The Role of Veterinary Medical Librarians in Teaching Information Literacy

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Abstract
This qualitative study seeks to determine the nature of the instruction librarians provide to veterinary medical students at all 28 United States veterinary colleges. A secondary goal of the study was to determine in what ways and to what extent librarians participated in other instructional activities at their colleges. Over half of the librarians formally taught in one or more courses, predominantly in the first two years of the veterinary curriculum. One presentation per course was most common. Over half of the librarians interviewed stated that evidence-based veterinary medicine was taught at their colleges, and about half of these librarians collaborated with veterinary faculty in this instruction. Many librarians participated in orientation for first-year veterinary students. The librarians also taught instructional sessions for residents, interns, faculty, graduate students, and practicing veterinarians. This study found that librarians teach information literacy skills both formally and informally, but, in general, instruction by librarians was not well integrated into the curriculum. This study advances several recommendations to help veterinary students develop information literacy skills. These include: encourage veterinary faculty and administrators to collaborate more closely with librarians, incorporate a broader array of information literacy skills into assignments, and add a literature evaluation course to the curriculum.

Disciplines
Library and Information Science

Comments

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The Role of Veterinary Medical Librarians in Teaching Information Literacy

Andrea L. Dinkelman ■ Ann R. Viera ■ Danelle A. Bickett-Weddle

ABSTRACT
This qualitative study seeks to determine the nature of the instruction librarians provide to veterinary medical students at all 28 United States veterinary colleges. A secondary goal of the study was to determine in what ways and to what extent librarians participated in other instructional activities at their colleges. Over half of the librarians formally taught in one or more courses, predominantly in the first two years of the veterinary curriculum. One presentation per course was most common. Over half of the librarians interviewed stated that evidence-based veterinary medicine was taught at their colleges, and about half of these librarians collaborated with veterinary faculty in this instruction. Many librarians participated in orientation for first-year veterinary students. The librarians also taught instructional sessions for residents, interns, faculty, graduate students, and practicing veterinarians. This study found that librarians teach information literacy skills both formally and informally, but, in general, instruction by librarians was not well integrated into the curriculum. This study advances several recommendations to help veterinary students develop information literacy skills. These include: encourage veterinary faculty and administrators to collaborate more closely with librarians, incorporate a broader array of information literacy skills into assignments, and add a literature evaluation course to the curriculum.

Key words: teaching veterinary informatics, information literacy, veterinary libraries, veterinary college librarians

INTRODUCTION
The American Veterinary Medical Association (AVMA) discusses the role of the library in veterinary medical education in Standard 5 (Library and Information Resources), Section 9 (Standards) of the Accreditation Policies and Procedures of the AVMA Council on Education (COE):

Libraries and information retrieval are essential to veterinary medical education, research, public service, and continuing education. Timely access to information resources, whether through print, electronic media, or other means, must be available to students and faculty. The library shall be administered by a qualified librarian. The college shall have access to the human and physical resources necessary for development of instructional materials.1

US colleges of veterinary medicine meet this minimal standard in a variety of ways. Twenty-five of the 28 colleges have veterinary medical libraries or reading rooms located within the college. The remaining 3 are supported by nearby health sciences libraries. Staff size varies, but all of the colleges are served by at least 1 librarian who holds a professional degree (e.g., Master’s of Science) in library and information science. Librarians may also have joint faculty appointments between the library and the college of veterinary science. Some librarians have administrative or supervisory roles in addition to the responsibilities of selecting and acquiring resources for the library collection, providing research assistance to individuals, serving as guest lecturers in certain courses, and giving seminars to faculty, staff, and students. In some cases, veterinary librarians have additional subject or departmental liaison responsibilities that require them to work at another campus library.

Librarians are guided by six detailed standards developed by the Veterinary Medical Libraries Section (VMLS) of the Medical Library Association. Standard 2, which defines “services [that] support the educational, clinical, and research programs of the veterinary medical institution and encourage optimal use of the library’s resources,”2 has the most relevance to the present study.

