

Outbreak.....What now?

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In Part One of this series Prevent an Outbreak, we identified the vaccination regimen that Tiger World provides their animals to help prevent disease and protect the population of exotic cats. Although nothing is foolproof especially with rapidly mutating diseases like Distemper and Parvo, a good vaccination program can help keep your animals safe. But, what if one of your animals gets sick with a disease that is contagious like Parvo, do you know what to do? Here are the first steps you should consider;

- Identify the disease. This may take some research and testing. Is it Contagious? What is the incubation period? Discuss possible outbreaks with the Local Health Department and Animal Control.
- Determine how it can be transmitted and which animals may have been exposed.
- Isolate your population.
- Identify quarantine protocols that may be necessary and implement.
- In the face of an Outbreak, Don't Wait....Vaccinate!

Once we learned through appropriate testing and lab analysis that Tiger World had an outbreak of Parvo Enteritis, we immediately identified and implemented quarantine protocols.

Quarantine means to separate and isolate to prevent the spread of disease. Parvo is highly contagious and is spread to animals through feces from an infected animal. Both Dora and Diego, our Jaguars, had the active illness and we had three tiger cubs Meka, Mohan, and Malia that had potential exposure through contact with them. Tiger World has a large population of cats and we had to attempt to eliminate any further development of this Super Infection.

During quarantine no animals should leave or come into your facility. The typical quarantine period is based on your disease. Parvo for example, has a typical incubation period of 3 -7 days but can develop in healthy animals even 14 days after exposure. We delayed relocating one of our animals to another zoo and rescuing two animals in need until after our quarantine period was over. We continued to enforce the quarantine protocols until all of our cats had been vaccinated twice with the killed FVRCP vaccine Fel-O-Vax IV (1 vaccination then 3 weeks later a booster). We then continued quarantine for 14 more days to allow for all immunities to be developed in our population. Our entire quarantine period was 6 weeks.

Our first step of quarantine was to immediately isolate our population. Mohan, our white tiger who lived with Dora and Diego, was placed in an isolated habitat by himself. Next we isolated Meka and Malia, two other tiger cubs that lived together that may have been exposed; we isolated them not only from the general population but also from each other in case either one had contracted it, though symptoms had not surfaced. This was a critical step as we learned later that Malia did have the disease, while Meka never became sick with Parvo.

Other than your exposed animals, keep the remaining animal population in their respective habitats to minimize all potential exposures. Do not move your animals around during quarantine.

Next we implemented these protocols:

1. Designate Equipment such as feed pans, bottles, and cleaning utensils including rakes, scoops and buckets for each animal that may be infected. We color coded and labeled all cleaning and feeding equipment to eliminate the chance of cross contamination. We also designated scrub brushes for cleaning and used spray bottles with disinfecting bleach solution to ensure sanitization of the equipment. This step is vital since these types of equipment are directly exposed to the animals.
2. Designate Keepers to care for specific animals. Only allow keepers to attend to sick or exposed animals *after* caring for non-exposed animals. Do not allow the keepers that interact with infected animals or potentially infected animals to touch or interact or to clean other habitats. Also enforce the cleanliness of your staff with hand washing and arriving to work in non-exposed clothing. This will help avoid cross contamination.
3. Use Bleach for Disinfecting! Bleach will kill many types of microorganisms in only 10 minutes of exposure at the proper level. Bleach is the most universally used killer of bacteria, viruses, molds, and fungi, and it is cost effective. We used bleach foot baths at each habitat of infected or exposed animals and also had several foot baths available that we used when cleaning our other habitats. This helps to ensure you are not potentially spreading the disease. In order for bleach to be effective against the microorganisms you must use the proper level of disinfectant which is 500-1000ppm with 800ppm being optimal. This can be achieved by making and testing your bleach solution daily. The



Testing disinfecting solution with Free Chlorine Ultra High II test strips 480124.

Free Chlorine Ultra High II test strips provide an excellent service to ensure your levels are correct to achieve 100% kill. The quick and reliable test strips (part#480124) can be ordered for \$13.99 at www.sensafe.com. The use of concentrated bleach is not appropriate, not only the fumes and direct exposure can be harmful, but also concentrated bleach requires the addition of water for the active ingredient, Sodium Hypochlorite, to be most effective to kill microorganisms! Don't be deceived that stronger is better. To make 1 gallon of disinfecting solution measure ¼ cup of standard bleach (5-6%)

- then fill the 1 gallon container with water. Also after washing with soap and water we used the bleach solution to disinfect toys, cages, perches, etc. It worked great!
4. Test Exposed Animals Frequently. In some cases we were running blood and fecal tests a couple times per week to try to identify the disease prior to the symptoms showing up. This proved to be beneficial and helped us identify illness in Malia, a snow tiger who was a-symptomatic but tested positive on her fecal SNAP test (Parvo test). This allowed us to begin treatment prior to her condition being severely compromised. Malia is now fully recovered and through our diligence and quarantine protocols no other animals became infected. Interestingly enough, although Mohan and Meka were exposed to the disease, their immunities kept them healthy.

5. Wear Protective Gear and minimize contact with all animals. Use only rubber boots that can easily be washed, scrubbed, and bleached and wear protective clothing like shoe-coverings and Tyvek gowns, to cover your shoes/boots and clothing. Our keepers used full gowns for any exposure with our sick and potentially exposed animals, including when we were going into the habitat to clean. Upon exiting the habitat we would remove the gown and shoe covers, and dispose. We also wore disposable latex gloves to prevent any contact. Remember if you must touch an animal, immediately change your gloves before touching another animal.



Lea and Amy wearing protective gear while vaccinating Mohan.

6. Don't Wait, Vaccinate! I initially debated and discussed with multiple veterinarians waiting the 2 week incubation period prior to vaccinating our population; a potential issue



Malia the snow tiger photographed by Todd Stein at Tiger World.

may be vaccinating an animal that already has the disease. Tiger World has over 40 cats and the potential for losing some of our population was prevalent. Once Cornell University identified the strain of the virus through DNA analysis (which only took a few days), we were able to ensure we were vaccinating our population with the most up to date and proper vaccine. We did wait the full 14 day incubation period prior to vaccinating the exposed cubs Meka and Mohan. Malia, our only cub who contracted and survived the illness was not able to be vaccinated until the disease ran its course. After 1 month she was confirmed negative, and we were able to vaccinate her as well, although she had developed her own immunities against Parvo through surviving the disease.

Quarantine was vital in preventing the spread of the disease at Tiger World. It was a blessing knowing that through our actions we were able to save the rest of our population. We hope this will help you keep your animals protected and safe.