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Note: Text has been edited for clarity.

Performance Standards

Speakers: Janet C. Garber, DVM, PhD, Garber Consulting and Susan Silk, MS, Division of Policy and Education, OLAW, NIH.

Moderator: Jerry Collins, PhD, Division of Policy and Education, OLAW and Yale University.

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[http://grants.nih.gov/grants/olaw/2012-04-](http://grants.nih.gov/grants/olaw/2012-04-19%2013.00%20OLAW%20Online%20Seminar%20Performance%20Standards.wmv)

[19%2013.00%20OLAW%20Online%20Seminar%20 Performance%20Standards.wmv](http://grants.nih.gov/grants/olaw/2012-04-19%2013.00%20OLAW%20Online%20Seminar%20Performance%20Standards.wmv)

(Windows Media Player – 47 min).

Slide 1 (Title Slide)

>> Dr. Collins: Hello and welcome to the OLAW Online Webinars. My name is Jerry Collins and I will be the moderator for today's webinar entitled: Performance Standards. This webinar will be recorded and the recording will be posted on the OLAW website [[Education Resources](#)]. The box in the top right corner of your computer screen is your attendee interface. The audio mode enables you to select how you will listen to a webinar. If you have clicked on the Use Telephone button, the dial-in number, access code and audio PIN are displayed and audio will come to you over the phone. If you choose the Mic and Speakers button, the sound will emanate from your computer. In the unlikely event of a problem with the audio, you may select the audio option not in use and listen to the remainder of the presentation using that mode. Your line is muted to help eliminate distracting background noises, so you don't have to worry about other participants hearing sounds from your location.

In December of 2011, NIH announced its decision to adopt the 8th Edition of the [Guide for the Care and Use of Laboratory Animals](#). Now, here we are in April of 2012 and you, the members of the community, are in the process of implementing the new *Guide*. The 8th Edition of the *Guide* further develops the concept of the outcome-based performance standards that were a basis of the 7th Edition of the *Guide*. In the [Position Statements](#) posted on the OLAW website

on December 1, 2011, OLAW stated that "Performance standards are the most important component of the infrastructure of PHS oversight of animal programs at Assured institutions. IACUCs are able to meet their responsibility to ensure humane care and use while advancing quality scientific research through the use of performance standards in their oversight of institutional animal programs." Therefore, we thought that a webinar focused on performance standards would be helpful to you as you seek to implement the new *Guide*.

And we are very fortunate that Dr. Jan Garber agreed to present this webinar, since Dr. Garber served as the Chair of the ILAR Committee that updated the *Guide*. Dr. Garber received her DVM degree from Iowa State University and her PhD from the University of Wisconsin. Her experiences have included infectious disease research, primate medicine and research, GLP device and materials evaluation, and transplantation immunology. She most recently was Vice President, Safety Assessment, at Baxter Healthcare Corporation and is now a consultant with Garber Consulting, LLC in North Carolina, focusing on research facility management. Dr. Garber is currently an ad hoc consultant for AAALAC International, and previously served as the Chair of the AAALAC Council. And as I mentioned before, she recently chaired the ILAR Committee to Update the *Guide for the Care and Use of Laboratory Animals*. Dr. Garber will be joined by Susan Silk, Director of the Division of Policy and Education, here at OLAW.

Slide 2 (Questions?)

We will not be answering questions live during this webinar. We elected to depart from our usual format, using our best professional judgment, so that we can bring you our most accurate and comprehensive material on the subject of performance standards. If you have questions, please jot them down and email them to OLAW at olawdpe@od.nih.gov. We will prepare the questions and answers in a document that will be amended to the transcript of this webinar and posted on the OLAW website. Please send those questions as soon as you can. OLAW will answer your questions at any time, but if you would like to have your question included in the materials that support the recorded version of this webinar, please get it to us by June 1 of this year [2012].

Dr. Garber, please help us to better understand performance standards.

