Journal of the American Association for Laboratory Animal Science
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Vol 51, No 3
May 2012
Pages 293–297

Special Topic Overview

The Evolution and Adoption of Standards Used by AAALAC

Christian E Newcomer

The Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC) has operated its accreditation program for more than 45 y by using the *Guide for the Care and Use of Laboratory Animals* (the *Guide*) as a basic guide in the generation of accreditation standards. AAALAC supplements its reliance on the *Guide* with a number of documents, referred to as reference resources, that undergo a formal review and adoption process by AAALAC. Two reference resources have grown in importance to the accreditation process over the past decade as institutions from outside of the United States have increasingly sought accreditation and as greater numbers of agricultural animals are used in research programs. These 2 reference resources were the European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes, Council of Europe (ETS 123), and the *Guide for the Care and Use of Agricultural Animals in Research and Teaching* (*Ag Guide*). During the past 2 y, the *Guide*, *Ag Guide*, and ETS 123 were revised, prompting AAALAC to reevaluate these resources to determine the role each should play in the development of standards used for accreditation by AAALAC. As a result of AAALAC's review and analysis, the organization has adopted these 3 documents as primary standards. This article summarizes AAALAC's processes for the review, adoption, and implementation of these standards offering insights into the application of these standards in the accreditation process.

Abbreviations: AAALAC, Association for Assessment and Accreditation of Laboratory Animal Care International or its predecessor; *Ag Guide, Guide for the Care and Use of Agricultural Animals in Research and Teaching*; the *Guide*, *Guide for the Care and Use of Laboratory Animals*; *ETS 123,* the European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes, Council of Europe; PS, Position Statement; FAQ, frequently asked question.

The Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC) originated more than 45 y ago as the American Association for Accreditation of Laboratory Animal Care (also referred to as AAALAC) through the shared vision of specialists in laboratory animal science and medicine and several leading professional organizations dedicated to promoting animal wellbeing and enhancing life sciences research and education. Now steered by a Board of Trustees consisting of more than 65 scientific, veterinary, and other research advocacy organizations, AAALAC is a private, nonprofit organization that promotes the humane treatment of animals in science primarily through a voluntary accreditation program. Accredited programs include academic institutions, commercial organizations, hospitals, and government agencies. Readers generally unfamiliar with the AAALAC's accreditation process and other AAALAC programs to advance the welfare of research animals can refer to the AAALAC website (http://www.aaalac.org) to learn more about these programs.

From the inception of AAALAC's accreditation program, the selection of relevant standards for evaluating programs and conferring accreditation was crucial to generating meaningful accreditation outcomes that signified quality animal care environments conducive to scientific research. The general approach to the selection of standards has been consistent over time: AAALAC's Council on Accreditation uses its diverse professional expertise to review, analyze, and propose recommendations for the adoption of new standards to the AAALAC Board of Trustees, which then acts on the Council's recommendation with the adoption and establishment of the final rules. These are codified in the Rules of Accreditation, which are updated as necessary. Prior to 2011, 2 central features of AAALAC's Standards from the Rules of Accreditation were that (1) organizations were expected "to observe any and all statutes and governmental regulations which bear upon animal care and use including, but not limited to, the prevailing standards of sanitation, health, labor and safety of the jurisdiction(s) in which it is located" and that (2) the *Guide for the Care and Use of Laboratory Animals* (the *Guide*)[2] was referenced as a basic guide to the establishment of specific standards for accreditation. In addition to the Rules of Accreditation, AAALAC has augmented the review and accreditation process since 1975 through use of other guidance documents, referred to as Reference Resources (http://www.aaalac.org/accreditation/resources.cfm), which are deemed valuable for the development of highly functional, quality programs by the Council on Accreditation.

