



Medical Research

RESEARCHERS CITE A NUMBER OF EXAMPLES OF WHICH THEY CONSIDER THE USE OF ANIMALS TO BE INTEGRAL. HOWEVER THEY DO NOT PROVIDE ANY MEASURE OF HOW THE PERCEIVED 'SUCCESSSES' COMPARE WITH THE NUMBER OF DELAYS AND DISASTERS ANIMAL USE HAS CAUSED THROUGHOUT HISTORY.

Did you know, for example:

- 85% of drugs that reach clinical trial fail to attain general distribution (which certainly questions the efficacy of animal tests)¹.
- The development of the Polio vaccine, often cited by researchers as an example of the necessity of animal experiments, was long delayed due to misleading results from primate experiments. This was stated under oath by Dr Sabin (inventor of the polio vaccine)².
- Penicillin was delayed for 15 years and blood transfusions for more than a century.

We are constantly reading news headlines that breakthroughs have been made in the cure against cancer yet today it remains one of the greatest killers in the Western world. What we don't hear are the many drugs that are recalled on a regular basis – drugs that have been "successfully" tested on animals and have later proven to be dangerous to human health³.

History

The concept of medical research was fathered by Hippocrates whose methodology was to predict the course of disease through clinical observation. In second century Rome however, Galen – a revered physician put Hippocrates' human-based research off course when he began cutting into goats, pigs and monkeys due to a Church protocol disallowing human autopsies. His theories were therefore based on a combination of his findings through vivisection and observation of humans and proved to be very inaccurate.

Belgian anatomist and physician, Andreas Vesalius, resumed work on human dissections in 1543 and discovered that most of Galen's discoveries were erroneous and published his findings in *De Corporis Humani Fabrica* (Structure of the Human Body). With such information the scientific community overpowered the Church's objections and dissection of human bodies continued, leading to a great acceleration of medical knowledge.

In the mid nineteenth century, French physiologist Claude Bernard reinstigated animal experiments by convincing the scientific community that if a disease could not be replicated in animals it could not exist (despite clinical evidence to the contrary). It became understood amongst scientists that animal experimentation could provide both money and reputation (regardless of its misleading results).

The situation remains the same today.

Species Differences

Extrapolation from animals to humans can and does result in dangerously misleading outcomes. The reason is due to species differences. Different species have a different genetic make-up and it is on the genetic and molecular level that variances occur. Results can differ between different sexes of the same species, different strains, and even due to different housing conditions or levels of stress within the same species. So if such differences can occur within the same species then it's negligent to extrapolate from say a rat to a human – two totally different species with a totally different genetic make-up. Researchers often claim that animals are used because they need to test in a living system rather than on isolated cells or tissue, however an entire living system creates more variables which can further affect the outcome of any results.

Another problem is that quite often a disease that is being researched does not appear in its natural state but instead is artificially induced in the research animal. This can result in the same symptoms being expressed but the underlying illness is not the same as in its human form. Researchers then try to cure the symptoms of the falsified illness but do not address nor cure the real problem, which may have been caused, or further affected, by social and environmental factors rather than biological factors alone.

Even animal-researcher and former director of Wellcome Research Laboratories, Dr Miles Weatherall admitted: 'Every species has its own metabolic pattern, and no two species are likely to metabolise a drug identically.'⁴

Some examples of 'species differences' are:

- Morphine sedates man but stimulates cats;
- Aspirin causes birth defects in rats and mice but not in humans;
- Penicillin is highly toxic for guinea pigs and hamsters; and
- The common industrial chemical benzene causes leukemia in man but not in mice.

Examples of failures

By looking through medical history we see many examples of how progress has been made without the use of animals, how progress has been retarded due to animal-based research and how disasters have occurred because of it. The use of the following drugs/procedures were delayed for many years due to the misleading conclusions from animal-based research:

Penicillin - Discovered by Fleming in 1928 who found that bacteria

would not grow on a culture medium accidentally contaminated by a mould. Even before this discovery however, mould on damp cheeses were used to make a plaster for infected wounds. Fleming lost interest in his discovery when a sample was injected into rabbits and became deactivated by blood.

