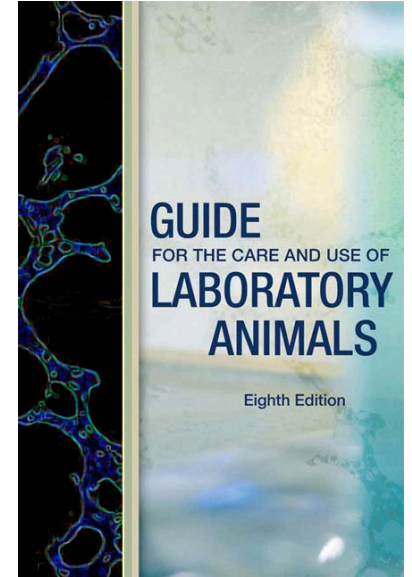


“The Guide for Care and Use of Laboratory Animals”

实验动物护理和使用指南

2010 updated version

2010 最新版



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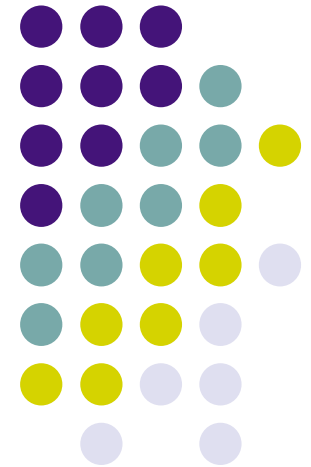
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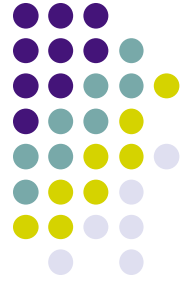
(Slides Based on Prepublication Draft of the “Guide”)

(幻灯片根据出版前“指南”草案准备)



Who Creates “The Guide”

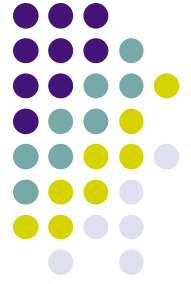
谁编写了“指南”



- The Institute of Laboratory Animal Research (ILAR) evaluates and disseminates information on issues related to the scientific, technological, and ethical use of animals and related biological resources in research, testing, and education. 实验动物研究所 (ILAR) 评估和传播有关动物使用的科学、技术和伦理的问题和相关的研究、测试和教育的生物资源的信息。
- National Academy of Sciences 国家科学院
 - Founded in 1863 by Abraham Lincoln 由亚伯拉罕·林肯总统成立于1863年
 - To provide scientific advice to the nation 向国家提供科学咨询意见
- Goal- promote humane care and use for laboratory animals 目标--促进实验动物人道的管理和使用



Committee to Update the Guide 更新指南的委员会



- *Members 成员*
- **Janet C. Garber (Chair)**, Garber Consulting 伽博咨询
- **R. Wayne Barbee**, Virginia Commonwealth University 弗吉尼亚联邦大学
- **Joseph T. Bielitzki**, University of Central Florida 中佛罗里达大学
- **Leigh Ann Clayton**, National Aquarium, Baltimore 国家水族馆
- **John C. Donovan**, BioResources, Inc. BioResources 公司
- **Coenraad F.M. Hendriksen**, Netherlands Vaccine Institute, The Netherlands (until March 2009) 荷兰疫苗研究院
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- **Paul A. Locke**, Johns Hopkins Bloomberg School of Public Health 约翰霍普金斯大学公共卫生学院
- The Honorable **John Melcher**, U.S. Senate (retired) 美国参议院
- **Fred W. Quimby**, Rockefeller University (retired) 洛克菲勒大学
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- **Geoffrey A. Wood**, University of Guelph, Canada 盖尔夫大学, 加拿大
- **Hanno Würbel**, Justus Liebig University of Giessen, Germany 贾斯特斯利比格吉森大学, 德国
- Plus Review committee of 20 experts 另外20位审查委员会专家

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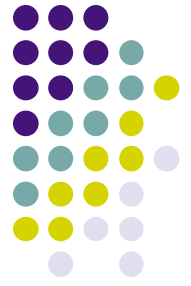


- Prepublication version of the Guide was made available June 2, 2010 指南出版前的版本于2010年6月2日公布
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Mission- The Guide Committee

