Polypharmacy

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What we will cover today

1. What is it
2. Why are we concerned about it
3. What contributes to it
4. What can we do about it

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What is polypharmacy

- Polypharmacy is using 5 or more medicines at one time

- Hyper polypharmacy is using 10 or more medicines at one time

Prevalence

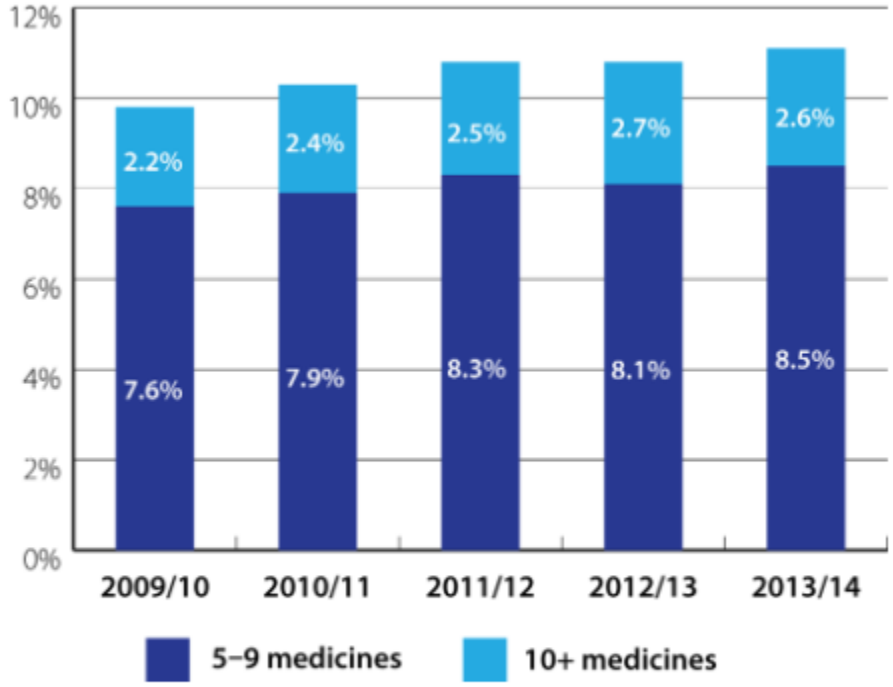
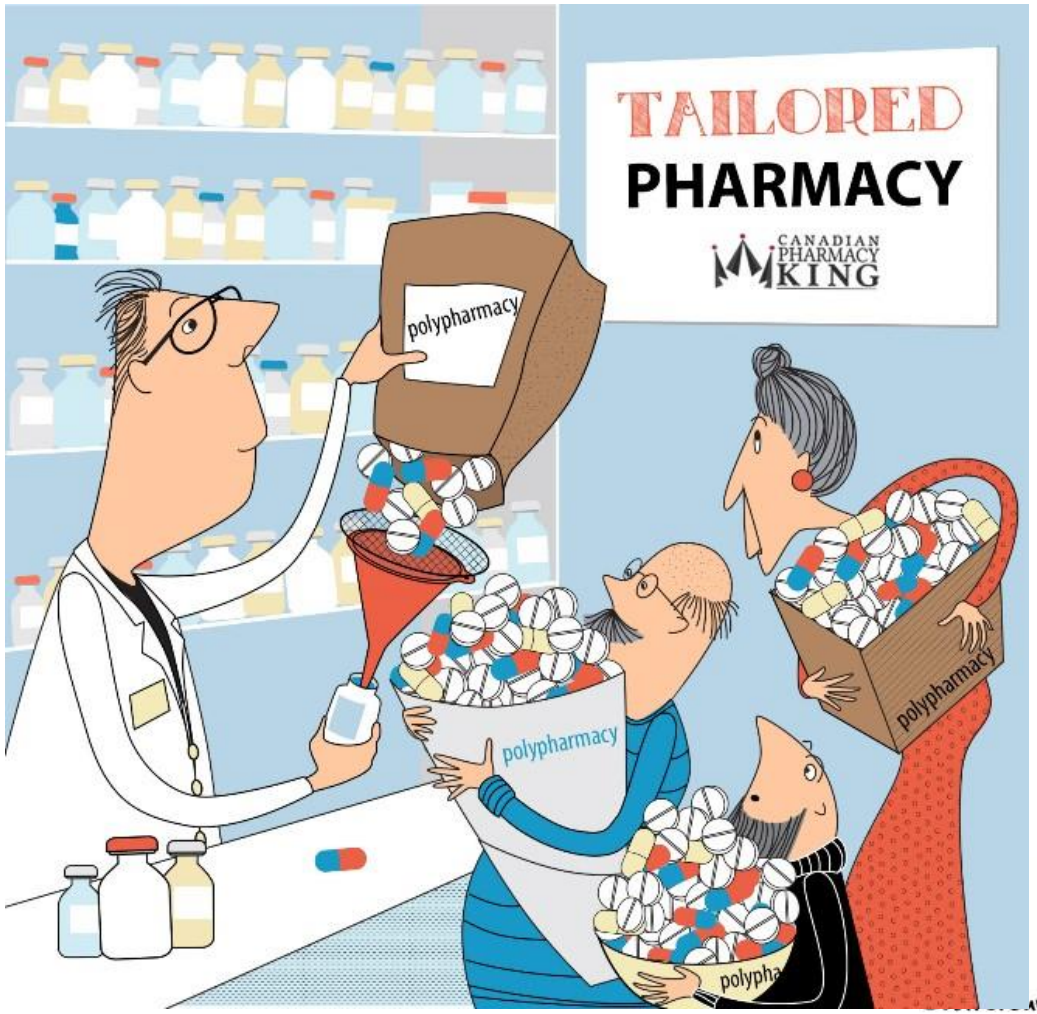


