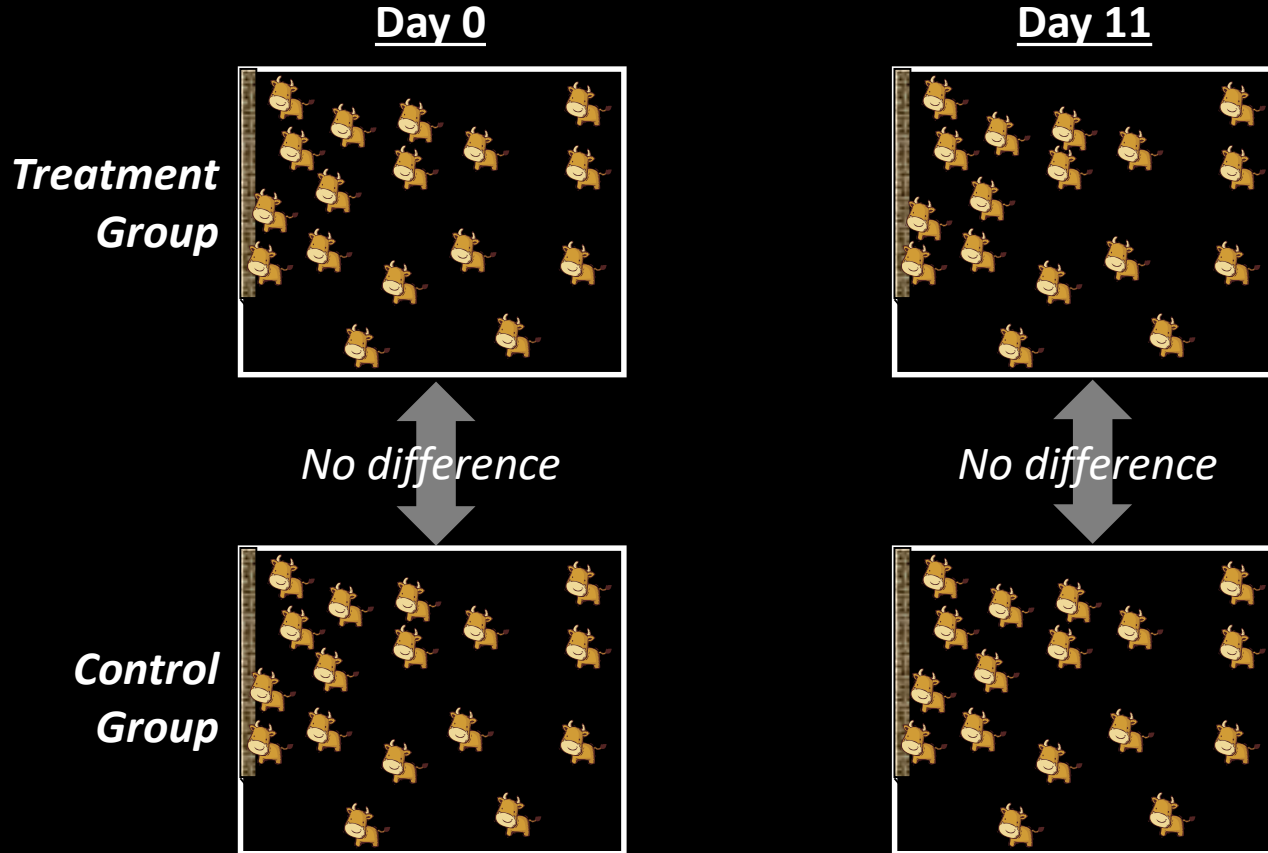
What can we do with this?

2 case studies:

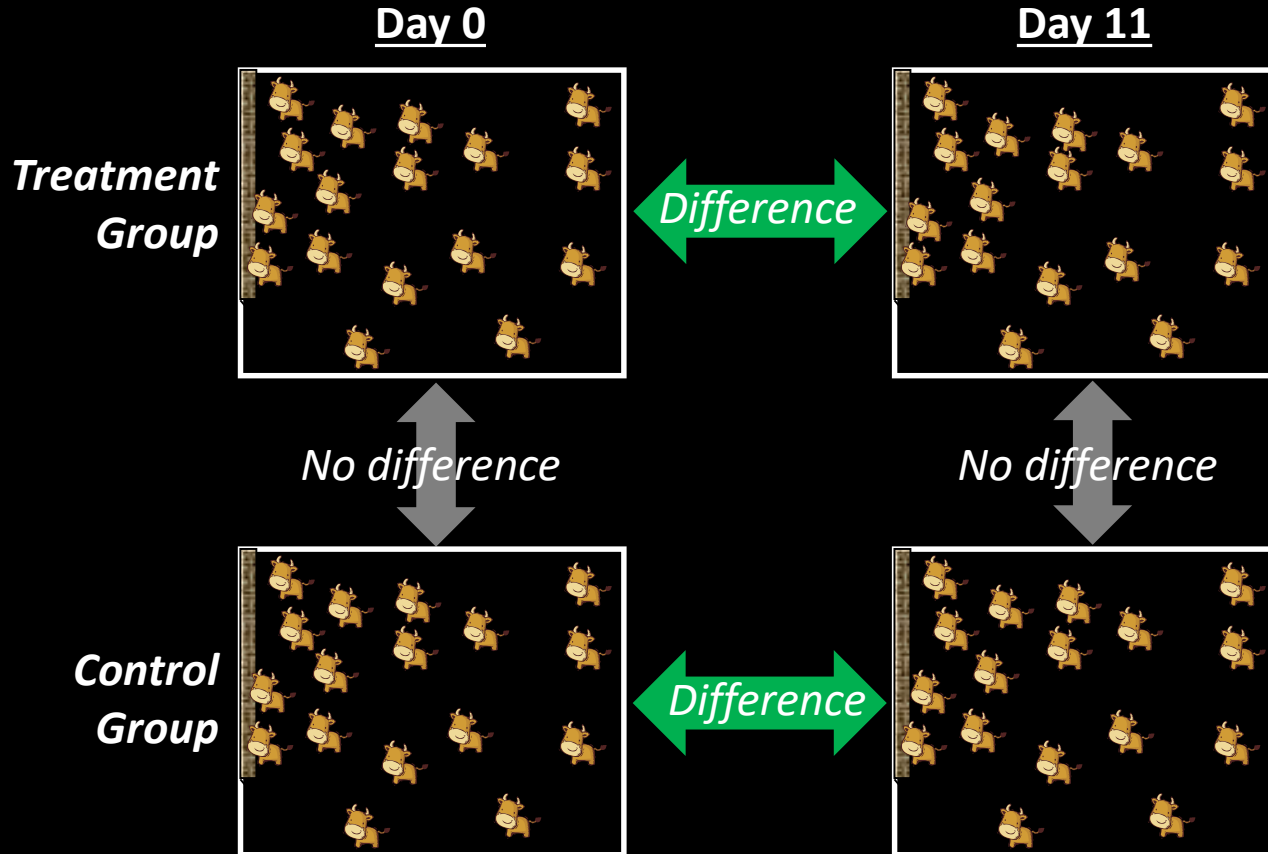
Case Study #1



No differences in resistome between treated and control pens



Big change in resistome over time, in both groups



Key Takeaway:

We need to understand antimicrobial usage within the larger context

Case Study #2

Feedlot
Arrival



Feedlot
Shipping



Transport
to
Slaughter



Holding at
Slaughter



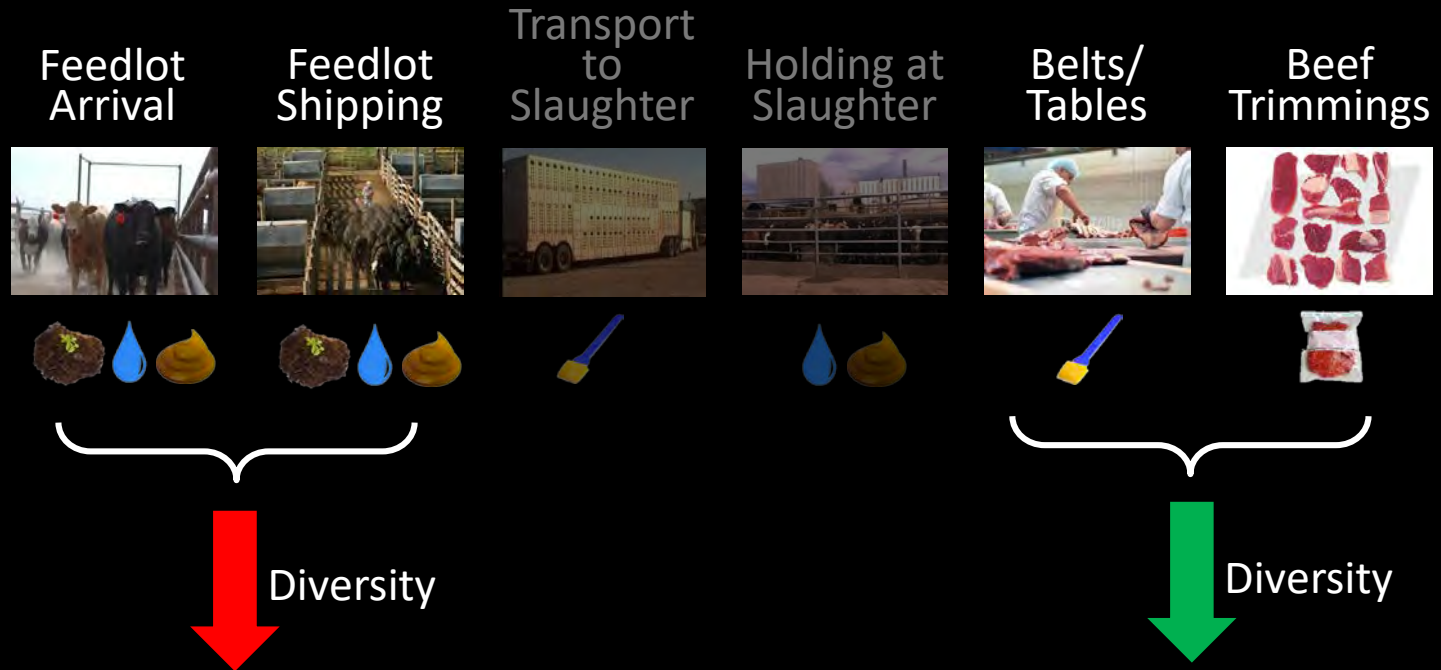
Belts/
Tables



Beef
Trimmings



Reduced diversity can have different meanings in different contexts...



Key Takeaway:

We need to develop a deeper and more practical understanding of the resistome as a measurement of AMR

Conclusion:

*Measuring environmental AMR is
(relatively) easy...*

*...understanding what the
measurements mean is hard...*

*and that's where we need strong
partnerships and diverse collaborations*