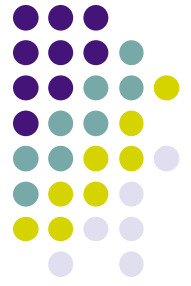
使命-指南委员会



- A committee will **update** the 1996 version of the Guide for the Care and Use of Laboratory Animals (the Guide) to **reflect new scientific** information related to the **issues already covered** in the Guide, and to add discussion and **guidance on new topics** of laboratory animal care and use related to contemporary animal research programs. 委员会将**更新**1996年版实验动物护理和使用指南(指南), 以**反映新的科学信息**;这包括在指南中**已涉及的问题**, 并加入讨论和对实验动物的管理和使用的**新课题的指导意义**, 以适应现代的动物研究方案。
- Review the scientific literature since 1996 回顾1996年以来的科学文献

Comment by the Guide Committee

指南委员会的评论



- Areas with insufficient data and assessment - further study is needed 有些领域没有足够的数据和评估- 需要进一步研究
 - Space and housing needs 空间和居住需求
 - Enrichment, exercise and human contact 丰富生活, 活动和与人类接触
- Recommend revising on a more frequent basis. 建议更加频繁地修改

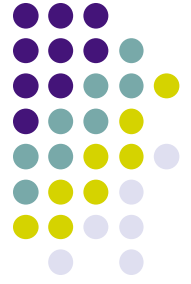
Performance Standards

履行标准



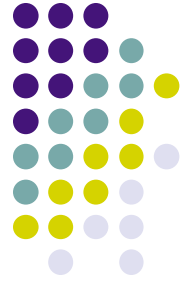
- Remains a key concept in application of the *Guide* 仍然是指南应用中的关键概念
 - Overwhelming support for this approach 对这种办法压倒性的支持
 - Better definition of desired outcomes 更好地确定想达到的结果
 - More guidance on how to achieve the outcomes 就如何实现结果给出更多的指导

Introduction 绪言



- Affirms principle (conviction) – all who care for, use or produce (added scope) animals for research, testing or teaching must assume responsibility for their well-being. 申明原则(信念)--所有为研究、试验或教学而照顾, 使用或繁殖(增加范围)动物者, 必须承担动物福祉的责任。
- Practical effect of laws, regulations, and policies is to establish a combined system of self-regulation and regulatory oversight that binds researchers and institutions using animals. 法律、法规和政策的实际效果是建立一种自我调节和规范监督相结合的制度, 以约束使用动物研究人员和机构。

Introduction 绪言



- Researchers and institutions have affirmative duties of humane care and use that are supported by practical, ethical and scientific principles. 研究人员和机构有确定的职责，必须按实用的、伦理道德的和科学的原则人道的管理和使用动物。

Chapter 1, Key Concepts

第一章，关键的概念



- Applicability and Goals 适用性和目标
- Intended Audiences and Uses of the Guide 针对的对象和指南的使用
- Ethics and Animal Use 伦理道德与动物使用
- The Three Rs 三个R
- Key Terms Used in the Guide 指南中的关键词
- Policies, Principles and Procedures 政策，原则和规程
- Must, Should and May 必须，应该和也许

Applicability and goals

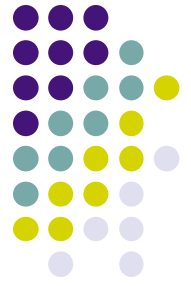
适用性和目标



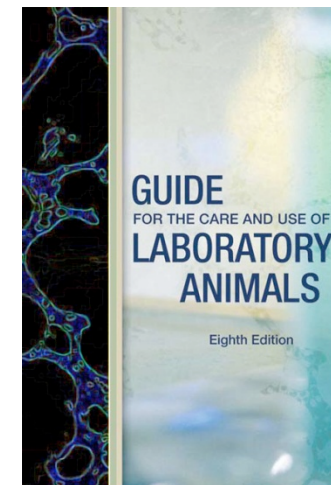
- Laboratory animals – any vertebrate animal produced for or used in research, testing or teaching. 实验动物 - 任何为研究、试验或教学而繁殖或使用的脊椎动物
- Goal – To promote humane care and use of laboratory animals 目标 - 促进人道的管理和使用实验动物

