1. **Agent:**

   **Cysticercosis:** Disease caused by *Cysticercus cellulosae*, the tissue or larval stage of *Taenia solium*.

   **Taeniasis:** Intestinal infection with the adult stages of either of the tapeworms, *Taenia solium*, the pork tapeworm, or *Taenia saginata*, the beef tapeworm.

2. **Identification:**

   a. **Symptoms:**

      **Cysticercosis:** Larvae in muscle tissue may cause muscular pain, weakness, fever, and eosinophilia; involvement in brain may produce symptoms of hydrocephalus, meningoencephalitis or epilepsy. Many cases are asymptomatic or manifest minor disease.

      **Taeniasis:** Mild gastrointestinal complaints.

   b. **Differential Diagnosis:**

      **Cysticercosis:** Tuberculosis (tuberculoma), brain tumor, and other neurologic or psychiatric disorders.

      **Taeniasis:** Other causes of gastroenteritis.

   c. **Diagnosis:**

      **Cysticercosis:** Confirmed by biopsy or CT scan. Serologic and cerebrospinal fluid tests are highly specific and sensitive (Western blot).

      **Taeniasis:** Ova and parasite exam for proglottid (tapeworm segments) or eggs. The "scotch tape pinworm paddle" (Swube) impression of perianal area has also been used to detect eggs.

3. **Incubation:**

   **Cysticercosis:** Highly variable, from a few weeks to months or years.

   **Taeniasis:** 8-14 weeks for the adult tapeworm to mature after consumption of a larva.

4. **Reservoir:**

   **Cysticercosis:** Individuals infected with the adult tapeworm shed eggs that are consumed by self or others. Humans are the definitive host for the adult worm.

   **Taeniasis:** Swine (*T. solium*) or cattle (*T. saginata*).

5. **Source:**

   **Cysticercosis:** Feces containing eggs or proglottid of *T. solium*; eggs of *T. solium* are directly infectious for man.

   **Taeniasis:** Raw or undercooked pork or beef containing larvae of either species.

6. **Transmission:**

   **Cysticercosis:** Fecal-oral transmission of eggs via contaminated food, possibly water. Direct person-to-person transmission may occur. Autoinfection from feces to hand to mouth. Retrograde passage of eggs from the jejunum into the stomach. (The latter mode is not proven.)

   **Taeniasis:** Via consumption of larvae in raw or undercooked pork or beef.

7. **Communicability:** Persons with *T. solium* tapeworm infections are infectious to others. Persons with cysticercosis (larval form) may also be infected with the adult worm and would then be infectious to others. An individual with *cysticercosis* without adult tapeworm infection is not infectious to others.

8. **Specific Treatment:**

   **Cysticercosis:** Dependent on clinical status and radiographic classification. Anticonvulsants, steroids, analgesics are employed. Praziquantel (Biltricide 7), an anthelminthic, and surgery are of value in some circumstances.
**Taeniasis**: Niclosamide (Niclocide®) or praziquantel. Purging is not recommended.

9. **Immunity**: Short lived.

**REPORTING PROCEDURES**

1. **Reportable**: Report within seven calendar days, *California Code of Regulations*, Title 17, Section 2500.

2. **Report Form**:

   CYSTICERCOSIS/TAENIASIS CASE REPORT FORM (CDPH 8581)

   CYSTICERCOSIS (TAENIASIS) CONTACT WORK SHEET (acd-cysticercosis_worksheet)

3. **Epidemiologic Data**:
   a. Residence or travel in endemic areas.
   b. Symptoms or other cases among household members.
   c. Consumption of raw or undercooked meat, especially outside of the USA, or illegally imported meat.

**CONTROL OF CASE, CONTACTS, & CARRIERS**

Investigate within 3 days.

**CASE**:

Case must be evaluated for adult tapeworm infection. If the diagnosing physician has not evaluated the case’s stool for infection, O&P specimens should be obtained. Food handlers with the pork tapeworm should be removed from work until one week after treatment.

**CONTACTS**:

Household and sexual contacts should be evaluated for infection with adult tapeworm, as they may be the source of infection. Multiple (3) stool specimens for O&P exam should be obtained. Food handlers positive for the pork tapeworm should be managed as above.

**PREVENTION-EDUCATION**

1. Explain transmission of disease.

2. Emphasize personal hygiene and sanitary disposal of human excrement.

3. Advise thorough cooking of pork and beef products.

**DIAGNOSTIC PROCEDURES**

**CASE**:

1. **Cysticercosis**:
   a. Biopsy
   b. Computed tomographic (CT) or magnetic resonance imaging (MRI) scan.
   c. Serologic testing (enzyme-linked immunoelectrotransfer blot assay [EITB, Western blot]). Contact Public Health Laboratory for instructions.

2. **Taeniasis**:
   a. **Microscopic examination of feces**:
      Container: Feces-Parasite.
      Laboratory Form: PARASITOLOGY (H-383).
      Examination Requested: Taenia eggs.
      Submission Requirements: Follow instructions in container.
   b. **Worm or Segment Identification**:
      Container: Tuberculosis tube (50 ml centrifuge tube).
      Laboratory Form: PARASITOLOGY (H-383).
      Examination Requested: Worm identification.
      Submission Requirements: Place worm or worm segment in water or saline solution; seal lid securely and refrigerate until transport.