# INQUIRY INTO USE OF PRIMATES AND OTHER ANIMALS IN MEDICAL RESEARCH IN NEW SOUTH WALES

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## SUBMISSION ON ANIMAL EXPERIMENTATION BY JANET ALLAN DipT (Com)







## **GENERAL COMMENTS**

The first part of the code, claiming that researchers are required to REPLACE, REDUCE AND REFINE animal experiments is nonsense since animal experiments in Australia are increasing each year, not reducing. In 2005 more than 4 million animals were used (Summary of Statistics of Animal Experimentation, Vic. Rep. NO. 23; Animal Research Review Panel NSW; Dept. Environment & Heritage, SA). An article in the Age June 25, 2005 describes experiments involving severing the spinal cords of macaque monkeys, some just six days old. An extract reads: "Immediately following a left cervical spinal section, the monkey was paralyzed on the side of the lesion, was unable to stand up and both left limbs were flaccid. Within one week, the animal sat up and was able to grasp the mesh of the cage with the left hand sufficient to sustain balance". I could quote thousands more similar examples none of which look like REPLACE, REDUCE, REFINE to me. In any case, talking about replacing, reducing, refining ignores the fact that results from animal experiments can be, and frequently are, dangerously misleading when applied to human health. "The Pharmaceutical Research and Manufacturers of America estimate that for every 1,000 drugs that are tested on animals, only one reaches human clinical trials. Of the drugs that make it...only one in five are eventually approved.... That's a staggering failure rate of roughly 99.9%!" (Letter to the editor, MRMC Update 27/1/07) It is therefore pointless to use fewer animals or refine the procedure when it is the wrong procedure to follow. Replacement is therefore the only one of the R's that remains a credible objective.

Below are just a few of the thousands of human disasters resulting directly from animal experiments:

**THALIDOMIDE:** a sedative used to treat morning sickness in pregnant women caused 10,000 children to be born with missing limbs.

**OPREN:** an arthritis drug highly toxic in humans, causing at least 61 human deaths.

**CLIOQUINOL:** an ingredient in anti-diarrhoea drugs caused at least 10,000 people and possibly 30,000 sub acute myelo-optic neuropathy nerve damage, a disease causing numbness, paralysis, eye problems and blindness.

Conversely, below are just a few examples of many treatments beneficial to humans that are fatal to some animals:

**PENICILLIN:** was delayed for around 15 years because it is fatal to some animals.

**ASPIRIN:** causes serious blood abnormalities in cats. If discovered today it would be banned. Luckily, it was discovered by the ancients.

**BLOOD TRANSFUSIONS:** were delayed for more than a century because early attempts involved using animal blood which proved fatal to humans.

I find the whole discussion very depressing in that it reminds me of a group of fools discussing what sort of band aid they will apply to a severely injured limb that obviously needs to be amputated.

Einstein, Sweitzer, Newton, Da Vinci, Pythagoras and virtually all the great minds throughout history have condemned vivisection as cruel and unproductive. It is appalling to me that the small minds still prevail.

Below are just a few of the thousands of enlightened minds I could quote:

"..the study of human physiology by way of experiments on animals is the most grotesque and fantastic error ever committed in the whole range of human intellectual activity. " Dr GF Walker, Medical World, Dec 8 1933

"There will come a time when the world will look back on vivisection, in the name of science, as they do now to burning at the stake in the name of religion" Dr HJ Bigelow, Professor of Surgery, Medical School, Harvard University, 1849-1882

"Clinicians and the public often consider it axiomatic that animal research has contributed to the treatment of human disease, yet little evidence is available to support this view...Despite the lack of systematic evidence for its effectiveness, basic animal research...receives much more funding than clinical research." British Medical Journal 28/2/2004

"In practice all animal experiments are scientifically indefensible, as they lack any scientific validity and reliability in regard to humans." Dr H Stiller and Dr M Stiller Tierversuch und Tierexperimentator, HIrthammer Verlag, Munich, 1976

"Atrocities are not less atrocities when they occur in laboratories and are called medical research." George Bernard Shaw

## **ETHICS COMMITTEES**

These are currently comprised mainly of the researchers themselves. This is akin to having Dracula on the Board of the Blood Bank.

## PROPOSAL:

Animal Ethics Committees should be comprised of two people involved in animal welfare work, one in animal rights work, one veterinarian and one person involved in research that <u>does not</u> use animals but alternatives.

## **AUSTRALIAN EXPERIMENTS**

## COCHLEAR EAR IMPLANTS

## http://www.smh.com.au/comment/cochlears-silence-on-animal-testing-isdeafening-20150726-gikmxx

The Bionics Institute in Melbourne is rendering cats profoundly deaf, performing craniotomies, conducting recordings using microelectrodes and then killing them. This involves lead wires "tied with Dacron mesh to the skull through two holes" and a stimulator attached "subcutaneously on the back near the spine". Human "operators" are warned in the documentation "to maintain at least one metre distance" from the "operating device ... because of the quite strong magnetic field generated by the coils".

