Fine Needle Aspiration (FNA) Cytology is a technique that is easy to use, requires minimal equipment and can yield tremendous amount of information. FNAs can be performed on any solid or liquid mass that is visible, palpable, or can be imaged with an ultrasound machine. There are multiple techniques for obtaining FNA samples and each technique has certain advantages and disadvantages. The most common technique is to put a needle on a syringe, insert the needle into the mass lesion and generate negative pressure with the syringe. Maintaining this negative pressure, you can redirect the needle in several directions within the mass lesion, without removing the tip of the needle from the mass. This is done until you have material within the hub of the needle. Once this is accomplished, the negative pressure is released and the needle is removed from the mass. The needle is then removed from the syringe, the syringe is filled with air, the needle is replaced on the syringe and the contents of the syringe hub are forcibly expelled onto a slide. Once this is done, a second slide is used to “spread” the contents into a thin monolayer of material to be stained and evaluated. The other technique is to insert a needle into a mass and gently manipulate it so that material, via capillary action, is drawn into the hub. At this point, the needle is removed from the mass, attached to a syringe filled with air and the process is repeated as above.

Some generalizations about syringe size and needle diameter are worth noting. You should use the smallest syringe that is adequate for the procedure. This helps maintain control of the syringe and needle. The large 20 ml syringe, only generates twice the vacuum as a 3 ml syringe. With regard to needle gauge, the smaller diameters of needles have a lag time of several seconds before generation of maximum vacuum.

The areas that are most critical for obtaining excellent diagnostic samples are the following:

Getting adequate sample—use whichever technique works best in your hands in that particular situation
Preparing the sample on the slide—often way too much pressure is used to spread the sample into a monolayer on the slide—remember, be gentle, very little pressure is needed to spread the sample.

When it comes time to interpret the results, remember that different tumors/masses exfoliate at different rates. “Liquid” tumors like lymphoma and mast cell tumors typically produce robust FNA samples while sarcomas exfoliate poorly, with carcinomas being in the middle. The diagnosis of a sarcoma—which typically exfoliates poorly, should be taken as an indication that a biopsy is likely needed, as excessive fibrous tissue, scar tissue can appear as a sarcoma on cytologic samples obtained via FNA.
Histopathology reports are one of the most important pieces of information a practitioner can obtain and biopsies are often considered the “gold standard” when trying to determine the origin of a mass lesion or the cause of lymphadenopathy.

Because of the value of the histopathology reports, it is imperative to always remember what the essential elements of every report are. The most obvious is the diagnosis. Always remember that this is the pathologist’s interpretation of the data. Therefore the data, or the description should always be present. If both the diagnosis and description are present, you as the clinician can compare the description of the biopsy and decide for yourself if the description matches the diagnosis.

Margin evaluations should also always be present if an excisional biopsy was submitted. If a surgical procedure with all of the attendant costs and risks is worth performing, than margins should be evaluated for excisional biopsies. It can be difficult for the pathologist to determine the margins on a specimen due to tissue tearing or disruption that may occur during fixation, trimming in, processing, or sectioning. Marking the margins with ink, sutures or staples can help.

The terminology among pathologists in evaluating margins is not uniform and the practitioner should be aware of this. If tumor cells extend to a margin, the excision is incomplete and the margin is “dirty” or “not clean.” The difficulty in interpretation occurs when the results are reported as “close” or “clean” or “within a few millimeters.” There are a number of systems in the human pathology literature describing techniques to standardize the definitions of “clean”, “marginal” and “wide” resections. In veterinary medicine, these definitions are not standard. The most reliable way to get the most accurate information about margins, is to have a good working relationship with your pathologist and understand what he or she means when she uses certain descriptors.

Despite having a description, diagnosis, margin evaluation, and a good working relationship with your pathologist some histopathology reports can be confusing, incomplete or even incorrect. I will illustrate with examples, what words, phrases or diagnoses on a histopathology report should prompt the clinician to question or ask for more information. Additional information in the terms of immunohistochemical stains, genetics, and second opinions will be discussed.