* These are unchanged from previous edition
这些与以前的版本没有改变

Intended Audiences and Uses 针对的对象和指南的使用

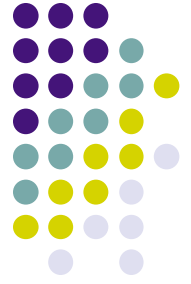


- **Aimed at wider audience 针对更广泛的对象**
- Scientific community 科学界
- Administrators 行政人员
- Educators and trainers 教育者和培训人员
- Producers of laboratory animals 实验动物繁殖
- IACUCs IACUC
- Veterinarians 兽医
- Accreditation bodies 认证机构
- Regulators 法规人员
- The Public 公众



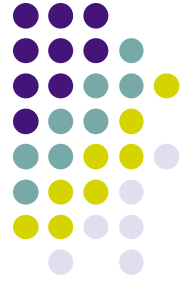
Ethics and Animal Use

伦理道德与动物使用

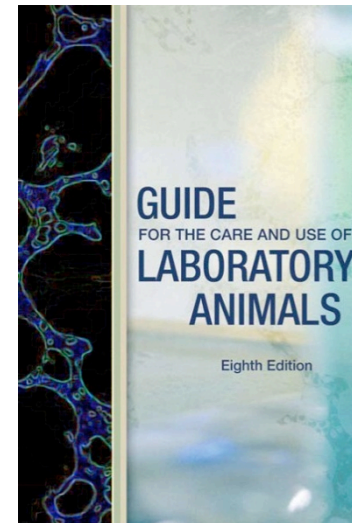


- Use of animals in research requires critical thought, judgment and analysis 在研究中使用动物需要严谨的思维、判断和分析
- Using animals is a privilege granted by society with the expectation that such use will provide new knowledge or lead to improvement in human and/or animal well-being 使用动物是社会给予的特权，期望这样的使用将提供新的知识或导致人类和/或动物福祉的改善
- Trust that mandates responsible and humane care and use of animals 这种信赖命令对动物负责的和人道的管理及使用

The Three Rs 三个R



- Replacement, Refinement and Reduction 替代, 优化和减少
- Refinement and reduction goals should be balanced on a case-by-case basis 优化和减少的目标应该在个案基础上平衡
 - Animal re-use is not a reduction strategy 动物重新使用是不是一个减少的策略



Must, Should and May

必须, 应该和也许



- Must – actions that *Guide* committee considers to be an imperative or mandatory duty or requirement for humane animal care and use. 必须--指南委员会认为在动物人道的管理和使用中, 是紧迫的或强制性的义务或要求的行动
- Should – indicates a strong recommendation for achieving a goal, individual circumstances might justify an alternative strategy. 应该--表示为实现某目标的强烈的提议, 个别情况下可能论证替代战略
- May – indicates a suggestion to be considered. 也许--表示加以考虑的建议

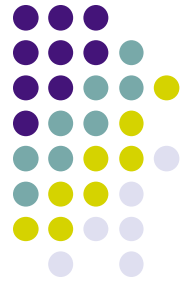
Chapter 2, Animal Care and Use Program

第二章, 动物管理和使用方案



- Regulation, Policies, and Principles 法规, 政策和原则
- Program Management: 方案管理:
 - Institutional Official 机构官员
 - Attending Veterinarian 主治兽医
 - IACUC 机构动物管理及使用委员会
- Personnel Management: 人事管理:
 - Training and Education 培训与教育
 - Occupational Health and Safety 职业健康和安全
 - Personnel Security, Investigating and Report Animal Welfare Concerns 人员安全, 调查和报告动物福利问题

Chapter 2, Animal Care and Use Program (con't) 第二章, 动物管理和使用方案(续)



- Program Oversight: IACUC 方案监督: IACUC
 - IACUC Constitution and Function IACUC宪章和功能
 - Protocol Review 协定审查
 - Special Considerations for IACUC Review 为IACUC审查的
特别注意事项
 - Experimental and Humane Endpoints 实验和人道的终结点
 - Unexpected Outcomes 意外的结果
 - Physical Restraint 物理约束
 - Multiple Survival Surgical Procedure 多次存活手术规程

