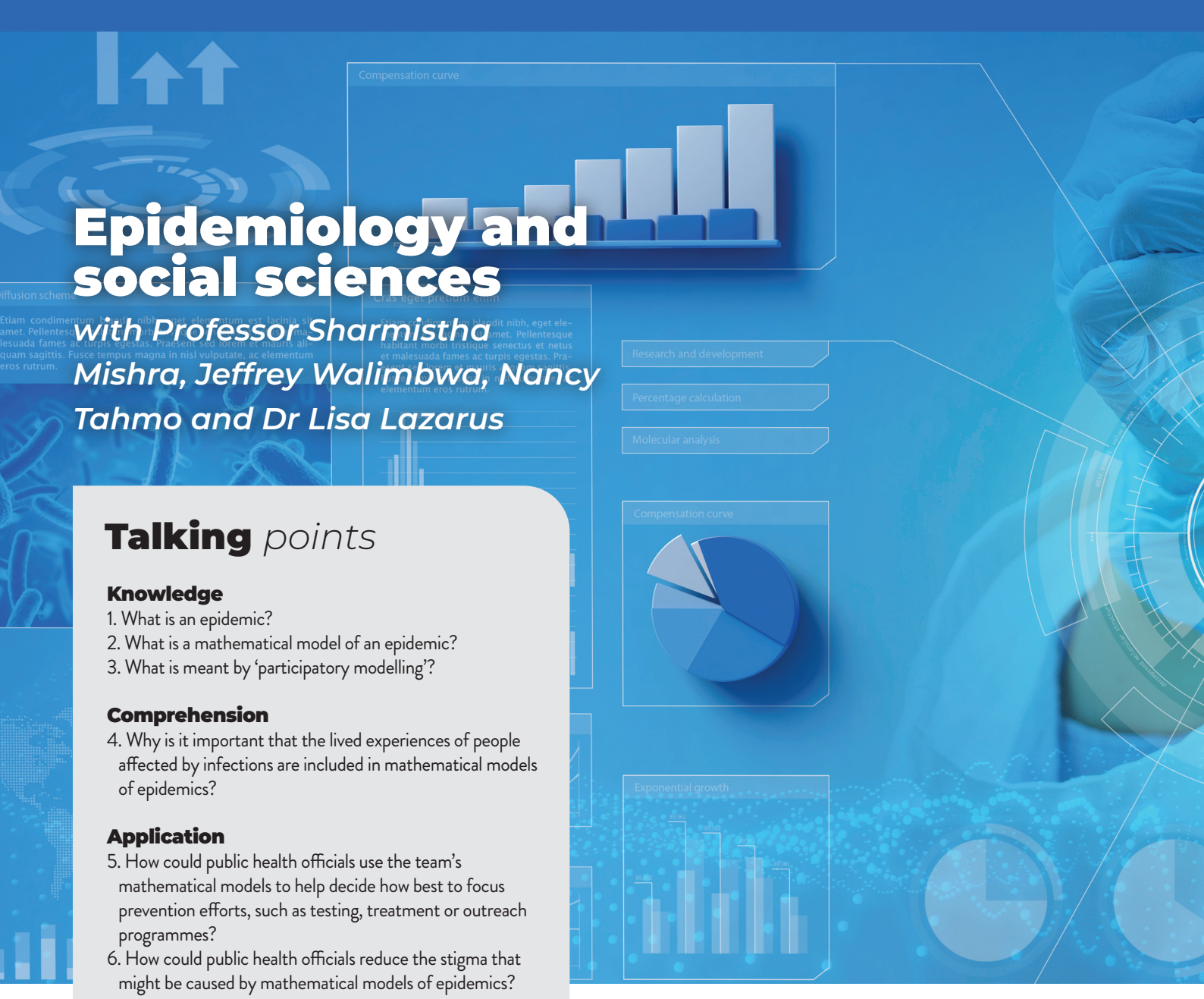
Epidemiology and social sciences

with Professor Sharmistha Mishra, Jeffrey Walimbwa, Nancy Tahmo and Dr Lisa Lazarus



Talking *points*

Knowledge

1. What is an epidemic?
2. What is a mathematical model of an epidemic?
3. What is meant by 'participatory modelling'?

Comprehension

4. Why is it important that the lived experiences of people affected by infections are included in mathematical models of epidemics?