Slide 3 (Performance Standard)

>> Dr. Garber: Welcome, everyone. The concept of performance standards in laboratory animal care and use is not new. It was introduced, actually, in very general terms in the 1985 *Guide* and in the 7th Edition of the *Guide* the concept was formally defined and discussed as a very important approach. There is now expanded discussion throughout the 2011 *Guide*, emphasizing flexibility and the use of professional judgment.

Slide 4 (Statement of Task)

The Committee to Update the *Guide for the Care and Use of Laboratory Animals* was provided with a Statement of Task that notably included the importance of maintaining the performance standards approach to guidelines. You will find emphasis on performance standards and performance criteria throughout the *Guide*. To get started on this discussion, it will help to look at some definitions and key concepts.

Slide 5 (Engineering Standard)

An engineering standard is a standard or guideline that specifies in detail a method, technology, or technique for achieving a desired outcome. This approach of requirements does not provide for modification in the event that an acceptable alternative method is available. Engineering standards are prescriptive and allow limited flexibility for implementation.

Slide 6 (Performance Standard)

A performance standard, on the other hand, is a standard or guideline that, while describing the desired outcome, provides flexibility in achieving that outcome. This approach requires that the desired outcome be clearly defined and that appropriate measures be regularly monitored in order to verify the success of the process.

Slide 7 (Performance Standards)

Therefore, performance standards are the key to evaluation and oversight of all aspects of the animal care and use program. Ideally, engineering and performance standards are balanced, setting a target for optimal practices, management and operations, while encouraging flexibility and judgment, if appropriate, based on individual situations.

Slide 8 (Performance Standards)

Performance standards remain a key concept in applying the recommendations in the 2011

Guide. During the public meetings and subsequent prolonged comment period, there was overwhelming support for maintaining this approach. As a result, the Committee provided a better definition of desired outcomes and much more discussion and guidance on how to achieve the outcomes. By not being prescriptive, that is not relying heavily on engineering standards, this concept does require a sophisticated approach, empowering institutions to make decisions specific to their program needs.

Slide 9 (Key Concepts to Remember)

The *Guide* suggests that institutions use the recommendations in the *Guide* as a foundation for development of a comprehensive animal care and use program, and as a means of continually improving the program. The *Guide* is intended to be read in its entirety. Some discussion topics may not apply to your program, but there are many concepts throughout that may be helpful.

Slide 10 ("Must", "Should", & "May")

To appropriately read, interpret, and apply the *Guide*, the words "must", "should", and "may" are defined. "Must" indicates actions that the Committee considered to be imperative and are a mandatory duty or requirement. For example, recommendations related to basic programmatic needs and actions related to personnel safety or those that have a direct, significant impact on animal well-being. "Should" indicates a strong recommendation for achieving a goal; however, the Committee recognized that individual circumstances might justify an alternative strategy. "May" indicates a suggestion to be considered.

Slide 11 (OLAW on "Must")

>> Ms. Silk: Hi, everyone, this is Susan Silk. OLAW considers a "must" statement in the *Guide* to be a minimum standard that is required of Assured institutions. The IACUC must review and approve departures from the minimum standards of the *Guide*. IACUC approval must be based on scientific, veterinary medical or animal welfare issues. As stated in the PHS Policy Section [IV.B.3.](#), the institution must specifically identify departures from the *Guide* and state the reasons for each departure. Departures must be included in the semiannual report to the Institutional Official.

Slide 12 (OLAW on "Should")

As we stated in our Position Statements posted on the OLAW website, "Should" statements

often involve performance standards. We do not consider well-established performance standards to be a departure from the *Guide*. An institution may follow a different course of action, if that action results in an equivalent outcome and is reviewed and approved by the IACUC. Of course, an institution is not required to comply with "should" statements that do not apply to their program.

