

TECH talk

The Newsletter for Laboratory Animal Science Technicians

Decreased Efficacy of Prepared Quaternary Ammonium Solutions Exposed to Certain Paper Toweling Products



By Amy S. Ingraham, RLATG, BS, Regional Representative and Tammy M. Fleischer, Industrial Environmental Engineer, Pharmacal Research Laboratories, Waterbury CT

The use of paper hand towels and paper "sport towels" in the laboratory animal science industry is widespread. Many facilities utilize paper towels to wipe down containers being sprayed with disinfecting solutions prior to entry to the animal care area.

Another common practice is placing paper toweling products in a container and soaking the contents with a disinfecting solution, then using the container under biological safety cabinets and changing hoods.

We first noted a potential problem when called to an animal facility to investigate a marked, rapid, and pronounced decrease in efficacy of prepared quaternary ammonium solutions. The facility had used paper toweling saturated with prepared quaternary ammonium (Quatricide™ PV, EPA REG# 47371-131-08714) in their changing hoods.

The facility utilized Hydro™ 835 mixing stations in each room. These stations had been calibrated for appropriate delivery of the mixed product. These units were

checked with QuatCheck™ 1001 paper (pHydriion Papers, Micro Essential Laboratory Inc., Brooklyn NY) and verified for accurate dilutions. Mixed quaternary ammonium solution was placed in lidded containers with laboratory grade paper wipes. The solution completely covered the stack of paper wipes and saturated them.

The solution in the containers rapidly degraded and dropped to less than 200 ppm within 2 minutes (mixed solutions lower than 600 ppm have little active quaternary ammonium present and should be discarded). This drop was duplicated with paper towels (common office supply store brand).

Telephone consultation with Kimberly Clark scientists confirmed this observation. Certain paper products (wipes, towels, etc.) containing a cotton paper combination will inactivate the quaternary ammonium solution swiftly.

Kimberly Clark recommends that facilities using quaternary ammonium products employ their KimTech Prep Wipes® for Wet Task Systems (specifically the disposable #06211 unit). These units come with a tub. The end-user just needs to fill the tub with the quaternary ammonium solution (mixed to 600-800 ppm) and the wipes feed from the top (similar to baby wipes).

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Primate Pairing Under Less Than Ideal Circumstances

By Maria E. Reaves, BA, RLATG, Manager, Animal Care Facility, Lehman College/City University of New York, Bronx, NY and Joyce Cohen, VMD, Veterinary Resident, Weill Medical College, New York, NY

Pair housing of nonhuman primates is regarded as a preferred form of enrichment for these highly social animals. Weill Medical College (WMC) was committed to adding this type of enrichment to our program. There were concerns because our older caging lacked the sliding panels designed to ease introductions. In addition, we lacked the space to provide a separate room for introductions and had male/female colonies. In spite of these obstacles, we attempted the pairing.

Materials and Methods

Cages were standard apartment type, modified with a 12" x 12" hole cut into the floor of the top cage. This allowed each monkey more vertical space. A metal divider could be placed between the two cages, allowing for any veterinary or husbandry procedures to be performed. We wished to provide our prospective pairs with more space during the initial phase of the introduction process. This was accomplished by utilizing a short tunnel that was being used to transfer the monkeys during cage change. The

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tunnel attached to both cages with hooks. We added small clips for extra security. This way, we attached two cages with the tunnel and provided the animals with an escape route, if needed.

The primate rooms contain anterooms used for gowning up and material storage. The space was large enough to accommodate our two-cage setup, and we were able to address the issue of attempting the pairing in the colony room by moving the animals here.

Guidelines

We were asked to develop guidelines for the pairing process. We selected potential cage mates based on observations of interactions between the animals in their home cages. We decided to try each animal with three potential partners before deciding it was unsuitable for pairing. Pairing began on a



Three stable pairs were created by using the tunnel method.

Monday morning to allow sufficient time during the week to determine compatibility of the new pair.

On Monday morning, the monkeys were moved into the anteroom in their home cages. The cages were placed side by side, allowing for tactile contact. The animals were monitored by a pair of observers familiar with primate behavior. They were kept in the anteroom for a three- to four-hour period under observation. The observers evaluated the interactions between the animals to determine if the attempt should continue.

