DEAR EDITOR:

We at Fear Free were disturbed at the following recommendations in “Nasal Swabs to Detect Canine Influenza Virus” in the July 2016 issue of Clinician’s Brief:

- “Hold the stick portion of the swab at the measured length to ensure the swab has been inserted as far as possible.”
- “Restraint is critical to prevent a swab from breaking in the nasal passage. It may take several veterinary team members to adequately restrain an unsedated dog to ensure its head remains still during swabbing.”

This approach can cause undue fear, distress, and discomfort for the patient. It may also create fear of veterinary visits, veterinary team members, procedures, and handling of the face. It can be damaging to a patient’s emotional health and welfare and poses a potential risk to the veterinary team.

The procedure as described warrants re-evaluation. It is neither appropriate nor necessary to insert a swab to the level of the medial canthus in any unsedated dog, nor should excessive pressure be used to insert the swab. Most dogs will tolerate a single nasal swab using positive and gentle techniques to facilitate collection. The swab should be gently inserted into the nostril only until resistance is met, then the mucosa quickly rubbed and the swab immediately removed. A positive, gentle approach with valued rewards, a pre-visit anxiolytic, and gentle control may work for some patients.

Furthermore, neither dexmedetomidine nor acepromazine administered at dosages producing light sedation cause adverse respiratory events. Dexmedetomidine can cause a decrease in respiratory rate while maintaining oxygenation (PaO₂) and carbon dioxide (PaCO₂) within normal limits. Additionally, dexmedetomidine is anxiolytic, as evidenced by decreased cortisol concentrations, and the drug’s effects are reversible; this allows the impact on the patient to be extremely brief. Acepromazine, although not reversible or cortisol-reducing, also causes only a mild decrease in respiratory rate with no change in PaCO₂, pH, PaO₂, or SpO₂.

The recommendations in the article regarding swab-sample collection and restraint do not serve the best interests of patients’ physical or emotional well-being or that of team members’ safety.

—Sincerely,
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References

DEAR EDITOR:

We are excited to see so many articles in Clinician’s Brief relevant to the practice of shelter medicine. These are valuable resources as we continue to develop the knowledge base within this specialty.

We are writing with concerns about the diagnostic sample-collection procedures promoted in a recent article, “Nasal Swabs to Detect Canine Influenza Virus.” Collection of nasal and oropharyngeal swabs is an incredibly useful diagnostic modality, particularly in the practice of shelter medicine and/or when managing disease outbreaks involving canine (or feline) infectious respiratory disease. In contrast, nasopharyngeal sampling is most commonly used in humans and horses and, because of the increased sensitivity of their nasal cavity, is inappropriate for use in unsedated dogs. As a group, we have been involved in the collection of thousands of nasal and oropharyngeal samples from dogs that regularly provides information to guide veterinary decision-making and save lives. Though we appreciate the authors’ explanation for a preference of nasal over nasopharyngeal samples, the technique described in the article represents nasopharyngeal sampling. We have not...
found the same difficulty in obtaining diagnostic samples with nasal or oropharyngeal sampling methods in dogs as those described for the nasopharyngeal method. We also strongly disagree that the sample-collection technique described is inherently safer because the patient can be muzzled during the procedure. There is scientific evidence that both nasal and oropharyngeal swabs can yield useful samples for diagnosing canine influenza virus, and we encourage readers to think twice about the techniques promoted in this article to swab the deep nasal cavity (ie, nasopharyngeal region) in unsedated dogs.

Regardless of site preference, the sampling procedure described is inappropriate at best and cruel at worst. The authors describe aggressive physical restraint, the absolute necessity for the use of muzzles in every dog regardless of the patient’s cooperation or prior conditioning to this equipment, the need for swabbing both nasal passages, and the expectation that nasal hemorrhage after sampling is a normal occurrence. The authors describe several individuals using brute force to hold a dog’s head still while the swab is inserted to the level of the medial canthus in both nostrils. A muzzle is even included on the list of required equipment. Finally, although depicted, there is no discussion of the importance of personal protective equipment when handling animals suspected of having a highly transmissible infectious disease—one that originated by crossing species and is known to be contagious—something our profession is recognizing and embracing the benefits of “cruelty-free” and humane animal-handling techniques.

It is disappointing to see such techniques promoted, particularly in a period when the profession is recognizing and embracing the benefits of “cruelty-free” and humane animal-handling techniques. The authors, reviewers, editors, and readers are strongly encouraged to familiarize themselves with low-stress handling and restraint techniques and practice them on a regular basis. Continuing education on such techniques is now available at major veterinary conferences on a regular basis. Patients that are not amenable to any type of diagnostic sampling without aggressive restraint should be sedated and/or the benefit of the procedure should be carefully weighed against the risks and expected gain. We can and must demand greater respect for the animals whose health and welfare we have all sworn to protect.

