

# Artificial intelligence: Key to preventing relapse of severe mental illness?

June 15 2021

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Credit: Pixabay

New AI software developed by researchers at Flinders University shows promise for enabling timely support ahead of relapse in patients with severe mental illness.

The AI2 (Actionable Intime Insights) software, developed by a team of

digital health researchers at Flinders University, has undergone an eight-month trial with [psychiatric patients](#) from the Inner North Community Health Service, located in Gawler, South Australia.

The digital tool is tipped to revolutionize consumer-centric timely mental health treatment provision outside hospital, with researchers labeling it as readily available and scalable.

In the trial of 304 patients, the AI2 software found that 10% of them were at increased risk of not adhering to treatment plans by failing to take [medication](#) or disengaging with health services.

This led to interventions which clinicians believe could have prevented the patient from relapsing and experiencing a deterioration of their mental health.

The web-based tool uses algorithms to automatically flag gaps in care interactions between different parts of the health system.

The project is led by Flinders' Associate Professor Niranjan Bidargaddi who says that the current monitoring, management, and treatment of chronic mental illness across different parts of the health system is poorly coordinated and inadequate.

"In Australia there are about 600,000 people living with a chronic mental illness with multiple morbidities" he says.

"Once a patient has sought an initial consultation with a [clinician](#) they might be provided with a diagnosis, a mental health care plan and then they are sent off with instructions for treatment such as taking medication or trying therapeutic techniques. Multiple ongoing medical appointments and medications are burdensome for patients to manage on their own.

"The problem is that most clinicians don't have the resources to keep track of every patient manually. This can lead to the patient relapsing and potentially becoming hospitalised."

Some estimates suggest that more than 80% of patients with severe mental illness will relapse several times within the first five years of their initial treatment.

Patients can relapse for a variety of reasons. They might experience intolerable side effects or little initial benefit from the medication, have a poor understanding of the need for ongoing treatment or suffer circumstances such as forgetfulness or homelessness.

"This puts the patient on a downhill trajectory, can cause a worsening of symptoms and have an increased burden on the public health system," A/P Bidargaddi says.

"AI2 delivers important data in real time, providing clinicians with an effective digital alternative to monitoring patients."

Patients included in the study had diagnoses of schizophrenia, schizoaffective disorder, bipolar or other mood disorders and had been prescribed ongoing psychotropic medications.

If taken properly, antipsychotic, antidepressant and mood stabilizing medications are highly effective in reducing the risk of relapse of [severe mental illness](#).

The AI2 software continuously analyzes a clinician's consented patients' Medicare Benefit Scheme (MBS) and Pharmaceutical Benefits Scheme (PBS) data, such as medication prescriptions, from the national My Health Records.

Algorithms running on the cloud monitor the [patients'](#) data to detect gaps in continuity of care such as medical appointments attendance, prescription refills, or mental [health](#) care plan review.

Once the gaps are detected, it triggers an intervention alert with the monitoring clinician, prompting them to intervene.

A/P Bidargaddi says the study found that monitoring the AI dashboard is not onerous.

"The two clinician monitors spend about two hours per week monitoring the dashboard, reviewing case notes and speaking with case managers," he says.

"Feedback from the clinicians at this stage suggests they actually saved time on routine calls, as they would only contact the GP when necessary—such as if the software had detected a missed prescription refill."

While the rollout of AI2 is currently limited to SA, A/P Bidargaddi says the next step for AI2 is for a randomized controlled trial to be carried out across multiple sites.

This will determine whether the technology leads to a reduction in hospitalization over time, and whether it's cost effective.

**More information:** Niranjana Bidargaddi et al, Demonstration of automated non-adherence and service disengagement risk monitoring with active follow-up for severe mental illness, *Australian & New Zealand Journal of Psychiatry* (2021). [DOI: 10.1177/0004867421998800](https://doi.org/10.1177/0004867421998800)

Provided by Flinders University

Citation: Artificial intelligence: Key to preventing relapse of severe mental illness? (2021, June 15) retrieved 8 March 2024 from <https://medicalxpress.com/news/2021-06-artificial-intelligence-key-relapse-severe.html>

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