

Navigating COVID-19 Through an Unfolding Case Study for Undergraduate Nursing Students

On March 11, 2020, the Director-General of the World Health Organization (WHO) characterized COVID-19 as a pandemic, launching the world into a new and unfamiliar situation (WHO, 2020). Colleges across the United States were forced to move classes to online to abide by social distancing requirements. Many nursing faculty were challenged to move students immediately from the clinical setting into an online environment to complete the remainder of clinical hours. The Illinois Department of Professional and Financial Regulation allowed for clinical requirements to be met through online learning (Illinois Department of Professional Financial Regulation, 2020). This created a need for nursing faculty to create and facilitate online virtual clinical hours to meet necessary objectives. As students and faculty were adjusting to the “stay-at-home” orders placed by the government, faculty thought it would be beneficial to develop a learning activity to explore current events and elicit clinical reasoning skills, while at the same time allowing students to discuss how this situation has affected their lives.

The American Academy of Colleges of Nursing (AACN) includes the use of unfolding case studies as an active, collaborative, and integrative learning strategy as part of the *Essentials of Baccalaureate Education* (AACN, 2008). Therefore, an unfolding case study was developed to include the current COVID-19 pandemic, and apply real-life situations to students' current clinical placements (**Table A**; available in the online version of this article). The unfolding case study allowed for adaptation throughout the entire nursing curriculum, with the ability to emphasize several different settings, including acute care, public health, community, obstetrics, pediatrics, and mental health. The overall goal included giving students a real-life understanding of COVID-19 as it applies to their clinical education. The

objectives for first- and second-year nursing students included identifying infection control measures, including the use of personal protective equipment (PPE); describing the purpose of social distancing as a public health measure; determining the psychosocial implications of social distancing, quarantine, and isolation; describing the impact of COVID-19 on the health care system; reflecting on personal experiences and feelings regarding COVID-19; and the impact it has had on their personal and professional lives. Additional objectives for second-year students included ethical decision making through resource allocation, and applying conflict resolution/management strategies.

Students were provided with background information on COVID-19, along with questions about common signs and symptoms, risk factors, transmission, and prevention of the virus. Questions also included differentiating between epidemics and pandemics. The unfolding case study included a description of a patient who presented to a big-city hospital before COVID-19 was considered a pandemic and had nonspecific signs and symptoms. Students were taken through the time line of events and eventual diagnosis of one of the first cases of COVID-19 in the area. Throughout this process, they were able to see how the virus spread rapidly, how the number of people who contracted the virus could be traced to just one individual, and the evolution of COVID-19 testing. As the unfolding case study unfolded, the students were asked to investigate the concepts of social distancing, self-quarantine, and community spread of the virus. As it continued to unfold, students were asked to identify correct donning and doffing of PPE and further explore transmission of COVID-19. The exploration of transmission allowed for a discussion about different types of isolation and precautions, including droplet versus airborne. The students were then presented with a scenario in

which they were asked to deescalate a situation with an angry family member who was denied entry into a room due to new policies to prevent transmission of COVID-19. Finally, they were presented with a scenario of four patients who needed a ventilator when only one was left in the immediate surrounding area. This allowed the students to explore the concepts of resource allocation (using the Crisis Standards of Care [Institute Of Medicine, 2009]) and the ethical and moral aspects of decision making during disasters.

A total of nine clinical faculty utilized this case study with 52 first-year students and 33 second-year students. The unfolding case study was used as a clinical activity during a live postconference session with nine to 10 students per group. The activity was created to quickly implement a COVID-19 activity during the beginning of the pandemic in the United States. Therefore, the activity was not graded; but used for discussion and exploration of concepts and feelings related to COVID-19.

The use of this real-time unfolding case study has allowed students to gain a new understanding and, in some cases, a review of concepts learned throughout the curriculum. No formal evaluation of the case study was performed; however, objectives were met, as reported by faculty during a meeting conducted after implementation. First-year students were able to apply the concepts of infection prevention, control, and transmission, including the appropriate use of PPE, while also exploring the psychosocial implications of social distancing, quarantine, and isolation. Second-year students were able to discuss disaster preparedness and planning, ethical decision making through resource allocation, the role of policy in public health, and priority setting.

The use of this COVID-19 unfolding case study has allowed students a better understanding of current events. This has also provided students with the opportunity to discuss how the plans in place to “flatten the curve” have

affected their education and personal lives. We recommend incorporating COVID-19 case studies into curricula.

References

American Academy of Colleges of Nursing. (2008). *Essentials of Baccalaureate Education*. Author.