Figure 1: Proportion of the New Zealand population who were continuously prescribed (i.e. three or more dispensings of a medicine in a year) five to nine medicines, or ten or more medicines from 2009 – 2014[4]

Good vs Bad Polypharmacy



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Appropriate polypharmacy

Treatment where a patient has multiple morbidities, and/or a complex condition, that is being managed with more than one medicine, where the **potential benefits outweigh the potential harms**

Scott I, Anderson K, Freeman C, et al. First do no harm: a real need to deprescribe in older patients. Med J Aust 2014;201:390–2.

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Appropriate Polypharmacy

- Improves quality of life
- Increases life expectancy

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Why are we concerned about problematic polypharmacy

Problematic Polypharmacy

A patient receiving multiple medicines, where one or more of these medicines have **potential harms that outweigh the potential benefits** the patient may **no longer need the medicine**, the medicine may **adversely interact** with another medicine in the patient's regimen, or the patient may **not receive the intended benefit** of multiple treatments

Scott I, Anderson K, Freeman C, et al. First do no harm: a real need to deprescribe in older patients. Med J Aust 2014;201:390–2.

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Problematic Polypharmacy

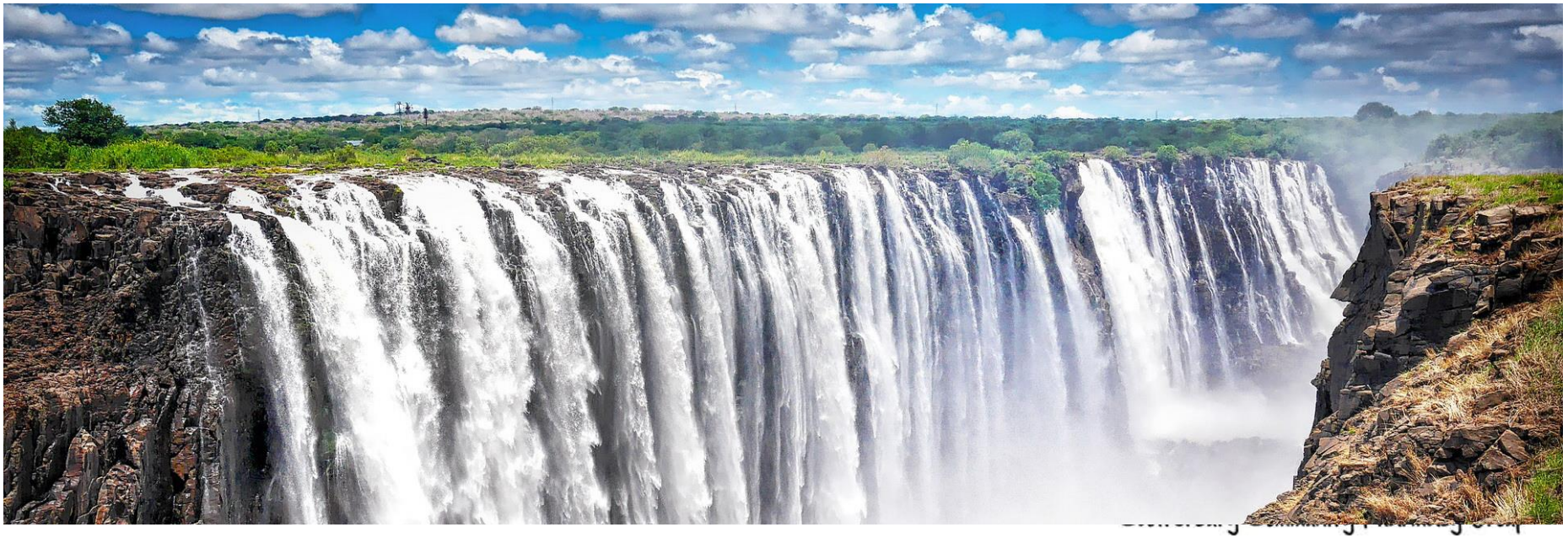
- Increased Risk of Adverse Drug Reactions (ADRs)
  - Falls and fractures
  - Dehydration
  - Acute Kidney injury
  - Delirium
  - Hypoglycaemia
  - Malnutrition
  - Hospitalisation
  - Death

How bad can it be?

- Adverse Drug Reactions
  - 2 medicines 13%
  - 5 medicines 58%
  - 7 medicines 82%
- Interactions
- 45,000 serious ADRs per year in NZ

Falls increase with Polypharmacy

- 5 or more meds 21% increase
- 10 or more meds 50% increase



Adherence

- 40% of patients are non adherent
- Deliberate vs Forgetfulness
- Lack of understanding