During 2010 and 2011, AAALAC extensively and intensively considered the substantial changes in 3 important guidance documents instrumental to its assessment and accreditation activities in the more than 850 animal care and use programs in 34 countries that have earned AAALAC accreditation. The 3 guidance documents reviewed included: the eighth edition of the *Guide*;[3] the *Guide for the Care and Use of Agricultural Animals in Research and Teaching* (*Ag Guide*);[5] and the European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes, Council of Europe (ETS 123).[4] The purpose of this article is to summarize briefly AAALAC's key

Received: 16 Nov 2011. Revision requested: 04 Jan 2012. Accepted: 15 Feb 2012.
Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC), Frederick, Maryland.
Email: cnewcomer@aaalac.org

conclusions on the use of these 3 documents in the accreditation process, to highlight specific salient features that may affect the outcomes of accreditation site visits and to update the reader on other changes pertinent to accredited institutions or those aspiring to accreditation.

AAALAC's New Directions in 2011

In a side-by-side analysis of the 3 guidance documents in the summer of 2010, the Council on Accreditation identified approximately 121 items that they thought potentially would affect interactions with AAALAC's accredited programs. In the ensuing year, additional discussions were held to further categorize and assign importance to these items and resulted in the development of 6 new Position Statements (PS), endorsed by the AAALAC Board of Trustees, and an additional 18 frequently asked questions (FAQ) that afforded accredited units insight into the application of AAALAC's newly revised standards. Prior to adoption, all new PS were published for comment by the laboratory animal science and broader scientific communities.

One overarching change was stimulated by the AAALAC Board of Trustees' approval of a modification in the rules of accreditation pertaining to standards, stating, "The *Guide for the Care and Use of Laboratory Animals* (*Guide*), Eighth Edition (National Research Council 2011), shall serve as a basic guide to the establishment of specific standards for accreditation. AAALAC may establish standards based on prevailing directives, conventions, and guidelines of the country in which the accreditable unit is located."[1] This change facilitated AAALAC's adoption of 3 primary standards for evaluating laboratory animal care and use programs: the eighth edition of the *Guide*; the *Ag Guide*; and ETS 123. Although generally consistent in the approach taken to assure animal welfare, these documents include some source-specific differences among the treatment of topics and the particular parameters supporting animal welfare. The adoption of 3 primary standards does not mean that AAALAC could choose to apply the standards of ETS 123 broadly to programs in the United States. The scope of applicability of ETS 123 is limited to the member countries of the Council of Europe that have voluntarily ratified the Convention and therefore it is not a prevailing standard in the United States.

According to its rules, AAALAC expects an accredited organization to meet all the conditions of any guidance document to which it is legally bound or otherwise subject to under prevailing agreements. For example, programs located in countries that are signatories to the European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes are expected to meet the requirements of ETS 123, and organizations that receive funding from the US Public Health Service are expected to meet the provisions of the 2011 *Guide*, as qualified by the Office of Laboratory Animal Welfare in the Office of Extramural Research at NIH. However, if an accredited unit has no prevailing obligations to meet a particular guideline, the facility can choose the *Guide*, *Ag Guide*, or ETS 123 for the accreditation process by explaining how the selection complements the institution's scientific mission and how the implemented animal care and use practices result in acceptable performance outcomes. This process has been incorporated into many areas of the new Program Description (http://www.aaalac.org/programdesc/index.cfm) that was adopted in the fall of 2011. When the AAALAC Council on Accreditation performs an accreditation review, it heeds the precedent of relevant prevailing standards, examines the institution's decision processes, and evaluates the performance outcomes. If the outcomes observed are not deemed satisfactory, the Council may selectively offer guidance from any of the 3 primary standards, as well as from AAALAC's Reference Resources, to aid the institution in the development of a satisfactory program. With regard to new 'must' statements in the 2011 *Guide*, AAALAC has announced that these statements will be categorized as a Temporary Suggestion for Improvement for a period of 1 y from 01 September 2011. At the conclusion of the transition period, items regarded as Temporary Suggestions for Improvement that remain uncorrected will be considered Mandatory items for correction in accordance with the *Guide* and may affect an organization's accreditation status. The single exception to this timetable is that the phase-in period for significant equipment replacement (such as rabbit cages to accommodate a 16-in. cage height and nonhuman primate caging) is extended to 3 y (that is, until 01 September 2014). AAALAC recognizes that, depending on the number of cages needing to be replaced, accredited institutions may not have all cages replaced in time to meet the 2011 *Guide* standards within the 3-y period. In such a case, the institution would be expected to provide AAALAC with a plan and a deadline for implementation of the plan.

