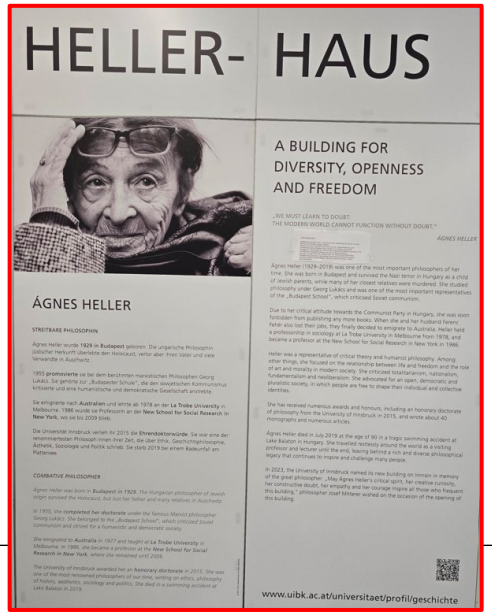
14th PCNE Working Conference, Ágnes-Heller-Haus (AHH), Innsbruck, Austria
Strengthening pharmaceutical care research and practice
5 - 8 February 2025

Evaluation of medication management reviews: are they effective in optimising pharmaceutical care?

Prof Timothy F Chen
Timothy.chen@sydney.edu.au

THE UNIVERSITY OF SYDNEY

„WE MUST LEARN TO DOUBT.
THE MODERN WORLD CANNOT FUNCTION WITHOUT DOUBT."


HELLER- HAUS

A BUILDING FOR DIVERSITY, OPENNESS AND FREEDOM

ÁGNES HELLER

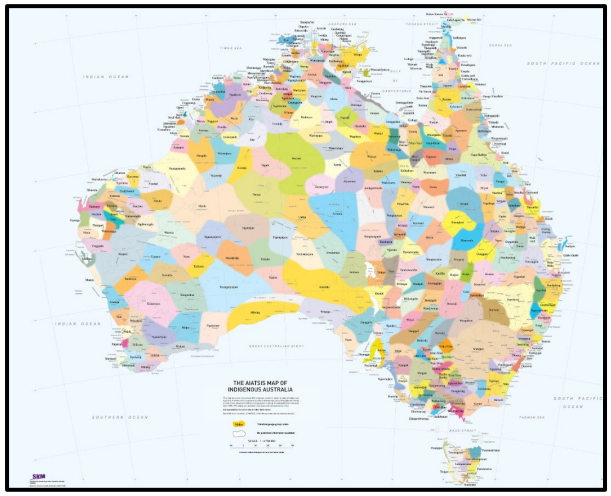
www.uibk.ac.at/universitaet/profil/geschichte

Agnes Heller
Hungarian philosopher of Jewish origin
Migrated to Australia (1977-86)
Hon doctorate University of Innsbruck (2015)

Background

- The University of Sydney
- Oldest university in Australia
- Founded in 1850
- University of Innsbruck 1669

- Australia
- One of the oldest continuing populations outside of Africa: Aboriginal and Torres Strait Islands
- 62,000-75,000 years ago

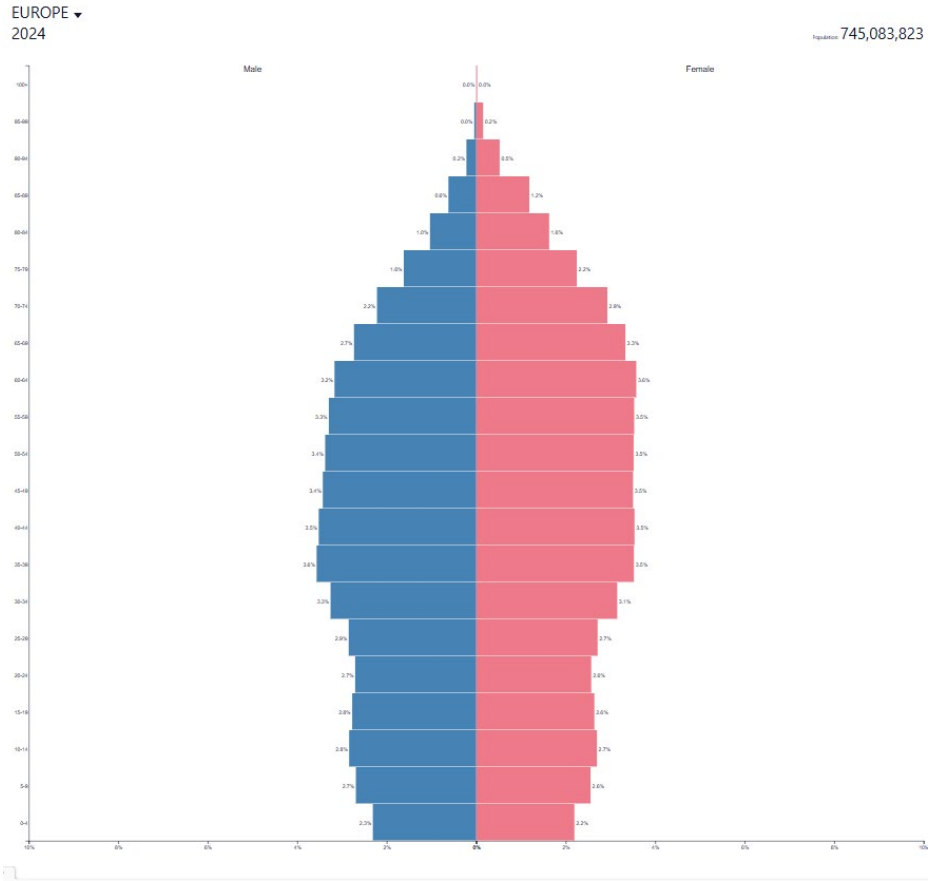


Overview

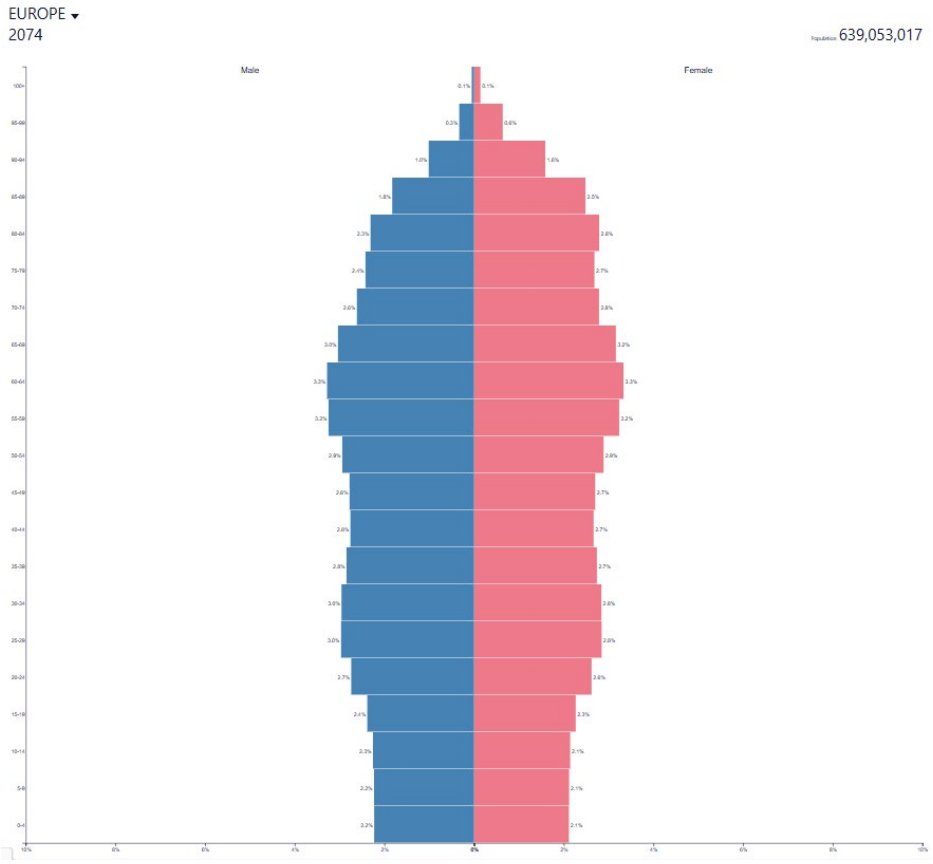
- Background and rationale for MMR
- Overview of MMR – including Australian model
- Evidence for and considerations for the evaluation of MMR services
- Concluding comments

