1. What if spot fades on the SNAP a bunch then is darker next time around?
   
The intensity of the color reaction does not correlate with the level of antibody titer; the SNAP is designed and should only be interpreted as a qualitative yes/no assay and not a quantitative test.

2. When do you re-check the CBC? 6 months later?
   
   With treatment the platelet count usually returns to normal within two weeks. Rechecking the CBC at the end of treatment (1 month) should be adequate to confirm response to treatment.

3. For the dogs that have been through treatment but are still positive for 3-4 years do you treat again? If not, how often do you check CBC to monitor platelets?
   
   No, I do not treat again based on serologic status alone. If the dog is clinically ill, then repeating the CBC / platelet count to insure full response to treatment and recovery is recommended. Once the dog has recovered clinically and blood values have returned to normal, no additional testing is indicated unless the dog develops another course of febrile disease. If still positive after 3-4 years it would be reasonable to repeat the CBC/platelet count to insure re-infection or disease recrudescence has not occurred.

4. If we vaccinate for Lyme Dx will SNAP test show positive? For a healthy dog, current on Lyme’s disease (vaccine) what is the interpretation of a positive titer on snap test?
   
   The SNAP test will not detect antibodies induced by vaccination, only those induced by natural exposure and infection. However, since the vaccines are not 100% protective, a dog that is vaccinated and then exposed to wild type B. burgdorferi through a tick bite may still seroconvert – not from the vaccine, but from the natural exposure and infection. Also, vaccinated dogs will seroconvert on IFA or whole cell ELISAs, then requiring a Western blot to distinguish natural infection from vaccine. The SNAP test does not have this complication.

5. What do you do with a seropositive, non clinical dog in for routine vaccinations in an endemic area? Would you treat a (+) Ehrlichia SNAP with no clinical symptoms? Do you treat if positive on SNAP test and CBC is normal? Why would you not want to treat without a CBC change? If a dog shows up positive, but not symptomatic...should you treat anyway? At what point do you decide to treat for anaplasmosis?
   
   I recommend a CBC with platelet count the first time the dogs is found to be seropositive for Ehrlichia or Anaplasma. If the CBC / platelet count is normal and there is no history or current evidence of clinical disease, I do not treat. In some areas over half the dogs will be seropositive for A. phagocytophilum, and in other areas as many as 15% will test positive for E. canis. Evidence of exposure and prior infection alone is not, in my experience, evidence of disease. However, some veterinarians do advocate one course of antibiotic treatment for seropositive, clinically normal dogs with a normal CBC and they do so out of concern that the dog may progress into a more severe phase of disease, particularly with E. canis, in the absence of intervention. I respect that view and would only stress that, if treatment is pursued for seropositive, clinically normal dogs, not more than one course of antibiotics is warranted; trying to treat until the dog is seronegative is not indicated and would be unrewarding in the great majority of cases.
6. What acaricide do you think is best?

The best acaricide is the one that works in your patients and against the ticks in your area. I always consider efficacy and safety in choosing an acaricide; repellent activity is an added bonus, especially in prevention of transmission of tick-borne disease agents. In some areas of the country when tick pressure is at its peak, multiple effective acaricides must be combined to achieve control. Regardless of the acaricide chosen, dogs must be managed to prevent exposure to heavily tick infested areas. No acaricide can be expected to overcome environmental infestation pressure of thousands of questing ticks, a not uncommon scenario at times of peak tick activity in many areas of the country.

7. For non-clinical Lyme disease with a positive SNAP test. Would you also do a CBC like you recommended for the Anaplasma?

For a dog that is clinically normal but seropositive for Borrelia burgdorferi, I recommend a urinalysis specifically looking for proteinuria which could suggest early stage Lyme nephritis and support treatment. A CBC is not indicated by antibodies to Borrelia burgdorferi alone, but because that result indicates exposure to ticks, and because dogs may develop clinical disease with rickettsial pathogens prior to seroconversion, performing a CBC with a platelet count in a dog with antibodies to B. burgdorferi may be of value. This is particularly true because we know that A. phagocytophilum, a rickettsial agent that can cause disease associated with thrombocytopenia, is transmitted by the same ticks and in the same regions as B. burgdorferi. If thrombocytopenia or other abnormalities are seen, a rickettsial infection may be present as well.

8. With young dogs that you suspect infection, do you still use doxycycline at the same dose/time and just warn them of side effects of the drug? What do you do if the dog is a puppy and doxycycline is not recommended? Could you compare the efficacy of tetracycline vs. doxycycline? Is your dose higher than recommended dose for doxycycline?

