Are we using Australian routinely collected data to its full potential? An analysis of published research on medicine use and health related outcomes

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Background and aims

- Routinely collected data on prescribed medicines is used increasingly to evaluate real-world medicines effectiveness and safety
- Australia's Pharmaceutical Benefits Scheme (PBS) dispensing data can be leveraged for post-market surveillance of medicines
- Here, we catalogue published literature using PBS dispensing claims to assess medicine use and health related outcomes

Methods

- Peer-reviewed studies published between 1987 and 2020
- Independent reviewers screened abstracts and full-text manuscripts and extracted data in duplicate
- We characterised publications according to:

Type of outcome	Study population	Medicine group
• Safety • Effectiveness	• Age restrictions • Entitlement level	• Assigned WHO ATC classification • Medicine focus of each study

Stratified by analytical approach – individual level (track patients over time) and aggregate level

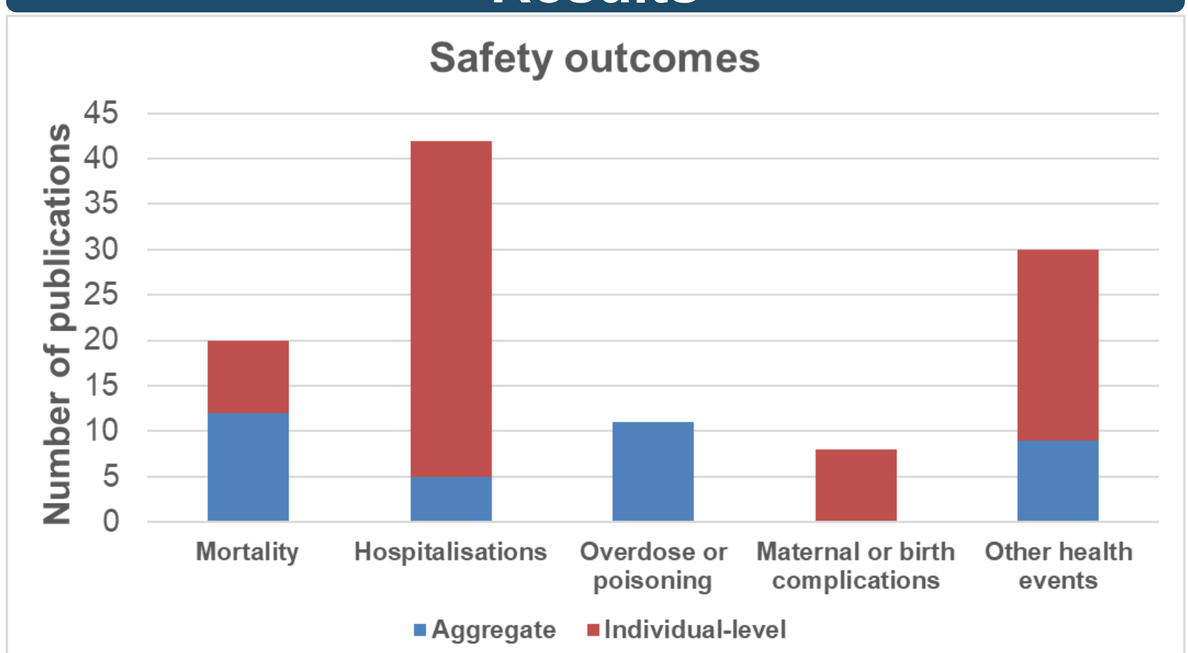
Results

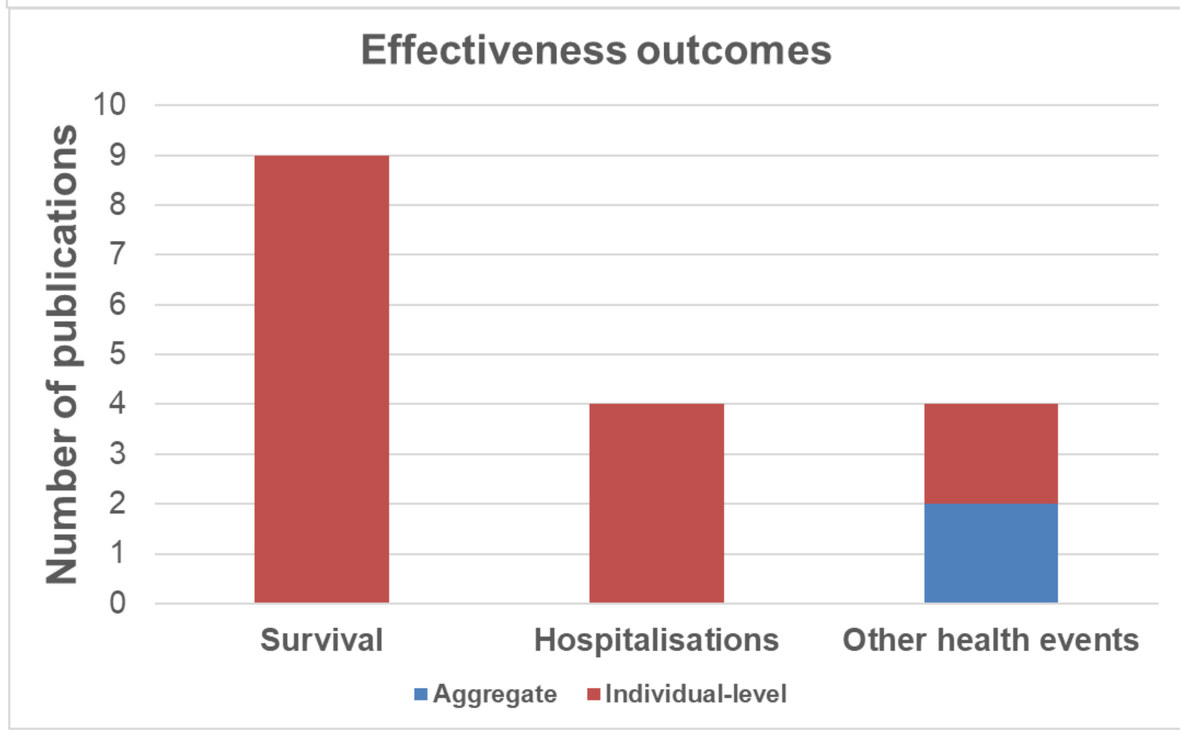
- **107** studies published; **48** between 2016 and 2020
- **28** used aggregated data (ecological designs), **12** used medicines dispensed as a proxy of health-related outcomes and **67** linked PBS data to other health datasets

Number of studies (%) by study population and analytical approach (1987 - 2020)