Librarians’ teaching efforts are guided by five general competency standards for information literacy that were developed by the Association of College and Research Libraries (ACRL).3 Information literacy is defined as the ability “to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.”4 The five specialized standards developed for science and engineering/technology listed below are most relevant to veterinary medicine.5 According to these, the information literate student does the following:

1. Determines the nature and extent of the information needed;
2. Acquires needed information effectively and efficiently;
3. Critically evaluates the procured information and its sources and, as a result, decides whether or not to modify the initial query and/or seek additional sources and whether to develop a new research process;
4. Understands the economic, ethical, legal, and social issues surrounding the use of information and its

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4. Understands the economic, ethical, legal, and social issues surrounding the use of information and its
technologies and, either as an individual or as a member of a group, uses information effectively, ethically, and legally to accomplish a specific purpose;

5. Understands that information literacy is an ongoing process and an important component of lifelong learning and recognizes the need to keep current regarding new developments in his or her field.

Librarians provide a vital educational role as the number and complexity of information resources increase. Students and faculty need to develop the skills necessary to effectively and efficiently access veterinary information and be able to critically evaluate and manage the information they retrieve. These skills are essential for all veterinary activities including lifelong learning, which is part of the AVMA accreditation standards (Standard 9: Curriculum):

The curriculum and educational process should initiate and promote lifelong learning in each professional degree candidate. Instruction should emphasize problem solving that results in making and applying medical judgments.\(^1\)

Although the term information literacy is absent from the accreditation standards, it is an important component of veterinary education and practice. Several studies in the veterinary education literature have identified skills that are directly related to information literacy, skills such as critical thinking, current awareness, and lifelong learning.\(^6\)–\(^9\) Evidence-based veterinary medicine (EBVM) requires the ability to locate and critically appraise information from a variety of resources.\(^10\)–\(^12\) The University of California–Davis has defined several attributes for its veterinary graduates, several of which relate to information literacy:

A competence in information technology to be able to access and retrieve accurate biomedical information, diagnostic strategies, and medical records from electronic databases and other resources.

The skills to gain and appropriately use new information and to remain current with emerging biomedical knowledge and therapeutic options.

The ability to critically examine new knowledge, with an understanding of the basic concepts and principles of scientific investigation in the biomedical sciences.\(^13\)

On a national level, information literacy skills were mentioned at the North American Veterinary Medical Educational Consortium (NAVMEC) meetings held in 2010. These skills are part of the following core competencies:

- Clinical proficiency—Make decisions based on the best available evidence, past experience, and expertise;
- Communication—Accurately elicit and synthesize information from multiple sources;
- Lifelong learning—Maintain and enhance professional activities through ongoing learning; Critically evaluate information and its sources.\(^14\)

Librarians can play an essential role in teaching information literacy skills and assisting veterinary medical faculty in accomplishing the goals set forth by AVMA and NAVMEC. Two examples of librarians’ involvement are a problem-based learning series known as Diagnostic Challenges courses taught at Washington State University\(^15\) and the professional development courses taught at the University of Minnesota.\(^16\) To support lifelong learning, Ohio State University (OSU) librarians staffed an exhibit booth at the Midwest Veterinary Conference in 2005 and distributed information about OSU library resources and services to practitioners.\(^17\) Other opportunities exist to develop partnerships between those involved in veterinary education and librarians.

The primary goal of the current study was to gain information about the instruction of veterinary students by veterinary librarians and to determine what information literacy skills the students were being taught. A secondary goal was to learn about the form of instruction conducted by librarians and addressed to other groups of veterinary college users.

**METHODS**

The present qualitative interview study was determined to be exempt by the Institutional Review Boards at Iowa State University and the University of Tennessee.

Using the *Veterinary Libraries Directory*,\(^18\) a librarian from each United States library that serves a college of veterinary medicine \((N = 28)\) was contacted by e-mail and invited to participate in a telephone interview. When presented with a choice among several librarians in an individual library, the librarians most likely to be involved in instruction were contacted. The open-ended questions to be asked during the interview were sent to each librarian prior to the semi-structured interview.

