



# *Campylobacter coli* - What's the big deal?



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# Background

- *Campylobacter* sp. is the most common foodborne bacterial pathogen in the USA. (Mead *et al* 1999).
- *Campylobacter* sp. is the most common foodborne pathogen in England and Wales. (Adak *et al* 2002).

# Background

- Campylobacters - rarely speciated
- *C. jejuni*  $\approx$  90% : *C. coli*  $\approx$  9%
- Epidemiological studies - *Campylobacter* sp.
  - findings describe the epidemiology of *C. jejuni*
- Epidemiology of *C. coli*
  - poorly described/understood

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Do *C. coli* and *C. jejuni* have the same epidemiology?

Case-case comparison

*C. coli* (n=272) vs. *C. jejuni* (n=3489)

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# *C. coli* (n=272) vs. *C. jejuni* (n=3489)

| Exposure                    | OR   | P value | Lower | Upper |
|-----------------------------|------|---------|-------|-------|
| Summer                      | 0.64 | 0.029   | 0.42  | 0.95  |
| Summer (50 to 59 yrs)       | 3.10 | 0.013   | 1.27  | 7.59  |
| Asians (abroad)             | 9.70 | 0.006   | 1.89  | 49.73 |
| Pâté                        | 1.53 | 0.049   | 1.00  | 2.34  |
| Pâté (50 to 60 yr olds)     | 0.21 | 0.05    | 0.05  | 1.00  |
| Meat pies (retired indiv.s) | 3.41 | 0.005   | 1.45  | 8.01  |
| Bottled water               | 1.45 | 0.042   | 1.01  | 2.08  |
| Men (abroad)                | 0.42 | 0.028   | 0.19  | 0.91  |

Controlling for age & sex

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# Do *C. coli* and *C. jejuni* have the same epidemiology?

Case-case comparison

*C. coli* (n=272) vs. *C. jejuni* (n=3489)

- Pâté
- Meat pies
- Bottled water
- Ethnicity (travel)
- Seasonality

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# Aims

To estimate the health impact of indigenous foodborne *C. coli* infection in England and Wales (E&W) in 2000 (population 53M).

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# Objectives

To derive estimates for the number of:

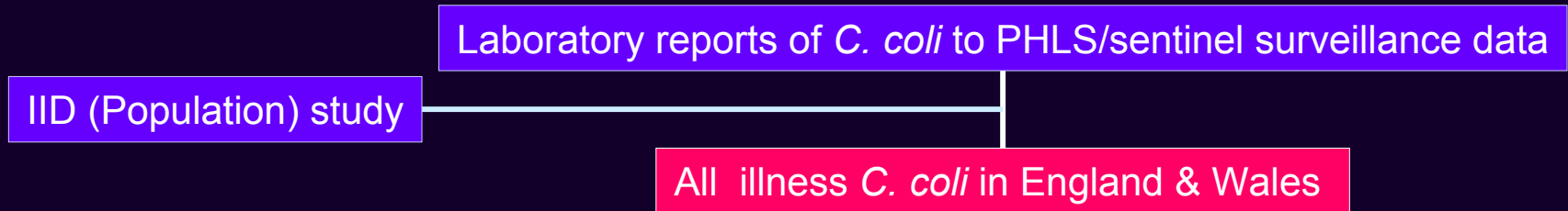
- Cases of illness due to indigenous foodborne *C. coli* infection
  - patients presenting to family doctors
  - patients hospitalized
  - patient days spent in hospital
  - deaths
  - patient/healthcare costs