The animals were then returned to the colony room. The same procedure was followed on Tuesday morning and again for the first hour on Wednesday. If affiliative behaviors were observed, the two cages were connected by the transfer tunnel. Both

sides were opened simultaneously, allowing the monkeys access to each other. We secured the doors and stepped away to allow the monkeys to become acquainted. They were observed for an hour in the two-cage setup. If the interactions were positive, the animals were moved to a single unit. They were allowed to remain in the single cage for 30 minutes to an hour before being returned to the colony room. The pair was observed in the colony room for 30 minutes periodically throughout the remainder of the day.

Results

Of the six male cynomolgus monkeys in our group, we were able to create three stable pairs. The animals share food, and although we have had some minor bumps and bruises, there have been no serious injuries. We later reproduced these results with our vervet colony and after the quarantine process with all new arrivals.

Acknowledgements

Many thanks to Sylvia Sprague and Dr. Felix Homberger of the Research Animal Resource Center.

Decreased Efficacy Continued from Page 1

We proceeded to test various paper products against a standard prepared quaternary ammonium solution in a controlled bench top setting. Our initial results are as follows:

QUATRICIDE™ PV EPA REG # 47371-131-08714

Trial 1 Lot # 2105138 Concentrate 4.04% pH 7.27

Mixed Solution at 2 oz/gallon (1:64) 800ppm and pH 6.3 initial reading
800 ppm and pH 6.3 day 7

Trial 2 Lot # 2104050 Concentrate 4.19% pH 7.8

Mixed Solution at 2 oz/gallon (1:64) 800ppm and pH 6.2 initial reading
800 ppm and pH 6.3 day 7

WT = Kimberley Clark Wet Tasks
SP = Office supply store paper towels
TM = Shop paper towels
Hr(s) = hour(s)

PPM QUAT	10 min	15 min	30 min	1 hour	7 Hr	24 Hrs	Day 7
WT Trial 1	800	800	800	800	800	800	600
WT Trial 2	800	800	800	800	800	800	600
SP Trial 1	400	0	0	0	0	0	0
SP Trial 2	0	0	0	0	0	0	0
TM Trial 1	800	800	800	800	600	400	200
TM Trial 2	800	800	800	800	600	400	200

PH	10 min	15 min	30 min	1 hour	7 Hr	24 Hrs	Day 7
WT Trial 1	6.3	6.3	6.3	6.3	6.3	6.3	7.2
WT Trial 2	6.2	6.2	6.2	6.2	6.2	6.3	7.2
SP Trial 1	8.2	8.2	8.2	N/A	N/A	N/A	N/A
SP Trial 2	8.1	8.2	8.2	N/A	N/A	N/A	N/A
TM Trial 1	6.3	6.3	6.3	6.4	6.6	7.2	7.6
TM Trial 2	6.3	6.3	6.3	6.5	6.8	7.0	7.5

From the results in the laboratory and the bench settings, we note that common paper products may not be appropriate for use with quaternary ammonium products and may decrease efficacy of these products.

Facilities should verify that the wipes chosen for these tasks are compatible with the disinfectants in house. This can be easily accomplished by verifying the proper wipe is selected when ordering from the supplier or by contacting the wipe manufacturer directly. It is imperative that the disinfectants are used in accordance with all label directions and recommendations to ensure the product is performing acceptably.

Acknowledgements

The authors gratefully acknowledge Jennifer Bidwell, a veterinary technician at West Virginia University Health Science Center, for her assistance in the initial detection of this phenomenon.

Toenail Clipping as Adjunct Treatment of Pruritis in Mice



By Felix Onojafe, LATG, Priority One Services, Bethesda, MD

Toenail clipping is a common practice in pet animals such as dogs and cats. Most dogs wear their toenails by activities such as walking and running. When long nails are observed on pets, they are usually trimmed.

Laboratory rodents, housed in cages with soft bedding, do not generally wear their nails; they continue to grow and become sharp. These nails may be small, but they are sharp enough to cause bodily injuries and have the potential to expand tiny cuts, bruises, and irritations into major medical events. There are many instances in which toenails have aggravated small wounds and lacerations. In addition, ear tag irritations may become large wounds on the pinna and dorsal neck. In some cases, the nails have caused significant injury (Figure 1).