Slide 13 (OLAW on "May")

And "may" statements. A "may" statement is a suggestion that an institution can choose to implement, if it is suitable for their program. All of the "may" statements in the *Guide* are compliant with the PHS Policy.

Slide 14 ("Must" & "Should" on Checklist)

In December [2011], when OLAW released our determination to adopt the 8th Edition of the *Guide*, we also released updated versions of all our supporting materials. Those are posted on the OLAW website and I recommend that you have a look at them. People have mentioned to me that they download copies of our resources and then use those copies, both for their own use and to distribute to others. So if you are one of those people, go to the OLAW website and download an updated copy. I think our checklist is particularly helpful. It has been updated to include all the "musts" and "shoulds" that are in the new *Guide*. The "musts" and "shoulds" are hot-linked to the appropriate section in the *Guide*, making it easy for you to read the context of the "must" and "should" statements.

Slide 15 (Practice Standards)

>>Dr. Garber: Another concept that is defined in the *Guide* is that of "practice standards." That is the application of professional judgment to a task or process over time, which has been demonstrated to benefit or enhance animal care and use. Often, practice standards evolve from information in peer-reviewed literature and represent growing experience in a particular field. Most important is that practices and procedures can be modified with changing conditions and new information.

Slide 16 (Practice Standards, or... Developing Standards of Practice)

Because these standards of practice evolve over time, they may begin locally at your institution with implementation of performance standards for your situation. Once put into practice, the procedures are monitored, and the success verified for your program needs. When you find that

something works, the approach can be shared by publication of the information or perhaps presentation at meetings or discussions with your colleagues. It is important to remember that one facility's approach may not be appropriate or directly applicable to other programs.

Slide 17 (Applying Performance Standards)

Summarizing performance standards: Applying performance standards requires that we define the objectives, determine how the objectives will be achieved, in that there are many ways to do things, and determine how success will be measured or recognized. The process allows for the flexibility to modify practices and procedures with changing conditions and new information.

Slide 18 (Applying Performance Standards)

At this point, we will discuss some examples of applying the concept of performance standards to common program components and activities. That is the use of non-pharmaceutical-grade chemicals, the environment, social housing, environmental enrichment, and cage or pen space.

Slide 19 (Use of Non-Pharmaceutical-Grade Chemicals)

>>Ms. Silk: Pharmaceutical-grade substances must be used in PHS-funded research for both investigational and clinical purposes, unless there is a reason to use a non-pharmaceutical-grade substance. An investigator might use a non-pharmaceutical-grade substance if it is required by his or her science or if a pharmaceutical-grade substance is not available. OLAW recognizes that the use of non-pharmaceutical-grade substances has been in the past -- and continues to be -- a necessary and acceptable component of biomedical research. It is okay to use non-pharmaceutical-grade substances, as long as that use has been justified and the justification has been reviewed and approved by the IACUC. The IACUC would use a performance standard approach in reviewing the justification. In this case, that would include consideration of such factors as the grade, purity, sterility, stability, the site and route of administration, compatibility of components, side effects and adverse reactions, storage, and pharmacokinetics. This is a very comprehensive list, but not all of these factors apply in all circumstances. And the IACUC may use its own judgment to determine what, if any, of this information is reasonable and necessary for making a decision.

Slide 20 (Use of Non-Pharmaceutical-Grade Chemicals)

For this guidance, OLAW, USDA, and FDA define a pharmaceutical-grade compound as any active or inactive drug, biologic, or reagent that is approved by the FDA for which a chemical

purity standard has been written or established by any recognized pharmacopeia. The FDA publishes databases of drugs. The veterinary drug database is called the [Green Book](#) and the human is called the [Orange Book](#). The names are left over from the days when these were actual books. Now they are listed online and you can find them at the URL listed on the slide.

