E-PARCC
COLLABORATIVE GOVERNANCE INITIATIVE

Syracuse University
Maxwell School of Citizenship and Public Affairs
Program for the Advancement of Research on Conflict and Collaboration

EPIDEMIC
A COMMUNITY HEALTH COLLABORATIVE SIMULATION

Overview

In recent years, a wave of measles, pertussis, and mumps epidemics affected communities across the United States (see Appendix). While these illnesses are typically categorized as "vaccine-preventable diseases," the reasons for these epidemics as well as the community impacts vary. A one-size-fits-all prevention and response protocol is insufficient for addressing these complex incidents. One constant, however, is the stress that these epidemics place on communities when existing resources are stretched to the limit and demand exceeds capacity. One of the responses to limited health care capacity and growing need is the emergence of *community health collaboratives*. These networks of health care professionals, health-related organizations, and citizens can help anticipate and respond to health issues at the local level.

Community health collaborative (CHC) tasks are varied and can include data analysis, strategic planning, and advocacy. CHC goals may include detecting and preventing disease, assessing health disparities, and working together with community members to identify and address unmet health needs. These networks pursue their goals in many ways, including increasing awareness and capacity to address the determinants of disease as well as coordinating and supporting evidence-based health interventions.

This simulation was written by Heather Getha-Taylor of the School of Public Affairs and Administration at the University of Kansas and was awarded Honorable Mention in E-PARCC's 2017-2018 Competition for Collaborative Public Management, Governance, and Problem-Solving Teaching Materials. The simulation is intended for classroom discussion and not to suggest either effective or ineffective responses to the situation depicted. It may be copied as many times as needed, provided that the authors and E-PARCC are given full credit. E-PARCC is a project of the Collaborative Governance Initiative, Program for the Advancement of Research on Conflict and Collaboration- a research, teaching and practice center within Syracuse University's Maxwell School of Citizenship and Public Affairs. https://www.maxwell.syr.edu/parcc_eparcc.aspx

For this exercise, six members of a CHC will engage in a three-part guided discussion based on the provided information. This simulation offers an opportunity to examine different ways of thinking about shared community health problems. The character roles and their accompanying response descriptions are inspired by Edward de Bono's (2000) *Six Thinking Hats*, which presents six distinct problem lenses. In this simulation, the characters and their associated response sketches represent these varied viewpoints. This exercise provides an opportunity to consider the benefits and limitations of adopting a specific problem lens when facing the complex reality of disease prevention and response at the local level.

The CHC partners include:

1. E. Blackstone, Community Memorial Hospital
    a. Inspired by de Bono's Black Hat; focuses on negativity and problems
2. Prof. R. Greenley, State University Medical School
    a. Inspired by de Bono's Green Hat; focuses on innovation and new ideas
3. T. Rossi, Nonprofit Partners for Health
    a. Inspired by de Bono's Red Hat; focuses on emotions and instincts
4. A. Blanco, CareWell Health Insurance
    a. Inspired by de Bono's White Hat; focuses on data and facts
5. S. Golden, Biowares Health Supply
    a. Inspired by de Bono's Yellow Hat; focuses on positivity and opportunity
6. Dr. L. Cornflower, County Public Health Department
    a. Inspired by de Bono's Blue Hat; focuses on process and control

Working in these given roles, participants will engage in the first community health collaborative meeting which has been convened by Dr. L. Cornflower of the Public Health Department. The three-part agenda includes: 1) measles information review and discussion, 2) pertussis information review and discussion, and 3) mumps information review and discussion. The overall goal of the meeting is to understand the context of these vaccine-preventable illnesses in order to prepare for a community presentation on mumps.

There is an accompanying individualized "response sketch" for each stage of the discussion that provides additional details for each character's perspective on these complex public health challenges. The provided details are culled from scientific and news reports, but the role descriptions and response sketches are written generically so they may be applied to any community. Prior scientific experience, including knowledge of these illnesses, is not necessary to participate in this simulation. The only requirement is active engagement in the given roles and discussions!

Part 1: Measles

Step 1: Review the following information on measles.

Before the introduction of a vaccine in 1963, nearly everyone in the United States contracted measles and hundreds died from it each year. Today, doctors rarely see a measles case. Measles is a highly contagious viral illness that spreads through the air when people cough or sneeze. It generally causes symptoms such as fever, cough, runny nose, and rash, but can sometimes result in serious complications, including: pneumonia, brain swelling, deafness, or death.

To prevent measles, the Centers for Disease Control and Prevention (CDC) recommends that everyone receive two doses of either the MMR (measles, mumps, and rubella) or MMRV vaccine (measles, mumps, rubella, and varicella). The first dose should be administered at age 12-18 months and again between the ages of 5-7. As a result of widespread vaccination rates and the effectiveness of said vaccines, the U.S. declared that measles was eradicated in 2000. However, measles remains common in other parts of the world, including countries in Europe, Asia, and Africa.

In recent years, measles cases reappeared in troubling numbers in the United States. For example, in 2016, a measles outbreak rocked the state of Minnesota, with 73 confirmed cases of the illness (compared to 70 cases across the entire U.S. that year). The outbreak started among members of the Somali community living in Hennepin County. Somali parents perceived higher than expected rates of autism among their children. In a search for answers, they discovered a study published by Andrew Wakefield, which linked vaccines and autism. It is important to note that following its publication, Wakefield's research was widely discredited: it was described as "spurious" and "fraudulent." His work was subsequently retracted.