Chapter 2, Animal Care and Use Program (con't) 第二章, 动物管理和使用方案(续)



- Program Oversight: IACUC 方案监督: IACUC
 - Food and Fluid Regulation 食品和流体规定
 - Use of Non-Pharmaceutical-Grade Chemicals and other Substances 使用非药物级的化学品和其他物质
 - Field Investigations 实地调查
 - Agriculture Animals 农业动物
 - Post-Approval Monitoring 批准后监测
 - Disaster Planning and Emergency Preparedness 防灾规划和应急预案

The *Institutional Official* (IO)

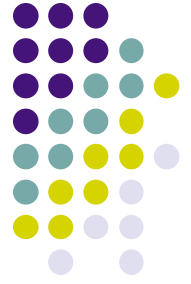
机构官员



- *Bears ultimate responsibility for the Program, although overall direction of the Program should be a shared responsibility among the IO, AV and IACUC.* 负有方案的最终责任，尽管该方案的总体方向应由机构官员，主治兽医和IACUC的共同负责
- *The IO has the authority to allocate the needed resources and ensure the Program's overall effectiveness.* 机构官员有权力分配所需资源，并保证方案的整体成效
- *Program needs should be clearly and regularly communicated to the IO by the AV, the IACUC and others associated with the Program* 方案的需要应该由机构官员定期地传达给主治兽医和IACUC，以及与方案有关的其他人员

The *Institutional Official* (IO)

机构官员



- *The IO is responsible for resource planning and ensuring alignment of Program goals of quality animal care and use.* 机构官员负责资源的规划，确保动物管理和使用的质量与方案目标相吻合。
- Old Guide: IO – Appoint IACUC
旧指南：机构官员--任命IACUC
 - submission of reports to responsible institutional officials 向负责的机构官员提交报告

Attending Veterinarian

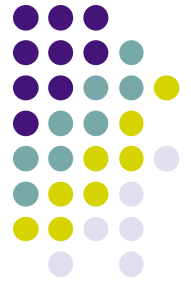
主治兽医



- *health and well-being of all laboratory animals used at the institution.* 在机构使用的所有实验动物的健康和福祉
- *The institution **must** provide the AV with sufficient authority...* 机构**必须**提供主治兽医足够的权力
- *including **access** to all animals, and resources to manage the program of veterinary care* 包括**接触**所有的动物, 和管理兽医护理方案的资源

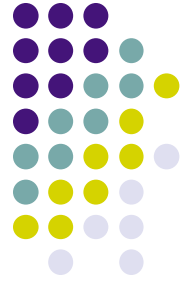
Attending Veterinarian

主治兽医



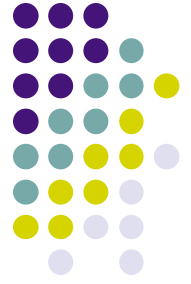
- Endorses ACLAM Guideline for Adequate Veterinary Care 赞同美国实验动物医学学会 (ACLAM) 有关合适兽医护理的指导
- Communicate *Clear and regular communications between AV and the IACUC* 主治兽医和IACUC之间明确和定期的沟通
- *Section on training* 有关培训的章节

Training 培训



- Institutions are responsible for providing appropriate resources to support personnel training, 机构负责提供适当的资源支持人员培训
- IACUC is responsible for providing oversight and for evaluating the effectiveness of the training program
IACUC负责提供监督和评估培训方案的成效
- All Program personnel training should be documented 所有方案人员的培训应做记录

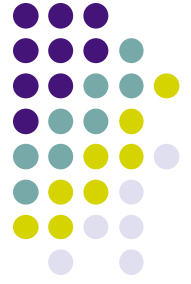
Training 培训



- Training Section for 培训章节
 - Veterinary and other Professional Staff 兽医和其他专业工作人员
 - *Opportunities and support for regular professional development and continuing education* 机会和对正规的专业发展及持续教育的支持
 - Animal Care Personnel 动物管理人员
 - The Research Team 研究组
 - The IACUC IACUC
 - Formal orientation and continuing education 正式的介绍和继续教育