Slide 21 (Additional Information on the Use of Non-Pharmaceutical-Grade Chemicals)

The use of pharmaceutical-grade and non-pharmaceutical-grade substances has been an issue of concern to the community recently. Therefore, OLAW offered a webinar on this subject. The webinar has lots more details. It includes the list of qualities that I read to you earlier and examples that I have given in this brief summary. If you go to the OLAW website -- to the [Education Resources](#) section -- the URL is listed on the slide, you can view a recording of this webinar. If you don't have time to listen and watch the recording, you could speed read the transcript. It is also posted along with a copy of the slides. We also posted examples of reasons why an investigator might want to use a non-pharmaceutical-grade substance. This was developed by one of OLAW's veterinarians and is used in the Intramural Research Program at NIH. We posted the examples in MS Word so that your IACUC can not only download the document, but also modify it if you want to. I'd love to have feedback about how you are using this document, so if you have a comment about it, you can email me or give me a call.

Slide 22 (Environment – Temperature)

>> Dr. Garber: The environment and temperature. The recommended macroenvironmental temperatures for common laboratory animals is provided in Table 3.1 in the *Guide*. This table is essentially unchanged from previous editions, and generally reflects tolerable limits provided that animals are housed with adequate resources for thermoregulation, if needed. This is particularly important for rodents, as is indicated in the table footnote. The text further suggests that temperature should be selected and maintained with minimal fluctuation near the middle of the ranges presented in the table.

Slide 23 (Environment – Temperature)

New in this addition of the *Guide* is text that includes discussion of the animals' thermoneutral zone -- that is, the ambient temperature in which thermoregulation occurs without the need to increase heat production or increase evaporative heat loss. The thermoneutral zone is defined by upper and lower critical limits. In general, temperatures in animal rooms should be set below the animal's lower critical temperature to avoid heat stress. This, in turn, means that animals

should be provided with adequate resources for thermoregulation (such as nesting material or shelter) in order to avoid cold stress. The thermoneutral zone, for example, for mice is 26 to 34 degrees C; their lower critical temperature is 26 degrees C.

Slide 24 (Temperature)

The implications are that when animal room temperatures are set lower, as recommended in the table, that is for mice or rodents 20 to 26 degrees C, nesting material should be provided. Note that nesting material is not just an enrichment, but is a key component of the animal's environment. The *Guide* includes discussion of nesting material, not in the context of environmental enrichment, but in the section on bedding. Minimizing variation around a set point is also important to minimize the animal's need to adapt physiologically to wide temperature swings.

Slide 25 (Social Housing)

Now an example related to social housing. The *Guide* states that, "All animals should be housed under conditions that provide sufficient space as well as supplementary structures and resources required to meet physical, physiologic, and behavioral needs." "Single housing of social species should be the exception and should be justified based on experimental requirements or veterinary-related concerns regarding animal well-being." "Social animals should be housed in pairs or groups of compatible individuals, unless they may be housed alone for experimental reasons or because of social incompatibility."

Slide 26 (Social Housing)

The implications. An understanding of species-typical social behavior is needed. For example, male mice of some strains are not compatible and may need to be housed singly. In that case, providing resources such as nesting material may be even more important where huddling cannot be used as a means of behavioral thermoregulation, as was previously discussed. Social housing situations also should take into consideration that cage complexities and important resources need to be provided in a way that they cannot be monopolized by dominant animals or elicit aggression between animals. The need for single housing should be reviewed on a regular basis and approved by the IACUC and/or a veterinarian.

Slide 27 (Environmental Enrichment)

Enrichment programs should be reviewed by the IACUC, researchers, and a veterinarian on a

regular basis to ensure that they are beneficial to animal well-being and consistent with the goals of animal use. Personnel responsible for animal care and husbandry should receive training in the behavioral biology of the species they work with to appropriately monitor the effects of enrichment, as well as identify the development of adverse or abnormal behaviors.

