Rubella Outbreak at a University

Donna Allen, ISDH Field Epidemiologist

Background Information

Rubella is a moderately contagious viral respiratory disease that is usually mild and characterized by a generalized maculopapular rash, lymphadenopathy, arthritis, arthralgia, conjunctivitis and slight fever. Many rubella infections may be subclinical. The incubation period for rubella is typically 14 days (range 12-23 days). A major risk associated with this disease is congenital rubella syndrome (CRS), which occurs when a pregnant woman is infected with rubella. The virus can affect all fetal organs and cause a variety of congenital defects, including fetal death.

On July 9, 2013 a physician notified the local health department of a suspected case of rubella. The case was a student from Pakistan attending a Leadership Institute at a local university. Other students attended from Nigeria, Sri-Lanka, India, United States and Panama. The Leadership Institute began on June 27 and concluded July 14, 2013.

Epidemiologic Investigation

The epidemiological investigation began on July 9, immediately upon notification, and involved a coordinated effort between the local health department (LHD), the Indiana State Department of Health (ISDH), the university and the diagnosing physician. The LHD assisted the physician in collecting and mailing serology and naso-pharyngeal swabs to the ISDH Laboratories. The case was immediately interviewed, and symptoms matched the case definition.. . The case traveled from Islamabad, Pakistan to Chicago on June 26, eleven days before onset of symptoms and thirteen days before rash onset.

The case was considered contagious from July 6 (two days before rash onset) thru July 15 (seven days after rash onset). The case participated in a sightseeing trip to Chicago on July 6 and campus activities on July 7. On July 8 the case developed a maculopapular rash that began on the face and descended to extremities; the case reported not feeling well and spent the majority of time in the assigned dormitory room. On July 9, the case visited a health care provider, then was isolated until July 15. The case left the US on July 16. A timeline of activities, symptoms and outreach activities are detailed below.

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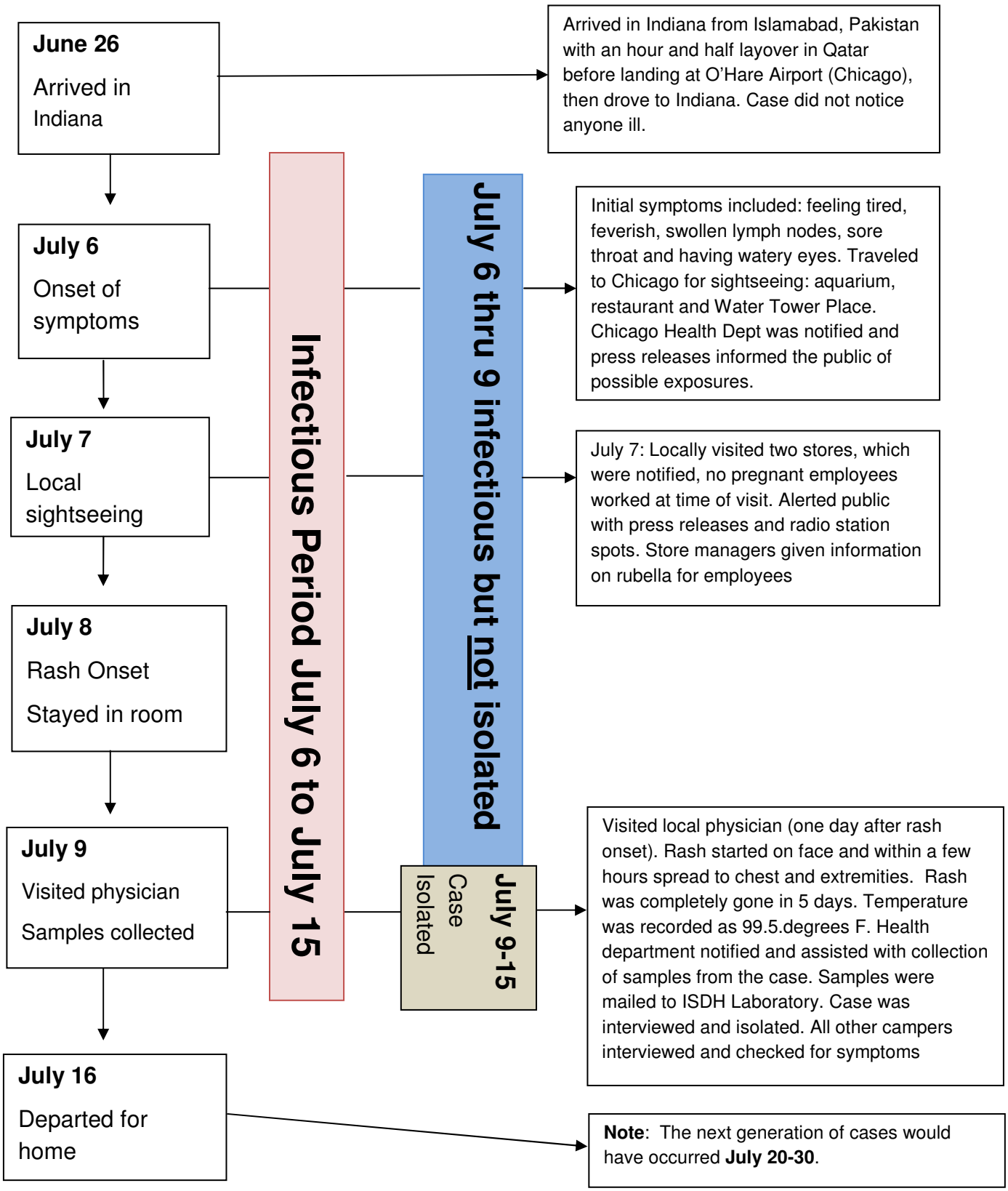
Rubella Timeline



