
Use of information resources by veterinary practitioners

By Nancy L. Pelzer, M.A.
Assistant Professor

Joan M. Leysen, M.S.L.S.
Assistant Professor

William Robert Parks and Ellen Sorge Parks Library
Iowa State University
Ames, Iowa 50011

Veterinary practitioners are often isolated from easy access to information in medical or hospital libraries, making necessary the use of a variety of information resources. A survey was conducted to assess the extent to which various information resources were used within the veterinary profession.

Most responding veterinarians were small-animal practitioners who used the veterinary literature, colleagues, diagnostic laboratories, continuing education courses, association meetings, and pharmaceutical representatives as sources of information. Books and other practitioners were the preferred information source in critical-care situations, followed closely by diagnostic laboratories and journals. For keeping up-to-date with current advances in veterinary medicine, journals, books, other practitioners, and continuing education were used. University extension services, veterinary medical libraries, and computer applications to information use were not important resources to most of the respondents. Many veterinarians indicated that they would use library services if they knew more about them. With the trend toward computerization in veterinary practice, it is possible for libraries to help reduce the information isolation of many veterinary practices.

The typical veterinary practitioner in the United States is a small business owner, whose practice is located near or in a small city or suburban community. As described by Drake [1] and Coffee [2], the veterinarian is most often isolated from libraries and professional colleagues. While most physicians in private practice have easy access to information resources in medical or hospital libraries, many veterinarians do not, since libraries specializing in veterinary materials are associated directly with the twenty-seven veterinary medical school and research complexes in the United States [3-4]. Thus, of necessity, a variety of information resources are used by veterinarians in private practice, but the extent to which these resources are used is poorly documented. To investigate the use of various information resources by veterinary practitioners, the authors conducted a survey in February 1989.

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METHODS

As a preliminary step to surveying practitioners, a separate survey that asked for a description of library services available to this group was sent to twenty-seven university-affiliated veterinary medical libraries in the United States. Veterinary medical library

Table 1
Veterinary medical library services available to private practitioners (n = 17 respondents)

Service	Number of libraries	
	Available	Not available
Telephone/mail reference	16	1
Article photocopying	15	2
Computer literature searches	15	2
Lending from the collection	13	4
Guidance in using do-it-yourself literature searches	7	10
Guidance in establishing computer reprint files	2	15
Guidance in using computer-assisted instruction	0	17

services offered to practitioners outside the confines of a university were provided by seventeen respondents (from seventeen states) (Table 1). The most commonly provided services were included in the veterinary practitioner survey. Veterinarians practicing in these same seventeen states were surveyed for use of various information resources within the veterinary profession (Appendix).

Survey questions elicited data on where veterinarians found information to support the needs of their practices, on other clinical topics of interest to them, and on computer use for information storage and retrieval or for computer-assisted diagnosis. A cover letter encouraged respondents to add any information resources that had not been included on the survey instrument.

Veterinarians were selected randomly from telephone directories. Using the 1989 American Veterinary Medical Association Directory's figures for total veterinarians listed in each of the seventeen states [5], a proportionate number of individuals was selected from each state. Thus, states with a higher number of practitioners were accordingly sent a higher number of surveys and vice versa.

FINDINGS

Of 548 surveys that reached their destination, 287 (52%) were returned; however, not every respondent answered every question. (The appropriate "n" response to each survey question is given in the following discussion.)

The respondents (n = 272) were evenly split between single practitioners (130) and group practitioners (142). The overwhelming majority treated small animals (222), followed by mixed-animal practices (46), large-animal practices (4), and other (2) (n = 274). Urban practices (103) and suburban practices (142) were prevalent over rural practices (35) (n = 280).

Most veterinarians read the veterinary literature "sometimes" or "often." No attempt was made to differentiate book and journal reading in this general question.

