Department of Community Medicine Father Muller Medical College

Date: 14-09-2020

This is to certify that Dr Achal Shetty has created an innovative teaching session with the help of augmented reality. He has taught using the same for three hours for Medical and Allied Health Sciences. The details of the same are provided below:

Augmented reality a part of 'extended reality' spectrum uses holograms placed in real-world for better presentation. Holograms are projections which look like true objects when placed in a real-world setting and viewed through a computer/smartphone screen. To make the best use of this technology a theory topic had to be chosen which had many abstract thoughts embedded in it and thus difficult to explain. 'Bradford Hill's criteria of causation' was thought to suitable topic for this. Holograms were used and made to move around with the help of an app called 'Jigspace' on a smartphone. The same was transmitted to a laptop via screenshare and from laptop to students online again through laptop's screenshare on Impartus platform.

Professor and HOD







DEPARTMENT OF COMMUNITY MEDICINE

Quiz:

Topic: Epidemiology 2 (Incidence and Prevalence) on 27-07-2021

Staff: Dr Moira, Dr Anissa and Dr Oliver

Proofs: https://admin.sli.do/event/skuurpsp/polls

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DEPARTMENT OF DERMATOLOGY

Innovative teaching methods for PG students:

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FMMC (CM 194) 2021

13 04 2021

OUTBREAK SIMULATION

A two hour integrated class to "describe and demonstrate the steps of the investigation of an epidemic of communicable disease and describe the principles of control" was scheduled for the 2nd year MBBS students. The class of 150 students was divided into 2 batches of 75 each and the classes were conducted on two days (26th and 27th March 2021)

The objectives of this class, as given under the CBME, were:

- 1. To know the objectives and steps in investigation of an epidemic
- 2. Know the principle of control measures
- 3. With problem based case scenario, enumerate the steps in the investigation
- 4. Be able to list at least 5 steps in the investigation of an outbreak

In order to achieve objectives 1, 3 and 5, the Department of Community Medicine used a didactic lecture method as well as a simulation based investigative scenario and the Department of Microbiology explained the principles of control measures (objective 2) using a didactic lecture method.

Faculty who conducted the integrated class:

26.03.2021: DrSowmya, Dr Anissa (Department of Community Medicine) and DrPrasanna (Department of Microbiology)

27.03.2021: DrAchal, Dr Moira (Department of Community Medicine) and DrPrasanna (Department of Microbiology)

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Professor & HOD Department of Community Medicine Father Muller Medical College Mangaturu

Case scenario based simulation game for investigation of an epidemic

(Prepared by Dr Anissa Thomas, Assistant Professor, Department of Community Medicine)

The students must ideally be taught the steps of investigating an epidemic with the help of a 30 minute didactic lecture at the beginning of the class. Before commencement of the simulation exercise, it is suggested that the students be divided into group consisting of 5-6 members for effective participation and interaction between the students.

The exercise is not comprehensive, but will enable the students to think for themselves and analyze the data as in a real-life scenario. All the case scenarios and case sheets are fictional. The exercise can be completed within 2-3 hours.

The activities have been given in italics along with acceptable answers. For open ended questions there can however be a multitude of answers. This exercise focuses on encouraging analytical thinking and discussions.

Equipment required:

LCD screen and projector/Smartboard

Blackboard and chalk

Case sheets of the patients

Notebook or empty sheets (for students)

Facilitator: On Monday (eg: several days before the class is being conducted) several citizens in the fictitious area of Doddahalli were showing symptoms of an infectious disease. You are part of the team responsible for investigating this outbreak.

Activity #1: As a team, quickly revise the steps in the investigation of an outbreak.

Facilitator: Now that you have revised the steps, we shall begin the exercise. In this folder here, we have gone to the area PHC and collected their case sheets.

