

## **Microchipping**

Peter S. Sakas DVM, MS  
Niles Animal Hospital and Bird Medical Center  
7278 N. Milwaukee Ave. Niles, IL 60714  
Ph 847-647-9325 FAX 847-647-8498  
[www.nilesanimalhospital.com](http://www.nilesanimalhospital.com)

### **Why Microchip?**

Microchipping your pet is a very important step to insure their safety. Pets do unfortunately get lost. The AKC CAR estimates that there are approximately 8 to 10 million stray animals each year. Each year in the United States, one million pets are lost or stolen. One in three pets will get lost during their lifetimes. Cats are particularly vulnerable once lost. Shelters continue to euthanize unidentified, owned but lost pets. Only 20% of lost dogs and 2-5% of cats are reunited with their owners.

Leashes, fences and doors may not be enough to keep pets safe and secure. Birds escape through open windows, doors, when the owner unknowingly walks outside with the bird on their shoulder or a bird that has been wing clipped is taken outside and flies off (wing clips cannot guarantee a bird taken outside will not be able to fly off). Accidents happen, and some things like natural disasters, can separate pets from their owners.

Tags and collars are a good start but they are not 100% dependable. Tags can fade, get scratched or damaged, rust, reducing legibility. Tags can fall off, collars can tear, slip off or get caught on something. However, they cannot be used in pet birds. Tattoos could be used but there is no convention for their use and no standards, so identifying marks would not mean much to someone unfamiliar with the tattoo.

Microchipping is the only identification method that is permanent and individual to each animal. A unique ID code matches the animal with the owner's contact information in a database. Pets can be microchipped at any age. At Niles Animal Hospital we typically we microchip birds at any age, however, we do not chip birds smaller than small parrots or conures, due to their small size in relation to the microchip (the microchip is implanted in their chest muscles).

Microchipping is so very important in the recovery process of a lost pet. Virtually all veterinarians, police department (animal control officers) and shelters have microchip scanners so they can check a lost pet for the presence of a microchip. If the microchip has been registered and the information is current then the pet can be easily reunited with their owners. The goal of microchipping is to save pets' lives.

Another reason for microchipping is that it is a means of proving ownership. With proper updated personal data registration information you will undeniable proof a pet is yours if it ever came into question. Microchipping is done extensively overseas so if you travel internationally with your pet it is important to have them identified for their own well-being. Some municipalities require microchipping for a pet to receive a license. In case of a disaster, microchips aid in reunification of owner and pet.

## **How Microchips Work**

A microchip is technically referred to as a transponder and is not a GPS device. The energy transferred by the scanner to the transponder (microchip) generates electricity. Then the microchip sends out a radio frequency code which is read by the transceiver (scanner). Each microchip has one unique ID code embedded in it, that allows the individual animal to be specifically identified based on an alphanumeric (letters and numbers) or purely numeric ID code.

What makes up a microchip? The working parts are the aerial (a copper tube), capacitor and the microchip itself which contains the encoded information. These parts are all enclosed in a biocompatible glass encasement, which is typically not rejected by the animal's body. The glass is medical quality, which is suitable for implants and FDA approved. Glass is able to withstand the harmful effects of body fluids and is strong enough to withstand the stresses and strains it experiences during the implantation process. The microchip does not contain a battery and need not be changed. Each implanted microchip will last throughout the lifetime of the pet.

## **Different Types of Microchips**

A nationwide standard for microchip identification does not exist in the United States. Throughout much of the world, the International Organization for Standardization (ISO) standard of 134.2 kHz for radio frequency identification devices (RFID) has been adopted and implemented as the preferred or sole RFID technology for companion animals. This has been endorsed also by the American Veterinary Medical Association (AVMA), American Animal Hospital Association (AAHA), American Society for the Prevention of Cruelty to Animals (ASPCA), Society of Animal Welfare Administrators and National Standards Institute (ANSI). In the United States, however, the non-ISO 125 kHz microchip is still predominantly used. (The Home Again Microchips implanted at Niles Animal Hospital are the 134.2 kHz ISO microchips).

The current situation with microchip types in the United States is that the majority of microchips are functioning at 125 kHz, however recently, the 134.2 kHz ISO microchip as well as the 128 kHz microchip have been introduced, leading to three frequencies operating. In addition, the 125 kHz microchips can be encrypted, meaning that they are read with a different protocol than 125 kHz unencrypted microchips. With the introduction of multiple microchips operating at different frequencies as well as different communication protocols (encrypted vs. unencrypted), several universal scanners that can read all three frequencies have been introduced. (We have a Universal Scanner that can detect all three frequencies). The obvious problem is that with the multiple types of microchips with different frequencies and communication protocols, non-universal scanners may not be able to pick up the signals from some microchips. Based upon global dynamics and the introduction of the 134.2 kHz ISO microchip in the United States, many believe a move towards national adoption and implementation of the ISO standard is inevitable.