Illinois Department of Financial and Professional Regulation. (2020). *Illinois Department of Financial and Professional Regulation announces measures to assist licensees and education providers during the COVID-19 pandemic*.

<https://www.idfpr.com/News/2020/2020%2003%2018%20IDFPR%20Variance%20Press%20Release.pdf>

Institute of Medicine. (2009). *Guidance for established crisis standards of care for use in disaster situations: A letter report*. <https://www.nap.edu/catalog/12749/guidance-for-establishing-crisis-standards-of-care-for-use-in-disaster-situations>

World Health Organization. (2020). *WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020*. <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>

Susan Tracy, MSN, RN
stracy01@uic.edu

Sara McPherson, PhD, RN

*University of Illinois at Chicago
College of Nursing, Springfield Campus*

The authors thank Kevin Grandfield, Publication Manager at UIC Biobehavioral Health Sciences, for his assistance with editing.

The authors have disclosed no potential conflicts of interest, financial or otherwise.
doi:10.3928/01484834-20200723-11

Table A

Unfolding Case Study

COVID-19 Unfolding Case Study

The Centers for Disease Control and Prevention (CDC) is responding to a pandemic of a respiratory disease spreading from person-to-person caused by a novel coronavirus. The disease has been named coronavirus disease 2019 (COVID-19). This situation poses a serious public health risk. COVID-19 can cause mild to severe illness.

1. What is the definition of pandemic?

- a) An outbreak of a disease that occurs over a wide geographic area and affects an exceptionally high proportion of the population.
- b) The worldwide spread of a new disease.
- c) The occurrence of disease cases in excess of what's normally expected.
- d) More than a normal number of cases of an illness in a community or region.

2. Describe the difference between an epidemic and a pandemic.

3. Provide two examples of past epidemics.

4. Provide two examples of past pandemics.

5. What are the most common signs and symptoms of COVID-19?

6. Who is most at risk?

7. How is COVID-19 transmitted?

8. What does the CDC is the best way to prevent illness?

Patient Scenario

On February 27, 2020, L.G., a 50-year old male, presents to the emergency department (ED) with a cough and sore throat. He states that he has had the cough for several days and the sore throat started yesterday. During the triage process, the patient's vital signs are: BP 124/65, HR 97, RR 22, T 100.1, SpO2 95%. He states he has no past medical history, no known allergies, no sick contacts, and no recent travel.

9. Early on in the COVID-19 pandemic, testing kits were extremely limited. Based on the following recommendations from CDC, does this patient qualify to be tested for COVID-19? Why or why not?

[Priorities for testing patients with suspected COVID-19 infection](#)

10. You are told by the health department that test results could take up to four days. What are the implications of this delay in receiving results?

L.G. is taken to a room in the ED. Below are assessment findings and diagnostic results:

Physical exam: Alert and oriented. S1S2, no murmur. Lung sounds diminished in right base, otherwise clear to auscultation. Denies nausea, vomiting, diarrhea.

Orders: Chest x-ray, CBC, CMP, respiratory panel

Results: Chest x-ray – consolidation in right lower lobe. WBC 12,000. Remainder of labs are unremarkable. Negative influenza. Remaining respiratory panel outstanding.

Diagnosis: Pneumonia

Course of treatment: Admit to inpatient general medical floor for IV antibiotics.

Timeline of events:

February 28-29, 2020

L.G. continues to decline. VS: BPs in the 100s/60s, HR 100-110, RR 28-34, T 99.9, SpO2 90% on 4LNC

March 1, 2020

First positive case of COVID-19 identified in the state

March 2, 2020

L.G. is confirmed to have COVID-19. L.G. has been transferred to a higher level of care where he is now on a ventilator for airway management.

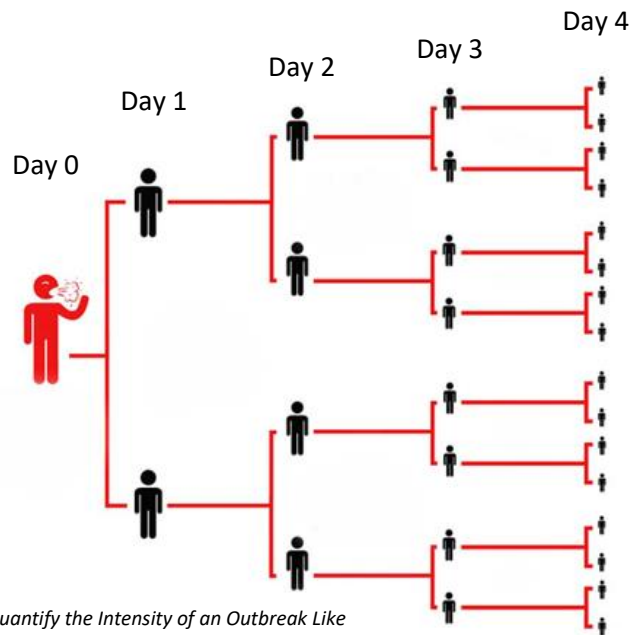
As a public health nurse at the local health department, you are notified about the positive COVID-19 case at the hospital in your area. You have been tasked with finding out from the patient's spouse all of the potential places the patient was prior to his hospitalization.

