



Preventing paracetamol overdose

Worldwide, paracetamol is one of the most widely used of all drugs and is the standard analgesic used to remedy mild to moderate pain. At the same time, paracetamol is one of very few over-the-counter drugs that can lead to death at overdose if untreated. With a surge in paracetamol overdoses and related liver injuries occurring in Australia, stronger preventative measures were needed. NHMRC-funded researchers undertook a series of studies leading to new clinical interventions, updates to clinical guidelines and nationwide policy changes on how paracetamol is sold.



Origin

Paracetamol overdose causes acute liver failure. During the early 1970s trials began of an antidote (N-acetylcysteine or NAC) which dramatically improves survival when given promptly. Despite this innovation, preventing harm from paracetamol remained challenging.

Over time, large pack sizes of paracetamol were able to be purchased freely in Australia. This meant that large quantities might be easily accessible at home and available to use impulsively.



Investment

NHMRC-funded researchers who contributed to knowledge and impact relating to the prevention and management of paracetamol overdose include Nicholas Buckley, Angela Chiew, Geoffrey Isbister, Anselm Wong, Rose Cairns, Andrew Dawson, Donald Birkett, John Miners, Helen Christensen and Alison Calear.

NHMRC research-funding underpinned work spanning pharmacology, toxicology, epidemiology, mental health and public health policy.



Research

Miners and Birkett demonstrated that the same dose or overdose can produce very different levels of harm in different people.

Epidemiology research demonstrated that from 2004-2017 there was a 3.8% increase per year in overdose cases nationally, and paracetamol-related liver injury rose at 7.7% per year.

Clinical studies evaluated treatment protocols for paracetamol overdose. They showed that slowing the rate of NAC administration was just as effective but more tolerable.



Translation

Research findings were translated into clinical practice, professional guidance and government policy. Australasian clinical practice guidelines for paracetamol poisoning were first published in 2008, updated in 2015 and revised again in 2019 to incorporate new evidence on antidote treatment, modified-release paracetamol and massive overdoses.

Hospitals across Australia and New Zealand adopted updated treatment protocols, including simplified NAC regimens that reduced adverse reactions while maintaining effectiveness.

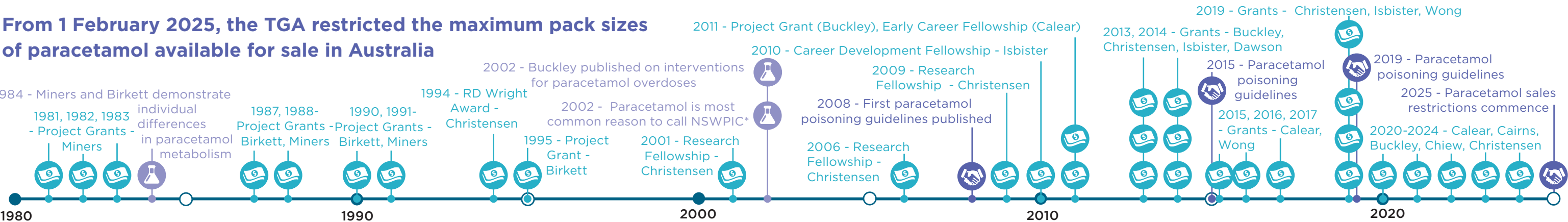


Impact

From 1 February 2025, the Therapeutic Goods Administration (TGA) reduced permitted pack sizes and introduced new pharmacist oversight. As a consequence of this change, both liver damage and deaths from overdose in Australia are expected to substantially decrease.

With around 10,000 paracetamol-related hospital admissions in Australia each year, even modest reductions in complications, severity and costs can deliver substantial benefits for patients, families and the health system.

From 1 February 2025, the TGA restricted the maximum pack sizes of paracetamol available for sale in Australia



*NSWPIC=NSW Poisons Information Centre



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