

MENINGOCOCCAL INFECTION

Transmission and Disease

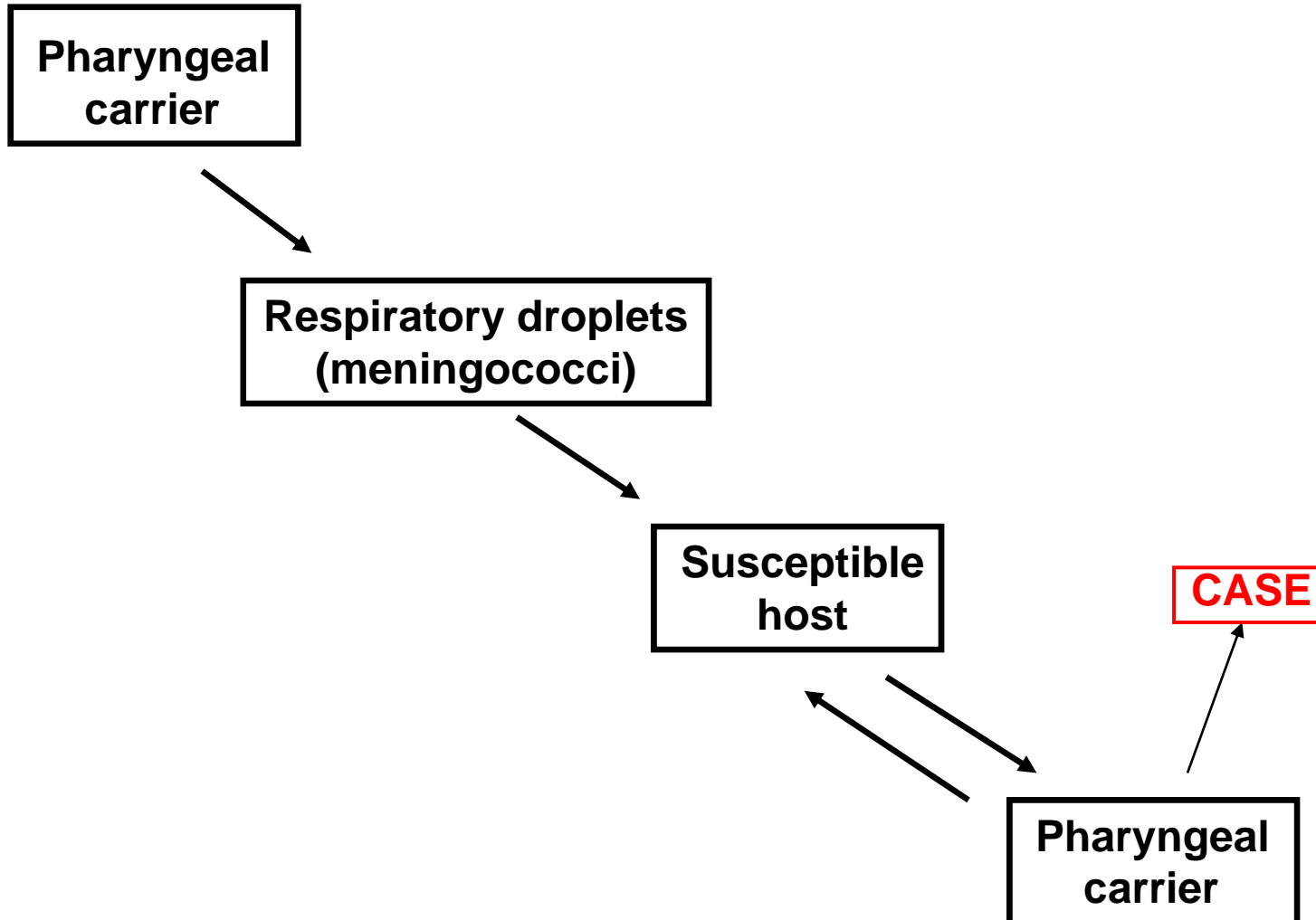


Brian Greenwood

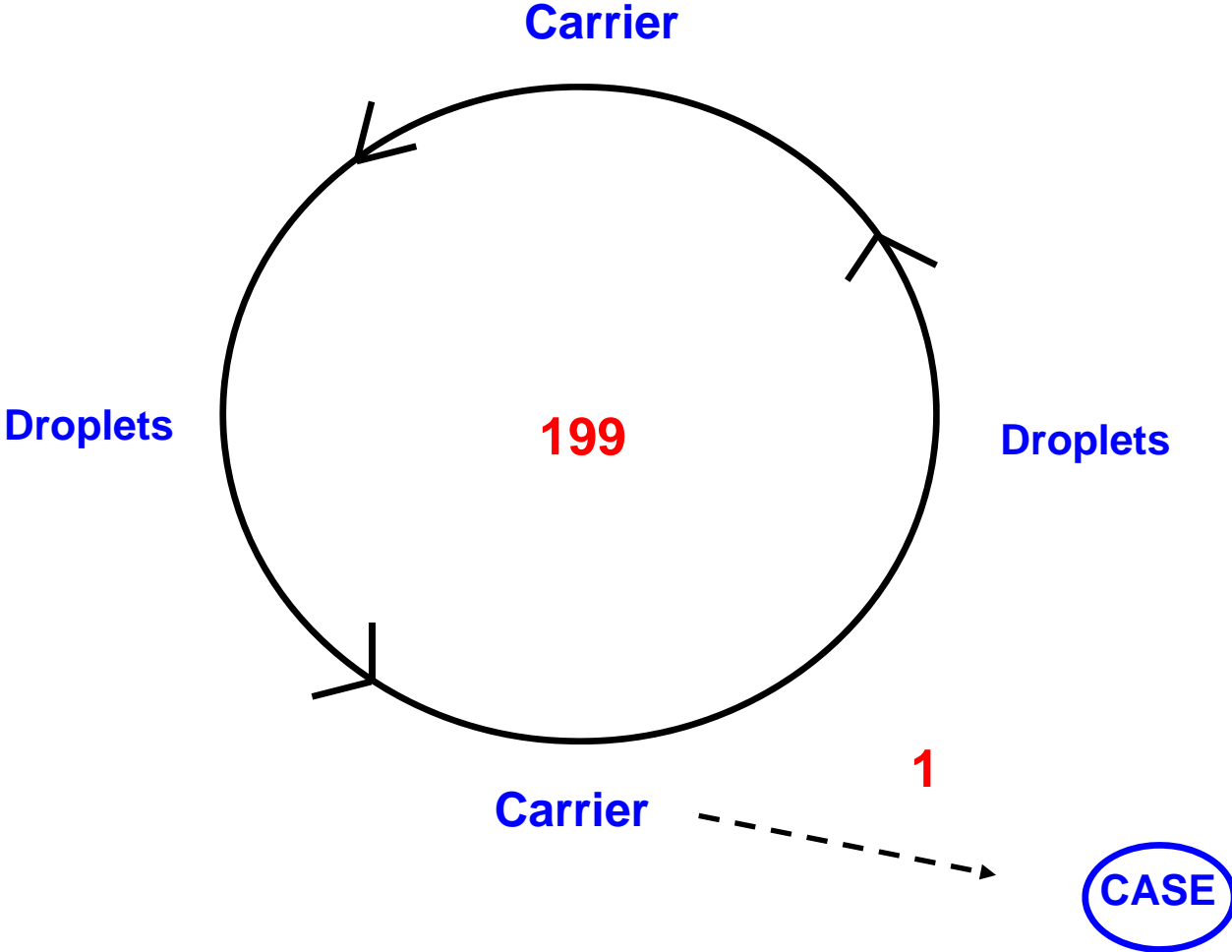
**London School of Hygiene
& Tropical Medicine**