In response to these issues, public health officials reached out to Minneapolis' Somali community members with autism resources, but anti-vaccine groups also mobilized and featured the discredited research findings in their own information campaign. The anti-vaccination campaign seemed to make an impression: Somali vaccination rates subsequently dropped to 42%, compared to 89% of other Minnesota residents. A later analysis by the University of Minnesota found that Somali children were no more likely to have autism than their peers. Further, in a review of the outbreak, in all but 4 of the 73 measles cases, it was unvaccinated individuals who contracted the disease.

Step 2: Each CHC partner should now review their individualized Measles Response Sketch.

Step 3: The CHC partners should discuss the following questions:

1. Community education and awareness: Which messages are most important to share with community members in the fight against measles outbreaks?
2. Resources: Which resources are critical when responding to a measles epidemic?
3. Interventions: Which interventions are recommended for preventing and limiting the spread of measles?

Measles Response Sketch: E. Blackstone, Community Memorial Hospital

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

Measles is highly contagious and spreads rapidly, especially in densely populated areas. With our community's population on the rise, this is just a nightmare waiting to happen. Although the U.S. was declared measles free nearly 20 years ago, things have changed and not for the better. We see more people claiming vaccination exemptions due to philosophical beliefs, which affects the overall vaccination rate. Low vaccination rates allow the disease to spread, especially when travelers or new immigrants bring the illness into the U.S. I dread the thought of the strain that would be placed on our already limited health care system with a measles epidemic in our community. When a local child, Alex, traveled to Romania and contracted measles, the spread of disease was limited to just a few people, but the hospitalizations costs were nearly $168,000! While hospitalization is costly, the worse news is that there is no effective antiviral medication for measles: our hospital can offer fluids and oxygen, but that's about it. Our facility is committed to excellent patient care, but we are already dealing with staffing shortages and maximum patient capacity: it would be extremely challenging to confront a measles epidemic. Everyone expects the hospital to serve as a leader or director in cases like this, but we just can't handle this alone. People can and do die from measles, yet it is preventable. I wish people understood how dire this situation can be for our community, especially with more and more people choosing not to vaccinate.

NOTES:

Measles Response Sketch: Prof. R. Greenley, State University Medical School

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

A recent ground-breaking study in *Nature,* a top peer-reviewed journal, showed that illness epidemics demonstrate similar transmission patterns as riots. These events spread from person to person and are geographically dependent. Early detection and containment is essential. We need to look at problems like measles epidemics in creative new ways. If epidemics spread in close-knit communities where individual and family connections can be powerful, how can we "virally" improve the social norm of vaccination? How can we use these personal networks to *prevent diseases* instead of just focus on limiting their spread? I read a report that in the Minnesota outbreak, the public health officials worked with religious leaders in the Somali community to develop improved cultural competence and better understand how to prevent the spread of measles. What the officials learned is that one of the messages of Islam is that when you are ill, taking time to be alone can have a spiritual benefit. At the university, we are in the business of asking and answering big questions, so let me ask this: how can we use this important idea to help our own community?

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Measles Response Sketch: T. Rossi, Partners for Health

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

Failure to vaccinate is the reason that measles is making an emergence again and it is the goal of our nonprofit organization, Partners for Health, to provide resources to help educate the public. Failure to vaccinate puts our community's vulnerable babies and toddlers at risk! For example, who can forget the sad story of Alex, the unvaccinated child in our community who traveled to Romania to visit family and contracted measles while out of the country! Alex then returned and transmitted the virus to three other unvaccinated children in daycare. As a result, what started as a small outbreak of measles led to a total of 34 cases, most of which were children! I believe that many families in Alex's tightknit cultural community fear autism: my gut instinct is that this fear influenced their decision not to vaccinate. The fear of autism is our greatest enemy in the fight against measles! Vaccines do not cause autism. It makes me very angry that anti-vaccine groups are spreading misinformation to communities, including ours, and are putting our children at risk. Partners for Health remains committed to designing and distributing radio, television, print, and social media information campaigns that show the horrors of vaccine-preventable diseases like measles. Our vision of a healthy community is one that is fully vaccinated!

NOTES:

Measles Response Sketch: A. Blanco, CareWell Health Insurance

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

Measles is largely preventable thanks to modern vaccines. When individuals receive both of the recommended doses of the measles vaccine, it is 97% effective in preventing the disease. While the facts demonstrate that measles cases are rising, there is no evidence that the vaccine's effectiveness is waning. If it were, we would see more vaccinated people contracting measles. That is not happening. While it is true that measles is more likely to occur in "pockets of vulnerability" like major metropolitan areas or ports of entry, vulnerability can occur whenever vaccination rates dip below 90-95% of the population. This is referred to as the "immunity threshold." Calculating an immunity threshold can be a complex process that includes factors such as the disease's ease of transmission and also the long-term effectiveness of the vaccine. In the case of measles, the disease is highly contagious: one infected person can pass it to up to 12-18 people. Due to these facts, the only reasons not to vaccinate are if a child is too young or if the individual has an immunodeficiency. It is important to remember that most people seek medical attention when dealing with measles, which requires a specific response protocol. Patients should be isolated and lab tests should be conducted to confirm measles. Then, it is essential that hospitals and clinics report the measles case to the public health agencies in order to limit the spread of the illness. There is evidence that unvaccinated children tend to cluster geographically and socially, increasing the potential for spreading measles. The numbers show that it is costly to respond to measles cases, especially those cases that involve hospitalization. Based on these facts, CareWell strongly advocates for investments in measles prevention and vaccination.

