

# OCCUPATIONAL HEALTH AND SAFETY:

ARE YOU POSITIONED FOR CHANGE?

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OCCUPATIONAL HEALTH AND SAFETY PROGRAMS CONTINUE TO BE CHALLENGING

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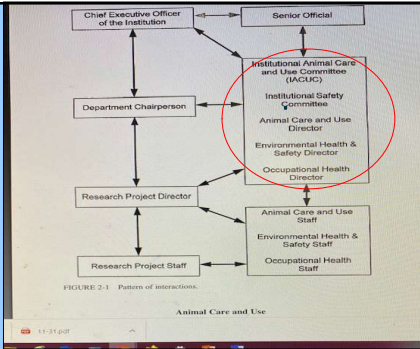
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THESE PROGRAMS CAN HAVE LOTS OF MOVING PARTS AND STAKE HOLDERS!

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1970  
14,000 workers were killed on the job – about 38 every day

**Occupational Safety and Health Act** was signed on December 29, 1970

OSHA has helped transform America's workplaces in ways that have significantly reduced workplace fatalities, injuries, and illnesses

## PRESIDENT NIXON'S ADMINISTRATION

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## OHSP: The Basics

OHS PROGRAMS ARE AN INSTITUTIONAL RESPONSIBILITY



PROTECTING THE HEALTH AND SAFETY OF EMPLOYEES WHO CARE FOR, USE AND COME IN CONTACT WITH RESEARCH ANIMALS

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REQUIRES THAT INSTITUTIONS THAT RECEIVE FEDERAL FUNDS MUST PROVIDE AN OHSP

- ▶ Public Health Service Policy on Humane Care and Use in Lab Animals

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Each institution must establish and maintain an occupational health and safety program (OHSP) as an **essential** part of the overall Program of animal care and use (CFR 1984g; DHHS 2009; PHS 2002).

### The Guide

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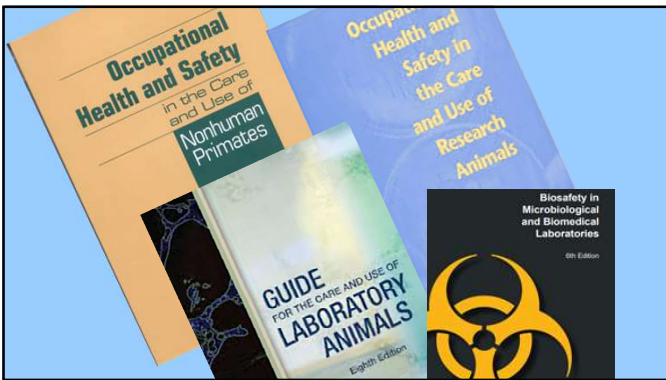
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### ► An Effective Program requires coordination

- Investigators or researchers
- AV, IO, and IACUC
- Health and Safety staff
- Occupational Health Services
- Administration

Guide, pg. 17



"A SAFETY COMMITTEE MAY HELP FACILITATE COMMUNICATION"

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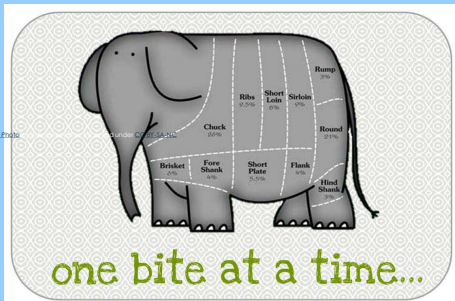
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### Occupational Health and Safety Programs can seem daunting



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- ▶ Hazard Identification
- ▶ Controlling Exposures
- ▶ Training
- ▶ Establishing Guidelines
- ▶ Consistency
- ▶ Monitoring
- ▶ Institutional Commitment and Coordination

### HISTORICAL ELEMENTS OF AN **EFFECTIVE** OHSP PROGRAM

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### Hazard Identification Protocol Review