**Interview Questions for Librarians**

1. How long have you been a veterinary medical librarian?
2. Are there specific courses in the veterinary medicine curriculum that you have worked with? If yes, what courses and what year in the curriculum? What has been your level of involvement? Have you encountered any barriers? Have you been involved in other instructional activities for veterinary medical students that are not course-related?
3. Is evidence-based veterinary medicine taught at your college of veterinary medicine? If yes, do you know where is it taught in the Doctor of Veterinary Medicine curriculum?
4. Have you had any involvement in teaching evidence-based medicine principles? If so, what topics have you taught?
5. Have you given instructional sessions to other groups of library users (e.g., clinicians or residents)? If so, what topics have you taught?
6. Have you ever offered instructional sessions to practicing veterinarians? If so, what topics have you taught?
7. Do you seek out instruction opportunities? If yes, what strategies do you use?

The first question intended to ascertain the degree of expertise of the veterinary medical librarians available to faculty, staff, and students. The purpose of asking questions 2 to 6 was to gain information about the librarian’s role in providing instruction at his/her college of veterinary medicine. Question 7 was asked because the librarian authors—that is, the authors of the present paper—were interested in learning what strategies librarians had used to identify possible instruction opportunities. (The results are not included.) Notes were taken during each interview and a transcript was prepared using Microsoft Word. Responses to the questions were entered into an Excel spreadsheet.

RESULTS

Librarians from all 28 libraries participated in the study. Telephone interviews were conducted with librarians from 26 libraries between July 14, 2010 and September 7, 2010. The librarian authors interviewed each other. Due to scheduling difficulties, two librarians completed the interview in writing. The length of the interviews ranged from 25 to 50 minutes. The results are reported in aggregate, and no information that might identify the participants is presented.

The amount of time that librarians had served as veterinary medical librarians or had worked with veterinary medical students ranged from less than one year (11%) to more than 20 years (29%). The median was 5.5 years. Many of the librarians described additional years of experience in other libraries.

Librarians and the Veterinary Medicine Curriculum

Fifteen librarians (54%) reported having formal involvement in one or more courses within the veterinary medical curriculum between August 2009 and September 2010, for a total of 20 courses (Table 1). Ten of these librarians (36%) participated in 1 course and 5 librarians (18%) had worked with 2 courses. Thirteen of the 28 librarians (46%) reported no formal involvement in a specific course during this time period. During the interviews, 2 librarians mentioned that they had been invited to participate in courses in the upcoming academic year. One librarian reported attending 3 courses in order to become familiar with the curriculum. Several librarians noted that they had participated formally in courses offered in previous years, but they did not participate in these courses at the time of the interviews.

In 15 of the 20 courses in which a librarian participated (75%), the librarian gave 1 presentation to the class ranging in length from 5 minutes to 2 hours. In 3 of the 20 courses (15%), the librarian gave more than one presentation. During class presentations, librarians provided information about library services, policies, and databases such as PubMed, CAB Abstracts, and the search engine Google Scholar. Two librarians mentioned that they included some instruction about RefWorks, a citation management program, and 1 librarian taught students how to use My NCBI to save searches and create current awareness alerts in PubMed. In a course on veterinary professional and scientific literature, one librarian, who also served as the coordinator for the course, taught students about the scholarly publishing process, including in the discussion topics such as peer review, journal impact factors, and the differences between scholarly and trade publications in veterinary medicine. In addition to presenting guest lectures, librarians routinely created handouts and Web-based, course-specific guides. One librarian assisted the veterinary teaching faculty with assignment development, reviewed student assignments, and offered advice to students for improving literature searches in a course on clinical problem solving.

The librarians who participated in the remaining 2 courses (10%) held different roles. One librarian served as a small-group leader in an introductory professional skills course for its entire duration. During an epidemiology course that included student debates, one librarian identified and supplied background articles for each debate topic and evaluated how students used the articles to support their arguments.

The interview questions asked about EBVM instruction because the skills needed to practice EBVM require competence in information literacy. Fifteen librarians (54%) stated that EBVM was taught at their college. Six of

<table>
<thead>
<tr>
<th>Course topics</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>All years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem-based learning and clinical problem solving</td>
<td>7</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epidemiology</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introductory professional skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction to professional or scientific literature (elective)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oncology clerkship or rotation (elective)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food animal production (elective)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Animal welfare and ethics</td>
<td></td>
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<td></td>
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<tr>
<td>Introduction to clinics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of courses</td>
<td>9</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: N = 20 courses taught by 15 librarians; data are organized by the year in the veterinary medicine curriculum in which a librarian was involved.
the problem-based learning and clinical problem-solving courses and both of the courses on professional/scientific literature listed in Table 1 included some degree of EBVM instruction. Six librarians (21%) stated that they included some of the following topics in their guest lectures on EBVM:

- Hierarchy of evidence (e.g., pyramid of evidence) and the differences between case reports, reviews, meta-analysis, and so forth in terms of evidence quality;
- How to use PubMed and CAB Abstracts to find evidence-based information;
- Advanced search features in PubMed (e.g., Clinical Queries tool, how to limit searches to veterinary science subset);
- How to formulate a clinical question using the PICO (Patient, Intervention, Comparison, Outcome) format.