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Measles Response Sketch: S. Golden, Biowares Health Supply

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

While measles outbreaks can be financially beneficial for my business (humidifiers and Vitamin A supplements sell out especially quickly!) I hate to see anyone contract this disease! My understanding of measles outbreaks is that they occur in "pockets of vulnerability." I have never heard our community described in that way. That is very good news! In the very unlikely event of a measles epidemic, it would be a great opportunity to use the talents of community health workers. As a former nurse, I have years of experience working with peer educators and other community health workers. These hardworking individuals are an underutilized resource and they can make a big difference in supplementing the capacity of the health care system, especially when it comes to spreading the word about vaccination. Community health workers (CHWs) can even be trained to provide health screenings and participate in health promotion activities. If our local demographics shift, and especially if more immigrants join our community, CHWs can provide important health information in a culturally competent way that can save lives. They offer so many benefits! I am very excited about this possibility. I am willing to commit a portion of Biowares sales to creating a community health worker training program in our community!

NOTES:

Measles Response Sketch: Dr. L. Cornflower, County Public Health Department

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

Our department is tasked with monitoring and limiting the spread of disease. This requires ongoing and frequent communication with health professionals and organizations as well as community citizens. When a measles outbreak occurred recently, we worked together with community leaders, health care providers, schools, and citizens to help educate and improve awareness of how to limit the spread of the disease. I would like to see us invest in even more open and inclusive communication processes that involves all concerned members of our own community. I do realize that when it comes to vaccinations, people have strong feelings on both sides of this issue. At a recent community meeting, a well renowned local pediatrician, Dr. Crick, was shouted down by some anti-vaccine activists and effectively silenced. One attendee shouted, "don't contaminate us with your vaccines!" Another said, "vaccines are unnatural!" while one more said: "we should have freedom of choice!" A group of the doctor's supporters went online to vent their frustrations. One said, "it is a shame to disrespect Dr. Crick's four decades of medical experience!" Another added, "scientific fact and opinion are not equivalent!" while one more said, "the risks of NOT vaccinating are much higher!" I think it is important that we have processes that allow for all sides to have a voice and be heard. We need to cultivate spaces for open communication and collaboration. Together, we can reach goals like community health improvement that none of us can achieve on our own. I would like us to discuss and learn from these experiences so that we can prevent future epidemics in our community.

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Part 2: Pertussis

Step 1: Review the following information on pertussis.

Pertussis is a highly contagious respiratory illness caused by *Bordatella pertussis* bacteria. The disease is marked by a distinctive "whooping" sound that patients make when trying to catch their breath when coughing, which is why it is also referred to as "whooping cough." While some adults who contract pertussis may only experience cold-like symptoms, the disease is especially problematic for young children who can experience such uncontrollable and violent coughing fits that they can fracture ribs.

According to the Centers for Disease Control and Prevention (CDC), the best way to prevent pertussis is through vaccination. The recommended approach is three doses and two booster shots for young children (up to 6 years old) along with a booster shot for preteens between the ages of 11-12. While pertussis vaccination rates are high around the world, the disease remains common and potentially deadly, especially for the very young. A *Lancet* study reported 24.1 million worldwide pertussis cases in 2014, including 160,700 deaths in children under 5. Most of these deaths occurred in the African region.

Pertussis is an enduring global concern, though, and it is not isolated to African nations. Preventing this disease requires continual surveillance and vigilance. For example, the CDC reported that in Japan in 1974, approximately 80% of children were vaccinated against whooping cough. As a result, there were less than 400 cases of pertussis that year and no whooping cough related deaths. However, vaccination rates waned to just 10% of children, and in 1979, it was reported that 13,000 people contracted pertussis (41 of which died). After a resurgence of vaccination rates, pertussis cases declined again in Japan.

Like its international neighbors, the United States must also pay attention to pertussis. According to a report from the American Society for Microbiology, the U.S. has seen increasing rates of this disease in recent decades. In 1976, approximately 1,000 cases were reported, compared to nearly 50,000 in 2012. In the State of Indiana, in just one year's time, it was reported that the number of cases of whooping cough doubled. The Indiana State Department of Health reported a total of 66 cases of pertussis (and no fatalities) in 2016. The following year (2017) the state reported 136 cases of pertussis (with one fatality).

Step 2: Each CHC partner should now review their individualized Pertussis Response Sketch.
Step 3 : The CHC partners should discuss the following questions :

1. Community education and awareness: Which messages are most important to share with community members in the fight against pertussis outbreaks?
2. Resources: Which resources are critical when responding to a pertussis epidemic?
3. Interventions: Which interventions are recommended for preventing and limiting the spread of pertussis?

