

Twelve Eighty-Two

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The Public Health Preparedness Community Newsletter from the Bucks County Department Of Health

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Bucks County Commissioners

Diane M. Ellis-Marseglia, LCSW, Chair

> Robert J. Harvie Jr., Vice Chair

Gene DiGirolamo, Commissioner

Preparedness Program Highlights

2019 Flu Clinics

Thanks to the Bucks County Commissioners and the Bucks County Department of Health, we were able to vaccinate 1,534 people against the flu in three clinics throughout Bucks County. On September 14, clinics at the Government Services Centers in Quakertown and Levittown vaccinated 267 and 460 people, respectively. Doylestown was the busiest location, giving 807 vaccines at the Department of Health offices on September 28. Of those who were surveyed, 14 percent reported that this was the first time that they had ever received a flu shot from the BCDH. Feedback was overwhelmingly positive. Ninety-three percent of people rated their experience at the clinics as excellent, and many people expressed their appreciation to staff in survey comments. In addition to providing a service to the community, these clinics also give us the opportunity to test our emergency response procedures and capabilities. Thank you again to the staff and volunteers who participated.



Preparedness Program Highlights

THIS IS AN EXERCISE FRANKENTHRAX ***THIS IS AN EXERCISE***

This October, the BCDH PHP program participated in the PCW-MSA FSE. What does any of that stand for, you ask? Well, Bucks County is part of a region recognized by the federal government as the Philadelphia-Camden-Wilmington-Metropolitan Statistical Area (PCW-MSA). This region encompasses four states and 11 counties. Every five years, public health and emergency management agencies throughout the region participate in a full scale exercise (FSE) that tests regional coordination in response to a simulated public health emergency.

Our own Fallon Maggio made a special contribution to the exercise by creating the official name and logo for the 2019 exercise: Frankenthrax. And yes, these did appear on official documents. The Frankenthrax scenario specifically simulated an intentional release of anthrax in southeastern PA, but it highlighted our region's strengths and limitations in the face of many other emergencies as well.

A major component of this exercise for Bucks County was bringing together leadership from county departments to discuss challenges in responding to a variety of public health emergencies. Although substantial planning has occurred with these critical leaders on an individual basis, it has been many years since scheduling has been fortuitous enough to get them together at one time. A week before the official Frankenthrax exercise began, these leaders participated in a tabletop exercise, where they discussed how the county, and their specific departments, would respond to very high-impact public health emergencies.

This exercise kept the PHP program quite busy for well over a year, particularly this fall from weeks of planning and preparations to participating in the live exercise during the week of Halloween. Frankenthrax saw us



circled around phones and hunched over our computers, coordinating our own response to a scenario impacting the entire Philadelphia region. Bucks County's Emergency Management Agency was an integral part of our response, and assisted BCDH in coordinating requests from hospitals and communicating our resource needs to the Pennsylvania Emergency Management Agency. We also worked closely with the county's Public Information Director, Larry King, to develop public messaging that would be accurate, understandable, and aligned with messaging from the state and neighboring counties. Halloween was a great opportunity for a Trick-or-Treat dispensing drill at the BCDH, which was staffed by volunteers from the BC-MRC and the Health Department's Auxiliary volunteers. Health Department employees participated in the drill as members of the public, which allowed us to test different dispensing forms and methods, and gave us the chance to scoop up some candy as a stand-in for the antibiotics we would use in a real-life response. Thank you to all of the volunteers and BCDH staff for giving your time to our program!

Flu Vaccine Development: Strain Selection

Now that we have kicked off the 2019-2020 flu season with our flu clinics, we decided to take a look at how the experts select which strains go into the vaccine each year. Just as we all love to complain when meteorologists make incorrect weather predictions, vaccine experts take the blame when the flu vaccine is not perceived by the public as "effective." Popular beliefs often depict the flu vaccine development process as a shot in the dark, with scientists taking random guesses as to which strains to use, and just hoping they will work. Contrary to the myths, the process actually involves an extensive review of global surveillance, laboratory, and clinical data by experts from leading influenza research centers around the world.