Prior to receiving confirmed lab results, the investigation partners began contacting possible contacts of the case, determining their immune status and informing them of rubella symptoms. The health care provider contacted 50 staff and patients potentially exposed in the office. Many of their patients were under the age of one year, and letters and/or phone calls were made to those families who could be at risk for rubella. The University Health Center had excellent records on their students and followed up on approximately 83 students, athletes, and staff who may have had contact with the case. However, visitors and camp attendees were not required to show proof of immunity. This required more time to determine their status and some attendees had blood specimens drawn to determine immune status. The university nurse, LHD, and the ISDH met with university officials on July 10 to brief them on the situation and answer questions regarding the disease.

Secondary cases of rubella were anticipated to occur from July 20 - 30. The positive case was confirmed on July 12, and attendees had started to leave on July 13. Attendees were allowed to leave ff they were returning home to another country and not flying during the time when they could be contagious. Those staying in the US had to provide proof of immunity. The LHD and local hospital quickly arranged for 18 of the 43 attendees to have their blood drawn to determine their immune status. Three of the individuals tested were not immune. One returned home before July 20. The two non-immune individuals staying in the US and two others who had already left for other states were requested to self-isolate and not fly from July 20 - 30. The state health departments involved were notified. One camper, who was a roommate of the case, traveled to another state and was later able to prove receipt of one dose of rubella vaccine. The outcome of the other three campers remained unknown. No other cases were reported.

Laboratory Results

Serum from the case submitted to the ISDH Laboratory tested positive for IgG antibody and negative for IgM antibody, indicating immunity for the disease. This is consistent with the fact that in Pakistan measles vaccination is required. In addition, reverse transcriptase polymerase chain reaction (RT-PCR) testing was negative for measles virus.

Serum tested negative for IgG and IgM antibodies. Although the sample was IgM negative, indicating lack of recent disease, the sample was drawn on the second day of rash, too early to detect a rise in IgM antibody. The ISDH Laboratory forwarded a nasopharyngeal swab to the Centers for Disease Control and Prevention (CDC) for RT-PCR testing. On July 12, the ISDH was notified that the sample tested positive for rubella virus RNA. The genotype was 2B, which is not typically found in the United States.

Conclusion

Due to the widespread availability of measles, mumps and rubella vaccine (MMR) in the United States, rubella cases are rare in the US. One dose of MMR provides protection in 95% of recipients. **Due to this low incidence of rubella in the United States, one case is considered an outbreak.**

The case most likely was infected before traveling to the US. In Pakistan, measles vaccine is given as a single antigen vaccine; rubella antigen is not required. In 2012, 483 cases of rubella were reported in Pakistan.

The causative agent was confirmed as rubella virus. The case experienced symptoms which were compatible with the disease and the laboratory testing confirmed the presence of rubella RNA. Due to the quick notification by the health care provider, the case was identified and isolated three days after becoming infectious.

Approximately 176 individuals potentially had direct contact with the case while infectious. The immune status of all those involved was verified with the exception of three individuals who remained in the United States.

To prevent rubella outbreaks, it is recommended that all susceptible health care personnel be immunized, especially those who may be exposed to patients with rubella, or who provide care for pregnant women. In addition, people who work in educational institutions or provide child care should be immunized to prevent themselves from being infected and prevent further possible transmission of rubella. Camp staff are encouraged to have documentation of immune status of camp attendees, including international visitors. Public health officials and health care providers should know the risk of rubella, report suspected cases, and implement appropriate control measures.