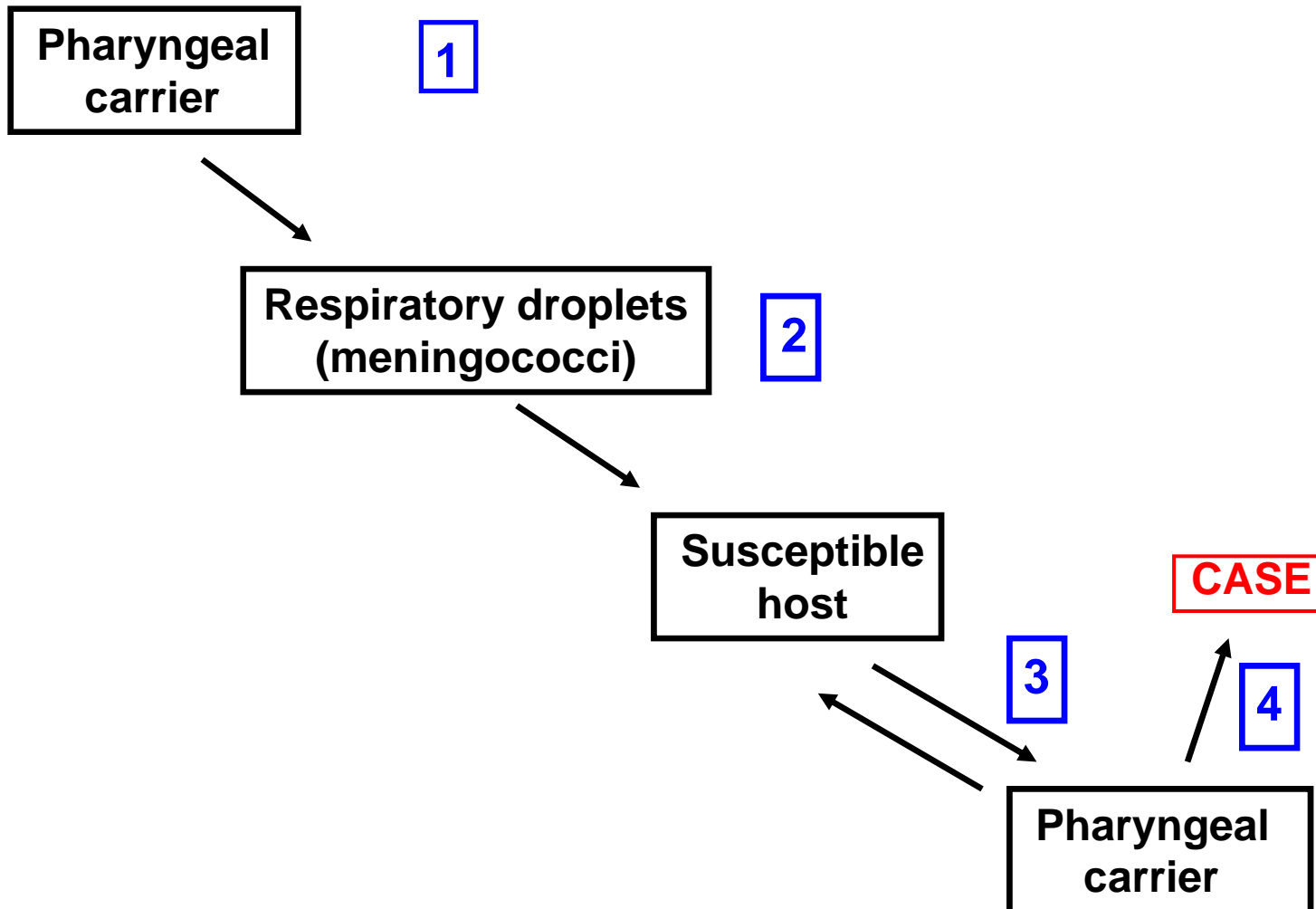
THE PATHWAY OF INFECTION



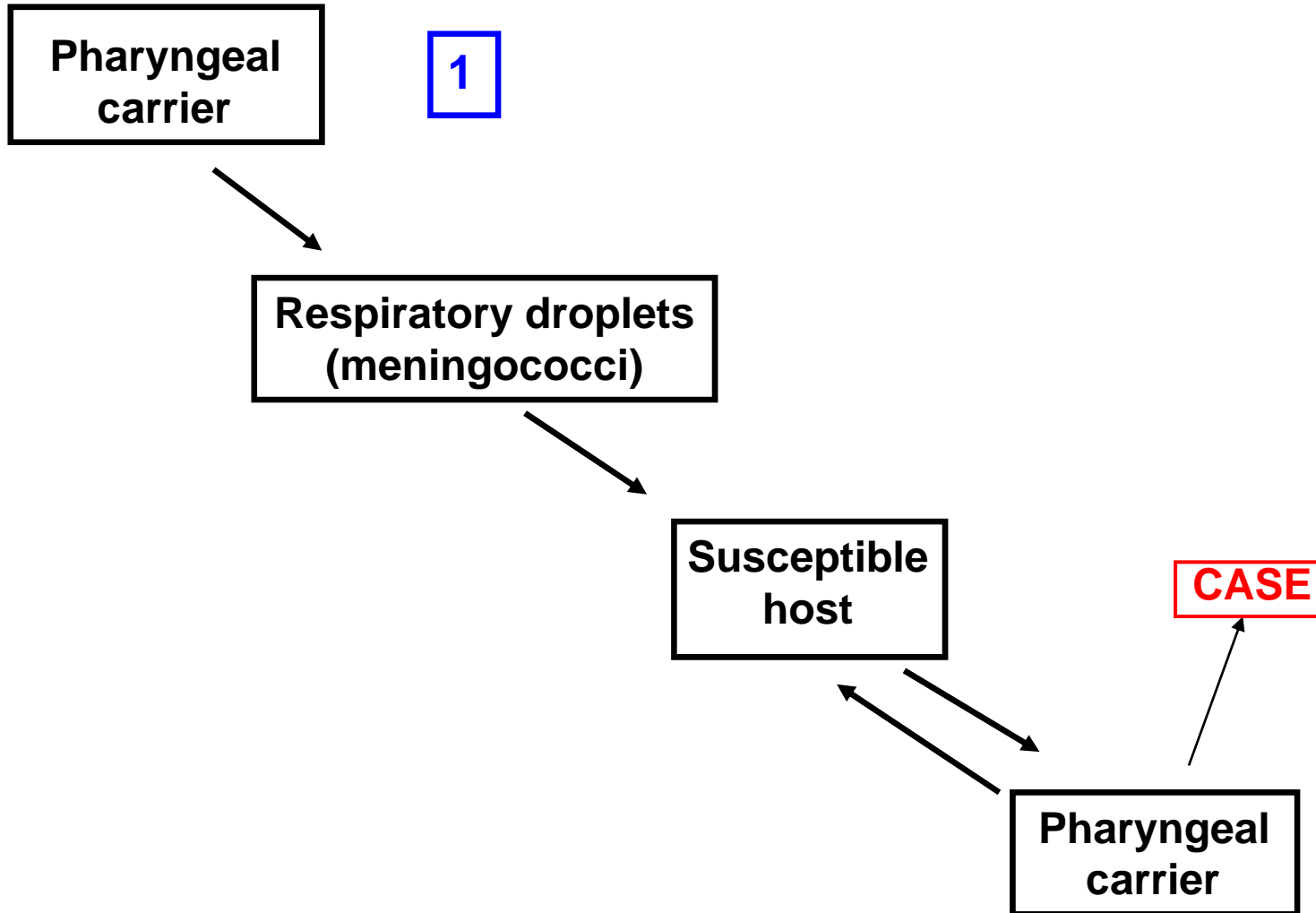
THE CYCLE OF INFECTION



THE PATHWAY OF INFECTION

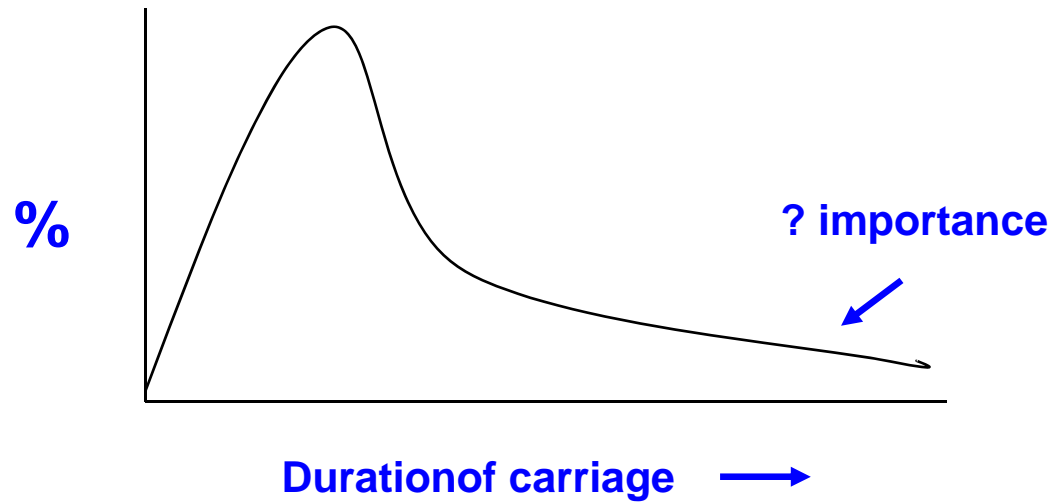


