

# Animal Use in the United Kingdom in 2001

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**Summary** — The United Kingdom publishes detailed, descriptive, annual statistical reports on the use of animals for experimental and other scientific purposes. This paper describes the method by which the statistics are compiled and the nature of the information collected. It provides a brief overview of the number of animals used, the patterns of use, and key trends for calendar year 2001. The limitations of the published data, and other classes of information that should be provided, are discussed.

**Key words:** *animal experimentation, Great Britain, regulation, statistics.*

## Introduction

The Home Office publishes comprehensive, descriptive, annual statistical reports detailing the use of animals in Great Britain for experimental and other scientific purposes. The *Statistics of Scientific Procedures on Living Animals: Great Britain 2001* were published on 23 July 2002 (1).

This paper reviews the background to the statistical collection and the methodology used to collect, collate and analyse the statistical information. It describes the nature of the information included in, and excluded from, the published figures. Key features relating to the number of animals used and the patterns and trends of animal use are considered. The limitations of the current publication are considered, as are possible means of addressing them.

## Methodology

The *Animals (Scientific Procedures) Act 1986* (2) regulates the use of animals for experimental and other scientific purpose in the United Kingdom.

Regulation is applied at three levels: the place, the programme of work and the personnel involved.

Individual programmes of work are authorised by project licences. Of the order of 3300 project licences are valid at any one time.

In January each year, the Home Office issues every project licence holder an individual annual statistical return form and guidance notes. Project licence holders have until the end of the January to supply an annual statistical return, detailing animal use in the previous calendar year. Failure to supply an accurate return results in licence authorities being revoked. The return rate is high — for 2001 it was 99.62%.

The information is collated centrally by the Home Office Research Statistics Department, and supple-

mentary enquiries are made as necessary to validate the data collected. Because of technical differences in the format and content, separate tables are produced for the domestic and European statistical reports.

The format and content of the annual statistical report is kept under regular review. Each annual report invites readers to suggest how future statistics can be made more informative and user-friendly. Few comments are received, and a more pro-active, formal and structured review is planned.

## What is included?

The annual statistical report should capture all regulated procedures started during the reporting period and applied to live protected animals (vertebrates and the invertebrate species *Octopus vulgaris*) for experimental or other scientific purposes that may have the effect of causing pain, distress or lasting harm — regardless of whether anaesthesia or analgesia are used.

This includes both the *de novo* production of genetically modified animals and their subsequent breeding. Two-thirds of the genetically modified animals reported in the annual statistical report are breeding animals only. The statistics also include the breeding of animals expressing harmful genetic defects.

## What is excluded?

In considering the statistical reports, it is important to bear in mind some classes of animal use that are neither regulated by the *Animals (Scientific Procedures) Act 1986* and are not, therefore, recorded in the annual statistical report.

The statistics do not include details of:

- animals used as part of recognised veterinary practice or animal husbandry procedures;
- the humane killing of animals for scientific or other scientific purposes by a prescribed list of methods believed to cause only the minimum of pain and distress;
- the use of animals to evaluate the use of novel pharmaceuticals as authorised by Animal Test Certificates issued under the *Medicines Act*;
- the ringing, tagging or marking of animals by using methods that cause no more than momentary pain or distress when these are applied solely to identify the animal;

- the use of animals for experimental or other scientific purposes where it is not believed that pain, suffering, distress or lasting harm will occur; and
- details of conventional animals bred but not used for experimental or other scientific purposes.

