

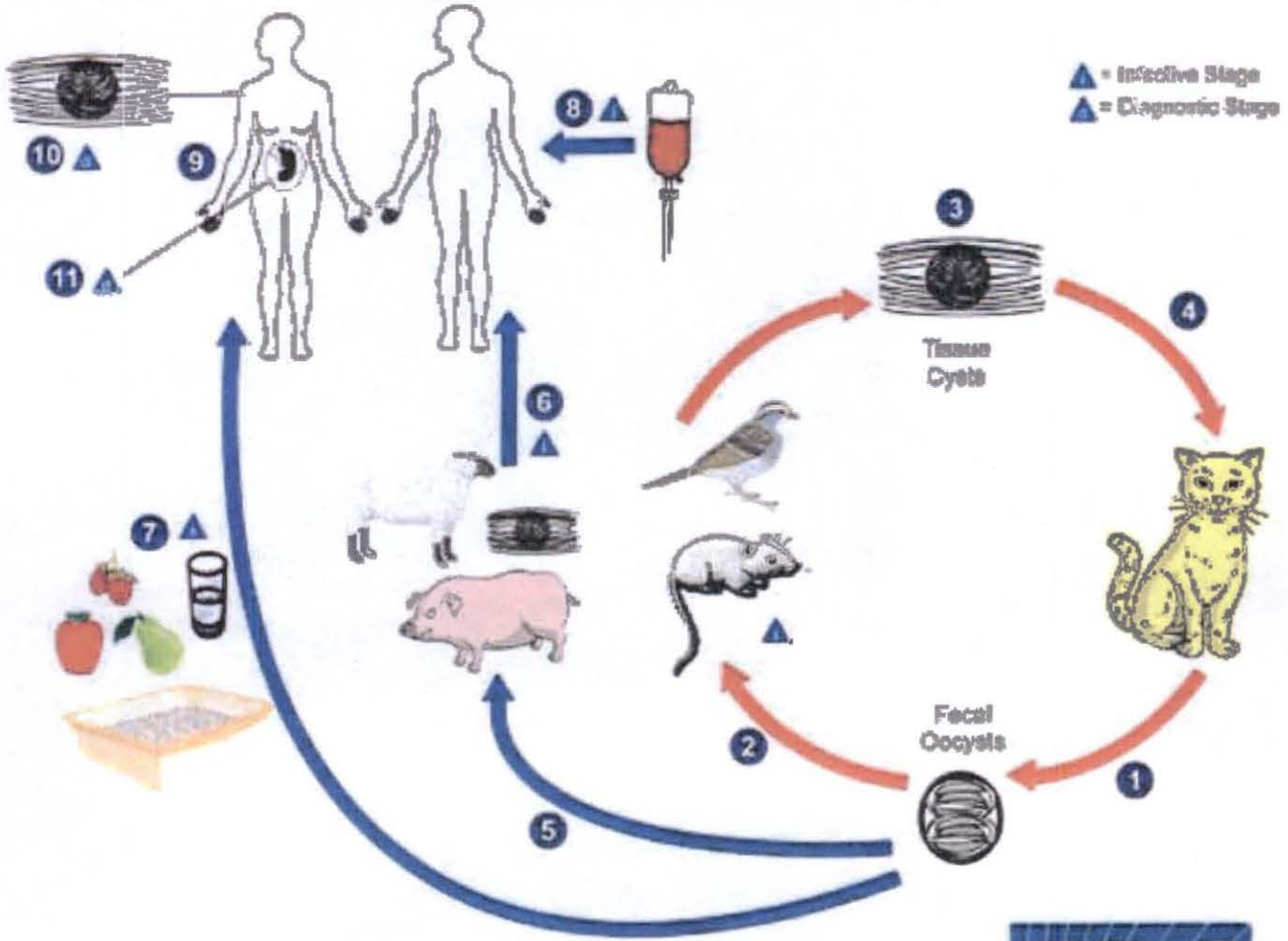
Toxoplasmosis And Human Health

HFC-24

Toxoplasmosis is the leading cause of death from foodborne illness in the United States. The only known definitive hosts for *Toxoplasma gondii* are members of family Felidae (domestic cats and their relatives). Unsporulated oocysts are shed in the cat's feces (1). Although oocysts are usually only shed for 1-3 weeks, large numbers may be shed. Oocysts take 1-5 days to sporulate in the environment and become infective. Intermediate hosts in nature (including birds and rodents) become infected after ingesting soil, water or plant material contaminated with oocysts (2). Oocysts transform into tachyzoites shortly after ingestion. These tachyzoites localize in neural and muscle tissue and develop into tissue cyst bradyzoites (3). Cats become infected after consuming intermediate hosts harboring tissue cysts (4). Cats may also become infected directly by ingestion of sporulated oocysts. Animals bred for human consumption and wild game may also become infected with tissue cysts after ingestion of sporulated oocysts in the environment (5). Humans can become infected by any of several routes:

- Eating undercooked meat of animals harboring tissue cysts (6).
- Consuming food or water contaminated with cat feces or by contaminated environmental samples (such as fecal-contaminated soil or changing the litter box of a pet cat) (7).
- Blood transfusion or organ transplantation (8).
- Transplacentally from mother to fetus (9).

In the human host, the parasites form tissue cysts, most commonly in skeletal muscle, myocardium, brain, and eyes; these cysts may remain throughout the life of the host. Diagnosis is usually achieved by serology, although tissue cysts may be observed in stained biopsy specimens (10). Diagnosis of congenital infections can be achieved by detecting *T. gondii* DNA in amniotic fluid using molecular methods such as PCR (11).



https://www.cdc.gov/parasites/toxoplasmosis/add_resource.html
 Life cycle image and information courtesy of DPD
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 FROM PPA...

A Cat-Borne Threat to Monk Seals

How *Toxoplasma gondii* makes its way from mountains to ocean

12 Hawaiian Monk Seals, the most endangered seal in the world, have died from *Toxoplasmosis* in the last 20 years. Seals die within 48 hours after infection. 1-3 seals are infected annually. Hawaii has roughly 1,400 of its native seals, with ~ 300 in the main Hawaiian islands.

A Microscopic Parasite

Toxoplasma gondii is a parasite that causes the disease toxoplasmosis.



T. gondii



Develops in the Guts of Cats

T. gondii can infect any warm-blooded animal (including humans, birds, and seals), but only reproduces in the digestive system of a cat.

Spreads Via Cat Feces

Millions of *T. gondii* eggs can be spread into the environment via the feces of just one cat and survive for many months. These eggs are the source of *T. gondii* infection in monk seals. It only takes one egg to cause an infection.



Travels Through Waterways

Rainwater and runoff transport the eggs to the ocean through streams and gutters.



Contaminates Natural Resources

T. gondii eggs contaminate water and soil, along with the plants that grow in it. Wildlife and livestock can consume the eggs and become infected. Even people can get infected by accidentally ingesting cat litter/fecal particles or consuming under-cooked meat or unwashed produce.

Exacerbated by Human Behavior

People unintentionally contribute to the spread of *T. gondii* by allowing pet cats to roam outdoors, abandoning unwanted cats, and not controlling feral cat populations.

Impacts Marine Environment

Hawaiian monk seals become infected with *T. gondii* by consuming contaminated water or prey.