Background: Ageing population

Europe 2024
745m



Europe 2074
639m



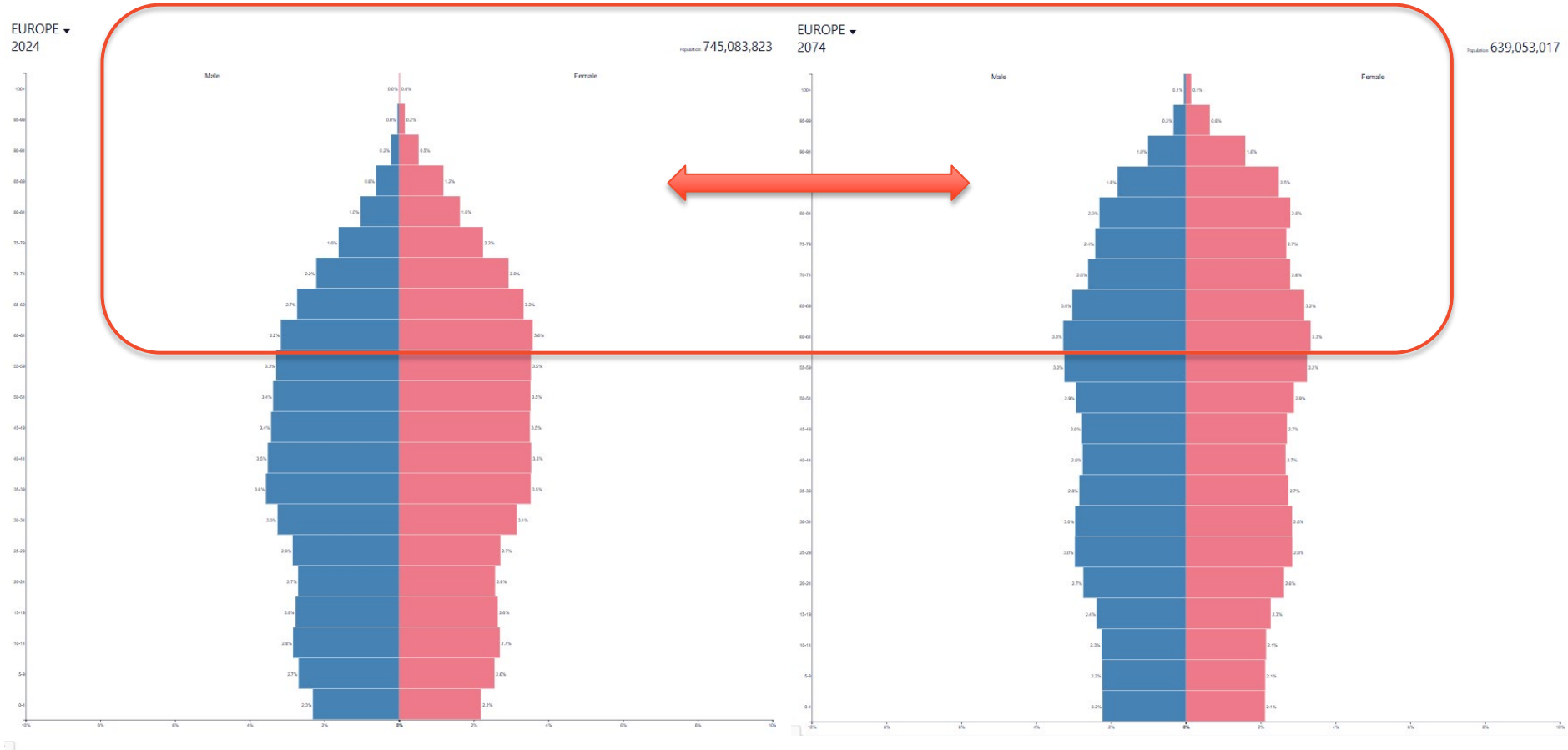
Ageing population

Europe 2024

745m

Europe 2074

639m



Prevalence of polypharmacy in Europe

Received: 16 October 2023 | Revised: 8 March 2024 | Accepted: 9 May 2024

DOI: 10.1111/bcp.16113

ORIGINAL ARTICLE

The prevalence of polypharmacy in older Europeans: A multi-national database study of general practitioner prescribing

Marion Bennie[1] | Yared Santa-Ana-Tellez[2] | Githa Fungie Galistiani[3] | Julien Trehony[4] | Johanna Despres[4] | Laurence Sophie Jouaville[4] | Elisabetta Poluzzi[5] | Lucas Morin[6] | Ingrid Schubert[7] | Seán MacBride-Stewart[8] | Monique Elseviers[9] | Paola Nasuti[4] | Katja Taxis[10]

TABLE 1 Study population: demographics and overview of medicines.

		Belgium ($n = 72\,140$)	France ($n = 257\,020$)	Germany ($n = 376\,641$)	Italy ($n = 315\,453$)	Spain ($n = 156\,144$)	UK ($n = 590\,310$)
Age at index date (years)	Mean (SD)	75.8 (7.83)	75.4 (7.65)	76 (7.4)	76.3 (7.82)	75.8 (7.83)	75.5 (7.66)
Age at index (years) – group	[65;74]	36 338 (50.4)	135 872 (52.9)	166 236 (44.1)	147 165 (46.8)	79 204 (50.8)	310 397 (52.6)
	[75;84]	23 879 (33.1)	83 146 (32.4)	163 021 (43.3)	113 672 (36.1)	51 260 (32.9)	194 528 (32.9)
	[85;89]	7736 (10.7)	25 148 (9.8)	32 321 (8.6)	33 564 (10.7)	16 267 (10.4)	53 024 (9.0)
	≥90 years	4101 (5.7)	12 673 (4.9)	15 063 (4.0)	20 245 (6.4)	9257 (5.9)	32 361 (5.5)
	Missing (*n*)	86	181	-	807	156	-
Gender	Male	31 686 (43.9)	114 272 (44.5)	188 429 (43.7)	137 724 (43.7)	68 224 (43.7)	267 751 (45.4)
	Female	40 454 (56.1)	142 748 (55.5)	242 910 (56.3)	177 713 (56.3)	87 920 (56.3)	322 559 (54.6)
	Missing (*n*)	–	–	–	16	–	–
Exposed to drug	No	14 730 (20.4)	21 466 (8.4)	2463 (6.5)	14 999 (4.8)	6732 (4.3)	59 933 (10.2)
	Yes	57 410 (79.6)	235 554 (91.6)	374 178 (93.5)	300 454 (95.2)	149 412 (95.7)	530 377 (89.8)
Patients with polypharmacy **(>5 ATC 3rd level classes)**	No	44 590 (61.8)	107 931 (42.0)	155 020 (41.7)	146 726 (46.5)	68 715 (44.0)	456 009 (77.2)
	Yes	27 550 (38.2)	149 089 (58.0)	217 095 (58.3)	168 727 (53.5)	87 429 (56.0)	134 301 (22.8)
Polypharmacy by category	5–9	23 239 (84.4)	114 976 (77.1)	159 628 (71.5)	135 998 (80.6)	68 792 (78.7)	119 123 (88.7)
	> = 10	4311 (15.6)	34 113 (22.9)	57 467 (28.5)	32 729 (19.4)	18 637 (21.3)	15 178 (11.3)
Potentially inappropriate medicines	*n*	72 054	256 839	376 641	314 646	155 988	590 310
	Opioids	7512 (10.4)	19 852 (7.7)	41 977 (11.1)	34 079 (10.8)	26 666 (17.1)	59 177 (10.0)
	Antipsychotics	2019 (2.8)	3712 (1.4)	13 253 (3.5)	16 747 (5.3)	9868 (6.3)	11 270 (1.9)
	Benzodiazepines	9269 (12.9)	36 338 (14.1)	16 219 (4.3)	30 231 (9.6)	38 989 (25.0)	7614 (1.3)
	Proton pump inhibitors	16 484 (22.9)	84 579 (32.9)	127 006 (33.7)	125 989 (40.0)	69 253 (44.4)	113 551 (19.2)

Implications of Polypharmacy

Amy T Page et al, 2019
https://www.mja.com.au/journal/2019/211/2/polypharmacy-among-older-australians-2006-2017-population-based-study

1 Population prevalence of continuous polypharmacy in Australia and numbers of people affected among people aged 70 years or more, 2017

	Estimated residential population[16]	Estimated number of people (prevalence)		
		5 or more medicines	10 or more medicines	15 or more medicines
All people (70 years or more)	2 593 514	935 240 (36.1%)	153 040 (5.9%)	17 220 (0.7%)
Age group				
70–74 years	958 102	269 800 (28.2%)	38 400 (4.0%)	4250 (0.4%)
75–79 years	677 142	250 760 (37.0%)	39 420 (5.8%)	4660 (0.7%)
80–84 years	469 203	205 790 (43.9%)	36 850 (7.9%)	4380 (0.9%)
85–89 years	307 736	141 640 (46.0%)	25 610 (8.3%)	2660 (0.9%)
90–94 years	144 551	55 790 (38.6%)	10 610 (7.3%)	1120 (0.8%)
95 years or more	36 780	11 460 (31.2%)	2150 (5.8%)	150 (0.4%)
Sex				
Women	1 407 313	515 540 (36.6%)	85 060 (6.0%)	9360 (0.7%)
Men	1 186 201	419 700 (35.4%)	67 980 (5.7%)	7860 (0.7%)

– Polypharmacy among older Australians, 2006–2017: a population-based study

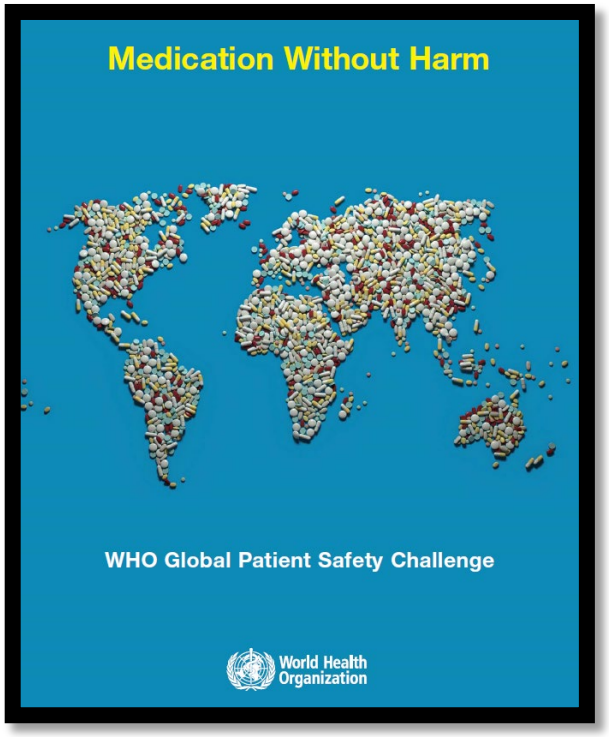
Polypharmacy is associated with poor clinical outcomes, including more hospitalisations and premature mortality

Global Context

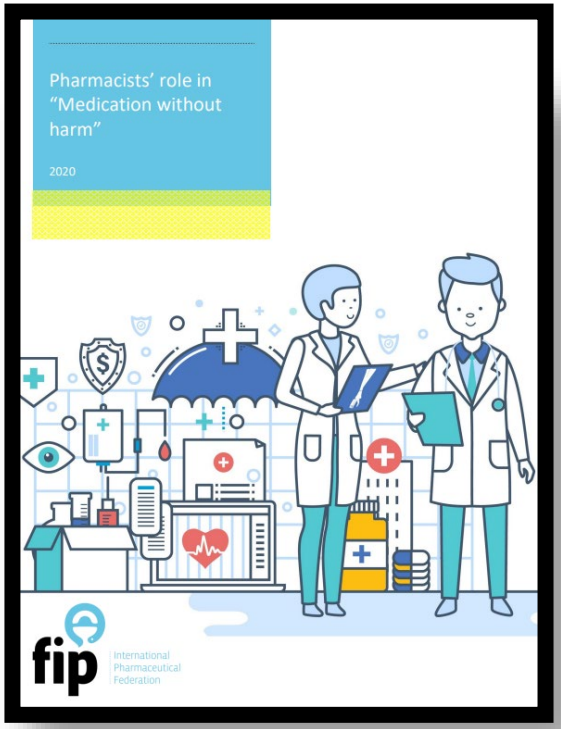
WHO Global Patient Safety Challenge;

FIP Pharmacist's role in medication without harm

Medication Without Harm - Global Patient Safety Challenge on Medication Safety. Geneva: World Health Organization, 2017. Licence: CC BY-NC-SA 3.0 IGO.



Medication Harm = DRP a negative clinical outcome



World Health Organization

https://www.who.int/initiatives/medication-without-harm

Medication Safety in Australia

- **250,000** hospitalisations pa due to drug related problems with 50% preventable ($1.4bn)
- **90%** of patients have a medication related problem post-discharge
- **98%** of residents in aged care facilities have drug related problem
- **1.2m** experienced adverse drug event in last 6mth in community

Pharmaceutical Care … a logical solution to medication without harm

Hepler and Strand, 1990

"Pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcomes which improve a patient's quality of life"

Originally published in: International Journal of Clinical Pharmacy [ISSN: 2210-7703 (Print) 2210-7711 (Online)]
The final publication is available at Springer via http://dx.doi.org/10.1007/s11096-014-9933-x

RESEARCH ARTICLE

Pharmaceutical Care – the PCNE definition 2013

Samuel S. Allemann, J. W. Foppe van Mil, Lea Botermann, Karin Berger, Nina Griese, Kurt E. Hersberger

– "Pharmaceutical Care is the pharmacist's contribution to the care of individuals in order to optimize medicines use and improve health outcomes."