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References


Authors Respond:

We appreciate the comments provided by both groups; however, we disagree with their conclusions and suggestions.

Nasal swabs are the gold standard for influenza isolation, as noted by numerous diagnostic laboratory collection guidelines. The alternate techniques described would involve only swabbing the mucosal membranes of the external nares, which alone will not yield an adequate diagnostic sample. Although the shelter group refers to the method we described as nasopharyngeal (NP) swabbing, a cursory review of anatomy shows otherwise. Our method describes swabbing the nasal cavity/dorsal nasal meatus, whereas an NP swab would...
involve swabbing the ventral nasal meatus (through which an NP oxygen line is passed). As seen in a video demonstration and several images, passing an NP tube is extremely difficult because of the multiple bends to reach the ventral meatus and subsequently the nasopharynx. Although it is possible to swab the nasopharynx, the rigidity of the swab makes it difficult at best; it is not the method we described, despite the assertion to the contrary.

Swabbing the nasal cavity through the dorsal meatus to the level of the medial canthus/ethmoid bone often yields positive samples earlier in the course of infection, as this is where the virus is inhaled. Both letters state that nasal swabs are being taken, so the question then focuses on where they are swabbing. If the letter authors are not using the method we described to swab the nasal cavity/dorsal nasal meatus, they must be swabbing the ventral meatus, which would likely require sedation. Or they may be swabbing the external nares, where little to no virus replication occurs. Epistaxis can occur when using our method due to the relative fragility of the epithelium lining the turbinates; although it is rare, it had to be noted to make practitioners aware of the possibility.

Technique improves with practice. To assume all practitioners have the same level of proficiency as do the letters’ authors ignores that not all veterinarians have the same amount of experience.

In regard to performing oropharyngeal (OP) swabs, a cursory examination of a dog’s oral cavity suggests that most OP swabs are not actually that. A typical swab is 6 inches, of which at least 1 inch is covered by the user’s fingers. For an average 50- to 75-lb dog, the mouth would need to be almost completely open to get the swab and fingers in far enough to swab the oropharynx; additionally, there would likely be increased fear associated with this procedure without sedation. Alternately, the swab can be inserted from the side, but then visualization suffers. OP swabs are often just oral swabs, which may still yield positive results in acutely infected animals shedding copious quantities of virus, a point we address below. Although the comments may state OP swabs can be done in a fear-free fashion, they do not address the same safety concerns raised with our procedure. Many patients can be swabbed without “aggressive” restraint; the exceptions are when unintended consequences (eg, bites, broken and/or swallowed swabs) can occur.

Some pressure is required to pass the tip of the swab past the external nares and into the nasal passage. We described the pressure required as “fair,” which was restated (incorrectly) as “excessive;” excessive pressure would occur if the swab were misdirected into the false nostril. Once the tip of the swab enters the nasal passage, very little pressure is needed to advance the swab forward, as the passage widens immediately after the nares. Stopping at the first indication of resistance is not advisable, as the swab will not have contacted the respiratory epithelium that lines the nasal passage, which is where the virus replicates. Stopping here also increases irritation.

During the acute phase of infection, respiratory secretions bring significant quantities of virus to the external nares. During very early- and later-stage infections, however, swabbing the actual nasal passage is essential, as virus replication occurs in the epithelium lining the turbinates. Additionally, gently rolling the swab in one place fails to maximize sample collection along the length of the nasal passage and decreases the chance for successful virus recovery. The goal of swabbing is to saturate the swab with respiratory secretions, debris, and virus; this cannot be achieved by swabbing a limited area. This is critical in brachycephalic patients, which have a decreased surface area available for swabbing as compared with other breeds. The medial canthus represents the most useful landmark for any practitioner, as well as the maximum depth for insertion. Any suggestion that the swab can simply be inserted until resistance is met is inconsistent with canine anatomy and breed differences, which our method overcomes with straightforward landmarks rather than vague guidelines.

Both critiques fail to address the pain, discomfort, and/or fear induced by the sedative injection as compared with the minor discomfort induced by unsedated swabbing, which can be done quickly and virtually painlessly. Although we in no way advocate inducing fear in patients, light sedation (especially with acepromazine) does not eliminate pain or fear in the animal, only the animal’s ability to respond to it—and it may actually enhance it (a point illustrated on Dr. Beck- er’s website). Additionally, sedation does not eliminate the potential for reflexes such as sneezing and/or sudden head movements commonly seen during properly performed nasal swabs; therefore, adequate personnel must be available for restraint. Individual veterinarians are in the best position to determine whether a patient requires sedation. Using an incorrect technique, or merely sedating the dog before the swab, removes the veterinarian’s judgment about the most judicious method for handling a patient based on the specific situation. The contention that neither dexmedetomidine nor acepromazine causes respiratory effects is questionable; although that may be true in healthy dogs, patients being swabbed presumably are not healthy and may have some degree of existing respiratory compromise. Dexme- detomidine also induces vomiting in many canine patients, which can lead to aspiration pneumonia.

