



Individualised care for older people- Polypharmacy in older people: too much, too little, trying to get the balance right

Carmel M. Hughes Ph.D.
School of Pharmacy
Queen's University Belfast

Presentation outline

- Background
- A new approach
 - Exemplar projects
 - Development and testing interventions
- Some reflections

Guidance on prescribing



Changing perspectives-the time span

A great deal of treatment that is given to the young and middle aged is intended to prevent troubles in the distant future and some nuisance on the present may be accepted to obtain this end. The rigid control of hypertension and diabetes are examples. It is, of course, obvious that **old people have no distant future**, yet they are often continued on treatment which, however correct, it might have been, can no longer benefit them.

BNF, 1976

Changing perspectives-the patient's capacity

Most elderly patients have **poor memories and get confused**. They may live alone or with a partner **who is no better**. They find it difficult to follow even **simple instructions**, and the complicated schedule sometimes offered, with many drugs to be taken at different times. They are **creatures of habit** and once they have been on tablets for a long time, it may be difficult or unkind to stop them

BNF, 1976

Use of medicines: a common intervention

“The use of medications in older patients is arguably the single most important health care intervention in the industrialized world.”

Avorn, JAMA 2010; 304: 1606-1607

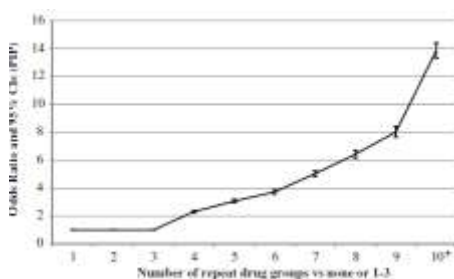
Challenges and changing perspectives

- **Challenges of medication use in older people**
 - Altered pharmacokinetics/pharmacodynamics
 - Multimorbidity
 - Polypharmacy
 - Potentially inappropriate prescribing
- **Changing perspectives on polypharmacy**
 - Numbers?
 - Definitions?



Examples of polypharmacy

- People over 65 years, living in their own homes
- Likelihood of inappropriate prescribing increases with multiple drugs
 - *Bradley et al. Eur J Clin Pharmacol 2012; BMC Geriatr 2014*
- People with dementia living in their own homes
- Used N. Ireland dispensing data (EPD)
- Mean of 6.8 regular medicines
- 20% taking more than 10 regular medicines
 - *Barry et al., JAD 2016*



Going beyond the numbers

Polypharmacy

A New Paradigm for Quality Drug Therapy in the Elderly?

EDITORIAL

PERALTI DISCUSSIO

Appropriate Polypharmacy and Medicine Safety: When Many is not Too Many

Carole A. Cadogan^{1,2}, Christa Ryan^{1,2}, Carol M. Hughes²

- *“The larger number of **pharmaceuticals** will always be an **important component** of the medical care of **older Americans**.”*

Gurwitz. *Arch Intern Med* 2004; 164: 1957-59

*“The concept of ‘**appropriate polypharmacy**’ recognises that patients can benefit from multiple medications...”*

Cadogan et al., *Drug Safety*, 2016; 39: 109-116

Getting the balance right between ‘many’ and ‘too many’ drugs

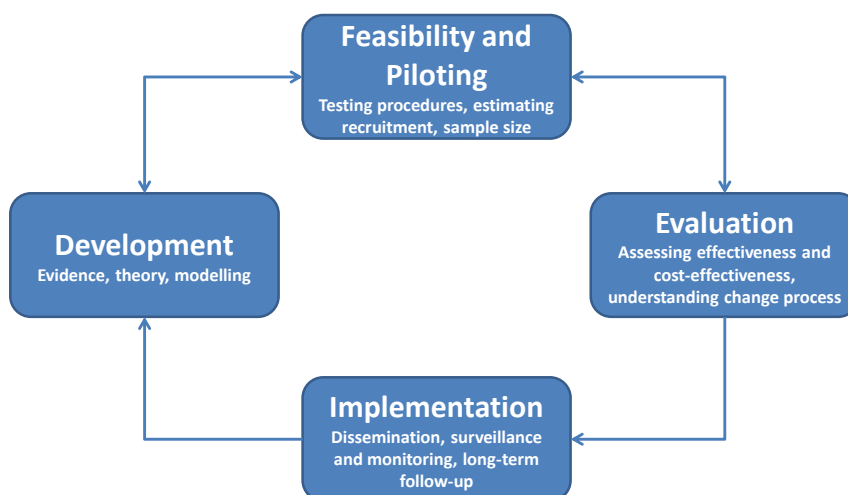
How do we move beyond the numbers to lead to prescribing of, and adherence to, appropriate polypharmacy?

