

## **AFTER THE FLOOD: HOW COVID-19 USHERED IN THE FUTURE OF ONLINE TEACHING AND LEARNING OF STATISTICS FOR STUDENTS IN THE HEALTH SCIENCES**

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### **PURPOSE**

The teaching of statistics in the health sciences has arguably never been more important. The twin challenges of a reproducibility crisis in medical research and the growing use of machine learning and artificial intelligence with healthcare data makes a grounding in the fundamentals of statistical thinking essential. Although the COVID-19 global pandemic has caused major disruption to established methods of teaching statistics in the health sciences, it has also provided the opportunity to develop teaching practice.

### **APPROACH**

Previously, our statistics teaching for graduate students in the health sciences was built around content delivery and skills practice in face-to-face teaching sessions that were supplemented with online support materials. The pandemic gave the opportunity and the impetus to accelerate the replacement of existing provisions with a course built around asynchronous online learning. Statisticians and e-learning specialists worked in partnership using the Articulate Rise platform to create an interactive statistics course that helps to equip students to become critical consumers of biomedical and health research.

### **OUTCOMES**

Challenges have included engaging students from a wide range of different scientific disciplines; supporting asynchronous learning with synchronous sessions, firstly online and then face-to-face; typesetting mathematical content for an e-learning environment; and creating authentic assessments that can be taken remotely. Student partners were recruited to appraise the first iteration of the new course. Feedback from these student partners, from students who took the course, and from staff delivering programmes that utilised the new course format was reviewed and used to inform course improvement. Students expressed preferences for accessing content via video and limiting the volume of text, for including formative interactive knowledge checks, and for using visual explanations of concepts and using practical examples for illustration.

### **IMPLICATIONS FOR THEORY AND PRACTICE**

Evaluation of the rapid pivot to online teaching that took place in response to COVID-19 has informed subsequent changes in teaching practices. Continuing reflection informs continued evolution of this course and of practice more widely.

### **IMPORTANCE**

The pandemic has ushered in a new era of teaching statistics in the health sciences. It is important that we ensure that our teaching remains able to meet the challenges of modern statistical science and the needs of our students.