Pertussis Response Sketch: E. Blackstone, Community Memorial Hospital

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

Pertussis is one of the worst diseases out there since it is so contagious. One person with whooping cough can infect up to 15 other people. Not even Ebola is that contagious! Since our hospital is a charitable organization, we have an obligation to help those in need. However, the uninsured and underinsured patients that flood our halls put a great strain on hospital resources. While community health workers (CHWs) could potentially help improve our capacity to help educate citizens and prevent the spread of diseases like pertussis, there are so many other problematic factors that contribute to poor health, including crime and poverty. I doubt that CHWs are a magic solution for such complex social issues. Also, many of our health professionals lack training on how to work with CHWs. How can we ask busy doctors and nurses to add more to their already busy days, including more training on working with CHWs? Further, CHWs are often funded via one-time grant money. Unfortunately, our budget does not include a long-term sustainable way to support CHWs. The hospital just can't afford to sponsor them on our own, especially if the associated costs are not supported by insurers.

Further, some self-proclaimed CHWs lack the proper training and certification needed to participate in health promotion and screening activities. I would fear risk of litigation if we pursued working with CHWs on an issue as problematic as pertussis.

NOTES:

Pertussis Response Sketch: Prof. R. Greenley, State University Medical School

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

The current issue with pertussis stems from its development. The original vaccine, first available in the 1940s, was called a "whole cell" vaccine. The *Bordatella pertussis* bacteria was grown and killed, which provided full protection. However, it had some side effects that were problematic such as soreness and fever. Vaccine developers created an innovative "acellular" alternative that included just a few pertussis proteins rather than the whole bacterium, which resulted in fewer side effects but still prevented pertussis. This creative solution seemed to be ideal, but pertussis cases grew over time, and researchers wondered why. Scientific studies have revealed that acellular vaccines prevent the incidence of disease but don't prevent individuals from carrying and transmitting pertussis. This means that unvaccinated or under-vaccinated individuals can contract pertussis, even from vaccinated people. Since pertussis is spread through person-to-person contact, it is important that we invest in research and development to identify new ways to stop the transmission of pertussis from person to person. In addition to focusing on vaccine innovations, there are emerging technologies that can help stop the spread of bacterial infections, including copper coated clothing for healthcare professionals. Researchers at the University of Manchester recently developed a "polymer surface grafting" process to bond copper nanoparticles with cotton and polyester which provides antibacterial properties. This is an exciting advancement that could help stop the spread of disease. Pursuing research and development in areas like this is critical!

NOTES:

Pertussis Response Sketch: T. Rossi, Partners for Health

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

Pertussis outbreaks can be prevented through vaccination! I wish our community members would not listen to anti-vaccine groups. If only some people get vaccinated, illnesses can spread quickly. If most people are vaccinated, spreading is contained even if a case of disease is introduced into the population by a traveler, for example.

Complacency is our enemy in this fight! Vaccines don't just protect families today: they protect future generations by keeping diseases from making a comeback. I will say it again: declining vaccination rates put our community at risk! Vaccination is an altruistic act that protects those who cannot be vaccinated due to their age or immunodeficiency. The more people that are vaccinated, the better protected our whole community will be from epidemics! I feel like a broken record and sometimes it seems like we are the only organization in this fight. I care deeply about my community and I want to work together with others to address public health problems, but my gut instinct tells me not to trust hospitals and insurers that are only interested in profits. I don't think they see patients as anything more than dollar signs or entries in a financial spreadsheet! I wish everyone in our community was as deeply committed as Partners for Health to compassionate strategic thinking and planning for the future.

NOTES:

Pertussis Response Sketch: A. Blanco, CareWell Health Insurance

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

In the case of pertussis, it is not unvaccinated individuals that are causing the infection. In fact, the vaccination rate for pertussis is nearly universal: 95% of school-age children are vaccinated and 80% of teens receive booster shots. The numbers show that most affected by the disease are very young (younger than 3 months old). However, even babies can be protected if their mothers are vaccinated during pregnancy. The fact is that vaccines for pertussis do not necessarily offer lifetime protection and some studies suggest that the effectiveness is limited to three years. For those who contract pertussis, antibiotic treatment is very effective although symptoms may last for 10 or more weeks. Community health workers can offer a cost-effective way to provide this kind of education, which CareWell supports. Preventative care is always preferred to emergency care and we recognize the value of quality care, not just volume. One option to pay for community health workers is through "bundled payments," which are used in some settings. We are open to working together with health care facilities and providers to share the financial risks and provide greater value to patients and communities.

NOTES:

Pertussis Response Sketch: S. Golden, Biowares Health Supply

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

Community health workers (CHWs) are a perfect solution to preventing or responding to a pertussis epidemic! The good news is that high school graduates just need a certification from the State Board of Nursing to get started. Once trained, CHWs provide a very cost-effective return on investment. For every $1 invested in training these certified health workers, there is a health care return of approximately $2. They practically pay for themselves! Why wait on emerging technologies to solve this problem when we have so many people in our community looking for jobs today?