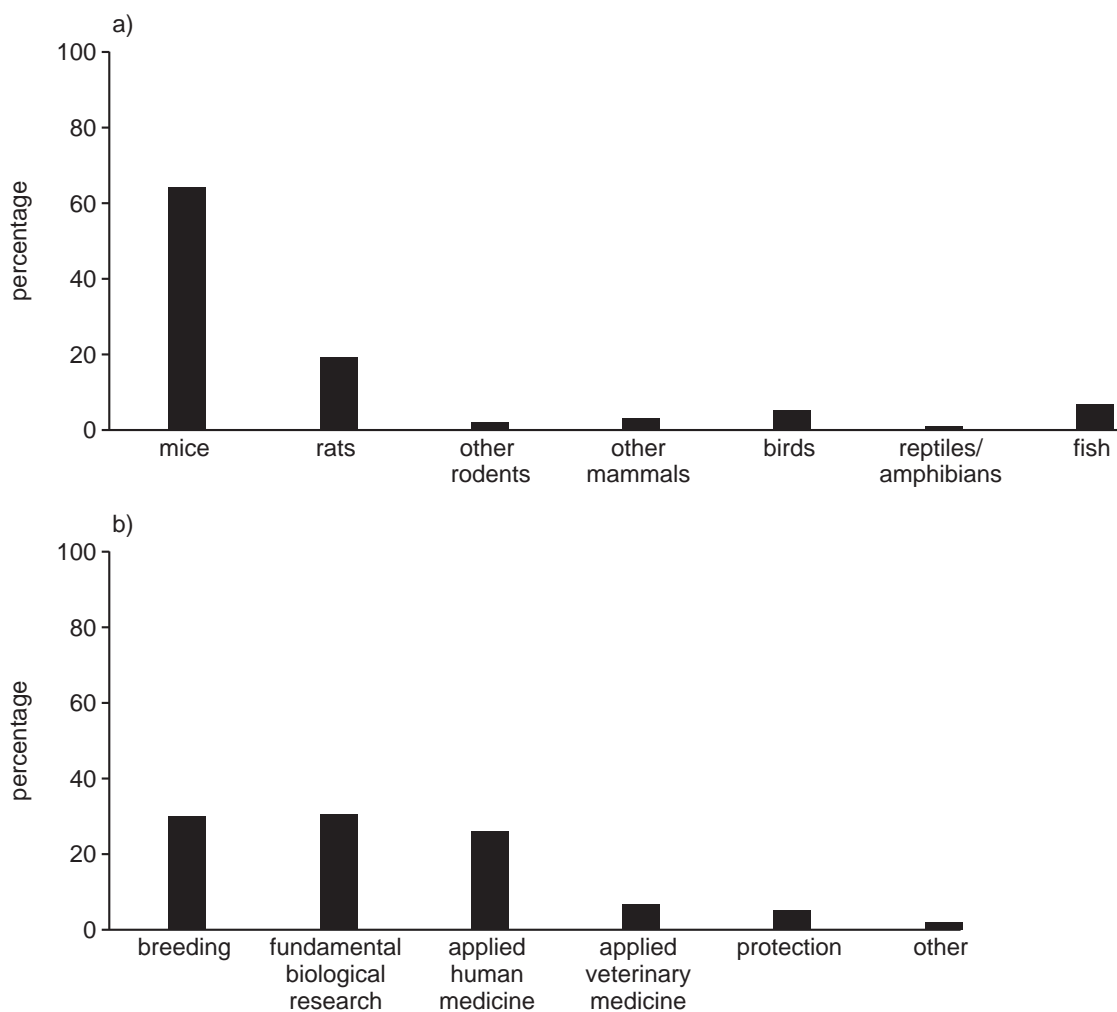
In each of these cases, separate legislative provision has been made to protect the welfare of the animals.

### The Numbers for 2001

The annual statistical report details both the number of animals used, and the number of procedures in which they were used.

In 2001, 2.57 million protected animals were used for the first time, and 2.62 million procedures were started. Re-use of animals between procedures (and

**Figure 1: Procedures by species of animal and primary purpose of procedure in 2001**



a) Procedures by species; b) procedures by primary purpose of procedure.

repeated use for the same procedure) explains why the number of procedures exceeds the number of animals. Examples of re-use include the use of the same animal for more than one absorption, distribution, metabolism and excretion (ADME) study or pyrogen test.

Compared with calendar year 2000, the number of animals used for the first time was down by 75,000 (2.8%), and the number of procedures was down by 92,000 (3.4%).

Mice accounted for 63% of the animals used: rats for 19%; birds for 5%; and fish for 6.5%. In total, these animals accounted for over 90% of the animals used.