References:

1. Control and Prevention of Rubella: Evaluation and Management of Suspected Outbreaks, Rubella in Pregnant Women, and Surveillance for CRS, July 13, 2001/Vol.50/No.RR-12
2. Epidemiology and Prevention of Vaccine-Preventable Diseases, US Department of Health and Human Services, CDC, 12th edition, (CDC pink book)
3. WHO Vaccine –preventable diseases: Monitoring system, 2013 global summary

Join Blue – Prevent the Flu Campaign to Promote National Influenza Vaccination Week

Shawn Richards, Respiratory Epidemiologist

The Indiana State Department of Health is promoting the Centers for Disease Control and Prevention's (CDC) National Influenza Vaccination Week (NIVW), December 8-14, 2013. NIVW efforts will focus on informing people of all ages about the importance of ongoing flu vaccination.

The ISDH will promote influenza vaccinations by utilizing public service announcements and digital and social media platforms to support NIWV. Specifically, the ISDH has partnered with the Indianapolis Colts and developed an influenza campaign, "Join Blue-Prevent the Flu." Blue is the Indianapolis Colts' mascot. The Colts and the ISDH have developed a "Join Blue-Prevent the Flu" logo that will be placed on campaign documents and advertising. The ISDH and Colts partnership was developed to market disease prevention, communication, and health education through the Indianapolis Colts football organization. The Colts wide communication network can effectively reach adults and teenagers, traditionally a difficult audience to reach for influenza vaccinations.

According to the CDC, Indiana ranks 13th worse in the nation for influenza vaccination rates among all people. The overall rate in Indiana for influenza vaccination is 40%. Specifically, the rate for the 18-64 year age group is 32.3%, and the rate for the 18-49 year age group is 28.4%. The lowest rate for vaccination is the 13-17 year age group, at a rate of 27.9%. Approximately 63,000 people attend each Colts home game, of which

70% of the season ticket holders are 25-54 years of age. With over 650,000 fans attending Colts home games every season, this is a near-perfect market to direct the ISDH health message because of the age demographic and the overlap of football and flu seasons.

The message of the campaign is to:

- Clean Your Hands Often - Use soap and water
- Cover Your Cough and Sneeze - Use a Tissue or Your Sleeve
- Contain Your Illness - Stay Home When You're Sick
- Get Your Flu Shot

The campaign consists of:

- Video clip played during a time out on the jumbotron at each NFL Colts home game
- A color full page public service message in each game day program (3 ad changes)
- Feature story and week-long pencil add on Colts.com
- Wall posting on Colts Facebook Page, message sent out via Colts Twitter Account
- Digital posts to all members in the Colts Stampede
- Feature story in Kid's Club e-newsletter
- Hand washing signage in Lucas Oil Stadium bathrooms
- Campaign message posted on all hand sanitizer stations in Lucas Oil Stadium
- Flu shot message run on stadium concourse televisions pre/post and during the game
- Participation in the Bleed Blue Blood Drive and Health Fair
- Memo to coaches at Indiana high schools
- Booth space and video clip played at Lucas Oils Stadium at High School Championship Game
- Membership in the Colts Business Alliance

The campaign provides information, and motivates viewers to actually "do" a public health action. The campaign asks people to take a picture of themselves washing their hands and then post the pictures via Twitter using the hash tag #ColtsClean. People who tweet their picture have a chance of having their picture published in a Colts game day program. Anyone can tweet their hand washing picture to **#ColtsClean** and be considered for the promotion. The photo does not have to be taken at a Colts game. Infection preventionists, hospital administrators, emergency medical responders, and public health professionals are especially encouraged to support the campaign. Go to http://bit.ly/11ZSd8y to see the Colts and ISDH signage and game day ad.

Norovirus

Information from CDC

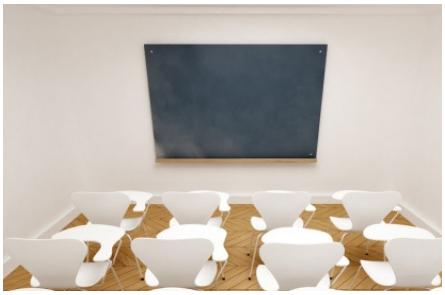
The CDC reports that *Norovirus*, the most common cause of acute gastroenteritis, typically affects 21 million people in the United States each year. Symptoms can include stomach pain, nausea, diarrhea, vomiting and sometimes fever. Most people self-recover in one to three days without complications, but infection can last

longer and/or be more severe in the elderly and young children. The CDC also reports that two-thirds of all *Norovirus* outbreaks occur in nursing homes where the most vulnerable population is exposed. *Norovirus* can occur anytime of the year but **80 percent** of outbreaks occur from November thru April. Now is a good time to prepare for the peak season by reviewing health care facility policies and practices.

