I35 The Use of Brain Imaging in Legal Matters

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After attending this presentation, attendees will understand some of the principles of brain imaging. Moreover, recent brain imaging findings pertinent to the understanding of criminal behavior will be presented. In addition, applications of brain imaging in legal issues, especially court cases and legal precedent will be discussed. Lastly, the future applications of brain imaging in the forensic and legal setting will be discussed.

This presentation will impact the forensic science community by helping those in the field understand the basis of brain imaging studies and how they have been or may be applied to legal and forensic issues.

Following the decade of the brain in the 1990's, our understanding of the brain has grown immensely. In particular, advances in neuroimaging have worked to further our understanding of the structure, function, and correlations with typical development and disease processes. This paper will review the different brain imaging studies used towards these endeavors. This includes positron emission tomography (PET), single positron emission computed tomography (SPECT), functional magnetic resonance imaging (fMRI), and anatomical magnetic resonance imaging (aMRI). Moreover, an assessment of the strengths and limitations of each technique will be presented, including the replicability and suggestions on how to improve the rigor of these studies.

Applications of these findings and the implications for criminal behavior will also be presented. A review of the legal precedents involving brain imaging will be conducted. An assessment of the present applicability of brain imaging to legal proceedings will be discussed. Moreover, the question of whether the legal standards of *Daubert* and *Frye* should be applied to these studies will be addressed.

Brain Imaging, Legal, Evidence