Besides participating in specific courses, librarians reported involvement in other types of instructional activities for veterinary medical students (Table 2). The most common of these activities, in which 19 librarians (68%) participated, involved participation in some type of orientation for first-year students. Orientation activities ranged from a brief library stop on a building tour to longer, more formal presentations that lasted between 30 minutes and 1 hour. In many instances, the main message to new students was that the library and its staff are there to help meet their needs.

Four librarians (14%) participated in summer research or internship programs for first- and second-year students. Librarians provided detailed instruction on databases, particularly on those useful to biomedical research (e.g., Biosis Previews, Web of Science). During these sessions, the librarians introduced students to citation management programs such as EndNote, EndNote Web, and RefWorks. Proper use of citation management programs can save an enormous amount of time, giving students the ability to build and manage a personal collection of citations for future research projects or clinical practice.

### Challenges to Providing Instruction in the Veterinary Medicine Curriculum

Twenty-two librarians (79%) reported that they had encountered challenges in providing instruction at their college. The most frequently occurring theme in the librarians’ responses (73%) related to the structured nature of the veterinary medical curriculum. Several librarians reported that some faculty members were unwilling to give up class time for a library presentation. One librarian even commented that there is “no room for instruction [from the library].” The second most frequently mentioned challenge (27%) was related to veterinary faculty attitudes and perceptions about the library. One librarian felt that “awareness” was a challenge: “Faculty know I’m [at the library], but [they] may not think about all of the things I could offer.” Changes in college personnel also affect faculty–librarian course collaborations. One librarian described a successful past involvement in a first-year course, but also recalled that when the faculty member left the university the librarian’s participation in the course ended. Five librarians (23%) expressed concerns about small staff size at their libraries because it, along with their other job responsibilities, constrain their efforts to offer more instruction even though they might be interested in doing so.

### Instructional Activities for Residents, Interns, Faculty, and Graduate Students

In addition to teaching veterinary medical students, librarians in this study reported that they offered and provided instruction to other college groups (Table 3). Fourteen librarians (50%) conducted orientation sessions for new residents and interns that lasted between 15 minutes and 2 hours. Topics presented during these sessions included general information about library services and instructions on how to search databases (e.g., PubMed, CAB Abstracts, Web of Science, Google Scholar), use My NCBI, set up current awareness alerts, and use RSS feeds. The librarians also frequently mentioned providing information about citation management programs such as EndNote, EndNote Web, Zotero, and RefWorks. Other topics included Wiki development for courses, creating scientific posters and presentations, and an introduction to

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**Table 2: Librarian participation in other instructional activities for veterinary medical students**

<table>
<thead>
<tr>
<th>Instructional activities</th>
<th>Number of librarians who participated in the activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation for first-year students</td>
<td>19 (68%)</td>
</tr>
<tr>
<td>Presentation to fourth-year international veterinary medical students</td>
<td>5 (18%)</td>
</tr>
<tr>
<td>Presentation to students who participated in a summer research program or summer internship at the college of veterinary medicine</td>
<td>4 (14%)</td>
</tr>
<tr>
<td>Brief announcement or presentation to veterinary medical students at the beginning of their clinical year</td>
<td>3 (11%)</td>
</tr>
<tr>
<td>Presentation at the end of the fourth year of veterinary school about how to access and acquire information after graduation</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Presentation as a guest speaker at a Public Health Club meeting</td>
<td>1 (4%)</td>
</tr>
</tbody>
</table>

*Note: N = 28 librarians*
mobile applications for library users. Eleven librarians (39%) reported that they taught instructional sessions for faculty and graduate students, and five librarians (18%) participated in graduate courses for PhD students and residents.