Yes, I use doxycycline in young dogs. Doxycycline has a better safety profile and longer activity than the older tetracycline and oxytetracycline compounds. Use of doxycycline is not contraindicated in patients with renal insufficiency, and historic concerns about discoloration of deciduous teeth, which were warranted when tetracycline and oxytetracycline were the only available compounds in this class, should not preclude the use of doxycycline in young dogs with a potentially life threatening infection. Doses of doxycycline in the literature vary from 5-10 mg/kg every 12-24 hours for 2-4 weeks. However, shorter courses of therapy have been shown to fail to clear infection. The ACVIM consensus statement from 2002 recommends 10 mg/kg of doxycycline be administered every 24 hours for 28 days; however, in ill dogs, more frequent administration may be indicated.

9. Is thrombocytopenia a pathognomonic sign of ehrlichiosis?

No, thrombocytopenia can be caused by many conditions. However, in a dog that is seropositive for a rickettsial pathogen or in which a diagnosis of ehrlichiosis or anaplasmosis is being considered based on clinical presentation, a decreased platelet count provides evidence of a potential effect associated with rickettsial infection and disease that warrants treatment. Thrombocytopenia is the most consistent CBC abnormality seen in both ehrlichiosis and anaplasmosis.

10. Can an affected pregnant mother transmit anaplasmosis to her unborn pups? We have a patient who presented at about 10 wks the first time w/ symptoms.

Perinatal transmission of Anaplasma phagocytophilum has been reported in people, and is known to occur with other Anaplasma spp. in other hosts. Because these organisms are directly infectious in blood, transmission directly to pups either in utero or at birth, is considered possible. However, a 10 week old puppy has had the opportunity to acquire and become infected via ticks, and so this age of presentation does not allow conclusion of prenatal or perinatal infection.
11. Are dogs with *Anaplasma platys* clinically ill?  
*Dogs with Anaplasma platys can become clinically ill with febrile disease associated with cyclic thrombocytopenia. However, in general A. platys infection creates a milder course of disease than other Ehrlichia/Anaplasma agents, although disease may be more severe in dogs that are co-infected with A. platys and other rickettsial pathogens.*

12. Can ticks other than brown dog tick, if brought inside on a pet, set up an infestation indoors?  
*Home infestations in which larval, nymphal, and adult ticks are found feeding on dogs and questing in the home environment are only reported with *Rhipicephalus sanguineus*. However, in the absence of tick control, pets may bring in any tick from the outside and the tick may then leave the pet and remain in the home. Male metastriate ticks (*Amblyomma, Dermacentor, Rhipicephalus*) are most likely to leave a host as they search for females to mate. If rodents or other wildlife hosts are present in less conspicuous areas of the home such as the crawlspace or attic area, tick populations supported on these peridomestic animals may occasionally enter the home to infest people or pets.*

13. After 30 day treatment for anaplasmosis, do you retest? If so, SNAP test? Antibody titers?  
*Does the SNAP test ever show negative after treatment? Is there any need to retest the dog post treatment to measure efficacy of treatment? How long does the SNAP test stay + after the first + test and subsequent treatment? For how long will you get a positive Idexx test result for Ap and Ec? When should dogs be retested after positive on snap test? I would not recommend retesting serologically if the dog responds clinically to treatment and the diagnosis was clear prior to treatment. To confirm response to treatment, a CBC could be repeated with the expectation that the platelet count should returned to normal within 2-4 weeks (usually by 14 days). In a seronegative dog treated presumptively based on clinical presentation alone, retesting that demonstrates seroconversion after treatment may allow confirmation of the initial clinical diagnosis. Dogs often remain positive for months to years following treatment. Because these positive dogs reside in endemic areas, it is not clear if this continued evidence of antibody is due to re-exposure or persistent infection. However, in the absence of any clinical disease, retreatment of dogs based on serology alone is not indicated.*

14. When is the earliest and the latest after infection that you can see positive results on the 4Dx SNAP test?  
*Time to seroconversion on the SNAP 4Dx test will vary depending upon the infecting agent. For *B. burgdorferi*, antibodies to the spirochete are generally detectable within 4-6 weeks post-infection, and this typically occurs prior to the onset of clinical signs. Dogs infected with *A. phagocytophilum* typically show seroconversion 17-21 days post-infection, and in some dogs clinical signs may precede a detectable antibody response. Dogs infected with *E. canis* will usually have a measurable antibody response on the SNAP 4Dx by 21-28 days post-infection. If a dog presents with clinical signs compatible with anaplasmosis or ehrlichiosis and the SNAP test is negative, I would recommend retesting in 1-2 weeks for evidence of seroconversion. Antibodies to these organisms may persist for years and produce a positive result on the SNAP device.*