Slide 28 (Environmental Enrichment)

The implications are that: Enrichment strategies should take into account the scientific goals of the study; enrichment should be considered an independent variable and suitably controlled; and training is important. Personnel responsible for daily care should be adequately familiar with normal animal behavior such that abnormal behavior may be recognized and reported.

Slide 29 (Cage & Pen Space)

Cage and Pen Space. The *Guide* presents new recommendations for mice and rats with litters, for some categories of nonhuman primates, and for rabbits; and there is an expanded discussion of considerations for housing (that is performance standards or performance criteria). The tables include specific comments related to the recommendations, and the recommendations stress pair or group housing.

Slide 30 (Performance Criteria for Cage & Pen Space)

There are a number of statements that apply generally to housing a variety of species. They include: Space to express normal postures; the ability to turn around and have ready access to food and water; and space to rest away from soiled areas. Cage height should take into account the animal's typical posture, and there should be sufficient space for mothers with litters to allow the pups to develop to weaning without detrimental effects for the mother or the litter.

Slide 31 (Space Recommendation & Performance Standards)

Implications of these recommendations are that: An animal's space needs are complex; the tables contain recommended minimums; and consideration of only the animal's body weight or surface area may be inadequate. Other considerations should include the age and sex of the animals, the number and duration of housing, the intended use, perhaps for production versus experimentation, and special needs of the animals.

Slide 32 (Space Recommendation & Performance Standards)

Further implications are that space allocations should be assessed, reviewed, and modified as

necessary by the IACUC considering the performance indices such as: Health, reproduction, growth, behavior, activity and use of space -- and special needs determined by the characteristics of the animal strain or species and use.

Slide 33 (Space Recommendation & Performance Standards)

Next, I will provide a few comments on rodent breeding. Previous editions of the *Guide* lacked guidance in this area. The recommended space for a female plus her litter reflects a current standard of practice in some breeding operations that use commercially available, "high density" housing racks. The recommendations are intended to be a starting point for addressing space needs of breeding groups.

Slide 34 (Space Recommendation & Performance Standards)

The *Guide* intentionally does not indicate specific space needs of "other breeding configurations" in order to allow institutions to determine appropriate housing conditions for their own situation based on performance indices discussed throughout the document.

Slide 35 (Space Recommendation & Performance Standards)

The *Guide* intentionally does not suggest that the minimum space recommendations for other breeding groups are additive, or that the recommendations for like-sized, group housed rodents be used in determining the space needed for other breeding configurations.

>> Ms. Silk: OLAW supports this guidance.

Slide 36 (Space Recommendation & Performance Standards)

>> Dr. Garber: For rodent breeding groups, it should be noted that the comment column in the table states that: "Other breeding configurations may require more space and will depend on considerations such as number of adults and litters, and size and age of litters." That is, other breeding configurations, such as pairs or trios, may require more space than the recommended minimum for a female plus her litter.

Slide 37 (Space Recommendation & Performance Standards)

Additional information is provided in the footnote specific for breeding groups. It states that: Other considerations may include culling of litters, separation of litters from the group, more

intensive management of space, and that sufficient space should be allocated for mothers with litters to allow the pups to develop to weaning without detrimental effects for the mother or the litter.

Slide 38 (So, How Do I Use These Guidelines (Performance Criteria))??

So how should these guidelines be used? Using as an example, breeding groups of mice, one might start by using the recommended minimum space as a starting point, that is 51 square inches for a female plus a litter. And for pair housing? Inbred strains with very small litters may not need more than 51 square inches of space. It follows then that outbred strains with very large litters will likely need more than 51 square inches.

Slide 39 (So, How Do I Use These Guidelines (Performance Criteria))??

For trios or larger breeding groups, housing other breeding groups in standard sized cages, for example, 75 to 81 square inches, has become the standard of practice for many breeding operations. However, as in any housing situation, many factors (those performance indices) help determine whether desired outcomes are met and whether the housing is appropriate.

Slide 40 (So, How Do I Use These Guidelines (Performance Criteria))??

