



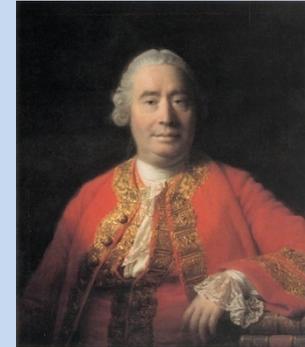
# Application and Review Process for the Use of Animals in Research and Teaching

Suzanne Smith, Director, McGill University Animal Compliance Office,  
in VP Research and International Relations

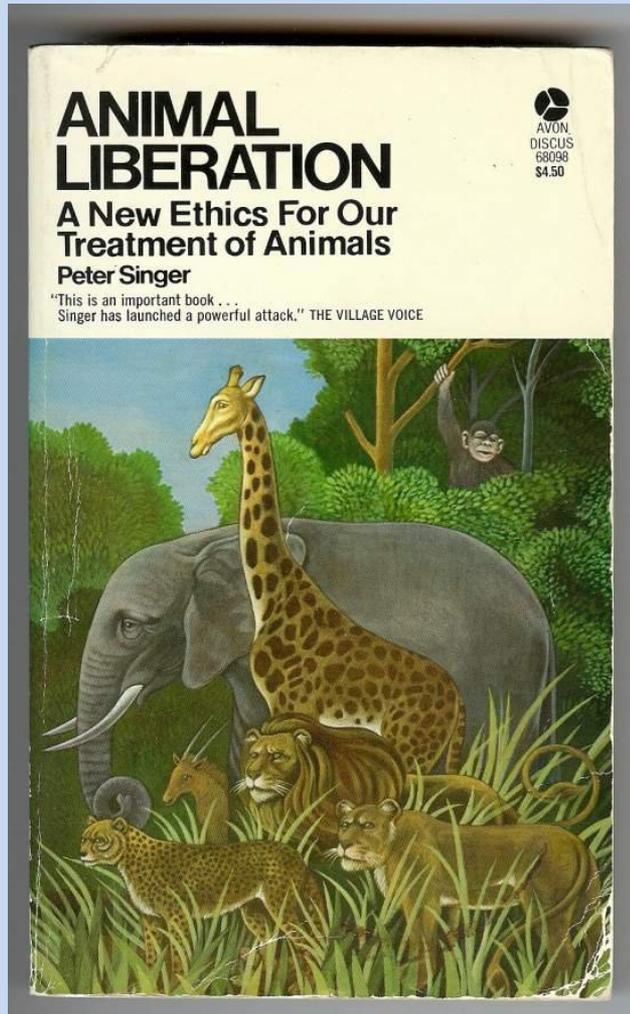
Research Ethics and Conduct Symposium  
Faculty of Agricultural and Environmental Sciences Symposium  
Sept. 15 2011

# Philosophers, Christianity & Modern Day Activists

- Animals are at the service of humankind – *Greek philosophers*
- Humans exercise a dominion over the creation but must maintain respectful relations with other creatures, as the good shepherd: animals are creatures of the Creator too – *Christianity*
- Only humans can reason and animals lack any kind of mental activity – *Descartes (1596-1650)*
- Humans in their original animality – passion of equality – *Rousseau (1712-1778)*
- It is extremely likely that at least some animals do think in rudimentary ways and experience pleasure and suffering – *Dawkins (1998)*
- Opposition to the idea that humans and animals share characteristics (called anthropomorphism ) is really anthropo-denial – *Frans de Waal (1997)*
- Six million people died in concentration camps, but six billion broiler chickens will die this year in slaughterhouses – *Newkirk (1983)*
- A rat is a pig is a dog is a boy. There're all animals – *Newkirk (1986)*
- Humankind doesn't have the monopoly of using other species for its own survival but it is the only one to be aware of it



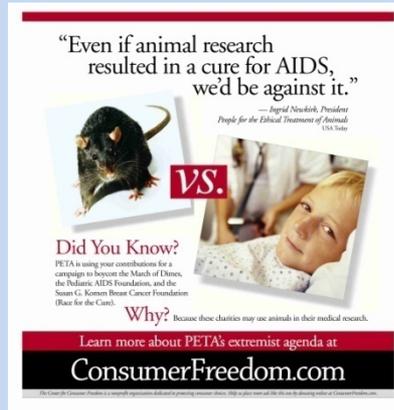
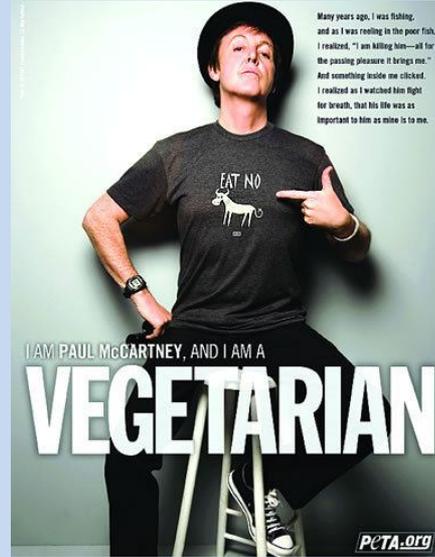
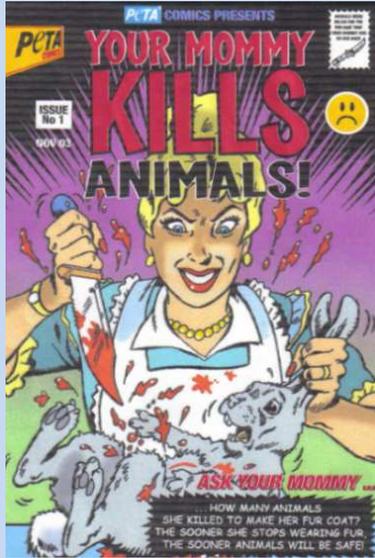
# Debate Intensifies



