

Medication management and adverse drug events in Australian general practice patients

A *BEACH SAND* study
in collaboration with the National Health Performance Authority

SYDNEY MEDICAL SCHOOL



BEACH

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WICC
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Objective

To investigate the relationship between medication prescribing, medication review and adverse drug events.

Background

- › Management of chronic conditions, particularly multimorbidity is an increasing problem for Australian general practitioners
- › Polypharmacy is a consequence of managing patients with multiple chronic diseases
- › Polypharmacy causes increased risk of adverse drug effects
- › Regular medication review may reduce polypharmacy and the incidence of adverse drug events

Research hypotheses

1. Polypharmacy is common in general practice patients
2. Multiple prescribers are associated with more polypharmacy
3. Medication review may reduce polypharmacy and adverse events
4. Patients on multiple medications have a higher incidence of adverse drug events
5. Adverse drug events may cause significant morbidity and hospitalisation

BEACH – Bettering the Evaluation And Care of Health

Paper based, cross-sectional data collection

National GP random sample (drawn by DoH)

1,000 GPs per year

20 per week x 50 weeks a year

100 consecutive encounters per GP

All types of encounters included

National data for 100,000 encounter records p.a.

Supplementary Analysis of Nominated Data

Sub-studies of health aspects which may not have been managed at the visit.

30 consecutive patients from 100 GPs over a 5 week 'block'
– 3,000 patients

In four 'blocks' between August 2014 and January 2016, 753 GPs recorded 22,144 patient responses to questions about medications, medicine review and adverse drug events

PLEASE READ CAREFULLY

The shaded section of the following forms asks questions about **THE ASSOCIATION BETWEEN POLYPHARMACY AND ADVERSE DRUG EVENTS (ADE)**. *Tear out this page as a guide to completing the following set of forms*

INSTRUCTIONS

The following 30 forms relate to the **next 30 PATIENTS** in the order in which the patients are seen. **If you see the same patient twice in this set of 30 forms please only survey them once.** Please **DO NOT** select patients to suit the topic being investigated.

Previous research shows that **1 in 10** patients have had an ADE in the previous 12 months (Miller G et al. Drugs causing adverse events in patients aged 45 or older: a randomised survey of Australian general practice patients BMJ Open. 2013 Oct 10;3(10):e003701. doi: 10.1136/bmjopen-2013-003701)

Hospitalisation

As a result of the **most recent ADE**, please indicate whether the patient was treated at a **hospital emergency department** or was **admitted to hospital**?

Continuing medication use

This question refers to any **prescribed or advised (over-the-counter) medications INTENDED to be taken continually** (i.e. for 4 months or more) by the patient, including any that have since **stopped**.

This includes e.g. a course of monthly injections, a bronchodilator PRN, a daily prescribed statin, an advised NSAID or low-dose aspirin, etc.

Please **write the number** of each in the spaces provided.

If **no continuing medications** were prescribed or advised, please **end the questions here** for this patient.

Medication review - ASK the PATIENT

Please ask the patient whether, over the past 6 months, **any of the listed health professionals have reviewed all the medications** they are taking? (i.e. other than today).

ASK THE PATIENT - if they have experienced an **Adverse Drug Event (ADE)** from the use of **any medication** in the **past six months**.

An adverse event is an unintended event which could have harmed or did harm the patient. 'Harm' includes physical, psychological or emotional suffering.

If **no ADEs** were experienced, please **end the questions here** for this patient.

Severity of the most recent ADE

Please indicate the **severity of the most recent ADE** in terms of harm to the patient (in your clinical opinion)

Mild - a reaction of limited duration not requiring further treatment; minimum impact on daily activities

Moderate - a reaction of longer duration or which required further treatment; limited impact on daily activities.

Severe - a reaction of any duration which results in long term limitation of daily activities.

Number of prescribers- ASK the PATIENT

If 'yes' please **write the number** of different prescribers (include hospitals, and private specialists) for **any new medication** in the **space provided**.

Please **do not** include doctors writing a repeat prescription for a medication already initiated by another clinician.

In the past 6 months, how many **different** medications were prescribed and/or advised for continual use by the patient?

Prescribed _____

Advised OTC _____

None → **End questions**

Ask the patient -

If 'yes', how many doctors have prescribed/advised **any new medication** for the patient in the past 6 months?

