

Physical Examination of the Equine Patient

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Web Site Created by Dr. Molgaard and Dr. Sage for Clinical Skills course:
http://www.cvm.umn.edu/academics/course_web/current/cvm5501/

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Background: A CD-ROM entitled Physical Examination of the Equine Patient will be designed to enhance learning in two yearlong courses in the veterinary medical curriculum: Freshman Clinical Skills and Sophomore Clinical Skills. These required courses were begun as part of the new curriculum in 1997 and have approximately 80 students per year. The principal investigators teach the classes. The objective of the courses is to teach the veterinary students how to perform a physical examination on all the domestic species. The CD-ROM will supplement conventional methods such as lecture, demonstration and laboratory. Due to the difficulty in using large animals, most students only have one opportunity to perform a physical examination on a horse during their first 3 years in school. The CD-ROM, with step by step instructions on physical examination of the horse, would allow the student to practice and review physical examination skills with feedback. The abnormal findings included in the CD-ROM will compliment the information the students receive in a variety of other classes throughout their schooling.

In accordance with the 1998 Compact of the College of Veterinary Medicine, all incoming freshmen are required to use a computer for technology-assisted education in the execution of the new curriculum. The principle investigators are in the final stages of completing a CD-ROM entitled Physical Examination of the Canine Patient, which was funded with a 1999 Tel grant. Physical Examination of the Equine will be second in the series. We will collaborate with the Anita Dincesen, Communication and Educational Technology Service, Extension Service to complete the project.

Project description: We plan to create the CD-ROM using Macromedia Authorware that covers the purpose, techniques, normal findings and abnormal findings of physical examination of the horse. The student will be presented with a schematic diagram of the horse with the organ systems shown. The student could direct the learning of physical examination skills either by a nose to tail approach or an organ system approach. An important advantage of this technology is to give the student a choice in learning styles. For example, if the student clicked on the heart, s/he would be given the following choices:

- **How to examine** → text, photos, video, audio illustrating process of examination of the organ system
- **Normal Findings** → text, photos, video, audio describing normal heart rate, rhythm, sounds etc. → **Abnormals** → examples of abnormalities that may be encountered
- **Equipment** → photo of stethoscope w/ text describing it's use
- **More information** ("heart" symbol for the CV system) → takes student to information about the blood vessels etc. Student could also go to "blood vessels" first and then is given information about the heart when s/he clicks on the "more information" button
- **Related Organ Systems** Gives the students information about the relationship between the organ systems.
- The main benefits of using a CD-ROM over a web site or traditional teaching aids are that audio and video clips can be incorporated and the student can direct the learning. For example, teaching abnormal heart sounds is impossible using a book and difficult using audiotapes (little control over sequence). By using our product, the student can go back and forth between normal and various abnormal sounds to compare them.

Evaluation: The effectiveness of the product will be evaluated through student testing and feedback. Students will be surveyed for their evaluation of the product. Part of the final examination for Freshman Clinical Skills is to perform a physical examination while being evaluated by a clinician. These clinicians can also give feedback as to whether they feel classes that have used the CD-ROM demonstrate more proficiency than previous classes.

Timetable:

Design: We will use the previous CD-ROM as a template for the design and programming. Therefore this part of the process has been completed.

Development: Content writing will begin in the winter of 2001. Programming and collection of audio, video and still photography will begin in spring of 2001.

Implementation: The CD-ROM is scheduled for completion by February 2002.

PROJECT BUDGET

Resources to be provided for by Tel Grant

Item	Days/ Hrs	Cost Estimate
1. Authoring / Programming	20 hrs	\$1000
2. Photographer	25 hours	\$625
3. Videotape (equine physical exam w/ tape stock)	8 hrs	\$1200
4. Interface Design	8 hrs	\$1000
5. Illustration (composite master plus 11 individual illustrations)	40 hrs	\$2000
TOTAL		\$5,825

Resources to be provided for by Departments and Colleges

Funding from Departments and College (SACS Dept. \$3575, CAPS Dept. \$2250, Total: \$2700)

1. Student Workers (slide scanning, data input)	260 hrs	\$2600
2. Consultation Time (Programmer meets w/ client and other team members)	20 hrs	\$ 400
2. Digitizing Images (Biomedical Graphics)	325 slides	\$325
3. Narration and Audio Record	5 hrs	\$ 500
4. CD-ROM mastering & duplication (based on 250 copies- gold master, jewel case, inlay card & graphics- 10 days turnaround)		\$2000
TOTAL		\$5,825

Sustainability:

This project is second in a series of CD-ROM's to be used by future classes to improve the student's skills in performing a physical examination. We have further plans for Physical Examination of the Feline Patient and Physical Examination of the Bovine Patient. Our departments and the College of Veterinary Medicine originally gave us \$2,700 to complete the first CD-ROM Physical Examination of the Canine Patient and have committed \$5,825 for the proposed CD-ROM.