

FIVE MINUTES AND FIVE DOLLARS: BRINGING THE 4th WAY TO PRACTICE

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OBJECTIVE:

To develop and evaluate a clinical diagnostic skills laboratory designed to teach simple, rapid, and affordable diagnostic tests, that are often underutilized in practice, to both veterinary students and veterinarians.

HYPOTHESIS:

By teaching veterinary students and veterinarians simple, practical, and low cost clinical diagnostic skills that have been underutilized historically in general practice, canine health care can be demonstrably improved for all dogs.

JUSTIFICATION:

It is not unusual for veterinarians in general practice to find themselves in situations where they are uncomfortable trying to diagnose both common and uncommon conditions in their canine patients. Unfortunately, veterinarians may feel it is necessary to refer these patients to specialist veterinarians when, in fact, there are practical and low-cost diagnostic tests that could be performed in-house, resulting in excellent care for canine patients. Some of these techniques, and when they are appropriate to use, are taught to veterinary students didactically; however, the students may only have a few, or no, opportunities to demonstrate those skills in a clinical setting before graduating from veterinary school, thus creating an uneasiness when presented with the chance to use them in the future, with a potential progressive loss of these skills. This apprehension is frequently evident when these techniques are recommended on consult calls with area veterinarians. Ironically, many of those simple and low cost tests are actually used by veterinary specialists themselves. **The issue is not that such tests are inappropriate diagnostically; rather, the problem is that many veterinarians in practice are not familiar or comfortable with those tests, and, therefore, they are not sure when it is appropriate to use them.**

This proposed study is designed to develop and evaluate a clinical diagnostic skills laboratory course that enables teaching a wide range of rapid, simple, and practical techniques that are typically underutilized in practice, and that can improve the health care of canine patients when appropriately utilized. This clinical diagnostic skills laboratory will provide a platform to provide veterinary students with a consistent opportunity to learn and master those techniques, rather than students learning them on a case-by-case basis in clinical rotations only, and will enable students to assist in teaching these techniques to veterinarians at targeted continuing education events or at the clinic where they become employed.

APPROACH:

The proposed study will develop and evaluate a canine-centered, clinical diagnostics skills laboratory based on rapid, low cost, and practical techniques (“five minute five dollar tests”) that can be used by general practitioners. In order to evaluate the laboratory, a pre-laboratory questionnaire will be developed and instituted to measure familiarity and comfort level of those participating, both veterinary

students and practicing veterinarians, with the techniques being taught. This will be followed by an immediate post-laboratory questionnaire assessing comfort levels using these techniques in clinical practice and then, for practitioners, a follow-up questionnaire at a later date to determine if the skills covered in the laboratory have actually proven to be useful in general practice.

In the initial pilot phase, these laboratories will be developed using veterinary students, and then modified based on their feedback. As the laboratories are refined, they will then be developed for use in educating practicing veterinarians. This process will enable students who have participated in the laboratory and demonstrated a full understanding of the techniques to assist in outreach efforts. These outreach efforts will entail developing and offering the laboratory at veterinary continuing education events, and at local and regional veterinary medical association events, and also upon request at multi-veterinarian general practices.

The laboratory instruction will initially consist of 20 simple, rapid, and inexpensive diagnostic techniques based on several body systems, including:

- Integument
 - Tape prep
 - Skin scraping (deep and superficial)
 - Punch biopsy
 - Ear cytology
 - Culture and sensitivity
- Urinary
 - Urine sediment exam
- Respiratory
 - Blind nasal biopsy
 - Endotracheal wash
 - Nasal flush
- Gastrointestinal
 - Fecal flotation
 - Fecal gram stain
 - Rectal scraping
 - X-ray film fecal digestion test
 - Plasma turbidity test
- Hematology
 - Manual platelet count
 - Blood smear
 - Buccal mucosa bleeding time
 - Slide agglutination
 - Activated clotting time
 - Bone marrow biopsy

Many of the above techniques, although rapid, simple and inexpensive, have been underutilized in general practice. Based on our experience with the Stanton Foundation-funded Chronic Diarrhea project, many general practitioners are uncomfortable performing what are, in reality, very simple tests,

such as fecal gram stains and rectal scrapes. The investigators in the Chronic Diarrhea project frequently found that, before recommending these tests, they first had to educate the practitioners on how to perform the tests and to produce hand-outs and educational videos in order to facilitate this process.

EXPECTED OUTCOME/SIGNIFICANCE:

Long term, we anticipate that the process initiated in this project will be used as a springboard to develop a progressively wider range of “five minute, five dollar tests” (and therapeutic procedures) that can be taught to veterinary students and to veterinarians. We plan: (1) to produce a range of accompanying hand-outs and web-based educational videos; (2) to establish this type of diagnostic skills laboratory at a wider range of regional and national continuing education events, and; (3) to develop a teaching model that can be used at other colleges of veterinary medicine.

PRINCIPAL INVESTIGATOR:

The principal investigator is Jeb Cade, MS, DVM. Dr. Cade is a 2006 graduate of the Mississippi State University’s College of Veterinary Medicine who, after 7 years as a successful small animal general practitioner in Mississippi, returned to MSU-CVM as an Assistant Clinical Professor. Dr. Cade serves as a clinician and educator within the MSU-CVM Community Veterinary Services rotation, the College’s small animal primary care service. Dr. Cade has an outstanding reputation as a caring clinician and teacher: on graduation, he was awarded the Gentle Doctor Award by his classmates (awarded to the veterinarian they would most like to treat their own pets), and, since returning to MSU, Dr. Cade has been awarded both the Dean’s Pegasus Award for Service and the Dean’s Pegasus Award for Teaching, and has been a nominee three times in the past 4 years for the student-elected Zoetis Excellence in Teaching Award (nomination is limited to the four CVM instructors with the most votes). Thus, Dr. Cade is highly qualified to serve as the primary clinician-educator conducting the clinical diagnostic skills laboratories for both veterinary students and practicing veterinarians. Dr. Cade will be assisted in the laboratories, as needed, by other clinicians at MSU-CVM, particularly veterinarians within the Community Veterinary and Small Animal Internal Medicine services.

ESTIMATED BUDGET:

Budget estimate is based on teaching 20 techniques, predominantly using hands-on methods and models, but supplemented by videos as needed, to approximately 100 students over a year through the MSU-CVM Community Veterinary Services Rotation, to approximately 100 veterinary practitioners through about 4-5 local continuing education events, and a presentation at a national veterinary conference.

- Supplies:
 - Tape Prep \$500
 - Skin Scraping \$400
 - Punch Biopsy \$600
 - Ear Cytology \$350
 - Culture Sensitivity \$800
 - Urine Sediment \$110
 - Blind Nasal Biopsy \$500
 - Endotracheal Wash \$800

- Nasal Flush	\$100
- Fecal Float (incomplete)	\$110
- Fecal Gram Stain	\$400
- Rectal Scraping	\$100
- X-ray Film Digestion	\$275
- Plasma Turbidity	\$200
- Manual Platelet Count	\$100
- Buccal Mucosa Bleeding Time	\$500
- Activated Clotting Time	\$400
- Blood Smear	\$200
- Slide Agglutination	\$220
- Bone Marrow Biopsy	\$2000
• Travel	
- Mileage reimbursement	\$500
• Printing/Materials	\$3000
• Statistician Fee	\$1000
• Student Worker Labor (\$10/hour)	\$1000
• Conference presentation (travel and lodging)	<u>\$2000</u>
TOTAL COSTS	\$16,165