

## Brain circuitry model for mental illness will transform management, NIH mental health director says

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The field of mental health is on the cusp of a revolution, which is set to transform the diagnosis and treatment of mental illness and reverse the lack of major progress made in curbing associated ill health and death over the past 100 years, the director of the US National Institute of Mental Health, has claimed.

“We are at an extraordinary moment when the entire scientific foundation for mental health is shifting, with the 20th century discipline of psychiatry becoming the 21st century discipline of clinical neuroscience,” Thomas Insel said before a meeting on the challenges facing mental health research at the Royal Society in London on 31 August.

But those looking for magic bullets will be disappointed. “There isn’t going to be a statin for mental health,” he said.

The seismic shift had been driven by what he described as three “revolutionary changes” in thinking, the first of which was that mental illness was increasingly being recognised as a disorder of brain circuitry, rather than as a chemical imbalance, thanks to neuroimaging techniques and the discovery of some key biomarkers.

Secondly, mental ill health was now recognised as a developmental disorder for which early intervention was vital, said Professor Insel, highlighting US research showing that 50% of study participants had reported the onset of mental health problems by the age of 14, and 75% by the age of 24.

“We are still stuck with getting to the problem very late. The future will be about understanding the trajectory of illness so that we can identify the first signs before it develops into psychosis,” he said.

Pre-emptive strategies, based on the brain’s plasticity, could include the development of a credible risk score coupled with some, or all of, cognitive training, psychosocial approaches, education, and the use of specially designed video and computer

games—a technique that was already being tried out in Australia, he said.

But we need to recognise the limits of what we have, he cautioned. “We are not yet at the point of identifying those at high risk as early as we would like.”

The third change was the recognition that mental ill health is a complex mix of genetic and experiential factors. “This is not new,” he affirmed. “But what is new is the ability to probe the genetics of the disorder.”

But whether the drug industry will take up the challenge, in the absence of plentiful molecular targets, is unclear, he suggested. “[It] has invested in me too compounds—and sometimes in compounds that are identical to someone else’s. And let’s be frank, that has worked really well for them,” he said. But he declared, “Antipsychotics and antidepressants are not very good.” Much more research into the biology of mental illness was needed, he said.

The consequences of the “remarkable lack of progress” in tackling mental illness effectively were legion, he said. Depression alone was the number one source of disability, he said. “The rate of suicide is way way beyond the rate of homicide in most of the world. In the US, it’s double the rate of homicides and higher than road traffic accidents,” he commented, adding that suicide killed more soldiers in the US military than enemy combat.

But mental health would be an exciting field for doctors and researchers over the next decade, with “more changes than in any other field of medicine,” he insisted. “What I tell trainees is that most of the Nobel prizes for cancer and heart disease have been awarded, but the prizes for this are still in the future.”

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