Year-long surveillance in 113 countries is essential to understanding the spread and impact of influenza. This data can reveal important epidemiologic trends, such as who is at greatest risk and when infection rates are at their peak. In addition to collecting important epidemiologic information about influenza, these surveillance efforts also involve laboratory testing to determine which strains are circulating. Health care providers and commercial laboratories from various settings submit nasopharyngeal swabs, and sometimes blood samples, from patients to public health

laboratories. These labs determine the type (ex., A or B), and subtype (ex., H1N1) or lineage (ex., Influenza B/Victoria) of the samples. Laboratories around the world keep track of this data to identify where different flu strains are circulating.

Each year, in both February and September, influenza experts from around the world are convened by the World Health Organization to review the data and recommend which virus strains should be included in vaccines. These meetings occur twice a year due to the opposite flu seasons in the Northern and Southern hemispheres. In the Northern Hemisphere, the flu season typically ranges from October to April, so these



experts meet in February to produce recommendations for the following season's vaccine. The second meeting occurs in September, at the end of the Southern Hemisphere's flu season, which normally ranges from April through September. Based upon these recommendations, each country makes the final determination for the vaccines that will be licensed for use in its jurisdiction. The Food and Drug Administration (FDA) is responsible for this decision in the United States.

One additional factor that the FDA and its international counterparts must consider is a flu strain's ability to be made into a vaccine, and whether manufacturers will be able to grow sufficiently large quantities of virus before the upcoming flu season. For example, the flu virus is normally grown inside chicken eggs, which is currently the quickest way to produce mass quantities for vaccines. If a particular strain cannot be grown in eggs, it would not be a good candidate for the seasonal flu vaccine.

Ultimately, the process of developing the flu vaccine is anything but a shot in the dark. It is a complex, dynamic, and data-driven endeavor that involves experts from all over the world. Sometimes, the vaccine misses the mark and is not well-matched to the strains that begin to circulate during flu season. However, this is no reason to dismiss the vaccine as ineffective. Research has demonstrated that the vaccine can still offer protection from severe illness and complications resulting from influenza infection, even if the vaccine is not a great match. Despite the limitations of the selection process, getting the flu vaccine continues to be the best way to protect yourself, your loved ones, and your community from influenza.

Upcoming Training Offerings

1/17/2020	BC-MRC Orientation	BCDH
Email below to schedule timeslot		
2/11/2020	Introduction to PODs	BCDH
6:30pm-8:30pn	n	
3/25/2020	Responder Health & Safety	BCDH
6:30pm-8:30pn		

Buck: County Department of Health

1282 Almshouse Road

Doylestown, PA 18901

All trainings are free and open to the public.

To register for any of the offered trainings or for any questions email hdbcmrc@buckscounty.org

These trainings are presented as part of the Medical Reserve Corps' ongoing training series. To learn more about the Medical Reserve Corps or to join the MRC follow this link:

http://www.buckscounty.org/medicalreservecorps or contact the MRC at HDbcmrc@buckscounty.org

Guess the Disease

Congratulations to **Paul Hale** for being the first to correctly guess Cryptosporidiosis! Not only was Paul the first to guess the disease correctly, he also set a record to beat by sending his guess within minutes of the last newsletter's release! Learn more about this waterborne illness on the next page. The clue for the next disease can be found below.

CLUE: This disease is going back to primary school. This fall it learned its ABCs and discovered some new shades of yellow. Unlike the other jawns, this disease gets *excrementally* excited when it makes new friends on the streets.

If you think you know the disease email <u>ddycus@buckscounty.org</u>. The first person to get it right will be revealed in the next newsletter along with the answer and a description of the disease.