Meeting immediately prior to PCNE Berlin 2013

Medication Management Review – an established pharmaceutical care service

THE UNIVERSITY OF SYDNEY

Europe: PCNE Types of Medication Review

https://www.fip.org/file/5100

Table 1. PCNE types of MR[17]

Type	Data sources	Information obtained through MR
1 (simple)	Medication history	Medicine-medicine (drug-drug) interactions, some side effects, unusual dosages, some adherence issues
2a (intermediate)	Medication history and patient information	Medicine-medicine (drug-drug) interactions, some side effects, unusual dosages, adherence issues, medicine-food (drug-food) interactions, effectiveness issues, side effects, issues with non-prescription (over-the-counter) medicines
2b (intermediate)	Medication history and medical (clinical) information	Medicine-medicine (drug-drug) interactions, some side effects, unusual dosages, adherence issues, medicine-food (drug-food) interactions, effectiveness issues, untreated indications, treatments with no indication.
3 (advanced)	Medication history, patient information and medical (clinical) information	Medicine-medicine (drug-drug) interactions, side effects, unusual dosages, adherence issues, medicine-food (drug-food) interactions, effectiveness issues, issues with non-prescription (over-the-counter) medicines, untreated indications, treatments with no indication

Royal Pharmaceutical Society, UK - https://www.rpharms.com/ Medication Review

A medication review is defined as "a structured, critical examination of a patient's medicines with the objective of reaching an agreement with the patient about treatment, optimising the impact of medicines, minimising the number of medication related problems and reducing waste". [1]

Medication reviews should include all medicines the patient is taking, including prescribed medicines, over-the-counter (OTC) medicines, complementary medicines and supplements.

Royal Pharmaceutical Society, UK - https://www.rpharms.com/

England

- **Medicines Use Review (MUR)** - Is a structured review that is undertaken by a pharmacist to help patients manage their medicines more effectively. It involves the pharmacist reviewing the patient's use of their medicines, ensuring they understand how their medicines should be used and why they have been prescribed, identifying any problems and then, where necessary, providing feedback to the prescriber. Further information about MURs can be viewed on the Pharmaceutical Services Negotiating Committee (PSNC)'s website
- **New Medicine Service (NMS)** – Provides support for people with long term conditions newly prescribed a medicine to help improve medicines adherence (it can create an opportunity to conduct a medication review). Further information about NMS can be viewed on the PSNC website.

Scotland

- **Chronic Medication Service (CMS)** – aAlows pharmacists to manage individual patients with long term conditions in order to assist in improving the patient's understanding of their medicines and optimising the clinical benefits from their therapy. Further information can be viewed on the Community Pharmacy Scotland website and SHOW website.

Wales

- **Medicines Use Review** – See England above. Additional information can be viewed on Community Pharmacy Wales website
- **Discharge Medicines Services (DMS)** - Builds on the existing Medicine Review Service in Wales, providing support to patients recently discharged between care settings, ensuring that changes to medicines are followed up in community. Further information can be viewed on Community Pharmacy Wales website.

Medication Management Review, USA

Medication Therapy Management (MTM)

MTM is defined as a distinct service or group of services that optimize therapeutic outcomes for individual patients (profession-wide consensus definition)

Comprehensive Medication Management

- "a patient-centered approach to optimizing medication use and improving patient health outcomes that is delivered by a clinical pharmacist working in collaboration with the patient and other health care providers"

Adapted from Prof Gary Yee, University of Nebraska; Based on the work of the Patient-Centered Primary Care Collaborative (www.pcpcc.org) and Drs. Robert Cipolle and Linda Strand

Medicare.gov, USA

https://www.medicare.gov/drug-coverage-part-d/what-medicare-part-d-drug-plans-cover/medication-therapy-management-programs-for-complex-health-needs

Through the MTM you'll get:

- A comprehensive review of your medications and the reasons why you take them.
- A written summary of your medication review with your doctor or pharmacist.
- An action plan to help you make the best use of your medications (there will be space for you to take notes or write down any follow-up questions.)

A pharmacist or other health professional will talk with you about:

- Whether your medications have side effects
- If there might be interactions between the drugs you're taking
- Whether your costs can be lowered
- How to safely dispose of unused medications

Australia: Medication Management Review

https://www1.health.gov.au/internet/main/publishing.nsf/Content/consumer-pharmacy#Home%20Medicines%20Review

Home Medicines Review

A Home Medicines Review will help consumers, in particular, for consumers with multiple health conditions or who are taking multiple medications, to manage their medicines at home. The GP determines that a HMR will benefit the consumer and gives a referral to the community pharmacy or accredited pharmacist of the consumer's choice. The pharmacist has specialist training to conduct HMRs. The pharmacist then talks with the consumer in their home and provides a written report back to their GP and if appropriate, the consumer's community pharmacy.

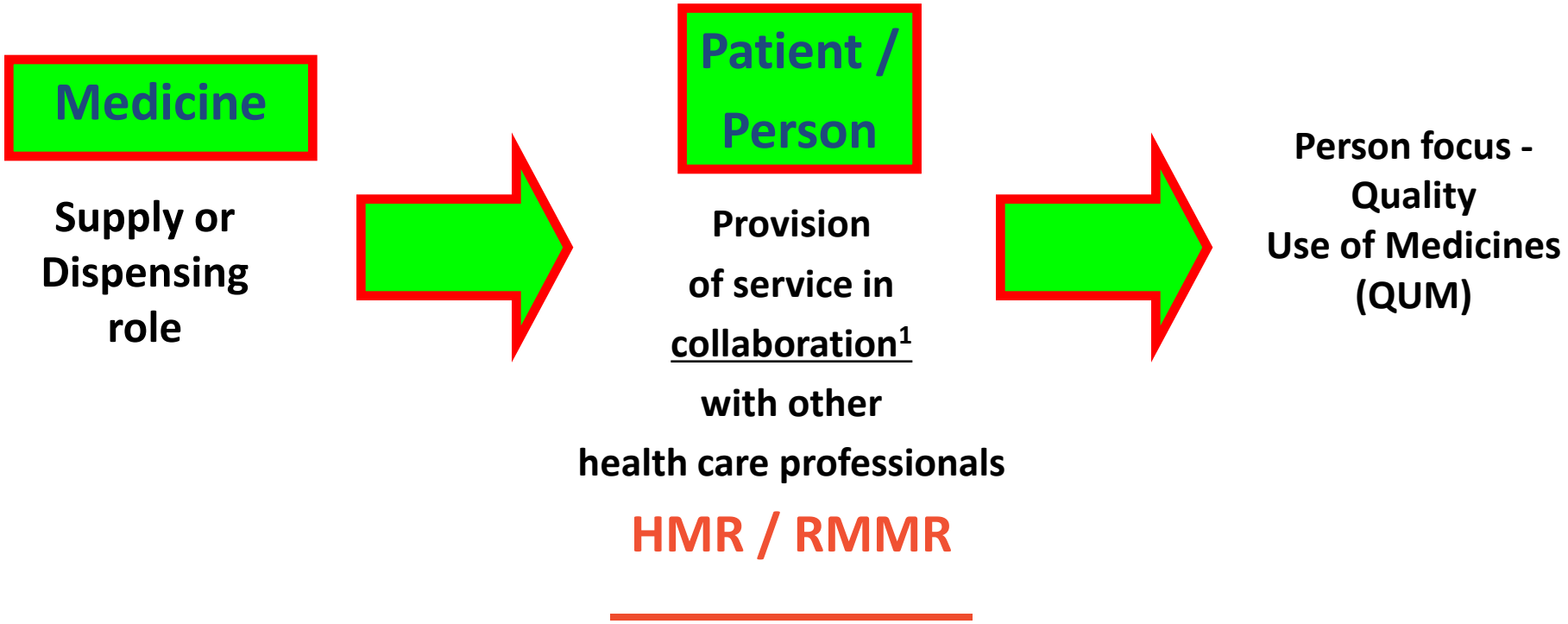
How do they help you?

A Home Medicines Review will help consumers use their medicines effectively and avoid any unwanted side effects they may be having, helping consumers get the most out of their medicines.

Residential Medication Management Review

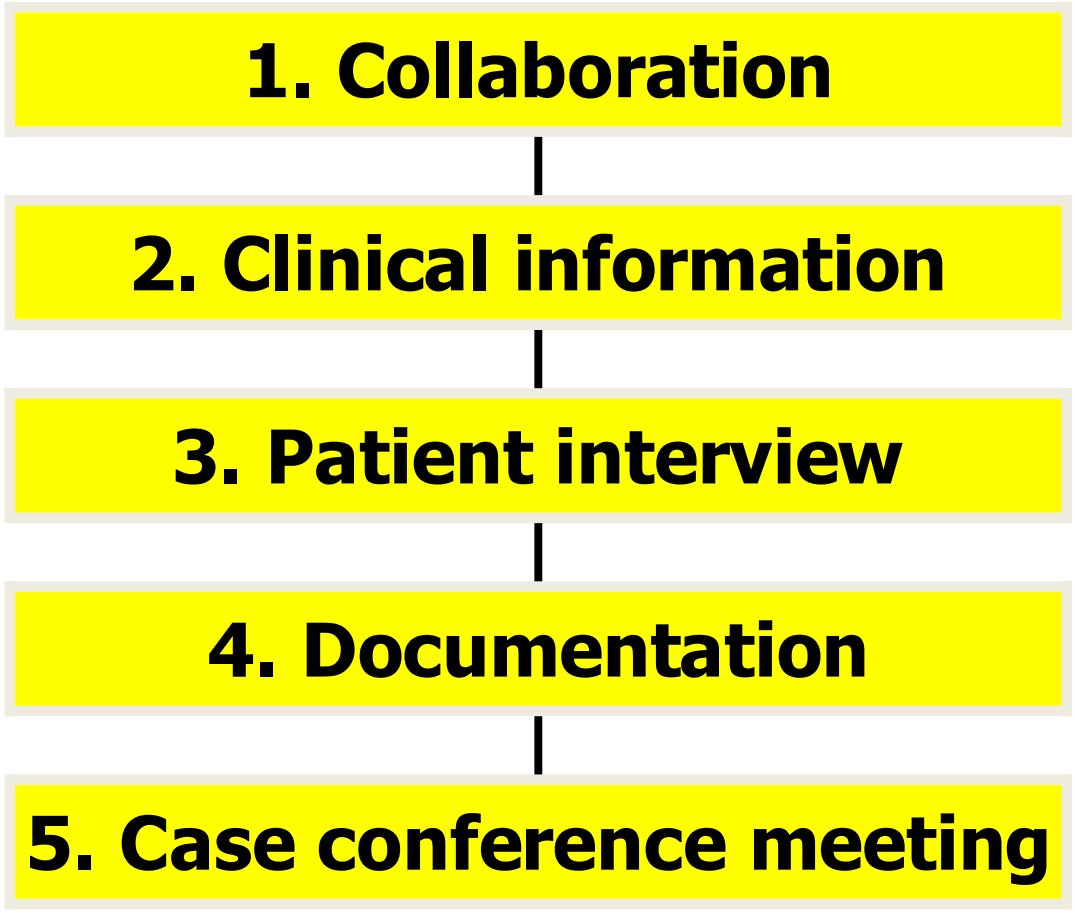
The Residential Medication Management Review (RMMR) program funds approved, accredited pharmacists to conduct medication reviews for permanent residents of Australian Government funded residential aged care facilities. The program aims to enhance the quality use of medicines and reduce the risk of adverse medicines events by assisting aged care residents and their carers with their medication.