_____ (please specify)

Ask the patient - In the past 6 months (not including today), have any of the following reviewed all the medications you are taking?

- GP
- Practice nurse
- Pharmacist
- Don't know
- None of the above

Ask the patient - In the past 6 months, has the patient experienced an adverse drug event (ADE)?

- Yes
- No → **End questions**

In your clinical opinion, how severe was the **most recent ADE**?

- Mild
- Moderate
- Severe

Was the patient hospitalised as a result of the **most recent ADE**?

- Emergency Department
 Yes No
- Hospital Admission
 Yes No

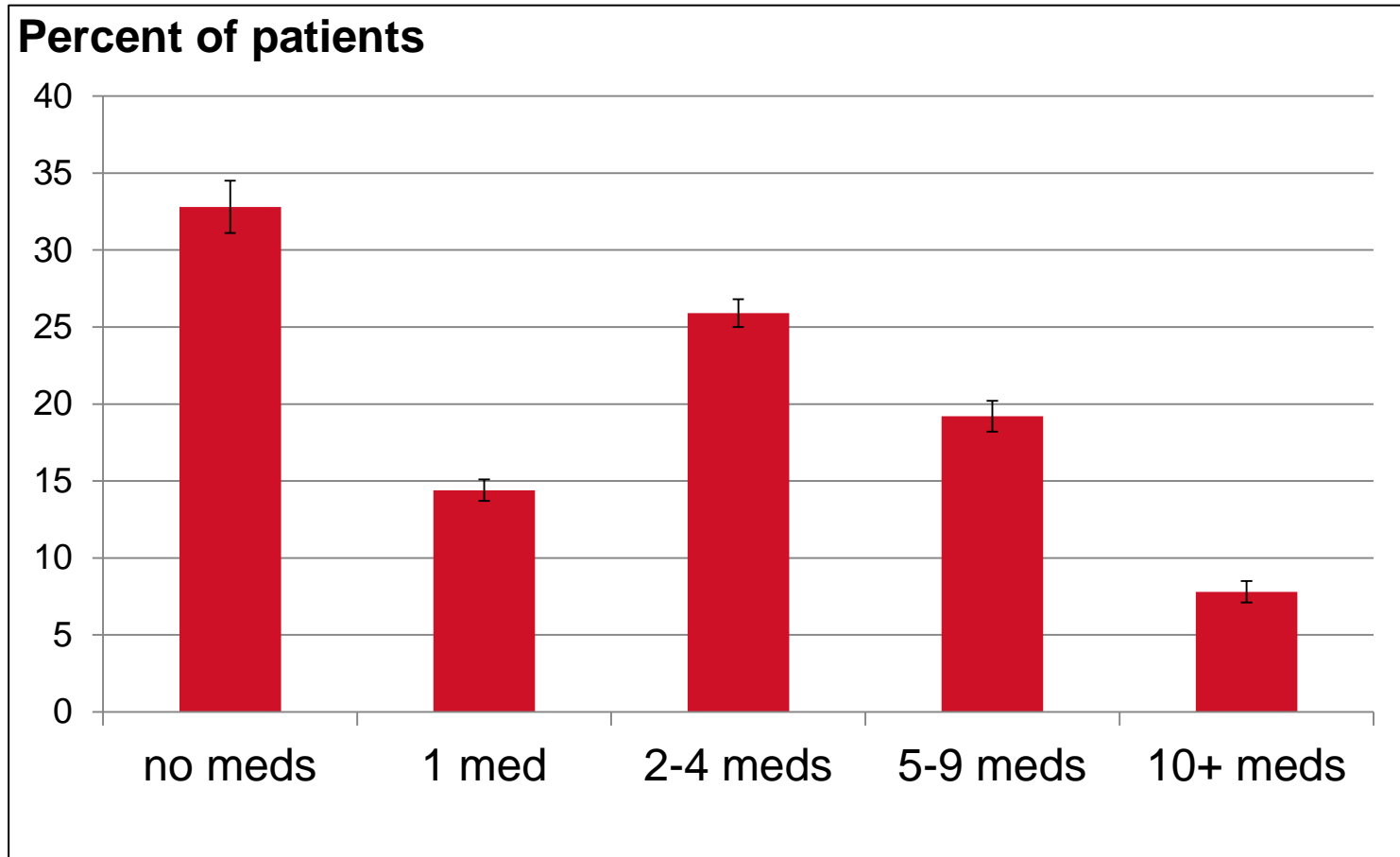
› Severity of the event:

- **Mild:** a reaction of limited duration which may or may not require further treatment; minimum impact on daily activities
- **Moderate:** a reaction of longer duration or which requires further treatment; limits daily activities.
- **Severe:** a reaction of any duration which results in hospitalisations and or long term limitations of daily activities.

