Doctors and researchers: integrating data for bipolar disorder studies

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Abstract. The Lithium Clinic and the Headache Center of the University Hospital of Cagliari see patients with complex diseases such as Bipolar Disorder. This is a chronic psychiatric illness characterized by the recurrence of manic and depressive episodes if not treated. The phenotypic representation of Bipolar Disorder is variable, different evidence suggest contributions from genetic and environmental factors. General practitioners and psychiatrists may be able to evaluate the individual patient's clinical course and the therapies impact on it.

Several medications are available for the treatment of Bipolar Disorder, however these need to be monitored in order to guarantee the clinical efficacy, prevent adverse reactions and ultimately reduce the risk of suicide which in Bipolar Disorder patients is 10 to 20 times higher than the general population.

We have developed a database to integrate the clinical information collected from the patients with the corresponding genetic data provided by the Section of Clinical Pharmacology of the University of Cagliari, where the BioBank is maintained.

We have developed the database using the MySQL RDBMS, on an Ubuntu server. The interface is developed in PHP using Symfony framework. The server is installed in a protected environment providing secure access to the users with different privilege levels for the access of sensitive data, therefore ensuring the privacy of the patients.

Our database must provide: 1) access and tools to doctors interviewing the patients, 2) ability to retrieve and analyze data for doctors carrying out clinical research 3) a way to manage experimental results for biologists in the laboratory 4) data retrieval and analysis tools for biostatisticians.

The aim is to give the doctors and the researchers all the relevant facts together, to help in the decision making for drug therapies and patient follow up and to path the way to discover new drug targets. This is a step in the long-term aimed to provide the patients of the Clinic with personalized medicine and treatments.