

# From Classroom to Crisis: Outbreak Simulation in Medical Education

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## BACKGROUND

- The COVID-19 pandemic highlighted critical gaps in healthcare preparedness, particularly in secondary care.
- Undergraduate curricula often provide limited opportunities to practise outbreak management in realistic contexts. (1)

## OBJECTIVES

To design, implement and evaluate an immersive outbreak simulation that enhances students' confidence, decision-making and understanding of secondary care roles in infectious disease emergencies.

## METHODOLOGY

### 5 Simulated Outbreaks

Students were placed in the role of public health officials, clinicians, epidemiologists and policy-makers to manage 5 simulated outbreaks based on high-consequence pathogens.

### Student Progress

Students received evolving case data, government briefings, news reports and epidemiological maps meant to replicate uncertainty and complexity in real-world decision-making.

### Expectations

Bedside scenarios using mannikins required infection control measures and clinical assessment. Participants also engaged in contact tracing, outbreak modelling and resource allocation.

## RESULT

- Across 4 iterations, 45 medical students (Years 3-6) participated.
- 100% of participants rated the programme relevant and appropriately challenging with 100% recommending it to peers.
- Participants were asked to rank their confidence in various areas of study on a Likert scale from 0-10 with 0 representing no confidence and 10 representing extreme confidence.
- Confidence in detecting and managing infectious diseases and outbreaks improved from 3.3 before the intervention to 7.7 after the intervention (133% improvement) and confidence in selecting the appropriate antimicrobial therapy during outbreaks increased from 2.8 to 7.6 (185% improvement) - all p value <0.0001 as a paired t-test.

## CONCLUSION

Pandemic Preparedness offers an effective, scalable approach to strengthening undergraduate medical education in outbreak management, bridging classroom learning with the realities of secondary care during global health emergencies.

We now plan to adapt it for interprofessional education, involving students from nursing and public policy to enhance its realism. We are also exploring running 'Pandemic Preparedness' for qualified doctors and nurses.

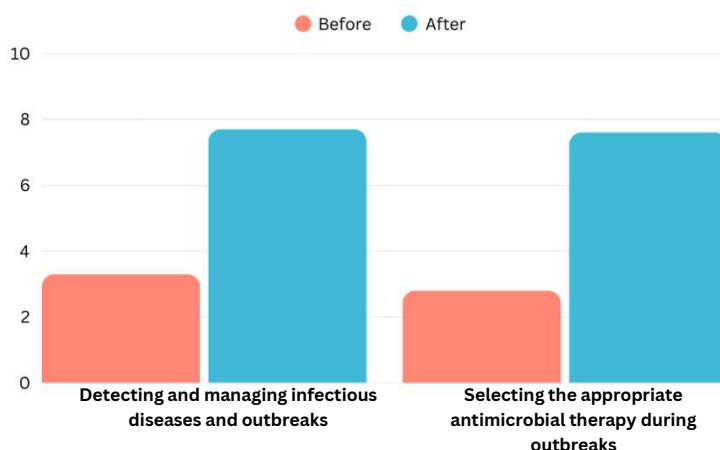


Figure 1: Confidence ratings among participants before and after Pandemic Preparedness



Figure 2: Case Folders used during Pandemic Preparedness each corresponding with a different simulated outbreak.