### RISK ASSESSMENT



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**Defines nature and extent of exposure**

- Position, duties, or role in research, institutional affiliation
- Workplace environment
- Species
- Known hazards
- PPE used
- Possible exposure types

**RISK ASSESSMENT QUESTIONNAIRE**

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**WORKPLACE ENVIRONMENT**



Safety Hazards      Biological Hazards      Physical Hazards      Ergonomic Hazards      Chemical Hazards

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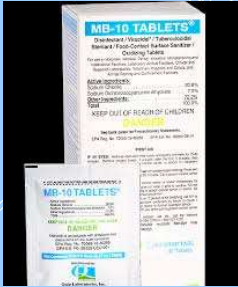
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**KEY CATEGORIES OF RESEARCH FACILITY HAZARDS:**

**Chemical Hazards:**

- Toxic fumes from chemicals
- Corrosive substances
- Flammable liquids
- Reactive chemicals
- Improper chemical storage




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Animal models of chemical carcinogenesis: Driving breakthroughs in cancer research for 100 years



## CHEMICAL HAZARDS

**Dimethylbenzanthracene (DMBA)**  
 This complete carcinogen is used to induce breast cancer in female SD rats. DMBA is also used in mouse skin squamous carcinogenic models

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### CLASSIFICATION OF BIOLOGICAL HAZARDS

#### Risk Group Classification of Biological Agents

Risk Group	Potential to Cause Disease to Humans	Hazard Degree to Workers	Spread to the Community	Effective Treatment or Preventive Measures
<b>1</b>	Unlikely	Low	Unlikely	Available
<b>2</b>	Likely but minimal potential to become serious hazards	Intermediate	Unlikely	Commonly available
<b>3</b>	Likely to cause serious diseases but treatment or measures may be present	Possibly serious	Possible	Commonly available
<b>4</b>	Likely to cause serious diseases but treatment or measures may not be present	Serious	Likely	Unavailable

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### Lab Acquired Infections/LAI

*(Lancet, Survey between 2020-2021)*

1342 LAI cases were identified

- 39 deaths
- 69 different pathogens

bacteria (775 cases), viruses (265), rickettsia (200), fungi (63), and parasites (39)

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**KEY EXAMPLES OF BIOLOGICAL HAZARDS IN RESEARCH FACILITIES:**

- INFECTIOUS AGENTS:**  
 BACTERIA LIKE E. COLI, STAPHYLOCOCCUS AUREUS (MRSA)  
 VIRUSES LIKE HIV, HEPATITIS B, INFLUENZA, EBOLA  
 PARASITES LIKE TOXOPLASMA GONDII  
 FUNGI LIKE ASPERGILLUS
- ZOOONOTIC DISEASES:**  
 RABIES FROM BATS OR RODENTS  
 SALMONELLOSIS FROM ANIMAL FECES  
 LEPTOSPIROSIS FROM ANIMAL URINE
- ALLERGENS:**  
 ANIMAL DANDER  
 POLLEN  
 CERTAIN PROTEINS IN RESEARCH ANIMALS

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- Between 1974 and 1976, 48 cases of salmonellosis were reported, and 20 deaths were reported due to laboratory-acquired typhoid fever.
- In 2014, 41 individuals infected with Salmonella reported behaviors that increase the risk of infection i.e. not wearing gloves or lab coats and not washing hands.

**SALMONELLA INFECTIONS ACQUIRED IN THE LAB**

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Do you ever have patients presenting with the following symptoms?



**Allergic Symptoms**

- Rashes where animals are in contact with the skin
- Nasal congestion and sneezing
- Itchy eyes
- Asthma (cough, wheezing, and chest tightness).

