

## **Case: Genetics of Psychopathic Behavior**

**By doing whole genome SNP analysis of 10,000 people, half habitual criminals and half from a normal population, Dr. Brain discovered that a combination of 3 genetic polymorphisms was present in 86% of people who were criminally psychopathic. This combination of traits was present in 6% of the general population. Utilizing fMRI, he discovered localized brain responses to specific videotaped scenarios that correlated highly with criminal behavior. When the data were published, the investigators surmised that the 3 polymorphisms participated in brain development and when they were fully expressed they resulted in a brain structure and function without a moral compass to distinguish right from wrong. They speculated that the combination of genetic testing and fMRI might make it possible to determine in advance the chance of recidivism in convicted criminals, that is to predict persistent criminal behavior.**

**Shortly after publication Dr. Brain and team began to receive requests from prosecutors and defense attorneys to work up their clients to prove that they did or did not have the career criminal trait. Judges requested an evaluation before sentencing and parole boards also expressed interest.**

**Faced with fixed budgets, child services organizations wanted to screen troubled youths for the recidivist tendency so they could spend less money on these “incorrigibles” and focus their attention on those they might be able to help.**

### **Questions:**

- 1. Is there a problem with the research?**
- 2. Is there a problem with the reporting of the research?**
- 3. The societal responses to the research could have been anticipated. What implications did that have for Dr. Brain and his team?**
- 4. What should Dr. Brain do now?**
- 5. If there were a medication that could reverse the impetus toward antisocial behavior, would that change the answers to any of these questions?**

**“The use of flawed or incomplete science, and the reliance on scientific predictions beyond what the science is prepared to support, are exactly the kinds of concerns that should be foremost in the public mind when contemplating the potential social impact of predictive technologies or techniques. It is not just in courtrooms that prediction would have an impact, but also in schools, employment, healthcare systems, government investigations, and in other ways that would dwarf usage by the court system. The potential to pigeonhole, to discriminate, and to judge on the basis of test results could result in substantially negative consequences, including the development of a “neuroscientific underclass” denied access to education and other societal benefits on the basis of their neuroscience test results. These concerns parallel the current dialogue around genetics, and some feel the public dialogue around genetics may illuminate some of the promises and pitfalls that could accompany and greater understanding of the brain.**

**Though a host of possible predications might be desirable (e.g. tendency to be honest, willingness to follow authority, etc.), the potential for violence is of particular interest and significance. Prediction of violence has already been the subject of neuroscience research, and it will probably continue to interest science as well as the legal system. It is a predictive measure likely both to have tremendous utility and to carry great risk of misuse; and it is likely to cut both ways in criminal law – in mitigation and in marking someone as being predisposed to violence. While violent behavior will probably never be predicted with complete certainty, the likelihood that techniques will be developed to distinguish those more likely or even very likely to react with violence seems quite enough that those techniques be considered for future research and public discussion.”**

**(“Neuroscience and the Law,” Professional Ethics Report. 2004: 17, p.2)**