Paradigm Shift: Concept of Medication Management Review - *from drug to patient / person focus (about 30 yrs ago)*



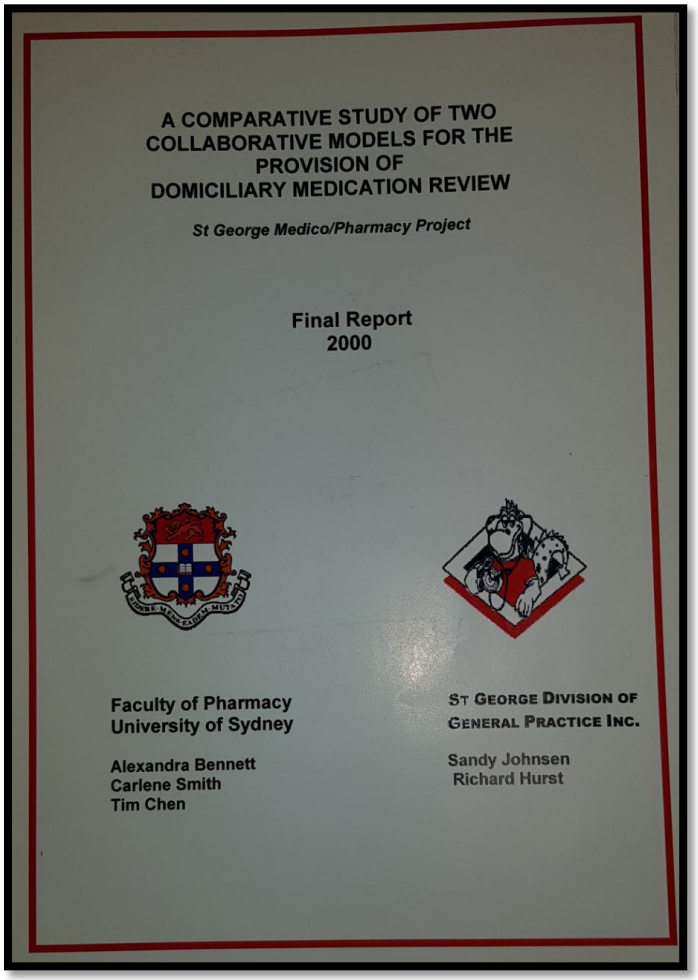
Chen TF, AC de Almeida Neto. Pharmacy World and Science, 2007, 29:574-576.
Chen T, Crampton M, Krass I, Benrimoj S. Journal of Social and Administrative Pharmacy, 2001; 18:83-90

Key Design Elements of Medication Management Review: mid-late 1990s



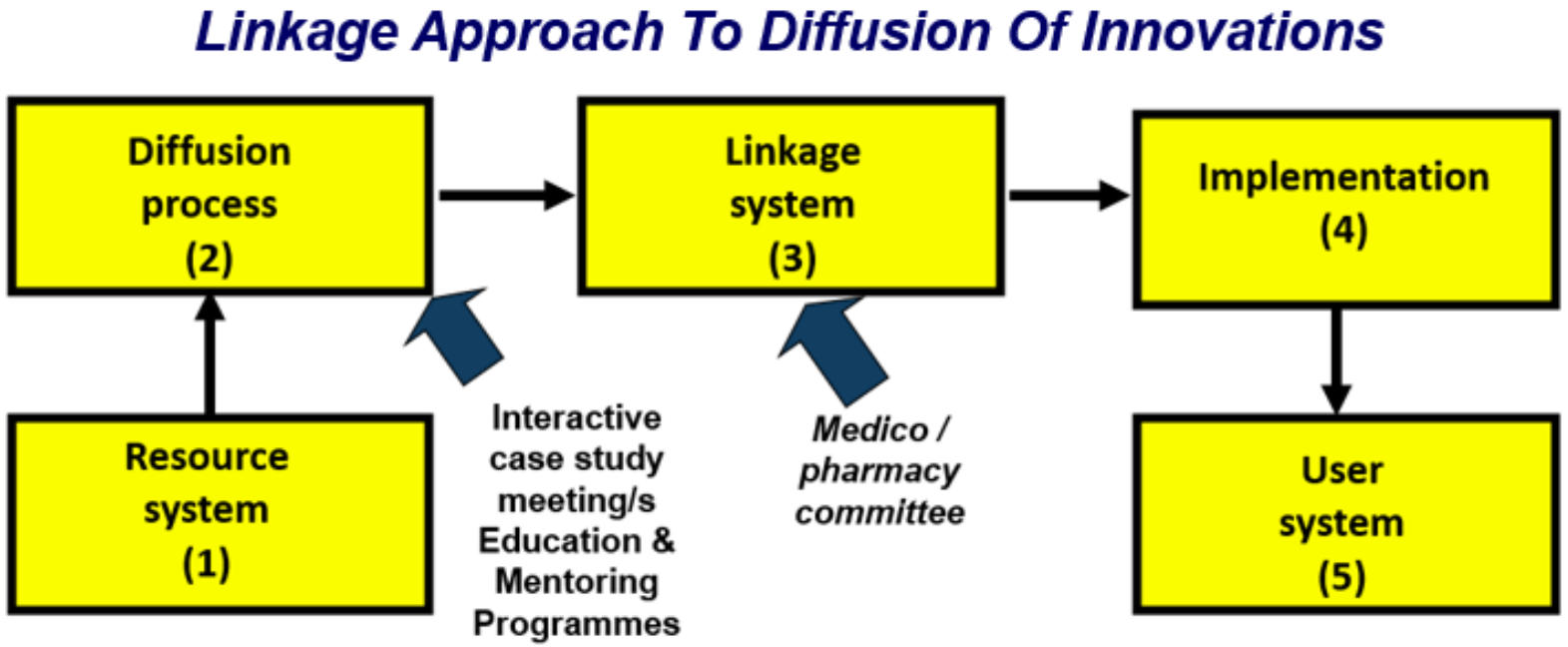
Domiciliary Medication Review (1999-2000)

Chen, Bennett, Smith et al., 2000; http://www.guild.org.au/public/dmmrfiles/report_stgeorge.pdf



- To establish a sustainable, cost-effective and transportable mechanism for referral of domiciliary patients by GPs to community pharmacists for in-depth medication review

Theoretical Framework for Dissemination of Medication Management Review



Chen, T. F., Crampton, M., Krass I., Benrimoj S.I. (1999). Journal of Social & Administrative Pharmacy **16**(3-4): 134-144.

Actions resulting from medication review (N=362 cases) (1999-2000)

Chen, Bennett, Smith et al., 2000;
http://www.guild.org.au/public/dmmrfiles/report_stgeorge.pdf

	N (%)
Medicine ceased	695 (38.5)
Dose reduced	233 (12.9)
Medicine added	194 (10.7)
Dose increased	167 (9.2)
Medicine changed	131 (7.3)
Test/level ordered	86 (4.8)
Medication order clarified	78 (4.3)
Regular to PRN	53 (2.9)
Other	169 (9.4)
Total	**1806**

Purely empirical list of findings / recommendations – with no specific taxonomic considerations

Actions resulting from medication review (N=362 cases) (1999-2000)

Chen, Bennett, Smith et al., 2000;
http://www.guild.org.au/public/dmmrfiles/report_stgeorge.pdf

	N (%)	
Medicine ceased	695 (38.5)	*"Deprescribing"*
Dose reduced	233 (12.9)	
Medicine added	194 (10.7)	*"Prescribing"*
Dose increased	167 (9.2)	
Medicine changed	131 (7.3)	
Test/level ordered	86 (4.8)	*"Monitoring"*
Medication order clarified	78 (4.3)	*"Dose reduced / medicine ceased"*
Regular to PRN	53 (2.9)	
Other	169 (9.4)	
Total	**1806**	

Purely empirical list of findings / recommendations – with no specific taxonomic considerations

Impact on use of medicines (N=362 cases)

Chen, Bennett, Smith et al., 2000; http://www.guild.org.au/public/dmmrfiles/report_stgeorge.pdf

Number of medicines per patient by study arm	Time 1 Baseline	Time 2 Post-CA	Time 3 Post-MR
Model 1 (MR)	10.6	10.6	8.9
Model 2 (CA+MR)	10.8	10.7	9.6
Overall	**10.7**	10.6	**9.2**

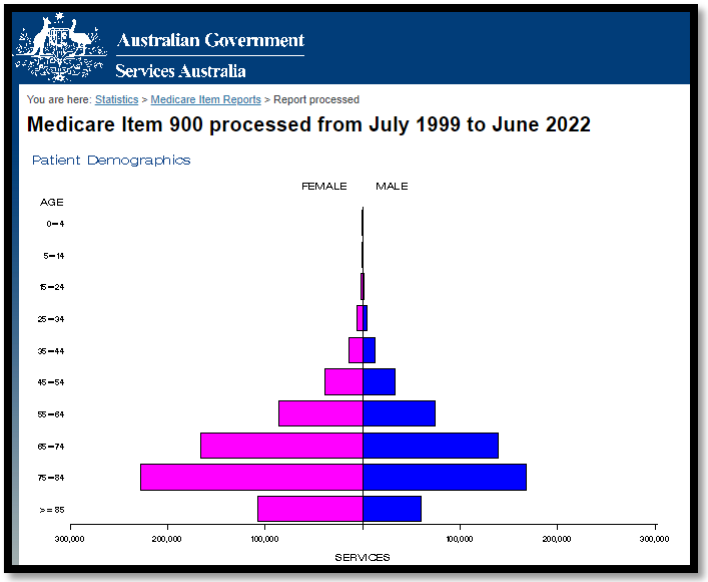
- 9.1% reduction in medication costs from Government PBS perspective … HMR funding

- Clinical pharmacy support: Debbie Rigby, Genevieve Peacoke, Beata Bajorek, Betty Chaar, Ceridwen Jones, Lisa Girlie

