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Veterinary Medicine: All Collections Great and Small

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ABSTRACT

The purpose of this chapter is to present the specifics of veterinary collection development within the context of general health sciences collection development. A basic understanding of the principles of collection development and its processes is assumed. The chapter provides historical background and current information on external forces that impact veterinary collections. It presents important aspects of the veterinary literature and the community of veterinary libraries and explains their impact on veterinary collection development. The chapter provides practical advice and strategies for developing and maintaining veterinary collections. It discusses important trends and future issues in veterinary collection development, including the need for an active advocacy role for veterinary collection librarians.

INTRODUCTION

With only twenty-eight veterinary schools in the United States, veterinary libraries represent an interesting case study in collection development. Veterinary libraries face many of the same challenges as any other academic or special library, such as space and budget challenges, materials inflation and the consolidation of publishers. But they also face a special set of challenges in dealing with the nature of the veterinary literature and their small number of geographically dispersed colleague libraries. The strong tradition of cooperation and information sharing among veterinary librarians, both nationally and internationally, serves to mitigate these challenges.

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In addition to the typical academic veterinary library collection development context there are numerous other types of libraries that collect in veterinary medicine. These include academic libraries serving pre-veterinary or biomedical sciences, animal science and equestrian programs, libraries serving veterinary technology training programs in community colleges and universities, zoo and aquarium libraries, and special libraries within drug companies and pet food companies. Professional practice specialty training continues beyond the veterinary school into internship and residency training programs at over 150 veterinary hospitals, most of which are not associated with universities and must also collect in veterinary medicine.

The scope of materials in an academic veterinary medicine collection is strongly influenced by the availability of resources in human medicine, agriculture, and life sciences. The collection must support the professional veterinary curriculum both in the classroom and in the clinical teaching arena. The academic veterinary library collection also often supports veterinary teaching hospitals, state diagnostic laboratories, pathology and parasitology departments, and veterinary and comparative medicine research programs.

This chapter provides an overview of collection development in veterinary medicine in the United States. It builds on standard concepts and operations in collection development to emphasize what is different or special in the context of the veterinary medical literature and the veterinary medical library. It builds on the principles and practices of collection development in health sciences libraries to provide practical advice and strategies relative to collection development for veterinary medicine.

BACKGROUND

Evolution of U.S. veterinary medical education

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Formal veterinary medical education in the United States began with privately-operated, for-profit institutions located in major cities. Inadequate curricula and entry requirements that could not meet the developing national accreditation standards, lack of support from the U.S. government, and a drop in enrollment due to the decline in horse-drawn transportation and World War I, led to the closing of proprietary colleges before 1927 (Miller, 1981; Smith, 2010). There is no record of libraries associated with these private institutions, and sadly, much of their history has been lost (Boyd, 2011).

Many current U.S. veterinary schools are based at large universities, aided by land-grant funding which began with the Morrill Act of 1862. Located in rural communities, new veterinary colleges founded at land-grant institutions placed priority on agricultural animal medical management and associated public health issues (Smith, 2010). These public veterinary colleges began to emerge with Iowa State in 1879 and developed slowly. Only 10 schools were established before World War II so the majority of U.S. veterinary schools and their libraries are relatively young. This has major implications for the preservation of the historical record for United States veterinary education and practice.

Traditionally, the four-year veterinary medical curriculum has consisted of three years of pre-clinical courses, taught using primarily didactic, lecture-based forms of instruction, followed by a fourth year of hands-on, clinical rotations. Two learning methods introduced in the human medicine curriculum, problem-based learning and evidence-based practice are being transplanted into veterinary curricula.

Problem-based learning (PBL) emphasizes self-directed, group learning and integrates the basic sciences into patient cases (Dodd, 2007) to solve a defined problem. During the 1980's and 1990's, PBL became accepted in medical schools across America and in Europe (Savery, 2006). The inclusion of PBL is increasing in veterinary schools; a small number of schools use it as the predominant method of instruction for their pre-clinical curriculum.

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Evidence-based medicine (EBM) involves the integration of the best research evidence with clinical expertise and a patient's unique values and circumstances in making a clinical decision (Straus, Richardson, Glasziou, & Haynes, 2005). In the 1990s, the approach spread rapidly through the medical school curricula, aided by the increase in published results of patient-centered clinical research. The term *evidence-based medicine* in a veterinary context does not appear in the veterinary literature or its indexes until 1998 (Hardin & Robertson, 2006). Although the concept is being explored, many veterinary colleges do not yet have a course in evidence-based veterinary medicine (Fajt, 2010). Implementing an evidence-based approach in veterinary medical education has also been hampered by the limited number of evidence-based reviews and clinical trials in the veterinary journal literature, resulting in little primary scientific evidence on a particular topic (Cockcroft & Holmes, 2003).

The shift in the veterinary curriculum toward a more problem-based or evidence-based approach, which is much more library and collection resource intensive, influences veterinary collection development.

U.S. academic veterinary libraries

The development of veterinary education at large, land-grant universities has had a direct impact on the nature of U.S. academic veterinary libraries. Academic veterinary libraries serving the 28 American Veterinary Medical Association (AVMA) accredited veterinary colleges in the United States are often administrative units within a university library system, reporting to the main university library. A minority report directly to the veterinary college. More than half of these 28 libraries exist as a separate library that primarily serves the faculty, staff, and students of a school or college of veterinary medicine. The remaining libraries exist either as a separate library unit that serves veterinary medicine and additional curriculum areas such as medicine or agriculture, or as a veterinary collection that is housed in separate locations, like a campus library and a clinical library (Ugaz, Carrigan, & Moberly, 2011).

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Organizational reporting lines directly impact the scope of veterinary collections, their funding levels and the degree of autonomy with which they are developed.