To help prevent the spread of *Norovirus*, health care workers should:

1. Carefully and frequently wash hands often with soap and water. Alcohol hand gels appear to be relatively ineffective against *Norovirus.*
2. Routinely clean and disinfect high touch areas with approved Environmental Protection Agency (EPA) products or a bleach solution. The bleach solution should have a concentration of 1000-5000 ppm (5-25 tablespoons of household bleach [5.25%] per gallon of water. Approved products for *Norovirus* disinfection can be found on the EPA website at: www.epa.gov/oppad001/list_g_norovirus.pdf.
3. Use gowns and gloves when caring for symptomatic patients. Masks should be worn when caring for those actively vomiting or during disinfection of surfaces or materials contaminated with vomit or feces that may become aerosolized.
4. While wearing appropriate personal protective equipment, carefully remove contaminated clothes and linens and wash them at the maximum cycle length.
5. If ill with symptoms, do not work until asymptomatic for at least 48 hours. Facilities may enact longer exclusion times due to prolonged shedding of the virus.
6. Do not prepare or serve food if ill. Food staff ill with vomiting or diarrhea should be excluded immediately and any food that may have been contaminated should be thrown out. In general food workers should not come into contact with ill persons or infected units.
7. If possible, do not work with both healthy and sick individuals and do not go back and forth between both groups. Cohort sick cases together when possible. Do not place new healthy patients into rooms or units with ill individuals.

To learn more about *Norovirus,* visit the CDC website at http://www.cdc.gov/norovirus/index.html or the ISDH website at http://www.in.gov/isdh/25448.htm. These websites include posters, toolkits, webcasts and information for the general public and health care professionals.



Training Room

INDIANA STATE DEPARTMENT OF HEALTH
IMMUNIZATION PROGRAM PRESENTS:
Immunizations from A to Z

Immunization Health Educators offer this FREE, one-day educational course that includes:

- Principles of Vaccination
- Childhood and Adolescent Vaccine—Preventable Diseases
- Adult Immunizations—Pandemic Influenza
- General Recommendations on Immunization
    - Timing and Spacing
    - Indiana Immunization Requirements
    - Administration Recommendations
    - Contraindications and Precautions to Vaccination
- Safe and Effective Vaccine Administration
- Vaccine Storage and Handling
- Vaccine Misconceptions
- Reliable Resources

This course is designed for all immunization providers and staff. Training manual, materials and certificate of attendance are provided to all attendees. Please see the Training Calendar for presentations throughout Indiana. Registration is required. To attend, schedule/host a course in your area or for more information, please visit http://www.in.gov/isdh/17193.htm.

ISDH Data Reports

The following data reports and the *Indiana Epidemiology Newsletter* are available on the ISDH webpage:
http://www.IN.gov/isdh/

HIV/STD/Viral Hepatitis Semi-Annual Report (June 2007 – December 2012)	Indiana Mortality Report (1999-2011)
Indiana Cancer Reports: Incidence; Mortality; Facts & Figures	Indiana Linked Infant Birth/Death Report (1999, 2002, 1990-2003)
Indiana Health Behavior Risk Factors Report (1999–2010)	Indiana Natality Report (1998–2011)
Indiana Health Behavior Risk Factors (BRFSS) Newsletter (2003–2013)	Indiana Induced Termination of Pregnancy Report (1998–2012)
Indiana Hospital Consumer Guide (1996)	Indiana Marriage Report (1995, 1997-2004)
Public Hospital Discharge Data (1999–2011)	Indiana Infectious Disease Report (1997 - 2010)
Assessment of Statewide Health Needs (2007)	Indiana Maternal & Child Health Outcomes & Performance Measures (1989-1998 through 2001–2010)

HIV Disease Summary

Information as of September 30, 2013

HIV - without AIDS:

431	New HIV cases from July 1, 2013 thru September 30, 2013	12-month incidence	6.64 cases/100,000
5,059	Total HIV-positive, alive and without AIDS on September 30, 2013	Point prevalence	78.02 cases/100,000

AIDS cases:

325	New AIDS cases from July 1, 2013 thru September 30, 2013	12-month incidence	5.01 cases/100,000
5,920	Total AIDS cases, alive on September 30, 2013	Point prevalence	91.30 cases/100,000
12,158	Total AIDS cases, cumulative (alive and dead) on September 30, 2013		

*rates based on Indiana 2010 population of 6,483,802

Reported cases of selected notifiable diseases		
Disease	**Cases Reported in July-September**	
	2012	**2013**
Animal Bites	1,855	1,333
Brucellosis	1	0
Campylobacteriosis	234	145
Chlamydia*	7,694	6,997
Cryptococcus	7	5
Cryptosporidiosis	38	28
Dengue	0	0
E. coli, shiga toxin-producing	47	23
Ehrlichiosis	6	3
Encephalitis, (Arthropod-borne and Primary)	17	1
Giardiasis	69	34
Gonorrhea*	1,997	1,834
Haemophilus influenzae, invasive	20	28
Hemolytic Uremic Syndrome (HUS)	3	1
Hepatitis A	2	4
Hepatitis B	22	15
Hepatitis C (acute)	28	18
Hepatitis D	1	0
Hepatitis E	2	0
Histoplasmosis	42	13
Influenza-Associated Death	0	0
Legionellosis	18	27
Listeriosis	3	0
Lyme Disease	21	38
Malaria	11	8
Measles (rubeola)	0	0
Meningitis, other	2	1
Meningococcal, invasive	4	3
Mumps	0	1
Pertussis (Whooping Cough)	155	143
Rabies, Animal	4	4
Rocky Mountain Spotted Fever	1	3
Rubella	0	0
Salmonellosis	343	125
Shigellosis	66	17
Severe *Staphylococcous aureus* Infection in Previously Healthy Person	4	5

Reported cases of selected notifiable diseases (cont.)		
Disease	**Cases Reported in July-September**	
	2012	**2013**
Group A Streptococcus, invasive	32	19
Group B, Streptococcus, Invasive (All ages)	104	90
Streptococcus pneumoniae (invasive, all ages)	110	70
Streptococcus pneumoniae (invasive, drug resistant)	31	20
Streptococcus pneumoniae (invasive, <5 years of age)	8	4
Syphilis (Primary and Secondary)*	66	54
Toxic Shock Syndrome, streptococcal (STSS)	2	0
Tuberculosis	28	28
Tularemia	3	0
Typhoid Fever	1	0
Typhus/Rickettsial disease	0	0
Varicella (Chickenpox, confirmed and probable)	25	7
Varicella (Hospitalization or Death)	3	0
Vibriosis (non-cholera Vibro species infections)	3	0
West Nile Virus neuroinvasive disease	1	3
Yersiniosis	2	0

***MMWR Weeks 27-39 (July 7th through September 29th)**
For information on reporting of communicable diseases in Indiana, call the *ERC Surveillance and Investigation Division* at 317.233.7125.

Indiana State Department of Health
Epidemiology Resource Center
2 North Meridian St., 5K
Indianapolis, IN 46204
317.233.7125
epinewsletter@isdh.in.gov

The *Indiana Epidemiology Newsletter* is published quarterly by the Indiana State Department of Health to provide epidemiologic information to Indiana health care professionals, public health officials and communities.

FIND US ON THE WEB

http://www.in.gov/isdh/25154.htm

Indiana State Department of Health
Epidemiology Resource Center

Social Media

The Indiana State Health Department is on social media! Check out our social media pages for the latest health information, updates, event information and photos. Like us on Facebook at www.facebook.com/ISDH1. Follow us on Twitter @StateHealthIN. Watch videos on YouTube.

CDC Learning Connection

CDC TRAIN is a component of the CDC Learning Connection. The goal of the CDC Learning Connection is to help the public health community locate training and resources provided by CDC and CDC partners.

Please visit www.cdc.gov/learning, *where the public health community goes to learn.*

Link. Log in. Learn. CDC Learning Connection (CDC LC) is a one-stop learning resource that can help increase public health knowledge and skills and meet professional development needs. CDC LC was created to increase access to quality public health learning.

Features include…

- Quality e-learning
- A monthly spotlight on public health topics
- CDC TRAIN, a dynamic public health learning management system (LMS)
- Quick Learn lessons for mobile learning on the go

These features form a learning system that provides free access to products developed by CDC, CDC partners, and other organizations recognized for developing public health education and training resources. Although the CDC LC is intended for the public health community, it can be accessed by healthcare professionals and the general public.