

# Unexpected Delay in Transmission between Spatially Separated Hosts

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## Introduction

Neighborhood infection is an important route for the outbreak of many (pathogenic) diseases. Lately it has received much attention because of epidemics of Avian Influenza and other pathogens, resulting in severe economical and animal losses. In this study we used the data from indirect transmission experiments to develop and test a new class of models for indirect transmission.

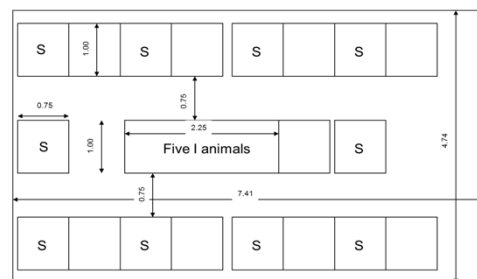
## Aim

Gain more insight into the underlying mechanisms of indirect transmission.

## Methods

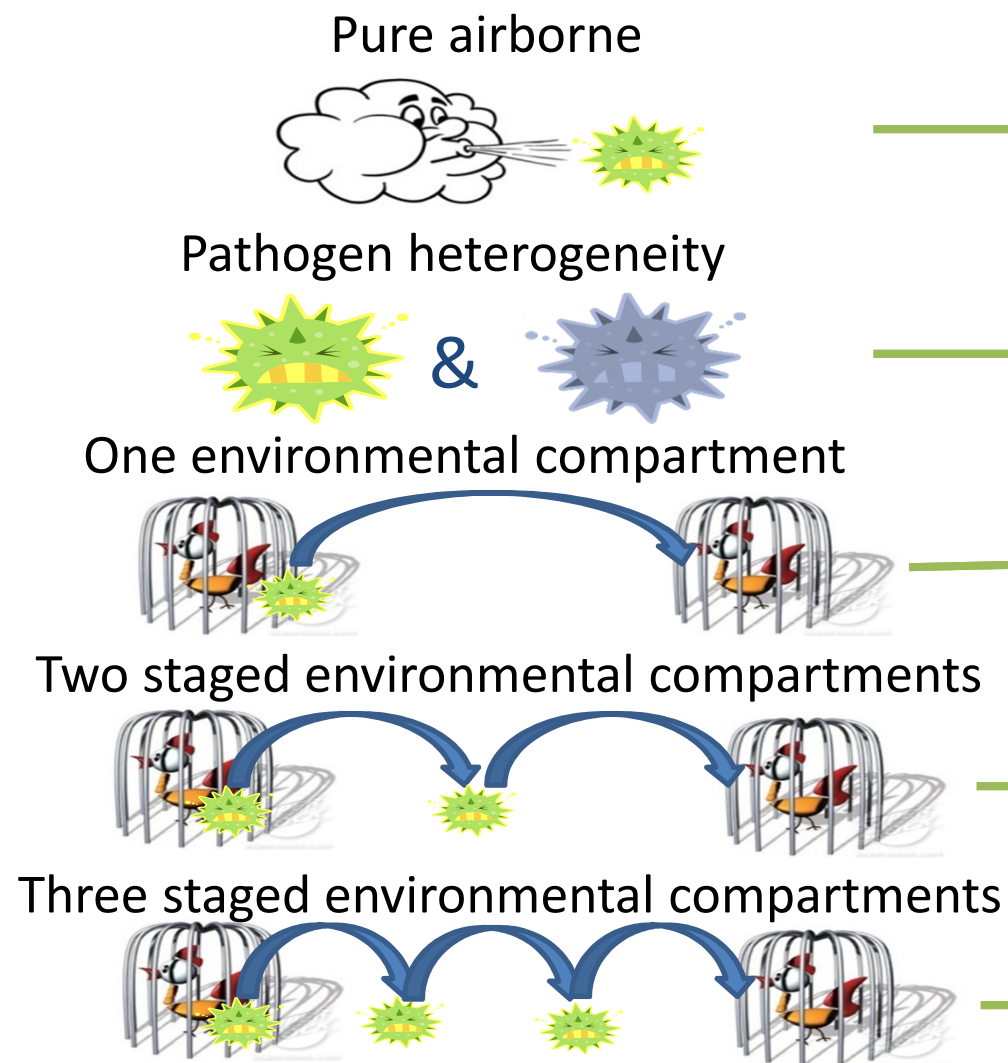
Different scenarios from a newly developed class of models were tested against the data from indirect transmission experiments, using a maximum likelihood approach. Estimated parameter values need to be biologically plausible.

