**OXYURIASIS ("pinworm")**
*(Alaeuris, Aspiculuris, Dentostomella, Enterobius, Oxyuris, Probstmayria, Passalurus, Skrjabinema, Syphacia and Trypanoxuria spp.)*

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<th>Animal Group(s) Affected</th>
<th>Transmission</th>
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<td>Mammals; including humans; reptiles</td>
<td>Fecal-oral by ingestion of eggs; retroinfection by anal entry possible with some species and short pre-patent period</td>
<td>Asymptomatic to substantial irritability as anusitis and pruritus. Equids with severe infection often present with broken tail hairs or perianal excoriation or trauma.</td>
<td>Typically mild, but may become highly aggravating to horses and humans.</td>
<td>Anthelmintics, e.g. ivermectin, fenbendazole. Hygiene to prevent re-infection</td>
<td>Personal/environmental hygiene; quarantine of new arrivals and treatment as necessary.</td>
<td>Enterobius is probably transmissible between apes and humans. Zoonotic potential of others are not known.</td>
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**Fact Sheet compiled by:** Christopher J. Bonar  
**Sheet completed on:** 14 February 2011; updated 16 April 2013  
**Fact Sheet Reviewed by:** Kate Pritchett, Christie Hicks  

**Susceptible animal groups:** Mammals, including humans; reptiles, (+/-) avian.  

**Causative organism:** Enterobius spp. infects humans and chimpanzees. *Trypanoxuria* and *Enterobius* can also cause disease in New World primates. *Probstmayria vivipara, Skrjabinema ovis, and S. caprae* in sheep and goats. *Oxyuris equi* infects equids, and *Oxyuris karamoja* infects African rhinoceroses and elephants. *Passalurus ambiguous* is common in the colon and cecum of lagomorphs. *Dentostomella* spp., *Syphacia* spp. and *Aspiculuris tetraptera* infect laboratory rodents, although no oxyurid is described in guinea pigs. *Alaeuris brachylophi* has been described in reptiles. *Oxyuronema atelophorum* has been reported in monkeys of the genus *Ateles*.  

**Zoonotic potential:** Yes  

**Distribution:** Parasite is found occasionally in wild and captive chimpanzees, elephants, rhinos, equids, reptiles, domestic and laboratory rodents, and humans.  

**Incubation Period:** *Aspiculuris tetraptera*: prepatent period 23 days. *Enterobius vermicularis*: prepatent period 30 days. *Passalurus ambiguous*: prepatent period 56-64 days. *Syphacia muris* prepatent period 8 days. *Syphacia obvelata*: prepatent period 11-15 days.  

**Clinical signs:**  
**Humans:** Perineal and anal pruritus, often worse in the evenings, when oxyurids emerge to lay eggs on the perineum.  
**Animals:** Irritability, anal pruritus, occasionally gastrointestinal impaction in reptiles.  

**Post mortem, gross, or histologic findings:** Parasites are most commonly found incidentally on routine fecal ova and parasite examination but rarely do they occur in large enough numbers to cause noticeable gross pathology. Occasional reports of infections in lizards and turtles severe enough to cause gastro-intestinal impaction. Hemorrhagic enteritis has been reported in *Ateles* spp. infected with *Oxyuronema atelophorum*.  

**Diagnosis:** “Scotch tape preparation” from anus/perineum, routine fecal O&P examination (floatation).
Examination of cecal and colonic contents at necropsy. PCR amplified DNA has recently been demonstrated to be more sensitive than fecal O&P examination.

**Material required for laboratory analysis:** Egg masses from perineum or from fecal examination or worms and eggs recovered from cecal or colonic contents at necropsy.

**Relevant diagnostic laboratories:** Any laboratory equipped with light microscopy and basic supplies for fecal O&P examination can detect oxyurids. PCR capabilities are a useful adjunct.

**Treatment:** Pyrantel, avermectins, and benzimidazoles are all effective against oxyurids. Fenbendazole medicated feed is commonly used for laboratory rodents.

**Prevention and control:** Detection on routine fecal ova and parasite examinations, and on scotch-tape preparations on asymptomatic individuals, and follow-up treatment on infected individuals should allow for control of the organisms. Good hygiene of enclosures should help to prevent re-infection. Eggs have been shown to be present on laboratory workers hands as well as in the dust found around cages, on air vents, and in animal room ventilation systems. Filter-top cages or individually ventilated cages, therefore, may be useful to prevent airborne transmission in laboratory rodent facilities. Strict sanitation and hygienic measures should be adequate to prevent zoonotic transmission of *Enterobius* spp. between apes and man.

**Suggested disinfectant for housing facilities:** Eggs may be resistant to routine disinfectants. Heat disinfection of cages and cleaning implements (100°C) is effective in killing eggs. Chlorhexidine (0.5%), formaldehyde vapors, and 75 mg/L chlorine dioxide have also been recommended. Mechanical removal by washing and scrubbing of enclosures, and heat disinfection, where possible, is recommended.

**Notification:** This disease is not ordinarily reportable.

**Measures required under the Animal Disease Surveillance Plan:** Currently none

**Measures required for introducing animals to infected animal:** Routine anthelminthic treatments.

**Conditions for restoring disease-free status after an outbreak:** Repeated treatment of individual animals and conspecifics, as well as sanitation measures to prevent re-infection via the fecal-oral route should eventually be effective.

**Experts who may be consulted:**
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**References:**