THE PATHWAY OF INFECTION

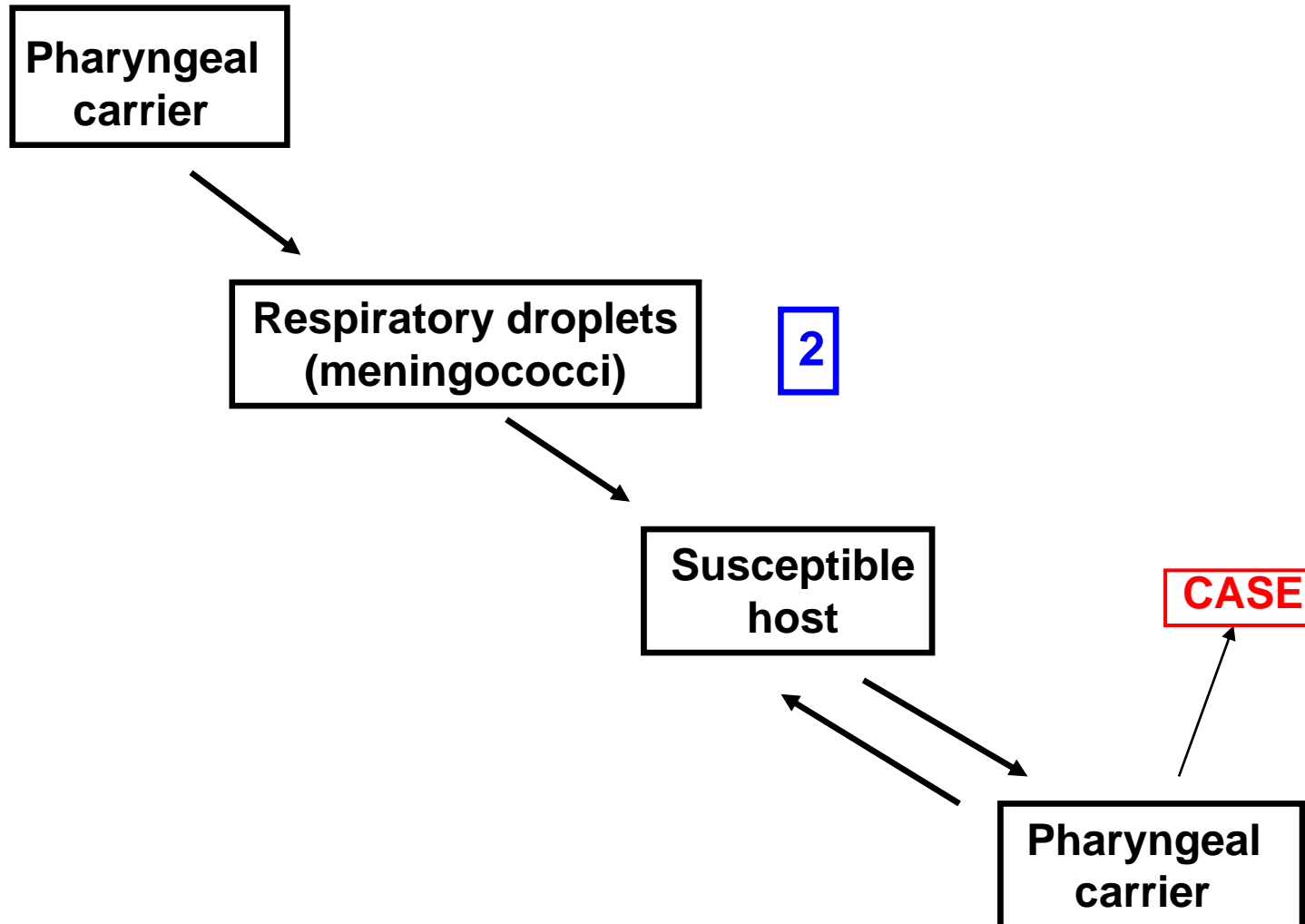


INFECTIOUSNESS OF A CARRIER

- Density of carriage
- Duration of carriage
- Respiratory infection



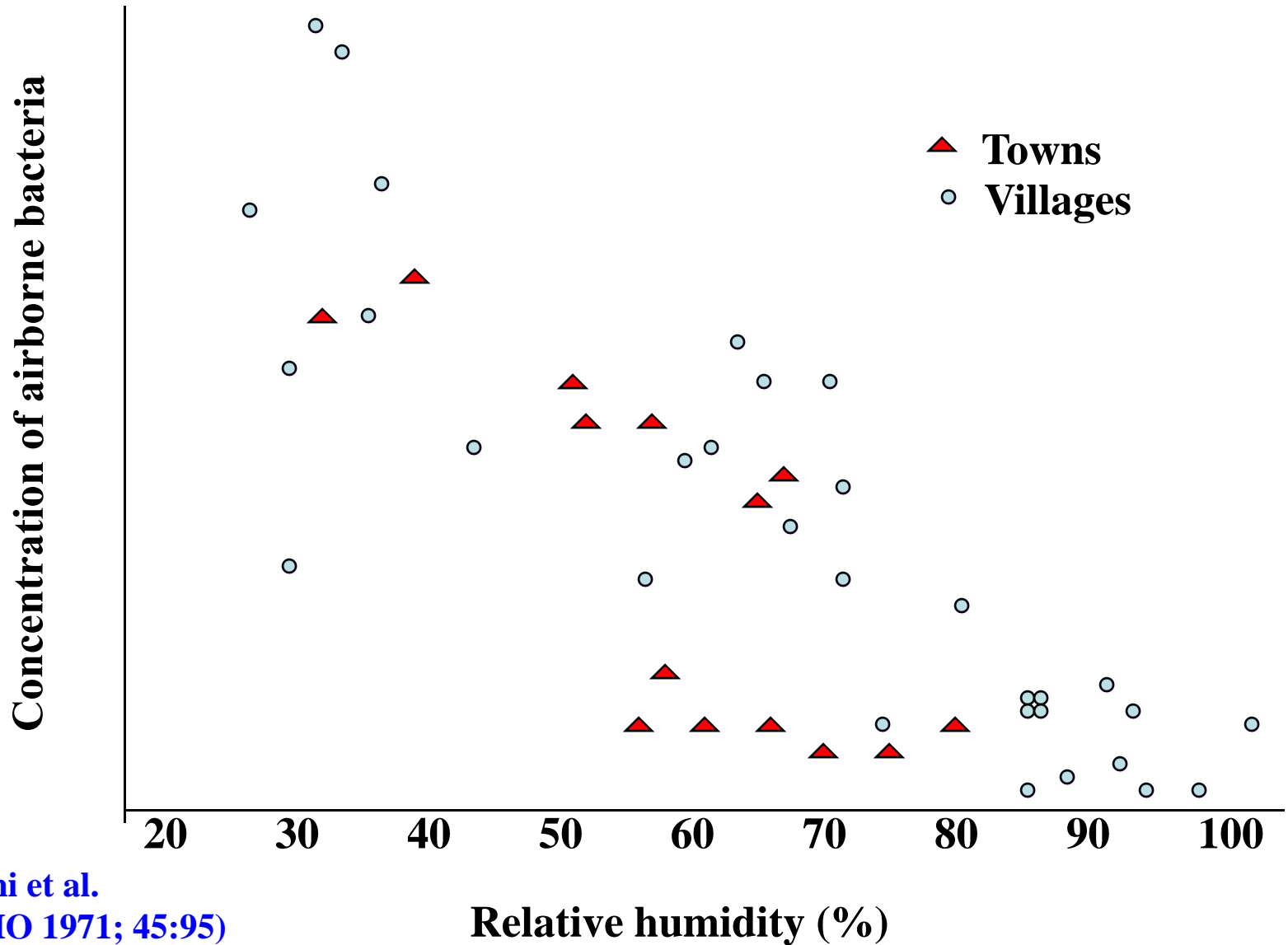
