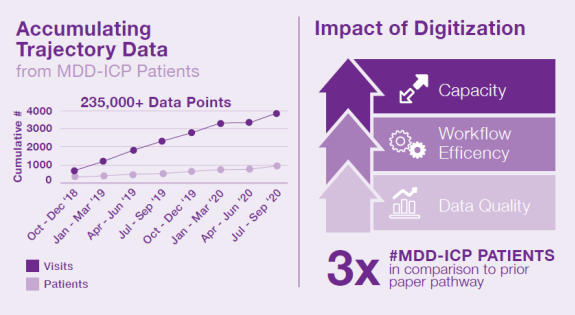
The BrainHealth Databank

Issued October 2020

In its second year, the CAMH-wide BrainHealth Databank Initiative continues to re-engineer the way in which CAMH collects and uses data to improve care, accelerate research, and deliver more personalized mental health care. To accomplish this, the BrainHealth Databank team, led by Dr. Joanna Yu, has been establishing a collaborative patient-centered framework for enhancing delivery of measurement-based case, advancing translational clinical research, and enabling data-driven discovery and innovation. Over the past year, in addition to supporting CAMH's response to COVID-19, the team has made significant progress toward achieving its goals.



Linking Biobank Samples to Patient Care

Discovering new biomarkers has the potential to help clinicians identify the most effective treatment for each patient. Building on the success of CAMH's Neurogenetics program, the BrainHealth Databank team has established a centralized Biobank and Molecular Core Facility for standardized collection, processing, storage, retrieval, and analysis of samples. In addition to a high-throughput array scanner for genetic analyses, the Biobank and Molecular Core features a new custom-built Biobank Informatics System to support the management of entire lifecycles of biosamples.

In collaboration with the Major Depressive Disorder-Integrated Care Pathway (MDD-ICP), the team has also re-designed the integration of research to align with virtual care visits. These changes include use of remote electronic consent and mailing swab kits to patients interested in donating DNA to the biobank. Additionally, the BrainHealth Databank has been awarded an Accelerator Grant in Genomic Medicine by the McLaughlin Centre at the University of Toronto to support the genotyping analysis of these samples.

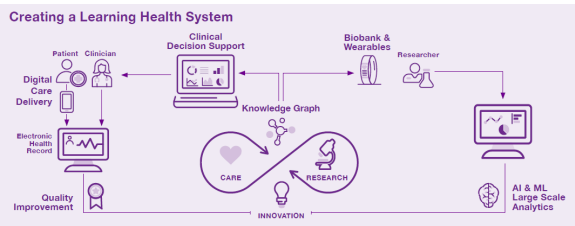
Responding to COVID-19

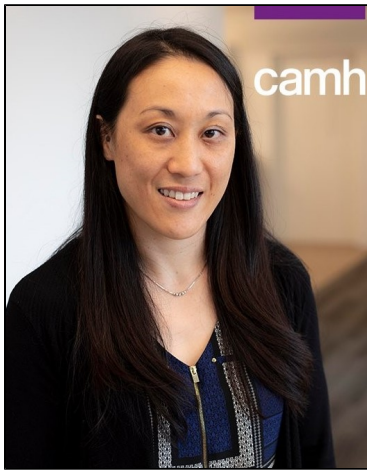
CAMH psychiatrists and clinicians regularly use data from assessments completed by patients on-site to inform clinical decision-making. As clinics transitioned to virtual care visits at the onset of COVID-19, the BrainHealth Databank team worked in parallel to enable clinics to e-mail a secure link to patients to complete questionnaires ahead of their virtual appointments. Assessment scores are automatically calculated and a summary of the results are returned to the health care provider. Remote measurement-based care has been implemented for 10 structured care pathways, including a new dedicated electronic referral and care pathway for health care workers during this challenging time.

A Collaborative and Iterative Patient-Centered Approach
Characterizing mental health trajectories to advance personalized care

Enhancing Patient Care and Experience

The BrainHealth Databank team has adopted a design-thinking approach to developing a Research and Care Coordination Portal. This approach will facilitate care delivery and integrated collection of research measures, including biobank samples and behavioural measures form wearables. In partnership with MetaCell, a neuroscience software company, the team conducted a virtual stakeholder engagement process - with participation from over 75 stakeholders from across CAMH - consisting of interviews and interactive workshops to gather and analyze Portal requirements. The findings will be used to create a road map for developing an innovative and interactive mental health Portal to enhance patient care and experience.





Dr. Joanna Yu, BHDB
Senior Project Manager

Looking Ahead

In collaboration with the MDD-ICP, the team is initiating analysis of the high-quality data collected electronically from more than 700 patients. These results will inform quality improvement activities, as well as accelerate efforts to launch the MDD-ICP visual patient-level treatment dashboard for enhancing clinical decision-making. In parallel, the team has partnered with the co-chair of the CAMH Patient Advisory Committee and Masters for Design for Health trainee at the Ontario College for Art and Design University (OCAD) to use human-centered design in mental health to advance the development of a patient-facing clinical journey dashboard that empowers patients and improves their care experience.

With the investment in new foundational infrastructure, the BrainHealth Databank is poised to continue impacting clinical care and mental health outcomes. This includes implementation of knowledge graph databases to enable complex queries and data provenance tracking, creation of data governance policies to ensure patient privacy and robust governance to facilitate data reuse by researchers at CAMH and beyond, and acquisition of a new data analytics tools to allow access to customized dashboards within the electronic health record system.

Acknowledgements

Thank you to the CAMH Discovery fund for making this possible and to the CAMH-wide BrainHealth Databank team for their contributions and hard work.

Natalie Freeman,
Biobank Manager