*Animal Liberation:  
A New Ethics For Our  
Treatment of Animals*

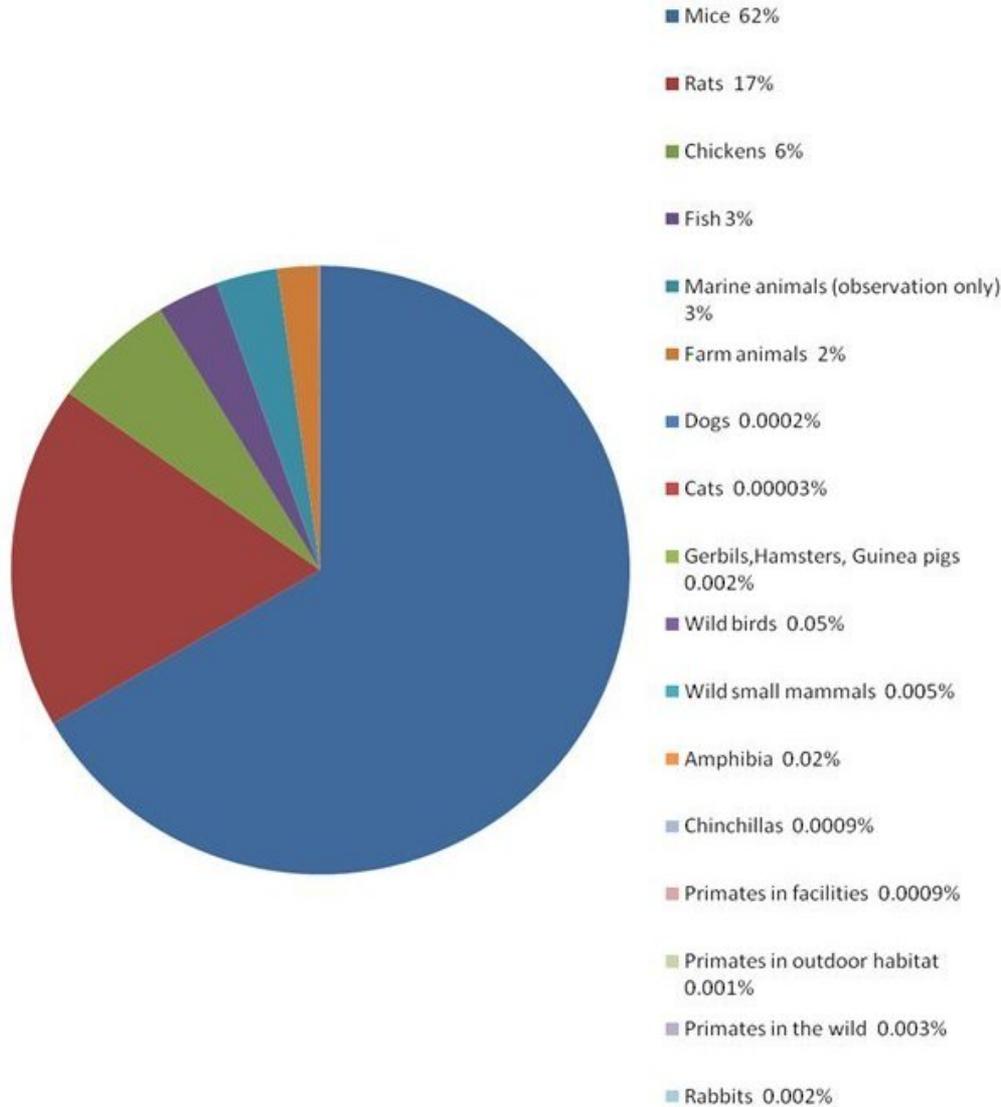
from Peter Singer, 1975

# Public Concerns About Animal Use





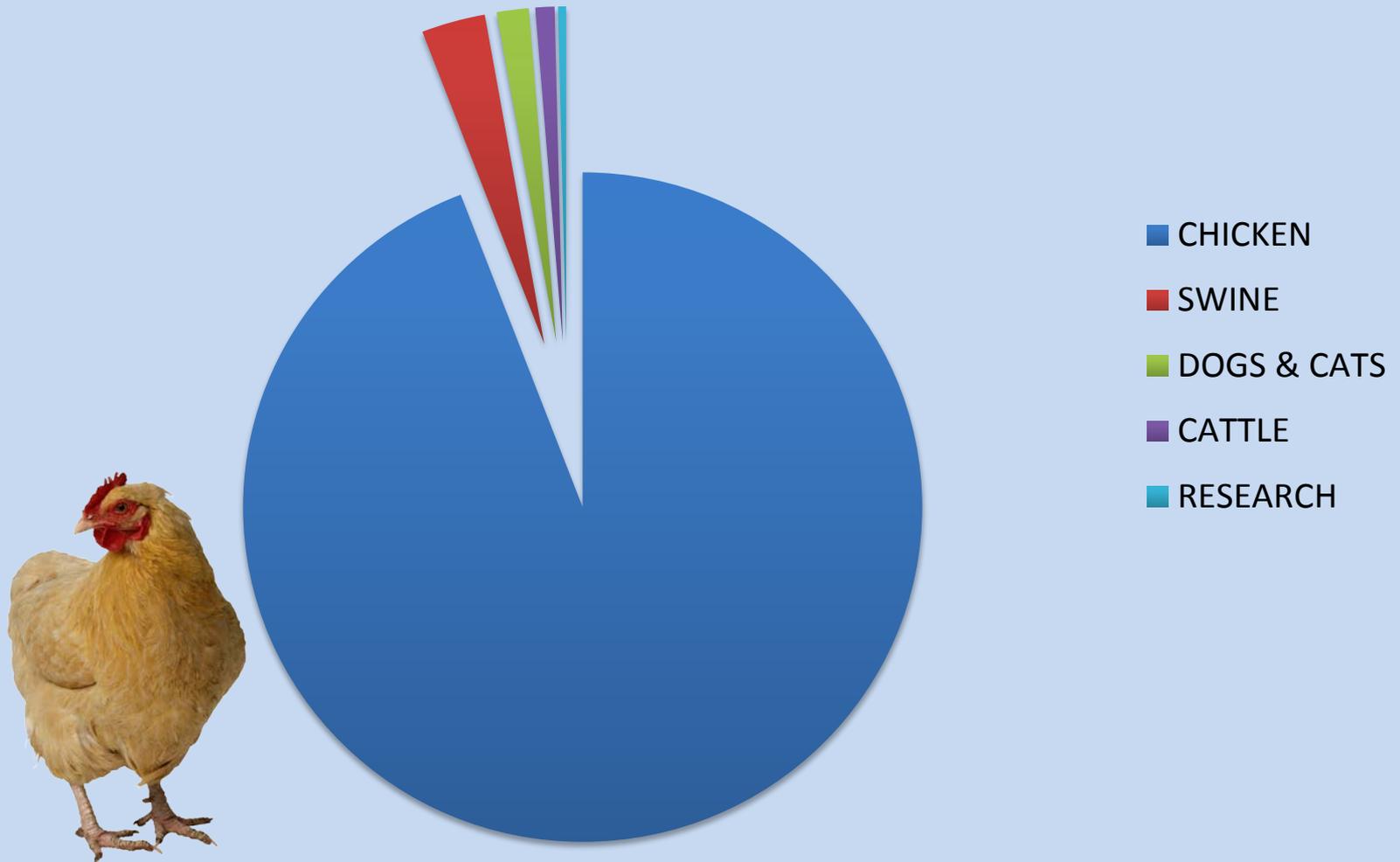
## Animal numbers per species for 2008



# Animals at McGill & Affiliated Hospitals



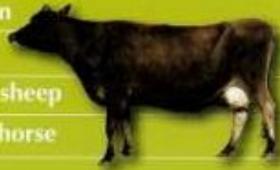
# Domestic Animals Used in Canada



# Animal Roles in Medical Discoveries

A look at the Nobel Prizes for Medicine and Physiology awarded from 1901 to the present shows that animal research played a key role in these important discoveries. Animal research must continue for similar medical advances to occur in the future.

Year	Scientist(s)	Animal(s) Used	Contributions Made
1901	von Behring	Guinea pig	Development of diphtheria antiserum
1902	Ross	Pigeon	Understanding of malaria life cycle
1904	Pavlov	Dog	Animal responses to various stimuli
1905	Koch	Cow, sheep	Studies of pathogenesis of tuberculosis
1906	Golgi, Cajal	Dog, horse	Characterization of the central nervous system
1907	Laveran	Bird	Role of protozoa as cause of disease
1908	Mechnikov, Ehrlich	Bird, fish, guinea pig	Immune reactions and functions of phagocytes
1910	Kossel	Bird	Knowledge of cell chemistry through work on proteins, including nuclear substances