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# Methods

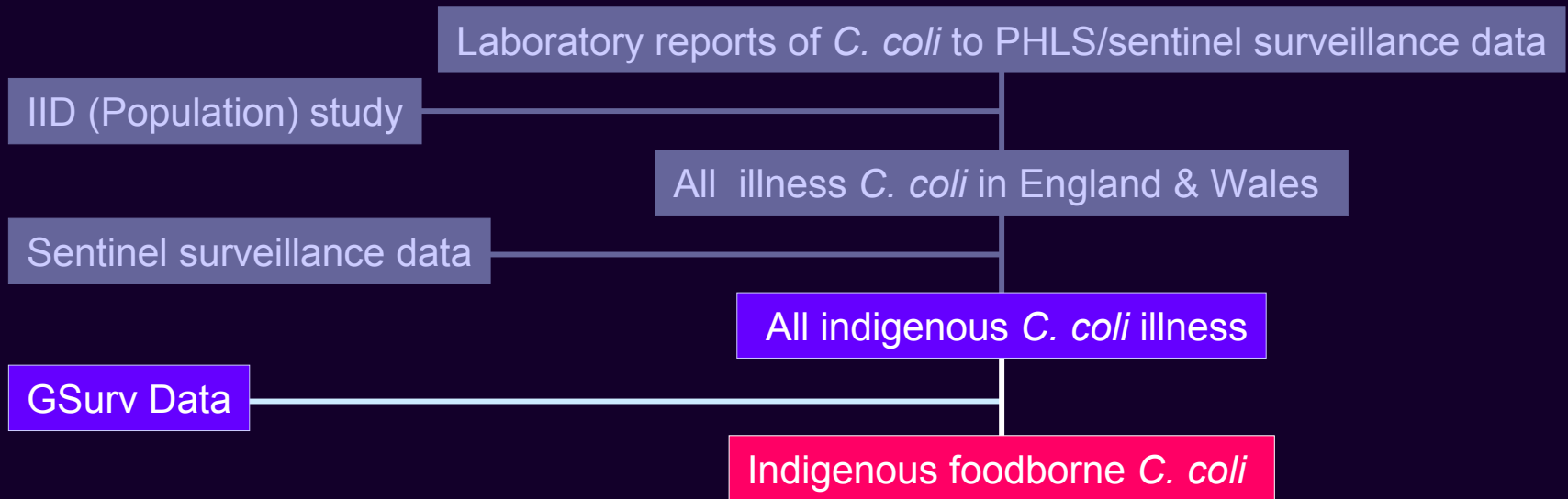


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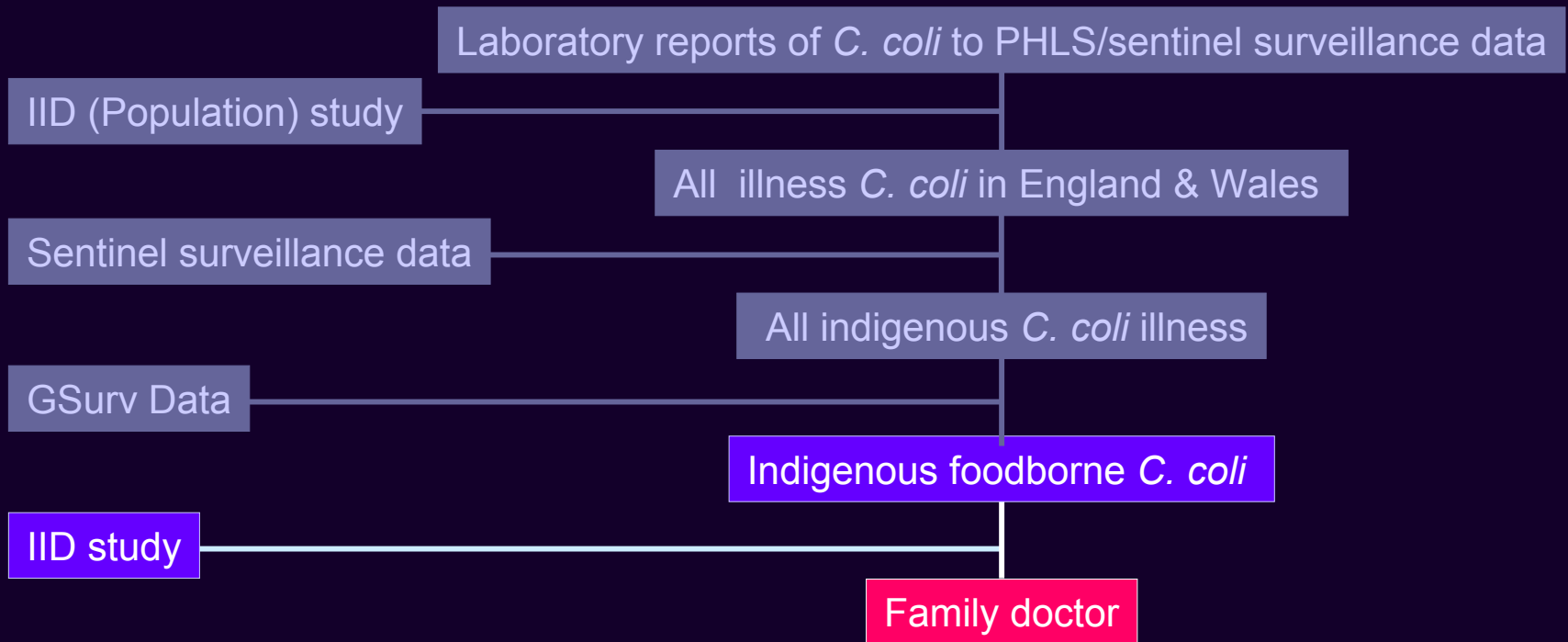
# Methods