Sources of Influence on Collections

American Veterinary Medical Association accreditation

The AVMA accreditation standards that address expectations for libraries are important to any library that serves a professional school. Advanced certification and specialty training programs also establish expectations for the availability of resources. These both have a significant, positive impact on veterinary collections. In veterinary medicine, the AVMA, through its Council on Education and its Recognized Veterinary Specialty Organizations, wields significant influence on veterinary collections. In 1921, when the AVMA approved the first outline for essentials of an approved veterinary college (American Veterinary Medical Association, 1922), it recognized that colleges needed a working library with veterinary texts and journals. But this description covered only the library space and materials. Beginning with the “Essentials of an Acceptable Veterinary School” published in the 1947 AVMA Directory, the list of library requirements expanded to include more than facilities and materials, stating “a trained librarian should be employed to supervise the operation and development of the library” (American Veterinary Medical Association, 1947, p. 22).

The AVMA Council on Education (COE) is the only recognized accrediting agency for colleges of veterinary medicine in the United States and Canada. Accreditation of programs leading to a doctor of veterinary medicine or equivalent ensures that colleges meet quality standards and prepare graduates for entry-level positions in the profession (American Veterinary Medical Association, 2011a). The COE’s policies and procedures include an official set of standards which cover everything from admission policies to curriculum and physical facilities.

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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 (American Veterinary Medical Association, 2011b, Standard 5 section, para. 1).

Advanced specialty training programs

The AVMA COE's standards state that colleges "should establish post-DVM/VMD programs such as internships, residencies, and advanced degrees (e.g., MS, PhD), that complement and strengthen the professional program," (American Veterinary Medical Association, 2011b, Standard 6 section, para. 2). Internships and residency programs provide in-depth training in a specific clinical discipline. A residency usually leads to specialty certification in an AVMA-recognized veterinary specialty organization. Veterinarians can become certified as specialists in particular systems (e.g., theriogenology), disciplines (e.g., internal medicine), and types of practice (e.g., zoo medicine) or species. Most of the 21 AVMA-recognized veterinary specialty organizations that administer specialty examinations provide candidates with reading lists to help them prepare for the tests. It is imperative that veterinary librarians maintain an awareness of the AVMA accreditation standards and shape veterinary collections and services to meet them. Recognized veterinary specialty organization reading lists are also important tools in building or benchmarking veterinary collections.

Veterinary Medical Libraries Section of the Medical Library Association

The Veterinary Medical Libraries Section (VMLS) of the Medical Library Association has been a positive force in the development of veterinary collections for nearly forty years. In an effort to improve inter-library cooperation, veterinary librarians sought to create their own group within the Medical

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Library Association. Officially recognized in 1974, the Veterinary Medical Libraries Group, later renamed Veterinary Medical Libraries Section, encourages “development of and cooperation among veterinary medical libraries, and fostering a forum for the exchange of ideas and the discussion of mutual problems and concerns” (Henley, MacNeil, & Stephens, 1999, The Beginnings section, para. 3). One of the section’s earliest projects was the preparation of the first list of veterinary journals essential to the operation of a veterinary medical library, which was published in 1978. The section has produced union lists to facilitate resource sharing across veterinary libraries, three editions of a basic list of serials to guide veterinary journal collections, and compilations of recognized veterinary specialty organization lists (Henley et al., 1978; Boyd, Hull, MacNeill, Malamud, & Anderson, 1986; Medical Library Association, 1980; Medical Library Association, 1988).

Recognizing the need to provide guidance, the VMLS undertook the development of a set of standards for academic veterinary medical libraries, written from a librarian perspective. In 2000, it appointed a Standards Committee to define standards for an ideal academic veterinary medical library. Six standards were released in 2005 (Murphy, Bedard, Crawley-Low, Fagen, & Jette, 2005), which describe collections, services, personnel, hierarchical reporting within institutions, resource allocation, space, and participation in cooperative programs. “The library’s collection supports the educational, clinical, and research programs of the veterinary medical institution. The collection may be the library’s principal collection or may be integrated with other complementary collections such as agriculture or human health,” according to Standard 1 (Murphy et al., 2005, p. 130). The explanation specifies collecting all types and formats of veterinary materials at the research level and related materials, including biomedical research, clinical sciences, and animal science, based on local availability from other libraries. The standard further directs that professional library staff responsible for collection development have a written collection development policy. VMLS continues to provide and update a corpus of materials to guide the development of veterinary collections.

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National Libraries

Veterinary libraries have, in effect, three national libraries, the National Library of Medicine, National Agricultural Library, and the Library of Congress. No single national library covers all resources in veterinary medicine. These three libraries have developed a joint collection policy on veterinary medicine materials (National Library of Medicine, National Agricultural Library, & Library of Congress, 2009). This policy statement can serve as a collaborative collections model and provide guidance for veterinary libraries within a university library context and for those veterinary libraries that also cover other subject disciplines. All veterinary librarians should stay informed of developments at these libraries relative to veterinary collection coverage and consider their implications for local collections.

Library Users

While professional influences on the collection create a foundation for quality and adequate coverage in veterinary collections, input from users provides an important parallel guiding force for collections. Ultimately, users are the judge of whether the collection meets their needs, so a clear understanding of those needs and the development of readily available feedback loops for user input are essential elements in any effective collection development operation. Richards and Eakin (1997) provide a thorough discussion of needs assessment and feedback loops in health sciences collection development.

Mechanisms should be in place to encourage and allow easy submission of individual user recommendations for additions to the collection. The collection policy should document how individual user recommendations are handled, including a review process that can be readily shared with users. In a more formal arrangement, college or departmental library committees, curriculum committees, or other advisory groups can provide purchasing decision input. Regular review of departmental syllabi or

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lists of required and recommended reading for courses can help ensure that the collection supports the curriculum and provide users with another channel for input into the collection.

PRACTICAL ADVICE

Skill Sets for Veterinary Collection Development

The basic skill set for most collection development work, which is also valid for veterinary medicine collections, includes subject knowledge, analytical skills, knowledge of the publishing industry and technology, critical judgment, negotiation skills and communication skills (Carrigan, Higa, & Tobia, 2008).