**SYMPTOMS OF LAB ANIMAL ALLERGIES**

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- ▶ **Rats and then mice** are among one of the most common sources of hazard exposure
- ▶ Urine is a major source of rodent allergens
- ▶ Minimize contact with rodent waste/litter

CONTROLLING MOST LIKELY EXPOSURES

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- ▶ **75% of all institutions** -staff which developed allergic symptoms to rodents
- ▶ 10% of all lab workers will develop **occupational-related asthma**
- ▶ Allergies most often develops over a period of 1-2 year exposure
- ▶ Have the right Occupational Professionals involved in the risk assessment process



**HAZARD IDENTIFICATION-RODENT SPECIFIC**

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**CAUSES OF WORKPLACE OR OCCUPATIONAL ASTHMA**

Irritant	Examples	Type of occupations/ environments at risk
<b>Chemical dusts and vapors</b>	Isocyanates, trimellitic anhydride, phthalic anhydride	Manufacturers of foam mattresses and upholstery, insulation, packaging materials, plasticizers, and polyurethane paint.
<b>Animal substances</b>	Bacterial dusts, dander, hair, mites, protein dusts, small insects	Farmers, animal handlers, kennel workers, jockeys, and veterinarians

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**CONTROLLING EXPOSURES**  
ELIMINATION OR SUBSTITUTION  
ENGINEERING  
ADMINISTRATIVE  
PPE



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**Physical Hazards:**

- Cuts from broken glassware
- Burns from hot equipment
- Electrical shock
- Slips and trips
- Ergonomic strain from repetitive motions

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*How to safely load and unload rack washer?*



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## Physical Hazards with Ergonomic Consequences

### High-Risk Task in Animal Research (Small Animal)

- Transfer of Rodents with Forceps
- Handling containers, wire cages and lids
- Prepare and replenish water bottles
- Rodent dosing
- Accessing high-density cages at unsuitable heights
- Lifting feed bags

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- ▶ Dogs
- ▶ Macaques\* Cercopithecine herpesvirus 1
- ▶ Farm or Agricultural Animals
- ▶ Non-domesticated species
- ▶ Wildlife and Field Studies



## HAZARD IDENTIFICATION-CAN BE SPECIES SPECIFIC

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### ▶ Risks:

- ▶ A potentially fatal zoonotic disease
- ▶ Herpes B virus (also known as Cercopithecine herpesvirus 1)
- ▶ Bites, scratches, or contact with bodily fluids
- ▶ Healthy-looking Rhesus can carry the disease



### ▶ Prevention:

- ▶ Strict Biosafety Protocols
- ▶ Extensive Staff Training
- ▶ Post-Exposure Procedures and Protocols in place with Employee Health

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► Have the noise levels been measured by an Industrial Hygienist?

A HEARING CONSERVATION PROGRAM INCLUDES HEARING PROTECTION TRAINING AND PERIODIC AUDIOMETRIC TESTING AND ANALYSIS.

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📄 Training and Establishing Guidelines

⚠️ Safety Starts with Training



**NOTICE**  
No food or drink permitted in lab

**CHEMICAL GOGGLES**  
MUST BE WORN IN THIS AREA

**WARNING**  
Biohazard  
Authorized Personnel Only

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Zoonosis  
 Chemical, Physical and Biological Hazards  
**Hazards associated with Experimental Protocols (IACUC Responsibility)**  
 Personal hygiene  
 PPE  
 Precautions during Pregnancy, Illness or Immunosuppression

**REQUIRED TRAINING: THE GUIDE**

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**Training and Establishing Guidelines**

#1 Objective of OHSP  
Communicate hazard training to those who need to know  
Identify staff at risk of exposure and TRAIN them

IACUC AND IBC APPROVALS SHOULD BE COORDINATED.