- Increasing adherence may cause problems
- Open ended and non judgemental questions

Improving Adherence

- Intentional
  - Information
  - Motivational interviewing
- Unintentional
  - Simplification of dose times
  - Meds organisers
  - Reminders
  - Aligning with lifestyle
- Medication Management Service

What contributes to problematic polypharmacy?

"At your age, people get anxious about taking so many pills, but I can prescribe something for that."

Prescribing Cascades

- Prescribing a medicine to treat an ADR caused by an existing medication

- e.g. Patient taking diclofenac reports having reflux and is prescribed omeprazole

Guidelines contribute

Example

- 79 year old woman
- Conditions
  - COPD
  - Type 2 diabetes
  - Hypertension
  - Osteoarthritis
  - Osteoporosis

How many recommended medicines?

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How many recommended medicines?

- 12 different medications
- 19 doses
- Taken at five times during the day
- 10 different possibilities for significant medicine interactions
  - either with other medicines or other diseases

Elderly and Guidelines

- Elderly under represented in clinical trials
- Trails often exclude patients with co-morbidities
- Ageing alters
  - pharmacokinetics
  - pharmacodynamics

Lack of strong evidence for strict adherence to guidelines in elderly patients with multiple comorbidities

Patient factors

- Information on the internet drives expectation
- Patients don't want to stop meds, complicated discussion to stop them
- The family want the patient to stay on them
- Patients/family may feel you are giving up on them

"I've always been a high achiever, always striving for bigger, faster, greater...and now suddenly I'm expected to settle for *lower* blood pressure and *less* cholesterol?!"

What can we do about it?

Before Starting new meds consider

- Could symptoms be due to an adverse drug reaction?
- What are the goals of treatment?
- Will the patient benefit from taking an additional medicine?
  - Life expectancy
- Are there any non-pharmacological alternatives?

