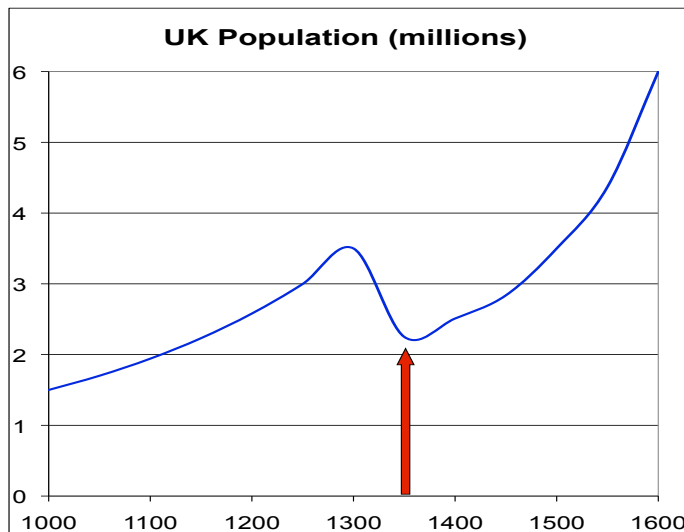


Epidemics: Modelling with mathematics



Models of Epidemics - interpreting the graphs

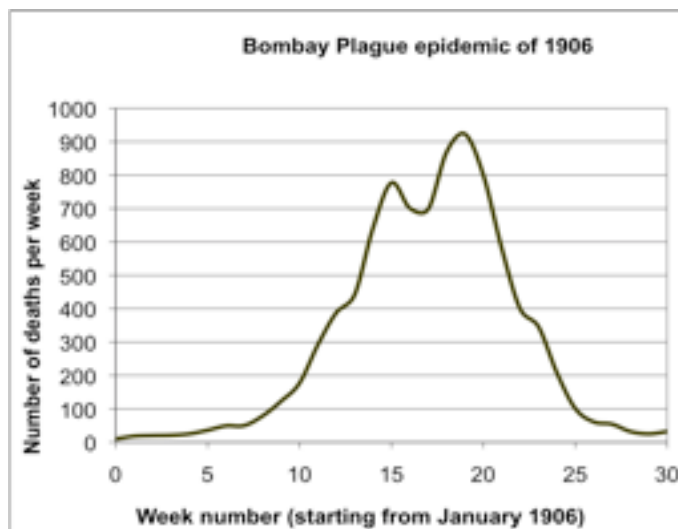


•If the population of the UK before the Black Death was about 3.5 million, what was the approximate decrease:

- (a) in millions of people
- (b) as a percentage of the pre-epidemic population?

•The population of the UK was about 61 million at the beginning of 2010.

What would an equivalent percentage decrease mean for the population in 2010?

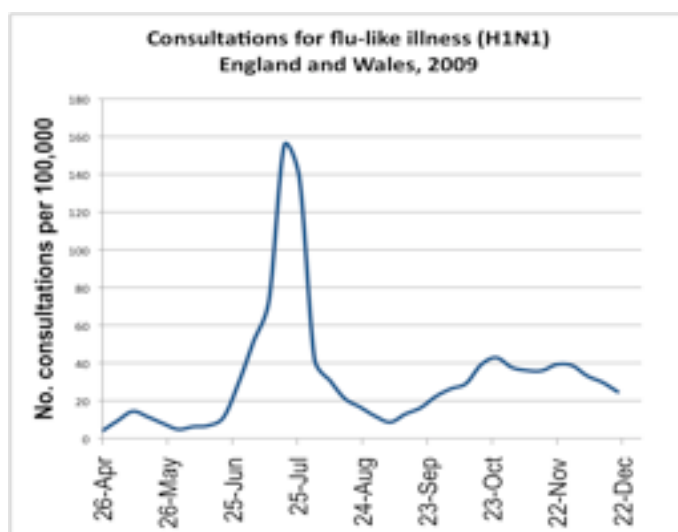


•When was the epidemic at its height?

•How many deaths were there at this point?

•How long did it take for the number of deaths to rise from below 100 to more than 700?

•How long after the start of the epidemic did the number of deaths drop below 100?

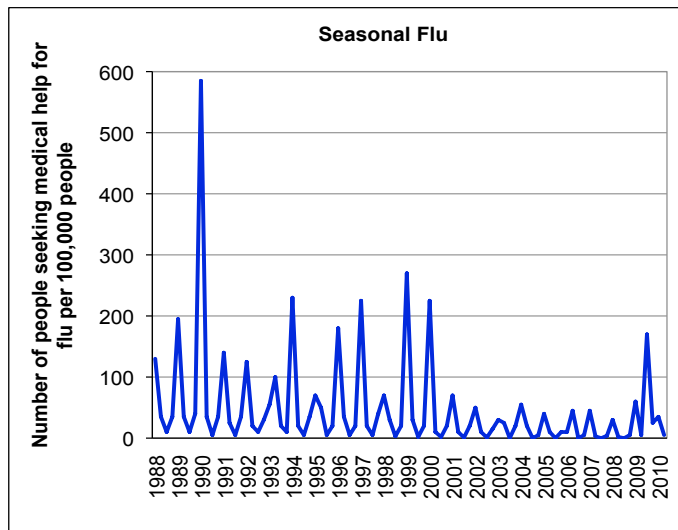


•Why do you think the number of cases dropped so abruptly after the peak?

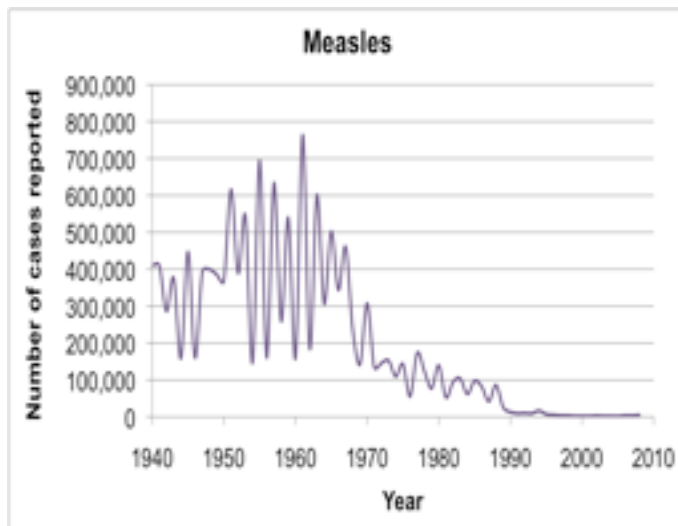
•Why might they have risen again after August?

•Why might the pattern of the outbreak of H1N1 have been different in other countries?

Epidemics: Modelling with mathematics



- How does seasonal flu compare with H1N1?
- How long is the cycle from the start of one peak to the start of the next approximately?
- Estimate the average number of cases of flu in the winter months.



- The introduction of vaccination affected the number of cases of measles between 1940 and 2010. Use the graph to decide when you think this might have occurred
- Explain your answer.