THE PATHWAY OF INFECTION



SURVIVAL OF MENINGOCOCCI IN RESPIRATORY DROPLETS

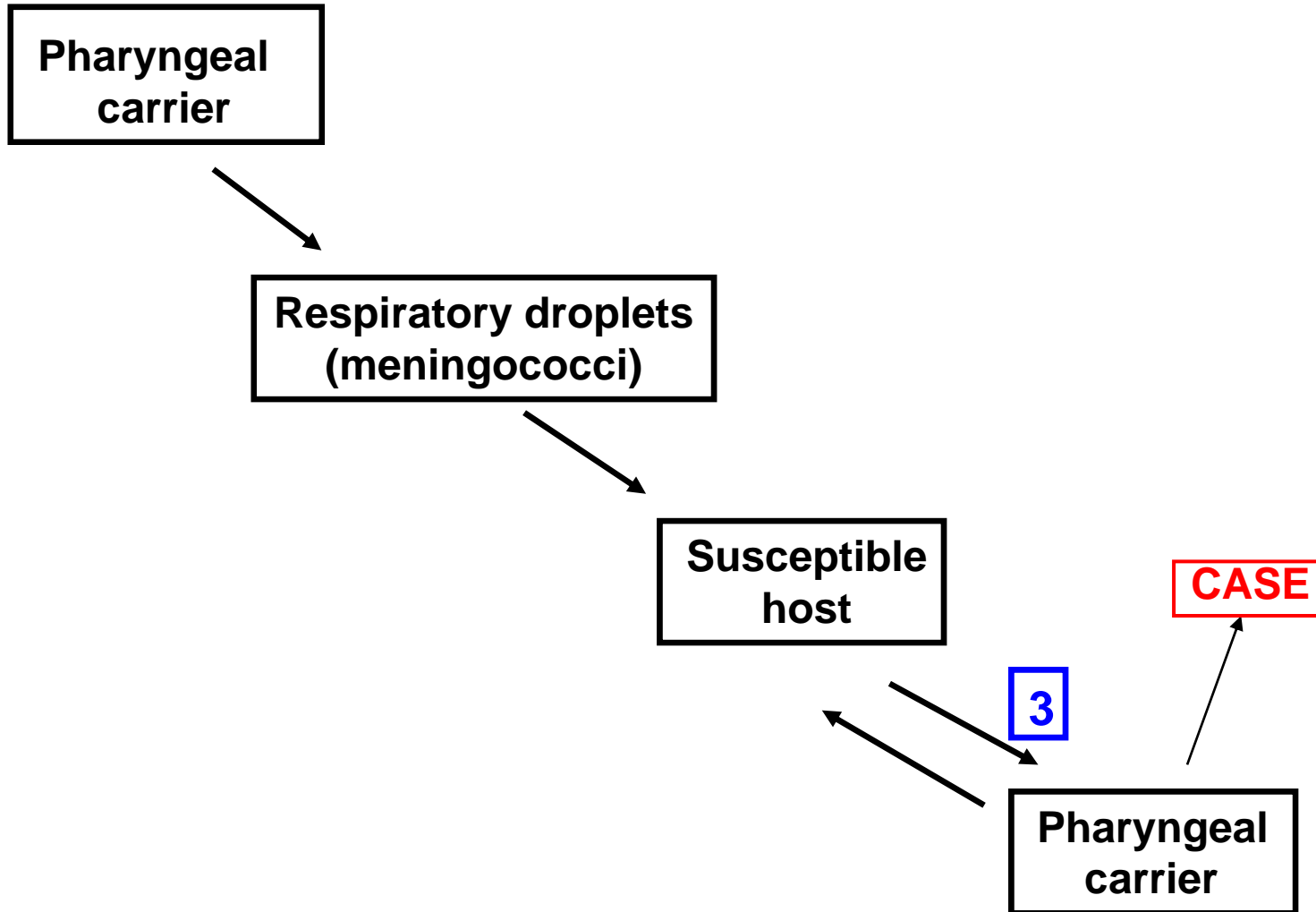
- **Droplet size**
- **Environmental temperature**
- **Environmental humidity**