Developing and maintaining a veterinary collection requires a broad knowledge of the veterinary literature. A multifaceted approach is recommended to keep current with veterinary materials. Book reviews, found in veterinary journals and through the CAB Abstracts database, are an essential tool in awareness of the literature and informed purchase decisions in veterinary medicine. Regular searching of online bibliographic monographic databases, such as OCLC, using a consistent set of keywords, or developing alerts based on a subject profile on aggregate online sites can be very effective current awareness tools. Subscriptions to e-mail, print, or online catalogs from publishers, or RSS feeds are also useful. Periodic scanning of species and specialty organization websites often yields information on new resources. There are also free online services available, such as ChangeDetection.com, which will supply a notification of any content updates. Veterinary librarians are sometimes able to register on veterinary information service websites that are actually intended for veterinary students and practitioners. These can be an excellent source for information on current topics of interest or recommended publications.

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Another requirement for veterinary collection development is an understanding of the local academic and veterinary community environment. This includes an awareness of the institution's academic programs, clinical services, and research strengths. Academic programs to be supported beyond the college of veterinary medicine might include areas such as physiology, animal science, poultry science, zoology, genetics, biostatistics, public health, fisheries or wildlife management. Good sources for this information include relevant institutional websites, course catalogs and annual report publications. An awareness of faculty-authors can also help to build the collection and garner support for it. Tools such as Web of Science can identify which journals are publication outlets for faculty research. Outreach efforts to maintain contact with alumni and local clinicians through state and local associations or the alumni association provide an opportunity to discover topics discussed and materials used in practices. Attendance at veterinary conferences and publisher exhibits can also provide insights.

Staffing and Workflows for Collection Development

The span of activities involved in collection development as well as staffing and workflows are not primarily subject-dependent. They are more directly influenced by the administrative reporting relationships of the veterinary library, the degree of autonomy of the library and its budget, and the degree to which library services have been centralized. Since most U.S. veterinary libraries undertake collection development within the framework of the main university library, an understanding of the collection development staffing and workflows of the main university library is essential.

There are a few key issues specific to veterinary collection development that are worthy of note. Because of the importance of grey literature and the international nature of the veterinary literature, an approval plan alone does not provide adequate coverage of the veterinary literature. Since they are seldom included in approval plans, publication listings of small veterinary publishers and important veterinary associations should also be checked regularly. Because veterinary medicine also relies on the

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literature of biomedical research, human medicine and other areas such as nutrition, animal science, wildlife management, and zoology, establishing regular communications and patterns of collaboration with other institutional collection development colleagues is critical.

Collection Policies

As noted above, a collection development policy is expected by the VMLS Standards for Veterinary Libraries. Since the policy serves as a guide in making choices about items chosen for the collection, it is also a practical tool for the librarian. A collection policy can also serve to inform users, colleague libraries, and the parent library/institution about the scope of the veterinary collection. The fact that veterinary medicine relies on other resources in the areas of biomedical research and other life sciences makes a collection policy for the veterinary collection especially helpful in clarifying and building collection collaborations within a university library context. Collection policies vary in the level of detail contained, their specificity and format, but all should contain a statement of the purpose and scope of the collection, an institutional context for collection practices, specific information about types of materials added to the collection and details about how comprehensively the library attempts to cover specific areas within and peripheral to veterinary medicine (Bryant, 2006; Mississippi State University Libraries Faculty, 2006; University of Pennsylvania Libraries, 2007; Wiese, 2006). The collection development policy should guide the selection of both core veterinary and peripheral collections. It should consider institutional programs to ensure a collection that meets the needs of veterinary students, faculty and researchers. The policy should also specify which of the types of collections described below are included in the library's collection.

Current clinical resources

The development of clinical practice skills is a critical component of veterinary medical education. Clinicians and students in veterinary medicine programs need access to a comprehensive

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collection of resources that present information on current clinical research and treatment of animal diseases. Unlike other fields, textbooks in veterinary medicine often serve as reference books and form an integral part of any clinical collection. Beyond the standard textbooks and journals, this literature is largely grey and includes important clinical studies, drug studies, trial and case reports, and conference proceedings. Growing interest in evidence-based veterinary medicine will increase emphasis on this type of literature, which seldom appears in the conventional book and journal literature (Jaros et al., 2008). In some cases, veterinary medicine draws from clinical human medicine literature; but for the most part, a veterinary collection needs to cover a broad range of species and specialties relevant to animal health. Directly associated with clinical veterinary medicine is animal husbandry as it relates to animal health and public health. The library's collection development policy serves as a guide to select items that should receive emphasis, like items for specialty training programs and research areas that are a focus for the local veterinary institution. Clinical collections could also include resources to help establish a veterinary clinic like resources on veterinary economics, practice management, handling and housing of animals.

Biomedical research resources

Because of the interdisciplinary nature of veterinary medicine and its reliance on the literature of human medicine, a standard veterinary medicine collection also requires access to materials that support biomedical research as well as clinical practice. This access to biomedical research materials may be provided through broader university library collections, collaborative resource sharing arrangements with colleague libraries, or through the purchase of selected biomedical research materials by the veterinary library. Smaller veterinary branch libraries usually focus predominantly on resources that support veterinary medicine, depending on the university library to provide the majority of the biomedical resources, while libraries that combine other programs like medicine, agriculture, or

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animal science will cover a broader range of subjects. Those libraries that support programs in the life sciences or a medical program will collect basic sciences and biomedical research more comprehensively. The collection development policy should clearly define the scope of biomedical collections for the particular library situation.

Consumer or popular materials

A veterinary library collection might include collections of resources aimed at the consumer of veterinary services, the animal owner. However, the collection development policy should state goals and the purpose for materials in this area, and set clear expectations for these materials to meet the same standards for reliability and authority that is expected of other materials. This type of collection is also a resource to professionals in clinics who want reference materials aimed at the general public; or if the library is open to the public, professionals could refer clients to the library for further reading.

Murphy (2006) developed a specialized core list of books about pet health appropriate for pet owners. If non-English languages are common to audiences for consumer or popular materials, consider online resources in those languages, such as the website of Spanish Animal Health Information Resources (North Carolina State University Libraries, n.d.).