Cats accounted for 0.06%, dogs for 0.3%, and non-human primates for 0.15%. These “sensitive species” thus accounted for one half of one per-cent of the animals used.

The primary purposes for which animals were used are as shown in Figure 1.

Fundamental biological research, the breeding of genetically modified and harmful mutant animals, and applied studies into human medicine and dentistry were the largest categories of animal use.

### The Patterns and Trends of Use

The number of procedures in which animals are used peaked in the 1970s, and it has fallen steadily ever since.

The apparent increase in procedures using animals in the mid-1980s is explained by changes to the accounting system. Prior to 1987, the annual statistics related only to the number of “experiments” performed; from 1987 onward, the published statistics include the use of animals for “experimental and other scientific purposes”. Figure 2 shows the nature of this trend in detail.

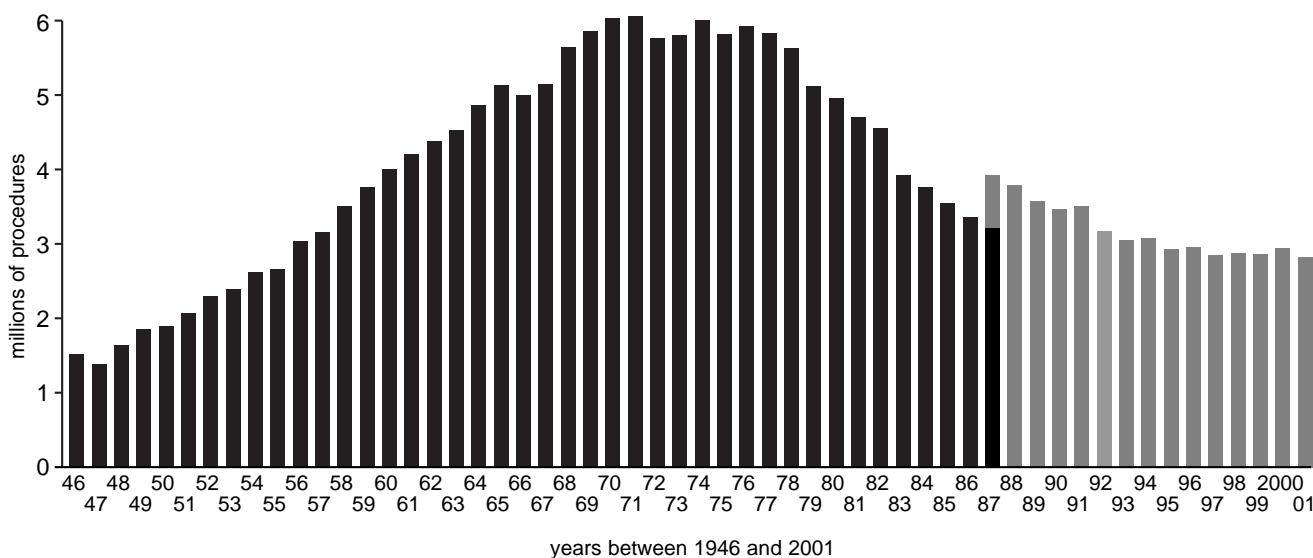
The number of genetically modified animals produced and used has been rising steadily over the last decade, whilst the number of conventional animals continues to fall.

In 2001, two-thirds of the animals used were of a normal genetic constitution, while 24% of the animals used were genetically modified. Approximately 50% of the mice used were genetically modified. Further, 9.5% of the animals used were considered to be “harmful mutants”.

Although the majority of project licences (69%) are issued to academia, academia uses only a minority of the animals (38%). Nevertheless, the steady reduction in the total number of animals used over the last ten years represents a sustained reduction of use by the commercial sector, more than compensating for an absolute increase in use by academia (Figure 3).