**HOW DOES THIS WORK AT YOUR INSTITUTION?**

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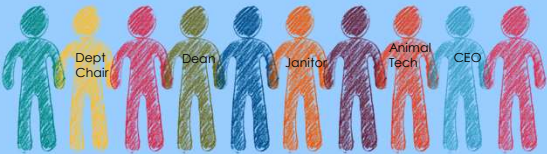
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**Monitoring and Consistency**

Application of the Rules  
Enforcement  
From the Chancellor to the Janitor



Dept Chair    Dean    Janitor    Animal Tech    CEO

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**Institutional Coordination and Commitment**

A CEO must understand that they are ultimately responsible

All Stakeholders must be educated and trained on what is required from them to have a successful program

For example \*Human Resources Department is frequently not included in establishing an effective program

Human Resources should know the nuances of your department/jobs being done there

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**HR should know who should be screened by OHS professionals**

Animal Care or Research Staff that handle/exposed animals should be enrolled in OHSP

Re-evaluated on a regular basis or if they have a change in health status

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**OHSP WAIVER**

I have read the above statements and decline participation in the \_\_\_\_\_ Occupational Health and Safety Program

I certify that I am enrolled in an occupational health and safety program for animal exposure at my primary workplace. I understand this may be verified by \_\_\_\_\_.

Contact Name for Occupational Health Verification

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WE HAVE ALL EXPERIENCED A CATASTROPHIC, LIFE-CHANGING, **MULTI-YEAR PANDEMIC** THAT HAS CHANGED (AND IS CONTINUING TO CHANGE) US FOREVER.



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“The pandemic represents a rare but narrow window of opportunity to reflect, reimagine, and reset our world.”



**Klaus Schwab**  
 Founder and Executive Chairman, World Economic Forum

WORLD ECONOMIC FORUM

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How has/was your program been impacted over the past few years while dealing with Covid?

What adjustments were made?

**HOW HAS THE WORKPLACE CHANGED?**




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Workplace Respiratory Illness Policy

- \*Masking vs Isolation
- \*Testing
- \*Quarantine

**WORKER HEALTH POLICY**

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**Millennials will make up  
75% of the workforce by  
2025.**

Source: Deloitte

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### Current or Updated Trends in OHSP AND A Healthy Workplace

Top Down Leadership is required to make a cultural shift in OHS programs

Comprehensive non-compensation perks like holistic wellness programs to attract the best talent

Foster engagement, performance, and well-being within your team

Training and opportunities for individual growth

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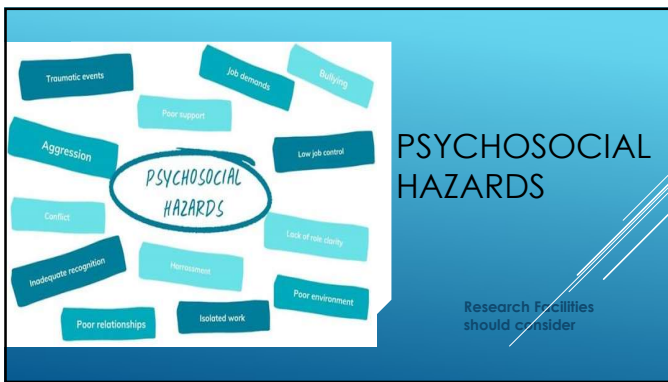
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- ▶ Aggression
- ▶ Work-family stress
- ▶ Job demands from workplace intensification
- ▶ Stress associated with lack of control
- ▶ Low workplace support
- ▶ Less meaningful work
- ▶ Job insecurity
- ▶ Non-work responsibilities and quality of life

PSYCHOSOCIAL HAZARDS ARE KEY COMPONENTS TO SOME OHSP

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► **Benefits of Employee Wellness Plans**

- **Health and Wellness Programs** are associated with employee satisfaction rates
- Decreased Stress
- Improved Health and Productivity
- Improved recruitment and retention



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2019, 58% of companies offer wellness benefits to support their employees and reduce workplace stress.

DURING THE PANDEMIC, 30% OF AMERICANS SHOWED SYMPTOMS OF ANXIETY, DEPRESSION, OR BOTH.