Another condition that unclipped nails can contribute to is pruritic dermatitis. C57Bl strains of mice are particularly predisposed to idiopathic pruritic dermatitis. In a facility free of infectious rodent pathogens, pruritic dermatitis can be the most common observation requiring veterinary intervention.

In addition to dermatitis, these strains

are also predisposed to congenital microphthalmia, or reduced eye size. This can lead to periocular irritation due to underdeveloped lacrimal glands, among other conditions. The periocular irritation can present as scratching below the eye, leading to more inflammation and pruritis.

Treatments such as topical Betadine solution can decrease the secondary infections of the wounds, but often do not improve the condition. Anti-inflammatory treatments such as topical or systemic corticosteroids or antihistamines have limited effect and can interfere with research. Due to the lack of acceptable treatments in lab rodents, prognosis has been poor in many cases, resulting in the loss of mice. To limit the damage caused by scratching, we began clipping the toenails of mice that presented pruritic ulcers in our facility. With toenails clipped, the wounds tended to heal faster, the irritation and inflammation were reduced, and the prognosis of treated mice improved.

We have found that it's a good practice in rodent medicine to incorporate nail clipping as part of the treatment in cases of

itching, scratching, and minor lacerations in sensitive areas. This can be done weekly with small scissors or pediatric fingernail clippers. Nail clipping could be a valuable element of the veterinary care program if done periodically through out the year. Trimming should be done by trained personnel; if the "quick" is inadvertently



Figure 1. Unclipped toenails of laboratory rodents can cause significant injury, including ear tag irritations and pruritic dermatitis.

reached, silver nitrate sticks, styptic pens, or pressure with a 4x 4 in. gauze pad will facilitate hemostasis.

In conclusion, the clipping of toe nails in laboratory rodents has proven to be a successful supportive therapy for pruritic skin lesions at Priority One Services.

Versatile, Extended Thermal Support for Laboratory Rodents

By Patty Denison, LVT, LATG, Program/Project Coordinator, Division of Laboratory Animal Resources, Wayne State University

Choices in thermal support for rodents during surgical procedures or convalescence can present a number of challenges. Water circulated heating pads or heat lamps are options, but both are limited in their portability due to the need for an electrical outlet in the immediate area. In addition, the use of electrical devices may skew the results of recording equipment, and are contraindicated during imaging procedures such as magnetic resonance.

Chemical pouches heated in a conventional microwave oven circumvent these challenges, but the flexible plastic is easily penetrated by an errant sharp object and renders them unusable. A nearly indestructible version of the same concept is the Snuggle Safe™ Microdisc Heat Pad.

Approximately 8.5 inches in diameter and 0.5 inches thick, this rigid plastic disc contains a non-toxic, environmentally

friendly chemical and is heated in a conventional microwave for approximately six minutes (wattage dependent). After the initial three hours of use, it cools slightly to a temperature of approximately 123 degrees F (52 degrees C) for the next five hours, and continues to radiate warmth as it cools for up to 12 hours. The use of a towel or layers of towels helps regulate the amount of warming provided and will prevent overheating or thermal injury. Remember that monitoring the animal and source of heat is mandatory with any form of supplemental warmth. Their size will accommodate most rodents during a surgical procedure, and may be placed under half of the recovery cage to prevent hypothermia during the initial post-op period.

The Snuggle Safe™ Microdisc is available at most online pet supply sites for under \$20.

Did You Know?

By Patrick Bush, BS, LATG, Loma Linda University Medical Center

In some mechanical and cage wash rooms, the noise level may reach well over 85 decibels (dB), and the noise level in a dog room can reach up to 100–120 dB. Dogs, swine, and other animals may add to the amount of noise one is exposed to during the course of a work day.

So why is this important? Prolonged exposure to high noise levels may result in temporary or even permanent hearing loss, depending on the intensity and duration of noise exposure. One out of every three employees working in hazardous noise areas suffers from permanent hearing loss.

The Occupational Safety and Health Administration (OSHA) established regulations regarding occupational exposure to noise by limiting the amount of time an employee may be exposed to various noise levels without the benefit of hearing protection, and by requiring employers to establish and administer a “continuing, effective hearing conservation program” when noise exposures equal or exceed an 8-hour time-weighted average (TWA) of 85dB or more.