1912	Carrel	Dog	Surgical advances in the suture and grafting of blood vessels
1913	Richtet	Dog, rabbit	Mechanisms of anaphylaxis
1919	Bordet	Guinea pig, horse, rabbit	Mechanisms of immunity
1920	Krogh	Frog	Discovery of capillary motor regulating mechanism
1922	Hill	Frog	Consumption of oxygen and lactic acid metabolism in muscle
1923	Banting, Macleod	Dog, rabbit, fish	Discovery of insulin and mechanism of diabetes
1924	Einthoven	Dog	Mechanism of the electrocardiogram
1928	Nicolle	Monkey, guinea pig, rat, mouse	Pathogenesis of typhus
1929	Eijkman, Hopkins	Chicken	Discovery of antineuritic and growth stimulating vitamins
1932	Sherrington, Adrian	Dog, cat	Functions of neurons
1934	Whipple, Murphy, Minot	Dog	Liver therapy for anemia
1935	Spemann	Newt, frog	Organizer effect in embryonic development
1936	Dale, Loewi	Cat, frog, bird, reptile	Chemical transmission of nerve impulses
1938	Heymans	Dog	Role of the sinus and aortic mechanisms in regulation of respiration





The majority of the general **public supports** the necessary use of animals in biomedical research.

Yet, people also are **justifiably concerned** about the care and treatment of laboratory animals.

They **want assurances** that animals are treated humanely, do not suffer, and are kept under conditions that allow them to be as healthy and comfortable as possible.