Application

5. How could public health officials use the team's mathematical models to help decide how best to focus prevention efforts, such as testing, treatment or outreach programmes?
6. How could public health officials reduce the stigma that might be caused by mathematical models of epidemics?

Analysis

7. Is everyone affected in the same way during an epidemic? Why or why not?
8. How do you think epidemiology models of HIV created without community involvement would differ from the team's participatory models?
9. Why do you think it was important to explore the participatory process through ethnography, as well as focusing on the scientific results?

Evaluation

10. Why do you think community involvement in infectious disease modelling is still relatively rare, even though it has many benefits?
11. To what extent do you think centring communities during research projects can change who controls knowledge, whose experiences are valued and whose health needs are prioritised?
12. To what extent could participatory modelling help communities challenge stigma, gain recognition and shape fairer health systems, and what barriers might still stand in their way?

Activity

Community-led projects for HIV prevention
Participatory modelling means communities work alongside scientists to design research, analyse data and shape health decisions. In this project, community organisations in Kenya helped build mathematical models of HIV so that the research reflected real lives, real barriers and real needs. This approach can make public health decisions more accurate and empowering.

Divide into small groups: Each group will draw a social network of 20 people who come into contact with each other in one 24-hour period. For each of the 20 people in your network, define their characteristics (e.g., age, gender) and the ways in which they come into contact with other people in the network (e.g., spending time in the same room, sexual intercourse). This is version #1 of your group's network – save it and make a copy.

One person from each group moves to a new group, taking the copy of version #1 with them: Each group then combines their version #1 network with the new version #1 network provided by the new group member, creating a new social network containing 40 people (version #2). Each group has now created one of the 'building blocks' of a mathematical model.

More *resources*

- Visit the team's Futurum webpage to find an animation, podcast and PowerPoint about their work, and to read the article in Swahili, French and Spanish: **futurumcareers.com/how-can-community-voices-transform-hiv-modelling-and-prevention**
- Complete the team's online mathematical modelling training module: **rise.articulate.com/share/wRpRqXgQAIGo7M3ScRIIjbbKQlmnbYhg**
- Learn more about the services provided by Ishtar MSM: **ishtarmsm.org**

What creates disproportionate risks and what does this mean for prioritising prevention and health services? Look at the social networks created (version #1 and #2):

- If there was an epidemic in the network that has been built, could some people be more at risk than others? Why? What does this mean for prioritising prevention and health services?
- What else, other than what is currently shown in the network, could mean that some people are more at risk of infection than others? How could you add these considerations to your network model?

Put yourself in someone else's shoes:

- Look at your two networks (version #1 and #2) and consider how the two models you just built might stigmatise people.
- What could be ways of reducing that stigma when creating the network?
- How could participatory modelling help to better understand the community's needs?

Share and compare the models of the social network that each group generated:

- How different are the networks created in version #1 across the groups?
- How similar or different is version #2 to version #1 within each group?
- Looking across all the networks that have been created, are there enough similarities between a version #1 in a given group and a version #2 in another group, such that you can tell which two groups shared the same team member?
- What does this mean for how models are designed?

Reflect on how your perspectives can shape the 'building blocks' of a mathematical model:

- What important issues might be invisible without listening to lived experiences of community members?
- How would community members be involved as equal partners in studies like those that develop and use mathematical models?
- How could participatory modelling make public health efforts more fair, realistic and effective?
- What challenges might arise when scientists, governments and communities share power?
- To what extent could this approach help affected communities challenge stigma that can sometimes be caused by mathematical models?
- What might happen when communities are excluded from research that affects them?