HUMIDITY AND BACTERIAL SURVIVAL

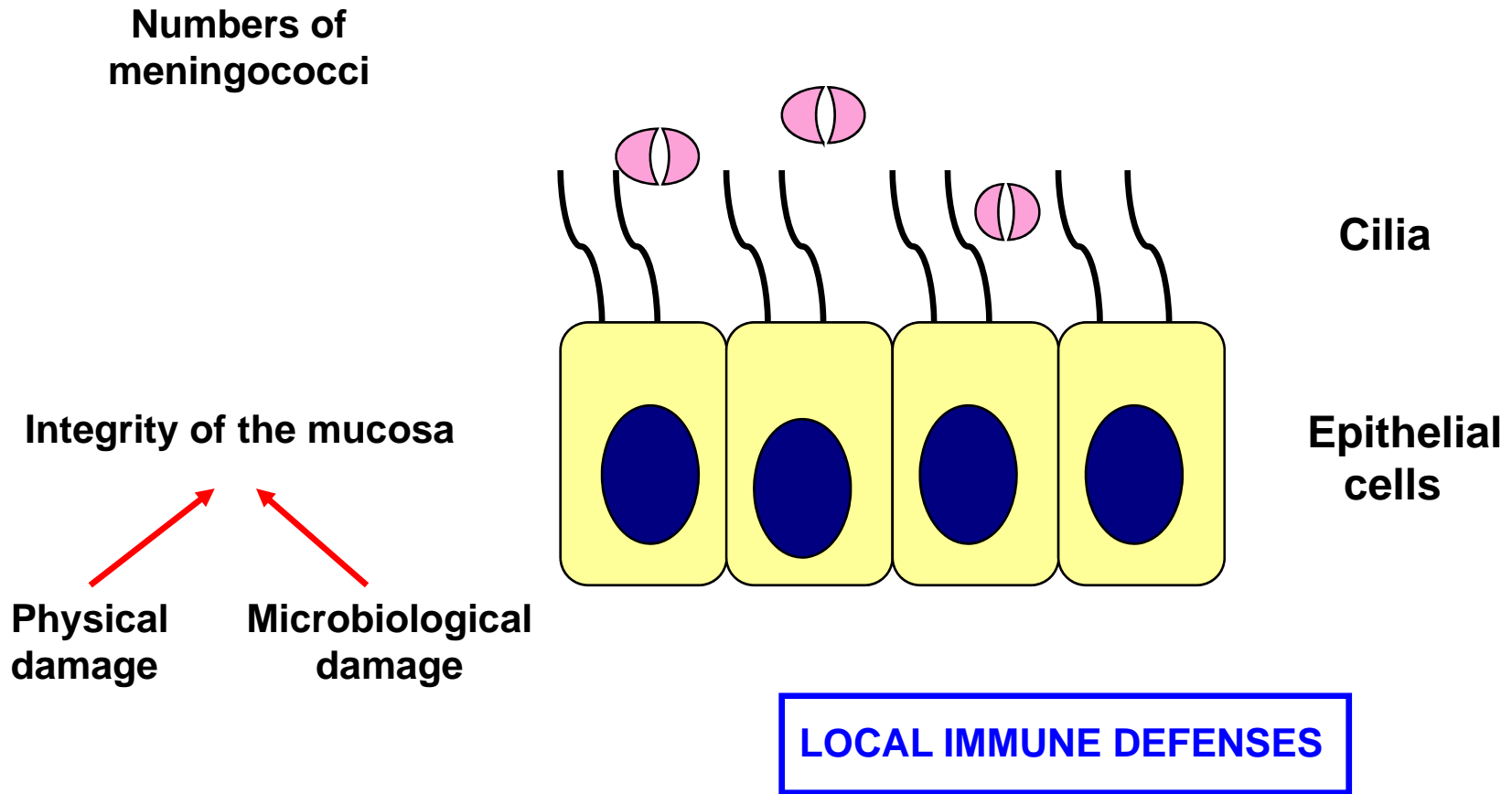


(Ghipponi et al.
Bull WHO 1971; 45:95)