Sample

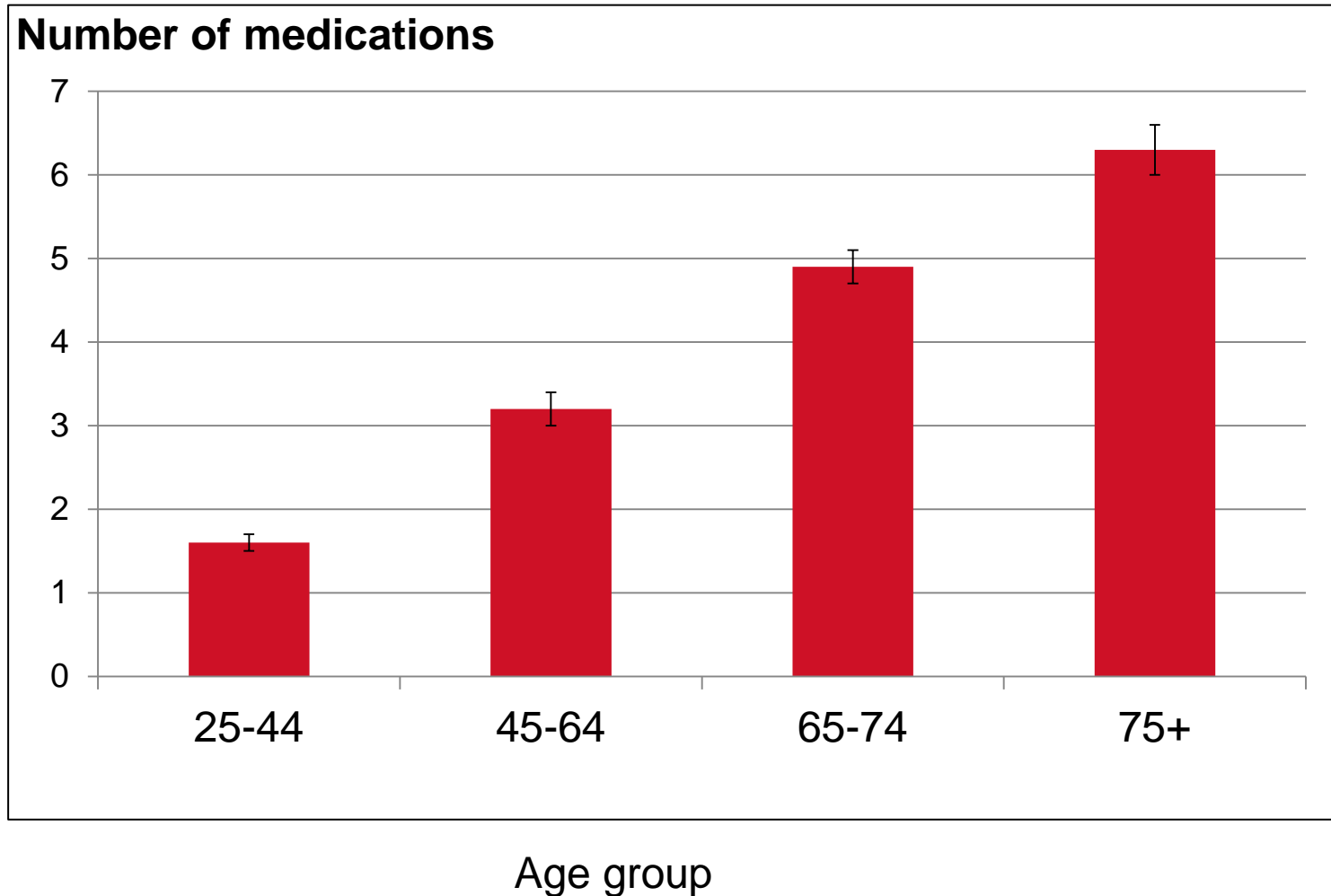
Variable	Total
Number of GPs	753
Number of encounters	22,144
Patients with at least one continual medication	14,888
Percentage of Patients with at least one continual medication	67.2 (95% CI: 65.6–68.9)