Activity #2: Take a look at the case sheets and answer the following questions:

What is the patient profile and symptomology? When? Draw a table summarizing the above. You can also add any other details that you think are relevant to the investigation. You will have 15 minutes. (An empty example of the table can be displayed for the students' reference)

Patient No	Age/Sex	Onset of symptoms	Symptoms	Comorbidities
1	49/F	13.03.2021	Cough	None

			Loss of taste Headache, Myalgia Loss of appetite	Nana
2	60/F	14.03.2021	Fever and chest pain Difficulty breathing Loss of appetite	None
3	35/M	18.03.2021	Fever, bodyache Headache	DM+HTN
4	17/M	15.03.2021	Fever, breathing difficulty Loss of appetite	Obesity
E	40/M	17.03.2021	Cough, throat pain	DM
5	40/M	17.03.2021	Fever, diarrhea	None
7	42/F	18.03.2021	Headache, bodyache Fever	DM+HTN
8	18/M	15.03.2021	Fever, sore throat	None

Facilitator: It is possible to confirm the presence of an outbreak by comparing it to past disease patterns. Last year, this time there was only 1 case reported in Mangalore.

The patient samples are sent for possible tests.

Facilitator: One thing to note in an outbreak investigation is who is at risk. Does everyone have an equal chance at getting this disease? Is it based on age, sex, location? Is there increased risk based on underlying conditions?

The next day there is an update from the hospital regarding patient status!!!!!

Activity #3: Look at this new information and update the table. Identify the possible risk factors in 10 minutes.

Patient No	Status	
1	Hospitalized	
2	Deceased	
3	Hospitalized (ICU)	
4	Recovered	
5	Hospitalized (ICU)	
6	Recovered	
7	Hospitalized (ICU)	
8	Recovered	

Answer: The updated table will look like this:

Patient No	Age/Sex	Onset of symptoms	Status	Comorbidities
1	49/F	13.03.2021	Hospitalized	None
2	60/F	14.03.2021	Deceased	None
3	35/M	18.03.2021	Hospitalized (ICU)	DM+HTN
4	17/M	15.03.2021	Recovered	Obesity
5	40/M	17.03.2021	Hospitalized (ICU)	DM
6	25/M	17.03.2021	Recovered	None
7	42/F	18.03.2021	Hospitalized (ICU)	DM+HTN
8	18/M	15.03.2021	Recovered	None

The disease seems to target the elderly and those with co-morbid conditions such as diabetes, hypertension and obesity. The elderly also seem to be at higher risk of mortality. Those belonging to the younger age group appear to be recovering faster. However, more data will be required in order to confirm this.

Facilitator: You have received information from various sources that points towards a further spread of the outbreak.

Activity #4: How will you find out those who have been infected?? Discuss for 5 minutes

Answer: Contact tracing must be done: This is the identification and follow up of individuals who might have come in contact with these 8 patients (eg: students who came in contact with Teacher Meenakshi, Rohith, Anoop, colleagues of Mr Eric etc) Data can also be collected from local hospitals, private clinics and pharmacies.

Activity #5: Now using this data, draw and epidemic curve. X axis contains the time and y axis the number of patients. Is there anything that draws your attention?? You will have 5 mins.

Answer:

x axis: Dates of onset of symptoms

y axis: Number of identified cases on each date



From the epidemic curve, it is difficult to draw a conclusion. More data will be required.

Facilitator: All teams have progressed well and have collated a substantial amount of data. Are there any doubts at this point?

Activity #6: Can you trace the possible manner in which this disease might have spread? Were these cases sporadic or connected? You have 10 minutes.

Meenakshi and Saraswathi	Possible sources
Ramanand	Lives in the same household as Meenaskhi
Rohith Anoon and Eric	Possibly interacted with Meenakshi at school
Sunil	Came in possible contact with Meenakshi when he went to her house
Leela	Lives in the same household as Saraswathi

All the cases seem to have come in contact with either Meenakshi or Saraswathi few days before the onset of symptoms.

Activity #7: As a team, formulate your hypothesis using the data with you. You will have 5 mins.

Try to answer these questions in the hypothesis

Who did it start with? (source)

How did it spread? (mode of transmission)

Who are the susceptible individuals? (susceptible individual)

Answer: Teacher Meenakshi or her neighbor Saraswathi seem to be the source of infection for the other 6 patients as they had the earliest onset of symptoms among the 8. The mode of transmission appears to be airborne or fomite borne, as the symptoms exhibited are predominantly respiratory in nature. Susceptible individuals are the elderly and those with comorbid conditions such as diabetes, hypertension or obesity (probably disease conditions with decreased immune status).

