**Grant writing:**

Title:

* An investigation into the link between antbiotic resistance and antibiotic consumption amongst recombinogenic bacteria

Layman’s summary:

* Problem of resistance
* Problem with strep and recombinogenic bacteria
* Lack of tools to anlayse recombinogenic population dynamics
* How this can relate to policy on antibiotic consumption

Background:

* Look at previous work from project 1, how we saw no relationship
* Highlight Lehtinen et al 2017 work on stable levels of antibiotic resistance despite consumption
* Look at previous studies, linking but only cross sectional, not over time
* Highlight need for analysis of recombinogenic bacteria

Aim:

* To develop a software package allowing us to reconstruct the evolutionary history of recombinogenic bacteria, with an aim to use this to understand the link between antibiotic consumption and antibiotic resistance within Germany.

Methods:

* Build on previous methods to incorporate estimating clonal genome alignments, incorporate this into BEAST software package for general release.
* Use this tool on whole genome sequencing data from Germany, as well as collect better data on antibiotic consumption from the German health care system.

Costing: