Interdisciplinary AMR (in the real world) Research
Sources of Bacterial Infection – Normal Flora

- Nasopharynx
- Pharyngeal tonsil
- Nasal cavity
- Nasal meatuses
- Oral cavity
- Hard palate
- Soft palate
- Tongue
- Lingual tonsil
- Thyroid gland

Strep. pneumoniae

E. coli

Staph. aureus
Bacterial Infection: It’s a numbers game

- Pneumonia: Approximately 45,000 deaths/year
- Bloodstream infections: Approximately 40,000 deaths/year
- Urinary Tract Infections: Approximately 100,000 cases/year
- Surgical Site Infections: Approximately 4% of all operations
- In the UK only.

- The majority of these infections are opportunistic and many are caused by the patient’s own *E. coli*. 
E. coli spreads.

Johnson et al, 2008

J Clin Micro 46 4078-82
Environmental/Food *E. coli*

*E. coli*
E. coli transmission in the real world.
AMR transmission in the real world.

- Farming uses a lot of antibiotics.
- Is there a link with AMR and can it be reversed?
- Do dogs and humans pick up *E. coli* from the environment?
- Is there a link to UTIs caused by Resistant *E. coli*?
- And can this be reversed?
My Strategy for Building an Interdisciplinary Team.

• Ask the right questions.
  – Regulators/users should set the agenda.

• Hold lots of meetings.
  – What do people think they can measure/influence?
  – What access can they provide (impact, cohorts locations)?

• Don’t fit square pegs into round holes.
  – choose people for what they can do not what you need them to do.
  – Set up the team and then devise the programme of work.
Kristen Reyher, David Barrett (Farm Animal Vets)
Rachel Casey, Severine Tasker (Small Animal Vets)
Alasdair Hay (GP)
Alasdair MacGowan, Neil Woodford (PHE)
Matt Ellington, Willem van Schaik (Genomics)
Katy Turner, Margaret May (Statistics, Modelling)
Tristan Cogan, Matthew Avison (Microbiology)