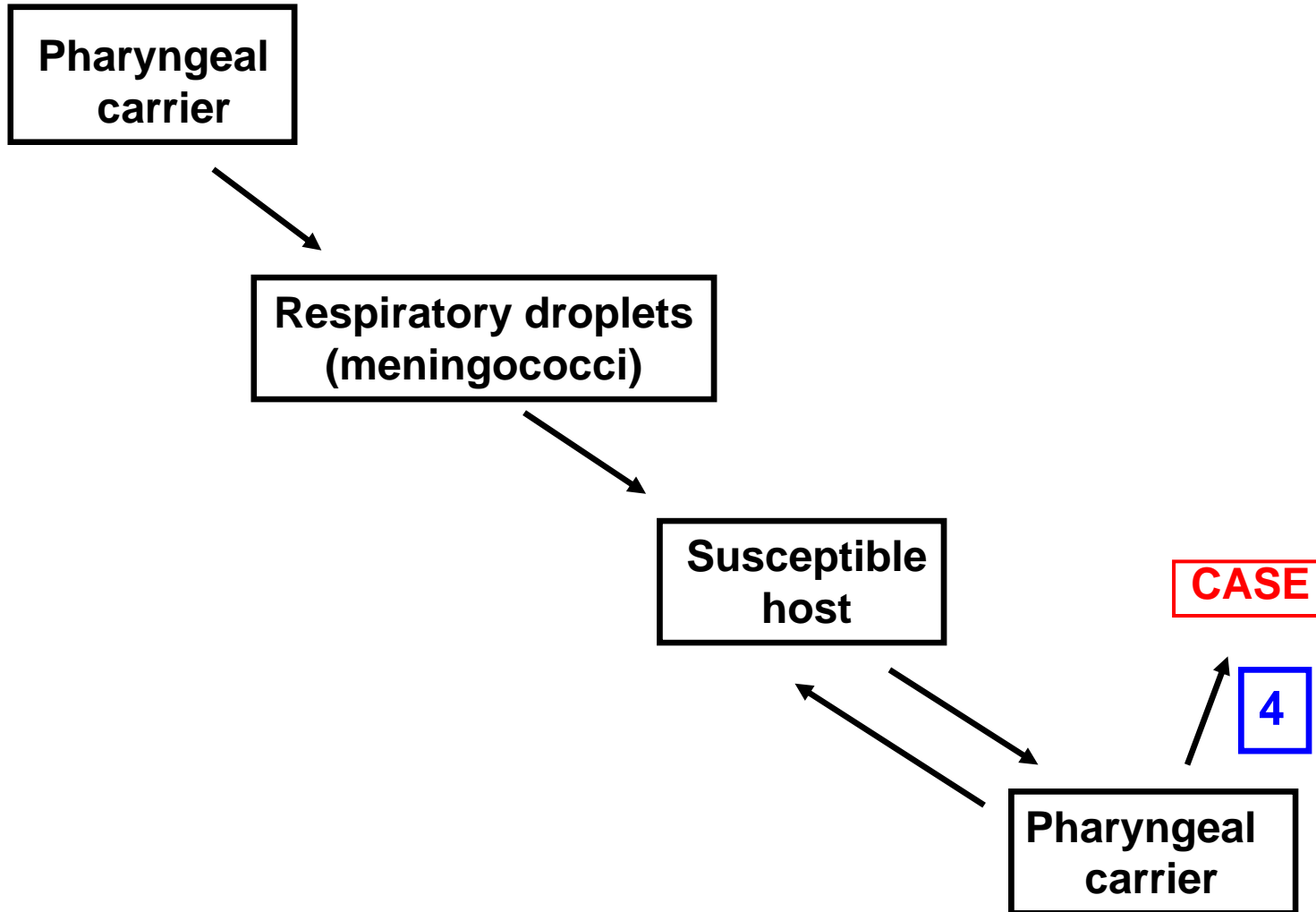
THE PATHWAY OF INFECTION



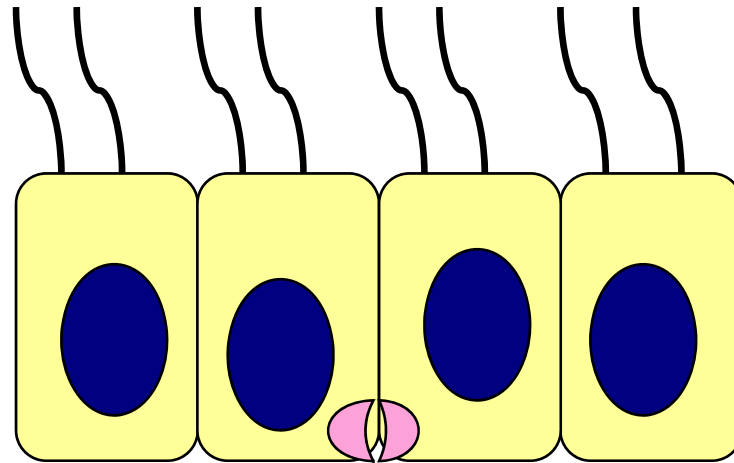
COLONISATION OF THE MUCOSA



THE PATHWAY OF INFECTION



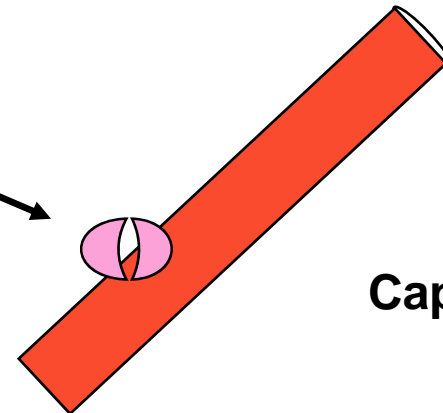
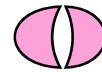
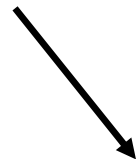
INVASION



