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Presentation Title: Text Mining Psychiatric Clinical Notes

The Child and Adolescent Psychiatric Emergency (CAPE) unit at BC Children's Hospital provides emergency intervention and stabilization for youth in psychiatric crises. At admission and discharge, patients receive extensive diagnostic assessments largely recorded as free-text clinical notes. The reports are difficult to incorporate in large-scale analyses, as manual information extraction is laborious and prone to error. Hence, our study explores applications of text mining in extracting accurate, structured data from psychiatric clinical records. We aim to develop an automated data extraction pipeline to distill clinically relevant information from CAPE records, and, ultimately, apply the extracted data in developing machine learning algorithms to predict patient suicidality.
Our preliminary dataset consists of 1559 clinical records. We first programmatically de-identified each text and performed section segmentation, sentence tokenization, and stop word removal to clean the records. Then we detected medical entities, including symptoms, diseases, diagnoses, and medications, through retrieving ontology-based annotations from a local implementation of the National Centre of Biomedical Ontology (NCBO) BioPortal. Lastly, we adapted context-detecting algorithms to determine the negation, experiencer, and temporal status for each extracted terminology.
For evaluation and optimization, study results will be compared to an existing repository of annotated patient records from CAPE. Thus far, our investigation indicates that text mining could be an effective tool in analyzing psychiatric records. Moreover, through automating data extraction processes at CAPE, we would be able to produce the structured information researchers require to conduct large-scale analyses, generate patient statistics, and construct predict models in support of pediatric mental health.

Themes:

Check (highlight) the most applicable theme according to the abstract.

☐ Innovation and Technology	☐ Health and Wellness	☐ Culture and Society	☐ Sustainability and Conservation

Comments: Well written abstract. It is clear and understandable by a broad audience.