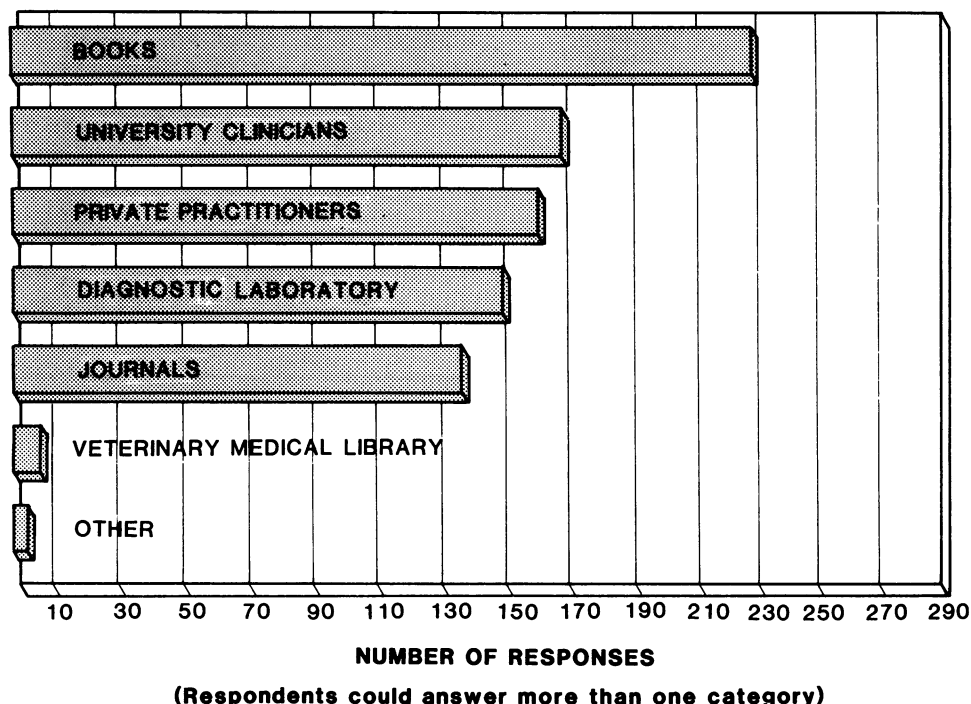
INFORMATION RESOURCES USED

To determine information-gathering behavior, veterinary practitioners were asked to indicate the frequency with which they used a variety of information resources within the last year (Table 2). Responses in the categories "often" and "sometimes" were assessed as positive, while those in the categories "seldom" and "never" were assessed as negative. As expected, most veterinarians read the veterinary literature "sometimes" or "often." No attempt was made to differentiate book and journal reading in this general question. Diagnostic laboratories (a source of expert consultation in addition to laboratory tests), continuing education courses, association meetings, and pharmaceutical representatives were also popular in-

Table 2
Information resources used by veterinary practitioners (by number and percentage of responses)

Resource	Never n (%)	Seldom n (%)	Sometimes n (%)	Often n (%)	Total responses (%)
Veterinary literature	0 (0%)	9 (3%)	53 (19%)	224 (78%)	286 (100%)
Veterinary colleagues	9 (3%)	25 (9%)	109 (38%)	142 (50%)	285 (100%)
Diagnostic laboratory	7 (2%)	42 (15%)	75 (27%)	160 (56%)	284 (100%)
Continuing education courses	15 (5%)	41 (15%)	134 (47%)	93 (33%)	283 (100%)
Association meetings	20 (7%)	56 (20%)	126 (44%)	82 (29%)	284 (100%)
Pharmaceutical representatives	21 (7%)	87 (31%)	119 (42%)	56 (20%)	283 (100%)
University extension service	192 (67%)	64 (23%)	23 (8%)	5 (2%)	284 (100%)
Veterinary medical library	217 (77%)	51 (18%)	11 (4%)	4 (1%)	283 (100%)
Computer databases	250 (88%)	24 (9%)	4 (1%)	5 (2%)	283 (100%)

Figure 1
Information resources used for critical care (n = 286 respondents)



formation resources used by these practitioners. Not well used as information resources were university extension services, university veterinary medical libraries, and computer databases. The low use of university extension services is probably best explained by the predominance of small-animal practitioners in the survey population. Extension veterinarians traditionally serve farm-animal and public health aspects of veterinary medicine. When the thirty-five rural practitioners answering the survey were assessed separately, responses to this question were varied. Thirteen practitioners received regular mailings from extension veterinarians, and eleven made phone calls or wrote letters to them. Twelve of these rural practitioners indicated that they had no contact at all with an extension service.