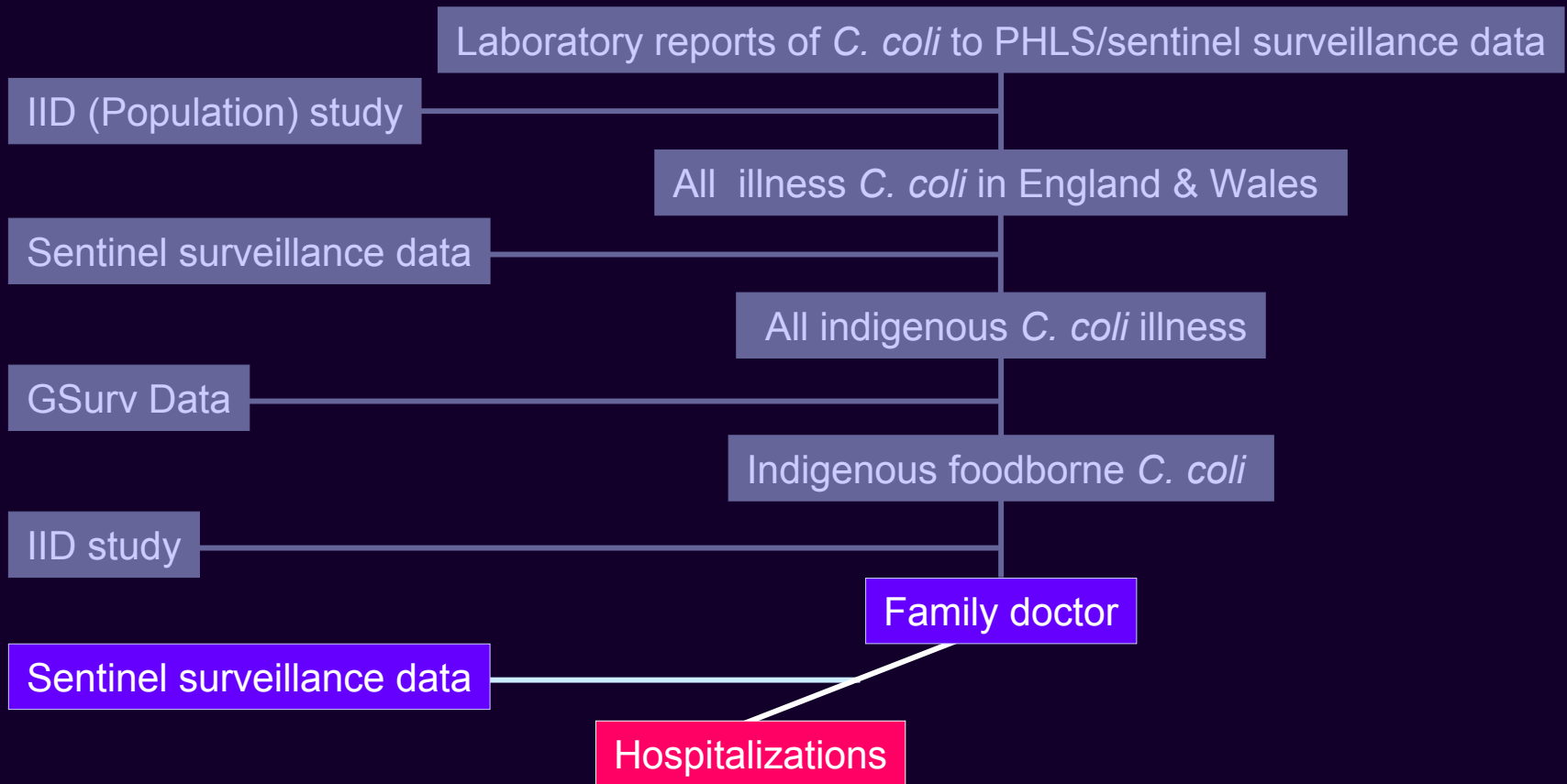
# Methods



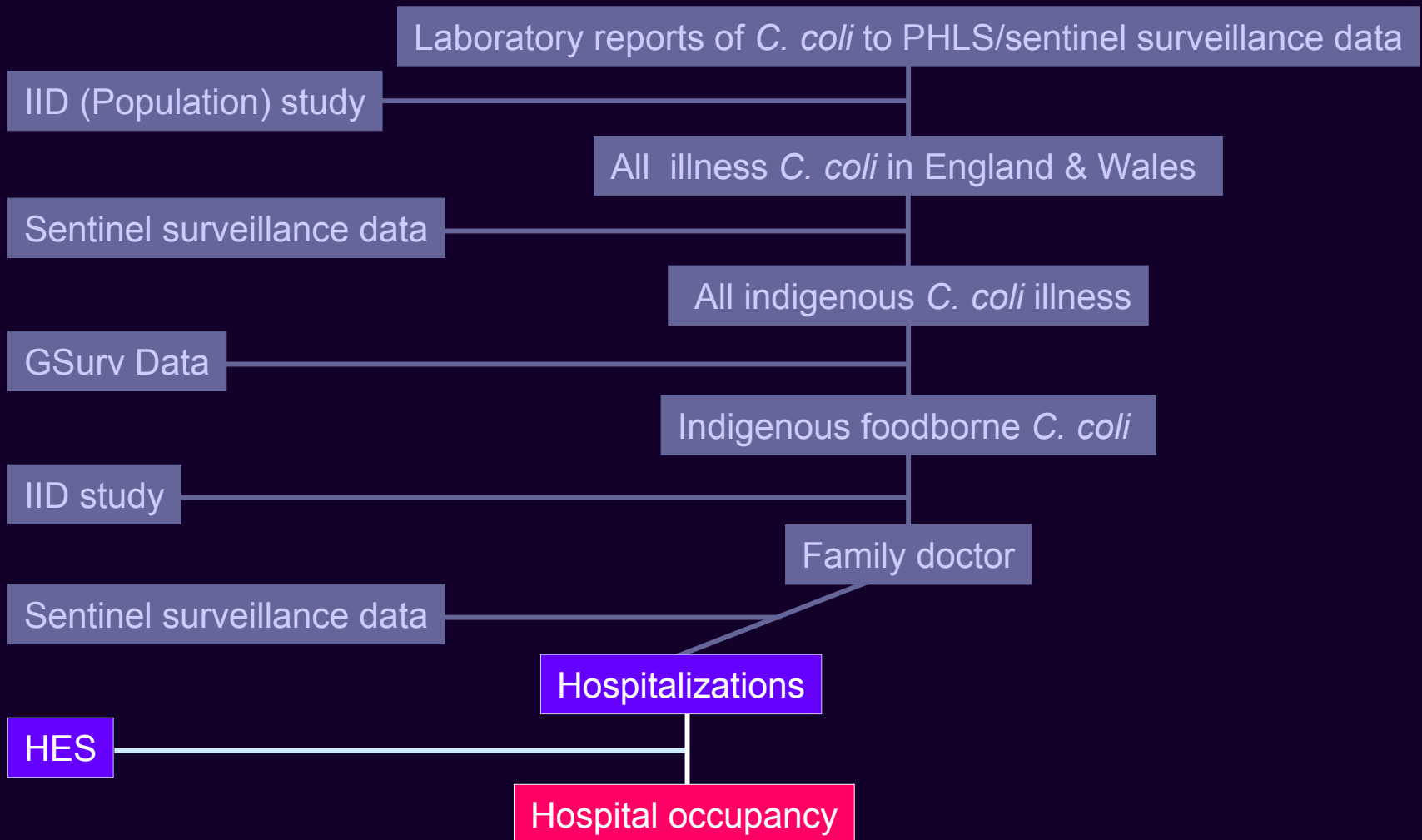
# Methods



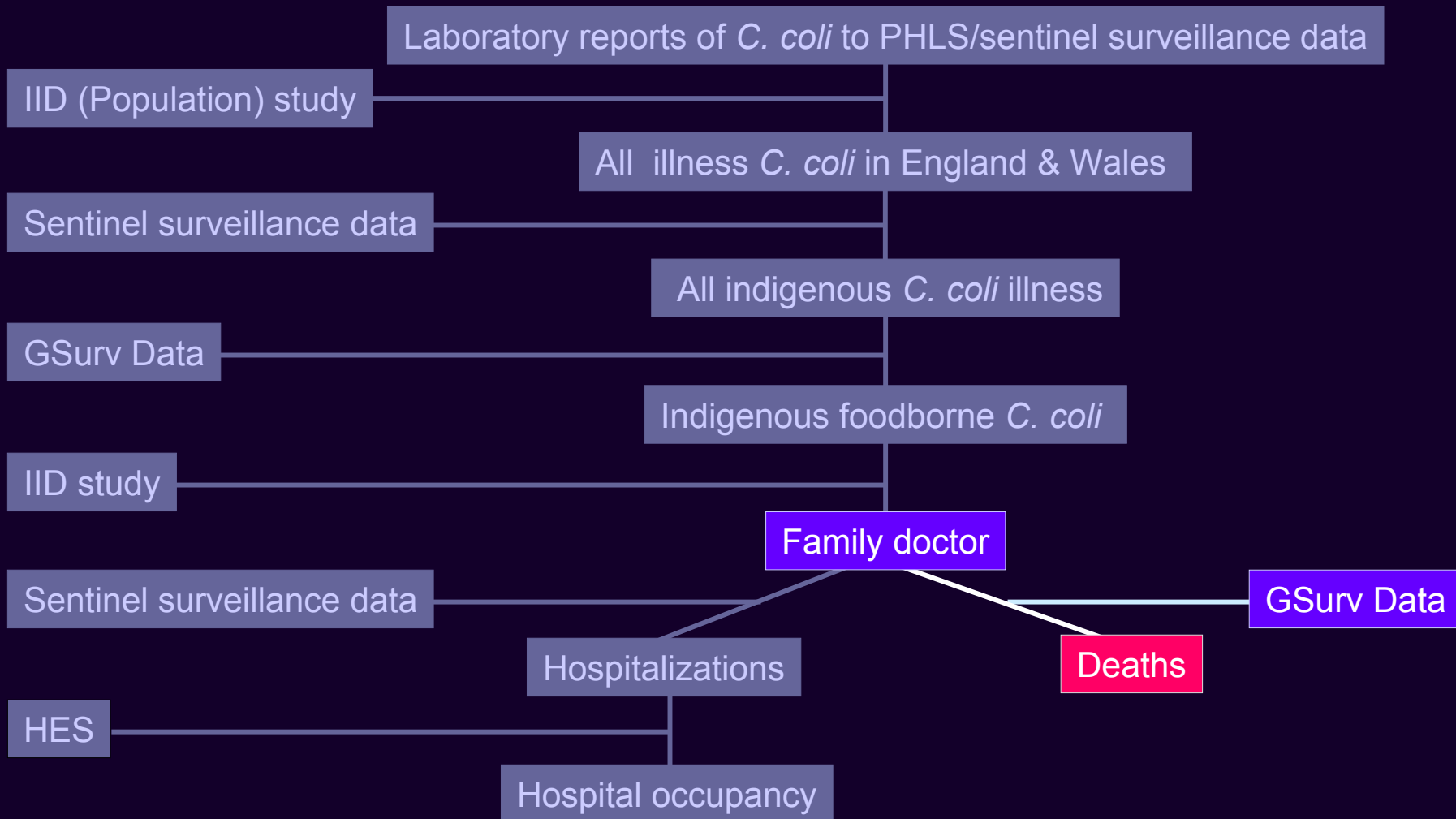
# Methods



# Methods

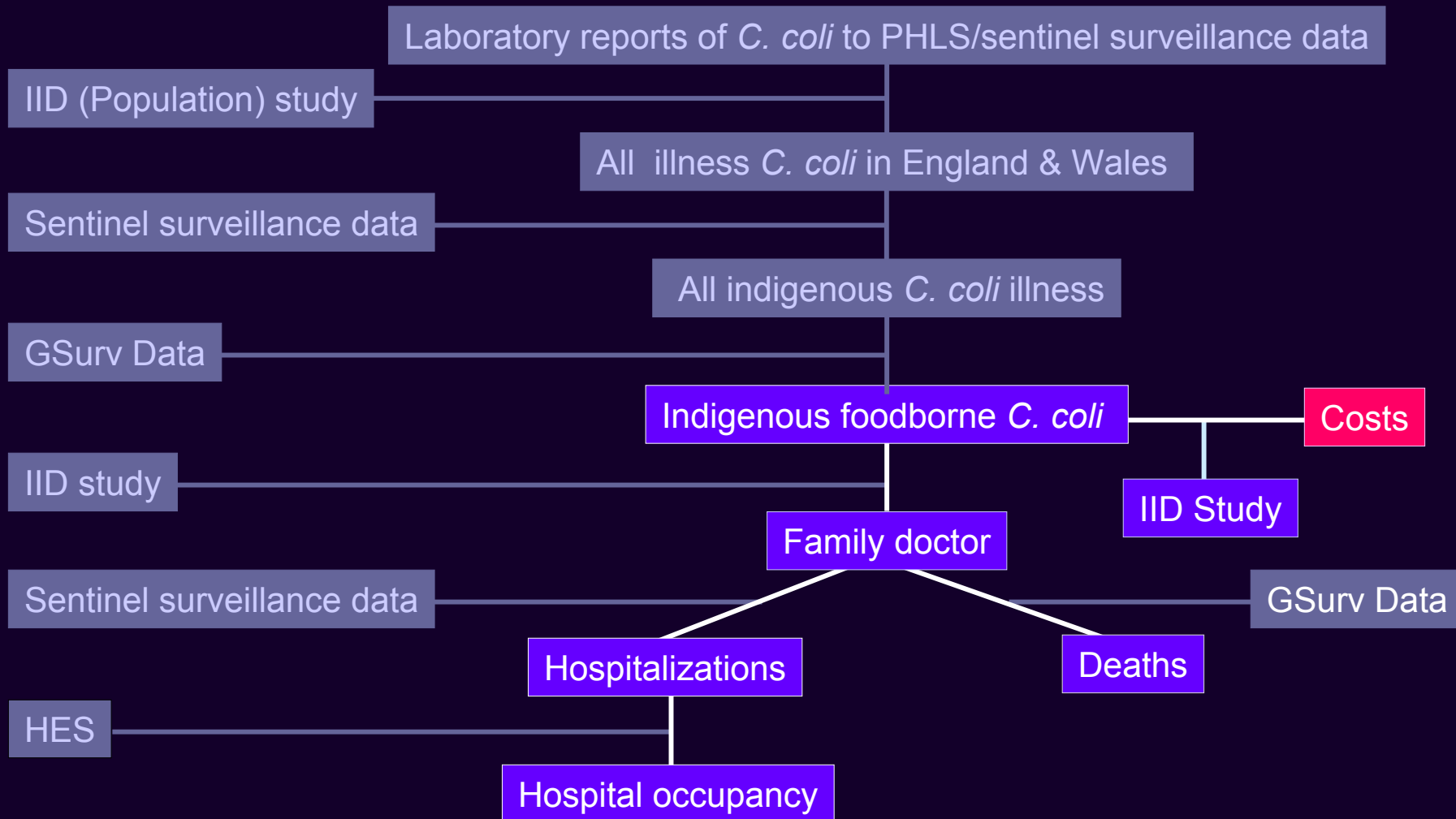


