Department of State Health Services
Health Service Region 1
Epidemiology Response Team

EPI Tōme
Newsletter

ISSUE
11
July – Sept
2013

"Please be kind…report on time!"

Increase in Pertussis in Region 1

The Texas Department of State Health Services (DSHS) Health Service Region 1 (HSR1) has seen a significant increase in pertussis, also called "whooping cough," within our jurisdiction. This trend is also occurring state-wide. Additionally, there have been several hospitalizations of infants with pertussis who exhibited paroxysmal cough followed by apnea. Many additional unreported cases have more than likely occurred. Geographically, cases of pertussis have been dispersed across multiple counties in our region. DSHS HSR1 recently sent a health advisory to health care providers and hospitals encouraging increased surveillance and focus on pertussis in the differential diagnosis of respiratory illnesses. To facilitate this process, we have expanded on the information sent in the health advisory to describe more thoroughly clinical illness, communicability, laboratory testing, treatment, post-exposure prophylaxis for pertussis contacts and vaccine recommendations . **Health care providers should report all suspect cases of pertussis to their local health jurisdictions within 1 work day.**

Clinical Illness

The incubation period for pertussis is usually 7 to 10 days, with a range of 4 to 21 days. The clinical course of pertussis is divided into three stages: catarrhal, paroxysmal and convalescent. The catarrhal stage is characterized by sneezing, low-grade fever, runny nose and mild, occasional cough. The cough gradually becomes more severe over the course of 1 to 2 weeks. The paroxysmal stage is characterized by paroxysmal cough (coughing fits), followed by the inspiratory "whoop" sound, vomiting or cyanosis. Paroxysmal attacks occur more frequently at night and increase in frequency during the first 1 or 2 weeks. This stage usually lasts 1 to 6 weeks, but may persist for up to 10 weeks. The convalescent stage is characterized by gradual resolution of the paroxysmal cough. The paroxysmal cough may resolve after a few weeks, but may persist for months. According to the Centers for Disease Control and Prevention (CDC), unvaccinated or incompletely vaccinated infants younger than 12 months of age have the highest risk for severe complications and death. In infants younger than 12 months of age, the cough may be minimal or absent, and apnea may be the initial or most important symptom. Illness is generally less severe among older children, adolescents and adults.

Communicability

Pertussis is highly contagious. It is spread from person to person through direct contact with respiratory secretions, such as coughing and sneezing. Individuals are most infectious during the catarrhal stage and 21 days after cough onset or until 5 days after the start of effective antimicrobial treatment.

The photo reveals the spread of respiratory secretions expelled in a large cone-shaped array when sneezing or coughing.
Photo courtesy of the CDC Public Health Image Library, ID# 11160.

Laboratory testing

For suspected cases of pertussis, please confirm cases whenever possible with laboratory testing, either by isolation from culture or polymerase chain reaction (PCR) assay for *B. pertussis.* PCR assay is the preferred method in Texas for laboratory diagnosis of *B. pertussis*, since *B. pertussis* can be difficult to culture and a negative culture does not rule out pertussis. PCR should be tested from nasopharyngeal swabs obtained within 4 weeks after cough onset for accurate results. Nasopharyngeal swabs may be collected up to 5 weeks after cough onset in infants or unvaccinated persons. Obtaining a nasopharyngeal specimen after 4 weeks of cough may increase the risk of a false-negative result. Please refer to the CDC's Best Practices for Health Care Professionals on the use of Polymerase Chain Reaction (PCR) for Diagnosing Pertussis manual for more information on specimen collection procedures (link in the listed sources). Direct fluorescent antibody (DFA) staining and serological laboratory results (pertussis IgA, IgG or IgM) may be supportive of a clinical diagnosis but are not considered confirmatory for pertussis by 2013 DSHS Epi Case Criteria Guide. There are many different serological tests used in the United States commercially that have unproven or unknown clinical accuracy.

Treatment

Azithromycin, erythromycin, and clarithromycin are the recommended antimicrobial agents for treatment of pertussis in older children and adults. Trimethoprim-sulfamethoxazole can also be used. For infants aged less than 1 month, azithromycin is the only recommended drug. Clinicians should consider treating prior to test results if clinical history is strongly suggestive or patient is at risk for severe or complicated disease, such as infants. Please refer to the CDC webpage for treatment recommendations or the American Academy of Pediatrics' Red Book for dosing and contraindications.