A decision regarding which of the 3 primary standards to apply also arises when agricultural animals are used as research subjects in the absence of controlling legal or funding requirements. AAALAC recognizes that the biomedical or agricultural research, testing, or teaching objectives as well as the health and welfare of the animals will dictate when application of the recommendations of the *Ag Guide*, ILAR *Guide*, or ETS 123 is most appropriate. The collective professional judgment of the responsible oversight body (that is, IACUC, Ethics Committee), principal investigator, and veterinarian should determine which standard(s) applies best with regard to the care and welfare of agricultural animals, based on a performance-based approach in the context of the requirements of the study and the species used. The rationale for making this determination should be documented. In addition to AAALAC's PS on this issue (http://www.aaalac.org/accreditation/positionstatements.cfm#ag), institutions holding a US Public Health Service Assurance may wish to consult the Office of Laboratory Animal Welfare FAQ (http://grants.nih.gov/grants/olaw/faqs.htm#g7) for more information on this topic.

The 2011 *Guide* offered an expanded discussion of the performance-based approach and performance standards that were introduced in the 1996 *Guide.* AAALAC has endorsed and engrained the performance-based approach into the accreditation process over the past 15 y but still encounters programs disinclined to embrace this useful approach to defining quality outcomes. To further aid programs reluctant to employ the performance approach due to lack of familiarity, AAALAC has reiterated its view in an FAQ (http://www.aaalac.org/accreditation/faq_landing.cfm#performance) on the formulation and application of the performance-based approach to facilitate the appropriate use of flexible options in the establishment of acceptable programs. Briefly, performance standards define the outcome in detail and provide measurable criteria for assessing whether the outcome is achieved. As noted in the 2011 *Guide*, the performance-based approach "requires professional input, sound judgment, and a team approach to achieve specific goals." Research in laboratory animal management and science provides new information, which should be used to update the performance standards used at an institution. The importance of the performance-based approach is evident in AAALAC's site visit operations, PS, and FAQ, with several examples highlighted in following paragraphs.

AAALAC has cautioned against overuse of performance standards (http://www.aaalac.org/accreditation/faq_landing.

cfm#B6). Specific performance-derived exceptions should not be applied universally to situations for which they have not been validated, as sometimes occurs for program-wide and global exceptions. In all cases where practices deviate from *Guide* standards, AAALAC expects each IACUC or oversight body to establish an ongoing, documentable, site-specific, data-driven approach that allows for approval and monitoring of exceptions to the *Guide*. These criteria are essential to ensure that performance standards are developed correctly and implemented in accordance with the intent of the *Guide*.

AAALAC promulgated 6 new PS to clarify the scope and expectations for key elements of the animal care and use program to help institutions better understand and address these areas. The first of these PS was not prompted by the recent changes in guidance documents and instead involved the restatement of AAALAC's definition of 'laboratory animals' to emphasize its inclusive connotation as indicated by the phrase "any live vertebrate animal (and any other animal designated by applicable legislation) used or intended for use in research, testing, or teaching." The purpose of this change was to reinforce the concept that accreditation is widely applicable to all species and is not limited by the type of housing enclosure used to maintain the animals. All such animals owned by the accreditable unit are to be included in the Program Description and will be evaluated by AAALAC. Moreover, AAALAC encourages all research animal programs to examine the value of participation in accreditation as a tool for development, improvement, and quality assurance.