Distribution of continual medicines (95% CI)

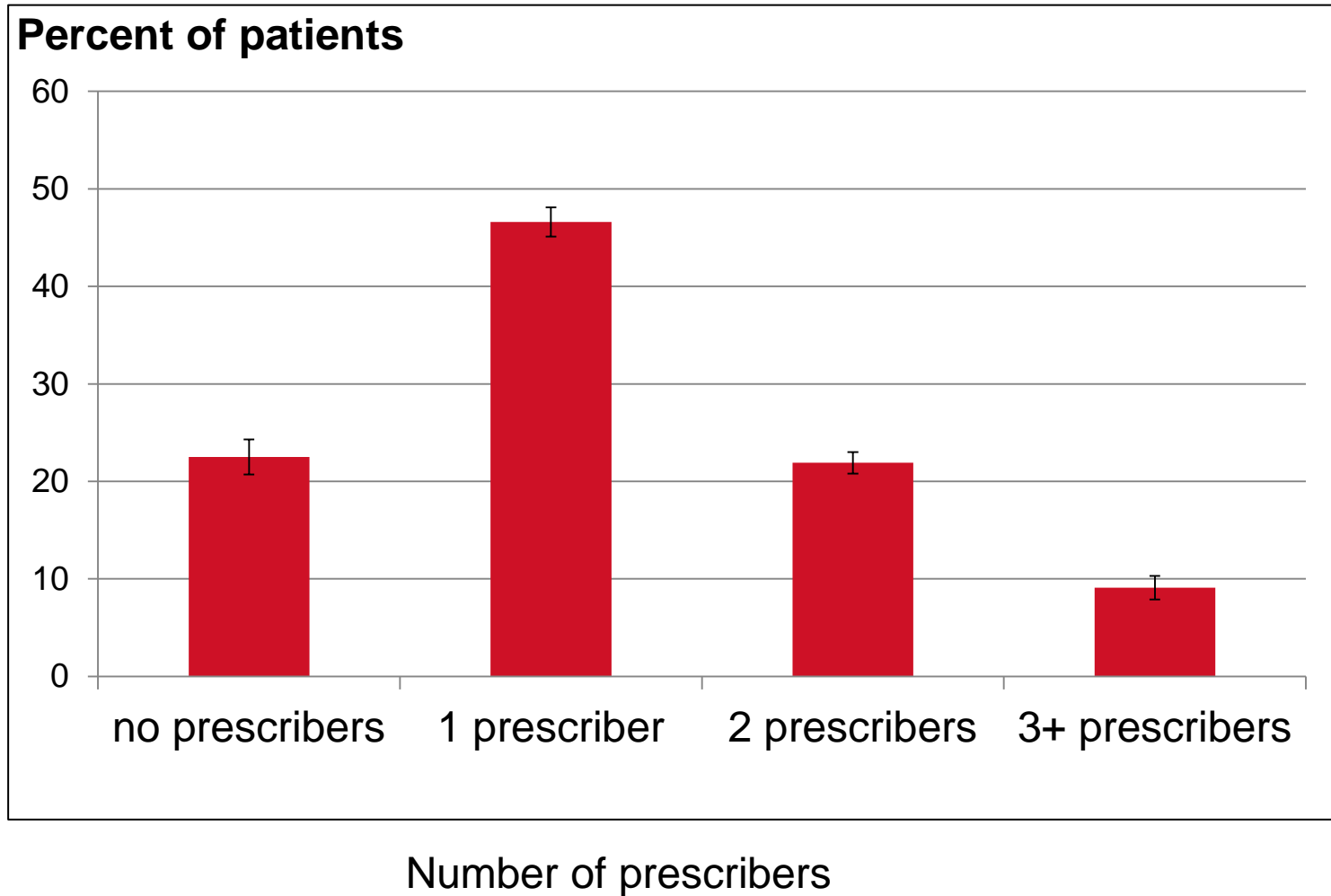


Average number of regular medications = 3.1 Range 0-45 $n=22,144$