Specifically, for breeding groups, considerations should include: Size and age of the litters, the need for culling of pups, or for separation of litters. It also includes, as a consideration based on density, the sanitation frequency necessary for that group in that caging situation. Decisions related to space and housing needs come down to sound management. This picture illustrates a situation that likely would not meet desired performance criteria, considering the presence of litters of widely differing ages.

Slide 41 (OLAW Implementing the *Guide*)

>> Ms. Silk: OLAW determined to implement the 8th Edition of the *Guide* because, in our judgment, it empowers continued advancement in the humane care and use of vertebrate animals in research, research training, and biological testing.

Slide 42 (OLAW Implementing the *Guide*)

Performance standards are the most important component of PHS oversight of animal programs at Assured institutions. IACUCs are able to meet their responsibility to ensure humane animal care and use, while advancing quality scientific research through the use of performance

standards in their oversight of institutional animal programs. OLAW encourages the cooperative application of diverse expertise to develop outcome-based performance standards that enhance the quality of animal care and use programs. OLAW expects Assured institutions to apply appropriate professional judgment and experience to the challenges inherent in developing policies and procedures to maintain a quality program that provides humane care to vertebrate animals.

Slide 43 (OLAW Implementing the *Guide*)

The *Guide* was updated using best practices developed by the community. Therefore, implementation is expected to have a minimal impact on institutions that are currently using policies and procedures based on well-developed performance standards. These policies and procedures may not need to be revised as part of the institution's implementation of the 8th Edition of the *Guide*. Institutions that do not currently have performance standards are expected to use the benchmarks provided by the 8th Edition of the *Guide* to develop performance-based policies and procedures. Institutions must conduct at least one of their semiannual program and facility reviews using the 8th Edition of the *Guide*.

Slide 44 (OLAW Implementing the *Guide*)

What is required of Assured institutions? As of January 1, 2012, OLAW requires Assured institutions to base their programs of animal care and use on the 8th Edition of the *Guide*. Assured institutions must complete at least one semiannual program review and facility evaluation using the 8th Edition of the *Guide* as the basis for evaluation by December 31, 2012. I had someone at a meeting tell me recently that he understood he only had to do one semiannual inspection and program evaluation in 2012. But that is not true. You have to do two. And it's probably better if you would do both of them using the 8th Edition of the *Guide*, but you are only required to do one of them using the 8th Edition of the *Guide*. It is not required that all necessary changes be completed by December 31, 2012, but rather that an evaluation must be conducted and a plan and schedule for implementation must be developed by the end of the year.

Slide 45 (Challenges)

>> Dr. Garber: The challenges in the short term are to review and assess your program components using the new *Guide*. Read the *Guide* in its entirety and do not take statements out of context. There are some topics that are addressed in more than one location. And don't

over-analyze. In the long term, continue to review and assess your program using the *Guide*.

Slide 46 (Challenges)

Remember to think "performance standards". You've already been doing this for many years and much of what is reflected in the new *Guide* may not require a great deal of change for your program. Thank you.

Slide 47 (Questions)

>> Dr. Collins: Thank you both Jan and Susan. Let's now move on to questions. As I said in my opening remarks, we will not be answering questions live during this webinar. If you have questions, please jot them down and email them to OLAW at olawdpe@od.nih.gov. We will prepare the questions and answers in a document that will be amended to the transcript of this webinar and posted on the OLAW website. Please send those questions to us as soon as you can. OLAW will answer your questions at any time, but if you would like to have your question included in the materials that support the recorded version of this webinar, please get it to us by June 1st of this year [2012].

Now our first question, Jan. With all the genetically modified animals being produced, how can anyone know what phenotype is expected?