The *Guide*, *Ag Guide*, and ETS 123 contain significant differences in their treatments of the role and responsibilities of the veterinarian in research animal programs, and the PS "The Attending Veterinarian and Veterinary Care" principally reflects the extensive attention given to the this subject in the *Guide* and describes AAALAC's global expectations for its accredited programs in this subject area. However, the statement also acknowledges that certain responsibilities that normally fall within the veterinarian's domain can effectively be performed by other qualified professionals. AAALAC's position affirms the importance of several key characteristics of the institution's program of quality veterinary care: effective veterinary care that incorporates monitoring and promotes animal wellbeing at all times during animal use and during all phases of the animal's life; the upholding of the highest standards of care and ethics; and the endowment of the veterinarian with sufficient authority to treat an animal and institute appropriate measures to relieve severe pain or distress, including euthanasia. AAALAC's position also indicates that that the attending veterinarian must have adequate resources to manage the overall program of veterinary care and suggests that the attending veterinarian interact collaboratively with the research team (for example, principal investigator or study director) when making critical decisions regarding animal health and welfare. Several specific aspects of the role of the attending veterinarian and the program of veterinary care were deemed critically important requirements, as signified by the use of the term 'must', and are essential to accreditation success. These requirements include: veterinary competence, through training, education, and experience, in the species used and in the context of the animal use being carried out by the institution; veterinary access to all animals; timely provision of veterinary care at all times; the multifaceted nature of veterinary care; and the designation of a knowledgeable person who is responsible for daily animal care and use and facility management in the absence of a full-time veterinarian. The reader is referred to AAALAC's PS (see http://www.aaalac.org/accreditation/positionstatements.cfm#vetcare) for information on several other aspects of the veterinary care program deemed highly significant and typically adopted by quality animal care and use programs.

The *Guide*, *Ag Guide*, and ETS 123 have notable differences in their recommendations and requirements for cage or pen space, and AAALAC has not attempted to reconcile these differences. AAALAC's PS on cage and pen space sets the expectation that accredited institutions will use housing enclosures that comply with all national or regional regulations, policies, and guidelines and with conditions of funding. AAALAC considers performance standards paramount when evaluating available space in cages or pens that house animals used for research, testing, or teaching. To further the use of the performance-based approach to animal housing, AAALAC has compiled extensive excerpts from the *Guide*, *Ag Guide*, and ETS 123 (http://www.aaalac.org/accreditation/CagePenSpacePerformanceCriteria.pdf) that are used by AAALAC in assessing the adequacy of cage or pen space available to the animal(s). In those countries where regulations or guidelines do not exist or mandate cage or pen dimensions, AAALAC suggests that institutions consider the *Guide*'s space recommendations as a basis for addressing space needs, always recognizing that performance standards also must be met.

In addition, AAALAC acknowledged the urgent interest of the scientific community on the acceptability of the practice of trio-breeding in rodents, which is used widely in some research institutions and other sectors of the laboratory animal industry. AAALAC's guidance on this topic was provided in a FAQ (http://www.aaalac.org/accreditation/faq_landing.cfm#Ctrio) that reaffirms the importance of performance to making a sound decision about this practice. As noted in this FAQ, in the United States, commonly used mouse cages measure between 75 to 82 in^2 (484 to 529 cm^2). This cage size could be appropriate for trio breeding, with the caveat that there are several factors that need to be considered when assessing the adequacy of cage space, such as average litter size of the strain(s) of mice, whether multiple litters are present in the cage and the difference in the ages of the pups of different litters, growth rate, need for cross-fostering, cage dimensions, overall management and husbandry practices such as cage sanitation, and so forth. Cages that might be acceptable when litters are born may have insufficient space as pups grow, again depending on other factors. When considering cage-space and animal-density policies, the IACUC (or comparable oversight body) should consider many factors, including national or regional regulations, policies, and guidelines, as well as conditions of funding, and critically evaluate objective measures of outcome-based performance standards.

