BRAIN REGIONS RESPONSIBLE FOR MORAL JUDGMENT REVEALED.

Accidents happen. Quite often we are willing to accept even very bad outcomes, if we believe that the harm came about accidentally. But proving intention is not always so easy, and the courts are filled with cases where the distinction between accidental and intentional harm are not clear. In everyday life we come across situations where a person may behave in a certain way, and even if there is no harm, we often find ourselves wondering about that person's intentions. Did they just check their watch because they are curious about the time? Late for an appointment? Bored of talking with me? Thinking about and understanding the beliefs and intentions of others is terribly important in our personal relationships, and to society as a whole. It allows us to make estimates of how other people might react to something that we do, and it allows us to make moral judgments about the actions of others, especially to forgive accidents.

This is another of those uniquely human things that our brains can do, and what you, and me, and scientists alike all want to know is: How do we do it? Could our brains actually have a dedicated place to store and process information about the intentions of other peoples' actions? And if so, are different complex concepts – like intention versus accident – treated differently by the brain?

To answer these questions, researchers asked study participants to read stories in which someone caused harm to someone else, either accidentally or intentionally (for example, "Steve served the beef mince thinking it was safe" versus "Steve served the beef mince knowing it was rotten"). Participants were then asked to make a moral judgment about the action. Whilst participants were hearing the stories and making judgments, the activity of their brains was monitored with a device called a functional Magnetic Resonance Imager (fMRI) – a remarkable bit of technology that we are raising funds to buy for clinical and research use in Otago and Southland.

What these Neuroscience researchers found was truly amazing. Firstly, the distinction between intentional and accidental harm appears to be encoded and processed in specific places within our brains. And what's more, the way the brain behaves – what neuroscientists call 'neural activity' – in response to intentional harm appears to be completely different to the neural activity that results when harm is believed to be accidental. Most surprisingly, though, these neural activity patterns are so strong and consistent that scientists could actually use them to predict participants' moral judgment of the events in a particular story. Whether this powerful technique can be used similarly to predict, or even expose, the intentions of the people doing the harmful acts remains for further research.

REFERENCES: Koster-Hale et al. (2013) "Decoding moral judgments from neural representations of intentions." Proceedings of the National Academy of Sciences, USA, March 2013, early edition.