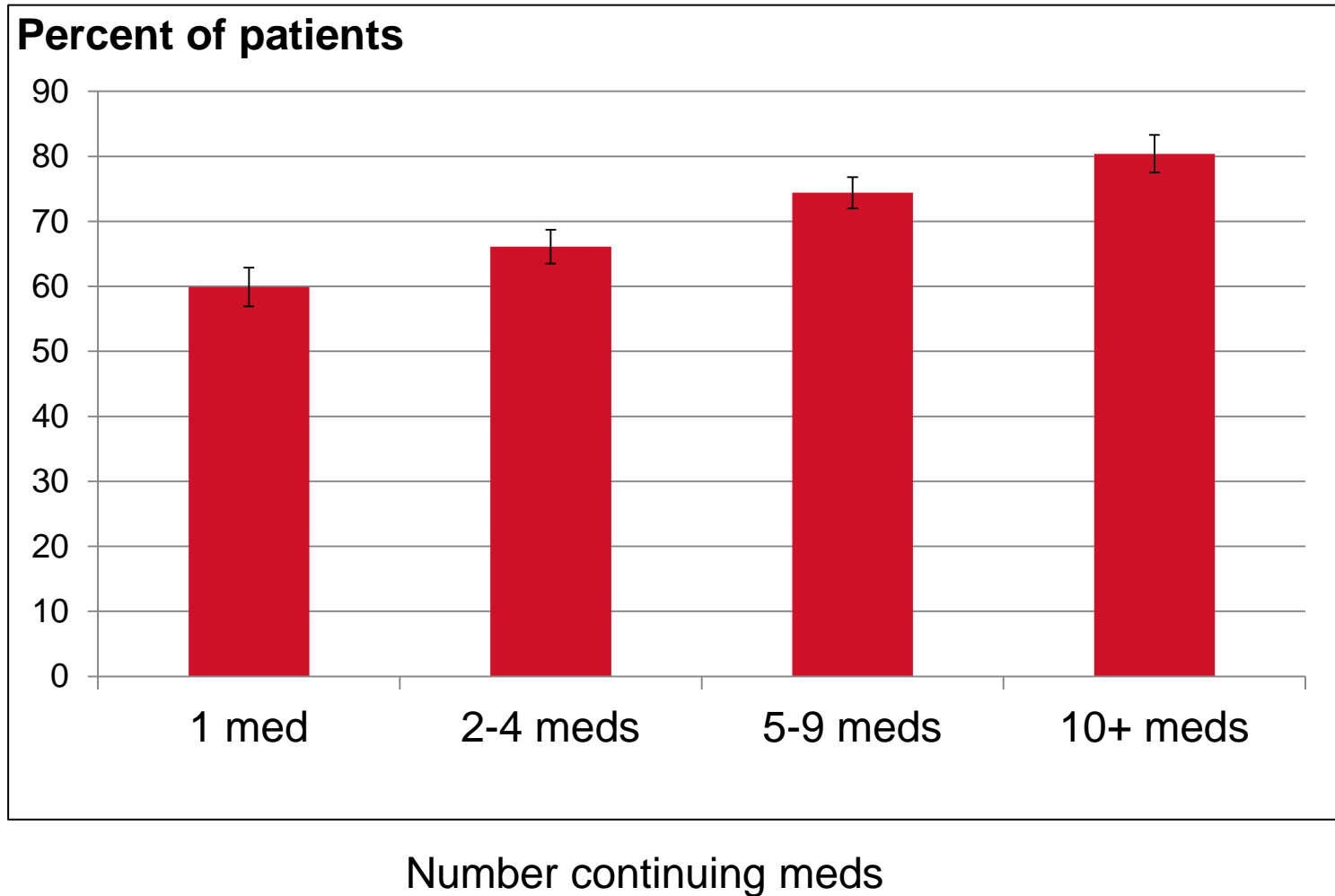
Age specific rate of medications (95% CI)



Number of prescribers (95% CI)