Continued on page 4

Table 1: Select reportable conditions, including confirmed, probable, and suspect cases (as applicable) in DSHS HSR 1, including all public health jurisdictions, for the period January 01, 2011 through June 30, 2013 by Month/Year. First six months comparison. Data source: Texas NEDSS Database. Data extracted: 07/30/13. These counts are generated by DSHS HSR1. 2013 data is preliminary and subject to change.

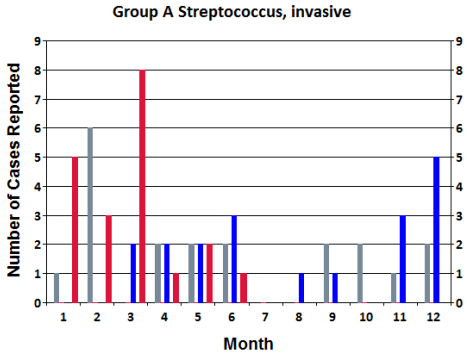
Condition	2011 — 1st Six Months							2012—1st Six Months							2013—First Six Months							2013 Year Total	2012 Year Total	2011 Year Total
	Jan	Feb	Mar	Apr	May	Jun	Total (6 mo.)	Jan	Feb	Mar	Apr	May	Jun	Total (6 mo.)	Jan	Feb	Mar	Apr	May	Jun	Total (6 mo.)			
Amebiasis							0			1				1							0	0	1	0
Botulism, infant					1		1							0							0	0	0	1
Campylobacteriosis	11	2	3	5	6	27	54	12	7	6	15	12	30	82	10	3	11	8	8	19	59	59	181	137
Cryptosporidiosis	5	3		2	2	2	14						1	1	2	1					3	3	8	31
Hemolytic uremic synd, postdiarrheal					4	1	5			1				1							0	0	1	6
Hepatitis A, acute			1				1	1					1	2							0	0	2	4
Hepatitis B Viral Infection, Perinatal							0							0							0	0	1	0
Hepatitis B, acute						1	1				1		1	2	1	1	1	1			4	4	2	6
Hepatitis C, acute						1	1				1			1							0	0	1	3
Influenza-associated ped. mortality							0			1				1							0	0	1	0
Legionellosis		1		1			2							0							0	0	1	5
Listeriosis							0							0							0	0	0	4
Lyme disease							0						1	1							0	0	1	0
Malaria							0				1			1			1		1		2	2	1	1
Mumps							0							0							0	0	0	2
Meningococcal Disease						1	1							0			1				1	1	1	1
Pertussis	3	2	3	1		2	11	4				1	3	8	2		2	2	6	6	18	18	22	16
Salmonellosis	9	10	11	7	9	24	70	9	11	8	18	20	13	79	5	6	14	18	8	11	62	62	173	221
Shiga toxin-producing Escherichia coli			2		8	2	12	2		2	1	1		6							0	0	16	21
Shigellosis	9	11	7	23	40	20	110	14	10	15	20	7	15	81	1	5	2	9			17	17	178	211
Spotted Fever Rickettsiosis							0							0							0	0	1	1
Streptococcus pneumoniae, invasive	21	18	13	12	9	3	76	14	9	18	8	4	4	57	16	7	7	10	4	4	48	48	91	127
Streptococcus, invasive Group A	1	6		2	2	2	13			2	2	2	3	9	5	3	7	1	2	1	19	19	19	20
Streptococcus, invasive Group B	3	3	4	2	4	5	21	3	2	3	6	2	6	22	4	5	3	1	6	3	22	22	52	46
Typhoid fever (Salmonella typhi)	1						1							0							0	0	0	1
Vancomycin-intermediate S. aureus							0							0							0	0	0	1
Varicella (Chickenpox)	3	4	9	12	3	1	32	8	8	6	4	9	2	37	4	2	6	4	2	1	19	19	62	62
Vibrio vulnificus infection							0				1			1							0	0	1	0
Vibriosis, other or unspecified							0							0							0	0	2	0
Yersiniosis							0							0			1				1	1	0	0