According to OSHA guidelines, the maximum amount of time an employee could work in the “noisy” dog room described above without the aid of hearing protection would be anywhere from 15 minutes to one hour depending on the actual dB level. This does not provide very much time to complete the daily tasks normally performed in a dog room; however, by using various engineering controls or wearing protective equipment such as ear muffs or ear plugs, one may effectively reduce the dB level to a point that would increase the permissible exposure times.

Of course, determining the actual amount of noise one is exposed to is not always easy. If you have difficulty hearing and understanding a normal conversation when in a “noisy” room, it may be a good indication that hearing protection is needed. However, hearing protection does not work unless an employee actually uses it when necessary.

For more information on occupational noise exposure and hearing conservation programs, take a look at the following web sites:

- Noise and Hearing Conservation
<http://www.osha.gov/SLTC/noisehearingconservation>
- Noise and Hearing Loss Prevention
<http://www.cdc.gov/niosh/topics/noise>

Lab Products Technician Award Winners

Lab Products recently announced the recipients of the 2005 Lab Products Technician Award. Congratulations to the following individuals who will be attending their first AALAS



National Meeting in St. Louis. The award is given to one deserving technician from each of the eight AALAS districts and Canada. The award is limited to animal care personnel who have at least one year of laboratory animal care experience and have never attended the AALAS National Meeting. The recipients of the Lab Products Animal Technician Award each receive an award recognition plaque, airfare, hotel and registration for the AALAS National Meeting, a one-year membership to AALAS, and \$250.

2005 Recipients

- AALAS District 1
Glenn Scott Ryan—Avant Immunotherapeutics, Inc.
- AALAS District 2
Michael Pimble—Fox Chase Cancer Center
- AALAS District 3
Adrienne Edgell—BioReliance Corp.
- AALAS District 4
Lee Barnett—Oak Ridge National Labs/Bionetics Corp.
- AALAS District 5
Rosezina Almanza—University of Kentucky
- AALAS District 6
Christy Neel—University of Nebraska Medical Center
- AALAS District 7
Deborah Minor—Pennington Biomedical
- AALAS District 8
Kristina Jones—Avigen
- CALAS/Canada
Simone Kerswell—University of Alberta

Building a Novel Environment for a Feline Enrichment Program

By Lorna Bowen, CVT, LAT; Daniel Tweite, LAT; Renee Taubel, CVT, LAT; Stacy Hall, CVT, LAT; Renee Okerman, CVT, LAT; Krista Thompson, CVT, LAT; Naomi Gades, DVM, MS, DACLAM; Craig Frisk, DVM, PhD, DACLAM; Department of Comparative Medicine, Mayo Clinic, Rochester, MN

Cats are by nature curious and social animals that benefit from human, environmental, and conspecific interaction (1). As long as cats are given adequate space, feed and water, litter pans, and have retreat and resting places, it is believed they benefit from being housed with other cats (2).

During evaluation of our feline enrichment program, we decided our cats should have an opportunity to directly interact and play in a large, novel environment. To accomplish this, we constructed an inexpensive colony pen measuring 12 ft x 6 ft x 6 ft (length x width x height). Two sides of the cage utilize the room's existing walls. The outside of the walls are made of galvanized chain-link fencing, and the inside is lined with Plexiglas to prevent climbing. The top of the cage has a 6-in. Plexiglas flange or lip that angles inward to prevent escapes (Figure 1). The colony cage has multiple wall-mounted resting boards at alternating heights, which provide additional space as well as an opportunity for exercise. The structure is modular for ease of disassembling and sanitizing.

The Animal Welfare Act (3) allows up to 12 cats to be group housed in a single enclosure. As our current census exceeds 12, two groups are rotated weekly between the large colony cage and individual caging. This rotation gives the animal care staff an opportunity to interact individually with the animals as they are transferred between the large colony cage to individual caging. Group housing allows the animals to interact and express a wide range of normal behaviors and postures, such as playing, stretching, and exploring.