>> Dr. Garber: It is true that genetic manipulation, whether it's a targeted manipulation or random, is often very unpredictable and can result in unexpected phenotypes. The new *Guide* includes a discussion of unexpected outcomes, as a special consideration for protocol review. The case of genetically modified animals is used as an example to illustrate the need to increase the frequency of monitoring of animals in these types of studies. For example, the first offspring of genetically modified animal lines should be carefully observed from birth to early adulthood for abnormal clinical signs. If the initial characterization reveals a condition that has a negative effect on animal well-being, it should be reported to the IACUC. More extensive analysis of the phenotype may help determine whether or not proactive measures can be taken to decrease or alleviate the impact of the genetic modification to the animal. Other areas of research may also pose challenges related to unexpected experimental outcomes and experimental and humane end points.

Training of personnel to recognize clinical signs and report problems is essential.

Slide 48 (Questions)

>> Dr. Collins: Our next question: Must the IACUC review all enrichment plans or may they rely on an individual, for example a veterinarian, to assure them that the plans are okay?

>> Dr. Garber: Environmental enrichment is an important component of the animal care and use program. Therefore, the IACUC must assume responsibility for implementation and continued monitoring of the environmental enrichment program. Having said that, reliance on the veterinarian staff, investigators, and other personnel with experience in behavioral biology of the species housed is important when developing an enrichment program. Review by members of the IACUC is an important part of ensuring that the enrichment program addresses issues related to animal well-being, as well as scientific considerations. As mentioned earlier, enrichment should be considered an independent variable and should be controlled. Even in well-established programs, there should be continuing assessment of the success of the enrichment program. This is primarily dependent on the veterinarian technical staff on a day-to-day basis, but observation by IACUC members during semiannual facility inspections can help refine the program.

Slide 49 (Questions)

>> Dr. Collins: Our next question: If I hear from colleagues that a new practice is working well for them, do we still have to monitor it at our institution or may we simply refer to the fact that another institution likes it?

>> Dr. Garber: Discussion with your colleagues is often a great way of sharing successes and failures related to the management of animal care and use programs. However, when exploring the implementation of new practices in your facility, it's important to first collect information and fully understand the procedures. Reference to the published literature is often very helpful, since the methods and description of conditions is typically very well outlined. However, situations at different institutions are seldom identical. Potential differences are many. Equipment used and available materials are often different, as are staffing, experience, and the training of

personnel. Using the performance standard approach, development of a new process includes not only defining the outcome and how to achieve the outcome, perhaps that process that you borrow from your colleague, but monitoring the results in order to ensure that the approach is successful for your particular situation in your facility.

Slide 50 (Questions)

>> Dr. Collins: And now I believe our last question, Jan. If we have long-standing performance-based practices that work well, do we still need to review them to make sure that they are still meeting our goals?

>> Dr. Garber: Typically, the frequency and intensity of monitoring and review of long-standing practices is less than that needed when implementing new programs. However, few programs continue to operate with unchanged condition for long periods of time. Even seemingly trivial changes in equipment, materials, and personnel may have an impact on some program components. And monitoring, even as part of daily operations and observations, can be a way to ensure continuous improvements in a program. The beauty of the concept of performance standards is that it allows the flexibility to modify practices and procedures based on changing conditions and new information.

Slide 51 (OLAW Online Seminar Series Upcoming Schedule)

>> Dr. Collins: I want to again thank Dr. Garber for taking time to participate in this webinar and especially for the time and effort she and her colleagues invested in the revision to the *Guide*. The upcoming seminar series schedule includes webinars in June, September, and December [2012]. The topics for September and December will be announced at a later date. And as always, we encourage you to submit questions or requests for topics for these seminars. Once again, thanks to each of you, our participants, for taking time from what we know are busy schedules to tune in to the broadcast. Your ongoing efforts to ensure humane care of the animals entrusted to you continue to facilitate research, teaching, and testing that is an essential part of improving human and animal health. Thanks and we hope that you will be able to join us on the 7th [June 2012] for a webinar titled Grants Policy and Congruence.