Archives

When there is not an established veterinary archives collection elsewhere, the library is often considered the obvious choice to house historic institutional materials. These could include official publications of the college, personal papers of notable faculty or leaders, photographs, newsletters, collateral material from sponsored events, institutional realia, and copies of locally produced conference proceedings, symposia, or continuing education publications. Veterinary librarians should investigate where the college archives are maintained and gather details about the scope of the archival collection. If an archival collection does not already exist, the veterinary librarian should undertake its development

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in an effort to preserve the history of the college. The availability of personnel and space resources will determine the scope of the collection that is feasible. As with all collections, the archives should be developed following a policy that clarifies a specific mission or purpose, defines program goals, and specifies items to include and exclude. Archival collections usually have different processing procedures, management plans, or special handling requirements.

Historical collections

Some veterinary libraries, especially those connected to a large university library with established broader historical collections, may develop a veterinary historical collection. These collections are usually developed to document the history of the veterinary literature and the history of the practice of veterinary medicine. They sometimes exist as part of a plan to collect comprehensively in veterinary medicine because users have communicated the need for historical veterinary collections. It is often the case that gift items build the historical collection. Items in the collection are selected for importance and as the best representative works that serve library users' research and educational needs. These include early editions of monographs or other materials that chronicle changes and developments within the field of veterinary medicine. The collection development policy should address whether to actively acquire materials for the historical collection and should clearly define the scope and any special focus for the historical collection (e.g., equine). There should also be procedures for the proper handling and preservation of rare or fragile items, including digitization. It is most important to find an acceptable means to provide intellectual, as well as physical, access to the historical collection while maintaining security measures for valuable or fragile materials.

Languages

Veterinary medicine is an international discipline with a literature that spans many non-English languages. German and French, as the primary non-English languages of science, are the languages

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most commonly acquired. Languages for species-specific content vary. The languages spoken or read by local user populations will also influence the selection of materials in other non-English languages. The collection development policy should define the languages that are in scope for the collection.

Gifts

The collection policy should also clarify the library's approach to accepting gift materials and provide gift handling procedures that are available to all library staff. Gifts can be an excellent source for filling in gaps in journal holdings or proceedings, or for adding a copy of a popular text. Retirements or office moves are an opportune time to remind people of the library's gift procedures or policies. The administrative or development office in the veterinary college often receives direct donations of newly produced books, conference proceedings, and subscriptions. These offices are also a good information source on collections that alumni or local veterinarians wish to donate. Developing a relationship with the Dean and administrative assistants will help to remind them to contact the library about these donated materials. Some gifts may contain ephemera that might not be part of the intended scope for the library collection. Explore the veterinary college or university's interest in this material.

Material Types

Types of material the library collects should be defined in the collection policy, which should also clarify the preference for particular formats, such as a preference for electronic versions over print.

As is the case for most health sciences and medical collections, scientific journals form the heart of the veterinary medicine collection. While the proportion of veterinary journals that are available in both print and electronic format continues to increase, there are still important journals like the *Journal of Veterinary Dentistry* that are only in print. A review of the candidate journal titles for inclusion in the "Basic List of Veterinary Medical Serials" (Ugaz, Boyd, Croft, Carrigan, & Anderson, 2010) revealed that

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76% were available online. A review of the journal titles chosen for inclusion in the veterinary listings in *The Medical Library Association's Master Guide to Authoritative Information Resources in the Health Sciences* (Boyd & Carrigan, 2011) yielded 97.4% available electronically. Although for some veterinary journals print will still be the only format available, veterinary librarians do need to consult with their users and parent libraries/institutions to clarify a policy for format preference and whether duplicate print versions of journals will be purchased and/or retained.

Monographs are especially useful to students during the first three years of veterinary education and are often part of assigned reading lists. Many veterinary textbooks actually serve as a key reference text in a subject area. Electronic versions of veterinary monographs are much less available than veterinary journals. A review of the monograph titles in the *Master Guide* publication (Boyd & Carrigan, 2011) identifies only 20.5% are available electronically. Often, print textbooks have video content or references that are only available online using the individual purchaser code that comes with the book. Other publishers may include a CD or DVD in the book that contains supplementary content that is not available in print. Librarians need to plan how to handle digital content that comes with print materials.

Grey literature is critical to the study and practice of veterinary medicine and poses challenges for collection development. Professional societies, academic and government institutions generate publications such as conference proceedings, research studies, and other works that are not controlled by commercial publishers. There are three types of particularly endangered grey veterinary literature: publications from and about defunct veterinary schools, veterinary supply catalogs, and publications from veterinary-related companies or house organs (Boyd, 2011; Jaros et al., 2008). In a 2002 citation analysis of 12 core veterinary journals, grey literature was estimated to comprise 6 percent of the veterinary medical literature (Pelzer & Wiese, 2003); many practicing veterinary librarians now consider

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that a very low estimate. In 2007, veterinary librarians met and formed the Veterinary Archives Grey Literature Steering Group (V-Ags) to explore identification, collection, and preservation of grey literature, hidden collections, and archival materials (Jaros et al., 2008).

Conference proceedings, usually also grey literature, are a key source of information on veterinary research studies and case reports, often emanating from specialty meetings. Databases such as CAB Abstracts index only some of these papers, but also include online full text for a number of veterinary conference proceedings. In some cases, the society responsible for the conference captures multiple years of proceedings into a searchable digital library. Some conferences send complimentary copies of proceedings to each veterinary college, but individual veterinary faculty can also be excellent sources of these proceedings. It is important for the veterinary librarian to identify key veterinary associations and actively pursue the regular purchase of their proceedings. International Veterinary Information Service (IVIS, <http://www.ivis.org/>), an online resource that is free to veterinary students, veterinarians and librarians provides access to numerous proceedings of international veterinary associations.