When asked which resources they preferred in critical-care situations (when a patient's life was threatened), books were ranked first (230 responses or 80%) (Figure 1). Emergency care handbooks, formularies, and veterinary therapy texts are probable tools in use by these veterinarians, but further study is needed to confirm the nature of these books. Nearly 60% of the respondents indicated that they might consult other practitioners or university clinicians, and about one half might use a diagnostic laboratory or consult jour-

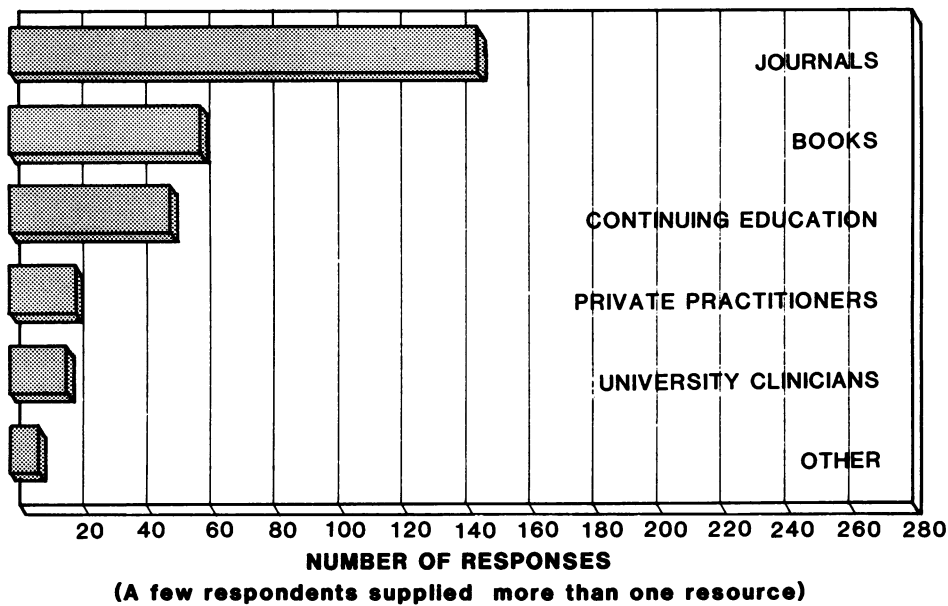
nals. Little use was made of veterinary medical libraries, computer databases, or extension services.

KEEPING UP-TO-DATE

As expected, journals surfaced again as the most important resource for obtaining up-to-date information on current advances in veterinary medicine (Figure 2). Books and continuing education were important to a smaller number of practitioners. That books were perceived as an important source for "keeping up-to-date" was somewhat disturbing, considering that this information would most likely be one or more years old. Interestingly, thirty-seven practitioners said that they use other practitioners or university clinicians as their most important resource. Responses in the "other" category included diagnostic laboratory, extension service, and salespeople.

Three-fourths of responding practitioners read from two to four journals regularly (2 journals for 24% of respondents, 3 journals for 28% of respondents, and 4 journals for 22% of respondents). Six percent of the practitioners said that they read none or only one journal, while 21.5% said that they read five or more journals regularly. These results correspond closely to those in Drake's 1978 report, even though more

Figure 2
Most important resource for keeping up-to-date (n = 270 respondents)



journals are now available [6]. Based on an analysis of journal citations in the CONSULTANT database, White concluded that small-animal practitioners should be able to keep up-to-date with disease literature by reviewing regularly five key veterinary journals covering their specialty, if used in conjunction with major textbooks or computer databases as needed [7]. Three of the journals named (*Journal of Small Animal Practice*, *Journal of the American Animal Hospital Association*, and *Journal of the American Veterinary Medical Association*) were also considered most useful by British practitioners [8].

In addition to specialty journals, veterinarians in large-animal or mixed practices sometimes need to review the literature on related topics. Veterinarians often provide the first line of defense in public health-related zoonoses. Preventive veterinary medicine is of great economic importance to animal breeders, farmers, and the general populace. Resources on these topics (produced by government agencies, private corporations, and extension services) are available in veterinary medical libraries. However, practitioners responding to this survey did not use veterinary medical libraries extensively (Table 3). Some respondents indicated that they used the telephone/mail reference service of the libraries "sometimes" to "often." Other traditional services to patrons, such as article photocopying, computer literature searches, and book/journal borrowing were "seldom" or "never"

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used. Interestingly, the responding veterinarians indicated that they would use these libraries more often if "they knew more about the services offered" or if "the library had a toll-free number to call" (Table 4).