## Experimental setup



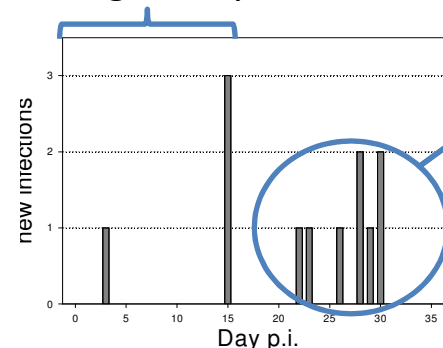
Indirect transmission of *Campylobacter* between broilers used as model system.

## Tested scenarios



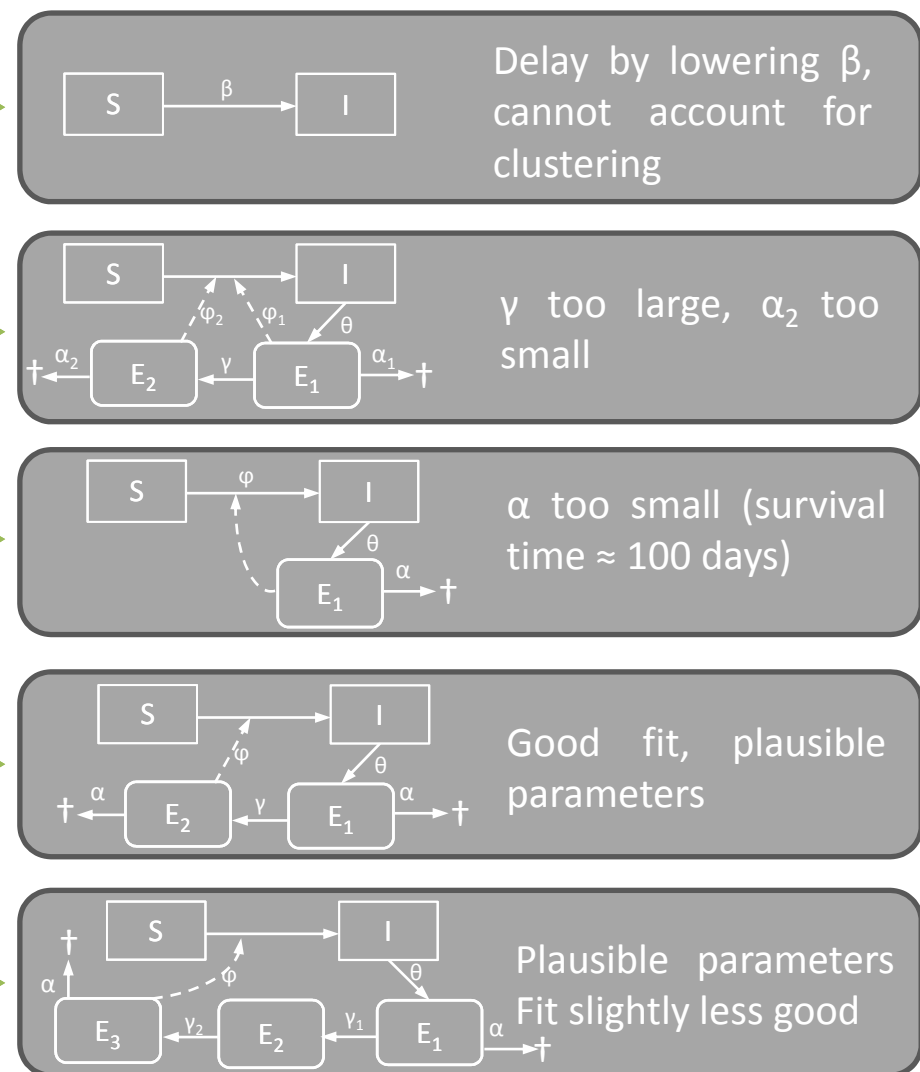
## Data

Large delay



Clustering at end of experiment ( $p=0.018$ ,  $\chi^2$ -test)

## Results



## Conclusion:

- Indirect transmission cannot be explained by 'pure' airborne transmission
- Multistep staged route from source to recipient explains the data best.

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