Identify problematic polypharmacy

- There are many tools

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Table 1 Prescribing indicators used to identify problematic or inappropriate polypharmacy

Name of indicator set	Description	Reference
Beers criteria for potentially inappropriate medication use in older adults	The original prescribing indicator reference. In some respects the 66 indicators are US-specific. There are regular updates of the 1991 indicators; the indicators have been tested in a variety of situations worldwide.	Beers (2012). 'The American Geriatrics Society Beers criteria update expert panel. American Geriatrics Society Updated Beers criteria for potentially inappropriate medication use in older adults'. *Journal of the American Geriatrics Society*, vol 60, no 4, pp 616-31.
French consensus panel list	36 indicators specific to France, largely based on McLeod and Beers.	Laroche ML *et al* (2007). 'Potentially inappropriate medications in the elderly: a French consensus panel list'. *European Journal of Clinical Pharmacology*, vol 63, no 8, pp 725-31.
HIC Indicators – ePACT style data analysis	52 Australian indicators of a very different style. Rates of prescribing are compared to a national standard. In some cases high rates may be good – eg, prescribing plain penicillin as compared to broad spectrum antibiotics.	Robertson HA and MacKinnon NJ (2002). 'Development of a list of consensus-approved clinical indicators of preventable drug-related morbidity in older adults'. *Clinical Therapeutics*, vol 24, no 10, pp 1595-613.
IPET (constructed from McLeod)	14 indicators which were drawn entirely from the McLeod criteria (see below).	Naugler CT *et al* (2000). 'Development and validation of an improving prescribing in the elderly tool'. *Canadian Journal of Clinical Pharmacology*, vol 7, no 2, pp 103-7.
Irish survey indicators	16 indicators developed from an Irish survey of GPs. Emphasis is on quality rather than safety.	Williams D *et al* (2005). 'The application of prescribing indicators to a primary care prescription database in Ireland'. *European Journal of Clinical Pharmacology*, vol 61, no 2, pp 127-33.
Lab safety monitoring in ambulatory patients	Nine US monitoring indicators from a computerised tool. The indicators lack a strong evidence base but significant differences were made using the tool in the monitoring of lithium, amiodarone, theophylline, carbemazapine, phenytoin and metformin.	Raebel MA *et al* (2006). 'Randomized trial to improve laboratory safety monitoring of on-going drug therapy in ambulatory patients'. *Pharmacotherapy*, vol 26, no 5, pp 619-26.
McLeod criteria	71 Canadian indicators, many of which are now outdated (due to new pharmacological evidence).	McLeod PJ *et al* (1997). 'Defining inappropriate practices in prescribing for elderly people: a national consensus panel'. *Canadian Medical Association Journal*, vol 156, no 3, pp 385-91.
NORGEP criteria	36 indicators developed in Norway by consensus. Many drugs are not relevant to the United Kingdom or are no longer prescribed.	Rognstad S *et al* (2009). 'The Norwegian General Practice (NORGEP) criteria for assessing potentially inappropriate prescriptions to elderly patients. A modified Delphi study'. *Scandinavian Journal of Primary Health Care*, vol 27, no 3, pp 153-9.