Many years later, the drug was resurrected by Oxford scientists Florey and Chain. Fleming wished to inject penicillin into the spine of a dangerously ill patient but the results of the administration were unknown. Florey tried the experiment on a cat, but due to a shortage of time it was also administered to the patient before the results of the cat test were available. The cat died, however the patient's health improved.

Blood transfusions - Following the discovery of blood circulation in 1666, Richard Lower transferred blood from one dog to another. A year later, French physician Jean Denis transfused lambs blood into a boy. After a number of patients died following the procedure, and a lawsuit brought against the Professor, no further attempts were made for more than a century. It wasn't until the early part of the nineteenth century that it was realised that transfusions could only be sourced from human donors, and the method only became safe after the discovery of the main blood groups by Karl Landsteiner in 1900. The discovery was made by mixing human blood in test tubes and not through the use of animals⁵.

Digitalis - The beneficial effects of digitalis for the treatment of heart conditions were known for many years however its widespread use was delayed because animal experiments indicated a dangerous rise in blood pressure⁶.

Iron Sorbitol - Used as a treatment for iron deficiency anaemia. It was originally injected into the muscles of rats and rabbits and found to cause sarcomas at the site of injection. 20 years after the initial research on rats it revealed no real hazard during clinical experience⁷.

The following drugs were all 'successfully' tested on animals, yet produced widespread damage when applied to humans:

Thalidomide - Probably the most infamous drug disaster, marketed in 1957 by Chemie Grunenthal, and in 1958 by the Distillers Company, as a sedative and to treat morning sickness in pregnant women. Initially, it caused peripheral neuritis - numbness and cold, severe muscular cramps, weakness of the limbs and lack of coordination. In the following years it was found to cause damage to the human fetus, resulting in around 10,000 children born crippled and deformed with missing limbs.

[Note: Researchers often cite Thalidomide as a strong argument of why animal experiments ARE necessary, because if it had it been tested on pregnant animals we would have seen birth malformations (teratogenicity). However this is not a convincing argument. After thousands of malformed babies were born researchers started conducting teratogenicity tests and failed to produce similar malformations in numerable other species].

Finally, the White New Zealand rabbit also gave birth to deformed offspring, but only at a dose between 25 to 300 times that given to humans. It also eventually occurred in monkeys, but only at ten times

the normal dose. The bottom line is that more animal testing would not have found the side effects, and even if they had tested on the White New Zealand rabbit, Thalidomide would still have gone to market since the vast majority of species showed no ill effect. It is only possible to produce specific deformities in specific species, and chances are the right species would never have been used.]⁸

Clioquinol - The main ingredient in Ciba Geigy's anti-diarrhoea drugs caused an epidemic of disease in Japan in the 1960s. It was banned in Japan in 1970 and then removed from the world market in 1982 (12 years later!). At least 10,000 people, and possibly up to 30,000, fell victim to SMON (subacute myelo-optic neuropathy), a disease which causes numbness, weakness in the legs, paralysis, eye problems including blindness, all due to nerve damage⁹.

Eraldin - Marketed by ICI in the 1970s for the treatment of heart conditions it was thoroughly tested on animals which gave no indication of the tragedy it would cause. It was withdrawn in 1976 after it was found to cause serious eye damage, including blindness, and 23 deaths. Over 1,000 patients received compensation for the damage it caused¹⁰.

Isoprenaline aerosol inhalers - During the 1960s at least 3,500 young British asthma sufferers died following its use¹¹.

Opren - An arthritis drug introduced in 1980 by Eli Lilly after safely passing animal tests. It was withdrawn in August 1982 after being found to be highly toxic in humans, with 3,500 reports of harmful effects including 61 British deaths, mainly through liver damage in the elderly¹².