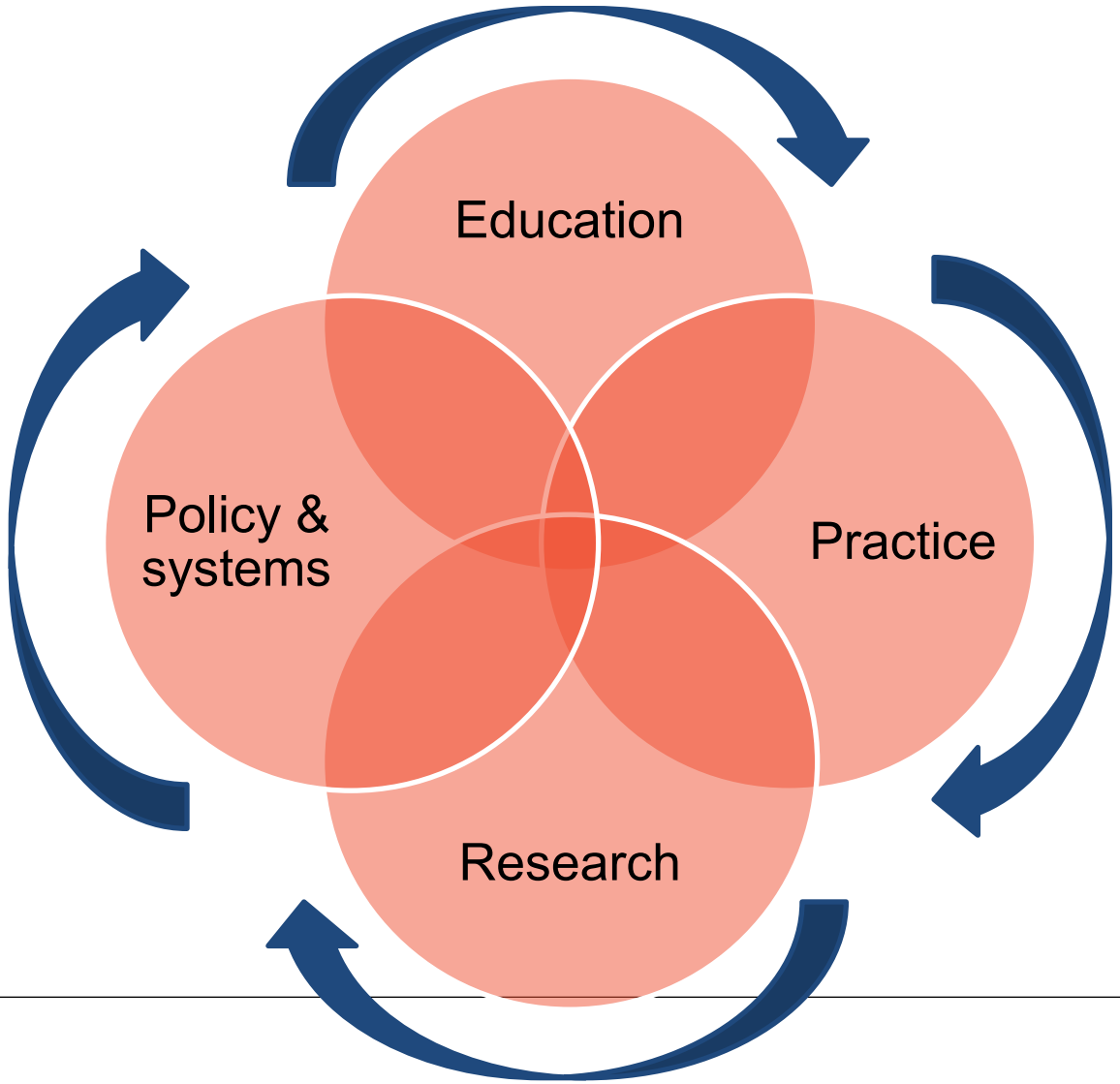
Home Medicines Reviews

http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

Total	Age Range	309
	0-4	908
	5-14	3,597
	15-24	10,598
	25-34	26,687
	35-44	71,650
	45-54	160,250
	55-64	304,709
	65-74	395,505
	75-84	167,454
	>=85	0
	Unknown	1,141,667
	Total	



Consideration for effective implementation of Medication Therapy Management



Considerations for the evaluation of Medication Management Review services – including instrument development and classification systems

THE UNIVERSITY OF SYDNEY

DOI: 10.1111/jgs.17041

REVIEW ARTICLES

Journal of the
American Geriatrics Society

Medication review interventions to reduce hospital readmissions in older people

Lauren Dautzenberg MD, MSc[1] | Lisa Bretagne MSc[2,3] |
Huiberdina L. Koek MD, PhD[1] | Sofia Tsokani MSc[4] | Stella Zevgiti PhD[4] |
Nicolas Rodondi MD, PhD[2,3] | Rob J. P. M. Scholten MD, PhD[5] |
Anne W. Rutjes PhD[3,6] | Marcello Di Nisio MD, PhD[7] |
Renee C. M. A. Raijmann MD, MSc[1] | Marielle Emmelot-Vonk MD, PhD[1] |
Emma L. M. Jennings MB[8,9] | Olivia Dalleur MS, PhD[10,11] |
Dimitris Mavridis PhD[4,12] | Wilma Knol MD, PhD[1]

Med Rec, Med Rev, Education of pt and HCP, transitions of care

TABLE 1 Intervention components to prevent hospital readmissions

Intervention component	Abbreviation
Medication review	Mdrev
Medication reconciliation	Mdrec
Shared decision making	Sdm
Patient education/medication counseling	Pedu
Health professional education	Hpedu
Use of validated methods	Vm
Use of Computerized Decision Support	Cds
Compliance aid	Ca
Transitional care	Tc

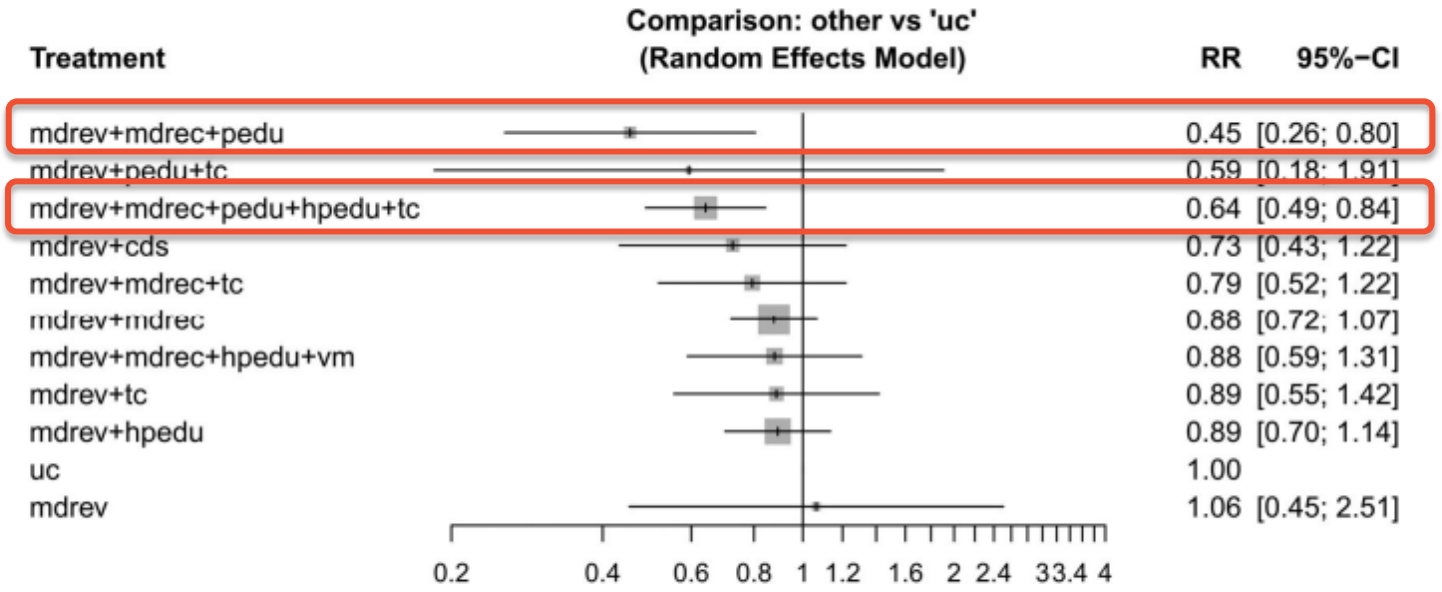
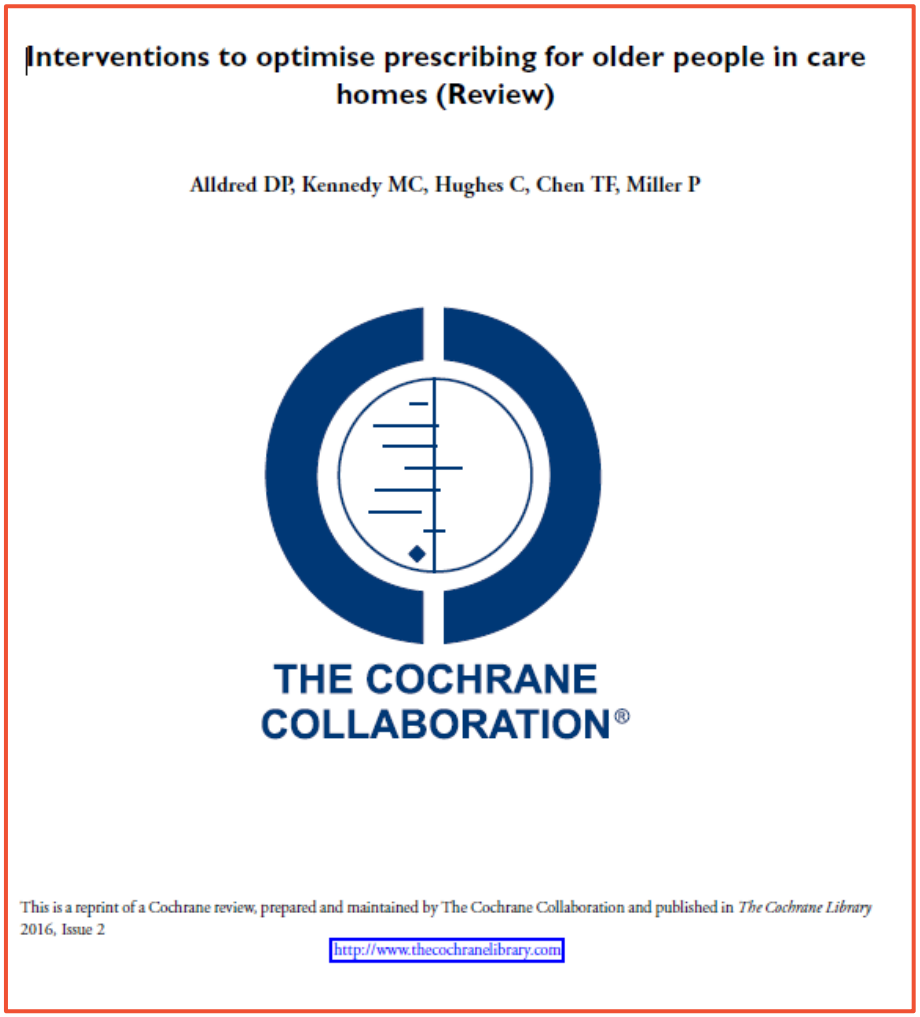