Cryptosporidiosis

Often when we hear about parasites, we think of long worms taking up residence in our intestines, slowly eating away at us. However, there are several types of parasites that are vastly different in appearance and function. Parasites can be classified into three groups: helminths, ectoparasites, and protozoa. Helminths, such as tapeworms and roundworms, encompass the visible, often worm-like organisms that are commonly associated with the term "parasite." Ectoparasites include arthropods like ticks, lice, and mites. Rather than taking up residence inside the host, these bug-like organisms attach to the outside, or burrow into the skin. While both helminths and ectoparasites are usually visible to the naked eye, parasitic protozoa are single-cell, microscopic parasites that can reproduce within human intestines or blood. This article will magnify and focus the figurative microscope on a protozoan that is a common source of diarrheal illness in the United States: Cryptosporidium.

Cryptosporidium, commonly called "Crypto," is a hardy, highly infectious parasite that is often found in water, food, or soil contaminated with infected human or animal feces. Crypto is able to survive in all of these sources due to an outer shell that protects the parasite during the spore, or oocyst, phase, until it is picked up by a human or animal host. This shell also makes Crypto resistant to disinfectants, including chlorine. Once a host ingests these oocysts, the parasites make themselves at home in the epithelial tissue, or inner lining, of the host's intestines. There, they carry out their life cycle, multiplying and creating more oocysts, which are shed in the host's feces, potentially contaminating new sources. Occasionally, Crypto can

be transmitted through inhalation, infecting the respiratory tract; however, this is very rare and mainly seen in people with poorly functioning immune systems.

Symptoms of Crypto usually begin within one to twelve days of infection, and include watery diarrhea, abdominal cramping, vomiting, loss of appetite, fever, and fatigue. The illness usually lasts for 1-2 weeks, but symptoms may continue to reappear for 4-6 weeks. Severe, prolonged illness is more likely to occur in immunocompromised individuals and babies. Dehydration due to



rapid fluid loss is the most dangerous consequence of Crypto infection. Crypto is diagnosed through a stool test, which can detect individual organisms or Crypto DNA. Currently, the only treatment available is a three -day course of Nitazoxanide, which can be taken by all patients over the age of 1 year with healthy immune systems. Without treatment, most people will clear the infection within 4-6 weeks.

There are several species of Cryptosporidium; however, the most common species found in humans are *C. parvum* and *C. hominis*. The infectious dose is very low; ingesting about 10 oocysts are sufficient to cause an infection. To put this into perspective, during one episode of diarrhea, a person may shed 100 million oocysts! Crypto is most often transmitted through water, particularly in swimming pools. This is likely due to the fact that pools are contained bodies of water occupied by many people at once, including young children who represent the highest number of Crypto cases. Other modes of transmission include person-to -person, contact with farm animals, and consuming contaminated food. Person-to-person transmission can occur when people have poor hand hygiene, or in places where people use diapers or need help using the bathroom, such as day care and long term care facilities. Farm animals, such as cattle, sheep, and goats, are also common reservoirs for Crypto. Therefore, direct or indirect contact with these animals, or consuming unpasteurized dairy products, puts people at risk of illness. Other notable sources of Crypto transmission include consumption of unpasteurized juice and cider, fresh produce, and contact with dirty linens and bathroom surfaces.

Cryptosporidiosis

Since 2009, there have been over 440 Crypto outbreaks across the United States, collectively involving at least 7,400 people. However, these figures only represent situations where multiple cases were linked to the same source. This is not accounting for all of the sporadic cases that are reported, which can range from 7,000 to 11,000 cases per year. Children between the ages of 1 and 9 have the highest rate of reported Crypto infections. Geographically, the Midwest sees the greatest number of outbreaks and sporadic cases, which may be related to the high degree of agricultural activity in the region. There are distinct seasonal trends in Crypto infections. The peak season runs from June through September, when pools are open and people are out and about.