Another example for the opportunity for professional judgment and the application of performance standards to influence an institution's decision pertains to rabbit housing. The 2011 *Guide* states that the recommended minimum cage height for rabbits is 16 in. (40.5 cm), whereas the USDA's Animal Welfare Regulations require a minimum of 14 in. (35.6 cm). AAALAC recognizes that the acceptability of a cage height of 14 in. (40.5 cm) compared with 16 in. (36.5 cm) is best judged according to a performance-based approach. Using the performance language in the *Guide* that animals "must have enough space to express their natural postures and postural adjustments without touching enclosure walls or ceiling," AAALAC would observe whether the rabbits' ears could be held in an upright position without contacting the cage ceiling. AAALAC site visitors would give more consideration to the animal's health, welfare, and species-typical behavior than to small differences in cage height or size.

AAALAC's PS on social housing (http://www.aaalac.org/accreditation/positionstatements.cfm#social) indicates such housing as the default method unless otherwise justified based on social incompatibility resulting from inappropriate behavior, veterinary concerns regarding animal wellbeing, or scientific necessity approved by the IACUC (or comparable oversight body). Single-housing of social animals should be limited to the minimal period necessary and, where possible, permit all other types of socially appropriate contacts with compatible conspecifics. In the absence of other animals, additional enrichment should be offered, such as safe and positive interaction with the animal care staff, as appropriate to the species of concern; periodic release into larger enclosures; supplemental enrichment items; and the addition of a companion animal in the room or housing area. The institution's policy and exceptions for single housing should be reviewed on a regular basis and approved by the IACUC (or comparable oversight body) or veterinarian (or both).

AAALAC's final newly revised PS addresses critical safety requirements that must be addressed by the institution to avert serious accidents associated with walk-in cage–rack washers and bulk sterilizers (http://www.aaalac.org/accreditation/positionstatements.cfm#walkin). The statement emphasizes 3 elements that are crucial for safety: ease of personnel egress; interruption of the thermal assault from the cage-wash interior with no possibility of a restart without the deliberate reactivation of the wash cycle; and appropriate training and instructional signage to mitigate risk for personnel. Institutions are expected to conduct a risk assessment of their cage-wash and bulk-sterilizer circumstances and may consider other mechanisms and procedures that provide a high level of protection and eliminate possible entrapment. The AAALAC Council on Accreditation will require sufficient evidence from the institution to demonstrate that issues regarding cage–rack washer safety have been addressed and will be reviewed periodically as a condition of accreditation.

As noted earlier, in addition to the FAQ cited in connection with the PS emphasizing the major new changes in AAALAC's accreditation standards, numerous other FAQ have been developed to project AAALAC's expectations, foster greater clarity in institutions related to programmatic development and resource allocation, and to promote continued success within AAALAC's accredited community. The majority of the new FAQ fall under the category of institutional responsibilities, followed by items under physical plant; animal environment, management, and housing; and veterinary medical care.

In the institutional responsibilities category, the *Guide* has expanded the discussion of the importance of laboratory animal allergy prevention measures and indicated that engineering controls should be deployed as the primary means of eliminating personnel exposure to laboratory animal allergens. AAALAC's FAQ (http://www.aaalac.org/accreditation/faq_landing.cfm#B1) coincides fully with recommendations in the *Guide* for the prevention of exposure to laboratory animal allergens. Institutions are encouraged to pursue the use of engineering controls to prevent exposure to allergens and rely upon personal protective equipment (PPE) as an adjunct to engineering controls, rather than the foremost means of protection. AAALAC site visitors will continue to evaluate occupational health and safety programs and the methods used to prevent laboratory animal allergy through evaluation of personnel training, risk assessment by qualified occupational health and safety personnel, preventive medicine, periodic health evaluations, engineering controls, and the appropriate use of PPE.