Mucosa

Integrity of
the mucosa

Local immune
defenses



Capillary

CHANGING THE CARRIER TO CASE RATION

Carrier

190

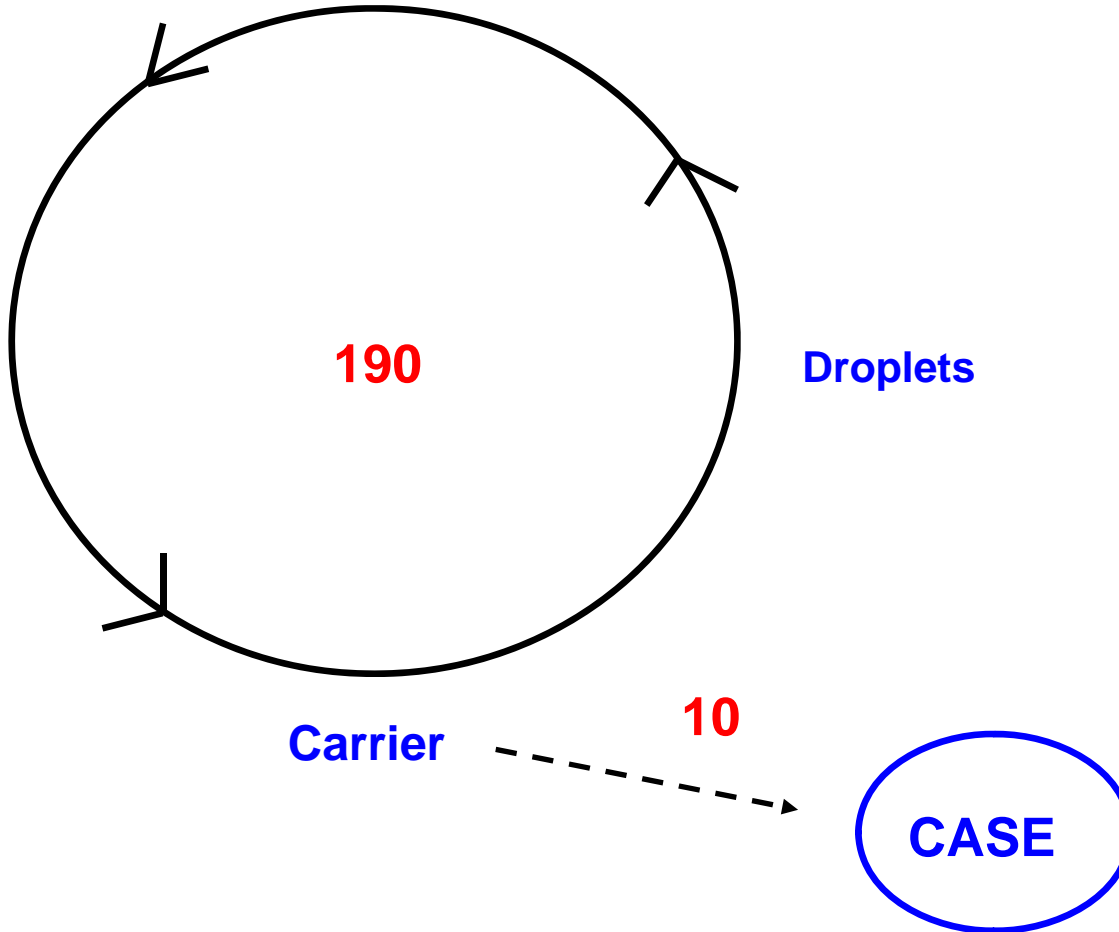
Droplets

Droplets

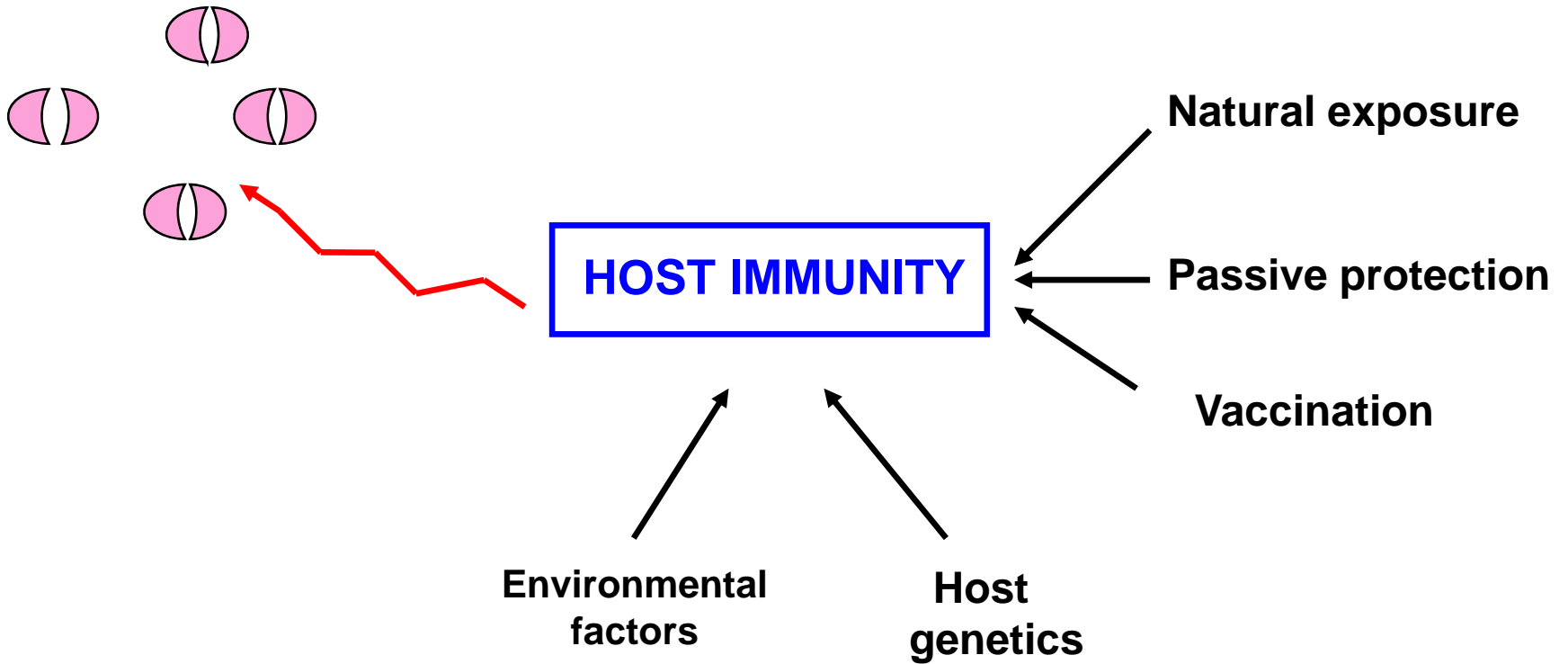
Carrier

10

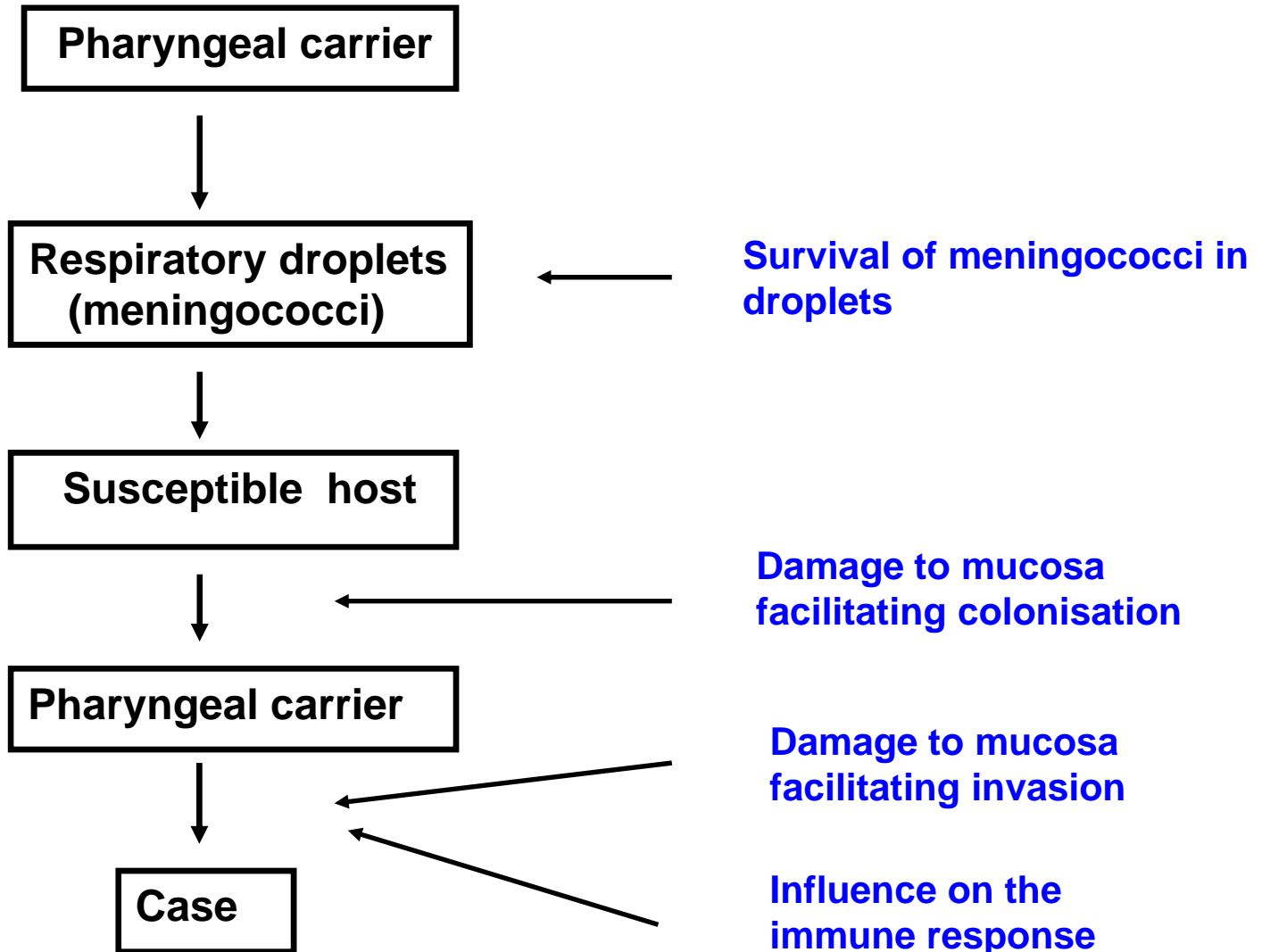
CASE



SURVIVAL IN THE HOST



IMPACT OF THE ENVIRONMENT



TOPICS FOR FUTURE RESEARCH

- **The impact of environmental factors on meningococcal survival in droplets.**
- **The impact of environmental factors on mucosal immune defences.**
- **The influence of the environment on the Immune response to vaccination.**