Two exemplar projects

- Improving prescribing of appropriate polypharmacy
- Improving adherence to polypharmacy

Interventions which focus on **behaviour change**

Medical Research Council Framework



Underpinning evidence



Little detail on how interventions were developed and delivered

Approach to developing interventions

Series of systematic steps

1. Specify target behaviour(s)-what needs to change
Prescribing, adherence to medication
2. Identify barriers to/facilitators of behaviour change
3. Consider how to change the target behaviour(s)
4. Implement an intervention that seeks to change the target behaviour(s)
5. Evaluate

Identification of barriers and facilitators

12 theoretical domains relevant to changing healthcare professionals' behaviour.

Theoretical domains	
Knowledge	Skills
Beliefs about capabilities	Emotion
Beliefs about consequences	Behavioural regulation
Motivation and goals	Social influences
Memory, attention and decision processes	Environmental context and resources
Social/professional role and identity	Nature of the behaviours

Michie *et al.* 2005. *Qual Saf Health Care*, 14:26-33

Selected TDF domains

Domain label	Domain content	Domain Constructs
Knowledge	Knowledge of the field (i.e. whether there is adequate evidence) and individuals' knowledge of the evidence or of a guideline	Knowledge; Procedural knowledge
		Knowledge about condition/ scientific rationale
		Schemas + mindsets + illness representations
Skills	Covers the possibility that new skills would be required by the staff who are required to implement a new procedure	Skills; Interpersonal skills
		Competence/ ability/ skill assessment
		Practice/ skill development
		Coping strategies
Social/professional role and identity	The clinical thinking and norms of a particular profession	Identity
		Professional identity/ boundaries/role
		Group/social identity
		Social/ group norms
		Alienation/organisational commitment
Beliefs about capabilities	How confident clinicians are that they could change their practice effectively	Self-efficacy
		Control-of behaviour and material and social environment
		Perceived competence
		Self-confidence/ professional confidence
		Empowerment; Self-esteem
		Perceived behavioural control
		Optimism/pessimism

TDF-based interviews

- Interview guides developed based around the domains
 - Identify domains which are perceived to act as barriers to, and facilitators of, behaviour change
- Used to guide intervention design, based on changing **target behaviour(s)**

Cadogan *et al.*, 2015; *Implem Sci* ; **10**: 161; Patton *et al.*, 2018; *Health Expect*; **21**: 138-48

Sample interview questions

GPs and community pharmacists

Knowledge

“What knowledge do you have as a GP/pharmacist that would help you to make the necessary changes to ensure that patients receive appropriate polypharmacy as opposed to inappropriate polypharmacy?”

Social/professional role and identity

“What would you consider your responsibilities to be as a GP/pharmacist in ensuring that older patients receive appropriate polypharmacy?”

Patients

Beliefs about capabilities

“Do you feel confident that you can take all your medicines as advised by your GP or community pharmacist?”

Beliefs about consequences

“What do you think the benefits are of taking all of your medicines as prescribed?”

“What do you think the downsides are to taking all your medicines as prescribed?”

Analysis

- Analysis: framework method and content analysis
 - Identification of barriers and facilitators to the target behaviours
- Selection of key domains
 - Based on analysis, identified domains most relevant to possible target behaviours; consensus within team

Key domains for prescribing and adherence

- | | |
|--|---|
| <ul style="list-style-type: none"> • Prescribing <ul style="list-style-type: none"> – Skills – Beliefs about capabilities – Beliefs about consequences – Environmental context and resources – Memory, attention and decision processes – Social/professional role – Social influences – Behavioural regulation | <ul style="list-style-type: none"> • Adherence <ul style="list-style-type: none"> – Knowledge – Beliefs about consequences – Motivation and goals – Environmental context and resources – Memory, attention and decision processes – Social influences – Behavioural regulation – Nature of the behaviours |
|--|---|

Cadogan *et al.*, 2015; *Implem Sci* ; **10**: 161; Patton *et al.*, 2018; *Health Expect*; **21**: 138-48

