

# Animal health, water health, people health

*What can a mere veterinary epidemiologist do?*

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**Remember- there are two types of epidemiologists:**

1. Those who can extrapolate from incomplete data





## A vet epi view: risk factor approach to mitigate unwanted outcomes

- Zoonotic pathogens
- Sediment/solids
- Trace elements (N/P/K/other?)
- Flow/extraction
- AMR
- Oxygenation (secondary?)
- Toxins- (secondary risk)

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## Can vets mitigate key RF?

### Zoonotic pathogens

- Would vaccination make a difference?
  - Lepto, Salmonella, Toxo, Campy
- Change in AH practices?
  - E coli, Listeria, Pasteurella, Crypto, Campy, MAP
- Effluent management
- Other mitigation?

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## Can vets mitigate key RF?

### Sediment/solids; TEs

- Encourage riparian management
- Better winter grazing management
- Housing?



## Can vets mitigate key RF?

### Flow/extraction

- Discourage irrigation?
- Altered practices related to flow levels?



## Can vets mitigate key RF?

### AMR

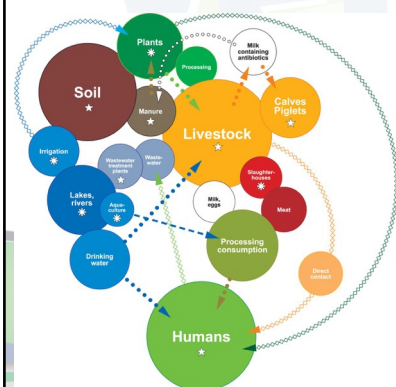
- Eg: Waimak- increase in AMR E coli 2004-12
- Amp, Tetracycline, sulpha
- Chloramphenicol, Strep, nitrofurantoin not used
- Need lots more data- happy to help!
- 2030 vision



### Would housing help?

Winter management  
Effluent disposal  
Pathogen leaching  
Water use?

Sophie Thanner et al. mBio 2016; doi:10.1128/mBio.02227-15



## What can we (vets) do?

- Become 'catchment vets'
- Learn more about water
- Help farmers
- Work on AMR/U
- Holistic farm health
- Help solve waste milk
- Promote sustainability
- Improve farm profitability



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## We all need to do better

**Recreational water quality result**

- Suitable for swimming
- Caution advised
- Unsuitable for

**Auckland's sewage-contaminated beaches have no warning signs ...**  
[www.newshub.co.nz/.../auckland-s-sewage-contaminated-beaches-have-no-warning-si...](http://www.newshub.co.nz/.../auckland-s-sewage-contaminated-beaches-have-no-warning-si...)  
 Feb 14, 2018 - Last year Auckland Council released the Safeswim app so beachgoers could check the water quality before heading out. Credits: Image - Safeswim; Video - Newshub. Dozens of Auckland beaches deemed unsafe for swimming have no public warning signs - because the council says they won't make a ...

**Sewage overflows detected at almost a dozen Auckland beaches from ...**  
<https://www.stuff.co.nz/auckland/.../sewage-overflows-detected-at-almost-a-dozen-auckl...>  
 Feb 11, 2018 - Mission Bay was one of the beaches where overflows of sewage were detected (FILE PHOTO). Sewage has overflowed onto nearly a dozen of Auckland's most popular beaches after heavy rain. Sewerage overflows were detected by sensors at 11 popular hotspots right across Auckland including Mission ...

**Swimming 'not advised' at Auckland beaches after wastewater ...**  
[www.nzherald.co.nz > New Zealand](http://www.nzherald.co.nz > New Zealand)  
 Feb 11, 2018 - Auckland's mayor says it will take at least a decade to tackle the issues causing dozens

Runoff volume from 6-8 August 2016 for a scenario with 125mm of rainfall.

## Thanks and answers?



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