FIGURE 1 Summary risk ratios (RRs) with 95% confidence intervals (95% CIs) resulting from the primary network meta-analysis for every intervention consisting of one or more components versus usual care for the outcome all-cause hospital readmissions within 30 days, including 11 studies. Abbreviations: mdrev, medication review; mdrec, medication reconciliation; pedu, patient education/medication counseling; hpedu, health professional education; vm, use of validated methods; cds, use of Computerized Decision Support; ca, compliance aid; tc, transitional care



Interventions to optimise prescribing for older people in care homes (Review)

Alldred DP, Kennedy MC, Hughes C, Chen TF, Miller P

THE COCHRANE COLLABORATION®

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2016, Issue 2

http://www.thecochranelibrary.com

Key results

We found no evidence of benefit of the interventions with respect to reducing adverse drug events (harmful effects caused by medicines) or death. One study led to residents having fewer days in hospital; however, the majority of studies did not show a benefit in relation to reducing hospital admissions. One study led to a slower decline in health-related quality of life. Problems relating to medicines were found and addressed through the interventions used in the studies. Prescribing was improved based on criteria used to assess the appropriateness of prescribing in five studies.

Impact of MMR on Drug Burden Index

RMMR

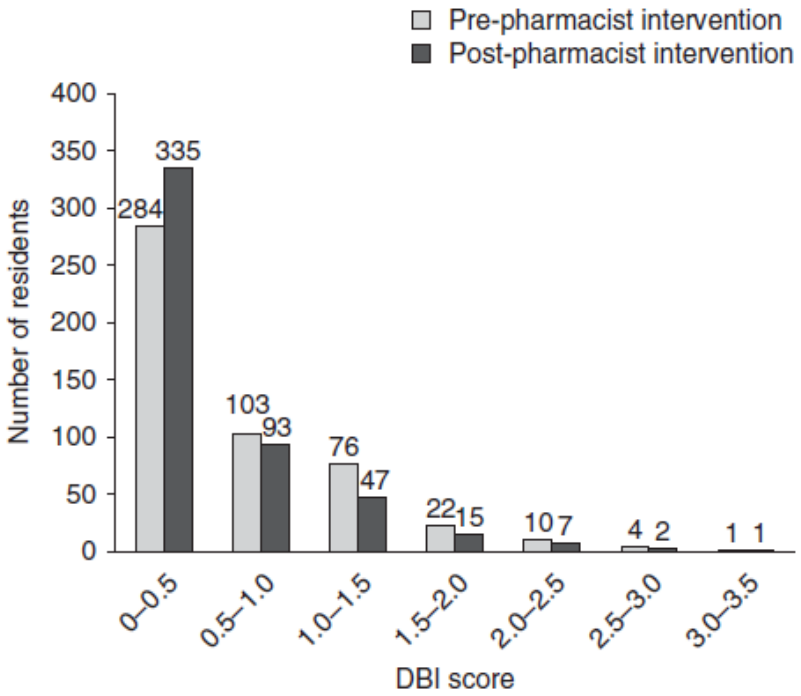
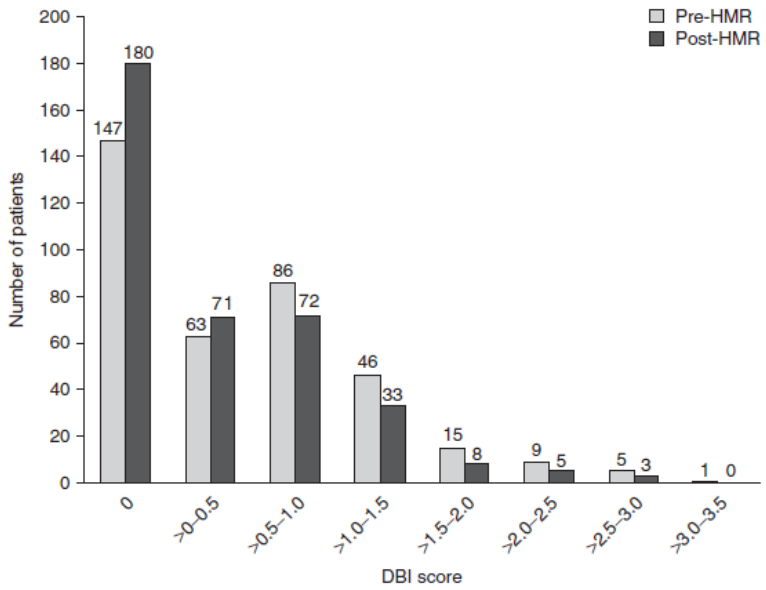


Fig. 1. Drug Burden Index (DBI) scores pre- and post-pharmacist intervention.

Pre-DBI = 0.50 (equivalent to 1 AC/S)

Post-DBI = 0.33 (equivalent to ½ AC/S)

HMR

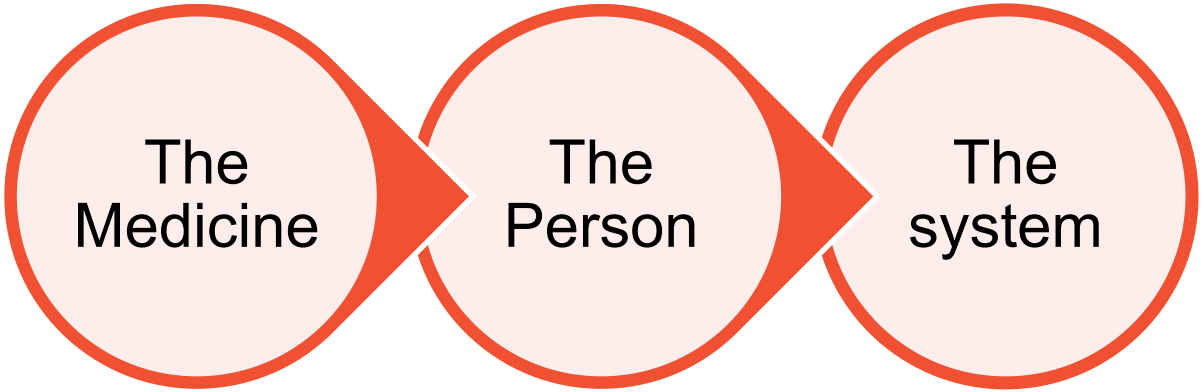


Pre-DBI = 0.50 (equivalent to 1 AC/S)

Post-DBI = 0.22 (equivalent to ½ AC/S

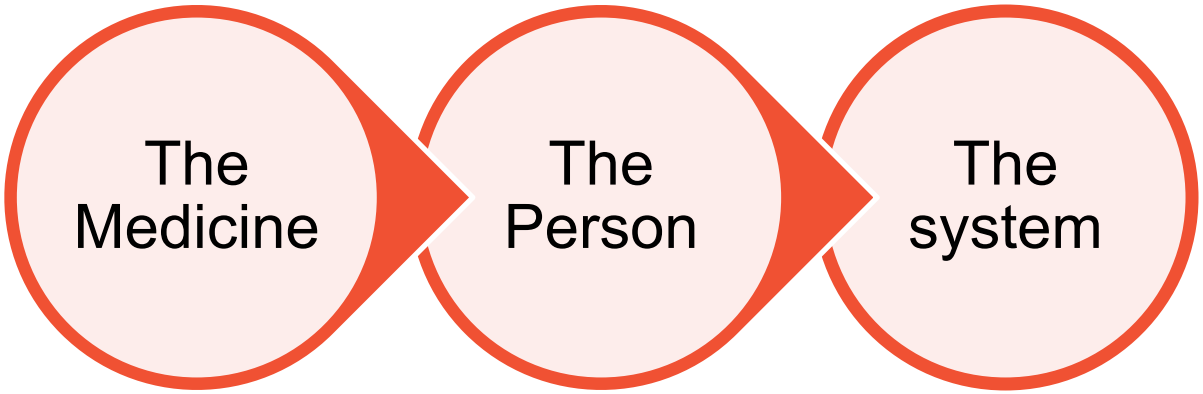
Nishtala PS et al. Drugs & Aging 2009; 26: 677-86; Castelino RL et al. Drugs & Aging 2010; 27: 135-48.

Conceptual framework for evaluation of medication management review



Conceptual framework for evaluation of medication management review

using mixed methods (qualitative and quantitative)



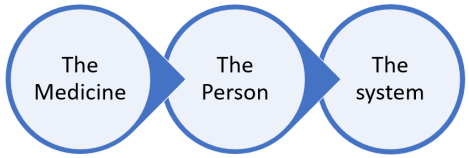
e.g.,
Causes of drug related problems; DRPs; recommendations

e.g.,
Change in clinical or humanistic parameter; ECHO

e.g.,
Cost effectiveness of the service from funder / Government perspective; Policy

Methods informed by underpinning disciplines used in Pharmacy Practice and the social sciences

- Psychology
  - Understanding of behaviour at individual level
  - … e.g., consumer medication adherence
  - … e.g., pharmacist behaviours - pseudo-patient method
- Sociology
  - Understanding pharmacy practice in the context of society
  - … e.g., understanding of health care systems
- Public health and health services research
  - Preventing disease, prolonging life, promoting health



Methods used in Pharmacy Practice …
to evaluate economic, clinical, humanistic outcomes

- Economic
  - … e.g., cost effectiveness analysis – cost needed to effect a one unit change in the outcome of interest
  - … (not just the cheapest option)
- Clinical
  - … e.g., HbA1c, BP, AMI
  - … (medicines are not the sole determinant)
- Humanistic
  - … e.g., patient satisfaction
  - … e.g., QoL
  - … (medicines are not the sole determinant)

