

# Medical research (1)

## What is medical research?

Medical research has the goal of improving human health and welfare, and finding ways of preventing or treating human diseases. It is a very broad term that covers many different areas of science and technology. Some types of research are designed to investigate how the normal, healthy body works, in order to understand what goes wrong during illness. Others look at the way in which diseases develop or spread, and what could be done to stop or correct the disease process.

A combination of approaches are currently used to tackle these questions, including studies of cells and molecules, computing technology, **epidemiology**<sup>1</sup> and research using humans, as well as animal experiments.

## Some scientific issues

All of the above approaches have limitations. For example, cells on their own do not provide a good 'model' of a complete immune system. Epidemiology tells you about how disease is spread but not necessarily about how a disease affects the human body. Finally, there are legal and ethical limits on what experiments can be done on humans. A hotly debated question is whether animals really are a good model for humans – are such experiments scientifically 'valid'? There is no single answer to this question. The current weight of scientific opinion is that animals are essential to answer certain types of scientific questions, but the use of animals must be critically examined in each and every case.

## Some ethical issues

The use of animal models instead of humans raises many serious ethical questions:

- If it is wrong to harm humans, can it be right to harm animals? If so, why?
- What are the differences between humans and other animals that mean it is acceptable to use animals in this way?

These are complex questions and people hold different views.

Some people think that it is morally wrong to use animals for any purpose, whatever the perceived benefit. Others think it is acceptable to use some species (such as mice) in research into very serious medical conditions, or provided the animals do not suffer too much. Some would allow more substantial suffering or experiments on species like dogs or primates if the research was considered to be very important. Some types of research are particularly controversial. For example, people may believe that it is wrong to use animals for research on drug addiction or obesity because they believe people "bring these problems upon themselves".

Using animals to develop and test new treatments for human diseases and disorders is clearly a serious **ethical dilemma**. There is a clear and strong demand for medicines and therapies for human diseases, yet animal experiments, which cause suffering, are currently an **intrinsic**<sup>2</sup> part of the research and testing process.

# Medical research (2)

## What are the animal welfare concerns?

The ethical issues outlined here arise because animals used in research can suffer in a variety of ways. Laboratory housing may not provide sufficient space, socialisation with other animals or stimulation, so animals can become stressed, frustrated and bored. They may also experience pain, discomfort, distress or lasting harm during experiments. This is due to handling, dosing, blood sampling, drug side-effects or surgical procedures, or because they have been given diseases. In addition, animals are eventually killed to alleviate their suffering, or for post-mortem analysis of their tissues and organs as part of the experiment.

Large numbers of animals of many different species are used in medical research in the UK every year. The majority of these are mice and rats. Rodents are **sentient**<sup>3</sup> animals, capable of suffering pain, distress, fear and anxiety. More than two million mice and about 400,000 rats were used in research in the UK in 2006 – most of them in experiments on human diseases and the development of new medicines.

Every year, some 2,000 to 3,000 **primates** are used in UK laboratories. Apes such as chimps are not used in research in the UK. Therefore, monkeys such as macaques and marmosets are used instead, as they are the closest relatives to humans. This closeness to humans means that primate use is of extreme concern to many people. For example, some primates are used to find out how the brain works and to look for treatments for Alzheimer's and Parkinson's diseases, anxiety and depression, and stroke.

Primates are used for these experiments because their brains are similar to the human brain, but this also means that they are likely to suffer in the laboratory more than other animals. It is believed that primates experience negative emotions such as anxiety, fear, boredom and mental stress, as well as positive emotions such as interest, pleasure, happiness and excitement.

Most primates are used in experiments to test the safety and effectiveness of medicines for humans. Some are also used to test the effectiveness of new experimental vaccines for HIV/AIDS, malaria and tuberculosis. This can involve infecting them with the diseases that the vaccines are intended to prevent, which can cause suffering.

Around 5,500 **dogs** are used in the UK each year. The majority of them are used to test new medicines for their safety and effectiveness.

Almost all the dogs used in research are beagles. By law, the dogs must either be bred at the laboratory or bought from breeders licensed by the Home Office. The use of stolen or stray dogs is illegal in the UK. Although laboratory dogs are bred for research, the welfare needs of laboratory and companion dogs are the same. It is very difficult to provide sufficient stimulation and socialisation for dogs in the laboratory.

# Medical research (3)

## Are there alternative methods?

An influential body – the Nuffield Council of Bioethics – said in an authoritative report in 2005 that:

“A world in which the important benefits of such research could be achieved without causing pain, suffering, distress, lasting harm or death to animals involved in research must be the ultimate goal.

“The Working Party therefore agrees that there is a moral imperative to develop, as a priority, scientifically rigorous and validated alternative methods for those areas in which replacements do not currently exist.”

Efforts are being made to develop **alternatives** to animal experiments. These include the use of human cells and tissues, computer simulations and scanning methods that can measure brain activity in humans – and even alter brain function without damaging tissues.

The RSPCA believes that much greater commitment is needed to speed up the development of these methods and to make sure that they are used to replace animals in medical research.

## Definitions

**<sup>1</sup>Epidemiology:** the study of factors affecting the health and illness of populations, in order to build up understanding of cause and distribution, etc.

**<sup>2</sup>Intrinsic:** when something is valuable “in itself” or “for its own sake”, regardless of any usefulness to people, for example.

**<sup>3</sup>Sentient:** ‘sentience’ is defined as the ability to have perceptions and sensations. A ‘sentient’ animal is aware of its surroundings and of what happens to it, and is capable of feeling pain and pleasure, at the least.

All figures correct as of 31/12/2006