Community health workers can help make significant improvements in patient outcomes, help bridge cultural gaps, and address health disparities. Further, when patients work with health coaches or community health workers, they are less likely to rely on emergency care services, which can be costly to hospitals and insurers. Strategic use of limited resources also allows people to invest more in their own self-care, which I believe should be a greater priority in our community! Biowares has many products available to help people maintain a healthy lifestyle, including masks to help prevent the transmission of diseases like pertussis. I would love to see us work together to promote "cough hygiene" in our community. The good news is a little prevention can go a long way!

NOTES:

Pertussis Response Sketch: Dr. L. Cornflower, County Public Health Department

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

Pertussis outbreaks aren't necessarily worrisome: the number of cases tends to be cyclical and often peaks every three years. While we might become concerned when we see higher numbers of cases, this can often be due to improved diagnostic tools and awareness (not just the prevalence of disease). What is more important is focusing on ways to manage a coordinated process that will allow us to understand the bigger picture of pertussis: How can we bring together our individual resources to address diseases like pertussis in a coordinated way? We need better planning processes that will allow us to implement solutions that don't duplicate our efforts and waste our investments. To do this effectively, it is important that we find areas of mutual agreement and work on building the trusting relationships that will help us work together. Let's discuss how we can learn from the pertussis case to inform our community health improvement efforts in the future.

NOTES:

Part 3: Mumps

Step 1: Review the following information on mumps.

Mumps is caused by a paramyxovirus that causes swollen facial glands, fever, headache, muscle aches, loss of appetite, fatigue, and pain when swallowing. The illness's incubation period (time between exposure and when symptoms appear) can range from 12-25 days. Symptoms last at least 2 days and often more than 10. Mumps is spread by saliva and can result in long-term effects such as hearing loss and swelling of the testicles or ovaries which can lead to sterility. Another rare but serious complication is inflammation of the brain, which can lead to death.

A mumps vaccine was first introduced in 1967. The following year, there were a total of 150,000 cases in the United States. By the early 2000s, the number of mumps cases declined to approximately 270 cases per year, on average. The MMR vaccine (measles, mumps, rubella) is designed to prevent mumps. Children should receive two doses of the vaccine at ages 1 and 4, which is 88% effective. When children receive just one dose, the vaccine is 78% effective at preventing disease. According to infectious disease specialists, even partial immunity can provide protection against the most serious complications of mumps.

Despite the effectiveness of the vaccine, in recent years, mumps outbreaks occurred across the United States. In 2017, the Centers for Disease Control and Prevention (CDC) reported infections in 48 states and the District of Columbia, which affected a total of 5,629 people, the highest number of cases in a decade. South Dakota and Wyoming were the only states without any reported mumps cases. According to a *New York Times* report, these numbers are largely due to geographically concentrated outbreaks rather than more sporadic cases.

According to the CDC, mumps outbreaks are most likely to occur in crowded environments (classrooms, dormitories, or camps, for example). In recent years, a number of mumps outbreaks have occurred on university campuses, including colleges in California, Iowa, Illinois, Maryland, and Virginia. In addition to crowded college settings, students may be especially susceptible due to common behaviors that allow the virus to spread (including kissing, sharing utensils/lip balm/cigarettes, etc., or other behaviors that transmit saliva). Due to high vaccination rates and university-sponsored vaccination campaigns, the size, duration, and spread of these mumps outbreaks were limited.

Step 2: Each CHC partner should now review their individualized Mumps Response Sketch.

Step 3: Work together to prepare a community presentation that addresses the following:

1. Community education and awareness: Which messages are most important to share with community members in the fight against mumps outbreaks?
2. Resources: Which resources are critical when responding to a mumps epidemic?
3. Interventions: Which interventions are recommended for preventing and limiting the spread of mumps?
4. Other: What can be learned from previous epidemics to inform our community's response to a mumps outbreak?

Mumps Response Sketch: E. Blackstone, Community Memorial Hospital

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

One of the biggest problems we face is when patients with mumps demand antibiotics when seeking treatment. Based on my experience, it is pointless explaining the difference between viruses and bacteria: it is a losing battle because people do not want to listen to health care professionals anymore. They have Dr. Google! Mumps is caused by a virus and not helped by antibiotics. When people take antibiotics unnecessarily, it strains a limited resource and also contributes to antibiotic resistance. These will be serious issues if we must address a mumps epidemic in our community. The hospital is at a disadvantage in this fight. In the past two years, the U.S. has had the highest number of mumps cases in recent history. Our community is not immune: we will have to face some very challenging circumstances, including an uninformed populace demanding medications that will have no effect on their illness.

NOTES:

Mumps Response Sketch: Prof. R. Greenley, State University Medical School

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

While conventional wisdom recommended a mumps vaccine and a later booster shot, new studies are showing that a third booster shot could enhance protection with few side effects. A third dose approach has often been adopted in previous mumps outbreaks but still is not standard practice. I believe that this novel approach should be more widely accepted to help address mumps epidemics. This innovation could make a considerable difference, especially on susceptible campuses (including our own State University Medical School!) Again, I would like us to move in the direction of a bigger idea than disease prevention: what does a culture of health look like for our community and how do we get there? What can our collaborative do to move the needle on community health improvement? Are there partners we should include in our discussion who are not present today? What barriers stand in our way of progress on this issue?