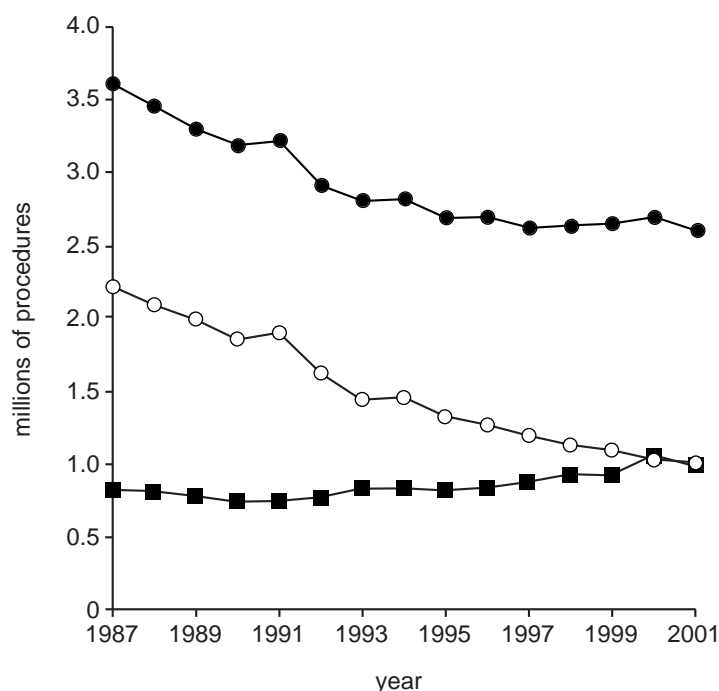
Among procedures started in 2001, 17% were for toxicological purposes — down nine percentage points in five years. Meeting specific regulatory requirements accounted for 86% of this use; the remaining 14% included work on replacing or refining current test methods. Among the regula-

**Figure 2: Experiments/procedures commenced each year: 1946–2001**



■ = the number of “experiments” performed; ■ = the use of animals for “experimental and other scientific purposes”.

*Experiments under the 1876 Act, or scientific procedures under the 1986 Act. The experiments included in the figures for 1987 also counted as procedures under the 1986 Act.*

**Figure 3: Procedures by type of establishment: 1987–2001**

● = total number of procedures; ○ = commercial procedures; ■ = academic procedures.

tory testing procedures, 61% related to pharmaceutical safety and efficacy evaluation. No procedures were undertaken to evaluate the safety of cosmetic products or ingredients (Figure 4).

### The Gaps . . .

The current annual statistical report details all of the licensed animal use. Despite its length and the detailed information it provides, there is room for improvement.

By excluding the number of conventional animals bred for use in science but not ultimately used, and the exclusion of some humane methods of killing, the statistics underestimate the number of animals bred and used for scientific research.

The statistics do illustrate some of the progress being made with replacement and reduction, but they do not capture progress being made with refinement. In my view, this is where considerable progress is being made, but where there is currently no means of capturing evidence of this trend. This is an important omission, but one that seems to defy any simple remedy. Notwithstanding the attempts made in other national statistical assessments to tackle this, I am not aware of any adequate system having been devised as yet, and some of the “refinement” information currently published is more often misleading than informative.

A final point to consider. Current national annual statistical reports deal with the “costs” of the use of animals for experimental and other scientific purposes. What authoritative publication details the benefits likely to be seen as a result?

### The Future

Before changing either the data collected or the way that it is presented, it is important to think carefully about how the statistical information is to be used. Thus far, Home Office consultations intended to provide information on feedback on these topics have been disappointing.