# Methods





# Methods

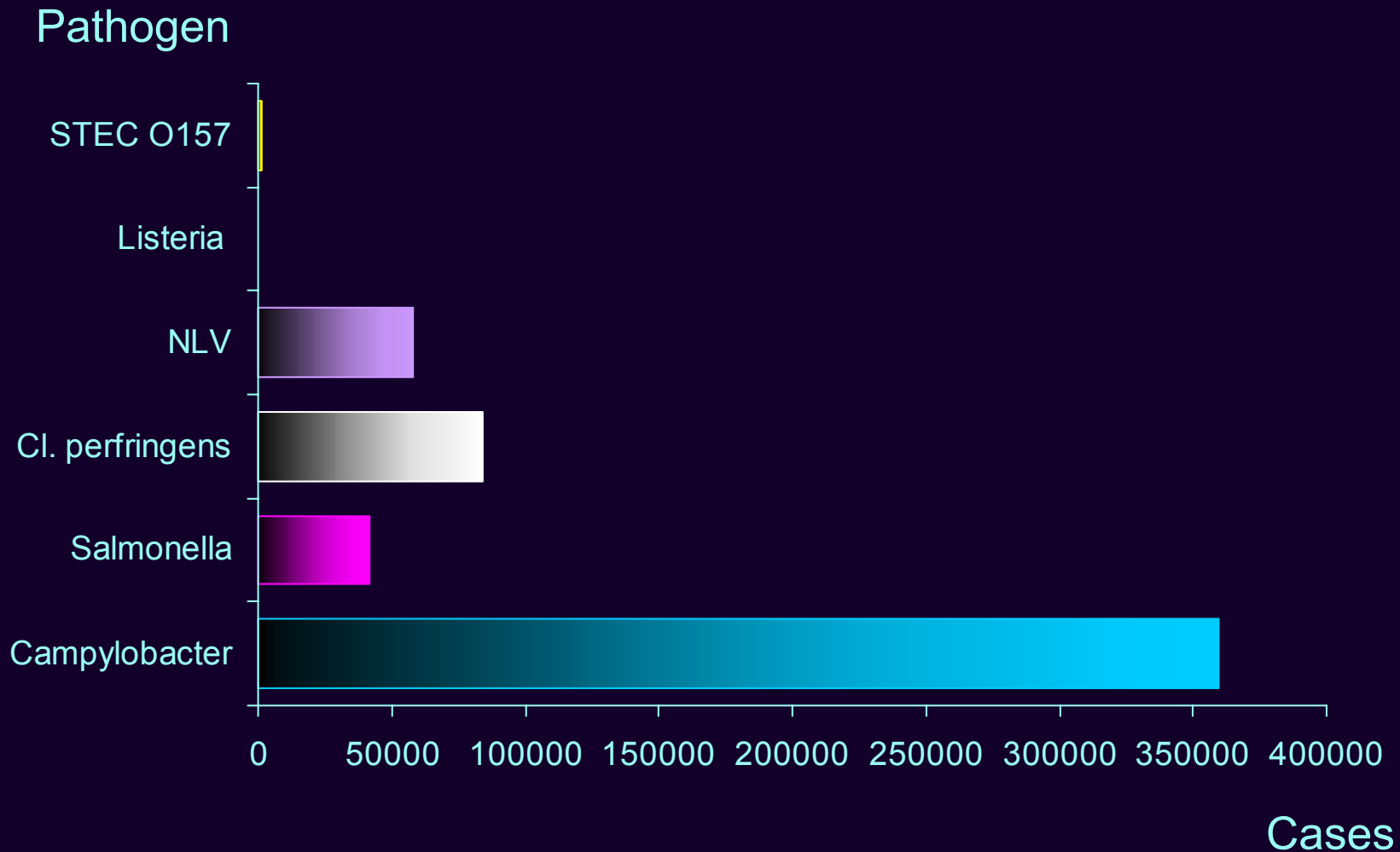


# Results

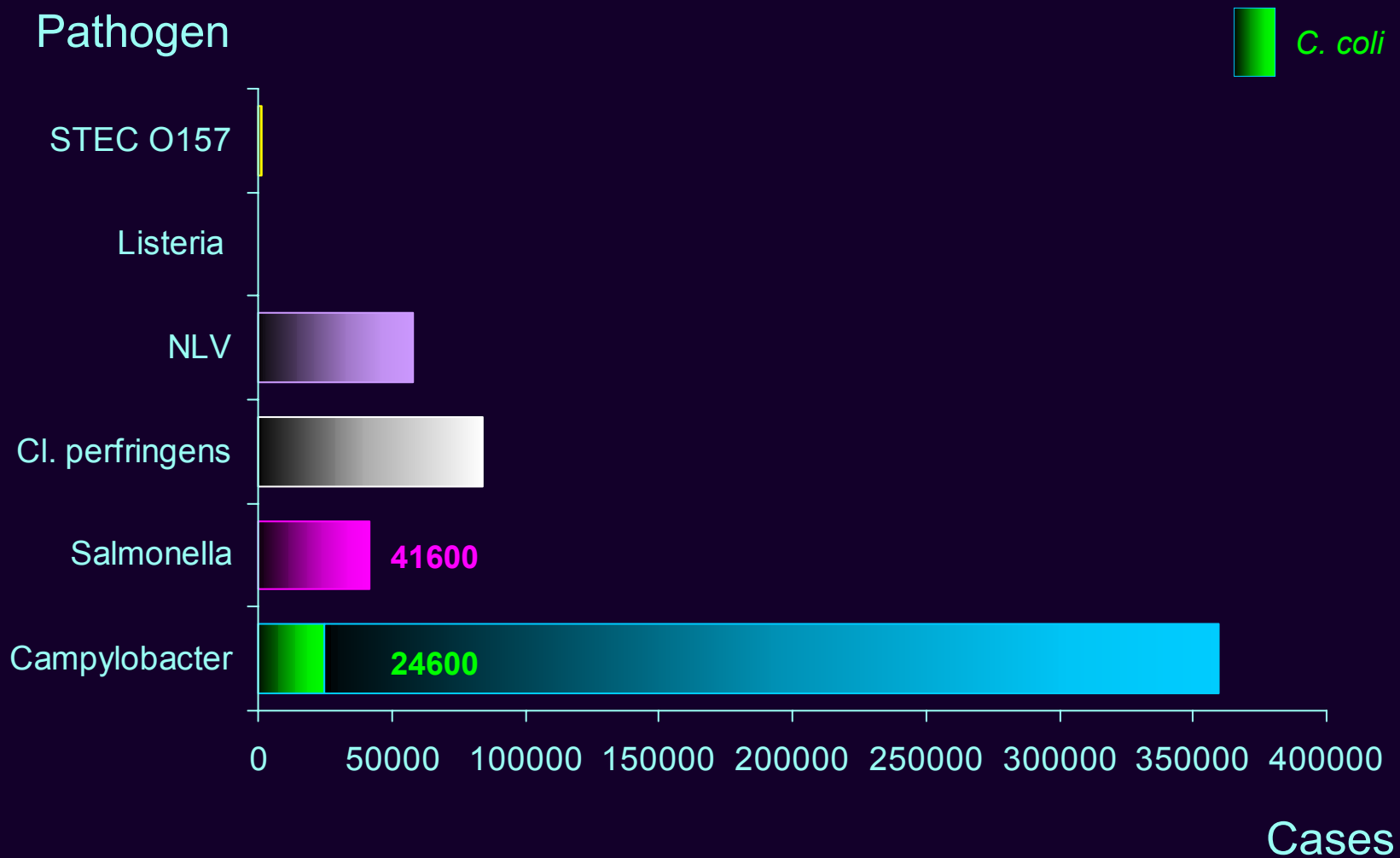
## *C. coli* infection England and Wales 2000

- 24,560 cases of disease (indigenous foodborne)
- 11,695 patients presenting to family doctors
- 990 hospitalizations (acute phase)
- 5,500 patient days in hospital (acute phase)
- 6 deaths
- Cost \$5.25M (acute phase: 1995 prices)