11. What is this process called?

When speaking to the patient's wife, you find out several alarming facts: The patient was at a large gathering the week before he was diagnosed and that he took public transportation to his place of work daily.

Epidemiologists are estimating R_0 (R naught – the term used to describe the intensity of an infectious disease outbreak) for COVID-19 to be anywhere from 1.5 -3.5. In other words, R_0 describes how many cases of a disease an infected person will go on to cause. For the question below $R_0=2$.

12. If each person who has tested positive with COVID-19 infects 2 other people each day, how many days will it take for over 100 people to have COVID-19? (See figure)



Adapted from "How Scientists Quantify the Intensity of an Outbreak Like COVID-19," by J. Eisenberg, 2020. (<https://labblog.uofmhealth.org/rounds/how-scientists-quantify-intensity-of-an-outbreak-like-covid-19>). Copyright 2020 by Michigan Health Lab.

13. What are the implications of these facts for the public?

As one of the nurses who took care of the patient prior to confirmation of COVID-19, you have been notified by the local health department that you need to self-quarantine to your house. You are asymptomatic and question the public health nurse about why you need to self-quarantine.

14. Why does the nurse need to self-quarantine and what is involved in self-quarantine?

As you are quarantined at home, you are watching the news and you hear about social distancing.

15. What is social distancing?

16. How is social distancing supposed to help “flatten the curve”?

You begin to worry about all of the people you may have come in contact with that either had COVID-19 or you could have given COVID-19 to.

17. What could you say to this nurse to help alleviate her anxiety?

18. What are some suggestions that you could give that would help her feel less isolated?

Not only are you stressed over being quarantined to your house, you are worried about your elderly grandmother who is in the nursing home.

19. Why are patients who are in a setting such as a nursing home or other congregate living setting more at risk for contracting COVID-19?

20. What are the implications of social distancing on people who are institutionalized?

21. What could be done at the nursing home to try to help prevent the spread of COVID-19?

You have been released from self-quarantine and are working on the unit at the hospital that has been designated for all patients under investigation or who have tested positive for COVID-19. During report you were told that all of the patients you are caring for are in Droplet Plus isolation. This means you will be wearing all PPE required for droplet isolation plus a face shield.

22. What is the correct order for donning PPE for Droplet Plus isolation?

23. What is the order for doffing PPE for Droplet Plus isolation?

There is a discrepancy in how the virus is transmitted. Some reports are stating that COVID-19 might be transmitted via airborne particles.

24. If the virus is known to be airborne, how will this change PPE for providers? Why?

Mid-morning, you hear voices in the hallway that are getting louder. You head toward the voices to investigate the situation. You find a family member of one of the patients on the floor who is positive for COVID-19 loudly telling the front desk worker that they have the right to visit their family member. The hospital policy that was recently put in place is that no visitors are allowed in the patient room of someone who has tested positive for COVID-19 unless death is imminent.

25. What do you say to the family member to attempt to de-escalate the situation?

26. When that doesn't work, what do you do?

You and your colleagues are taking care of four patients on the designated COVID-19 unit. All of the patients are critically ill and currently on BiPap for airway management. All four patients are rapidly declining and airway management via endotracheal tube and ventilator is imminent. However, due to over-crowded intensive care units because of the COVID-19 pandemic, there is only one ventilator left in the surrounding area. You have to pick one of the four patients knowing that the other three will die without ventilator support.

27. Who gets the ventilator? Why? ([Crisis Standards of Care](#))

A 51 year old male family practice physician who is married with two teenage children.

A 32 year old grade school principal who is a single mother of two young children.

A 24 year old graduate student who is 20 weeks pregnant with her and her husband's first child.

A 37 year old male paramedic who is the single parent of a 14 year old.

28. After the mass casualty shooting in Las Vegas, Nevada, gunshot victims were able to share ventilators. Would this be possible with COVID-19? Why or why not?

General Discussion Questions

29. What were the differences between how China handled the outbreak and the response in the U.S.?

30. What do you believe could have been done differently?

31. How does all of this make you feel? As a student? As a future healthcare worker?