AAALAC fully supports a new position in the 2011 *Guide* concerning an institution's obligation to conduct a 'harm–benefit analysis' and believes that this analysis already is performed by the IACUC in most programs during their reviews of proposed animal studies in connection with the consideration of the 3Rs (http://www.aaalac.org/accreditation/faq_landing.cfm#B3). However, the harm–benefit analysis is distinct from and typically antecedent to the consideration of the 3Rs and involves weighing the potential adverse effects of the study against the potential benefits that are likely to accrue as a result of the research. For studies potentially involving unrelieved pain and distress, AAALAC site visitors will assess whether the IACUC (or comparable oversight body) has conducted this analysis.

Other institutional responsibilities covered in AAALAC's FAQ include the frequency of program review and facility inspection (http://www.aaalac.org/accreditation/faq_landing.cfm#B2), utility of postapproval monitoring initiatives (http://www.aaalac.org/accreditation/faq_landing.cfm#B5), provisions for reporting and responding to animal welfare concerns (http://www.aaalac.org/accreditation/faq_landing.cfm#B7), and considerations pertaining to the conduct of surgery in investigator laboratories (http://www.aaalac.org/accreditation/faq_landing.cfm#B8). These advisory statements provide information useful to programs globally preparing for their accreditation site visits. Regarding the issue of the frequency of program review and facility inspection, AAALAC continues to maintain that timely program reviews and facilities inspections can be an effective component of overall monitoring and oversight. AAALAC encourages the IACUC (or comparable oversight body) to consider the frequency of their evaluations and to remain highly engaged to ensure quality animal care and science. In certain programs and circumstances, self-assessments at frequencies greater than minimally required may be prudent. During the year-long transition period beginning in the fall 2011, the AAALAC Council expects that the IACUC (or comparable oversight body) will conduct at least one program review and facility inspection according to the 2011 *Guide*.

The 2011 *Guide* added new material to or modified its treatment of several topics in the area of physical plant, thereby prompting AAALAC to offer commentary in FAQ. These topics included: consideration of use of 'hospital stop'-style door frames to aid in cleaning (http://www.aaalac.org/accreditation/faq_landing.cfm#E4); ability to control the variation in humidity (http://www.aaalac.org/accreditation/faq_landing.cfm#E5); use of recycled air (http://www.aaalac.org/accreditation/faq_landing.cfm#E6); vibration detection and suppression (http://www.aaalac.org/accreditation/faq_landing.cfm#E7); and windows in animal rooms (http://www.aaalac.org/accreditation/faq_landing.cfm#E8). AAALAC's FAQ on use of hospital stops in animal facility doors acknowledges the utility of this type of door frame for cleaning purposes but also identifies the structural features of these frames that warrant careful consideration pertaining to barrier and biocontainment requirements in the program. With regard to humidity control, AAALAC concurs with the recommendations of the *Guide* in suggesting that humidity be controlled within a range of 30% to 70% throughout the year. However, AAALAC would assess the variation around the set point from a performance approach, and it is not likely that the Council on Accreditation would consider this variation a problem unless animal welfare or study issues had been reported that could be linked to variation in relative humidity. AAALAC's FAQ on recycled air is notable for its departure from the recommendations of the 2011 *Guide* and the retention of several points noted in the 1996 *Guide* to assure

adequate air quality. This FAQ warrants the careful attention of readers in programs intending to pursue the use of recycled air as a tool for energy conservation. In addition, facility design, planning, and construction should involve careful consideration of vibration detection and suppression measures to mitigate or eliminate the effect of vibration on the animal facility, animals, and any vibration-sensitive equipment that may be used in the research program. AAALAC acknowledges the basis for the statement in the 2011 *Guide* concerning windows: "The presence of windows in an animal facility, particularly in animal rooms, creates a potential security risk and should generally be avoided." Notwithstanding the security concerns, potential alteration of circadian rhythms and room temperature fluctuations, AAALAC has accredited many programs in which it witnessed circumstances where windows were secure, beneficial to animal welfare, and provided an environment compatible with the nature of the scientific studies being conducted. The IACUC (or comparable oversight body) and other staff should be involved in the decision-making process regarding windows, and this process should be based on the consideration of relevant factors identified in the FAQ.