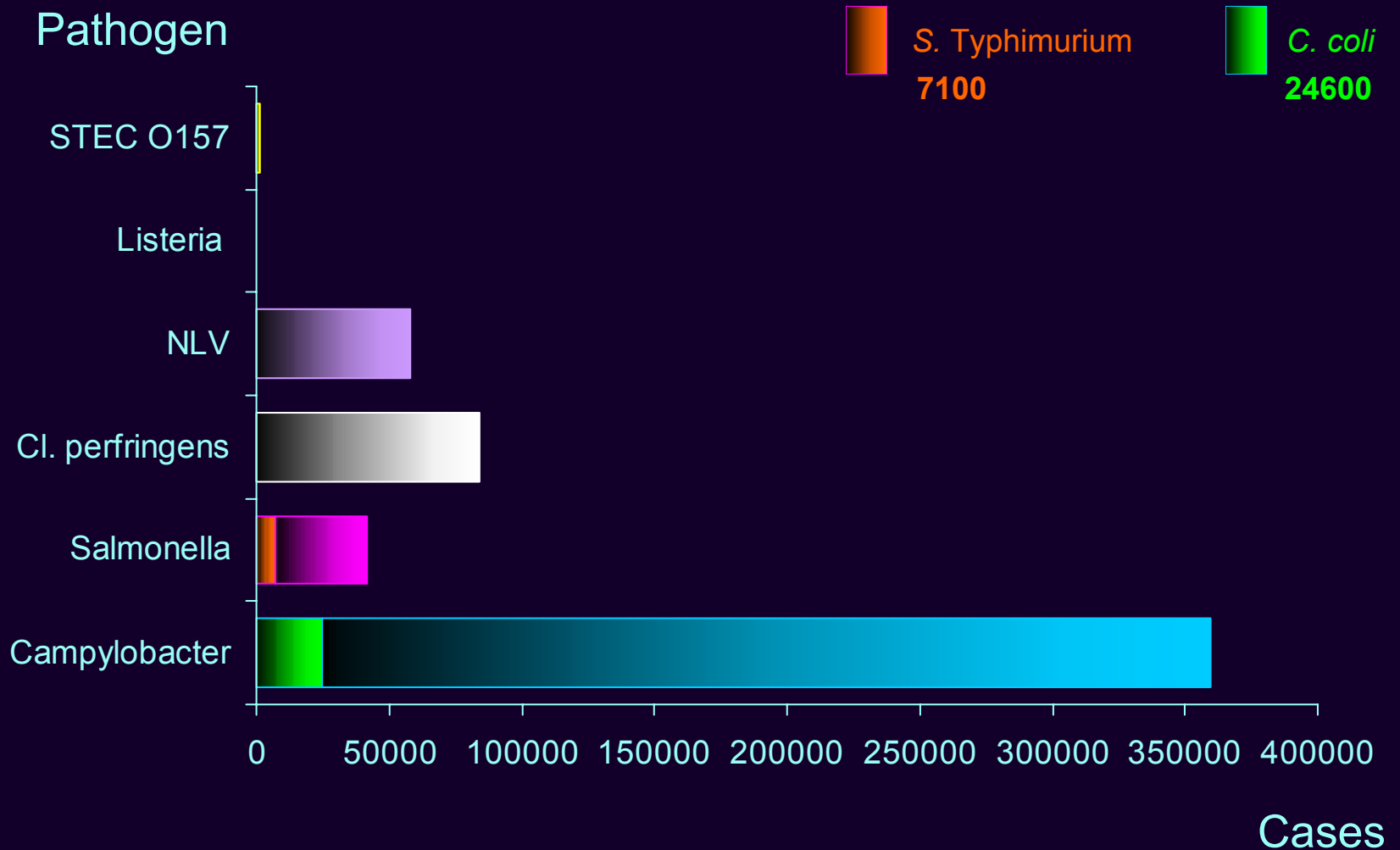
# Results - Illness due to IFD



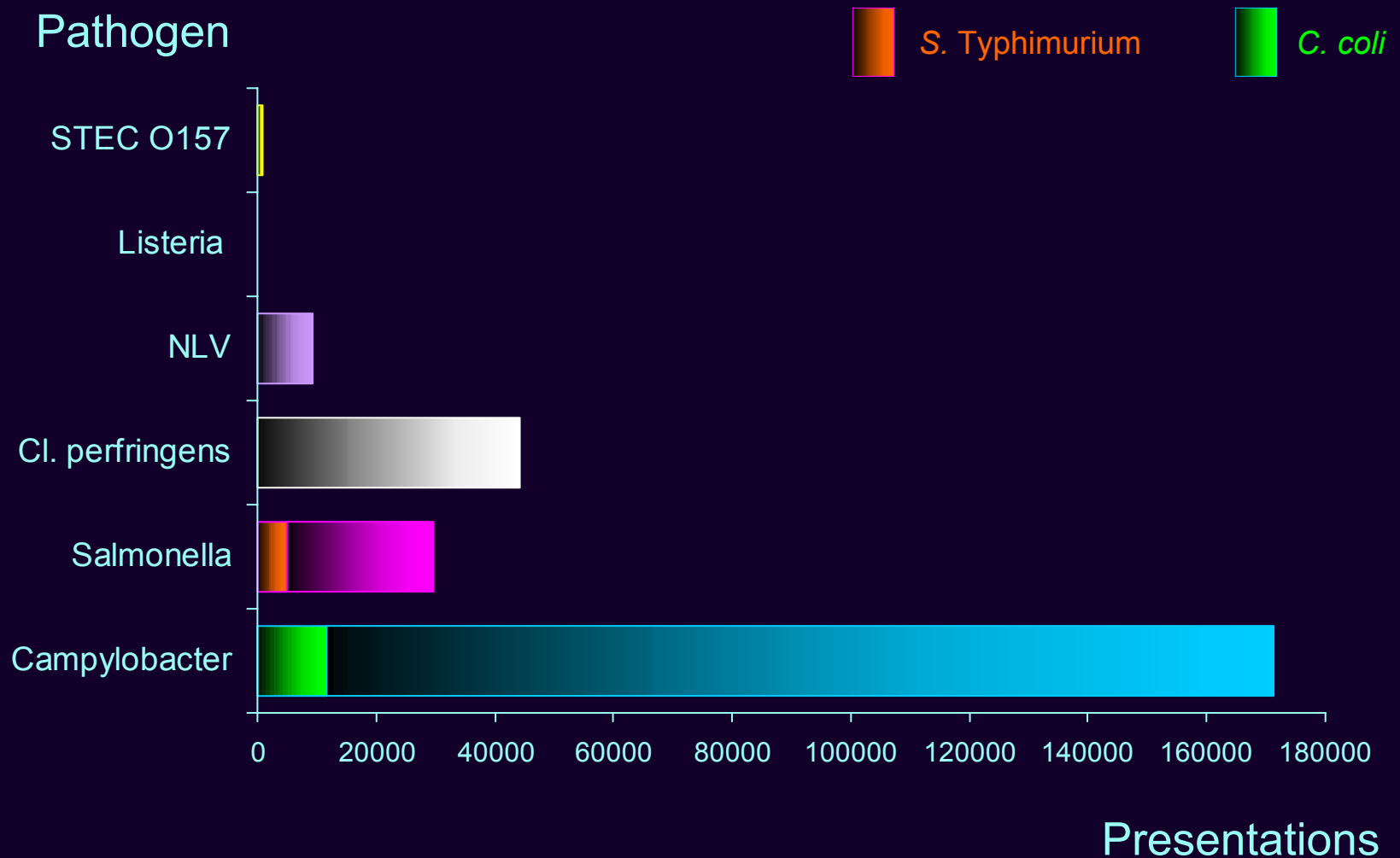