Government documents, a subset of grey literature, provide veterinary collections with critical animal disease statistics and industry standards information. Major producers are the World Organization for Animal Health (OIE), Food and Agriculture Organization of the United Nations (FAO), the U.S. Department of Agriculture, the Environmental Protection Agency, the Centers for Disease Control and Prevention, and state public health, veterinary, agriculture, or consumer affairs divisions.

As in any library collection, bibliographic databases are central to the process of locating relevant literature. Online bibliographic databases such as PubMed and CAB Abstracts are essential components for any veterinary collection. Databases that serve the fields of zoology and biology can also provide additional information resources pertinent to the wide range of species and particular

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environments that are encountered in the study and practice of veterinary medicine, particularly in zoo and wildlife medicine. Alpi, Stringer, DeVoe, and Stoskopf (2009) described species coverage of wild animals in various literature databases.

Electronic decision support tools are also important resources for the veterinary collection, although there is limited availability of products. These resources integrate clinical veterinary information from a point-of-care perspective. The Consultant database is an example of a free decision support tool created by the College of Veterinary Medicine at Cornell University (2011). VetMed Resource is another database designed for practicing veterinarians that is available free of charge to veterinary students (<http://www.cabi.org/VetMedResource/>). It is the most comprehensive single source of information on all aspects of veterinary medicine available online, being based on the indexing and abstracting citations and full text documents from CAB Abstracts. IVIS is another freely available online full text resource and decision assist tool.

Images greatly enhance the study and practice of veterinary medicine. While the recent trend has been to issue these in online versions, there are still physical veterinary audiovisual media available. Image collections also accompany and supplement print veterinary texts. These image resources often require collaboration with information technology experts. Exercise caution when purchasing physical media produced in other countries since the format may be incompatible with United States standards. Some media may require installation of special software in order to function properly.

Veterinary collections with a focus on wildlife health, infectious diseases or public health benefit from geographic information systems, maps, and other data sources. Market data from commercial sources is typically quite expensive, but the American Veterinary Medical Association also produces veterinary data sets that are much more reasonably priced.

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As more veterinary electronic resources become available, it is critical that librarians develop clear policies and guidelines for selecting them. The purchase decision for electronic resources contains layers of complexity beyond the print resource since there are numerous additional factors for consideration such as user interface, search functionality and license parameters. The usability and discoverability of electronic resources are important considerations. For some users, if the journal website is not searchable to the article level using Google, the content is practically invisible. Evaluate the suitability and value of electronic resources during a trial period when both library users and staff can assess the product and provide feedback before purchasing. Usage data (preferably COUNTER-compliant), institutional authorship, and citation data can be used to evaluate current electronic resources. Carrigan, Higa, and Tobia (2008) provide practical suggestions and extensive checklists for the selection and evaluation of electronic resources. Issues surrounding the technical suitability and currency of the format should also be explored. Give careful consideration to terms of licensing agreements for electronic materials. Licenses will define details such as who is considered an authorized user, how access is accomplished (IP Registration or login and password), limitations on the number of simultaneous users, and whether archival access to purchased electronic content is guaranteed. Many institutions provide a centralized legal review service for contracts that should play a key role in any license review.

Selection Tools

Approval Plans

Although no approval plan alone can adequately cover the veterinary literature, they can be useful tools in acquiring material. Many veterinary medicine libraries use approval plans with book vendors such as YBP Library Services, Matthews Book Company, Rittenhouse Book Distributors, or EBSCO Book Services. These plans are either blanket approvals, where books meeting selection criteria

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are shipped to the libraries; or paper or electronic slip plans, where collection managers receive notifications when materials meeting their selection criteria are available. The first step in implementing or refining an approval plan is the review of the collection development policy. Approval plans can be customized to include call number ranges, subject headings, faculty authors by affiliation, and interdisciplinary topic groupings, as well as specifying preferred formats, and other standards established in the collection policy. Many of the small publishers of veterinary books may not be covered by the approval plan; those materials will need to be acquired through other means. Approval plans also can offer the opportunity to engage in peer collection analysis with other veterinary libraries using the same approval vendor.

Core Lists

Since the time of its publication, the “Basic List of Veterinary Medical Serials” (Henley et al., 1978) has served as a collection development tool at veterinary medicine libraries and non-veterinary libraries that support programs in animal health and related subjects. A recently updated edition of this list (Ugaz et al., 2010) provides a current tool for selecting and evaluating serials in veterinary medicine. In recognition of the interdisciplinary nature of veterinary medical research, the first list included not only core veterinary medicine titles, but adjunct titles in human medicine, agriculture, and general science. Research into the interdisciplinary nature of veterinary medicine has led to the development of core lists of journals in other subject areas considered valuable to a veterinary collection (Crawley-Low, 2006; Youngen, 2011). Youngen’s (2011) research suggests a methodology for each library to develop its own complementary list of core resources.

Core lists also exist for veterinary medical monographs. Olson’s (1993) core list of monographs in animal science and health, while not current, looks deep into the literature and places an emphasis on materials that continued in print through multiple revisions. Crawley-Low’s (2004) bibliography is a

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thorough list of recommended books across subject areas in veterinary medicine, with an updated, searchable online version currently hosted by the University of Saskatchewan Veterinary Medicine Library. Core lists in human medicine, such as *Doody's Core Titles in the Health Sciences*, (<http://www.doody.com/dct/>) are also useful to select top publications for a basic medicine collection within the veterinary library.

Recognized veterinary specialty organizations

As mentioned previously, the lists created by specialty organizations for suggested reading materials to help candidates prepare for veterinary specialty exams are important tools for building or benchmarking veterinary collections. Experts in various practice specialties have identified the books, journals, and other materials listed as crucial to their fields. The VMLS has a project currently underway to consolidate and maintain these recommended reading lists, which can be a challenge to locate on the web or through direct communication with the organizations.