PINCER Indicators	10 UK indicators validated in general practice and included in the PINCER trial. This trial demonstrated the effectiveness of a pharmacist-led IT-based intervention to reduce hazardous prescribing. Odds ratios for error were significantly lower in the intervention group (0.51 to 0.73).	Avery AJ *et al* (2012a). 'A pharmacist-led information technology intervention for medication errors (PINCER): a multicentre, cluster randomised, controlled trial and cost-effectiveness analysis'. *The Lancet*, vol 379, pp 1310-9.
Potentially harmful drug-drug and drug-disease combinations	This US team developed 50 drug-disease and 6 drug-drug combinations that were considered to represent poor quality prescribing. The indicators were tested in order to determine the prevalence of their occurrence in ambulatory care.	Zhan C *et al* (2005). 'Suboptimal prescribing in elderly outpatients: potentially harmful drug-drug and drug-disease combinations'. *Journal of the American Geriatrics Society*, vol 53, no 2, pp 262-7.
Prescribing and monitoring error indicators	Of the 30 indicators developed by this US consensus panel some drug-disease combinations represent quality rather than safety. Using the indicators, errors were avoided 88 per cent of the time.	Wessell AM *et al* (2010). 'Medication prescribing and monitoring errors in primary care: a report from the Practice Partner Research Network'. *Quality & Safety in Health Care*, vol 19, no 5, e21-e21.
Prescribing Indicators Tool for Elderly Australians	48 indicators, many of which reflect quality rather than safety, especially in the secondary prevention of CVD. Unusual development process involving prescribing and diagnostic frequencies.	Basger BJ *et al* (2008). 'Inappropriate medication use and prescribing indicators in elderly Australians: development of a prescribing indicators tool'. *Drugs Aging*, vol 25, no 9, pp 777-93.
RCGP indicators	34 prescribing safety indicators developed (using RAND UCLA consensus process) and designed for use in UK general practice. Using a similar process, an updated list of 56 indicators has recently been identified (currently unpublished).	Avery AJ *et al* (2011). 'Development of prescribing-safety indicators for GPs using the RAND Appropriateness Method'. *British Journal of General Practice*, vol 61, no 589, pp 526-36.
Scottish indicators – inappropriate prescribing to vulnerable patients	15 RAND UCLA-derived indicators that were developed in Scotland and tested on general practice data from 1.7 million patients. A composite indicator was found to be the most reliable measure of a practice's performance.	Guthrie B *et al* (2011). 'High risk prescribing in primary care patients particularly vulnerable to adverse drug events: cross sectional population database analysis in Scottish general practice'. *British Medical Journal*, vol 342, d3514.
STOPP/START criteria	A detailed set of 87 indicators developed by consensus methods in Ireland. They have been validated extensively in the UK setting. Many of the STOPP criteria were included in the RCGP indicator set.	Gallagher P *et al* (2008). 'STOPP (Screening Tool of Older Person's Prescriptions) and START (Screening Tool to Alert doctors to Right Treatment). Consensus validation'. *International Journal of Clinical Pharmacology and Therapeutics*, vol 46, pp 72-83.