**Instructional Activities for Practicing Veterinarians**

Ten librarians (36%) participated in instructional activities for practicing veterinarians. These activities included delivering presentations and/or staffing an informational display at state or regional veterinary conferences. Three of the 28 librarians (11%) reported that they had written columns for state veterinary journals or newsletters, and one librarian met with preceptors once a year to present updates on library services.

**DISCUSSION**

Veterinary students spend four years learning multiple systems, normal and abnormal, for multiple species. Throughout that education, volumes of material are covered and students are required to read, listen, assimilate, apply on examinations, and retain to be able to relieve animal suffering and promote public health. Students have access to specialists (their instructors) to guide them through the information and expose them to current research. With only 15 weeks to cover multiple systems and species, lecture time is precious. One of veterinary students’ goals is to successfully complete the North American Veterinary Licensing Examination (NAVLE), and instructors aim to provide them with the information necessary to do so. Information literacy is not a topic on the NAVLE and thus devoting lecture time to effectively teach these skills has not been a priority. However, these skills are essential to attaining success in the navigation and management of information throughout and after veterinary school.

Veterinary faculty may assume that students who are beginning veterinary school have already acquired information literacy skills in previous courses and learning environments. However, it is the present authors’ experience that veterinary medical students’ information literacy skills are incomplete or lacking altogether. Students accustomed to using Google to seek answers or find common information may not understand the limitations of Google or Google Scholar for clinical decision-making. Some students are unable to effectively use controlled vocabulary or literature databases and often do not understand how these databases are constructed. Non-traditional first-year students (that is, perhaps, students who are older than the average veterinary medical student or those who are in the process of acquiring a second career) or those who do not hold undergraduate degrees in life science are often not familiar with the specialized biomedical or agricultural databases. Also, students from smaller institutions may not have had access to specialized or costly databases such as CAB Abstracts or the Web of Science and thus may not know their value or how to use them effectively.

According to the interviews conducted in this study, veterinary medical librarians teach information literacy skills at various times throughout the four-year program, both within and outside of the formal curriculum. However, this integration is rarely systematic throughout the curriculum or clinical experiences and could be improved without much effort on the part of faculty members.

Many librarians interact with first-year veterinary students during orientation activities. While librarians are eager to meet and interact with new students, these activities are not the best time to teach advanced research or information literacy skills. Some librarians had mixed feelings about the success of orientation sessions, and two librarians reported that the library orientation had been discontinued. The veterinary library orientation typically occurred during freshman orientation, which is a very busy time for new students who are adjusting to a new environment and a new educational setting and are being introduced to a myriad of other topics. Because the introductory information was not directly relevant to a specific assignment, one librarian questioned how much of the information was retained.

One librarian reported changing the approach to orientation based on input from the library’s veterinary student employees. According to these students’ suggestions, only the most basic information should be presented to new

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**Table 3:** Librarian participation in instructional activities for other college groups

<table>
<thead>
<tr>
<th>Instructional activities</th>
<th>Number of librarians who participated in the activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation for new residents and interns</td>
<td>14 (50%)</td>
</tr>
<tr>
<td>General instructional sessions for college of veterinary medical faculty, staff, and/or students</td>
<td>11 (39%)</td>
</tr>
<tr>
<td>Involvement in graduate-level courses for PhD students and/or residents</td>
<td>5 (18%)</td>
</tr>
<tr>
<td>Orientation for new college of veterinary medical faculty and/or graduate students</td>
<td>4 (14%)</td>
</tr>
<tr>
<td>Participation in other activities such as veterinary specialty board-exam review courses, lab animal research groups, veterinary medical technology programs, and summer programs for elementary, high school, and college students</td>
<td>4 (14%)</td>
</tr>
<tr>
<td>Instructional sessions for specific sections in the teaching hospital</td>
<td>2 (7%)</td>
</tr>
<tr>
<td>Weekly attendance and participation at small-animal rounds and equine journal club with clinicians, residents, and interns</td>
<td>1 (4%)</td>
</tr>
</tbody>
</table>

Note: N = 28 librarians
Students (e.g., “Top 10 things to know about the library”), and information related to databases and ways to search them should be presented a few weeks later in a case-studies course that includes a small research assignment. As a result of the students’ suggestions, the librarian contacted the faculty member teaching the course and offered to give instructions on PubMed and CAB Abstracts. The faculty member accepted the offer and the librarian’s guest lecture has become a regular part of the course.