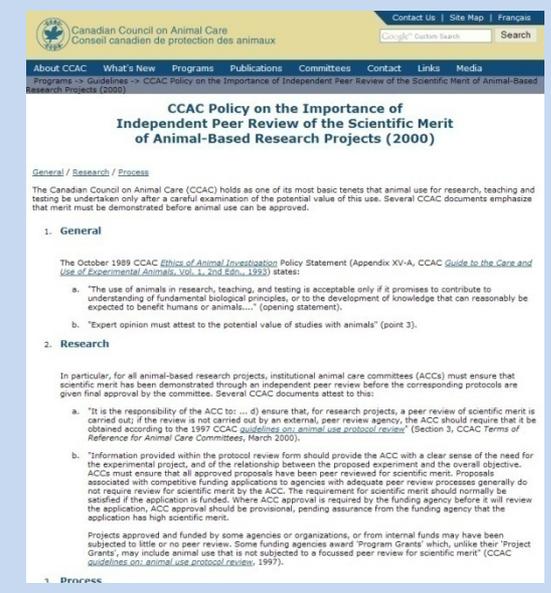
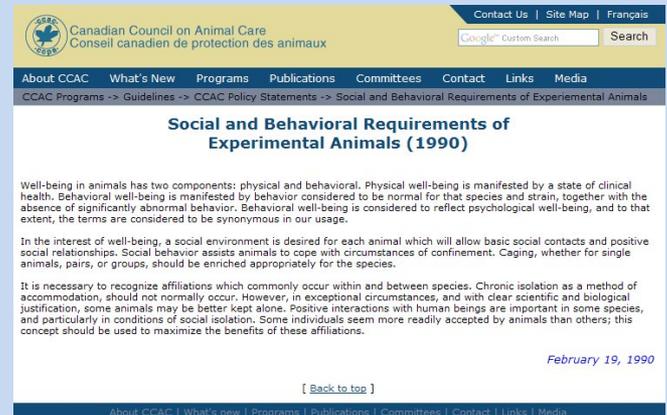
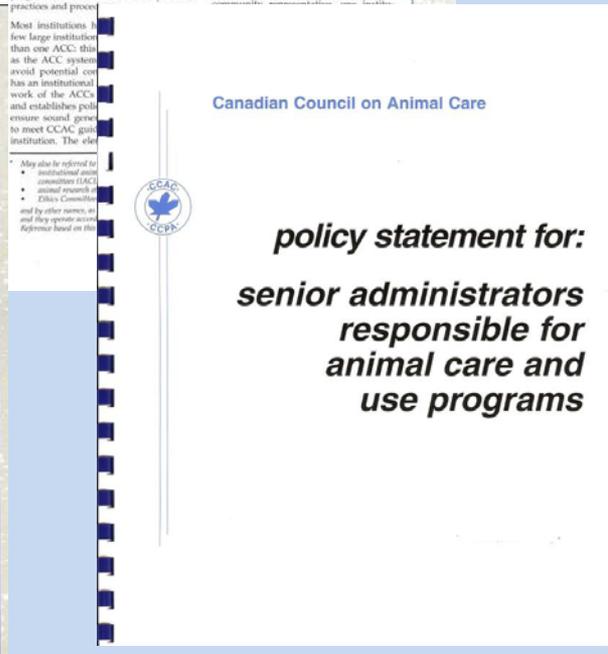
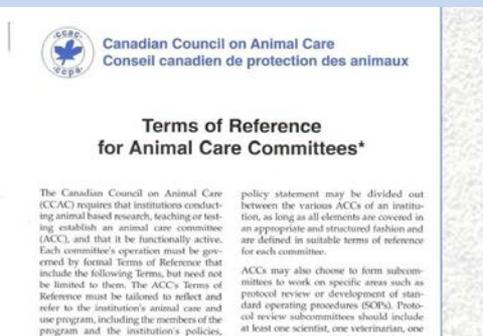
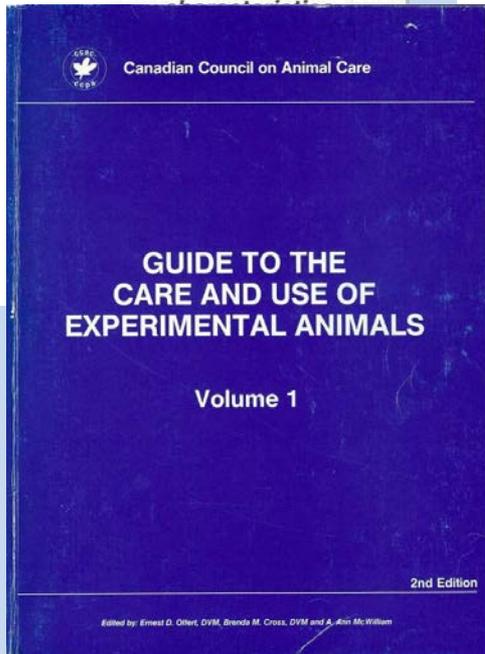
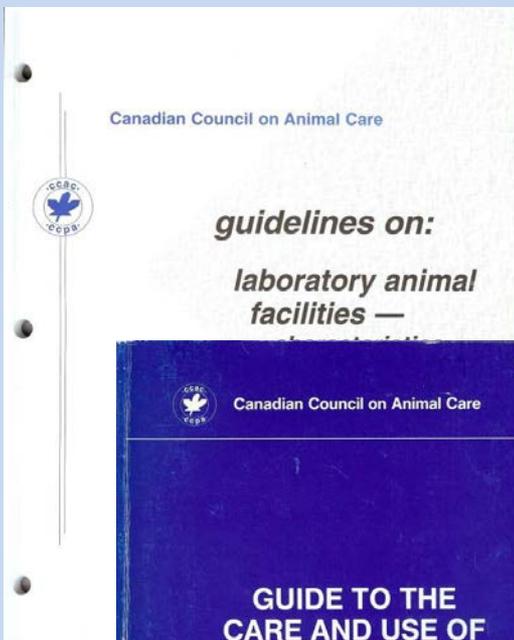


# General Concept of Animal Welfare: The 5 Freedoms

1. Freedom from hunger and thirst
2. Freedom from discomfort
3. Freedom from pain, injury and disease
4. Freedom to express normal behaviour
5. Freedom from fear and distress



