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Real world statistics

Slide 2

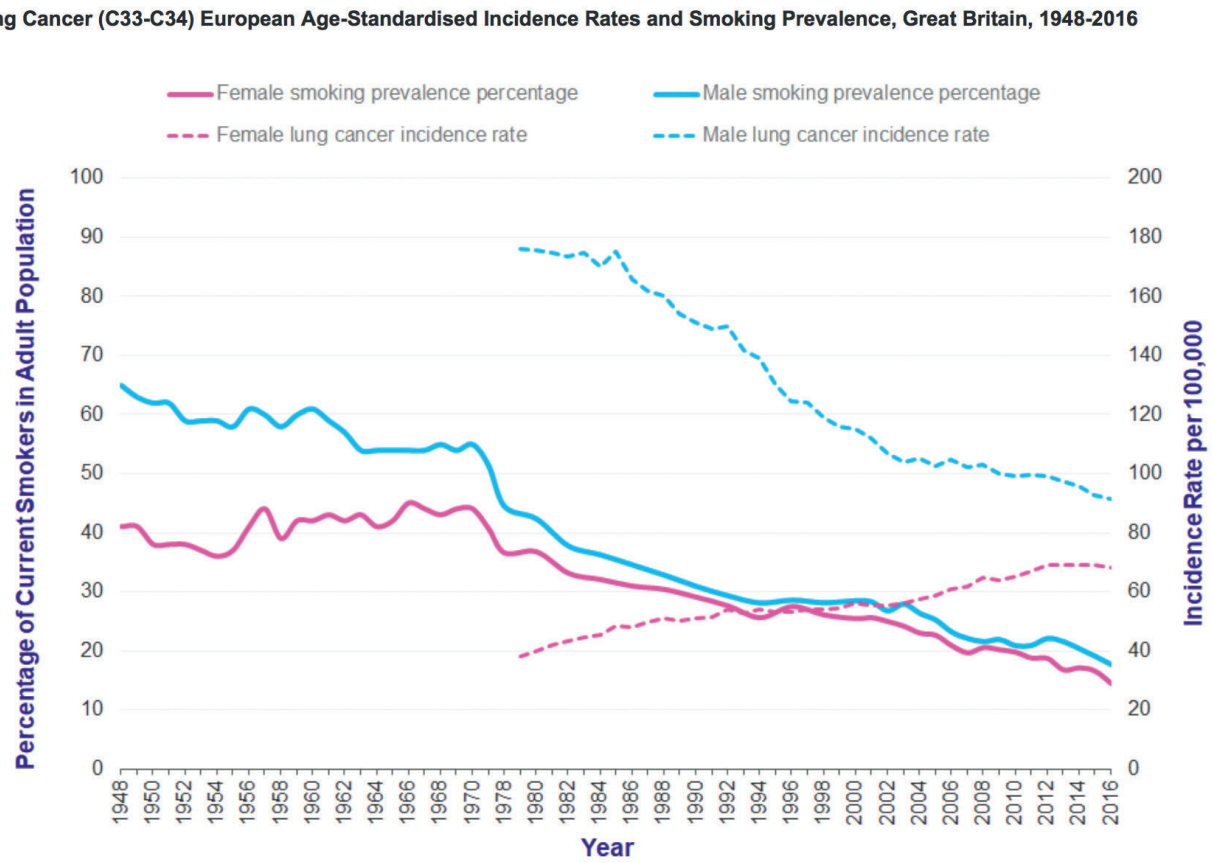
Statisticians

What do statisticians do?

Why are they important for society?

Slide 3

Smokey timelines



Slide 4

Extracting information from data: answers

1. This can be answered by the graph – but the relationship is positive for men (when smoking goes down lung cancer goes down) and negative for women (when smoking goes down lung cancer goes up)

2. The right-hand axis shows the incidence of lung cancer in the population, not just smokers. So, it is not possible to answer this question from the data

3. The data for smoking and lung cancer does not prove that lung cancer is or is not caused by smoking. Correlated data (data showing similar trends) does not prove causation e.g. wearing gloves and injuries due to slipping on ice are correlated, but gloves do not cause people to slip on ice

4. It is possible to see that in 1966 there was the highest number of female smokers in this time period

5. This question goes beyond the data. Scientists and other experts may have ideas about what might be causing smoking rates to decline, but additional information would be needed to explain this trend

6. The graph can answer this question. It shows more equal numbers of males and females smoking over time, as female smoking increases and male smoking decreases

Slide 5

Extracting information from data: answers

Questions that couldn't be answered from the data:

2. How likely is it that a male smoker will get lung cancer?
3. Does smoking cause lung cancer?
5. Why has the number of people smoking continued to decline since 1980?

Slide 6

Extracting information from data: answers 2

Questions that couldn't be answered from the data:

2. More data is needed on the incidence of lung cancer in male smokers, not just men with lung cancer

3. More data is needed on the incidence of lung cancer in male and female smokers and how the number of cigarettes smoked per day affects incidence of lung cancer

5. More information on changes over this period which could affect how much people smoke is needed. For example, the rise in cost of cigarettes compared with rise in average income; health education promotions on television and in schools; the publication of studies linking smoking and cancer; etc.

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Slide 7

Which skills do statisticians need?

- Graphic design
- Managing people
- Financial awareness
- Driving
- Critical thinking
- Problem solving
- Animal handling
- Communication (speaking, presenting and writing)
- Mathematical skills
- Attention to detail
- Teamwork
- Computer skills

Slide 8

Reflection

What do statisticians do?

Why are they important for society?

Find out more at:

GSKstemeducation.com