The study revealed that librarians most frequently taught veterinary medical students in the first two years of the veterinary medical curriculum within problem-based learning and clinical problem-solving courses. If a librarian taught in such a course, his or her lesson was typically limited to one 50-minute presentation. Information literacy is often a new concept for veterinary medical students, which means that it is nearly impossible to introduce it, review its various components, and achieve effective retention in a single lecture. Students should learn how to effectively search databases such as PubMed or CAB Abstracts, how to critically evaluate information, when and how to use free search engines such as Google and Google Scholar, among other things. Topics related to current awareness (e.g., saving searches, creating current awareness alerts) and citation management are equally important, but teaching and successfully integrating them into learning takes time.

Students can acquire information literacy skills from small research assignments. Librarians typically provide instructions on PubMed or CAB Abstracts based on their experience of what veterinary medical students consistently use. However, there may be other courses in the curriculum that require knowledge of different information resources, and whether such is the case can only be discovered through discussions with faculty. One librarian reported that she gave a brief presentation to students who were enrolled in a course that required a research paper related to the financial and ethical issues of animal care. The librarian highlighted resources that students may not have previously encountered, such as the APPMA National Pet Owners Survey, a book published by the American Pet Products Manufacturers Association.

Other courses that could incorporate information literacy instruction might include courses related to public health, courses that include information about the provision of consumer pet health information to clients, or courses that include content about how to conduct literature searches to fulfill Institutional Animal Care and Use Committee requirements. Additional models of integrating information literacy instruction into other health profession programs (such as dentistry, nursing, medicine, or pharmacy) could be adapted to veterinary medical education. Librarians in this study had limited teaching opportunities during the third and fourth years of the veterinary curriculum. There was some concern that students might not have acquired the information literacy skills that contribute to success in the clinical year and beyond. For example, a basic information literacy skill is the ability to efficiently conduct a literature review. Many courses in the first three years of the veterinary curriculum rely heavily on textbooks, lecture notes, or other materials provided by instructors. Students may not have the need, perhaps in the shape of a specific course assignment, or opportunity to systematically search the literature for information on a topic.

Students will be actively researching cases during clinical rotations. It is crucial that they have the most up-to-date information about the resources that are available to them as well as an awareness of changes to existing resources, such as databases that have new interfaces or search features. Many changes could occur between students’ first and last years of veterinary school. An example of a recent change is the growing number of electronic books on veterinary medicine that libraries are acquiring. From the librarians’ perspective, being able to meet with students before they begin their clinical training would serve as a useful opportunity to update students on new resources, such as e-books, and refresh their knowledge of ways to search the databases.

In addition to meeting with students before they begin the clinical year, veterinary librarians should also meet with them near the end of their clinical year of veterinary school. One librarian reported that she met with students at the end of the clinical year just prior to graduation. The librarian’s presentation, “A Case of Post-Graduate Access,” included information on how to access and acquire information after graduation. Students have free access to a wide variety of biomedical journals and databases while enrolled at the university. This access ends at graduation as a result of publishers’ licensing restrictions on who can access library subscriptions. The clinical year might have, however, strengthened their dependence on literature for current therapies, surgical procedures, and innovations in patient management and welfare. Students should therefore be educated on resources that can help them maintain lifelong learning and information accessibility as they begin their veterinary careers. Because students might be off campus during various times of their last year of studies, post-graduate information could be supplied to students in an informational packet upon graduation and posted on the library’s Web site.

A secondary goal of this study was to learn about the types of instruction given to other veterinary college groups which demonstrated that librarians were actively engaged with them. For example, many librarians conducted an orientation for new residents and interns. Because residents and interns work closely with veterinary medical students on cases during the clinical year, it is important that they have up-to-date information about library resources and services. One librarian reported that her primary role was to provide support for weekly clinical activities by, for example, attending small animal rounds or participating in equine journal club meetings. In addition to more formal group instruction, many librarians reported that they frequently provided one-on-one instruction. Veterinary librarians are expert information searchers who often provide specialized instruction or consultation on topics that require complex searching. Librarians can also play a significant role in the continuing education of practice veterinarians thereby contributing to lifelong learning.
RECOMMENDATIONS FOR VETERINARY MEDICAL FACULTY AND ADMINISTRATORS

Information literacy skills provide the foundation for lifelong learning for veterinary students. These skills are best taught during the didactic years and enhanced during the clinical year and beyond. Veterinary medical librarians bring a wealth of expertise to colleges of veterinary medicine. Below are some recommendations of ways in which to benefit from this expertise in order to develop lifelong learning in tomorrow’s veterinarians.