Changing behaviour

- Target key **domains** as part of intervention using established **behaviour change techniques (BCTs)**
 - Can map from TDF domains to appropriate BCTs
- *“An observable, replicable and irreducible component of an intervention designed to alter or redirect causal processes that regulate behaviour”*
- BCTs are the basis of the intervention
 - ‘Active ingredients’

Examples of BCTs

BCT	Definition	Example
Goal-setting	Set or agree a goal defined in terms of the behaviour to be achieved	Set a goal with patients of taking all medicines as prescribed
Prompts and cues	Introduce or define environmental or social stimulus with the purpose of prompting or cueing the behaviour. The prompt or cue would normally occur at the time or place of performance	Place a Post-it® note on the door to remind patients to take medicines before leaving the house in the morning
Self-monitoring	Instruct self-recording of specified behaviour	Request patients to note each time they take their medicines in a diary

Mapping TDF domains to BCTs

TDF	BCT
Skills	Behavioural rehearsal/practice
Beliefs about consequences	Self-monitoring
Environmental context and resources	Prompts and cues

Cane *et al.*, 2015; *Br. J Health Psychology*; 20: 130-50

BCTs-prescribing appropriate polypharmacy

Prescribing

BCTs

- Action planning
- Prompts/cues
- Modelling or demonstrating of behaviour
- Salience of consequences

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RESEARCH Open Access

Improving appropriate polypharmacy for older people in primary care: selecting components of an evidence-based intervention to target prescribing and dispensing

Sarah A. Crippen¹, Sarah New², M. J. Pomeroy³, Gwendolyn J. Dooling⁴, Steve Pomeroy⁵, Nigel Lewis⁶ and Cathrin M. Hughes^{1*}

Abstract
Background: The use of multiple medicines (polypharmacy) is increasingly common in older people (living with either) to ensure the most appropriate combination of medications (deappropriate polypharmacy) is a significant challenge. The quality of evidence to support the effectiveness of interventions to improve appropriate polypharmacy is low. Systematic identification of evidence of behaviour change using the Theoretical Domains Framework (TDF) provides a theoretically robust evidence base to inform intervention design. This study aimed to (1) identify key theoretical domains that were expected to influence the prescribing and dispensing of appropriate polypharmacy in older patients by general practitioners (GPs) and community pharmacists, and (2) map domains to associated behaviour change techniques (BCTs) to include as components of an intervention to increase appropriate polypharmacy in older people in primary care.
Methods: Semi-structured interviews were conducted with members of each healthcare professional (HCP) group using tailored topic guides based on TDF section 1 (1) domains. Qualitative coding was undertaken to identify HCP perceptions of barriers and facilitators to ensuring the prescribing and dispensing of appropriate polypharmacy to older people. Interviews were audio-recorded and transcribed verbatim. Data analysis included the framework method and content analysis. Key domains were identified and mapped to BCTs based on the Behaviour Change Wheel and identified within the research team.
Results: Using HCPs, seven theoretical TDF domains, 46 pharmaceutical supply key domains were identified, presented to HCPs for validity and appropriateness of using key polypharmacy (BCTs) based on capabilities, beliefs about consequences, behavioural control and values etc. The key address and decision process, social/observed role and identity, social influence, and behavioural regulation. Following mapping, key BCTs were identified for inclusion in an intervention for GPs to pharmacists. Action planning, prompts/cues, modelling or demonstrating of behaviour and salience of consequences. An additional BCT (social support or encouragement) was selected for inclusion in a community pharmacist intervention to help to address barriers relating to competence or ability that were not captured by other BCTs.
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BCTs-adherence to polypharmacy

Adherence

Mapping to BCTs

- Feedback
- Self-monitoring
- Prompts and cues
- Goal-setting
- Action planning
- Social support and encouragement



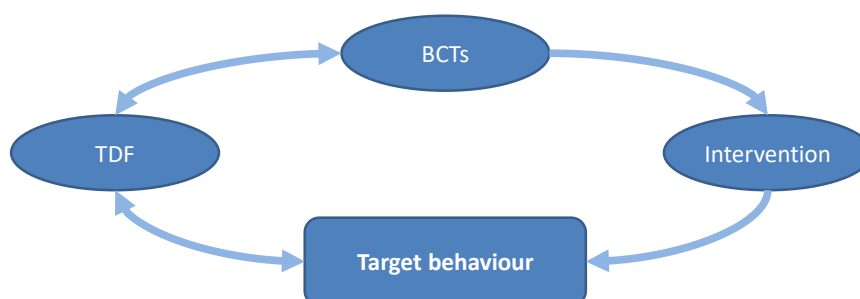
Putting the BCTs into practice

- Operationalise BCTs
 - Brainstorming exercise
 - What will the intervention look like?
 - Considered **context, evidence and experience**

