Session 3: Examples of good practice for the use of information and communication technologies

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The Human Brain Project: A Us Research Initiative to Share Neuroscientific Data Using ICT

The objectives of the Human Brain Project are to create a distributed web based capability of databases, analytical tools and computational/simulation models for basic and clinical nervous system research data. The driving force for this project is the ever-increasing quantities of highly complex, and sophisticated data that is experimentally derived using a multitude of approaches and technologies at high levels of granularity. This data ranges from the genome to human behavior in health and disease and all levels in between. This current approach is leading to highly specialized sub fields within neuroscience along with difficulty to integrate date across levels of analysis and function or to create principles of nervous system function. Additionally under the current research paradigm biomedical scientists publish their research results in journals with descriptions of the experiments and results and frequently with only some summaries or exemplary data being included. Thus, most of the data collected is unavailable to the scientific community. At all levels this approach to scientific reporting in biomedical research has been the accepted way for many years with the number of publications a scientists has produced weighing highly when considering academic promotions or grant awards. The sheer quantity, quality, complexity and cost of the collection of this data support the concept of open sharing of primary scientific data following its publication. While many fields of science routinely operate in this fashion the first data sharing experience in the biomedical field was in genomics. In one sense this field has provided a blue print to maximize our investment in research through the open sharing of research data at the time of publication. The Human Brain Project and other similar projects throughout the world should move the scientific community in the direction of open sharing of primary data that will enhance our ability to create new knowledge on the structural and functional elements of the nervous system. This presentation will elaborate on the aforementioned issues, provide examples of some of the new databases and modeling tools, discuss some of the impediments to the success of this effort, and new opportunities for understanding the nervous system development and function across the life span in health and disease.


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