Collaborations- New Section

合作—新篇章

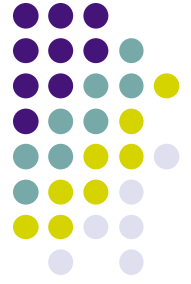


*In cases of collaboration between institutions that involve animal use, institutions should have a **formal written understanding** (e.g., contract, memorandum of understanding or inter-institutional agreement) between the institutions. 在机构之间的合作中如涉及动物使用，机构之间应该有**正式书面的谅解备忘录**(例如，合同，谅解备忘录或机构间协议)*

The written agreement should address: 书面协议应涉及：

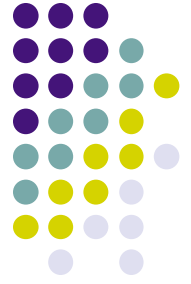
- responsibility for offsite animal care and use 异地动物管理和使用的责任
- animal ownership 动物所有权
- IACUC review and oversight IACUC审查和监督

Protocol Review 协定审查



- Protocol- 12 “topics” to 15. 协定- 12“主题”增为15个
- *A clear and concise sequential description of the procedures involving the use of animals that is easily understood by all members of the committee.* 清晰简洁、按顺序描述的、涉及使用动物的步骤，并很容易被委员会全体成员理解
- *Impact of the procedures performed on the animals well-being.* 操作步骤对动物福利的影响
- *Conduct of surgical procedures including multiple operative procedures.* 手术操作的行为，包括多次手术
- *Post-procedural care and observation (for example, inclusion of post-treatment or post-surgical animal assessment forms).* 手术后护理和观察(例如，包含治疗后或手术后动物的评估表格)
- *Description and rationale for anticipated or selected endpoints.* 描述并说明预期或选定的终结点

Protocol Review 协定审查



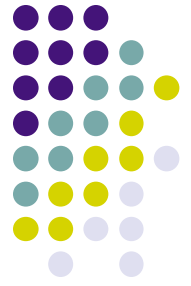
- Method of euthanasia or disposition of animal, including planning for care of long-lived species following study completion. 实施安乐死的动物处置的方法, 包括寿命长的物种在研究完成后的保健计划
- Adequacy of training and experience of personnel in the procedures used, and roles and responsibilities of the personnel involved. 操作人员有适合的培训和经验, 及有关人员的角色和责任

Plus 另

- No scientific merit but *the IACUC should evaluate scientific elements of the protocol as they relate to the welfare and use of the animals* 虽然没有科学价值, 但IACUC应评估该协定的科学内容, 因为涉及到动物福利和使用
- Special considerations-objectives vs animal welfare concerns 特别考虑--目标相对于动物福利的关注

Endpoints- New section

终结点- 新章节



- *...a protocol includes precisely defining the humane endpoint*
协定包括准确界定人道的终结点
 - *Assessment criteria; 评估标准*
 - *Frequency of animal observation; 观察动物的频率*
 - *Training of personnel responsible for assessment and recognition of the humane endpoint; 培训负责进行评估和识别人道的终结点的人员*
 - *Response required upon reaching the humane endpoint. 在达到人道的终结点时所需的响应*
 - *Pilot studies to determine... A system for communication with the IACUC should be in place both during and after such studies* 用试点研究以确定...在这些研究期间和之后, 同IACUC沟通的系统应已经落实

Post Approval Monitoring-new 批准后监督-新的



- *Continuing IACUC oversight of animal activities is required by federal laws, regulations and policies.* 连续的IACUC对动物活动的监督是联邦法律, 法规和政策的要求
- *A variety of mechanisms can be used to facilitate ongoing protocol assessment and regulatory compliance.* 多种机制可以用来促进正在进行的协定评估和规范遵从
- As part of a formal PAM program, some institutions combine inspection of animal study sites with review of related animal protocols. 作为正式批准后监督(PAM)方案的一部分, 一些机构把动物研究设施检查与有关动物协定审查合并进行
- Regular review of adverse or unexpected experimental outcomes affecting the animals 定期审查影响动物的不利或意外的实验结果

