

# Epidemiology and Genomic science

with Dr Linda Brown and Dr Megan Carnes

## Talking points

### Knowledge

1. What are symptoms of ME/CFS?
2. How many people suffer from ME/CFS worldwide?

### Comprehension

3. How does data sharing improve ME/CFS research?
4. What three tools has the DMCC developed, and how does each of them support ME/CFS research?

### Application

5. Imagine that you are an epidemiologist studying a newly-discovered disease. What research questions might you be interested in studying to learn more about the disease?
6. As you study this new disease, you conduct studies which involve human subjects. This can take a long time, and it can be hard to find data to help support your work. What steps could you take to improve your research, as well as the research of other scientists who are studying the disease?

### Analysis

7. How has the team made sure that mapME/CFS is developed in a way that meets the needs of the researchers?
8. What are the team's motivations for talking to members of the ME/CFS community?

### Synthesis

9. One of the challenges of being an epidemiologist or genomic scientist is working with incomplete or inconsistent data. How could you develop the DMCC's data sharing tools further to help overcome this challenge?
10. In what other areas of science and medicine might increased data sharing be beneficial?

### Evaluation

11. How important do you think the DMCC's tools could be in discovering new treatments for ME/CFS?
12. Why do you think collaboration is important, not just in epidemiology, but in scientific research in general?

## Activities

### 1. Linda's top tip

"Consider whether you (1) have the desire and aptitude to apply biological thinking and statistical tools to address preventable illness and injury and (2) are interested in working in a field that is challenging and deeply impactful to the health and welfare of many of people."

Working as an epidemiologist puts you in a position to potentially benefit many people. Since the late 19th century, epidemiologists, along with other medical professionals and researchers, have helped to reduce the burden of many diseases through vaccination programmes, improved sanitation and other public health initiatives.

Pick one of the illnesses below and answer the following questions.

Cholera, Smallpox, Leprosy, Measles, COVID-19

1. What are the symptoms of the disease?
2. How is the disease transmitted?
3. How is the spread of the disease stopped?
4. Where in the world is the disease still a public health issue?
5. What public health initiatives have happened in the past, or are currently happening, to stop the spread of the disease?
6. How has epidemiology informed the design of these initiatives?
7. What factors have made these initiatives successful or unsuccessful?

### 2. Megan's top tip

"My advice is to be willing to reach out for help – find a mentor (or two). Reach out to someone you admire professionally and ask them to discuss your career path or to review your work and college/job applications."

Talking to professionals who you look up to can be a great way to learn more about a career. Many professionals will happily take some time to talk to someone who is genuinely enthusiastic about their field of work.

Think of someone who has a career that interests you. This person could be someone you know, someone well known or Linda, Megan, Taya or Roman.

Write your chosen person a letter explaining your aspirations and why you are interested in a career like theirs. Ask them about their career path and for any advice they might be able to give you.

If you are able to, contact the person and send your letter to them via email. This could be a great way to start exploring your career opportunities.

## More resources

- The Society for Health Communication has a lot of helpful information about communication in the context of public health, healthcare, digital health, academia and research:  
[www.societyforhealthcommunication.org/health-communication](http://www.societyforhealthcommunication.org/health-communication)

- The Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)) provides helpful resources including the Health Communication Gateway ([www.cdc.gov/healthcommunication/index.html](http://www.cdc.gov/healthcommunication/index.html)).
- To learn more about software development, Roman recommends Hacker News ([thehackernews.com](http://thehackernews.com)) and Fireship on YouTube ([www.youtube.com/c/Fireship](http://www.youtube.com/c/Fireship)).