1. Collaborate with librarians to more fully integrate information literacy instruction into the curriculum. Instruction can take many forms which, depending on the topic and assignment, can include multiple short presentations, a one-hour presentation, a tutorial, or a specialized handout. Instruction by librarians is most effective if it relates to an assignment. As one librarian stated, there needs to be some context in which to set the library instruction: “students need a reason for searching the literature.”

2. Integrate librarians and opportunities to learn information literacy skills throughout the four-year program, paying careful attention to the timing of instruction and the design of assignments that require library resources. Opportunities exist in courses that focus on evidence-based methods and orientation activities for students that are beginning the clinical year. Instructional activities that occur outside of the classroom can be beneficial. As reported in this study, including librarians in summer research programs has been a successful way for librarians to interact with students.

3. Develop assignments or activities that incorporate a broader range of information literacy skills such as citation management and current awareness methods. While librarians often taught instructional sessions about citation management, these tended to be for faculty, residents, and interns. For veterinary students, on the other hand, this information was often incorporated into summer research programs.

4. Include librarians in curriculum discussions and planning. Several librarians reported membership on the college curriculum committee and many expressed interest in being more involved in the development of the veterinary medical curriculum. Most veterinary librarians are responsible for selecting materials for the library collection. Knowing what is being taught and when helps to inform purchasing decisions. Interacting with faculty on the curriculum committee would enhance the veterinary medical librarians’ understanding of various types of assignments and help them coordinate instructional sessions that have meaning and applicability to students.

5. Add a literature evaluation course to the curriculum to develop and hone critical reading and article appraisal skills. Such a course exists, for example, as an elective one-credit course at two colleges of veterinary medicine, and a similar course is being planned at a third college. Both librarians who taught these courses spoke highly of their collaboration with veterinary medical faculty, noting a high level of student interest and engagement in the course.

In addition to the above recommendations, the AVMA COE is strongly encouraged to include language about the role of the librarian in veterinary medical education in the AVMA Accreditation Standards. The AVMA COE and members of the Veterinary Medical Libraries Section of the Medical Library Association could collaborate to revise Standard 5, Library and Information Services. For example, accreditation standards from the Liaison Committee on Medical Education, the accrediting authority for medical doctorate degree programs, state that professional librarians “provide training in information management skills.” While it is uncertain what outcomes will result from the 2010 NAVMEC meetings, if the NAVMEC core competencies are eventually incorporated into the AVMA Accreditation Standards, there are examples of competencies from other health professions’ accrediting agencies (e.g., medicine, dentistry, and pharmacy) and supplementary reports that address information literacy.

CONCLUSION

This qualitative study of the instructional experiences of veterinary medical librarians at US colleges of veterinary medicine has demonstrated that librarians are an under-utilized resource. In an era of budget cuts and doing more with less, veterinary librarians could assist faculty in meeting their teaching goals without additional cost investment. Collaboration is a foundational concept of academia, and expanding it to include librarians has the potential to strengthen teaching and research outcomes. Likewise, collaboration among veterinary medical librarians to develop and share instructional materials will better prepare them to efficiently assist faculty in achieving learning outcomes at all veterinary colleges.

Partnering with librarians to teach information literacy skills in the veterinary medicine curriculum supports lifelong learning. Librarians’ skills in information management are complementary to the educational goals of faculty, students, interns, residents, practitioners, and graduate students. While this paper provided viewpoints from the librarians’ perspective, there remains a need to understand the administrators and faculty’s perspectives and attitudes toward veterinary libraries and librarians. This information would allow everyone to move forward in concert in order to create greater integration of synergies between teaching faculty and information professionals to meet the missions of veterinary schools and their libraries.

REFERENCES


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