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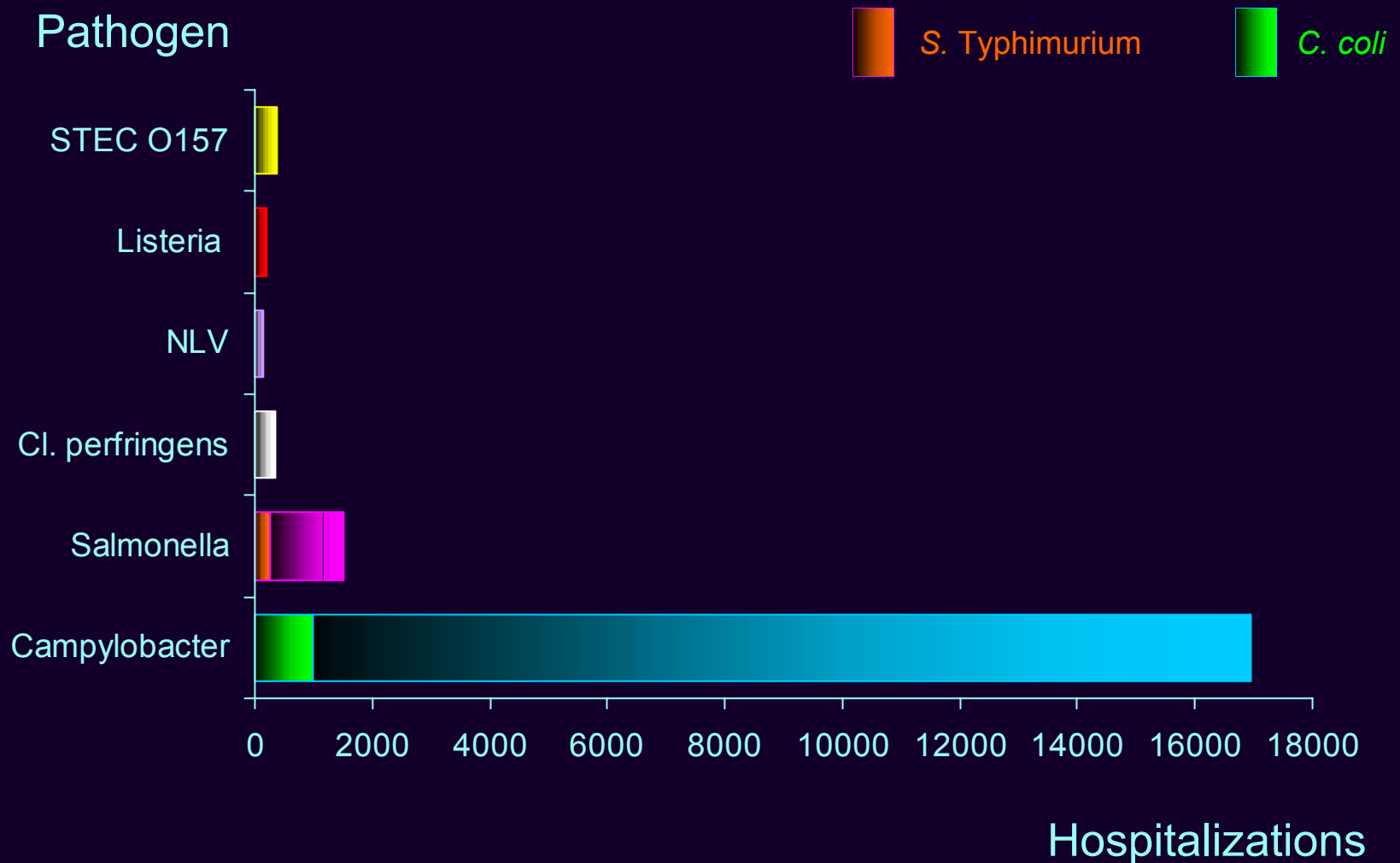
# Results - Illness due to IFD