We have invested in a laser pointer to encourage exercise and "chasing" behavior in the pen area. In colony and individual housing, cats are given a variety of toys to interact and play with including the Cozy



Figure 2



Figure 1



Figure 3

Figure 1. The colony cage is made of galvanized, chain-link fencing lined with Plexiglas. Multiple resting boards, wall-mounted at alternating heights, are anchored to the wall. Individual identification badges are laminated and easily transferred between individual caging and group housing with a clip.

Figure 2. A variety of toys for the cats to interact and play with are included.

Figure 3. To make identification of the cats easy, individual identification badges were developed. A digital photo of each cat was placed on its identification badge.

Pet® Kitty Swat Toy, a ball with bell, a bouncing mouse catnip toy, Spotbites™ Really Fun Vinyl Toys, vinyl balls, and T-piece cylinders (Figure 2). Within the individual stainless steel cages, the cats are given hammocks and have vocal and olfactory interaction with conspecifics within the room. Since several cats are housed together, we have developed individual badges to make identification of the cats easy. A digital photo of each cat is placed on its individual badge or cage card (Figure 3). These are laminated and easily transferred between the individual caging and group housing with a clip (Figure 1).

In summary, our feline enrichment program includes a large, novel colony cage as well as enriched single housing. Due to the curious nature of the cat, a stimulating, well-designed housing environment is needed. We believe the addition of the colony cage has led to friendlier and more well-adapted cats.

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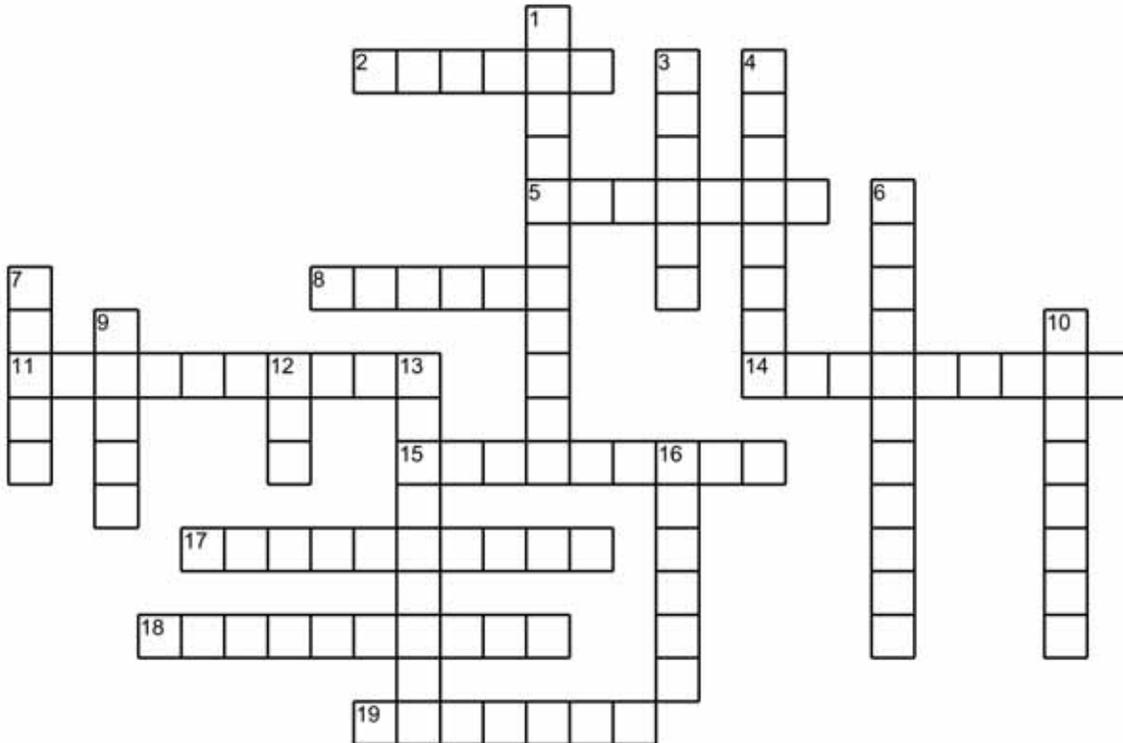
Acknowledgements

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Editor's Note

As with all enrichment plans, remember to gain prior approval from your IACUC, Principle Investigator, and staff veterinarian, particularly when introducing chemicals which may alter animal behavior and physiology (i.e., catnip toys). In addition, when group housing in a colony pen, please remember the pen becomes the animal's primary enclosure, and thus must be sanitized at least every two weeks as would occur with individual cages.