Disaster Planning and Emergency Preparedness-New

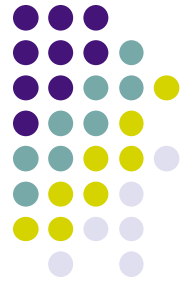
灾害计划和应急预案--新的



- *Facilities must have a disaster plan.* 设施必须有一个灾难应对计划
- *The plan should define the actions necessary to prevent animal pain, distress, and deaths due to loss of systems such as those controlling ventilation, cooling, heating, or provision of potable water.* 该计划应确定在系统, 如控制通风、降温、取暖、或食水供应受损的情况下, 必要的防止动物疼痛、痛苦、和死亡的行动
- *how the facility will preserve irreplaceable animals* 设施将如何保护不可替代的动物

Disaster Planning and Emergency Preparedness-New

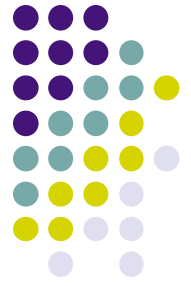
灾害计划和应急预案--新的



- *Include Triage process, euthanasia plans, safety, site coordination* 包括紧急处置过程、安乐死计划、安全、现场协调
- *Personnel Security- for criminal activity, personnel harassment, trespass and vandalism.* 人员的安全—应对犯罪活动, 人员的骚扰, 侵入和破坏
- *See IACUC Guidebook (Arena, OLAW)* 参见IACUC指南 (ARENA--Applied Research Ethics National Association 应用研究伦理道德全国联合会, 实验动物福利办公室)

Chapter 3: Environment, Housing and Management

第三章：环境，房舍和管理



- Terrestrial Animals 陆地动物
 - Micro- and Macro- Environment (cage vs room) 微观和宏观环境(笼子对照房间)
 - Temperature and Humidity 温度和湿度
 - Ventilation and Air Quality 通风与空气质量
 - Illumination 照明
 - Noise and Vibration 噪声和振动
- Terrestrial Housing 地面房舍
 - Microenvironment (Primary Enclosure) 微环境(主要屋舍)
 - Environmental Enrichment 生活环境丰富
 - Sheltered or Outdoor Housing 遮盖的或室外的房舍
 - Naturalistic Environments 自然的环境
 - Space – by species groups 空间—按物种群

Chapter 3: Environment, Housing and Management

第三章：环境，房舍和管理



- Terrestrial Management 地面管理
 - Activity 活动
 - Social Environment 社会环境
 - Procedural Habituation and Training of Animals 动物的适应
规程和训练

Chapter 3: Environment, Housing and Management

第三章：环境，房舍和管理

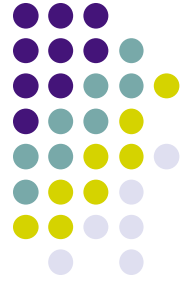


- Husbandry 饲养
 - Food 食物
 - Water 水
 - Bedding and Nesting Materials 床和窝的材料
 - Sanitation 卫生消毒
 - Waste Disposal 废物处理
 - Pest Control 虫害控制
 - Emergency, Weekend, and Holiday Care 紧急情况，周末和节日管理
- Population Management 种群管理
 - Identification 标识
 - Recordkeeping 记录保存

All sections are Repeated for Aquatic Species

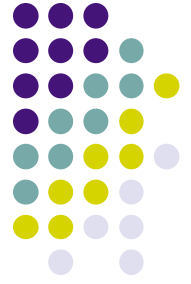
对水生物种重复所有栏目

Space 空间



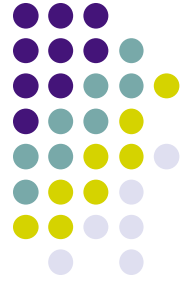
- Recommended minimum space additions: 建议增加最小的空间:
 - Female mouse + Litter – 51in² (330cm²) floor area
雌小鼠+幼鼠 – 51in² (330cm²) 占地面积
 - Female rat + Litter – 124 in² (800cm²) floor area
雌大鼠+幼鼠 – 124in² (800cm²) 占地面积
 - Change for Rats from ≥500g to >500g, floor area from ≥70in² to >70in² (451.5cm²)
大鼠改变从≥500g到> 500g,
占地面积从≥70in²到 >70in² (451.5cm²)

