Introduction to the WHO Technical Report

“Medication Safety in Polypharmacy”

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1. Introduction
Population in 2015 and projections in 2050 (WHO)

Survival at younger age & socioeconomic development
Multiple morbidity is common

MORE PEOPLE HAVE MULTIMORBIDITY THAN A SINGLE DISEASE

45-64 YRS  65%  65-84 YRS  82%  ≥85 YRS
People: Impact of Frailty - renal & liver disease

PHARMACOLOGY

FAIRLITY AND THE NUMBER OF MEDICINES

MORE FAIRLY

FAIRLY 1.5 X 5 OR MORE MEDICINES

FAIRLY 2.0 X 10 OR MORE MEDICINES

MORE MEDICINES

SIMPATHY©
• **Appropriate polypharmacy** is present, when all drugs are prescribed for the purpose of achieving specific therapeutic objectives that have been agreed with the patient.

• **Inappropriate polypharmacy** is present, when one or more drugs are prescribed that are not or no longer needed.
Urgency: Public health challenge: @initiation & @review

186 countries: 4% of total avoidable costs due to polypharmacy. Total of 0.3% global health expenditure could be saved = $18bn
Adherence: Is polypill the answer?....

• 50%-80% with > 4 meds
• Non-adherence ~48% of asthma deaths, an 80% increased risk of death in diabetes and a 3.8-fold increased risk of death following a heart attack.
• Non-adherence to medicines costs the European Union €125bn pa billion
2. Medication Review in Polypharmacy

http://www.polypharmacy.scot.nhs.uk
“Trade offs”

Polypharmacy Clinic in rural Uganda
Patients shared decision making: Patient advocate

Antiplatelets - to prevent a second heart attack or stroke: (Aspirin, Clopidogrel, Dipyridamole)

How likely are Antiplatelets to help me?

Key

This grey face represents the number of people in the survey group.

This green face represents the one person in the survey group that the medicine has helped.

Research suggests:

In a group of 94 people aged between 65-94 people with previous stroke or TIA, antiplatelets will prevent one person from this group (on average) from having another stroke or heart attack in the course of a year. (Research at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3455631 and https://www.ncbi.nlm.nih.gov/pubmed/21576989)
High-risk Situations

- Some high-risk (high-alert) **medications** are associated with significant harm when used in error (e.g. APINCH)
  - A – anti-infective
  - P – Potassium & other electrolytes
  - I – Insulin
  - N – Narcotics (opioids) & other sedatives
  - C – Chemotherapeutic agents
  - H – Heparin & anticoagulants
  - O - Other high-risk medications identified by local health facilities

High risk meds and situations in primary care:

High Risk medicines in Primary care

Mair A, Wilson M, Dreischulte, T. Addressing the Challenge of Polypharmacy
Annu.Rev.Pharmacol.Toxicol.2020.60:33.1–33.21

• **Non-steroidal anti-inflammatory drugs and antithrombotics**
  - NSAIDs, antiplatelets, anticoagulants, corticosteroids, and selective serotonin reuptake inhibitor

• **Antipsychotics**
  - In 2009, antipsychotics were estimated to cause approximately 1,800 deaths and 1,620 cerebrovascular events in people with dementia in UK

• **Benzodiazepines**

• **Antidepressants**
  - falls, cardiotoxicity & withdrawal reaction

• **Medicines with anticholinergic side effects**
  - Linked to impaired cognition, increased risk of falls, functional decline, cardiovascular events, and mortality.
  - dose-dependent however, sensitivity to anticholinergic effects varies significantly between individuals.
High Risk medicines

- **Centrally acting analgesics**
  - Limitations on benefits of medicines for pain
  - Falls and potential for abuse and addiction

- **Antihyperglycemics**
  - Type 2: Smoking cessation, adequate blood pressure control, and lipid
  - Tight glycemic control (HbA1c < 53 mmol/mol) preventing macrovascular complications may be appropriate in patients who are relatively health
  - increase the risk of hypoglycemia, which has been associated with increased mortality, cardiovascular events, falls, and accidents

- **Medications associated with increased risk of falls**
  - 30% of community-dwelling older adults falling every year and about half of these experiencing multiple falls
  - >80, this can rise to 50%
  - Medications are modifiable extrinsic risk factors
  - benzodiazepines, antidepressants, antipsychotics, antihypertensives, and diuretics
  - Polypharmacy: specific fall-inducing drugs or combinations of drugs
3. Implementing polypharmacy initiatives
Scotland’s Change Management Approach

Scotland has a well developed polypharmacy review programme. The National Polypharmacy Guidance (2015) has been adopted by all 14 health boards (100%), with each board developing plans to identify priority patients who have potentially inappropriate elements to their polypharmacy, and to implement reviews for those patients at highest risk of harm.