# Creation of conditions (laws, guidelines, policy statements...)



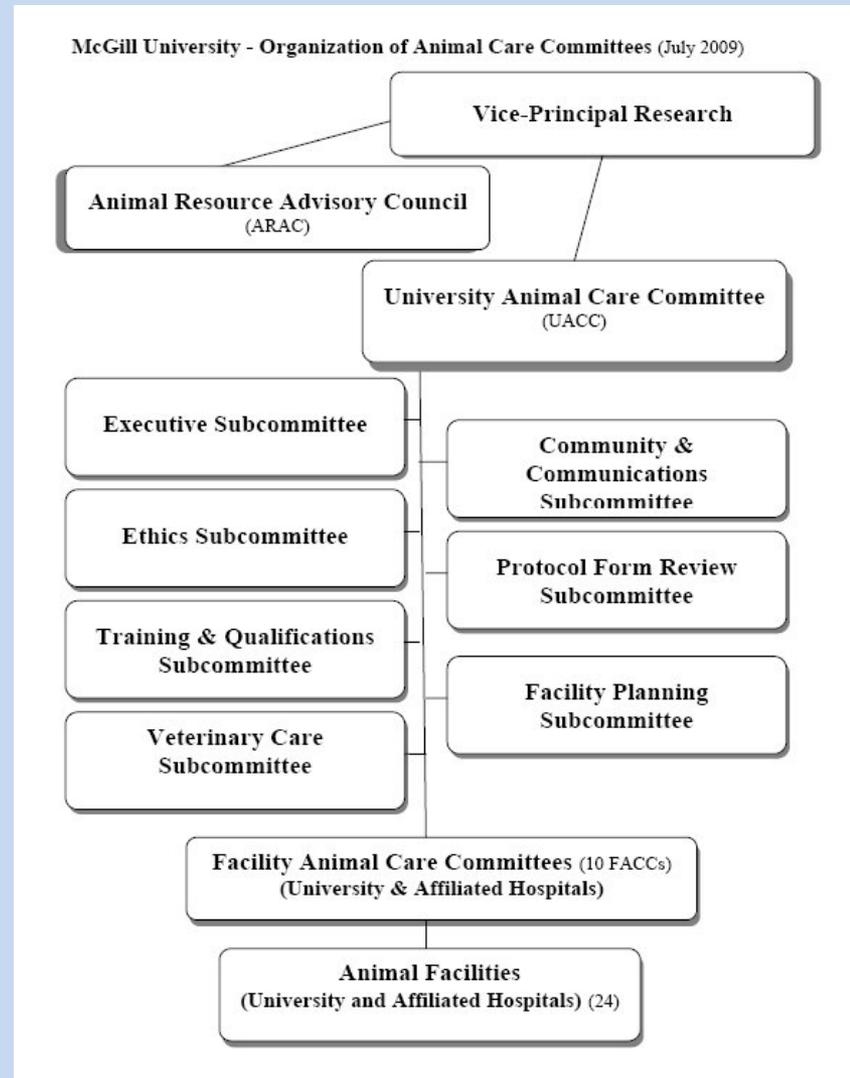
# McGill University's Policy on the Study and Care of Animals

- Use of animals is an **integral component of continued progress** in medicine, science, education, environmental sciences and agriculture
- Results in enormous **benefits for human & animal health**
- Committed to conducting the **highest-quality research** and to **providing** animals with the **best care**
- Subjected to **rigorous institutional scientific/pedagogical merit review** and to **ethical review by Animal Care Committees** to ensure that animals are used only when necessary and under **humane and appropriate conditions**



# Institution Puts Measures in Place for Compliance

Humane and responsible work with animals in research and teaching is **ensured by several units in the institution** overseeing the program and offering training and resources.



# Canadian Council on Animal Care

- “The purpose of the CCAC is to act in the interests of the people of Canada
- to ensure through programs of education, assessment and persuasion; the use of animals, where necessary, for research, teaching and testing
- Employs optimal physical and psychological care according to acceptable scientific standards and
- to promote an increased level of knowledge, awareness and sensitivity to relevant ethical principles.”

CCAC By-Laws, (art.4), May 27, 1998

The screenshot shows the homepage of the Canadian Council on Animal Care (CCAC). The header includes the CCAC logo, the organization's name in English and French, and navigation links for Contact Us, Site Map, and Français. A search bar is also present. The main navigation menu lists: About CCAC, What's New, Programs, Publications, Committees, Contact, Links, and Media. The main content area features a large image of a person holding a white mouse, with the text: "Welcome to the CCAC. The CCAC is the national organization responsible for setting and maintaining standards for the care and use of animals in science in Canada." Below this, there are several news items and program listings. On the left, a sidebar lists programs such as the Assessment Program, Animal Care Committee Resources, Guidelines Program, Education, Training and Communications Program, and the CCAC Three Rs Microsite. The main content area has a "NEW" section with announcements about CCAC guidelines, a report on the 2008 forum, and a new microsite. On the right, there is an "UPCOMING EVENTS" section for the 8th World Congress on Alternatives & Animal Use in the Life Sciences, scheduled for August 21-25, 2011 in Montreal. A "2011" banner also promotes this event. At the bottom, there is a section for the "CCAC Survey of Animal Use - 2007".



- The **CCAC creates guidelines and policies** regarding animals used in research, testing and teaching
- All Canadian **institutions must adhere to the guidelines and policies** if funded by major agencies
- **Audit institutions** every 3 years and their assessment panel includes researchers, veterinarians, community representatives, animal care staff and CCAC assessors
- They **identify deficiencies, commend strengths and recommends** ways to enhance animal care and use programs
- **Special visits and follow-ups** are conducted



# The CCAC: for Animals and People

**Occupational Health program** so that animal users are protected against disease or other problems (such as allergy) from working with animals.

**Standard Operating Procedures (SOPs)** for all aspects (cage cleaning, water quality verification, ventilation performance...)

**Security of premises** (to limit introduction of disease from the outside, unauthorized animal handling...)

**Environmental precautions** for projects in the wild

**Scientific/pedagogical merit** review

Emphasis on **the 3Rs**



# The 3 Rs

## -Replacement

Really need to do this project? Really need to use live animals? Can use less sentient animal?