Crossword Puzzle



Down

1. genus of ticks which target dogs, humans
3. loose skin at the neck and shoulders
4. fruit sugar
6. in the area around the eye
7. external ear flap
9. sensitive flesh beneath the nail
10. causing intense itching
12. parts per million
13. anatomical midline landmark
16. *Meriones unguiculatus*

Across

2. aka African Green
5. additional or supplementary
8. a protruding rim or edge
11. white blood cell
14. formerly "cold-blooded"
15. type of nervous system pain
17. of unknown origin
18. crab-eating macaque
19. lower jaw

Answers will appear in the next issue of Tech Talk.

PRO-files in Lab Animal Science Salutes Fred Douglas



Name: Fred Douglas
Facility: Veterinary Lab Animal Care, Purdue University
Job title: Manager
Years in animal science: 23
How long have you been a national AALAS

R. Collins Award (1991); Indiana Branch Management Award (1992); Eldon Cox Award—IB (1989); Technologist of the Year—IB (1986)

How did you get into the field?

While at the University of Nebraska pursuing my bachelor's in animal science, I worked for the Veterinary Science Department and was involved in bovine disease

Who were your mentors?

Kristina Stephens, Gail Heidbrink, Rob Weichbrod, and Bob Mueller.

What are your current interests in animal science?

My current interests are leadership, personnel management, technician training, and international affairs.

member? 20 years

What national committees have you participated on? COLAT (1992); Council on Education (1992–1995); ILAM (1995–2002); Nominations (2003); IRAC (2004–present)

What branches are you a member of? Indiana

What branch committees have you participated on? REB (1986–1993), Awards Committee (1990–91), Information Exchange (1990), Membership (1985, 1989), President (1988).

Level of AALAS Certification: RLATG

Awards received: Eagle Special Service—LAMA (2004); Charles River Medallion—Management (1996); Purina Mills Animal Technician Award (1992); U. Kristina Stephens Award—LAMA (1992); George

My advice for those entering this field is to volunteer for as many different offices and committees as you possibly can. As you serve, discern with the help of others your niche.

research, as well as the SPF pig program. After my military stint, I ended up in Indiana and sought a position with the School of Veterinary Medicine. I landed a job with them and have traveled up the line from animal care staff to manager.

When you were growing up, what did you want to be?

I wanted to be a farmer because of my love for animals and the good life!

What is the one thing no one would guess about you?

Many would be surprised to know that I am an introvert.

What pets do you have?

Guinea pigs.

What are your career goals?

My goals is to teach leadership principles and skills globally.

What advice do you have for others entering the field?

My advice for those entering this field is to volunteer for as many different offices and committees as you possibly can. As you serve, discern with the help of others your niche.

Do you know someone who would make an excellent "PRO-file in Laboratory Animal Science?" Send your suggestion to techtalk@aalas.org!

Dear Labby—Am I a Vector?



Dear Labby

Dear Labby,

My boss referred to me as a "vector." Should I be insulted?

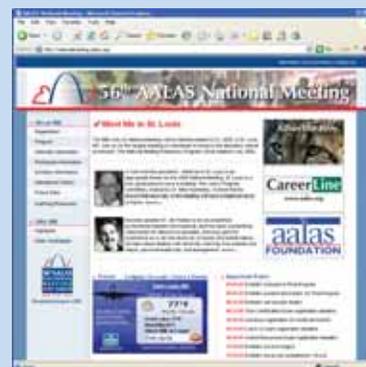
Signed,

Suspicious in Syracuse

Dear Suspicious,

It depends on how sensitive you are and what you consider to be an insult. Since a vector is an organism (such as a fly, mosquito, or careless technician) that transmits pathogens to other living organisms, it hardly sounds like a term of endearment! On the other hand, had you been referred to as a fomite (a nonliving object that mechanically transmits disease), I think you could safely assume that it meant you were either stationary or brain dead. My advice is to toughen up, buttercup! Sticks and stones will break your bones, but names shall never harm you.

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 National Meeting
nationalmeeting.aalas.org



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