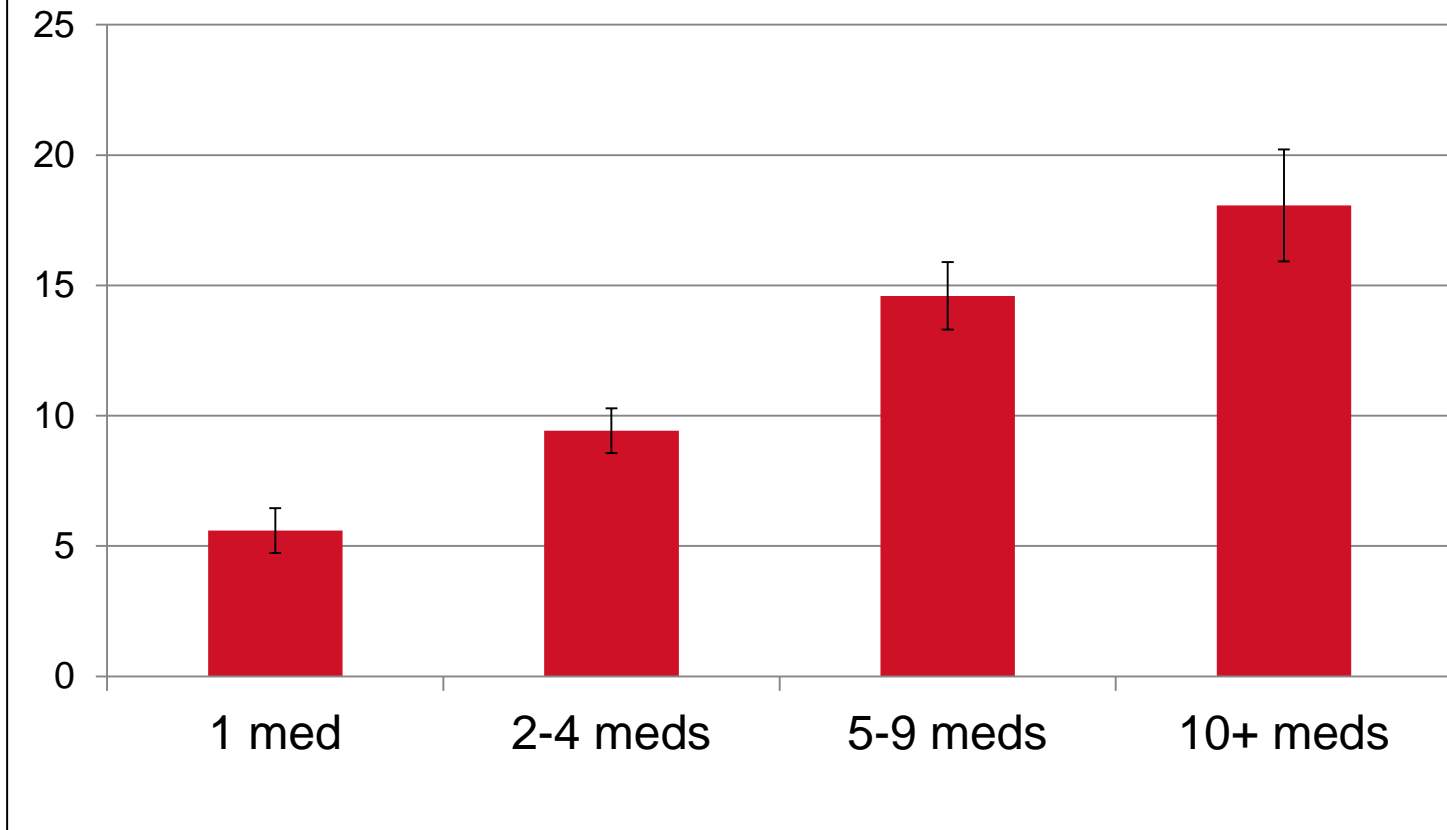


Medication reviews (95% CI)