What can we do and when will we know if we've made any impact in our community?

NOTES:

Mumps Response Sketch: T. Rossi, Partners for Health

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

> Must I say it again? Vaccination is the key! If only people would listen to our organization's pleas for them to vaccinate their infants and young children, we would not need to be here for this conversation today. I believe that parents are the most important link for immunity, even when their children are grown! I know that my own college-age children take better care of their health when I remind them! It pulls at my heart to see anyone contract these illnesses and I want parents to know how awful these illnesses are even today. My organization has pictures and videos of sick children that can really touch a parent's heart and make a powerful case for vaccines. I am sad to say that I believe that people only act when they see how terrible these diseases can be for their loved ones! I have a hunch that if we focus our education efforts on parents, we will have a better chance of solving this problem.

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Mumps Response Sketch: A. Blanco, CareWell Health Insurance

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

The mumps vaccine is 88% effective when patients receive both doses. Effectiveness of the shot decreases over time (generally over 10-15 years). For those who do not receive booster shots, they have partial protection and can get a milder form of the mumps. The fact is that most of the recent mumps outbreaks have occurred among vaccinated people. Specifically, the recent outbreaks mostly affected young people aged 18-22.

College campuses are particularly susceptible and university vaccine campaigns for students have proven very effective in containing the spread of disease. In an outbreak at the University of Iowa, a third dose of the vaccine was administered to approximately 14,000 people in an effort to contain a mumps outbreak there. In this setting, the third dose was considered effective and also did not demonstrate any serious adverse effects aside from some reports of mild discomfort in the form of a stomachache.

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Mumps Response Sketch: S. Golden, Biowares Health Supply

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

> I actually had mumps as a teenager and it wasn't so bad! My doctor recommended bed rest and over-the-counter pain medication. The good news is that Biowares has plenty of pain medication available for sale if our community experiences a mumps outbreak! I recovered completely (and even got to skip school for a couple of weeks!) Looking back, I believe the experience helped me become a more resilient person. We should remember to keep a positive attitude!

NOTES:

Mumps Response Sketch: Dr. L. Cornflower, County Public Health Department

The following information is the background on your character's perspective. Review and use this information to engage in the conversation in your given role. This information should help inform your understanding of your character's priorities, concerns, and broader mindset.

Collaboration is critical when addressing public health problems. Each partner at this meeting brings valuable knowledge, experience, and individual perspective to this effort. My job is to foster an inclusive and productive process today. As we think about how to prevent a potential mumps outbreak in our community, it is important that we remember why we are here today: to pursue the goal of improved community health in a way that utilizes our individual and organizational strengths. There are many concerned citizens in our community who lack the education and tools to improve their health and that of their families. Our job is to prepare a presentation that can help improve awareness of mumps and prevent an epidemic in our community. I believe we can learn from one another and work together to accomplish this goal. I also hope that as we discuss this presentation, we will consider our shared vision for a healthy community and identify next steps to move us in that direction.

NOTES:

Appendix:

Reported Cases and Deaths from Vaccine Preventable Diseases

Source: U.S. Centers for Disease Control and Prevention

	Measles		Pertussis		Mumps	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
1950	319,124	468	120,718	1,118	NR	
1955	555,156	345	62,786	467	NR	
1960	441,703	380	14,809	118	NR	
1965	261,904	276	6,799	55	NR	
1970	47,351	89	4,249	12	104,953	16
1975	24,374	20	1,738	8	59,647	8
1980	13,506	11	1,730	11	8,576	2
1985	2,822	4	3,589	4	2,982	0
1990	27,786	64	4,570	12	5,292	1
1995	309	2	5,137	6	906	0
2000	86	1	7,867	12	338	2
2005	66	NA	25,616	31	314	0
2010	63	NA	27,550	26	2,612	2
2015	188	NA	20,762	6	1,141	0

NA: Not available

NR: Not nationally reportable

EPIDEMIC
A COMMUNITY HEALTH COLLABORATIVE SIMULATION
TEACHING NOTE

Vexing community problems require the input of a variety of partners, and each partner brings a unique perspective on problem definition and resolution. This diversity is both a strength and a weakness. Multiple perspectives provide a more complex understanding of the problem, but also introduce conflict to the collaboration. To illustrate this paradox, this simulation provides an opportunity to examine different ways of thinking about shared community health problems. As noted in the simulation overview, the character roles and their accompanying response descriptions are inspired by Edward de Bono's (2000) *Six Thinking Hats*, which presents six distinct problem lenses. Individually, the characters offer a narrow view of the community health problems. When considered together, these partners and their perspectives illustrate a complex reality of disease prevention and response at the local level.