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National Institute for Occupational Safety and Health (NIOSH) 2011  
**TOTAL WORKER HEALTH PROGRAM**

Moving from focusing on individual behaviors where workplace is simply a venue to facilitate individual behavioral change. The new focus was placed on providing a healthy environment in the workplace

Research environments will have to decide what this looks like for us

**FUTURE OF OHSP**

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WHY DO OHS PROGRAMS FAIL?



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**OHSP FAILURE PITFALLS**

- ▶ Health/Medical Official resistant
- ▶ Researchers\* contribution is not appreciated
- ▶ Veterinary Staff takes an overly exuberant role
- ▶ Human Resources being bypassed
- ▶ Administrator or CEO does not prioritize OHS Program

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- ▶ FAILURE TO FAMILIARIZE OCC MEDICINE STAFF WITH WORK ENVIRONMENT, FACILITY HAZARDS AND RISKS
- ▶ FAILURE TO SHARE LITERATURE AND GUIDANCE DOCUMENTS
- ▶ FAILURE ESTABLISH AN APPROPRIATE BASE-LINE HISTORY/ HEALTH STATUS

**OCCUPATIONAL MEDICINE PHYSICIAN OR NURSE HAS TO BE A MAJOR DRIVER OF THE PROGRAM**

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- ▶ Monitor and Evaluate OHS Program
- ▶ Representative from SEHS
- ▶ Monitoring (Documenting Non-compliance)
- ▶ Consequences for Non-compliance

**FAILURE OF IACUC TO ASSUME RESPONSIBILITY  
USE THE PROGRAM REVIEW- SEMI-ANNUAL ASSESSMENT**

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LETS DISCUSS SOME SCENARIOS



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- ▶ After 1-2 years, allergies with respiratory signs
  - ▶ Where can I work safely?
- ▶ Pregnant worker
  - ▶ Where can I work safely?
- ▶ Epilepsy
  - ▶ Where can I work safely?



AFTER YOU IDENTIFY PROBLEMS...THEY MUST BE MANAGED.

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Dr K. OHS' Issue

- ▶ Well funded investigator
- ▶ Developed severe allergic reactions to rodents
- ▶ Was not cleared by SEHS
- ▶ Facility Access denied
- ▶ IACUC signature page made the PI responsible
- ▶ Protocol was not approved for renewal



IF YOU DON'T GO TO THE FACILITY HOW CAN YOU TAKE RESPONSIBILITY?

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Employee fails random drug test

- ▶ AALAS certified (LAT); lead tech role
  - ▶ Failed a random drug test after being employed for several years
- ▶ HR Options: a) Dismissal b) Employee Assistance Program



▶ Failed to involve Occ Health Representative

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- ▶ Recommended counseling with rehabilitation professionals
- ▶ Risk Assessment for job duties
  - ▶ Isolated areas not recommended
  - ▶ Warned about potential hazards of isoflurane



**FAILURE TO INVOLVED OHS PROFESSIONALS**

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DISCOVERED TO BE ABUSING ISOFLURANE

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GREAT ADVANCES IN BIOMEDICAL RESEARCH: TOTAL NIH (2022) BUDGET APPROX. 33 BILLION; APPROX. 40% BASED ON ANIMAL MODELS YET, SURPRISINGLY THERE HAS BEEN MUCH LESS NEW INFORMATION GENERATED ON PROTECTING THE **PEOPLE** WHO CARE FOR THESE ANIMALS

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**UAMS**  
UNIVERSITY OF ARKANSAS  
FOR MEDICAL SCIENCES

**Anonymously Reporting **Animal** Staff Welfare Concerns**

Did you know that **animal** staff welfare concerns can be reported anonymously? **Anonymous Compliance Hotline 1-888-511-3969.**

**Animal** Staff Welfare concerns will be passed on without retribution to the **Research-Compliance** Occupational Health and Safety Office, who will then investigate these concerns.

Remember—in order to continue the pursuit of excellence in **UAMS** research programs, we need to **work together** to create a culture of compliance and prioritizing **animal** staff welfare

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