Zomax - An anti-inflammatory drug marketed in 1980 to treat post-operative pain. It was withdrawn in 1983 after deaths from severe allergic reactions¹³.

Osmosin - A slow release drug to treat arthritis caused 40 deaths in the UK alone and was withdrawn in 1983 after only ten months¹⁴.

Zelmid - Anti-depressant drug marketed by Astra in 1982. Withdrawn in 1983 after 300 reports of adverse reactions, including convulsions, liver damage, neuropathies and Guillain-Barre syndrome¹⁵.

Anti-inflammatory drugs **phenylbutazone and oxyphenbutazone** are responsible for an estimated 10,000 deaths worldwide¹⁶.

Premarin - In July 2002, over nine million women worldwide who had been prescribed Premarin as a hormone replacement therapy were advised that it has been found to greatly increase the risk of breast cancer, heart disease, strokes and blood clots in the lungs. Premarin was introduced in 1942

by Wyeth-Ayerst and is one of the most prescribed drugs in the United States. In Australia, 300,000 women have been urged to seek advice from their doctor¹⁷.

VIOXX - Recalled in September 2004. It's a medication for arthritis and has now been found to increase the risk of heart attack and stroke.

This list is by no means exhaustive. It merely serves as a snapshot to illustrate how dangerously misleading the use of non-human animals can be in medical research when results are applied to human conditions.



Photo: A child victim of Thalidomide.
Credit: The Association of Childrens'
Prosthetic-Orthotic Clinics²².

Examples of successes WITHOUT the use of animals

The following significant advances in medical progress have all been achieved without the use of non-human animals:

Sanitation - In the mid to late 19th Century, death rates fell dramatically due to the decline in infectious diseases, including TB, bronchitis, pneumonia, influenza, whooping cough, measles, scarlet fever, diphtheria, smallpox, cholera, typhoid, diarrhoea and dysentery. However the mortality for each of these infections were declining long before the introduction of antibiotics and immunization. Instead they have been linked to public health measures and social legislation that have improved the living standards of working people, and to better understanding and availability of nutritional requirements.

Surgery - Particularly for wounds of the heart and chest during the Second World War became a common procedure, providing opportunity for many fundamental skills of heart surgery to be developed.

Lawson Tait has been recognised as one of the most brilliant surgeons in history and pioneered many of our present day surgical techniques. He was also a fierce critic of animal research. He was the first to successfully perform a cholecystectomy (gall bladder operation), removal of the appendix, operation on a case of ruptured ectopic pregnancy, and many abdominal operations. He was also a strong proponent of cleanliness during surgery, which during his time was not a common practice¹⁸.

Anaesthesia - Before the discovery of anaesthetics, the best surgeons were those who could perform painful operations in the shortest possible time. The introduction of anaesthesia was therefore considered to be a huge medical advance.

In the 1840's, laughing gas parties and 'ether frolics' were popular entertainments amongst medical students. It was the recreational inhalation of ether that prompted Dr Crawford Long to suggest its use for surgical procedures. Further 'partying' led to the discovery of the properties of chloroform and others.

X-rays - Discovered by accident in 1895 by physics professor Wilhelm Rontgen. He was passing electrical discharges through a partially evacuated glass tube when he discovered by accident that highly penetrative but invisible rays were emitted from the tube. By putting his own hand in the path of the rays he learned that flesh, but not bones, was transparent to the rays¹⁹.

When animal research DOES work

Advances which have been claimed to have been made through the use of animals could have been made through other means. Additionally, many discoveries were made by non-animal methods; later experiments on animals only further verified these breakthroughs as being correct, giving false credit to the use of animals.