Space 空间



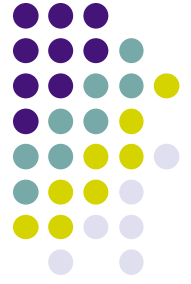
- Similar change for Hamsters $>100\text{g}$ and $>19\text{in}^2$ (122.5cm)
(from $\geq 100\text{g}$ and $\geq 19\text{in}^2$)
类似的变化对仓鼠 $> 100\text{g}$ 和 $>19\text{in}^2$ (122.5cm)
(从 $\geq 100\text{g}$ 和 $\geq 19\text{in}^2$)
- Rabbits 兔
 - Cage height changed from 14 to 16 in (40.5cm)
笼子的高度从14改为16 in (40.5cm)

Space 空间



- Nonhuman Primates 非人灵长类动(NHP)
 - Expanded “Monkeys” from 7 to 8 groups
扩大“猴子”的分组从7到8组
 - Group 1- Increased space requirements for NHPs from 1.0 kg to 1.5 kg, from 1.6 to 2.1ft² (0.20m²) cage height from 20” to 30” (76.2cm)
第一组--增加NHPs 1.0kg至1.5kg组对空间要求,
从1.6到2.1 ft² (0.20m²)
笼高从20in到30in(76.2cm)

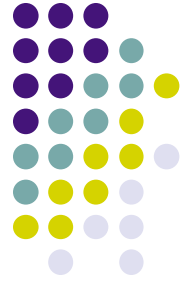
Space 空间



- New Group 8 >30 kg 25ft² (2.32m²) and 60” (152.4cm) height
新的8组 > 30kg 25ft² (2.32m²) 和 60in (152.4cm)
高度
- Separate recommendations for chimpanzees
对黑猩猩不同的建议
 - Juvenile up to 10 kg, 15ft² and 60” height
少年达10kg, 15ft² 和 60in 的高度
 - Adult > 10kg, ≥ 25ft² and 84” height
成年 > 10kg, ≥25ft² 和 84in 的高度

Chapter 4: Veterinary Care

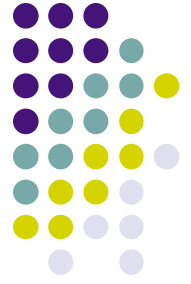
第四章：兽医护理



- Animal Procurement and Transportation 动物采购和运输
- Preventive Medicine 预防医学
- Clinical Care and Management 临床护理和管理
- Surgery 手术
- Pain and Distress 疼痛和痛苦
- Anesthesia and Analgesia 麻醉和镇痛
- Euthanasia 安乐死

Chapter 4: Change Highlights

第四章：突出的改变



- Transportation – Expanded 运输 - 扩大了
 - Intra- and inter –institutional transport 机构内和机构间的运输
 - Biosecurity during transport 在运输过程中生物安全
- Animal Biosecurity (Preventive Medicine) 动物生物安全(预防医学)
- Clinical Care and Management 临床护理和管理
 - Medical Management 医疗管理
 - Emergency Care 急救
 - Recordkeeping 保存记录

Chapter 4: Change Highlights

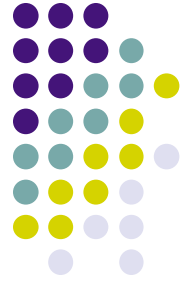
第四章：突出的改变



- Surgery- Expanded and separated into sections 手术--扩大及分成章节
 - Training, pre-surgical planning, surgical facilities, procedures, aseptic technique, inter-operative monitoring, post-op care 培训, 术前规划, 手术设备, 规程, 无菌技术, 手术中监测, 手术后护理
- Pain and Distress 疼痛和痛苦
 - Addition of definition of distress 增加了对痛苦的定义

Chapter 5: Physical Plant

第五章：设施



- Location 地点
- Functional Areas 功能区
- Construction Guidelines 建筑指导
- Special Facilities 特殊设施
 - Surgery 手术
 - Barrier Facilities (New) 隔离设施(新)
 - Imaging (New) 影像(新)
 - Whole Body Irradiation (New) 全身辐射(新)
 - Hazardous Agent Containment (New) 危险品遏制(新)
 - Behavioral Studies (New) 行为研究(新)
 - Aquatic Species Housing (New) 水族类动物房(新)
- Security and Access Control 安全和访问者控制