We are fortunate to have a plethora of outstanding antiparasitic agents. In deciding upon which products to place on the shelf, several characteristics must be considered. The purpose of the presentation is to compare many of the available products, citing advantages and disadvantages. Clinical case material will be used to challenge the audience to make decisions on actual cases. The goal is to make it easier to select appropriate antiparasitic products for your clients in your area, under your daily circumstances.

The selection will be based upon several characteristics. Those factors include: cost, ease of application (and hence, owner compliance), bathing protocol, desired spectrum of effect, age and species of the patient, environmental effect, and rational expectations of the client. Under normal circumstances, these factors may be ranked in many different ways. It is important that all of these factors are considered before sending a product home with the client. It is also important to prevent combining products that may have overlapping effects. This is for respect of your client’s money. Antiparasitic therapy should be individualized for every patient and every client. There is no reason to have all the products available on the shelf. However, an understanding of the effects of each product will limit the need to over stock basic inventory.

Pyrethrins are safe and effective for the treatment of fleas. They are also effective against ticks, lice, and cheyletiella. There are many different formulations available with advantages and disadvantages to each. Powders are among the safest formulations out there. Although messy to apply, they are efficacious and inexpensive and safe. Sprays are effective but hated by most cats. Care should be taken to avoid hypothermia after application, especially in very young cats. Flea foams provide the advantage of the “sneak attack” application method without the noise associated with a spray product. Dips are adequate but cats tend to dislike being saturated. Additional care should be taken to prevent allowing the cat from licking the wet product to prevent toxic side effects.

Permethrins or pyrethroids are synthetic pyrethrins. Because they are formulated, products with higher concentrations can be produced. Care should be taken when selecting products that are actually labeled for use on cats. Permethrins are excellent tick repellants and will exhibit repellent properties against mosquitoes.

Imidacloprid (Advantage®) is a flea adulticide labeled for use on dogs 7 weeks and cats 8 weeks and older. This formulation has no repellant properties and is ineffective against ticks. Although it is a favorite for preventing infestations, its limiting factor is a lack of an insect growth regulator.

Fipronil (Frontline Plus®) is a flea adulticide with an insect growth regulator Methoprene (Precor®). It is licensed for dogs and cats 8 weeks and older. The spectrum of efficacy includes ticks and cheyletiella. Although it might help prevent scabies infestations, it is not effective as a treatment. There are no repellent effects.

Selemectin (Revolution®) is a flea adulticide that is labeled for dogs greater than 6 weeks and cats greater than 8 weeks of age. It is also F.D.A. regulated (as opposed to E.P.A.). This product has a spectrum that includes: Otodectes, ticks, fleas, heartworms, hookworms, and roundworms for cats. It is labeled for ear mites, ticks, fleas, heartworms, and scabies for dogs. Although it is not licensed for the treatment of Notoedres, research abstracts have supported its efficacy. This product has a very slow flea killing property giving the perception of ineffectiveness.
I would consider it to be a treatment of choice for ear mites and sarcoptic mites.

Nitenpyram is the active ingredient in Capstar®. The mechanism of action is similar to imidacloprid, but is officially undefined. This product is licensed for cats four weeks of age or greater, but most importantly, the pet must be greater than 2 pounds body weight. Capstar kills all the adult fleas within 24 hours. There is no residual activity, no effect on juvenile fleas, and no repellent properties. This product is best used in a clinical setting as opposed to sending the product home with the owner. It also has a special function in pet stores and in shelter situations. Ideally this product would be given to flea anemic kittens if they meet the minimum body weight requirements.

Metaflumizone was the active ingredient in ProMeris®. This product kills adult fleas on dogs and cats. The canine product contains amitraz to increase the spectrum of efficacy to include ticks. The age restriction is 8 weeks for both dogs and cats. This product was withdrawn due to adverse drug eruptions (pemphigus foliaceus).

Dinotefuran is the active ingredient in Vectra 3D. It also contains pyriproxyfen and 36% permethrin. This product is effective against adult and juvenile fleas and ticks. It is also labeled to repel and kill mosquitoes. This product is for dogs only with age restriction of 7 weeks and greater than 2.5#. It is only available as a spot-on formulation.

Spinosad is the active ingredient in Comfortis®. It is an oral tablet for dogs with efficacy against adult fleas for 30 days. The age restriction is 14 weeks. Vomiting is a possible side effect. This product can be found in milk so caution should be used in lactating bitches. This product is contraindicated for use with ivermectin at high doses (e.g. for demodex). Trifexis contains milbemycin and spinosad.