The statement that “gentle control with a previsit anxiolytic” is adequate is problematic. Gentle control may result in the dog rapidly jerking its head and the swab breaking off in the nasal passage or being thrown onto the examination room floor. Firm restraint, as used for any blood-draw procedure, is required for a nasal swab, regardless of sedative use, to ensure patient and team safety. Lastly,
the suggestion that acepromazine may be suitable for restraint seems contradictory to existing knowledge that indicates it provides no analgesia and may actually exacerbate fear responses and/or aggressive behaviors during noxious stimuli.\textsuperscript{1,2}

The implication that the procedure as shown places the veterinary team at increased risk is incorrect. As stated in Step 1 of the article, the patient should be muzzled to prevent biting. Although we agree this is very unlikely, we would be remiss not to recommend a muzzle, as patients can be unpredictable despite our best efforts at gentle handling. We feel it is more prudent to have the muzzle readily available and not needed than to need it and not have it, which is why it was included on the required equipment list (especially for those not proficient with nasal swabs). We would highly recommend muzzling sedated dogs to eliminate any potential for break-through bites and to maximize team member safety. The need for proper restraint comes not from fear but from the sneeze reflex prompting the dog to move its head away, especially if the swab is not inserted and removed promptly (which again contradicts the suggestion that the swab be gently rolled in one spot, as this only increases local irritation and increases the chances for epistaxis). Gentle (as opposed to firm) restraint also predisposes team members to be hit by the dog’s head, thus reinforcing the need for an appropriate level of restraint if sedation is contraindicated.

In regard to not mentioning PPE, the prevailing recommendation from the CDC is that canine influenza virus (CIV) is not likely to spread to humans (and has not to date). Although the AVMA recommends gowns and gloves, a face shield and N95 respirator may be more prudent if the risk for CIV zoonotic transmission is believed to be high, given the proximity to aerosol and droplet secretions from the patient. However, this presents a legal quandary for the practice owner or shelter, as N95s require employee health examinations and must be fitted for each team member. If we had suggested anything beyond current recommendations from industry and government groups, it could open a Pandora’s box of litigation against veterinarians and veterinary practices should a zoonotic event occur. We believe attending veterinarians are in the best position to determine the appropriate PPE and disinfection protocols based on the likely differentials for the patient and current guidance from the CDC and AVMA. As neither topic was critical to the nasal swab method itself, we did not include them due to limited space and the potential controversies around the issues.

Finally, we must point out the logical fallacy in arguing that testing shelter patients at a population level approximates maximizing the potential for accurate results on any individual animal. In a CIV-infected shelter, multiple animals (likely from a large cohort of infected and exposed animals in a relatively high viral load setting) will be tested. This makes the odds of finding a single positive sample relatively high, particularly if animals displaying acute signs are selectively tested. This scenario is also much more forgiving to testing errors such as taking oral (instead of OP) or external nare (instead of true nasal) swabs, as acutely infected patients will be shedding larger quantities of virus both orally and nasally; this may not be the case for a single patient early or late in the course of infection. Liking a shelter testing scenario to a single patient being treated in a practice that is trying to optimize the chances to collect any virus, if present, is not logical, as the viral load and area spread dynamics in a shelter are vastly different than in a lone animal. Also, a patient may not be presented at the ideal time in the disease course; therefore, we must make every effort to obtain the best possible diagnostic sample.

We concur with both groups’ noble intentions to reduce patient stress, pain, and discomfort. Unfortunately, we believe both are more concerned with perceived patient pain/discomfort at the expense of both owner and patient. Our duty is to use best practices based on anatomy and virus replication dynamics to obtain reliable diagnostic results; this maximizes owner value and patient-focused decision points. The recommendations both groups made will not accomplish those goals. Veterinarians must communicate with clients the need to perform a nasal swab and to be prepared for the momentary distress this may cause. Appropriate sedation (not based solely on acepromazine) should be used in any fearful, high bite risk, and/or noncompliant patient using the attending veterinarian’s judgment. Advocating a blanket approach in which every patient is sedated fails to address the pain and distress of sedation vs a minimally invasive diagnostic test that can be performed quickly with minimal distress. Also, focusing entirely on fear-free approaches ignores the inherent risks for bites given the number of canine patients veterinary professionals work with on a daily basis. Our goal was to improve diagnostic test accuracy by maximizing opportunities for virus recovery based on anatomy and associated virus shedding characteristics, which we feel the article achieved.

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References