Book Reviews

As with other subject disciplines, book reviews are useful tools in identifying materials to be added to the veterinary collection. Book review publications like *Library Journal* (Media Source Inc.), *Choice* (Association of College and Research Libraries), *Booklist* (American Library Association), and publications like the *Journal of Agricultural & Food Information* (Taylor & Francis) and the *Journal of the Medical Library Association* (Medical Library Association), include reviews of books and electronic resources in veterinary medicine and related subjects. Book reviews in veterinary medicine are featured in journals, newsletters, and websites. Government organizations like the USDA's Animal Welfare Information Center, veterinary specialty organizations, and other veterinary and animal science organizations also review books. Doody's Review Service, a commercial product, covers veterinary

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medicine as a separate category. The Veterinary Support Personnel Network and the Veterinary Information Network (VIN) also have book reviews from clinicians.

Budgeting

Because most collection development decisions are made within a budgetary context, budgeting is an integral part of collection development. Specific budget situations and autonomy within veterinary medical libraries span a wide range, which usually follows the financial requirements of the library's parent institution (Richards & Eakin, 1997) and its management structure. According to an informal 2011 email survey of U.S. academic veterinary libraries, most report to a main university library that is also their primary funding source (Ugaz et al., 2011).

This predominant organizational structure results in a mixed bag of funds that the parent library, the veterinary college and the veterinary library control. Funds are often allocated on the basis of subjects, academic departments, or material types. The structure and ability to allocate and track the veterinary library budget depends on the university library budget structure and expenditure tracking mechanisms. Collaborative licensing of electronic resources, both journal and e-book packages, further complicates veterinary library budgeting and expenditure reporting.

Regardless of the source and extent of collection budgets, there is a consistency across veterinary libraries: journals are the heart of the collection and consume the largest portion of the collection budget; there is a preference for online journals; and, veterinary libraries exercise the most autonomy with monograph purchases. The greater autonomy experienced by veterinary libraries in monograph purchases is not unique. Most academic libraries have collection budget structures that still support monograph purchase decisions by the individual subject selector. Those monograph purchase decisions offer a level of autonomy which is becoming more uncommon in the world of electronic big package deals. Veterinary libraries also face similar collection budgetary challenges as other academic

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libraries: continuing collection costs inflation and increasing user expectations for information resources.

Collection analysis and benchmarking

A good collection analysis plan can reveal the collection's usefulness, identify strengths or weaknesses in subject areas, identify peripheral subject areas in need of development, support decisions regarding electronic or print formats, and support renewal decisions; it is particularly essential for cancellation decisions. Standard analysis methods used for other subject areas of a collection are indeed applicable to a veterinary collection. Collection-centered analysis tools such as veterinary-specific standard lists, bibliographies, and peer comparisons are several approaches to benchmarking or assessing the collection quantitatively (Richards & Eakin, 1997). Use-centered methods which involve analyzing usage data, interlibrary loan requests, and patron purchase requests are additional means of identifying local use patterns and validating collection expenditures.

Core lists, such as the ones created by veterinary librarians are especially useful in determining if the essential titles in the major subjects are held by the library (Henley et al., 1978; Boyd et al., 1986; Ugaz et al, 2010). Librarians have used various methodologies to produce not only lists of serials and monographs necessary for a basic veterinary collection, but lists have also been created to address the breadth of serial literature that complements and supports veterinary medicine (Crawley-Low, 2006; Youngen, 2011). The subject groupings used in most core lists presents the opportunity to select titles in any combination of subject areas, based on the needs of the institution. Similar to specialty boards in human medicine, recommended reading lists compiled by veterinary specialty boards would likewise serve as a tool for assessing the collection's coverage of the many veterinary specialties. The expertise behind the recommended reading lists not only helps guide those preparing for the specialty board exams but the reading selections highlight relevant and practical resources from the point of view of

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practicing veterinary professionals. Assessment of the collection based on any of these lists will need to take into account title availability from any parent institution, especially for coverage in the basic sciences or other areas of shared collection development. Gaps identified in this type of analysis may also be logically explained by programs that are not a focus of the institution and which have been intentionally excluded.

A major issue for the small community of veterinary libraries is identifying appropriate benchmarking partners with whom to compare collections. Assessment services, such as those through regional library groups or OCLC (WorldCat Collection Analysis Tool), provide programs for comparing collections against peers. While the libraries may be quite different in their sizes and scopes to be considered true peers, collection comparisons can still reveal unique holdings and subject strengths. Comparisons of core veterinary collections using this tool are straightforward, since almost all veterinary libraries catalog their core materials using the Library of Congress S classification for veterinary medicine. There is a challenge in comparing peripheral collection areas within veterinary libraries since those areas may be cataloged either with Library of Congress or National Library of Medicine classifications, depending on the particular situation of individual libraries. Veterinary librarians in the Medical Library Association's VMLS have also been active in conducting surveys of their members to establish benchmarks and best practices in library services, collections, expenditures and staffing (Medical Library Association, 2002).

Collection use data provides the foundation for assessing the collection from the local user perspective and completes the collection analysis process begun through the collection-centered methods mentioned above. It offers the unique perspective of how well the collection is meeting the needs of the user. It is important to have clear goals for collection analysis since processes need to already be in place, or will need to be established based on assessment goals. This could include a

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process for recording use of the print collection or exploring the ability to gather data from vendors of electronic resources. Examining for potential cancellations will necessarily involve cost per use calculations and typically focus on titles that are not considered core to the collection and which offer the option to cancel, as opposed to being part of a non-cancellable package. Before cancelling, it is important to explore whether low use resulted from users having difficulty finding the resources or from lack of awareness. These two issues may necessitate design changes to the library website to enhance discoverability or a new marketing plan to increase awareness. If an assessment of use in particular subject areas results in a low cost per use figure, then justification can be made for seeking additional materials and increasing funding in that subject area. Analyses of interlibrary loan activity and user purchase requests are also good indicators of subject areas, especially those outside of veterinary medicine, which need to be explored for purchase or licensing. In all of this collection analysis work, particularly cancellation decisions, it is essential to have a good working knowledge of veterinary programs and research activities or to develop relationships with all types of users to solicit feedback and support for collection decisions.