Assisted by experts in the agriculture community, AAALAC noted discrepancies among the 3 primary standards in the recommendations for the chick and piglet environmental temperatures, as detailed in a FAQ (http://www.aaalac.org/accreditation/faq_landing.cfm#C2). This FAQ, and associated information in the *Ag Guide* which was used as a key reference, warrant attention in planning the maintenance of these animals and applying a performance-based approach that ensures optimal welfare of the animals.

The 2011 *Guide*, *Ag Guide*, and ETS 123 acknowledge the importance of environmental enrichment to animal wellbeing. Considerations important to the institution's development and implementation of an environmental enrichment program are summarized in a FAQ (http://www.aaalac.org/accreditation/faq_landing.cfm#C3). Although the *Guide* implies that a written environmental enrichment program should be in place, AAALAC site visitors will focus on the IACUC's review of the enrichment program, documentation of the review, and implementation of the program. AAALAC expects that the IACUC will regularly review the enrichment program the IACUC and that the IACUC adequately represents the research community and veterinarian(s) at the institution in the review of the enrichment program.

AAALAC has offered FAQ in several areas of veterinary care to indicate that: the use of alcohol as a disinfectant in rodent survival surgery may be conditionally acceptable in some circumstances, with appropriate review by the IACUC or other oversight body (http://www.aaalac.org/accreditation/faq_landing.cfm#D2); intraoperative monitoring methods and documentation may be selected and applied, as appropriate, by using a performance-based approach (http://www.aaalac.org/accreditation/faq_landing.cfm#D3); and rodent surgical records should contain information on relevant parameters commensurate with the invasiveness and sophistication of the procedures conducted and should be developed in conjunction with review by the IACUC or other oversight body to ensure that appropriate monitoring is performed and reflected in documents (http://www.aaalac.org/accreditation/faq_landing.cfm#D4). AAALAC site visitors will review an institution's handling of these issues, with special emphasis on the role of the IACUC or oversight body and the collaborative interactions among the IACUC, veterinarian, and scientific staff to attain satisfactory outcomes.

Conclusion

Recent changes in regulatory and other guidance documents used by AAALAC in its accreditation process have created a demanding challenge for AAALAC's Council, Board of Trustees, and professional staff and many others in the broader community of science that depend on the use of animal models. Each of the 3 documents considered by AAALAC had already earned a place either as a standard, in the case of the *Guide,* or as reference resources, in the cases of the *Ag Guide* and ETS 123. The substantial revisions of these documents by highly professional, expert committees and the proven importance of each of these documents in the accreditation program warranted a careful and methodical side-by-side comparison of these documents. That evaluation resulted in the determination that all 3 documents should serve as primary accreditation standards, with limits on their specific applicability as dictated by prevailing legal constraints or conditions of funding and with allowances for accredited units to exercise their discretion in the selection of the appropriate reference standard in some circumstances based on the promotion of animal welfare and the advancement of science.

This document review had a valuable byproduct: AAALAC recognized that although the 3 primary standards had expanded content and detail greatly, reflecting the advances in the science of animal care and use in all settings, the new standards would not pose a serious impediment to the continuation of successful accreditation for the vast majority of participating programs. Most of AAALAC's accredited program already operate in a manner compatible with the new guidelines and should be capable of making a smooth transition in a short time period. The programs accredited by AAALAC achieved a landmark during 2011: more than 90% of the programs visited achieved full accreditation (or continued accreditation) in their immediate site-visit cycle without having to correct a mandatory deficiency. The improvement in this trend over the past 25 y is a testament to the synergy of AAALAC's communication efforts, the open communication and sense of community among accredited programs and the growing commitment to the role of animal welfare in humane, valuable, and valid scientific inquiry.

Acknowledgment

I thank the AAALAC Council on Accreditation, Board of Trustees, and staff for their dedicated, enthusiastic, thorough and meticulous contributions which enabled the preparation of this manuscript and positively influenced the welfare of research animals.

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