William Harvey for example, has been credited as being the first to provide an accurate description of the blood's circulation in the 1600's (although it has been reported that the Chinese understood the blood's action as early as 2,650 B.C.E.). However Dr Lawson Tait (one of the most famous surgeons of the nineteenth century responded: "That he [Harvey] made any contribution to the facts of the [blood circulation] case by vivisection is conclusively disproved... It is, moreover, perfectly clear that were it incumbent on anyone to prove the circulation of the blood as a new theme, it could not be done by any

vivisectional process but could, at once, be satisfactorily established by a dead body and an injecting syringe."²⁰

Ovarian function was demonstrated by physician Dr. Robert.T. Morris in 1895 in surgical procedures on women, yet history credits the discovery to Emil Knauer who reproduced the procedure in rabbits in 1896²¹.

Banting and Best are often cited as having discovered insulin through animal experiments in 1922. However further investigation of the history of diabetes reveals that this is not the case. The discovery of insulin dates back to 1788 when an English physician, Thomas Cawley, performed an autopsy on a diabetic. Unfortunately subsequent research on animals delayed the acceptance of his hypothesis. Despite the existence of insulin already being well known, it was evidence obtained from Banting and Best's dog experiments that was the convincing factor for scientists. It seems that all too often researchers insist on animal experiments in an attempt to verify any discovery, however the use of animals to further work does not change the fact that a technique or discovery was made without animals.

"Historically, vivisection has been much like a slot machine. If researchers pull the experimentation lever often enough, eventually some benefits will result by pure chance." Dr John McArdle, Animals Agenda, March 1988.

Such logic however, does NOT constitute good science.

Why it continues

There are many reasons that vivisection still occurs. Primarily it is due to the many vested interests attached to its continuation. There are many businesses that thrive from breeding lab animals with specific traits, manufacturing housing systems, and of course the pharmaceutical companies that want quick results - despite these results often providing misleading information that has led to drug recalls.

Another reason is for academic recognition. Using animals can be a quick and easy way to get scientific papers published, and of course the greater 'credibility' (through producing papers) the more chance of receiving government and public grants to continue more animal research.

Unfortunately researchers who use animals are seldom questioned about their methodology and the public are denied access to knowing what happens to animals, nor how inaccurate the results can be when extrapolated to humans. They therefore continue their practices as the public (incorrectly) believes it to be a 'necessary evil' for medical progress. An article which appeared in the UK Guardian newspaper referred to a "public which doesn't necessarily understand the issues". This exemplifies the dangerous perception that researchers are the authority who should not and cannot be questioned. This unfortunate conclusion has allowed users of animals to continue their unethical and unscientific work unabated for too long. With such work being shrouded in secrecy, the public is denied access to knowing the truth of what is actually happening and are therefore not able to make an informed judgment, nor can they object accordingly.

Whilst researchers continue to use animals in medical research they are wasting precious resources - time and money - that should be used to find better, more ethical and scientifically-valid ways. Unfortunately however, whilst no one questions their methodology they will continue to work unopposed, backed by huge vested interests, constantly promising that their 'miracle cures' are close by.

If animal testing was banned tomorrow, research would not cease - that is not the nature of true science. Researchers would have no choice but to look further into alternatives.

Professional opposition

Opposition to animal experiments is not limited to animal rights activists and people who just don't like cruelty to animals. It is now being acknowledged by medical professionals around the world as a dangerous and erroneous way to research human health.

The Medical Research Modernisation Committee (MRMC) [<http://www.mrmcmed.org>] is a national health advocacy group in the United States composed of physicians, scientists and other health care professionals who evaluate the benefits, risks and costs of medical research methods and technologies.

Founded in 1985, The Physicians Committee for Responsible Medicine (PCRM) [<http://www.pcrm.org>] is another US-based nonprofit organization that promotes preventive medicine, conducts clinical research, and encourages higher standards for ethics and effectiveness in research. It is comprised of doctors and laypersons working together for compassionate and effective medical practice, research, and health promotion.

Doctors and Lawyers for Responsible Medicine (DLRM) [<http://www.dlrm.org>] is based in the UK and was established in 1995 because of the need to inform the public about the dangers posed to human health arising from the misguided notion that medical progress is dependent on animal experiments.



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