Retention, deselection and cancellation

Retention, deselection and cancellation decisions may occur as part of the standard acquisitions process or result from a specially planned evaluation or weeding project. Activities like withdrawing items in poor condition, eliminating duplicates that are no longer needed and withdrawing editions that have been updated are routine to most libraries; but within a veterinary collection certain retention, deselection and cancellation decisions can have a host of issues and implications associated with them. These activities are especially significant when considering the limited number of veterinary programs and the resulting loss of information if no other library has a particular monograph that is being withdrawn or no library owns a complete run of a veterinary serial that has long ceased. Since a single

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national library does not exist in the area of veterinary medicine there is a greater likelihood of incomplete coverage and inconsistencies in the retention of older veterinary materials. Growing concerns for the potential loss of veterinary history due to space and budgetary constraints have led to coordinated preservation efforts by veterinary libraries.

Many veterinary collections are held in branch libraries where space restrictions are a problem. These space constraints may result in a policy that limits the retention of older volumes. If the library maintains a historical collection, then materials of historical interest are retained, including earlier editions of veterinary textbooks. For libraries that do not have the space, materials could be moved to a main campus library or special collection that can accommodate them, or if the library has access to a storage facility they could move important pieces out of the active collection and into long term preservation. Collection decisions related to previous editions or historic collections should be documented for future library staff to implement the policy consistently.

Titles that fall out of scope or prove uneconomical because of cost per use data are often candidates for cancellation in the course of standard collections management operations. More common is the cancellation of print serials in favor of an online subscription. The cancellation decision is a particular type of deselection and should follow a policy and process as did the original selection decision, including user input.

Preservation and digitization

Preservation of veterinary library collections includes efforts to retain print materials and ensure continued access to the collection's content, whether print or digital. Examples of efforts to preserve print materials range from binding journal issues to collaborative plans for retaining historical print materials on a regional or national scale. Efforts to ensure continued access include digitizing resources and establishing licensing requirements for archival access guarantees from publishers.

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The collection development policy should guide preservation decisions (Richards & Eakin, 1997). The National Library of Medicine (NLM) has outlined a preservation program and print retention plan that provides a framework and context for local decisions about biomedical literature. Preservation and the development of print retention plans in veterinary medical libraries should include gathering and sharing information with other veterinary libraries and the NLM (National Library of Medicine, 1988; Byrnes, 1989; National Network of Libraries of Medicine, 2011). Because of the relatively small number of veterinary libraries, a print retention plan is especially critical. Geographical distribution could be an important factor in building a print retention plan and determining the location of print archives.

Digitization, making an electronic or digital copy of the intellectual content, is another technique to preserve content. Within the veterinary literature, grey literature is the most likely first candidate for digitization because much of the locally created or published content does not have copyright restrictions. As with preservation planning, veterinary libraries should gather and share information with other veterinary libraries to create their digitization preservation plan. The feasibility of large-scale cooperative digitization projects and copyright law limitations are still being tested. There are also audiovisual media created in earlier formats still available in veterinary collections. Librarians should be aware of all formats included in the media collection and be certain all can be accessed with current technology. Conversion of older formats that are still used, such as slide sets, reel tapes, and VHS tapes, to DVD or online versions is necessary to preserve valuable content.

COLLABORATION IN COLLECTION DEVELOPMENT

Given the relatively small number of veterinary libraries, both in the U.S. and internationally, it has been possible to build a close international network of active veterinary librarians, which is supported by several formal associations and an online veterinary discussion list.

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North American veterinary librarians have a history of nearly a half century of collaborative work through the VMLS. Members active on the VMLS International Cooperation Committee have expanded their activities and connections beyond the United States and several international veterinary conferences and groups have resulted. The International Conference of Animal Health Information Specialists began in 1992 and continues today with meetings every two to three years. Animal Health Information Specialists in the United Kingdom and Ireland (AHIS-UK & Ireland) was formed in 1993 and the European Veterinary Group was begun in 2004 within the European Association for Health Information and Libraries as a kind of parallel to the VMLS/MLA relationship. These international connections and relationships form the basis for a “just in time” document delivery sharing that is facilitated through the veterinary discussion list.

Long term collection planning in veterinary medical libraries needs to follow the lead of the National Library of Medicine program discussed earlier in the chapter, with its expectations for regional print retention and preservation of the biomedical literature. Veterinary medical libraries also need to interface with the preservation and print retention plans of their parent institutions and their academic colleague library organizations such as the Association of Research Libraries and the United States Agricultural Information Network, which has begun a national preservation and digitization program for agricultural literature.

TRENDS AND FUTURE ISSUES

Several collection trends in veterinary libraries offer important advocacy roles for librarians. As with all biomedical libraries, the primary collection trend is the move to online content such as videos, books and journals. Another trend in the veterinary literature is consolidation. The majority of veterinary content comes from just a few commercial publishers. Of the top 30 titles on the *Basic List of Veterinary Medical Serials*, 3rd ed., two publishers are most heavily represented, Elsevier with 37% and

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Wiley-Blackwell with 23% (Ugaz et al, 2010). The two highest ranked titles are the exception, coming instead from the American Veterinary Medical Association. The top 30 also includes titles from the Canadian Veterinary Medical Association and the American Animal Hospital Association. A review of the monograph and journal titles chosen for inclusion in the veterinary listings in *The Medical Library Association's Master Guide to Authoritative Information Resources in the Health Sciences* (Boyd & Carrigan, 2011) clearly underscores the consolidation of veterinary content with a few publishers. Elsevier publishes 49% of the monographs listed and 28% of the journals. Wiley-Blackwell publishes 30% of the monographs and 35% of the journals. Combined, these two publishers control 79% of the monographic veterinary content and 63% of the veterinary journal content. The remaining journal content in this listing is primarily controlled by veterinary associations. One area of the veterinary literature with representation from a diverse group of publishers is international veterinary association journals. Several have an arrangement with a publisher in their country or region; however, in the past three years this area has changed significantly. A few of these society titles are moving toward forms of open access, while others have eliminated print and moved to a new subscription model for online access. The commercial consolidation of veterinary content and the importance of association journal content present veterinary librarians with the opportunity to encourage veterinary associations to move into the open access online environment rather than to commercial publishers, and to collaborate with veterinary librarian colleagues to speak with a unified voice to publishers concerning the need for increased availability of online veterinary monographic content.