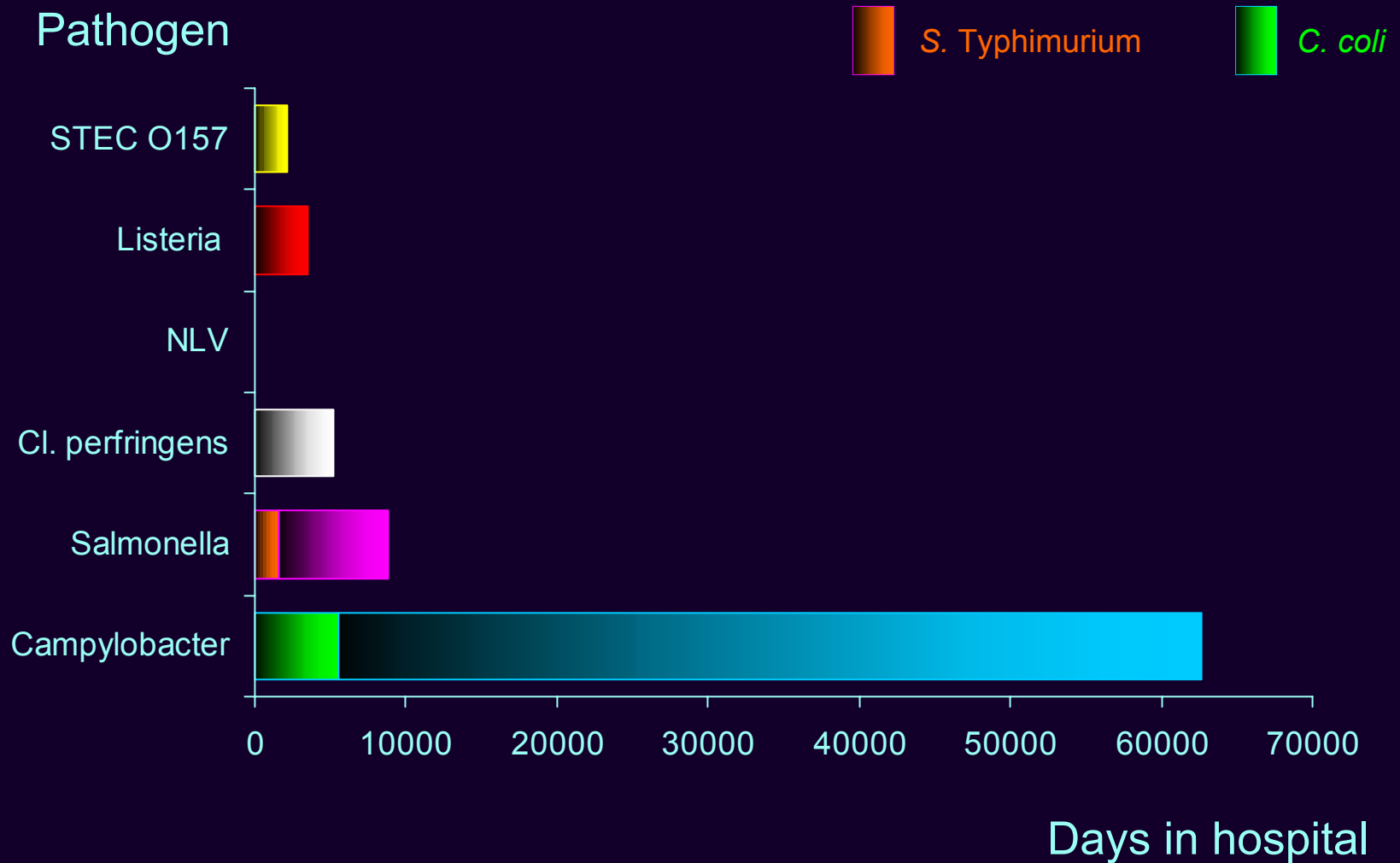
# Results - Presentations due to IFD



# Results - Hospitalizations due to IFD

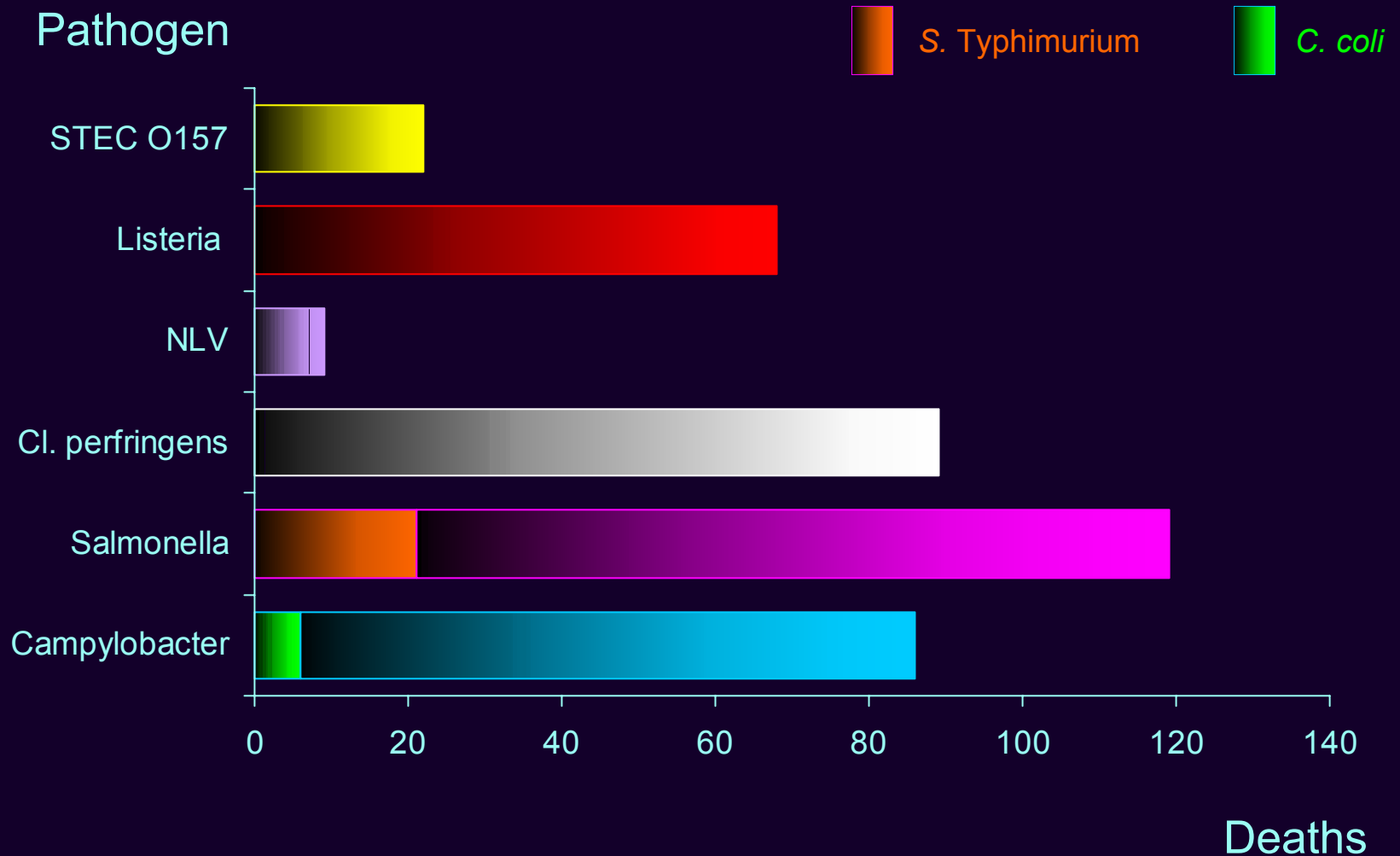


# Results - Hospital occupancy due to IFD





# Results - Deaths due to IFD



# Conclusions

- *C. coli* is a common foodborne pathogen in E&W
- Foodborne *C. coli* infection gives rise to:
  - severe illness
  - high levels of demand for family doctor services
  - high levels of demand for hospital services
  - considerable financial costs to:
    - the families of individuals infected
    - the National Health Service



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# Conclusions

We need:

Creative, **targeted**  
EPIDEMIOLOGY  
& MICROBIOLOGY