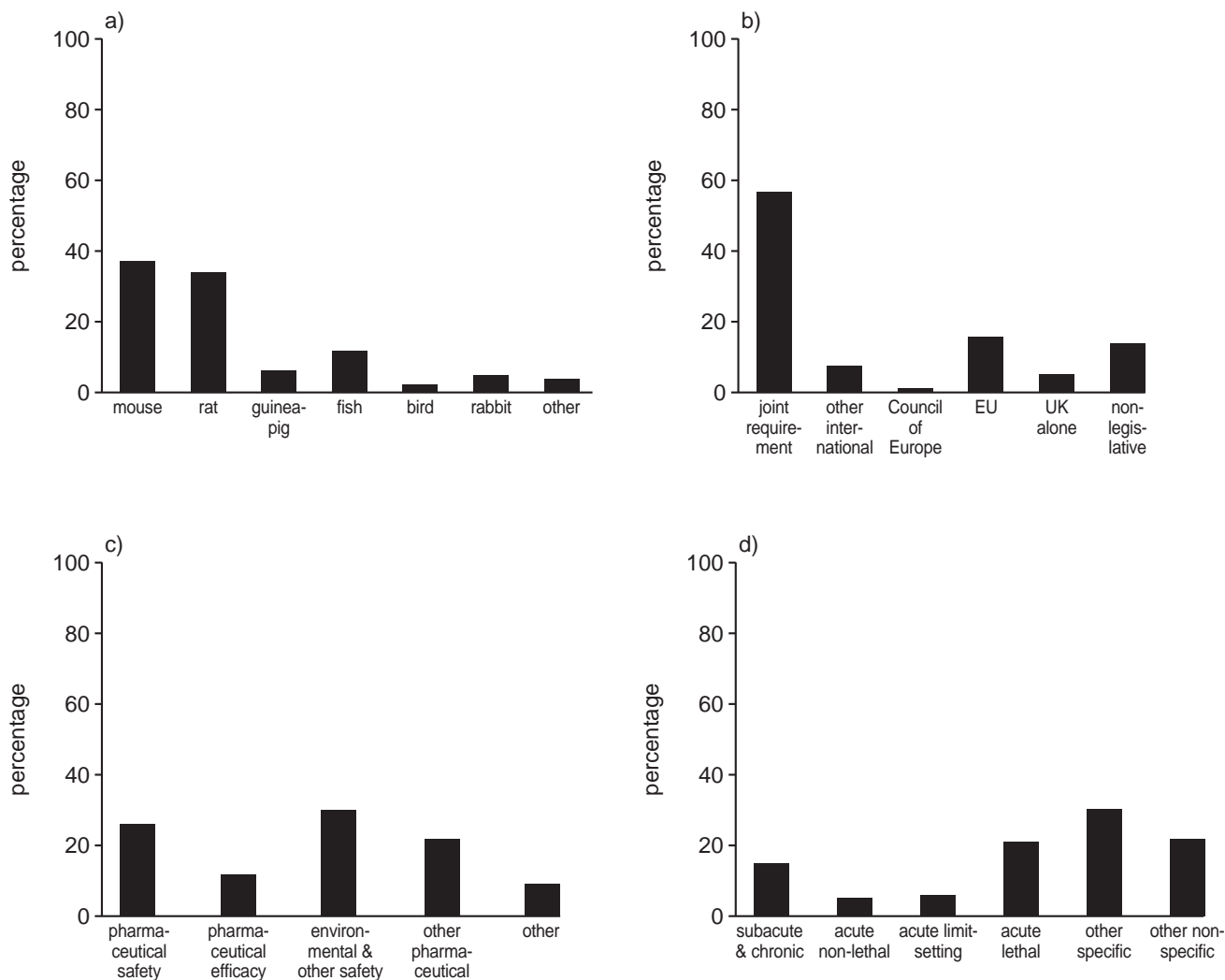
I believe that statistical reports are of limited value in extrapolating future trends and outcomes. These are better modelled by knowledge of strategic funding decisions, technical progress and political initiatives. For example, the established trends cannot be used to model the likely impact of the proposed chemicals testing strategies.

The statistics can and should be used to identify priorities where progress with the Three Rs is most needed.

I believe a simple informative means must be found to measure progress with refinement — but I do not believe any of the systems currently in use are adequate.

I also think that, for balance, there is a need for someone to provide authoritative information

**Figure 4: Toxicology procedures by species of animal, purpose of test, legislative requirement and type of test, in 2001**



a) Species of animal; b) legislative requirement; c) purpose of test; and d) type of test.

on the benefits that result from the use of animals.

Only from knowledge of the animal welfare costs and the scientific benefits can an informed debate take place on the validity and significance of animal research.

**References**

1. Home Office. (2002). *Statistics of Scientific Procedures on Living Animals. Great Britain 2001*, 103pp. London, UK: HMSO.
2. Anon. (2000). *Guidance on the Operation of the Animals (Scientific Procedures) Act 1986*, 103pp. London, UK: HMSO.