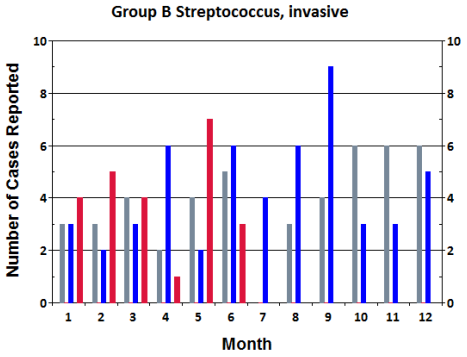
Chart 1: Select reportable conditions, including confirmed, probable, and suspect cases (as applicable) in DSHS HSR 1, including all public health jurisdictions, for the period January 01, 2011 through June 30, 2013 by Month/Year.
Data source: Texas NEDSS Database. Data extracted: 07/30/13. These counts are generated by DSHS HSR1. 2013 data is preliminary and subject to change.

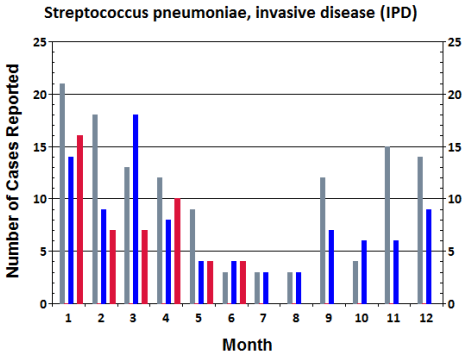
LEGEND

2011 2012 2013

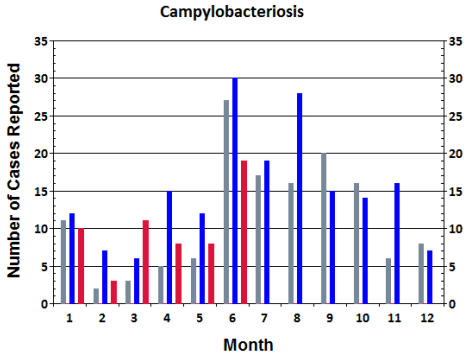
Invasive Streptococcal Disease

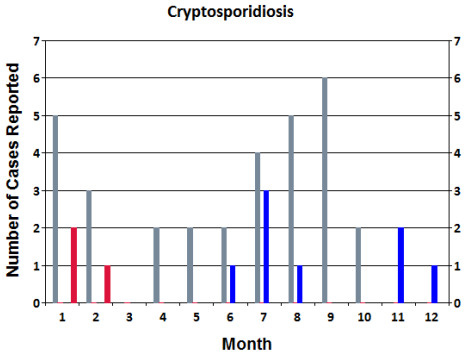


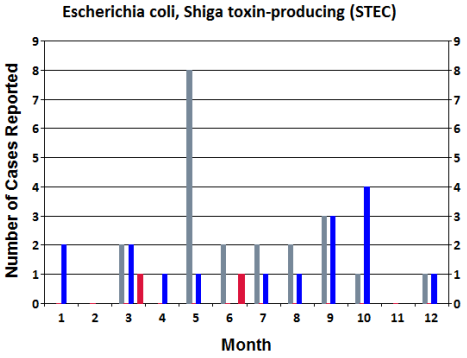


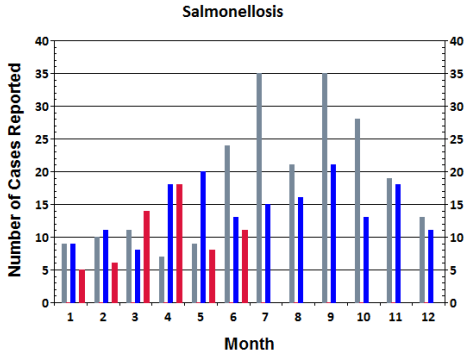


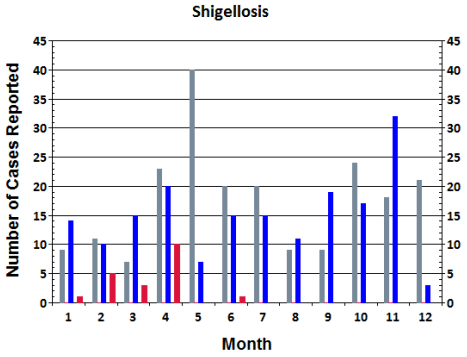
Foodborne/Waterborne Disease

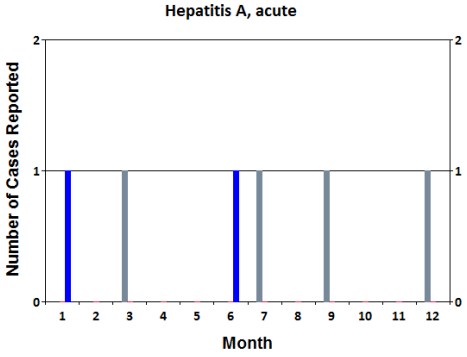




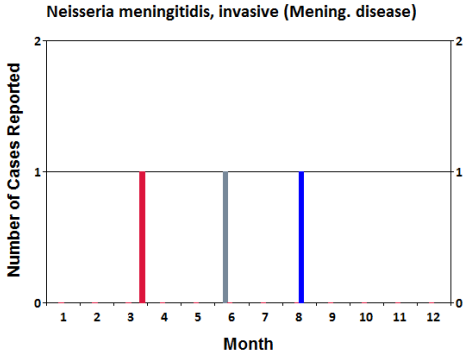


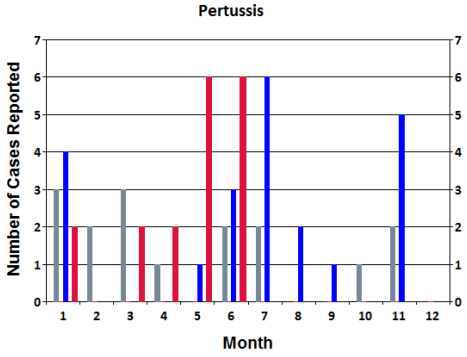


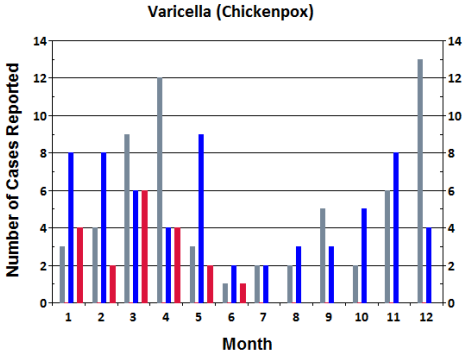




Other Vaccine Preventable Disease







Post-Exposure Prophylaxis

Post-exposure prophylaxis (PEP) for contacts is highly recommended if initiated within 21 days of exposure. Initiating treatment 3 weeks after exposure has limited benefit and is not recommended, except for high risk contacts that may benefit from PEP up to 6 weeks after exposure. Antibiotics for PEP are the same as treatment of pertussis. CDC suggests the following contacts receive prophylaxis:

- Household contacts of a pertussis case and other close contacts.
- Persons exposed to pertussis who are at high risk of severe illness or who will have close contact with a person at high risk of severe illness. These include:
  - Infants and women in their third trimester of pregnancy
  - All persons with pre-existing health conditions that may be exacerbated by a pertussis infection
  - Persons who have close contact with either infants under 12 months of age, pregnant women, or persons with pre-existing health conditions at risk of severe illness or complications
  - Persons in high risk settings that include infants aged less than 12 months or women in the third trimester of pregnancy (e.g. neonatal intensive care units, childcare settings, and maternity wards)

Pertussis: Summary of Vaccine Recommendations

For Health Care Professionals

Summary of DTaP and Tdap Vaccine Recommendations across the Lifespan

Includes updated recommendations voted October 2012 and published February 2013. (See **MMWR**)