Aside from the obvious cruelty, there are too many differences between cats and humans making them unsuitable as models on which to base research that is to benefit people.

One British expert, <u>Dr Andre Menache</u>, said: "As a veterinary surgeon for 30 years I challenge the researchers responsible for this study to provide one shred of evidence these cat experiments are predictive of what happens in people with hearing problems. The fact these researchers make the claims

they do in their published work indicates that they need to undergo a basic course in evolutionary biology." This "research" has come to light due to copies of confidential contracts provided anonymously to Humane Research Australia and the media.

Cochlear is not a charity: In February this year, the ASX-listed company announced a 240 per cent rise in its <u>first-half profits to \$71.4 million</u>.

It is a big business and it does not just give away its implants; they cost in the range of \$25,000-\$30,000

Australia is the world's fourth largest user of animals in experiments, and Australian researchers work mainly in secrecy.

#### SHAKING LAMBS TO DEATH

An experiment conducted at University of Adelaide involved shaking lambs to death in an attempt to prove whether shaking alone is sufficient to produce brain injury and mortality, or whether additional head impact is required.

To quote from the research paper itself, "Nine anaesthetised lambs were manually grasped under the axilla and vigorously shaken with sufficient force to snap the head back and forth onto the chest..."

During the experiment, three of the lambs died The remaining lambs were killed after six hours of suffering

The research paper was published in the *Journal of Clinical Neuroscience* Cruelty aside Public funding is being wasted on information already known – research to prove something which most average people consider to be common sense: you don't shake babies!

The same testing had actually been done only two years before and published in the same *Journal of Clinical Neuroscience*. In fact the two papers'were almost word-for-word identical

As members of the public, we are continually assured that all research using animals is highly regulated, subject to approval from an animal ethics committee, only conducted when absolutely necessary and then only when there are no suitable alternatives. Aside from the 'common sense' factor, how on earth did two separate animal ethics committees sanction this experiment?

The researchers chose to use lambs due to the large brain structure and weak neck muscles to simulate a human baby but a lamb differs to humans in critical areas such as disease pathogenesis, response to traumatic insult and responses to interventional drugs – all of which render the data obtained from this research as completely irrelevant.

A great amount of unnecessary research is being conducted on animals in Australia every day. Some of the more 'critical' experiments include silicone breast implants in pigs, feeding alcohol to pregnant sheep and giving marijuana and ecstasy to other animals.

Animal experimentation is not just about cruelty to animals; it's about wasting precious resources which would be better spent on human-specific research relevant to real medical progress.

PREGNANT SHEEP DEPRIVED OF OXYGEN, SUBJECTED TO SURGERY, AND THEN KILLED WHILE STILL PREGNANT FOR ASTHMA EXPERIMENT

Clifton, V.L., Moss, T.J.M., Wooldridge, A.L., Gatford, K.L., Liravi5, B., Kim, D., Muhlhausler, B.S., Morrison, J.L., Davies, A., De Matteo, R., Wallace, M.J., & Bischof, R.J. 2015. 'Development of an experimental model of maternal allergic asthma during pregnancy'. *Journal of Physiology*. doi: 10.1113/JP270752.

Associated Institutions: The University of Adelaide, Monash University, University of Queensland

In an attempt to investigate fetal effects of maternal asthma in pregnancy, researchers conducted an experiment on **40 pregnant sheep**.

sheep then underwent **weekly endoscopic airway challenges** for 8 weeks. These 'airway challenges' involved sheep being **restrained unsedated** in a body harness, while an endoscope was inserted into the lung via the nasal passage so that saline or HDM in saline could be delivered to the lungs.

Fluid samples were collected at various stages via a 'broncho-alveolar lavage' procedure, whereby a bronchoscope is passed through the mouth or nose into the lungs and fluid is squirted into a small part of the lung and then collected for examination.

Following the 8 weeks of airway challenges, ewes had their oestrous cycles synchronised using intravaginal sponges for 12 days, and were then mated with rams. Pregnancy was then determined by ultrasound. This resulted in a control group of 9 pregnant sheep, and an allergic test group of 11 pregnant sheep.

Surgery was performed on the 20 sheep, after food was withheld for 24 hours., an indwelling catheter was placed into the maternal and fetal carotoid arteries and jugular veins (in the neck)

Further endoscopic airway challenges took place throughout pregnancy.



(Mice and Rats - Research - 06) This rat has his or her head clamped in a vise so the vivisector can perform brain implant surgery. From all indications, the rat is fully conscious during this procedure.

Photo from: Animals Voice Online



(Mice and Rats - Research - 09) This is another view of the torturous head-vise that holds a fully conscious rat in place while a vivisectionist experiments upon him or her. This is nothing more than socially accepted sadism. It's time these atrocities end. Speak out against laboratory experimentation and testing upon animals.