Indoxicarb is the active ingredient in Activyl®. It is available for dogs with or without permethrin (for ticks). The cat formulation only contains indoxicarb. This product is metabolized to the bioavailable form by the gut enzymes of the flea. Advantages include a low topical volume and it is rapidly absorbed. This product is to be applied monthly.

Lufenuron (Program®) is quickly becoming a dinosaur. It is one of the best products out there for environmental flea control but people are ignoring it. Program is incorporated into the body fat. When the flea takes a blood meal, the lufenuron is incorporated into the egg. The egg will not hatch. Since this product is excreted in the feces, the lufenuron is biologically available. The larval stages then consume the flea feces and are unable to spin a cocoon. Therefore lufenuron affects eggs and larvae. For maximum effect all pets should be placed on program. Unfortunately, since the flea must feed for lufenuron to be effective, it is worthless for flea allergic patients. Lufenuron is an environmental control and works very well with the aforementioned adulticide products. Clients do not like to spend money on both products so priorities should be set. Lufenuron will be a great environmental agent but the clients may still see adult fleas for a few months until the infestation dwindles down.

Lufenuron is sometimes used for the treatment of dermatophytosis. The recommended dosage for dogs is 65 mg/kg and for cats is 85 mg/kg. This is given orally for two treatments, two weeks apart. If significant improvement is not seen, a different antifungal agent should be selected. In cattery situations, a dosage of 100mg/kg is recommended. Lufenuron is very safe and could be considered for very young kittens. The exact mechanism of action in treating dermatophyte is unproven. It will not prevent dermatophyte infection. Due to its inconsistent efficacy, other treatments should be considered if zoonotic risk is high. Adding lime sulfur dip to the protocol is great for younger kittens.

Insect growth regulators are the ultimate in environmental flea control. The greatest advantage is that the flea does not need to feed to be affected. Methoprene (Precor®) is broken down by ultraviolet light. Pyriproxyfen (Nylar®) is very stable in U.V. light. Both of these products may be placed on carpets to prevent flea eggs from hatching. If placed directly on the pet, the eggs will not hatch. Both products have excellent residual activity. If there is any doubt about the
efficacy, consider why Merrial added methoprene to their frontline product! Methoprene is available in Ovitrol®. It is a favorite product when bathing is an appropriate part of the treatment protocol. Unfortunately, most cats will not tolerate bathing or spraying.

There are several effective products available for the treatment of ear mites. Pyrethrin drops are effective and inexpensive. They must be applied for 4 consecutive days, for 3 weeks. They only function as adulticide agents and have little residual effect. Bathing the cat with a pyrethrin shampoo or applying a pyrethrin topical agent to the face and neck and back feet is indicated to kill wandering mites. All contact animals should be treated. Products containing 0.1% ivermectin (Acarex®) or milbemycin (Milbemite®) are highly effective. A single application into each ear one time is usually adequate. I prefer selamectin (Revolution®) once every 14 days for 3 treatments. It is highly effective and has the added advantage of not needing to place it into the ear canal. Thiabendazole is effective against ear mites but the formulation product Tresaderm® has caused serious contact reactions in some cats. The application protocol is similar to using pyrethrin ear drops. Topical application in the ear canal using 1% ivermectin or fipronil is not recommended due to unproven efficacy and safety. Concurrent use of an Elizabethan collar or oral methylprednisolone for a few days to reduce inflammation may be appropriate. The newer products are so highly effective against ear mites that cleaning of the ear canals is not necessary.

LymDyp® is a multifunctional antiparasitic agent. It is effective against canine and feline scabies (notoedres), cheyletiella, Lynxacara radovski, and lice (felicola subrostratus). Unfortunately it is ineffective against fleas. The mechanism of action is unknown. Lime sulfur dip is antipruritic and has antifungal properties. It should be used once weekly and at least two weeks beyond clinical remission. This product will stain clothing and can tarnish jewelry. It is always recommended to wear gloves and protective clothing. Lime sulfur is very toxic to cats if they are allowed to groom while the product is still wet. Place an Elizabethan collar on them until the product is dry. Once it is dry, it is no longer toxic to cats. The odor decreases substantially once it is dry. This product is invaluable in small animal practice. I highly recommend the name brand product over industrial products. It is hard to believe but the DVM product is actually scented to make it more tolerable.