



## THE ELUSIVE CURE

*Every year we hear media reports of researchers discovering various cures for cancer but there is still no wholesale cure on the market. How far away are we really?*

ON 21 SEPTEMBER 2012, ABC NEWS AMERICA REPORTED that the MD Anderson Cancer Center in Houston had announced a bold “moon shot” to dramatically reduce deaths from eight types of cancer within the next decade. Four days later CNN’s Sanjay Gupta announced via Twitter that a cure for cancer was close, with an exclusive to follow on CNN. Broadcast footnotes claimed: “cancer cure within reach”.

Predictably, the headlines were misleading. The actual message the MD Anderson Cancer Center was trying to get across was that boosting public health programmes and addressing health behaviours, amongst other things, could delay the age at which cancer is likely to strike. This is a long way from announcing a cure.

It is estimated that 7.6 million people worldwide die each year of cancer and 12.7 million people discover they have some form of the disease. According to the World Health Organization (WHO) deaths from cancer worldwide will continue to rise, with an estimated 13.1 million deaths anticipated by 2030. There are hundreds of research programmes working on cures but we still don’t have the answer.

Cancer is a generic term for a large group of diseases that can affect any part of the body. There are more than 200 types of cancer, each with different causes, symptoms and treatments. Cancer can strike anyone, anywhere, at any time, although factors such as smoking and genetic predisposition increase the risks.

Cancer survival rates are sketchy as there are so many variables including the form of the disease, the detection timeframe, genetics and the available treatments. Even the American National Cancer Institute admits that survival statistics cannot be used to predict what will happen to an individual. No two people are identical and the treatment

and the response to treatment varies significantly. The one fact that is evident is that there is no wholesale cure.

This statement is surprising, given the number of reports about new cures for cancer that keep appearing in newspapers and journals around the world. It is true that there have been breakthroughs in the treatment of cancer, but medical research is a long process. The process differs from country to country but it starts with hypotheses, which are then tested through laboratory research.

Rats or mice are usually used as models, mainly because their genetic, biological and behavioural characteristics resemble ours, and many symptoms of human conditions can be replicated. Rodents are also cheap, easy to source, easy to maintain, and adapt well to new surroundings. They reproduce quickly and have a short lifespan, so generational research can be performed quickly.

A number of laboratory tests have had success in eliminating tumours from rodents, so many observers are questioning what causes the delay in replicating these tests with humans. A story splashed across the internet recently about a cure being found at the University of Alberta, Canada, suggested funding and the mercenary greed of pharmaceutical companies is to blame.

Accusations flew that the cure could not be patented, therefore cannot make money, so the pharmaceutical companies will not invest. There may be an element of truth to this if the research had made it to the final stages, but the University of Alberta is not there yet and nor is anyone else. If the results were conclusive it is difficult to imagine public funding not being channeled into development.

The problem rests on verification. A recent investigation by Amgen, a biopharmaceutical multinational based in the US, found that 47 of 53 papers on medical subjects in top science journals contained results that could not be reproduced. That is a lot of unsubstantiated research, and it is clear we don’t want to commit funds to research unlikely to end in desirable results.

If laboratory trials are critically tested and verified, the treatment still has to move into clinical trials. Only treatments that have sufficient scientific data to be deemed safe enough to merit human experimentation make it to this stage, which is strictly regulated. Reaching this point doesn’t even guarantee success – The American National Cancer Institute alone lists more than 8,000 clinical cancer trials currently in progress. And we only need one to work.

The unfortunate conclusion is that we don’t know how far away we are from a cure for cancer. It might be tomorrow; it might be decades from now. It might relate to one form of cancer or it may be a breakthrough that addresses all forms. Until that day, all we can do is keep trying, keep testing, and keep hoping. 🌱