The purpose of this document is to provide guidance to local public health agencies regarding pertussis postexposure prophylaxis (PEP) and to assist in the prioritization of pertussis investigations. The Pertussis Public Health Investigation algorithm at the end of this document is meant to assist local public health agencies with focusing on reducing transmission to those most at risk for severe complications or death from pertussis. The algorithm is not meant to be comprehensive of every situation encountered, and local public health agencies are encouraged to use their own judgment in prioritization. Regional epidemiologists and state health department staff are available for consultation.

Pertussis Postexposure Antimicrobial Prophylaxis

The primary objective of postexposure antimicrobial prophylaxis (PEP) should be to prevent death and serious complications from pertussis in individuals at increased risk of severe disease. With increasing incidence and widespread community transmission of pertussis, extensive contact tracing and broad scale use of PEP among contacts may not be an effective use of limited public health resources. While antibiotics may prevent pertussis disease if given prior to symptom onset, there are no data to indicate that widespread use of PEP among contacts effectively controls or limits the scope of pertussis outbreaks.

Another important consideration is the overuse of antibiotics; the Colorado Department of Public Health and Environment (CDPHE) is supportive of promoting the judicious use of antibiotics. Given these considerations, CDPHE supports the Centers for Disease Control and Prevention recommendation of targeting postexposure antibiotic use to persons at high risk of developing severe pertussis and to persons who will have close contact with those at high risk of developing severe pertussis. CDPHE has modified the description of high risk and those having close contact to those at high risk to take into consideration specific Colorado situations.

Accordingly, CDPHE supports the following:

- **Providing PEP to all household contacts of a pertussis case.** Within families, secondary attack rates have been demonstrated to be high, even when household contacts are current with immunizations. Administration of antimicrobial prophylaxis to asymptomatic household contacts within 21 days of onset of cough in the index patient can prevent symptomatic infection.
- **Providing PEP to 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 -- severe and sometimes fatal pertussis-related complications occur in infants aged <12 months, especially among infants aged <4 months. Women in their third trimester of pregnancy may be a source of pertussis to their newborn infant.
  - All persons with pre-existing health conditions that may be exacerbated by a pertussis infection (for example, but not limited to immunocompromised persons, patients with neuromuscular disease and moderate to severe lung disease including those with moderate to severe medically treated asthma).
  - Contacts who themselves have close contact with either infants under 12 months, pregnant women in their third trimester or individuals with pre-existing health conditions at risk of severe illness or complications.
  - All contacts in high risk settings that include infants aged <12 months, women in the third trimester of pregnancy, or individuals with pre-existing health conditions at risk of severe illness or complications. These include, but are not limited to neonatal and adult intensive care units, childcare settings, and maternity wards.
- A broader use of PEP in limited closed settings when the number of identified cases is small (for example, school class-room settings, clubs, sports teams, etc.) and when a community-wide outbreak is not ongoing; however, when continued transmission of pertussis is evident, multiple rounds of antibiotics would not be recommended. Rather than repeating a course of antibiotics, contacts should be monitored for onset of signs and symptoms of pertussis for 21 days. Consultation with your regional epidemiologist or field epidemiologist is recommended for these special situations.
**Pertussis Public Health Investigations**

**Triage Reports of Pertussis**

When resources are limited, investigations can be prioritized. In general, an indication of a high-risk* case or contact* will increase the priority of a report. *(Please note that a limited investigation is necessary to determine if a case is high risk*).

**Investigations that are highest priority:**
1. Any confirmed, probable, or suspect case that is high risk* or who may expose persons at high risk*

**Investigations that are intermediate priority (any of the following that are not high risk* or who will not expose persons at high risk*):**
2. Culture or PCR-positive cases (includes those whose illness does not yet meet the clinical case definition)
3. Epi-linked cases that meet the clinical case definition

**Investigations that are lowest priority (any of the following that do not meet 1, 2, or 3 above):**
4. Cases that meet the clinical case definition but have no epi-link or lab confirmation (probable cases)
5. Cases with classic symptoms (paroxysmal cough, post-tussive emesis, or whooping) and < 2 week cough duration with no testing or a negative test (suspect cases)
6. Cases with an epi-link that do not yet meet the clinical case definition (symptomatic contacts of a case [suspect cases])

**Contact Provider**
- Notify provider that public health will follow up
- Request pertussis immunization history and pertinent clinical information
- Ask about criteria that would determine a case to be high-risk*
- Verify appropriate treatment
- Determine what exclusion recommendations were made
- Determine whether household contacts and high risk* contacts received chemoprophylaxis

**Interview Case and Contacts**

**Case**
- Determine clinical symptoms and onset of illness
- Provide education about period of communicability, method of transmission, and avoidance of high-risk persons/settings
- Recommend avoiding all public settings until completing 5 full days of antibiotics or 21 days after onset of cough if not treated

**Contacts**
- Identify household members and high-risk* contacts. These contacts need public health follow-up as noted below.
- If contacts are not household or high-risk*, instruct case to inform his/her contacts of exposure and to seek advice from their own healthcare provider regarding chemoprophylaxis (public health does not need to follow up these contacts).

**Follow-up interviews (For 5-county Denver metropolitan EIP area only)**
- When resources are limited, if a case or contact meets the clinical case definition during the initial interview, a follow-up interview to determine entire cough duration can be suspended.

**Persons at Risk of Developing Severe Illness:**
- Infants<12 months year of age
- Individuals with pre-existing health conditions that may be exacerbated by a pertussis infection; including but not limited to immunocompromised persons, patients with neuromuscular disease and moderate to severe lung disease (including moderate to severe medically treated asthma**.

**Persons Who May Have Close Contact With and Expose Persons at High Risk for Severe Illness:**
- Pregnant women in their third trimester
- Close contacts of infants under 12 months, pregnant women or individuals with pre-existing health conditions as described above* *(e.g. household contacts, friends, care-givers, etc.)
- This includes all contacts in high-risk settings (including but not limited to neonatal and adult intensive care units, childcare settings providing infant care, maternity wards) with infants < 12 months, pregnant women, or those persons with pre-existing health conditions as described above**within the setting. These contacts in high-risk settings include but are not limited to: health care workers, child care staff and anyone else who may have close contact with infants<12 months old, pregnant/postpartum women, and those with pre-existing health conditions as described above**.