Other considerations (such as proximity to the library, having a modem, expenses related to using the library, or knowing the hours open) were given little weight by these practitioners, although one could expect that each could enter seriously into an individual's choice of whether to use a library. A number of individuals who responded to the survey expressed the desire for more contact with these libraries.

Regular mailings of information packets were the most frequent type of contact with extension veterinarians by those survey respondents (108 or 44%) answering this question (n = 245). Twenty-eight percent of the respondents said that they contacted the extension office, while another 28% indicated no contact at all. The forty-two veterinarians who did not answer this question also can most likely be included in the last category.

Table 3
Veterinary medical library services used (by number and percentage of responses)

Service	Never n (%)	Seldom n (%)	Sometimes n (%)	Often n (%)	Total responses (%)
Telephone/mail reference	181 (64%)	40 (14%)	41 (15%)	19 (7%)	281 (100%)
Article photocopying	237 (89%)	23 (9%)	7 (3%)	0 (0%)	267 (100%)
Computer literature searches	245 (91%)	16 (6%)	8 (3%)	1 (0%)	270 (100%)
Book or journal borrowing	248 (91%)	17 (6%)	7 (3%)	1 (0%)	273 (100%)

COMPUTER USE

While almost one half of responding practitioners had the use of a personal computer in their practice, only 4% used computers to keep reprint files and only 3% to search databases for bibliographic information (Table 5). Apparently, the veterinarians in this survey had little interest in remote databases. The prediction by Pyle that "computer-based telecommunications will be widely accepted by veterinarians" [9] has yet to materialize in this survey group, although exposure to this technology is available to veterinarians through columns and articles in publications such as *Veterinary Economics*, *Veterinary Forum*, *Practice Management*, and *Veterinary Computing* (incorporated in *Modern Veterinary Practice*) and through the computer sessions and workshops that are appearing at some professional meetings. The idea of computer-assisted diagnosis has obviously yet to catch on among these respondents, as well. Only five respondents (4%) indicated use of this tool.

SUMMARY

Most responding veterinarians were small-animal practitioners who used the veterinary literature, colleagues, diagnostic laboratories, continuing education courses, association meetings, and pharmaceutical representatives as information sources. Books and other clinicians were the preferred information source

The veterinarians in this survey had little interest in remote databases. The prediction by Pyle that "computer-based telecommunications will be widely accepted by veterinarians" has yet to materialize in this survey group.

in critical-care situations, followed closely by diagnostic laboratories and journals. For keeping up-to-date, again journals and books, other practitioners, and continuing education were used. Continuing education courses and association meetings as information sources were probably ranked as they were because of the need for credits to retain licensure in most states. Of course, diagnostic laboratories are a source of clinical test results on specimens taken from patients, as well as clinical interpretation by expert diagnosticians. University extension services, veterinary medical libraries, and computer applications to information use were not important resources to most of the respondents. As noted by Drake in 1978, veterinary practitioners still appear to underuse information resources [10].

The results of this survey corroborate Northup's statement that physicians show a tendency "to respond to information problems along known pathways, which are probably established fairly early in

Table 4
Factors that influence veterinary medical library use (by number and percentage of responses)

Respondents indicated that they would use the library more if*	n (%)	Total responses
They knew more about the services offered	209 (77%)	272 (100%)
The library had a toll-free number to call	126 (46%)	272 (100%)
They had more time	79 (29%)	272 (100%)
Other (closer to library, had a modem, knew hours open, less expensive)	20 (7%)	272 (100%)

* Respondents could answer more than once.

Table 5
Personal computer use

Does your practice have a personal computer? (n = 287 respondents)			
"Yes" responses	(%)	"No" responses	(%)
130	(45%)	157	(55%)
If "yes," is it used (n = 130 respondents)			
To keep reprint files of book or journal articles?	5 (4%)		
To search databases for journal or book information?	4 (3%)		
For computer-assisted diagnosis?	5 (4%)		