## -Reduction

Why that number of animals? Can fewer be used? Better experimental design and/or statistical analysis? How about doing a pilot first?

## -Refinement

How to do it with the least pain and distress and best husbandry

Replacement + Reduction + Refinement  
Good Animal Practice in Science

CCAC  
CCPA

Contact Us Français

Google Custom Search Search

Starting Point for Non-scientists Three Rs Search Guide Feedback

HOME

- Three Rs Introduction
- Replacement Alternatives
- Reduction Alternatives
- Refinement Alternatives

SPECIAL TOPICS

- Agricultural Research and Three Rs
- Animal Supply
- Animal Use Oversight
- Genetically-Engineered Animals
- Production and Three Rs
- Species Selection
- Teaching and Three Rs
- Testing and Three Rs
- Wildlife Research and Three Rs

ADDITIONAL RESOURCES

- Alternative Test Methods Table<sup>NEW</sup>
- Animal Care Committees
- Ethical Review
- Humane Science Courses
- Journals
- Species-Specific Resources
- Statistical Consulting<sup>NEW</sup>
- Three Rs Centres Worldwide

About This Microsite

### CCAC Three Rs Microsite

Welcome to the Canadian Council on Animal Care (CCAC) Three Rs Microsite.

The use of animals in research, teaching, and testing is acceptable ONLY if it promises to contribute to understanding of fundamental biological principles, or to the development of knowledge that can reasonably be expected to benefit humans or animals. Therefore, in Canada people involved with the use of animals in science (such as investigators, technicians, veterinary personnel and animal care committee members) must prepare and review scientific protocols with a view to replace, reduce, and refine animal use whenever possible. This is the concept of "The Three Rs" (replacement, reduction, refinement) which provides a set of guiding ethical principles that help to minimize harms to animals used in science.

To support implementation of the Three Rs in Canada this microsite aims to provide easily accessible, useful, and relevant information and resources related to Replacement, Reduction and Refinement.

**Replacement alternatives** refers to methods which avoid or replace the use of animals in an area where animals would otherwise have been used. This includes both absolute replacements (i.e. replacing animals with inanimate systems, such as computer programs) and relative replacements (i.e. replacing more sentient animals, such as vertebrates, with animals that current scientific evidence indicates have a significantly lower potential for pain perception, such as some invertebrates).

**Reduction alternatives** refers to any strategy that will result in fewer animals being used to obtain sufficient data to answer the research question, or in maximizing the information obtained per animal and thus potentially limiting or avoiding the subsequent use of additional animals, without compromising animal welfare.

**Refinement alternatives** refers to the modification of husbandry or experimental procedures to minimize pain and distress, and to enhance the welfare of an animal used in science from the time it is born until its death.

The CCAC is recognized at home and internationally as the centre for the Three Rs in Canada. Integration of the Three Rs within Canada's national organization for the stewardship of animal use in science ensures translation of the broadest range of scientific knowledge into best practices for animal use.

*Please be aware that information on the site is not meant to supplant CCAC guidelines, and will not be used as a basis for recommendations made in CCAC Assessment reports.*



# Animal Care Committees, Keystone of the CCAC system

- **Quality control** – ensure optimal levels of animal care and appropriate animal use
- **Reports to institutional senior administrator** and local Dean and Director
- **Composition** includes scientists in several areas, student representative, institutional non-animal user, veterinarian(s), community representative(s), facility manager/representative (s) and committee coordinator
- **Responsibilities:** evaluate protocols, development/review of SOPs and policies and visits of animal facilities and laboratories
- Implementing **the 3Rs**
- **Biohazards, radiation, occupational health, CFIA...**



# What is expected of you?

Your supervisor, maybe with your help, will complete an ***Animal Use Protocol form***

Downloaded from UACC Web site

**Full form** – for new projects and every 3<sup>rd</sup> year for renewals

**Shorter renewal form** – in between full form

**You must read and understand** the information written in the Animal Use Protocol form

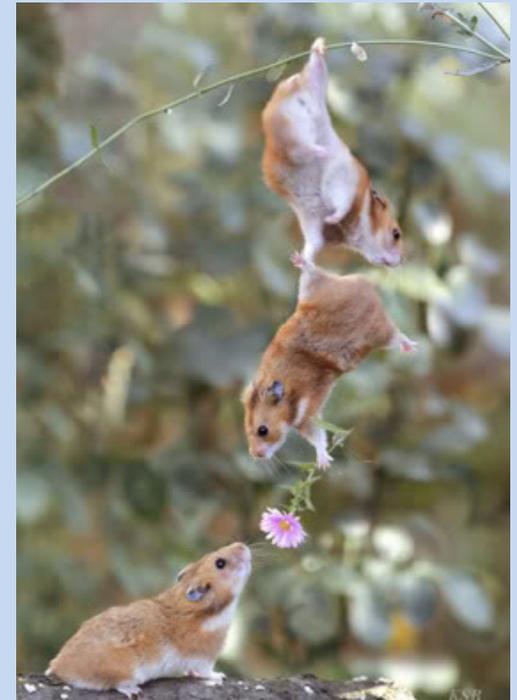
<http://www.mcgill.ca/researchoffice/compliance/animal/forms>