	Aggregate data (N = 28) n (%)	Individual-level data (N = 79) n (%)
Study Population: Age profile		
No age restrictions	24 (85.7)	18 (22.8)
Older adults (≥ 65 years)	0 (0.0)	46 (58.2)
Adults (≥ 18 years)	3 (10.7)	4 (5.1)
Women of child-bearing age	0 (0.0)	10 (12.7)
Children	1 (3.6)	1 (1.3)
Study population: Beneficiary status		
All PBS beneficiaries	24 (85.7)	25 (31.6)
Concessional PBS beneficiaries	4 (14.3)	9 (11.4)
Clients of the Department of Veterans' Affairs	0 (0.0)	45 (57.0)

Results





Medicine groups evaluated:

- 45% nervous system (e.g. opioids, psychotropics)
- 18% cardiovascular system (e.g. statins, antihypertensives, antithrombotics)
- 16% alimentary tract and metabolism (e.g. anti-diabetics, PPIs)

Conclusions

- Studies using PBS data to assess medicine-related outcomes is growing albeit slowly and likely reflects the challenges of developing fit-for purpose collections to explore these issues
- Most studies focus on safety and are concentrated among subpopulations and medicines classes which do not align with the burden of disease and medicines use Australia-wide

Impact

- There are significant gaps in our understanding of medicine related outcomes in Australia
- Developing a linked dataset that is reflective of the Australian population will help address significant gaps in our understanding of the outcomes of medicine use in populations underrepresented in clinical trials

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