a medical career" [11]. The findings are similar, also, to Stinson and Mueller's; they reported that physicians' most commonly used information sources were the medical literature, colleagues, professional meetings, and continuing education courses [12]. Woolf and Benson found that the most commonly used sources of reference information by physicians were textbooks and colleagues [13]. Veterinary medical students assessed for information-seeking behavior typically used books or handouts and classmates or instructors for information—neither the veterinary medical library nor computer databases [14]. But many respondents in this survey indicated that they would use the veterinary medical library if they knew more about these services and if there were access via a toll-free number. One means of enhancing the use of the veterinary medical library and its services would be increased incorporation of information-seeking skills into course objectives throughout the four-year veterinary curriculum. Other means of publicizing a library's resources, such as providing descriptions of new materials and services in state veterinary association newsletters, need to be explored. The Veterinary Medical Information Center at Purdue proved to be a valuable library resource program for veterinarians [15].

More data are needed on the quality and content of books in veterinarians' collections. Factors such as age, breadth, and depth of the collections would be useful in determining whether veterinarians are selecting the most useful tools in their practices or whether they need to use more outside resources. If, as this study has indicated, books are the basis for many medical decisions, are new editions of these texts purchased regularly? Veterinarians surveyed by Drake suggested that current information be available in condensed form [16], while British veterinarians preferred paperbacks in specialized areas and videos illustrating surgical techniques [17].

Albright hoped that traditional pathways of information retrieval for health professionals would be broadened to

accept the literature search as another essential clinical tool, no different from a good patient history and physical examination or an interpretation of a laboratory test [18].

According to Gray, however, veterinarians could not spare the time to do their own literature searches and did not want elaborate literature searches or long lists of references, but rather preferred summaries and critical reviews [19]. Practical limitations in the delivery and use of these resources necessarily include library funding or practitioners' willingness to pay. However, with the increasing trend to use computers in veterinary practices [20] and with the advent of diverse communication networks and CD-ROM tech-

nology, the opportunity for libraries to help reduce the information isolation of many veterinary practices is increasingly possible.

This study indicates that veterinarians continue to rely on personally owned books and journals for information needs despite the "computer revolution" and the availability of library services.

CONCLUSION

Since the survey sample of 287 respondents was small, the results cannot be generalized to the entire veterinary practitioner population. However, when considered in conjunction with other veterinary information use studies, the findings suggest that practitioners do not frequently use libraries or computer information services as information resources. This study indicates that veterinarians continue to rely on personally owned books and journals for information needs despite the "computer revolution" and the availability of library services.

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APPENDIX

Please check or circle all answers that apply to you

Type of practitioner: Single Group
 Small animal Large animal Mixed
 Other

Practice is located in which area?
 Urban Suburban Rural

In the last year, how often did you use these information sources?

	Never	Seldom	Some-times	Often
Veterinary literature	0	1	2	3
Veterinary colleagues	0	1	2	3
Association meetings (national, state)	0	1	2	3
Continuing education courses	0	1	2	3
Pharmaceutical representatives	0	1	2	3
Diagnostic Laboratory	0	1	2	3
University Vet. Med. Library	0	1	2	3
University Extension Service	0	1	2	3
Computer databases	0	1	2	3

Where do you look for critical-care (life-threatening situations) information?

- | | | |
|--|--|--|
| <input type="checkbox"/> University clinicians | <input type="checkbox"/> Other clinicians | <input type="checkbox"/> Diagnostic labs |
| <input type="checkbox"/> Books | <input type="checkbox"/> Journals | <input type="checkbox"/> Vet. Med. Library |
| <input type="checkbox"/> Computer database | <input type="checkbox"/> Extension service | <input type="checkbox"/> Other (please describe) |

Which of the above is your single most important source for "keeping up-to-date?" _____

How many journals do you read regularly? _____

Which services offered by your state university's college of vet. med. library do you use?

	Never	Seldom	Some-times	Often
Computer literature searches	0	1	2	3
Article photocopying	0	1	2	3
Book or journal borrowing	0	1	2	3
Telephone/mail reference service	0	1	2	3

Would you use this library more often if:

- Knew more about services offered
 Had more time
 It had a toll-free number to call
 Other (please specify)

Most contact with extension veterinarians is through:

- Regular mailings from them
 Your phone calls/ letters
 Other (please describe)

Does your practice have a personal computer?

- Yes No

If yes, is it used

- To keep reprint files of book or journal articles?
 To search databases for journal or book information?
 For computer-assisted diagnosis (for example, CONSULTANT software)?