Deprescribing

- No guidelines for stopping medicines!!!
- Some protocols exist e.g. CEASE
  - Confirm current medications
  - Estimate risk of harm from the medicines
  - Assess each medicine for its usefulness
  - Sort medicines for deprescribing
  - Eliminate medicines by planning and monitoring

The deprescribing plan

- Taper doses downwards
- Go slowly, only one thing at once
- Monitor for discontinuation symptoms

Barriers to deprescribing

- Multiple prescribers i.e. GP and Secondary care
- GPs don't like to stop meds started by specialists
- No time to talk to patients, everyone is rushed, these conversations take time
- Prescribers want to avoid medico legal risk

  associated with not adhering to guidelines

Deprescribing Enablers

- Get the patient actively involved with shared decision making
- Reassure the patient about the process
- A multidisciplinary team approach
- More time

Always consider

What matters to the person

not

What is the matter with the person

Medication Management Service

- An innovative service funded by the Canterbury District Health Board
- Home visits
- Approximately 200 pharmacists provide service
- Consumers at risk of medicines-related harm, receive intensive pharmacist care

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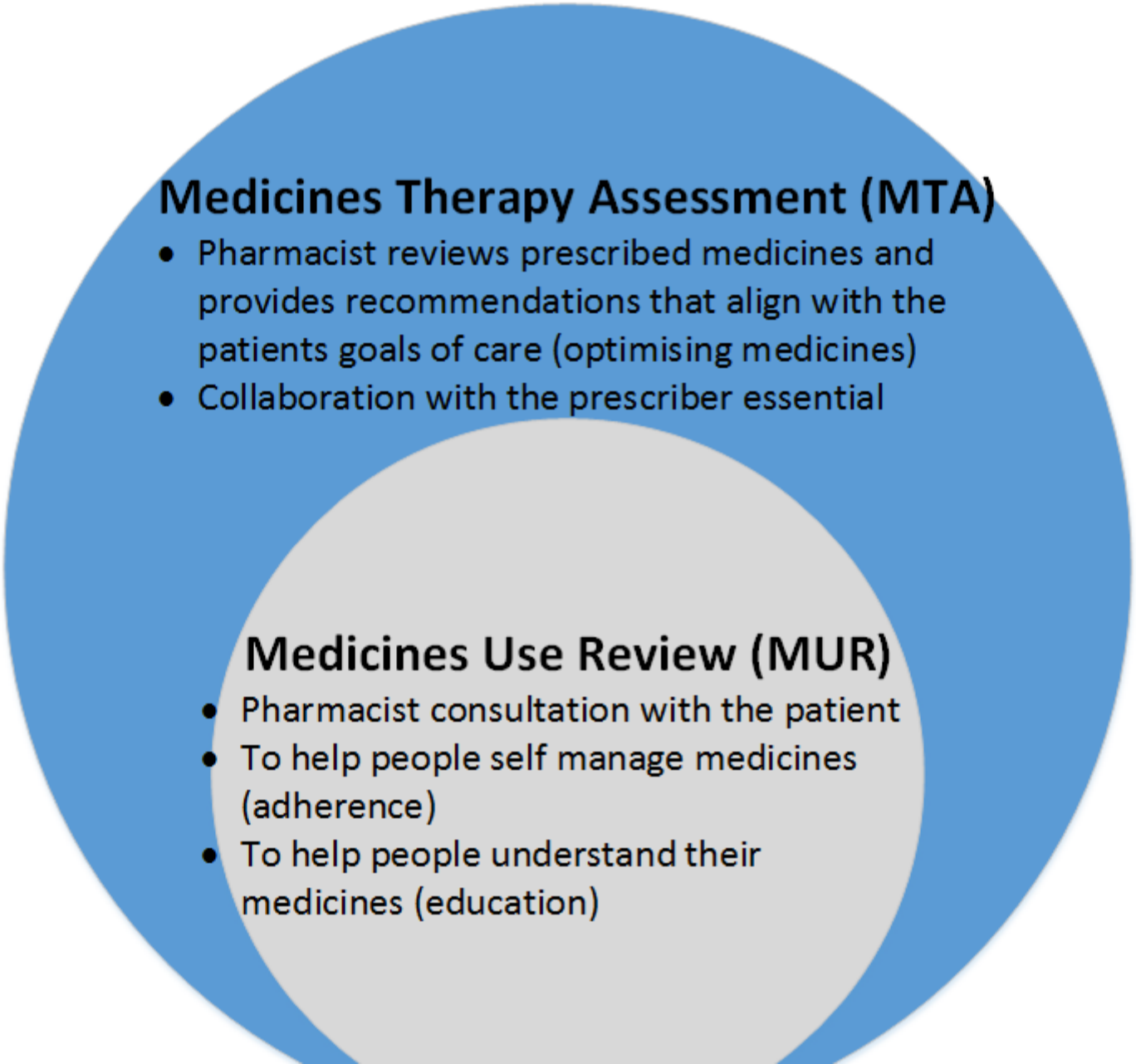
Medication Management Service (MMS)



Medication Management Service

Medicines Use Review (MUR) – pharmacist help for people to better understand and self-manage their medicines

Medicines Therapy Assessment (MTA) – pharmacist collaborates with the General Practitioner to optimise the medicines in line with the patient's goals of care

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Capacity
Medication Management Service

- MUR
  85 pharmacies currently providing the service

- MTA
  17 Pharmacists accredited
  Novel Models of service provision

- CCPG Mobile pharmacists

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Patient Benefits
Medication Management Service

- Improve patient understanding and self-management of medications
- Support patients to optimise medication use and identify barriers to adherence
- Reduced risk of medication harm
- Confirm the patient's goals of care, and clinically review the patient's prescribed medication regimen (MTA only).

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Referrals
Medication Management Service

- MUR only for people living independently
- MTA for anybody i.e. includes ARC
- MTA referral requires endorsement from the prescriber

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Further Reading

- Health Quality Safety Commission, Polypharmacy Atlas of Variation
- BPAC, Polypharmacy in primary care: managing a clinical conundrum
- PHARMAC, Managing polypharmacy and deprescribing
- The Kings Fund, Polypharmacy and medicines optimisation

Question Time

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