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Warning signs: What child development can tell us about mental health in later life

Combining data from multiple agencies has helped researchers identify children at risk of developing mental disorders.

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Early warning signs

Warning signs for mental health problems can be seen in kids before the age of five, research suggests.

Using data from health, education, justice and child protection agencies, scientists have been able to identify risk factors for mental disorders beginning in pregnancy and a child's early years.

It's helping to pinpoint stages where early intervention could improve a person's life.

"The signs are there"

University of New South Wales mental health researcher Professor Melissa Green is the lead scientific investigator on the [NSW Child Development Study](#), a long-running analysis of more than 90,000 Australian children.

She says that while mental disorders often crystallise in adolescence and early adulthood, markers can be seen much earlier.

"Prior to... adolescence, there's absolutely evidence for emerging psychopathology," Professor Green says.

"The signs are there. They're evident in a child's functioning even at school entry."

Professor Green and her colleagues recently used the Australian Early Development Census to identify children who were vulnerable to mental health problems.

At school entry, this could present as challenges with social competence, emotional maturity, language or cognitive skills.

"Having followed them until at least the start of adolescence, we can already see that they are having more contact with the health system for mental disorders," Professor Green says.



"They're also having more contact with the police.

"And they're also showing higher rates of failing to achieve the minimum standard on their NAPLAN—so their educational attainment in school is already suffering."

Understanding the course of a life

Professor Green says most of her colleagues started their careers focused on the biological and cognitive changes associated with mental illness.

But they quickly realised biology alone couldn't give them the full picture.

"All of us came to a point in our career of realising 'this is so limited'," she says.

"You cannot answer key questions about how mental illness develops without understanding what's happened across the life course.

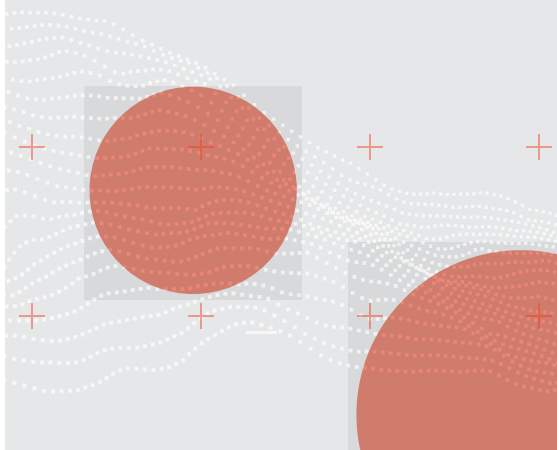
"That's one of the main advantages of the linked data, in providing information about both genetic and environment influences."

Professor Green says markers for mental disorders can be seen as far back as perinatal data.

She says that while funding for teenage mental health services is good, we could offer services far earlier.

"There's room to be providing resources for these children much earlier in their lives," Professor Green says.

"So that they don't hit 12 and have these symptoms that put them on the railroad tracks to a poor outcome."



Cross-agency collaboration

Professor Green says linking data from multiple agencies is extremely important to her research.

“It’s crucial actually,” she says.

“With all of the data available, you can be sure that you’re capturing all of the exposures that are important along the way, that will be contributing to mental health later on.

“When you combine all the data, things look a little bit different... much more holistic.”

Cross-agency data also helps the researchers see markers that are proxies for other things.

For instance, a child might not be in the child protection system, but police records could show they witnessed domestic violence.

“Perhaps they haven’t actually hit the child protection system yet,” Professor Green says.

“But they clearly are in a traumatic family where they are experiencing something that would be akin to a childhood trauma.”

Professor Green says the data shows there are multiple opportunities to intervene.

“Dealing with all the agencies—each one of them feels like the finger’s being pointed at them to solve the problem of these vulnerable kids and families,” she says.

“But no agency can do it alone.”

While government agencies are often “swimming in data”, Professor Green says it’s only by combining their data that you can see what is most important.

“Agencies are learning from these kinds of projects what data they need to focus on,” she says.



Privacy and security

Privacy protection and data security lie at the heart of the Population Health Research Network. The collection, use and disclosure of personal information by government agencies and other agencies are bound by strict legislative and regulatory conditions. Researchers wishing to access linked data must also adhere to stringent conditions, including ethics approval, data custodian approval and the development of a detailed data security plan.

Researchers are typically given access to a linked data set put together to meet the specific needs of their project. This de-identified data includes only the minimum information required for the research, such as age rather than date of birth.

Government agencies handle personal information in highly-secure environments. Data is delivered to researchers through a secure remote access facility, ensuring no information is stored on the researcher’s personal computer or their institutional network. Researchers cannot export raw data from this system, only their analyses, and these are checked.

Researchers must only use the data for the approved purpose and are not allowed to link any other information. At the conclusion of the project, all data must be destroyed or returned.

Penalties for researchers and government employees can include criminal conviction, jail time or substantial fines. In the more than ten years since the network began, there has never been a breach.