1. E. Blackstone, Community Memorial Hospital
    a. Inspired by de Bono's Black Hat; focuses on negativity and problems
2. Prof. R. Greenley, State University Medical School
    a. Inspired by de Bono's Green Hat; focuses on innovation and new ideas
3. T. Rossi, Nonprofit Partners for Health
    a. Inspired by de Bono's Red Hat; focuses on emotions and instincts
4. A. Blanco, CareWell Health Insurance
    a. Inspired by de Bono's White Hat; focuses on data and facts
5. S. Golden, Biowares Health Supply
    a. Inspired by de Bono's Yellow Hat; focuses on positivity and opportunity
6. Dr. L. Cornflower, County Public Health Department
    a. Inspired by de Bono's Blue Hat; focuses on process and control

Applications

This exercise can be used to illustrate several collaborative concepts. To begin, this simulation highlights the rich and contrasting ways in which partners can view a common problem. This is an important consideration since problem frame alignment (or lack thereof) can impact collaborative outcomes (Nowell, 2009). This simulation also has individual development applications. As noted by Linden (2010), successful collaborative leaders are those who can listen carefully to understand other perspectives. This exercise provides an opportunity to cultivate that ability. Using this exercise to identify one's own dominant perspective can also be a meaningful activity that contributes to managing individual strengths effectively and engaging in reflective practice (Schon, 1984). One way to illustrate this is to ask participants to switch roles between discussions to consider the challenge (and opportunity!) of shifting one's

dominant viewpoint. This can help participants consider the potential for - and implications of - “tunnel vision” in their work. When tunnel vision occurs, collaborators must be prepared to act as catalysts and encourage one another to change perspective to facilitate the identification of new ideas and solutions (Torfing, 2016).

Implementation notes and timeline

The exercise is designed to take approximately 2 ½-3 hours (see timeline below) and can be modified for class time and size variations. For example, the simulation can run over three class meetings (1: measles; 2: pertussis; 3: mumps). For larger class sizes, instructors could assign multiple students to one role (similar to a panel). Please note that the role of Dr. Cornflower is responsible for representing the health department and also managing the collaborative process. This individual can also present on behalf of the group if desired. Instructors should take Dr. Cornflower's expanded responsibilities into account when assigning roles.

Element	Description	Time
Simulation introduction	Instructor presents community health collaborative overview, describes the tasks for the CHC simulation, assigns participant roles, distributes nametags and brief bios (see Teaching Resources 1 and 2), distributes measles overview information and measles character response sketches	10-15 minutes
Guided Discussion, Part 1: Measles		
Preparation	Participants review measles overview and character response sketches on measles	10-15 minutes
Discussion	Participants address the questions at the end of the measles overview	20 minutes
Debriefing	Group offers brief summary of measles discussion (Dr. Cornflower may present on behalf of the group, if desired)	5 minutes
Guided Discussion, Part 2: Pertussis		
Preparation	Instructor distributes pertussis overview and character response sketches on pertussis (participants may review this material during a break following guided discussion 1)	10-15 minutes
Discussion	Participants address the questions at the end of the pertussis overview	20 minutes
Debriefing	Group offers brief summary of pertussis discussion (Dr. Cornflower may present on behalf of the group, if desired)	5 minutes
Guided Discussion, Part 3: Mumps		
Preparation	Instructor distributes mumps overview and character response sketches on mumps (participants may review this material during a break following guided discussion 2)	10-15 minutes
Discussion	Participants address the questions at the end of the mumps overview	20-25 minutes
Debriefing	Group offers plan for the community presentation, or if the instructor desires, a formal presentation (Dr. Cornflower may present on behalf of the group, if desired)	10-15 minutes
Final debriefing	A break may be offered after guided discussion 3, followed by a series of discussion questions on the overall simulation experience (see suggestions below)	30-40 minutes

Suggested debriefing questions

1. What are the benefits of a narrow perspective on a problem (issue clarity, for example)? What are the limitations of a narrow perspective (tunnel vision, for example)?
2. How did your character's perspective help shape the discussion? How did the other perspectives inform your view of the issues? Were there any dominant voices? If so, how did those influence the meeting?
3. In what ways was your perspective a strength? In what ways was it a weakness? How did your group balance individual interests and views with collective needs and goals?
4. How does your character's problem lens (information, emotion, innovation, positivity, negativity, process) compare with your own dominant perspective?
5. What are some lessons learned from this simulation that can inform your current or future collaborative practice? For example, how might this experience help you to better understand your collaborative partners? Or, if your instructor asked you to switch roles, what did you learn about the challenge and opportunity of changing perspective?
6. If the CHC were to meet again, where might you go from here? For example, which community health priorities might you consider next? What would be necessary to pursue those goals? How might you adapt future efforts based on this experience?

Readings and resources

American Hospital Association Center for Healthcare Governance (2016). Learnings on Governance from Partnerships that Improve Community Health. Retrieved from: http://trustees.aha.org/populationhealth/16-BRP-Learnings-on-Governance.pdf

De Bono, E. (2000). *Six thinking hats*. Penguin.

Greenwood, B. (2014). The contribution of vaccination to global health: past, present, and future. *Philosophical Transactions B.* 369 (1645).

Linden, R.M. (2010). *Leading across boundaries.* San Francisco, CA: Jossey-Bass.

Nowell, B. (2009). Out of sync and unaware? Exploring the effects of problem frame alignment and discordance in community collaboratives. *Journal of Public Administration Research and Theory.* 20(1); 91-116.

Schon, D. A. (1984). *The reflective practitioner: How professionals think in action.* Basic Books.

The Vaccine Alliance (2017). Map: Vaccine-Preventable Outbreaks. Retrieved from: http://www.vaccineswork.org/vaccine-preventable-disease-outbreaks/

Torfing, J. (2016). *Collaborative innovation in the public sector*. Washington, DC: Georgetown University Press.