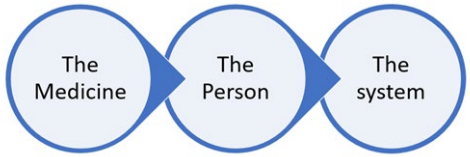
ECHO Model

… proximal or distal; direct or indirect

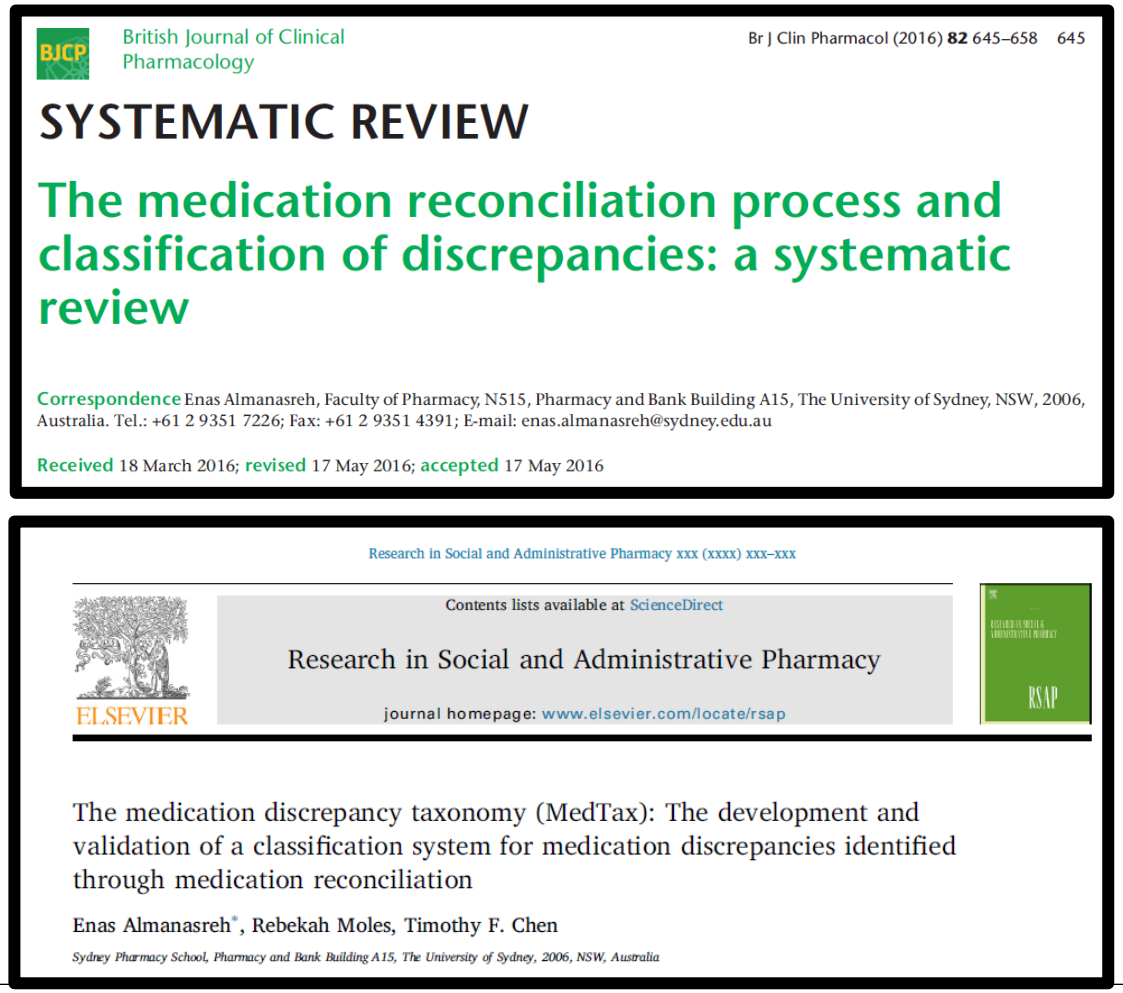
Methods used in Pharmacy Practice …
to evaluate pharmaceutical care interventions

- Process measures
  - E.g., proportion of consumers counselled about their medicines
  - E.g., the proportion of consumers diagnosed with diabetes who have their BSL measured
  - Quality indicators

- Implementation science
  - Theories and frameworks for evaluation of the implementation of the complex intervention



Focus on reliable and valid measurements in MMR research: medication discrepancies



British Journal of Clinical Pharmacology

Br J Clin Pharmacol (2016) **82** 645–658 645

SYSTEMATIC REVIEW

The medication reconciliation process and classification of discrepancies: a systematic review

Correspondence Enas Almanasreh, Faculty of Pharmacy, N515, Pharmacy and Bank Building A15, The University of Sydney, NSW, 2006, Australia. Tel.: +61 2 9351 7226; Fax: +61 2 9351 4391; E-mail: enas.almanasreh@sydney.edu.au

Received 18 March 2016; revised 17 May 2016; accepted 17 May 2016

Research in Social and Administrative Pharmacy xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Research in Social and Administrative Pharmacy

journal homepage: www.elsevier.com/locate/rsap

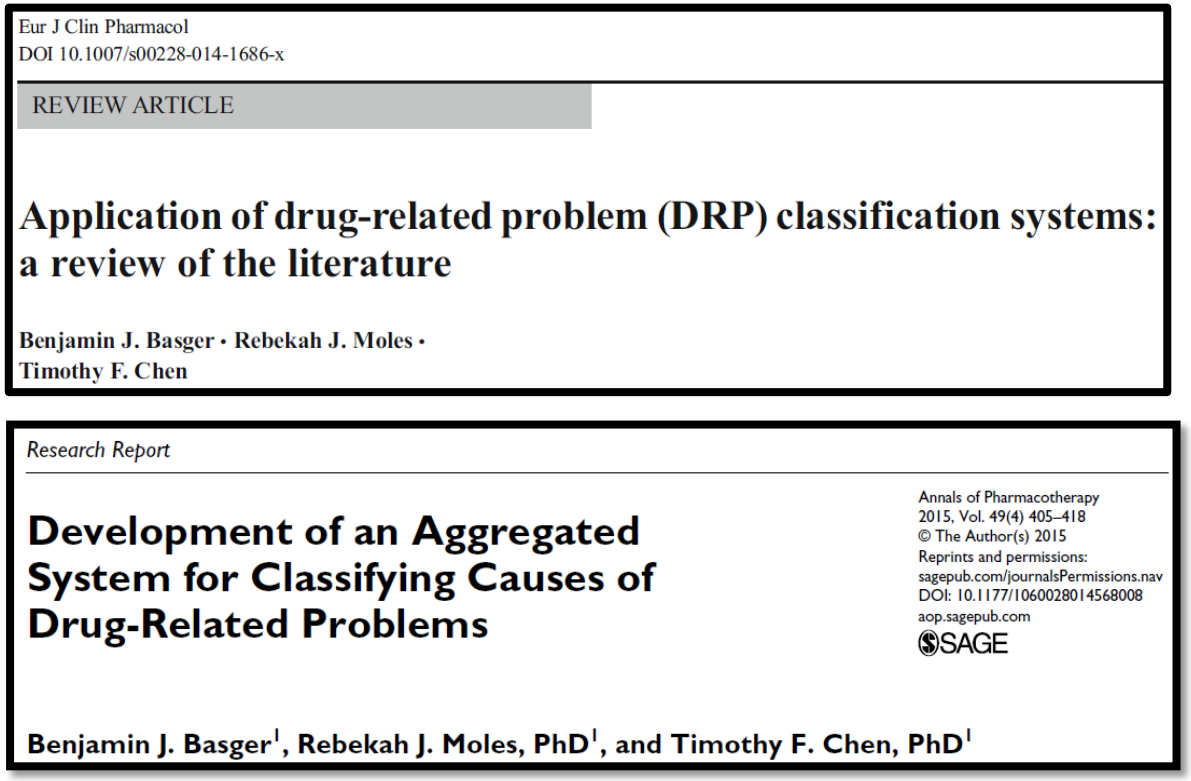
The medication discrepancy taxonomy (MedTax): The development and validation of a classification system for medication discrepancies identified through medication reconciliation

Enas Almanasreh*, Rebekah Moles, Timothy F. Chen

Sydney Pharmacy School, Pharmacy and Bank Building A15, The University of Sydney, 2006, NSW, Australia

A content valid and reliable taxonomy for classifying medication discrepancies

Focus on reliable and valid measurements in MMR research: causes of DRPs



Eur J Clin Pharmacol
DOI 10.1007/s00228-014-1686-x

REVIEW ARTICLE

Application of drug-related problem (DRP) classification systems: a review of the literature

Benjamin J. Basger · Rebekah J. Moles · Timothy F. Chen

Research Report

Development of an Aggregated System for Classifying Causes of Drug-Related Problems

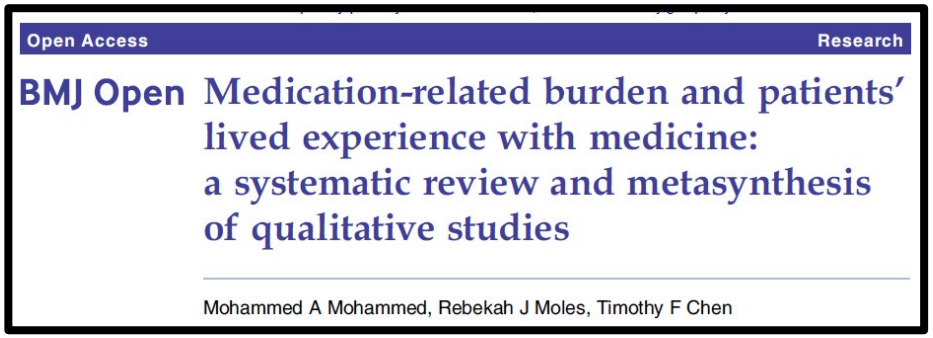
Annals of Pharmacotherapy
2015, Vol. 49(4) 405–418
© The Author(s) 2015
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1060028014568008
aop.sagepub.com
SAGE

Benjamin J. Basger[1], Rebekah J. Moles, PhD[1], and Timothy F. Chen, PhD[1]

A comprehensive aggregated system for classifying causes of DRPs

PLUS … a comprehensive aggregated system for classifying the recommendations (and actions) arising from MMR – PCNE workshop 2025

Focus on reliable and valid measurements in MMR research: medication related burden

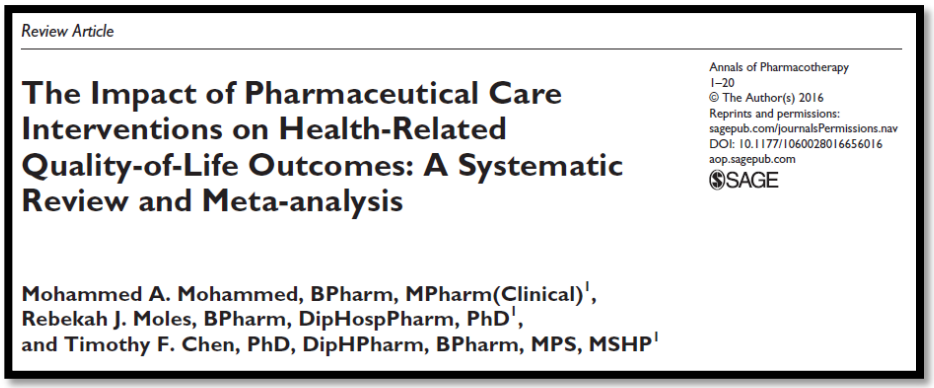


Open Access Research

BMJ Open

Medication-related burden and patients' lived experience with medicine: a systematic review and metasynthesis of qualitative studies

