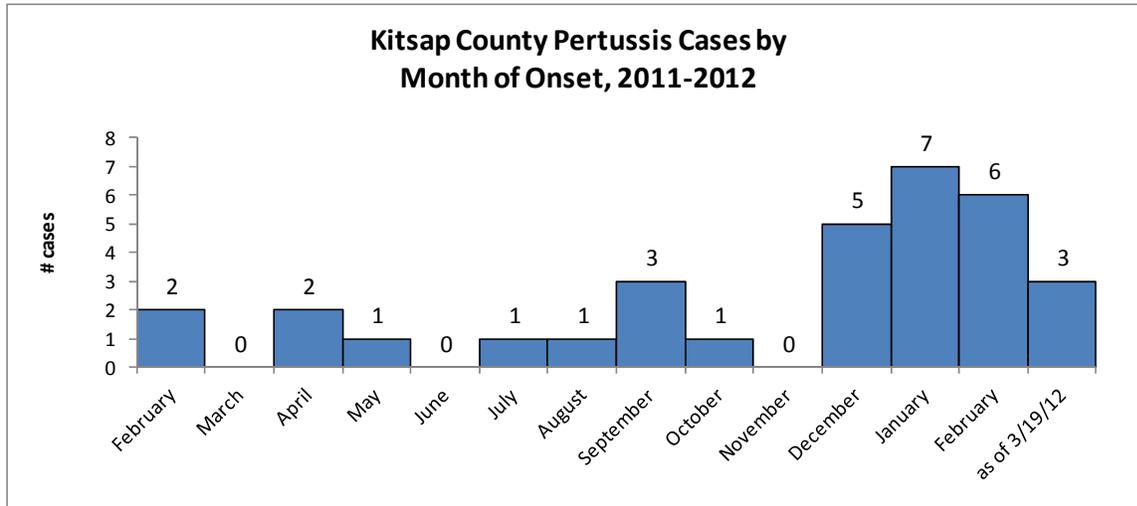


Pertussis “Whooping Cough” Updates

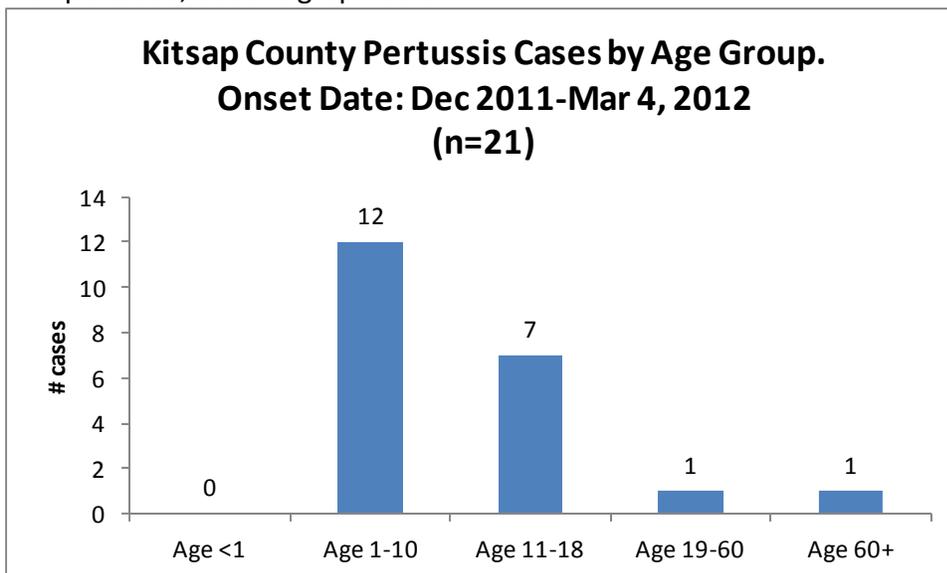
March 19, 2012

Dear Kitsap County Providers,

We have had a total of 21 confirmed pertussis cases between December 2011 and today. This is an obvious increase in the number of our usual cases. See the epidemiology curve below.



It is striking that a large number of persons with positive PCR test results for pertussis have received some or all their vaccinations. I encourage you to get cultures along with PCR testing to ensure that we are not seeing false positive PCR tests. It is a good reminder though that even vaccinated persons can become infected with *Bordetella pertussis* and carry the bacteria. We are also seeing the national trend of an increasing number of adolescents and young adults with pertussis, see the graph below.



The most critical age for pertussis is within the first year of life, especially if the patient is unimmunized. Pertussis has its highest mortality in this age group. For this reason, we make very aggressive recommendations for the treatment of pertussis in this age group.

There are essentially two strategies for controlling *Bordetella pertussis* in our community: Vaccination and Treatment/Isolation.

The first strategy is herd immunity from vaccination. It is important for us to encourage our patients to start the DTaP at 2 months of age when we have increased activity of pertussis in the community. It is also important to boost adolescents and young adults with Tdap when due. We should also prioritize vaccinations for pregnant women and healthcare workers. See Table 1 below.