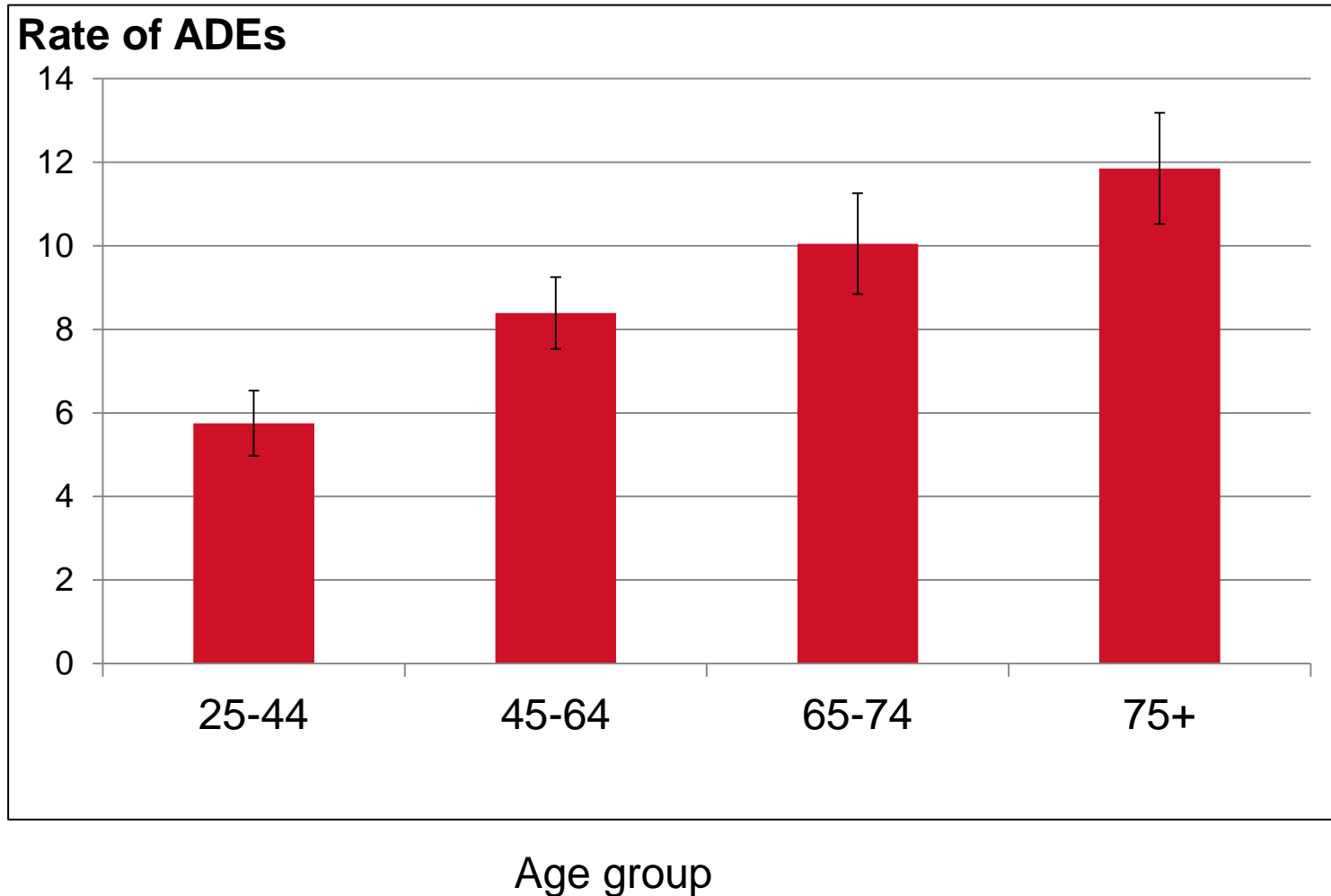
ADEs and polypharmacy (95% CI)

Rate of ADEs in last 6 months



Number continuing meds

Age specific rate of ADEs in patients on at least one continuing medication (95% CI)



Number of medications, not age, predicts ADEs

Simple multivariate analysis

Explanatory variable	Estimate	p Value
Number of medications	1.38%	<0.0001
Patient age	0.13%	0.5489