TDF to BCTs to intervention components

TDF	BCT	Intervention component
Skills	Behavioural rehearsal/practice	Demonstration of how to prescribe appropriate polypharmacy during a typical consultation with an older patient
Beliefs about consequences	Self-monitoring	Diary to monitor use of medicines
Environmental context and resources	Prompts and cues	Place a Post-it® note on the door to remind patients to take medicines before leaving the house in the morning

Overview of approach



Michie *et al.* 2013. *Ann Behav Med*; **46**: 81-95

The interventions

- **Prescribing intervention**
 - Targeted at prescribing behaviour of GPs
- **Adherence intervention**
 - Targeted at adherence behaviour of patients, via action of pharmacists

Prescribing intervention

- Production of a video demonstrating a consultation between a GP and 'older patient'
- Actors (real GP), script, filming
- Video targeted at GPs to demonstrate prescribing appropriate polypharmacy
- Appointment for patient with GP for medication review

Adherence intervention

- Delivered by pharmacists to patients
- Three face-to-face sessions between pharmacist and patient
- Identification of adherence issues via a questionnaire
- Application of BCTs in the form of solutions tailored to the needs of the patient
 - Medication diary, leaflets
- Follow-up

Feasibility studies

- | | |
|--|---|
| <ul style="list-style-type: none"> • Two general practices recruited <ul style="list-style-type: none"> – One rural, one urban • Five patients per practice • Primary feasibility outcomes <ul style="list-style-type: none"> - Usability and acceptability of intervention • Secondary feasibility outcomes <ul style="list-style-type: none"> - Data collection - Participant recruitment | <ul style="list-style-type: none"> • Two community pharmacies recruited <ul style="list-style-type: none"> – One rural, one suburban • Five patients per pharmacy • Primary feasibility outcomes <ul style="list-style-type: none"> – Usability and acceptability of intervention • Secondary feasibility outcomes <ul style="list-style-type: none"> – Screening, recruitment, fidelity of delivery, measurement of outcomes |
|--|---|

Results

- Positive in both cases
- Broadly acceptable to patients and health care professionals
 - Time; burden of data collection
- Opportunity to refine and to test further

**A randomised pilot study of a theory-based
intervention to improve appropriate
polypharmacy in older people in primary care
*PolyPrime***

- Randomised pilot study to take place in Northern Ireland (NI) and the Republic of Ireland (ROI)
 - Refine intervention further to ensure it is appropriate for another healthcare system
 - RCT involving 12 practices
- Process evaluation



A pilot study of the S-MAP (Solutions for Medication Adherence Problems) intervention in older adults prescribed polypharmacy in primary care

- Non-randomised pilot study in 12 community pharmacies (NI and London) with embedded process evaluation
- Pharmacies recruited
 - Training completed
 - Patient recruitment underway
- Using an app on an iPad for solutions to adherence issues



Reflections on this approach

- **A systematic approach to intervention development**
- **Detailed, thorough, exhaustive**
- **Time-consuming**
 - Balance between rigour and practical approach
 - Increasingly, funding bodies want to see this type of approach before supporting large studies
- **Important question**
 - Will this approach lead to a more effective intervention?

Developing an intervention

- John Snow 1813-1858
- A founding father of epidemiology
- Link between contaminated water and cholera outbreak in London



Development of the intervention

- Recognised the problem and posed a theory
- Systematically collected and analysed the data
 - Interviews, mapping cases to affected areas, barriers and facilitators to infection
- Came to a conclusion and “*respectfully requested an interview*” with the Board of Governors of St. James’ Parish in London
 - Contamination of water source
 - Proposed an intervention

Mapping from TDF to BCT to an intervention component

- **TDF domain- Environmental context and resources**
- **BCT-restructuring the physical environment OR avoidance of exposure to cues for the behaviour**
- **Operationalise the BCT**
 - Removal of the handle from the Broad Street water pump



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