**SUPPLEMENTARY MATERIAL**

**Model Equations**

**Data Manipulation**

The datasets used – general vs import datasets

1. General datasets
   1. Provide rationale for the datasets – why we picked ampicillin inf attending pigs etc
   2. Where we obtained the data from
   3. What stuff did we do to the data
2. Import dataset
   1. **How we calculated proportion of food usage from specific countries**
      1. **Using the different datasets**
      2. **Large amount of data and info here**
   2. Level of contamination and resistance from these countries (mention what years we used)
      1. Contamination we specifically took data from carcasses – rather than fresh as this is more representative of imported food
      2. The details like making sure that the measurements were standardised and using competent authorities etc.
      3. Resistance we just took from the general fitting dataset
3. UK specific outcome measures
   1. Livestock resistance
   2. Livestock contamination
      1. Mention here is where we figured we would need to have an extra parameter describing the reduction in caecum to carcass
   3. Human resistance
   4. Human fbd – mention that we missed the 2016 year so we only use a single year

Supplementary Figures

1. Model fit – the one case study with a linear regression - to show that there is a relationship between livestock antibiotic usage and resistance

Chart, scatter chart

Description automatically generated

1. Diagnostic plots for the model fits – ideally, we have the plots which show the fitted distances compared to epsilon for each generation
2. Monotonicity plots for general senstivity analysis

Diagram

Description automatically generated

Diagram

Description automatically generated

1. Sensitivity analyses for the general outcome measures ICombH and resistance

Chart, scatter chart

Description automatically generated

Chart, waterfall chart, box and whisker chart

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1. Uncertainty analysis for the main outcome measures (maybe this is a main figure?)
2. Monotonicity plots for outcome sensitivity analysis – the effect on fbd and resistance