Introduction of mobile app has sustained acceleration.

http://www.polypharmacy.scot.nhs.uk/

Management of polypharmacy using the Scottish multi-disciplinary approach helped develop therapeutic partnerships between doctors and pharmacists in primary care that has been integrated into national program of work.

All 14 Scottish Health Boards use the Polypharmacy Guidelines.

£20 m is being invested to increase the number of pharmacists working in GP practices.

Mobile App for clinicians developed.

Generating short term wins includes the evidence that on average one or two meditations were adopted at each polypharmacy review. There are approximately 12,000 polypharmacy reviews every year in Scotland.

Of those patients identified as at high risk of hospital admission, pilot work suggested a 40% reduction in hospital admissions following a polypharmacy review. Further reduction in high risk medication related issues is expected from roll out.

Removing barriers to implementation included successful addition of a clinician requirement for GPs, and recognising the potential role of Pharmacists near medical prescribers. Design delivery process to enable care to be integrated into existing patient pathway.

Enlisting the volunteers army was exemplified by NHS Greater Glasgow and Clyde, who serve 70% of the Scottish population, and were able to implement the Polypharmacy Guidance at scale through using established means of implementing it through practice pharmacist networks working with GPs.

Building the guiding coalition came from linking the pioneering work by NHS Highland and NHS Tayside with key clinical policy makers. Crucial was the early engagement of clinicians and operational leaders.

Formation of the strategic vision came through refinement of the adoption work by NHS Scotland and the Scottish Government. Policy leadership was bolstered with clinical leadership to meet the needs of patients and prescribers.

A reduction in admissions due to medicines related issues is expected following polypharmacy review.

Scotland, Northern Ireland - Ireland - Scotland

A project supported by the European Union Interreg VA Programme, managed by the Special European Programme Body (SEUPB)
4. Health Systems approach to polypharmacy

4.1 Patients and the Public

Role of patients:
- report all medicines taken including those brought together with
- tools designed for patients

Prioritising Patients for Review:
- Due to limited resources - care homes, frailty, Taking 10 or more meds

4.2 Health care Professional - Case studies for learning
4. Health Systems approach to polypharmacy

4.3 Medicines – Drug -drug/ drug disease interactions/ decision support

4.4 Systems and Practices
Making polypharmacy reviews part of patient pathways & ensuring monitoring in place to establish cause of hospital admissions
4.5 Monitoring and evaluation

**Indicators**

**Economic Impact**

[Diagram showing NS3 Discovery Level 1 Polypharmacy Summary View]

**Population**
- Identified risk group

**Cost of reviews**
- Minutes per review by staff type

**Potential direct savings from reviews**
- Net reduction in drug expenditure

**Potential indirect benefits of reviews**
- Avoided Adverse Drug Reactions (ADRs)

**Maximum number of polypharmacy reviews**

**Staff cost**

**Net of charge per review**

**Prevented hospital admissions related to ADRs**

**Bed days / cost associated with prevented admissions**
5. Points for Consideration for countries

• Policies for regular reviews & that support programmes at scale using change management

• Addressing at inappropriate polypharmacy initiation, during transitions of care

• Safety culture to enable healthcare workers to work in teams and reduce barriers

• Healthcare workers to involve patients to discuss issues for shared decision making
5. Points for Consideration for countries

• Safety culture for person-centred approach to medication review

• Addressing lifestyle issues during reviews

• Using technology where appropriate to support shared decision making

• Using reporting systems that are available to support reporting and learning from errors

Implementing the findings of SIMPATHY

- 15 000 person centre reviews for appropriate polypharmacy
- Adherence
- PROMS
- Training developed for HCP
- www.isimpathy.eu