As useful as microchips are there are some problems. First of all there is a lack of standardization among all the types of microchips. There are a variety of microchips and

there are multiple frequencies used by the different types. In addition, there is no link between the various sites where the microchips are registered. With a bit of effort it can eventually be determined who the microchip is registered to, but it would be easier if it were centralized.

### **Microchip Implantation**

Microchip placement may vary per animal as well as the country of implantation. The accepted implantation site in the dog and cat is under the skin (subcutaneously) between (or just in front of) the shoulder blades along the midline of the body. In pet birds, the microchip is implanted in the pectoral (breast) muscles. Bird skin is paper thin and they have virtually no subcutaneous tissue so it must be embedded in the muscle. Size of the bird is a limitation to which birds can be microchipped. Conures and larger can be microchipped, however, in small birds due to the size of the chip itself, implantation would be too traumatic.

The microchip is already loaded in the needle of a specially designed syringe used for the implantation of the chip. The needle is of a larger diameter than the typical size used to give vaccinations because it must be large enough to hold the microchip, which is approximately the size of a grain of rice. The microchip is implanted in the same fashion intramuscularly in pet birds, so there is a risk that a blood vessel may be lacerated during implantation. So after implantation pressure is applied to the site, hemostasis used if needed. After there is no evidence of swelling or bleeding the bird is returned to the owner. Sometimes a bit of swelling or bruising may be noted at the site and will resolve within a day or two. The microchips, when implanted in pet birds become incorporated into the muscle and should never migrate.

### **Potential Problems with Microchips**

A minor problem can be microchip migration and can occur less than 1% of the time. Problems are very rare in pet birds. To minimize the risk, the pet should not be allowed to engage in exercise for 24 hours post microchipping. This allows the chip to anchor properly and reduce chances of migration. Some microchips have special anti-migration devices inherent in their structure that will allow soft tissue to grow into a porous cap structure, thus anchoring. In birds the microchip remains in the muscle and cannot penetrate into the body cavity.

Microchips are supplied sterile so it is very rare for a pet to develop a reaction or infection at the site of implantation. On occasion, as with vaccinations, a small amount of swelling may develop post implantation due to localized tissue inflammation. This should disappear within a few days with no medical intervention needed. However, if a reaction occurs or the swelling does not resolve veterinary care should be obtained.

If the microchip becomes visible hours or days after implantation, seek veterinary care. This indicates that the implantation was not done properly.

## **Registration**

A microchip without registration is an ineffective means of pet reunification. Ideally registration should be completed immediately after the microchip has been implanted and while at the veterinary office. Registration involves linking the microchip number with the contact information of the owner including contact numbers as well as emergency contacts. Some registrations include additional perks for a charge and may have an annual renewal fee to maintain some of these services. However, once the microchip is registered, the information is always on file so contact can be made and this portion of registration does not require an additional annual renewal fee. Some people are under the mistaken impression that the registration is an “activation fee” to make the microchip “functional” and requires yearly fees to remain “active.” The microchip is already functional and will remain so, however by registering your information will be placed in the database so retrieval of your lost pet is much more easily accomplished by readily having contact information available.

Problems that exist are that people do not turn in their registration information and they do not update their registration information if there is a change of address or pet ownership. Owner contact information that is entered into lifetime registries is rarely, if ever, updated by pet owners. Changes that can affect registration information include: relocation, job change, phone service change, divorce, separation, email service provider change or transferring pet to another owner. To further complicate issues, at this time multiple registries exist for pet owner information due to the variety of microchips available. Hopefully, one day there will be a central registry/database for all microchips.

A study was conducted by Dr. Linda Lord from The Ohio State College of Veterinary Medicine to see how successful shelters were in finding owners for animals with microchips. Unfortunately, no data for birds. They checked information from 53 shelters nationwide and evaluated 7,704 microchips. They found that 74% of the owners of dogs were found and 63.6% of cats. They also discovered that only 58% of animals had a current registration when the microchip registry was called and there was no difference between databases for finding the owners.

## **Conclusion**

Microchipping is a valuable tool for protecting your pets if they become lost. However, unless you properly register and keep the information updated than the value of microchipping is diminished as it may be difficult to find the owner if their circumstances have changed. Microchipping is safe and easily performed.

This discussion is excerpted from several sources including an AAHA Webinar conducted by Dr. Linda Lord, “Microchipping Works: Best Practices” and an online course offered by AAHA “Microchipping and Scanning of Companion Animals.”