Age/ Status	Recommendations
Birth through 6 years	DTaP is routinely recommended at 2, 4, and 6 months, at 15 through 18 months, and at 4 through 6 years.
7 through 10 years	Tdap is recommended for children ages 7 through 10 years who are not fully vaccinated (**see note 1**) against pertussis: Single dose of Tdap for those not fully vaccinated (**see note 1**) **or** If additional doses of tetanus and diphtheria toxoid-containing vaccines are needed, then children aged 7 through 10 years should be vaccinated according to the **catch-up schedule**, with Tdap preferred as the first dose. UPDATED JAN 2011
11 through 18 years	Tdap is routinely recommended as a single dose for those 11 through 18 years of age with preferred administration at 11 through 12 years of age. If adolescent was not fully vaccinated (**see note 1**) as a child, check the **ACIP recommendations** and **catch-up schedule** to determine what's indicated. If adolescents (13 through 18 years) missed getting Tdap at 11 to 12 years of age, administer at the next patient encounter or sooner if adolescent will have close contact with infants.
19 years and older	Any adult 19 years of age and older who has not received a dose of Tdap should get one as soon as feasible – to protect themselves and infants. This Tdap booster dose can replace one of the 10-year Td booster doses. Tdap can be administered regardless of interval since the previous Td dose. Shorter intervals between Tdap and last Td may increase the risk of mild local reactogenicity but may be appropriate if your patient is at high risk for contracting pertussis, such as during an outbreak, or has close contact with infants. When feasible, Boostrix (GSK) should be used for adults 65 years and older; however, either vaccine product administered to a person 65 years or older provides protection and may be considered valid. Providers should not miss an opportunity to vaccinate persons aged 65 years and older with Tdap. Therefore, providers may administer the Tdap vaccine they have available. UPDATED JUN 2012
Pregnant women	Pregnant women should get a dose of Tdap during each pregnancy, preferably at 27 through 36 weeks gestation. By getting Tdap during pregnancy, maternal pertussis antibodies transfer to the newborn, likely providing protection against pertussis in early life, before the baby starts getting DTaP vaccines. Tdap will also protect the mother at time of delivery, making her less likely to transmit pertussis to her infant. DTaP or Tdap (depending on age) is recommended for all family members and caregivers of the infant – at least two weeks before coming into close contact with the infant. Tdap is recommended in the immediate postpartum period before discharge from the hospital or birthing center for new mothers who have never received Tdap before or whose vaccination status is unknown. UPDATED JAN 2013
Health care personnel (see note 2)	A single dose of Tdap is recommended for health care personnel who have not previously received Tdap as an adult and who have direct patient contact. Tdap vaccination can protect health care personnel against pertussis and help reduce transmission to others. Priority should be given to vaccinating those who have direct contact with babies younger than 12 months of age. Tdap can be administered regardless of interval since the previous Td dose. However, shorter intervals between Tdap and last Td may increase the risk of mild local reactogenicity.

Abbreviation: ACIP - **Advisory Committee on Immunization Practices**

Note 1: Fully vaccinated is defined as 5 doses of DTaP or 4 doses of DTaP if the fourth dose was administered on or after the fourth birthday.

Note 2: Health care personnel include but are not limited to physicians, other primary care providers, nurses, aides, respiratory therapists, radiology technicians, students (e.g., medical, nursing, and pharmaceutical), dentists, social workers, chaplains, volunteers, and dietary and clerical workers. For more detailed information, see **Immunization of Health-Care Workers: Recommendations of the Advisory Committee for Immunization Practices (ACIP) and the Hospital Infection Control Practices Advisory Committee (HICPAC)**.

Figure 1: "Pertussis: Summary of Vaccine Recommendations" obtained from the Centers for Disease Control and Prevention.

Vaccine Recommendations

Please refer to Figure 1 "Pertussis: Summary of Vaccine Recommendations" for detailed information on DTaP and Tdap vaccine recommendations for infants, children, adults, pregnant women and health care personnel. DSHS HSR 1 is encouraging obstetricians to recommend the strategy of cocooning to their patients in order to protect unvaccinated infants from contracting pertussis. Cocooning is defined as the strategy of vaccinating pregnant women immediately postpartum and all other close contacts of infants aged <12 months with Tdap to reduce the risk for transmission of pertussis to infants. Cocooning has been recommended by Advisory Committee on Immunization Practices (ACIP) since 2005.

Sources

- Texas Department of State Health Services, Guidelines for Investigation and Control of Invasive, Respiratory and Vaccine Preventable Diseases
- Red Book: 2012 Report of the Committee on Infectious Diseases
- PCR testing resource - http://www.cdc.gov/pertussis/clinical/diagnostic-testing/diagnosis-pcr-bestpractices.html
- Treatment recommendations - http://www.cdc.gov/pertussis/clinical/treatment.html
- Post exposure prophylaxis recommendations - http://www.cdc.gov/pertussis/outbreaks/PEP.html
- Vaccine recommendations - http://www.cdc.gov/vaccines/vpd-vac/pertussis/recs-summary.htm
- Cocooning - http://www.immunize.org/cocooning/