Photo from: Animals Voice Online

## INFLICTING SCIATIC PAIN IN RATS

"A novel animal model of graded neuropathic pain: Utility to investigate mechanisms of population heterogeneity", Peter M. Grace, Mark R. Hutchinson, Jim Manavis, Andrew A. Somogyi, and Paul E. Rolan.

University of Adelaide and the Hanson Institute, Adelaide Published in *Journal of Neuroscience Methods* (2010); 193: 47-53.



Twenty eight male rats were divided into groups and underwent invasive surgery in which the main nerve of the hind leg (the sciatic nerve) was tied with suture material (chromic gut sutures). A "control" group of rats underwent anaesthesia during which the sciatic nerve was exposed but not tied.

The remaining rats had either, one, two or four sutures tied around the sciatic nerve. Those with fewer than four sutures received additional pieces of suture material placed in the hip area (under the skin), in order to provoke an inflammatory body response in addition to the effects of the sutures tied around the sciatic nerve. A characteristic of chromic gut sutures is that they swell, which would result in a further constriction (tightening) around the sciatic nerve.

An analogous situation in humans would be a person suffering from the condition known as "sciatica". ["Sciatica is a set of symptoms including pain that may be caused by general compression and/or irritation of one of five spinal nerve roots that give rise to each sciatic nerve, or by compression or irritation of the left or right or both sciatic nerves. The pain is felt in the lower back, buttock, and/or various parts of the leg and foot. In addition to pain, which is sometimes severe, there may be numbness, muscular weakness, pins and needles or tingling and difficulty in moving or controlling the leg."[1]]

After recovering from the surgery, the rats underwent behavioural tests which consisted of applying stiff filaments to the feet of the hindpaws in order to elicit a withdrawal response. It should be noted that the authors describe this sensation as "allodynia" (defined as an uncomfortable heightened sensitivity to touch).

All of the rats were killed at the end of the experiment and their spinal cords examined.

The authors were able to demonstrate that the rats became more sensitive to the filaments as the days of the experiment progressed, as a result of the increased inflammation and nerve constriction. This effect was most noticeable in rats with the most number of sutures tied around their sciatic nerve.

The authors conclude that this study achieved their aim of developing a model of variable pain response ("graded behavioural allodynia"), which was achieved simply by varying the number of chromic gut sutures tied around the sciatic nerve and pieces placed in the hip area. This result, in the view of the authors, "moves the preclinical model closer to the clinical experience of pain that occurs with a broad range of pain sensitivities".

Note that the same authors continue to publish pain studies in rodents. This study was approved by AEC Secretary Research Ethics and Compliance Unit University of Adelaide CRITIQUE OF THE STUDY BY ANDRE MENACHE

## Animal welfare considerations

The authors make no mention in the paper of whether any post-operative analgesia was administered to the rats during the recovery period prior to the behavioural phase of the study. The authors do mention the absence of signs of post-operative infection but for some reason fail to mention the presence of post-operative signs of pain. There is also no mention of the physical condition of the animals during the 14-day and 29-day behavioural testing phase. For example, were the animals regularly weighed to check for signs of weight loss resulting from decreased appetite associated with pain?

## Cost-benefit assessment

The authors make no mention of the "severity banding" submitted by them to the Animal Ethics Committee. For example, the authors may have classed the level of pain expected to occur in their experimental subjects as "mild to moderate" whereas the actual situation could better be described as "moderate to severe". Considering the pain and suffering that the rats were subjected to (invasive surgery, followed by moderate to severe nerve pain, followed by distressing behavioural tests), and considering that this study is a minor variation on a well-worn theme, it is difficult to justify the current level of suffering from a cost-benefit perspective.

## Methodological issues

The study exhibits some of the characteristics of a study in "fundamental research" (the discovery of new knowledge for its own sake) but in their introduction, the authors make a point of wanting to apply the results of their work to "millions of people world wide". For this, and other reasons, the study falls outside the boundaries of fundamental research. However, it is well worth critiquing the experiment from both angles (i.e. basic and applied research), so as to address both options and any overlap between the two.

While animal researchers often try to justify their studies (especially in fundamental research) by relying on reductionist thinking, complexity theory clearly demonstrates that evolved living systems (such as mammals) are far more than the sum of their individual cells or organ systems. While reductionist theory can be applied to simple organisms, it is not suited to understanding complex living systems. According to molecular biologist Marc van Regenmortel:

"The reductionist method of dissecting biological systems into their constituent parts has been effective in explaining the chemical basis of numerous living processes. However, many biologists now realize that this approach has reached its limit. Biological systems are extremely complex and have emergent properties that cannot be explained, or even predicted, by studying their individual parts. The reductionist approach - although successful in the early days of molecular biology - underestimates this complexity and therefore has an increasingly detrimental influence on many areas of biomedical research, including drug discovery and vaccine development."[1]

<sup>[1]</sup> http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1299179/?tool=pubmed.