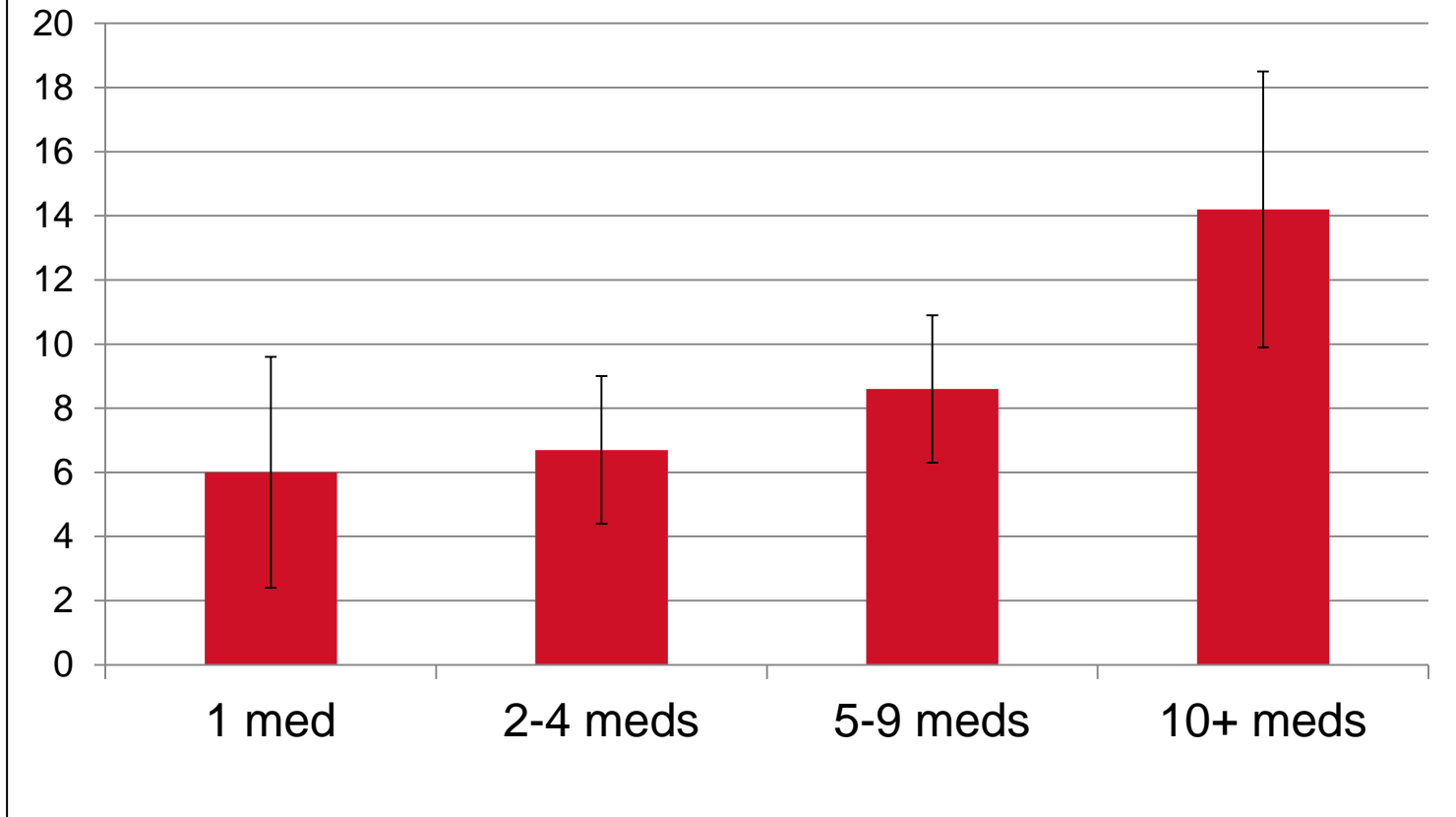
ADE severity

Severity	%	95% CI
Mild	61.6	59.0–64.3
Moderate	30.4	27.9–32.8
Severe	8.0	6.4–9.5

No relationship between patient age and severity of ADEs

Hospital attendance or admission of patients with an ADE by number of continuing medications

Rate of hospitalisation



Number continuing meds

Summary of findings

- › Two thirds of patients presenting to GPs are on regular medication. Average number of meds = 3.1 and 7.8% are on 10 or more meds
- › The number of medications increases with age to an average of 6.3 for patients 75+
- › 72% of patients have had a medication review in the preceding 6 months, 97% involved their GP, 9% in conjunction with a pharmacist or practice nurse.
- › 7.4% of patients on regular medication had experienced an adverse drug events in the six months prior to presentation to a GP
- › The frequency of ADEs is directly related to numbers of medications but not directly related to patient age. 18% of patients on 10+ meds had an ADE in the preceding 6 months
- › A third of ADEs cause significant morbidity and 9% result in hospital care. 14% of patients on 10+ meds required hospital care for their ADE

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BEACH 2015-16



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Many thanks to the GPs

Endorsed by



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AMA



BEACH 2014-16



General practice activity in Australia

2015–16

Family Medicine Research Centre



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