Here at the Bucks County Department of Health, we receive reports of positive laboratory tests for Cryptosporidium. We reach out to patients, or their parents if they are children, and we talk to them about what the disease is and how it is spread. We ask a series of questions about what they may have been exposed to in the two weeks before they got sick. Many of these questions focus on water and animal exposure, travel, and consumption of certain foods, such as unpasteurized dairy and raw produce. While the investigation portion of the conversation is important for our surveillance efforts, preventing the spread of disease is our primary goal. When it comes to Crypto, it is extremely important that people stay out of the water while they are sick. In fact, Crypto is so easily transmitted through water, and so resistant to normal chlorine levels, that we instruct people to wait at least two weeks after their last episode of diarrhea before they go swimming again. If a person did swim in a public pool while they were infectious, we contact the facility and ensure that it is properly cleaned before it is reopened to the public. We also advise proper cleaning for private pools that may have been used during a person's illness. Another way to prevent the spread of Crypto is to keep infected people out of places where there is a high risk of transmission. These places include daycares or preschools, health care facilities, and restaurants or other businesses where food is prepared and sold. People who work in any of these settings, or children who attend daycare or preschool, may not be allowed to return to these places until their symptoms have resolved. While this may seem like a temporary imposition on an individual or family, these measures prevent outbreaks, protect those who are immunocompromised, keep pools and waterparks fun and safe, and help prevent an illness from ruining the reputation of a business.

There is a lot that the Health Department does in response to Crypto, but there is plenty that people in the community can do to protect themselves and others. As a rule, you should never go swimming when you have diarrhea. Even if the diarrhea is not caused by Crypto, it is a good idea to wait for two weeks after it stops before you get back in the water. Avoid unpasteurized juice or dairy products, as they may be contaminated with a variety of pathogens. If you live, work, or spend time on a farm around animals, take precautionary measures, such as changing clothes and shoes outside, to avoid bringing Crypto into your living environment. Avoid touching your face and mouth until you have had a chance to wash your hands. Which brings us to the Golden Rule of Public Health-WASH YOUR HANDS! Don't let Crypto ruin next summer for you and your friends and family!



Out Loud: Public Health Podcasts to Stimulate Your Day



Cautionary Tales — La La Land: Galileo's Warning

Galileo tried to teach us that adding more and more layers to a system intended to avert disaster often makes catastrophe all the more likely to happen. His basic lesson has been ignored in nuclear power plants, financial markets and at the Oscars... all resulting in chaos.

https://www.stitcher.com/podcast/pushkin-industries/cautionary-tales/e/65456307

99% Invisible — Sound and Health: Hospitals

Sounds can have serious impacts on our wellbeing, even (or especially) in places focused on health like hospitals. This is the second episode in a two-part series supported by the <u>Robert Wood Johnson</u> <u>Foundation</u> about how sound can be designed to reduce harm and even improve wellbeing.

https://99percentinvisible.org/episode/sound-and-health-hospitals/

Outside Podcast — Can We Please Kill Off Crutches?

Almost everyone who's used underarm crutches agrees: they are terribly designed. They're hard on your wrists, they cause falls, they cause nerve damage. This is why almost every country in the world has abandoned them—except the U.S., where if you go to the hospital with a leg injury, you're most likely going to leave with adjustable aluminum crutches. In this third installment of our series exploring how gear gets made, we look at the fascinating history of why better designs for crutches haven't caught on, and whether or not they ever will.

https://www.outsideonline.com/2376996/can-we-please-kill-crutches

Science Vs. — How Bad Science Killed A President

When President Garfield was shot by an assassin in 1881, the best and brightest in medicine and science did everything they could to save him - and turned the President into a human guinea pig. But they missed something big that could have saved him. To find out what it was, we spoke to surgeon and medical historian Dr. Ira Rutkow, and Sara Murphy, collections manager at the National Museum of American History.

https://gimletmedia.com/shows/science-vs/awhklj/how-bad-science-killed-a-president

Happy Holidays!

Drew, Mackenzie, & Fallon Bucks County Department of Health's Public Health Preparedness Program







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