



# SAFER MEDICINES

Margaret Clotworthy of the Europeans for Medical Progress Trust puts the spotlight on animal testing

**W**hat makes the charity, Europeans for Medical Progress Trust different from all the other organisations concerned with the use of animals in labs? Interestingly, the Trust's concern is for patients, rather than animals. We believe that using animals to test the safety of new medicines, for example, not

only fails to stop many harmful drugs from reaching people, but also prevents other treatments that would be safe and effective from reaching patients and consumers who need them. Many eminent scientists share our concerns and several of them have founded companies aimed at developing and testing new drugs using more effective human-based technologies.

In 2007 we made a short film, Safer

Medicines, featuring some of those scientists and their state of the art techniques for testing drug safety. From laptops to lycra, science has come a long way since the UK Medicines Act, introduced in 1968 in the wake of the thalidomide tragedy, made animal testing of new drugs mandatory. The computers many of us have on our desks at home or work are many times more powerful than the computers available to scientists in the 1960s, when Professor Denis Noble, now at the University of Oxford, first modelled a single beating heart cell on a computer in University

## RELATIVE LACK OF SEVERE TOXICITY IN ANIMAL MODELS SHOULD NEVER BE CONSTRUED AS A GUARANTEE OF SAFETY IN MAN, AS THE STORY OF THALIDOMIDE TAUGHT US

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THALIDOMIDE WAS GIVEN TO PREGNANT WOMEN BETWEEN 1957 AND 1961 AS A TREATMENT FOR MORNING SICKNESS. IT WAS HEAVILY PROMOTED AS A WONDER DRUG AND SAID TO BE COMPLETELY SAFE – BECAUSE IN MANY TESTS IN A WIDE VARIETY OF ANIMALS, THERE HAD BEEN NO ILL EFFECTS, EVEN AT HUGE DOSES.

College London. In the film, he discusses the exciting model of a whole heart he has been instrumental in developing. Several scientists at the cutting edge of drug safety test development also speak about their work, providing an intriguing glimpse of a possible future where patients have access to new drugs faster and more cheaply, and where trial volunteers are better protected from the inherent risk of trying out a new drug for the first time.

Clinical trials hit the headlines in March 2006, when six young men at Northwick Park Hospital were left fighting for their lives after taking a new drug that had been shown to be safe in monkeys at 500 times the dose they received. Although it was exceptional for all




## Human-based research methods

- \* **MICRODOSING:** miniscule doses of new drugs, combined with ultrasensitive imaging & analysis equipment, reveal how they are metabolised in humans, safely and with unsurpassed accuracy – enabling safer clinical trials.
- \* **TESTS ON HUMAN TISSUE:** Commenting on the opening of OnCore, a biobank set up so that cancer patients can donate tumour samples for use in research, Professor Herbie Newell, of Cancer Research UK, said “Samples of tissue and body fluids from patients are fast becoming the cornerstone of cancer research.”
- \* **MICROFLUIDICS CHIPS** use interconnected human tissue samples to predict drug effects on the whole body.
- \* **HUMAN DNA CHIPS** can reveal who will respond to a drug and who may be harmed by it; thus enabling the right drugs to be prescribed for the right people.
- \* **COMPUTER SIMULATIONS** now include virtual organs and virtual clinical trials, which can predict drug effects in humans more accurately than animals can. Many successful drugs are ‘rationally designed’ on computers. Scientists can conduct in silico experiments in minutes that would have taken months or years in the lab or clinic.
- \* **UK BIOBANK** – the world’s largest epidemiological project – and other population studies will reveal how genes and lifestyle combine to cause diseases, just as they revealed the link between smoking and lung cancer, high cholesterol and heart disease and many others.
- \* **POST-MARKETING DRUG SURVEILLANCE** – if enforced, would ensure that unexpected side effects of new drugs are identified much sooner, thus reducing the burden of adverse drug reactions.
- \* **CLINICAL RESEARCH** is the cornerstone of medical practice. Safe, non-invasive imaging technologies, such as magnetic resonance imaging (MRI) are offering a view of the human body – in particular, the brain – that cannot be gained by studying animals. Autopsies remain supremely valuable for studying the effects of a disease on the whole body.
- \* **PREVENTION** is always more effective than cure. It is estimated that 80% of all cancers and heart disease – our two biggest killers – could be prevented. Funding further research into establishing preventive factors would be money well spent.

the volunteers to suffer such severe reactions, the fact is that nine out of every ten new drugs fail in clinical trials after success in animal tests. Even the drugs that succeed in clinical trials and reach the market are not safe for everyone: side effects are the fourth biggest killer in the western world, after cancer, heart disease and stroke. The technologies outlined in the film, Safer Medicines – and in box above – are designed to improve these shocking statistics.

Our patron, Tony Benn, launched Safer

Medicines at a reception for MPs in the House of Commons. One of our chief goals is to enable MPs to recognise that animal testing is an important health issue; not just an animal rights issue. We attended the Liberal Democrat and Labour party conferences to show the film and engage with MPs and decision makers. We were delighted by the level of interest and support we received and hope that many conversations in the corridors of Westminster will be stimulated as a result. People worry that medical progress

would suffer without animal tests but we believe that medicines would actually be safer if they were tested using the latest human-based methods. We propose an independent scientific comparison between old-fashioned tests relying on whole animals to predict which drugs will be toxic, and a raft of the newer methods that have been developed through years of painstaking research. In light of catastrophes such as Northwick Park and Vioxx, the world’s biggest drug disaster, and the availability of such technologies as those in the Box, the time has surely come to put animal tests to the test. In 2007, the US National Research Council called for the replacement of animal tests for chemicals’ safety with superior human based tests. They said the current system is unsustainable due to the cost, the time taken and the dubious relevance of the results. They recommend “a paradigm shift from the use of experimental animals toward more efficient in vitro tests and computational techniques.” 

### PRIMATE TESTING

Society has nothing to fear from the phase-out of the use of primates in research in the EU – as recently voted for by a majority of MEPs – because there are better ways to study human disease than by using monkeys. For example, deep brain stimulation – used to treat advanced Parkinson’s disease – was first pioneered by a surgeon operating on a human patient and is not a product of research in monkeys, as often claimed. According to Dr. John Xuereb, Director of the Cambridge Brain Bank and Wolfson Brain Imaging Centre; “Alzheimer’s, Parkinson’s and other neurodegenerative diseases occur in humans and it is in human tissue that we will find the answers to these diseases.”

\* **Dr Margaret Clotworthy** is Science Consultant for Europeans for Medical Progress Trust, a charity which focuses on rigorous scientific analysis of animal experimentation to assess the balance of help or harm to human health. We seek to educate the public, scientists, the media and the Government about the sophisticated biomedical research techniques that enable genuinely fruitful study of human biology. Safer Medicines is available to view online for free at [www.curedisease.net](http://www.curedisease.net). DVDs are £5 or free for schools. \* **For more information**, visit [www.curedisease.net](http://www.curedisease.net) or contact Europeans for Medical Progress Trust, PO Box 53839, London, SE27 0TW; 020 8265 2880; [info@curedisease.net](mailto:info@curedisease.net)