Activity #8: What control measures must be put in place to prevent further spread of the outbreak? List at least 3 individual and 3 community measures. You will have 10 minutes

Answer: Considering that this infectious disease is spread either via respiratory route or fomites, the following interventions can be advised:

Individual level

- 1. Seek medical care immediately in case of fever, cough, throat pain, difficulty breathing
- 2. Ventilate houses by opening windows and doors
- 3. Wear mask while interacting with others
- 4. Maintain social distancing of 1 meter
- 5. Wash hands frequently
- 6. Disinfect commonly used surfaces at home
- 7. In case of symptoms isolate self
- 8. Avoid crowded areas/markets/malls

Community level

- 1. Consider work from home/working in shifts
- 2. Restricted capacity in public areas
- 3. Widespread dissemination of accurate information using media
- 4. Rapid response in case of multiple clusters
- 5. Consider travel restrictions
- 6. Notification and surveillance

This will be ensued by a short session on control measures by the microbiologist and the class can be brought to a close after a de-briefing session:

- 1. Important take-away lessons
- 2. Steps of investigating an outbreak
- 3. How can this be improved? What extra data/personnel do you think can help you?
- 4. How has this exercise changed your perspective on outbreaks?

Acknowledgment: This document has been prepared based on Outbreak Investigation- COVID 19 freely available for use (1).

References

1. Ng AO. Outbreak Investigation [Internet]. Johns Hopkins School of Public Health. 2020. p. 01–41. Available from: http://outbreakinvestigation.fun/ Name: Meenakshi
 Date of visit: 21.03.2021
 Age/Sex: 49/Female
 Chief complaints:
 Cough and loss of taste since 8 days
 Headache, generalized myalgia since 5 days
 Loss of appetite +
 Teacher at XYZ school, living at home

2. Name:Saraswathi Date of visit: 20.03.2021 Age/Sex: 60/F Chief complaints: Fever and chest pain x 6d Difficult breathing x 2days Loss of appetite+ (Meenakshis neighbor)/ Homemaker

3.Name: Ramanand
(Meenakshi'scousin, lives in the same house
Meets her daily)
Date of visit: 21.03.2021
Age/Sex: 35/M
Chief complaints: Fever+
Cough and throat pain since 4 days
Headache and body pain+
Software engineer (h/o asthma)

4.Name: Rohith Date of visit: 20.03.2021 Age/Sex: 17/Male Chief complaints: Fever x 5d Difficult breathing x 2days Loss of appetite+ (obesity +) Goesto XYZ school 5.Name: Sunil (Ramanands friend) Date of visit: 19.03.2021 Age/Sex: 40/Male Chief complaints: Cough and throat pain since 2 days Diabetic + (Went to Ramanand's house on March 15)

7.Name: Leela

Date of visit: 21.03.2021 Age/Sex: 42/Female

Chief complaints: Fever x 3 days

Headache and body pain+

Diabetes and hypertension

(Saraswathi'sdaughter, lives in the same house)

6.Name: Eric Date of visit: 20.03.2021 Age/Sex: 25/M Chief complaints: Fever x 3d Diarrhoea since 2 days Works in a

telecommunications company. Went for IT support at XYZ school on March 14

8.Name: Anoop Date of visit: 19.03.2021 Age/Sex: 18/M

Chief complaints:

Sore throat and Fever x 4d

Goes to XYZschool

Student-centric methods used for enhancing learning experiences:

(Eg: Experiential learning, integrated/ interdisciplinary learning, participatory learning, problem solving methodologies, Self-directed learning, Patient-centric and Evidence-Based Learning, Learning in the Humanities, Project-based learning, Role play etc)

Self directed learning using E-resources created by the faculty

Student Centric teaching Videos created by the Faculty of General Ophthalmic Conditions

- Effects of excessive screen time on the eyes <u>https://youtu.be/4NdZQSICYZw</u>
- Eye care tips for viewing a solar eclipse <u>https://fb.watch/7qYG9Sxjke/</u>
- Best take care of your eyes and protect it from Macular Disease <u>https://fb.watch/7qYcjvsEve/</u>
- Management of Myopia kids & Covid -19 Pandemic <u>https://fb.watch/7_R15c7D1q</u>

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