Another collection trend is the move by veterinary publishers to designing and marketing their products for the individual practitioner. Some important veterinary continuing education journals, such as *Compendium on Continuing Veterinary Education*, and *Veterinary Therapeutics*, have converted to online only access with individual registration. Veterinary learning communities, such as the subscription-based Veterinary Information Network (VIN), may be limited to veterinarians. Others, such

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as the free International Veterinary Information Service, permit registration and access more broadly to animal health professionals who may not be veterinarians. For these types of resources, IP access to an institutional subscription is not an option. Distinction between institutional and individual content availability is also seen with electronic books, where the individual buyer can access added online content (such as educational videos) and manipulation and markup tools that are unavailable to institutional subscribers. While individual registration works for free resources and for veterinarians with means to purchase a complete online library of resources, the nature of the license agreements and the limitations in content for institutional subscriptions often negatively impact librarians' ability to access and disseminate online-only content to remote veterinary practitioners. Often there is no affordable licensing model aimed at providing online access based on affinity group, state, or alumni status. This is an open opportunity for creative partnering of veterinary librarians and content providers to open up access to the practicing veterinarian. A small group of academic veterinary libraries have entered into a pilot program with the CABI organization to make their VetMed Resource product available to recently qualified veterinarians.

A potential growth area in veterinary science electronic books is their availability through aggregators. Few veterinary publishers make significant portions of e-book content available in this way, even though some libraries rely on aggregators to purchase online books. Ebrary, for example, offers a veterinary starter pack of 34 books from a mix of mostly small presses. Primarily consisting of special species, lab animal, food animal and practical anesthesia texts, these are not books that are typically in high demand and would not be a core starter pack suitable for a basic collection. As of June 2011, Wiley had only about 35 of their online veterinary books available through ebrary, while more than 100 e-book titles are available directly from Wiley. Librarians need to make publishers aware of preferences and needs for book purchasing and licensing. The North Carolina State University Libraries (2011) has prepared a value statement they share with their publisher contacts.

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Librarians also have an opportunity to work with veterinary publishers to improve content in clinical point of care resources. The VMLS Task Force on Connecting the Veterinary Health Record to Information Resources reported that six resources useful at point of care were available for institutional purchase only in print, despite four being available in an online format for the individual purchaser. Librarians are in a position to lobby publishers to have these materials distributed online with an infrastructure that permits both individuals and libraries to purchase, search, and link from electronic systems in use when the knowledge need arises. The VMLS task force is communicating closely with the American Animal Hospital Association's Electronic Health Records Task Force, which works closely with veterinary health record and practice management systems developers and vendors to meet the needs of multi-veterinarian animal hospitals. Meeting veterinary information needs in the future will depend on librarians engaging in meaningful collaborations with authors, publishers, systems developers, and veterinary educators.

CONCLUSIONS

Collection development in veterinary medicine shares a common foundation with general health sciences collection development, but involves unique situations and challenges due to the nature of the veterinary literature and the relative scarcity of veterinary libraries worldwide. Key collection-related challenges for veterinary librarians include providing access and preservation of veterinary grey literature, establishing a plan for print retention, and embracing an advocacy role for the veterinary literature. There is much work to be done to ensure institutional commitments to archives that document and preserve the history of veterinary education, to encourage veterinary faculty and associations to explore open access publishing as an alternative to commercial publishers, and to advocate to publishers for increased veterinary e-book content and for complete e-textbook content

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available to libraries. Cooperation, collaboration and information sharing with veterinary library colleagues are essential in meeting these challenges and for effective veterinary collection development.

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KEY TERMS AND DEFINITIONS

Land-Grant Institutions: This designation refers to institutions that resulted from the Morrill Act of 1862 and 1890, which provided states with grants of federal land and funds to establish colleges specializing in agriculture and the mechanical arts. Their original mission was to educate citizens in agriculture, home economics, mechanical arts, and other practical professions. The Hatch Act of 1887 added outreach to their mission, accomplished primarily through extension networks established within the institution's home state.

Problem-Based Learning: This educational pedagogy uses small, student-centered groups to actively investigate real world cases or problems. It differs radically from traditional learning where an instructor presents reading assignments, lectures, and problems with solutions. Synonyms are discovery learning or experiential learning.

Evidence-Based Medicine: This approach to the practice of medicine is centered on the use of the highest quality published evidence available to determine treatment options. Techniques, including systematic reviews and meta-analysis of clinical studies and trials, are used to identify and assess risks and benefits and to identify treatment options. This differs from basing treatment options on quality of life judgments, anecdotal evidence, and conventional wisdom.

Grey Literature: Works of grey literature are information resources that are not controlled by commercial publishers. They are produced at all levels of government, in the academic enterprise, and in business and industry, in print and electronic formats. Grey literature is often difficult to locate through traditional bibliographic discovery tools.

House Organs: This type of grey literature is usually serial in nature. It is issued by a business or other establishment for its employees, customers, and other interested readers, to present news about the firm, its products and its personnel.

Decision Support Tools: These information resources are designed to assist the health care professional in reaching decisions concerning the diagnosis and treatment of a particular disorder, or to make a differential diagnosis among conditions. They are typically evidence based resources that assist in diagnosis and provide treatment

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guidelines. The quality of the evidence provided, the updating cycle and the degree of interactivity vary among products.

COUNTER-Compliant: A term used to indicate that a vendor provides usage statistics for online resources that are compliant with the COUNTER (Counting Online Usage of Networked Electronic Resources) Code of Practice (www.projectCounter.org). The Code of Practice specifies for vendors the content, format, data processing rules, and other details to ensure credible and consistent usage reports for libraries.