**Coccidia**

*Cryptosporidium* spp. Sporulated oocysts are shed in human stool and measure 4-6 μm in diameter. Sporozoites (up to four) are sometimes visible in mature oocysts. Oocysts can be difficult to detect in wet mounts (purple arrows, far left) and may be confused for yeast (brown arrow, far left). Trichrome stain is also not recommended. Modified acid-fast (center right and far right) is the most recommended permanent staining method for detection of *Cryptosporidium* spp. Oocysts usually stain pink-red with this method, but may be variable, resulting in colorless 'ghost' forms (black arrows, far right). Oocysts may stain reddish-orange with safranin (center, left), but this method is not widely used for *Cryptosporidium* spp. as oocysts do not always stain properly. There are also commercially-available direct fluorescent antibody (DFA) tests that are very reliable for detection of *Cryptosporidium* in formalin-concentrated stool specimens. Further identification to the species level for outbreak investigations is done with molecular methods.

*Cyclospora cayetanensis*. Unsporulated oocysts are shed in human stool and measure 7-10 μm in diameter. It can be difficult to detect oocysts in wet mounts viewed under normal illumination (far left). However, *Cyclospora* spp. will autofluoresce under ultraviolet (UV) light (center left, same oocyst as seen in wet mount at the far left). This method is reliable but requires a microscope with a UV excitation filter set to 330-365 nm. Safranin (center right) and modified acid-fast (far right) are the preferred permanent staining methods for *Cyclospora* spp. Depending on the quality of the specimen and the preservation, oocysts may be irregular, wrinkled or appear collapsed. There is often a lack of uniformity in the staining, too, where colorless 'ghost' forms will appear alongside properly-stained red oocysts (far right). Species-level confirmation/identification for outbreak investigations is done with molecular methods.
Laboratory diagnosis of intestinal parasites

**Cystoisospora belli.** Immature oocysts containing one sporoblast are shed in human feces, measuring 25–30 µm in length. Oocysts containing two sporoblasts may be seen in stool specimens where there was a delay in processing. Oocysts may be detectable in wet mounts (far left) but are usually present in low numbers. Like other coccidia, *C. belli* autofluoresces under UV light (the images on the far left and center left show the same oocyst viewed under normal illumination and UV microscopy). Safranin (center right) and modified acid-fast (far right) are recommended for permanent staining methods. In all preparations, oocysts are usually present in low numbers.

**Sarcocystis hominis** and **S. suihominis.** These two species are known to use humans as the definitive host, and the two species cannot be separated morphologically. Both sporulated oocysts (containing two sporocysts) and individual sporocysts (right) are shed in human stool. Sporulated oocysts measure approximately 15-20 µm long by 15-20 µm wide. Individual sporocysts measure 15-20 µm long by 8-10 µm wide. The individual sporocysts are often more common in stool, due to the fragile nature of the oocyst wall makes them prone to rupture. Like other coccidians, the oocysts of *Sarcocystis* autofluoresce under UV microscopy (the left and center images show the same oocyst viewed under normal illumination and UV microscopy). Oocysts and sporocysts are usually present in small numbers.