Mohammed A Mohammed, Rebekah J Moles, Timothy F Chen

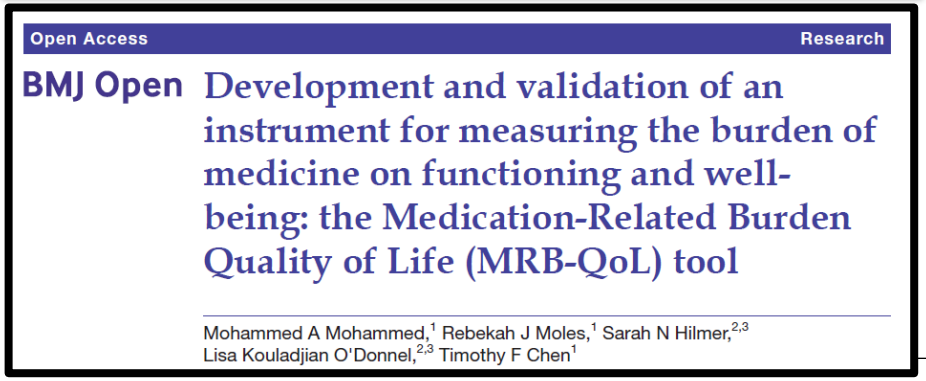


Review Article

The Impact of Pharmaceutical Care Interventions on Health-Related Quality-of-Life Outcomes: A Systematic Review and Meta-analysis

Annals of Pharmacotherapy
1–20
© The Author(s) 2016
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1060028016656016
aop.sagepub.com
SAGE

Mohammed A. Mohammed, BPharm, MPharm(Clinical)[1], Rebekah J. Moles, BPharm, DipHospPharm, PhD[1], and Timothy F. Chen, PhD, DipHPharm, BPharm, MPS, MSHP[1]



Open Access Research

BMJ Open

Development and validation of an instrument for measuring the burden of medicine on functioning and well-being: the Medication-Related Burden Quality of Life (MRB-QoL) tool

Mohammed A Mohammed,[1] Rebekah J Moles,[1] Sarah N Hilmer,[2,3] Lisa Kouladjian O'Donnel,[2,3] Timothy F Chen[1]

MRB-QoL subscales

- Routine and Regimen Complexity
- Psychological Burden
- Functional and Role Limitation
- Therapeutic Relationship
- Social Burden

A systems-approach to enhancing community-based medication review

Protocol Discussion

17th August 2022, Sydney Pharmacy School

aspire

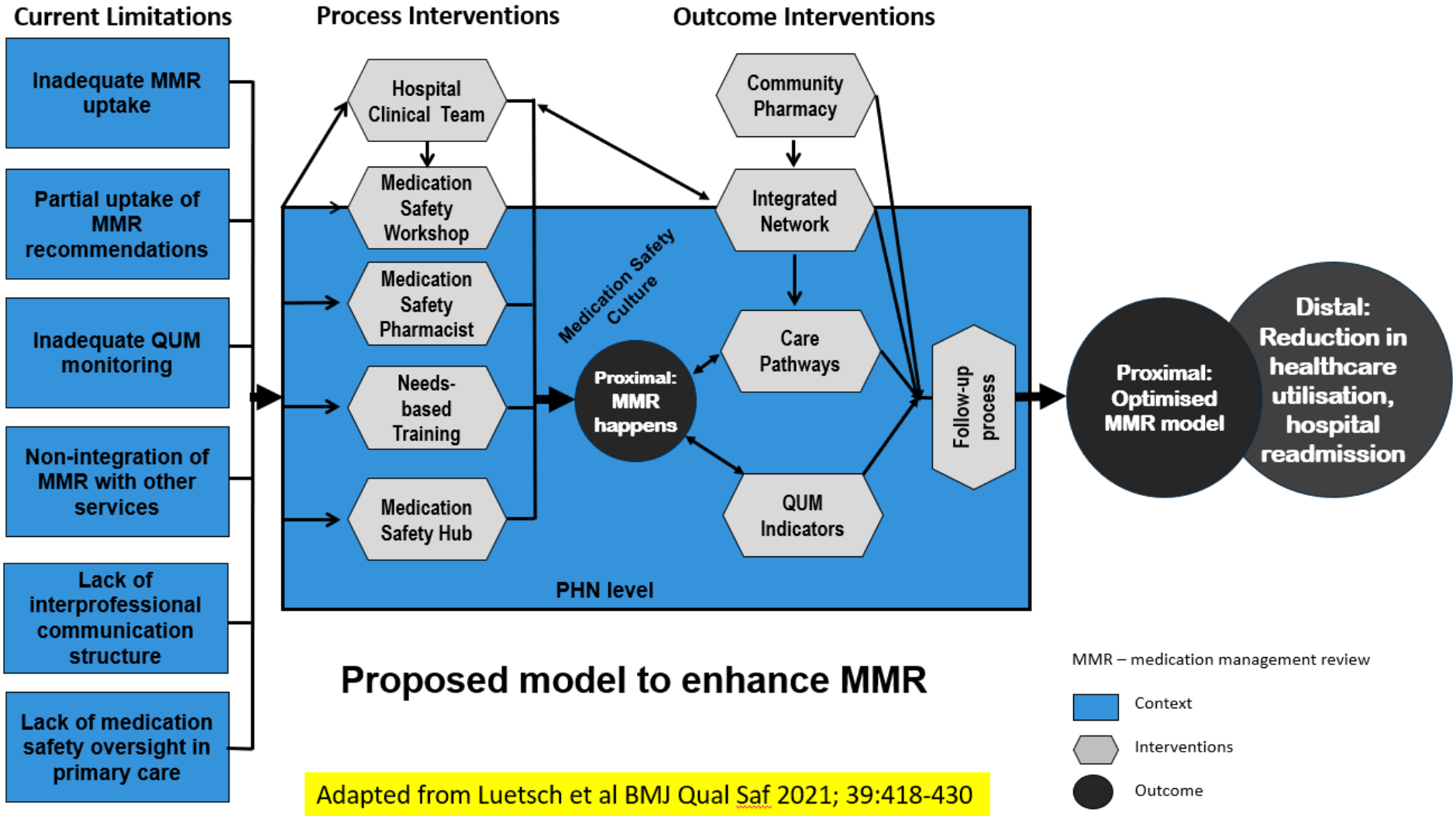
Overall Aim

- To investigate whether an implementation model for reducing medication harm when people are discharged from hospital reduces unplanned hospital readmissions. Our implementation model comprises a timely post-discharge Medication Management Review which is supported by the establishment of Medication Safety Hub within each Primary Health Network.

Study design: SW-CRT

Figure 1. Schema for ASPIRE Stepped Wedge Cluster Randomised Trial (SW-CRT)																							
Time period / month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Year	22		23												24									
Month	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
Cluster1	0	0	0	0*	0*	TP	TP	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cluster2	0	0	0	0	0	0	0	0*	0*	TP	TP	1	1	1	1	1	1	1	1	1	1	1	1	1
Cluster3	0	0	0	0	0	0	0	0	0	0	0	0*	0*	TP	TP	1	1	1	1	1	1	1	1	1
Cluster4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0*	TP	TP	1	1	1	1	1

0=control conditions; 1=Intervention conditions; TP=Transition Period (to implement different components of the intervention e.g., discharge referral pathway, medication safety hub); * = site co-adaptation of the intervention.

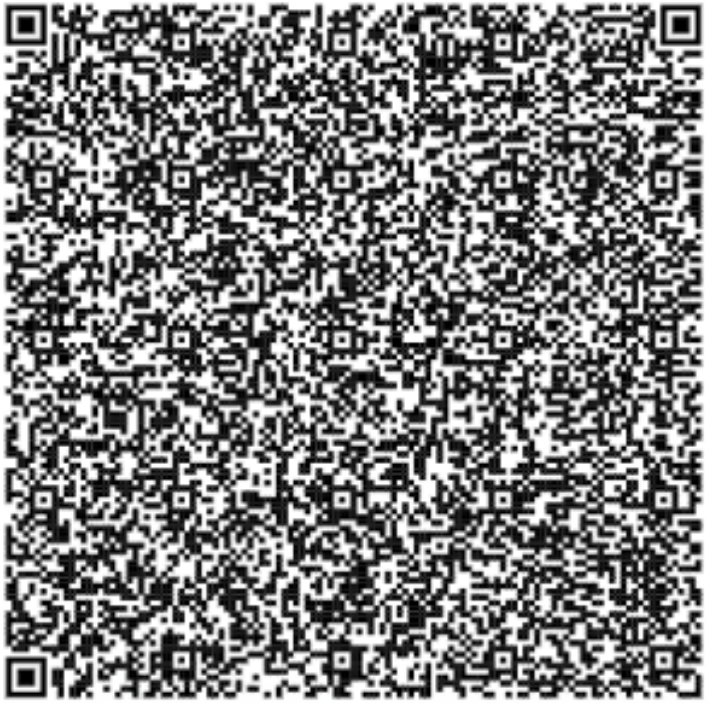


Proposed model to enhance MMR

Adapted from Luetsch et al BMJ Qual Saf 2021; 39:418-430

ANZCTR – More information about the trial

- ACTRN12623000121662



aspire

Concluding comments (1)

- There is going to be an increasing need for experts in pharmaceutical care as our populations age, the prevalence of polypharmacy increases and there is a corresponding increase in the risk of DRPs

- Medication management reviews have been an established funded service provided by pharmacists in a growing number of countries with an opportunity for Austria ahead

- Evaluation of MMR services should be broad-based and include process/ impact measures such as resolution of DRPs as well as broader outcomes- based on the ECHO model BUT note that many outcome measures are determined by factors other than resolution of DRPs

- Measurement properties of evaluation measures is an important consideration: medication reconciliation, causes of DRPs, and at this workshop, recommendations (and actions) for resolution of DRPs

Concluding comments (2)

- In the case of HMR in Australia, much of the evidence for efficacy and effectiveness has been obtained after funding of the services commenced … so, the level of "evidence" to enable funding of a service at initiation is context specific

- MMR should be a "core" activity for pharmacists and pharmacists should maintain their key expertise in this area, despite it being collaborative in nature

- Agnes Heller – "The modern world cannot function without doubt" … as pharmaceutical care researchers, clinicians and educators, we have the responsibility to keep on challenging existing paradigms to improve things for the future and in my view, PCNE has had a long tradition of doing this!

Acknowledgements (1)

- Australian Government funding – Medical Research Future Fund – Aspire Trial

- Key long-standing USYD collaborators: Prof Rebekah Moles; Prof Parisa Aslani, have been trusted co-supervisors and investigators on many projects over the decades

- Aspire trial colleagues

- Many Local and international collaborators and co-authors

- Especially acknowledge the contribution of my post-graduate team

Danke - Questions and comments

And a safe journey home all