Table 1. Summary of DTaP and Tdap Vaccine Recommendations

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	<p>Tdap is recommended for children ages 7 through 10 years who are not fully vaccinated against pertussis:</p> <ul style="list-style-type: none"> • Single dose of Tdap for those not fully vaccinated 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.
11 through 18 years	<p>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.</p> <p>If adolescent was not fully vaccinated as a child, check the ACIP recommendations and catch-up schedule to determine what's indicated.</p> <p>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.</p>
19 through 64 years	Any adult 19 through 64 years of age who has not received a dose of Tdap should get one as soon as feasible. This Tdap can replace one of the 10-year Td booster doses. Tdap can be administered regardless of interval since the previous Td dose.

	<p>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.</p>
65 years and older	<p>Adults age 65 years and older who have not previously received a dose of Tdap and who have or anticipate having close contact with children younger than age 12 months (e.g., grandparents, other relatives, child care providers, and health care personnel), should receive a one-time dose to protect themselves and infants.</p> <p>Other adults 65 years and older who are not in contact with an infant and who have not previously received a dose of Tdap may receive a single dose of Tdap in place of a dose of Td. Administration may be especially important during a community outbreak.</p> <p>Tdap can be administered regardless of interval since the previous Td dose. The safety of Tdap in persons 65 years and older is likely the same as in 18-64 year olds.</p>
Pregnant women	<p>Pregnant women who have not been previously vaccinated with Tdap should get one dose of Tdap during the third trimester or late second trimester. Tdap is recommended in the immediate postpartum period before discharge from hospital or birthing center for new mothers who were not previously vaccinated or whose vaccination status is unknown. 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.</p>
Health care personnel	<p>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.</p> <p>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.</p>

The second strategy for the control of pertussis is isolation and treatment. Confirmed or suspected cases should be in respiratory isolation until they have received 5 days of a 14-day course of antibiotics see Table 2. If they refuse treatment, they should be isolated for 21 days

total. We do not recommend isolation of asymptomatic contacts, but occasionally, the Health District will recommend a 14-day course of appropriate antibiotics (chemoprophylaxis) to household and other close contacts (day care, churches, etc.), regardless of vaccination status, when our investigation of the active case demonstrates a significant exposure. Of course, exposed persons who are incompletely vaccinated are recommended vaccinations. You will likely hear from patients that have had a recommendation for antibiotics or vaccine as part of a Health District investigation.

Treatment:

The antimicrobial agents of choice for treatment or chemoprophylaxis of pertussis are azithromycin, clarithromycin and erythromycin. For infants <1 month of age, azithromycin is preferred for post-exposure prophylaxis and treatment because azithromycin has not been associated with infantile hypertrophic pyloric stenosis (IHPS), whereas erythromycin has. For infants <1 month of age, the risk of developing severe pertussis and life-threatening complications outweighs the potential risk of IHPS that has been associated with macrolide use.

Table 2. Antibiotic Treatment and Prophylaxis

DRUG	INFANT (< 6 months of age)	CHILD (≥ 6 months of age)	ADULT
Azithromycin (3-day course not yet approved for treatment of pertussis)	1-5 months: 10 mg/kg/day orally daily for 5 days <1 month of age: same as above and is the preferred choice for infants <1 month old	10 mg/kg/day orally on the first day (maximum 500 mg), 5 mg/kg once daily on days 2-5 (maximum 250 mg/day)	500 mg orally on the first day, 250 mg once daily on days 2-5
Clarithromycin Not recommended for use in pregnant women	not recommended for use in infants < 6 months of age; see child dose for infants ≥ 6 months of age	15 mg/kg/day orally divided into 2 doses/day for 7 days (maximum 1 g/day)	500 mg twice daily for 7 days
Erythromycin	Estolate preparation preferred if available 1-5 months: 40-50 mg/kg/day orally divided into 4 doses/day for 14 days (maximum 2 g/day) <1 month of age: same as	40-50 mg/kg/day orally divided into 4 doses/day for 14 days (maximum 2 g/day)	2 g/day orally divided into 4 doses/day for 14 days

	above, but should only be used as an alternate drug. Drug use is associated with elevated risk of IHPS		
Trimethoprim-Sulfamethoxazole For those not able to tolerate macrolides. Not recommended for use in pregnant or nursing women	not recommended for use in children < 2 months of age; see child dose for infants \geq 2 months of age	8 mg TMP/40 mg SMX/kg/day orally divided into 2 doses/day for 14 days (maximum 320mg TMP/1600mg SMX/day)	320 mg TMP/1600 mg SMX per day orally divided into 2 doses/day for 14 days

Pertussis Pearls:

1. Once a patient is colonized with *Bordetella pertussis* regardless of immunization status, they may progress to disease. It is likely less severe if immunized but they may still be infectious. This is one of the reasons for chemoprophylaxis, to cut down the period of communicability.
2. Once colonized, *Bordetella pertussis* releases a toxin. This is the cause of respiratory epithelium damage. If a toxin has already been released, antibiotics will not shorten the clinical course as the damage has already occurred. Make sure patients understand that antibiotics are to shorten communicability. If treatment for pertussis is started early in the course of illness, during the first 1 to 2 weeks before coughing paroxysms occur, symptoms may be lessened.
3. Prioritize all children less than 1 year of age to prevent severe outcomes.

Feel free to contact me if any specific questions.

Sincerely,

Scott

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