Woulfe, J., Oliver, T. R., Siemering, K. Q., & Zahner, S. J. (2010). Multisector Partnerships in Population Health Improvement. *Preventing Chronic Disease*, 7(6).

Reports on measles, pertussis, and mumps

Measles:

Howard, J. (2017, June 2). Minnesota measles outbreak exceeds last year's nationwide numbers. *CNN.* Retrieved from https://www.cnn.com/2017/06/02/health/minnesota-measles-outbreak-bn/index.html

Sun, L.H. (2017, October 3). Failure to vaccinate is likely driver of U.S. measles outbreaks, report says. *The Washington Post.* Retrieved from https://www.washingtonpost.com/news/to-your-health/wp/2017/10/03/failure-to-vaccinate-is-likely-driver-of-u-s-measles-outbreaks-report-says/?noredirect=on&utm_term=.b37d794f053b

Zdechlik, M. (2017, May 3). Unfounded autism fears are fueling Minnesota's measles outbreak. *National Public Radio.* Retrieved from https://www.npr.org/sections/health-shots/2017/05/03/526723028/autism-fears-fueling-minnesotas-measles-outbreak

Pertussis:

Astor, M. (2017, July 27). Whooping cough cases double in Indiana in a year, prompting a call to vaccinate. *The New York Times.* Retrieved from https://www.nytimes.com/2017/07/27/health/vaccine-whooping-cough-indiana-pertussis.html

Feldscher, K. (2017, July 11). Increase in pertussis outbreaks linked with vaccine exemptions, waning immunity. Harvard T.H. Chan School of Public Health. Retrieved from https://www.hsph.harvard.edu/news/features/increase-in-pertussis-outbreaks-linked-with-vaccine-exemptions-waning-immunity/

Wolf, J. (2016, January 28). A growing concern: Why whooping cough incidence may be increasing in a highly vaccinated population. *American Society for Microbiology mBiosphere.* Retrieved from https://www.asm.org/index.php/mbiosphere/item/385-a-growing-concern-why-whooping-cough-incidence-may-be-increasing-in-a-highly-vaccinated-population

Mumps:

Klass, P. (2017, November 6). Mumps makes a comeback, even among the vaccinated. *The New York Times.* Retrieved from https://www.nytimes.com/2017/11/06/well/family/mumps-makes-a-comeback-even-among-the-vaccinated.html

Scutti, S. (2017, April 14). Texas warns about biggest mumps outbreak in 22 years. *CNN.*

Retrieved from https://www.cnn.com/2017/04/14/health/mumps-texas/index.html

Smith, R. (2016, December 26). Mumps cases balloon in 2016, raising debate about need for booster vaccines. *PBS News Hour.* Retrieved from https://www.pbs.org/newshour/health/mumps-cases-spike-2016-raising-questions-need-booster-vaccines

Teaching Resource 1:

Participant Nametags

E. Blackstone **Community Memorial Hospital**
Prof. R. Greenley **State University Medical School**
T. Rossi **Partners for Health**
A. Blanco **CareWell Health Insurance**
S. Golden **Biowares Health Supply**
Dr. L. Cornflower **County Public Health Department**

Teaching Resource 2:

Brief Bios for Participants

E. Blackstone, Community Memorial Hospital

This character is inspired by de Bono's Black Hat. Your focus is on the problems that vaccine-preventable illnesses present. While this approach may be seen as overly negative, you believe that it is important to remind others of the significant costs and challenges associated with addressing these health issues. Some of the more optimistic partners seem to forget that our community does not have endless response capacity.

Prof. R. Greenley, State University Medical School

This character is inspired by de Bono's Green Hat. Your focus is on innovation and ideas. You are inspired by new and creative ways of looking at issues. While some might say that your approach is not grounded in current realities, you prefer to focus on the promise of the future rather than just the challenges of the present.

T. Rossi, Nonprofit Partners for Health

This character is inspired by de Bono's Red Hat. Your focus is on the emotional aspects of these issues. Your experiences and instincts inform your views. You believe that community health is not only about numbers and facts. While some might consider your approach to be too "touchy-feely," you believe that it is critical to consider the human element when discussing these shared problems.

A. Blanco, CareWell Health Insurance

This character is inspired by de Bono's White Hat. Your focus is on data and facts. You believe that evidence should guide decision-making. You believe in rational approaches to problem solving that rest on an objective view of health issues in the community. While some might consider your approach to be indifferent, you believe that it is important to not let emotions overshadow facts.

S. Golden, Biowares Health Supply

This character is inspired by de Bono's Yellow Hat. Your focus is on potential opportunities that present themselves in every situation. While some may see you as naïve, you are confident that the power of positivity is a real and significant force for change. Anyone can be a critic; you believe that it takes real courage to see the silver lining in difficult circumstances.

Dr. L. Cornflower, County Public Health Department

This character is inspired by de Bono's Blue Hat. Your focus is on process and control. It is important to you to manage the CHC's deliberations in ways that allow all partners to participate fully and yet also meet the group's goals. You believe that attention to cultivating relationships and working well together will ensure the collaboration's effectiveness.