McGill University Animal Use Protocol – Research		For Office Use Only:
Title: _____ <small>(must match the title of the funding source application)</small>		Protocol #: _____
<input type="checkbox"/> New Application <input type="checkbox"/> Renewal of Protocol # _____ <input type="checkbox"/> Pilot    Category (see section 11): _____		Approval End Date: _____
		Facility Committee: _____
<b>1. Investigator Data:</b>		
Principal Investigator: _____		Phone #: _____
Unit/Department: _____		Fax#: _____
Address: _____		Email: _____
<b>2. Emergency Contacts:</b> Two people must be designated to handle emergencies.		
Name: _____	Work #: _____	Emergency #: ( )
Name: _____	Work #: _____	Emergency #: ( )
<b>3. Funding Source:</b>		For Office Use Only:
External <input type="checkbox"/>	Internal <input type="checkbox"/>	
Source (s): _____	Source (s): _____	
Peer Reviewed for the project proposed in this Animal Use Protocol: <input type="checkbox"/> YES <input type="checkbox"/> NO**	Peer Reviewed: <input type="checkbox"/> YES <input type="checkbox"/> NO**	
Status: <input type="checkbox"/> Awarded <input type="checkbox"/> Pending	Status: <input type="checkbox"/> Awarded <input type="checkbox"/> Pending	
Funding period: _____	Funding period: _____	
<b>** For projects that have not been reviewed for scientific merit by the funding source, the Dean/Director of the Principal Investigator's Faculty/Institution will obtain peer reviews and communicate the outcome to the facility animal care committee. Only those protocols receiving a positive assessment of scientific merit can be approved.</b>		
Proposed Start Date of Animal Use (d/m/y): _____		or ongoing <input type="checkbox"/>
Expected Date of Completion of Animal Use (d/m/y): _____		or ongoing <input type="checkbox"/>
<b>Investigator's Statement:</b> The information in this application is exact and complete. I assure that all care and use of animals in this proposal will be in accordance with the guidelines and policies of the Canadian Council on Animal Care and those of McGill University. I shall request the Animal Care Committee's approval prior to any deviations from this protocol as approved. I understand that this approval is valid for one year and must be approved on an annual basis. I will ensure that all collaborators and staff are aware of all changes to this protocol.		
Principal Investigator's signature: _____		Date: _____
Approved by: _____		
Chair, Facility Animal Care Committee: _____		Date: _____
Animal Compliance Office: _____		Date: _____

# What Goes In the Form?

## Answers to these questions:

- **Why** are you doing this project?
- **What** is the project?
- **Who** will be working on it?
- **How** will you do it?
- **When** will this be done?
- **Where** will this happen?



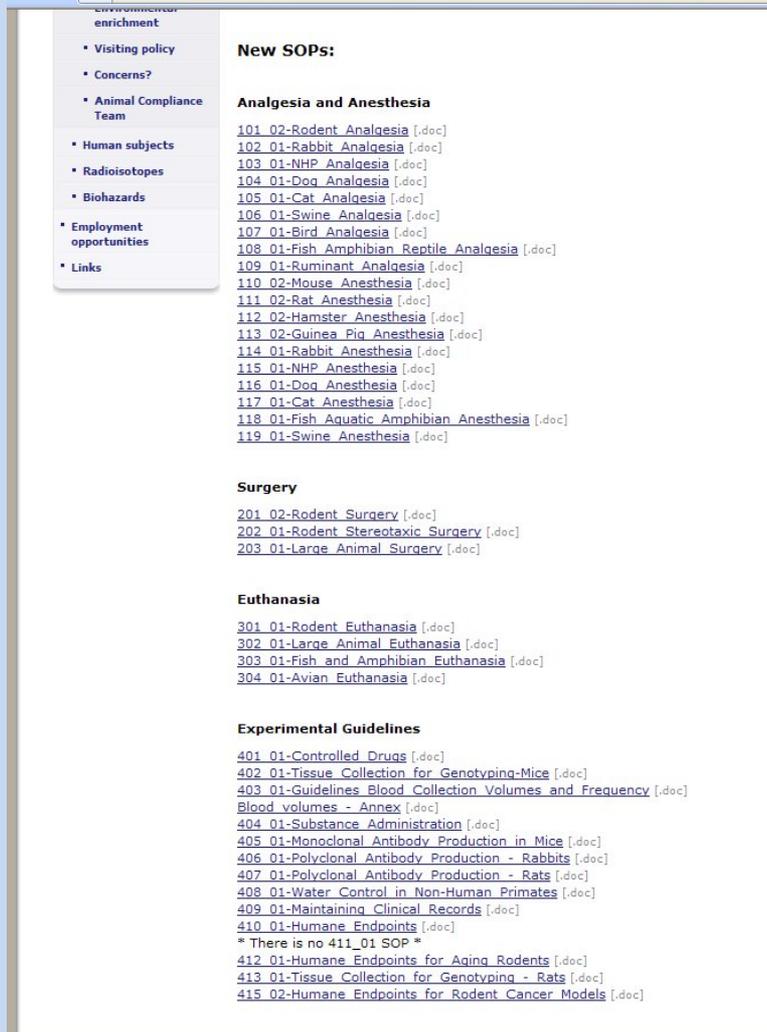
**Only perform approved procedures detailed in the form**

# Common Problems Areas

- **Summary** not in lay language
- **List of animals** (include all of them such as breeding, pups, cross breeding...)
- **Animal number justification** (not clear/ does not match animal numbers in table)
- Insufficient **clinical endpoints**
- **Hazardous** material section (precautionary measures)



# Standard Operating Procedures (SOPs)



The screenshot shows a web page with a sidebar on the left containing a navigation menu with items like 'enrichment', 'Visiting policy', 'Concerns?', 'Animal Compliance Team', 'Human subjects', 'Radioisotopes', 'Biohazards', 'Employment opportunities', and 'Links'. The main content area is titled 'New SOPs:' and lists various SOPs under several categories:

- Analgesia and Anesthesia**
  - [101 02-Rodent Analgesia](#) [.doc]
  - [102 01-Rabbit Analgesia](#) [.doc]
  - [103 01-NHP Analgesia](#) [.doc]
  - [104 01-Dog Analgesia](#) [.doc]
  - [105 01-Cat Analgesia](#) [.doc]
  - [106 01-Swine Analgesia](#) [.doc]
  - [107 01-Bird Analgesia](#) [.doc]
  - [108 01-Fish Amphibian Reptile Analgesia](#) [.doc]
  - [109 01-Ruminant Analgesia](#) [.doc]
  - [110 02-Mouse Anesthesia](#) [.doc]
  - [111 02-Rat Anesthesia](#) [.doc]
  - [112 02-Hamster Anesthesia](#) [.doc]
  - [113 02-Guinea Pig Anesthesia](#) [.doc]
  - [114 01-Rabbit Anesthesia](#) [.doc]
  - [115 01-NHP Anesthesia](#) [.doc]
  - [116 01-Dog Anesthesia](#) [.doc]
  - [117 01-Cat Anesthesia](#) [.doc]
  - [118 01-Fish Aquatic Amphibian Anesthesia](#) [.doc]
  - [119 01-Swine Anesthesia](#) [.doc]
- Surgery**
  - [201 02-Rodent Surgery](#) [.doc]
  - [202 01-Rodent Stereotaxic Surgery](#) [.doc]
  - [203 01-Large Animal Surgery](#) [.doc]
- Euthanasia**
  - [301 01-Rodent Euthanasia](#) [.doc]
  - [302 01-Large Animal Euthanasia](#) [.doc]
  - [303 01-Fish and Amphibian Euthanasia](#) [.doc]
  - [304 01-Avian Euthanasia](#) [.doc]
- Experimental Guidelines**
  - [401 01-Controlled Drugs](#) [.doc]
  - [402 01-Tissue Collection for Genotyping-Mice](#) [.doc]
  - [403 01-Guidelines Blood Collection Volumes and Frequency](#) [.doc]
  - [Blood volumes - Annex](#) [.doc]
  - [404 01-Substance Administration](#) [.doc]
  - [405 01-Monoclonal Antibody Production in Mice](#) [.doc]
  - [406 01-Polyclonal Antibody Production - Rabbits](#) [.doc]
  - [407 01-Polyclonal Antibody Production - Rats](#) [.doc]
  - [408 01-Water Control in Non-Human Primates](#) [.doc]
  - [409 01-Maintaining Clinical Records](#) [.doc]
  - [410 01-Humane Endpoints](#) [.doc]
  - \* There is no 411\_01 SOP \*
  - [412 01-Humane Endpoints for Aging Rodents](#) [.doc]
  - [413 01-Tissue Collection for Genotyping - Rats](#) [.doc]
  - [415 02-Humane Endpoints for Rodent Cancer Models](#) [.doc]

- SOPs created by **Vet Care Subcommittee** in consultation with people in the animal care program

- Read and follow**

- Deviations** from SOPs clearly **described** in protocol

- What about **local SOPs**?

- Different format** now, no attachment of cover page

# Environmental Enrichment

To satisfy the social and behavioural needs of animals, it is mandatory to include environmental enrichment.

It will also help prevent behavioural problems that may affect the result of the research project



# Who looks at protocols anyway?



- **Animal Committee Members:**

- Community Representative
- Researchers
- Clinical Veterinarian
- Animal Care staff
- Compliance staff
- Institutional member non-animal user
- Student



- **Ethics Committee** (if D, teaching, cloning or NHP)
- **Training Coordinator, theory & practical training, instructors...**
- **Animal Care Staff** (husbandry, endpoints, procedures...)
- **Governmental certifying agency** (CCAC) – audits us every 3 years, we send report every year
- **Funding agencies** (CIHR, NIH, NSERC...)
- If someone is in trouble: Dean's or Director's Office, Provost's Office, Office of Research Integrity, court of law...

# The Community Representative



**Quorum** of every Animal Care Committee must include a community representative

A person **without any affiliation** to the institution/institute (not staff, not student)

**Represents the general public** and can voice concerns

**Com Reps at every level:** on CCAC assessment panels (Federal), Animal Care Committees and Subcommittees (Institutional) as full members

The reason why the summary is lay language is to help the Com Rep understand the potential benefit to humans and animals and have an idea of what is involved; So please, **no acronyms, no jargons, no scientific terms, no publications** and a short simple explanation for them

# Changes needed?

- Need to use another drug?
- Change a procedure because it wasn't working?
- Adapt to unexpected conditions or restraints?
- Someone new in the research group?



Need approval before affecting changes. The Animal Use Protocol must be updated by submitting an amendment to ensure additions are acceptable and to remain compliant.

Amendment form downloaded from UACC Web site

# Soon Available: On-Line Software

- Will be able to submit on-line by going to the Web site and logging in
- Access to information will be controlled at login dependent on **role** (Animal Care Staff access to protocols in their facility, Vets access to all protocols, PIs & his/her research group access to their own protocols...)
- Software will include PI submission of protocols & amendment, Committee review and approval, training verification, OHP for NHP, animal acquisition...



# Educating the General Public

- Good to talk about animal research to friends and family to address concerns about animal welfare
- Why is your research done? Potential benefits to animals and humans?
- Why are animals crucial to research and often cannot be replaced by computer models and in-vitro techniques



Researchers working with animals must understand the ethical issues and realize that failure to understand legitimate concerns from the public will affect their capacity to do research in the long run.

# Questions?



**Best Supporting Role in a Medical Drama.**

Perhaps you didn't know that rats and mice are the foundation for all medical research and that they have played a vital role in virtually every major medical discovery in history. Learn more about the essential need for animal research.

**FOUNDATION FOR BIOMEDICAL RESEARCH**  
[www.fbresearch.org](http://www.fbresearch.org)