Univerza v Ljubljani
Fakulteta za farmacijo

Medicaton review

The opportunity and challenge for practice, system and academia

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Pharmaceutical Care Network Europe (PCNE)

Cognitive pharmacist services

Drug related problems

Drug related problems, PCNE 1999

An event or circumstance involving drug therapy that actually or potentially interferes with desired health outcomes.

The basic classification

	Code V6.2	Primary domains
Problems	**P1**	**Treatment effectiveness** There is a (potential) problem with the (lack of) effect of the pharmacotherapy
	P2	**Adverse reactions** Patient suffers, or will possibly suffer, from an adverse drug event
	P3	**Treatment costs** The drug treatment is more expensive than necessary
	P4	**Others**
Causes	**C1**	**Drug selection** The cause of the DRP can be related to the selection of the drug

Pharmaceutical care

Medicines management

Clinical pharmacy

Medicine optimisation

Medication review

...

Medication review, PCNE 2015

Medication review is a systematic evaluation of all the patient‘s medicines with the aim of improving health outcomes by optimizing the medicines use and reducing risks.

„M. Review“- assesment of drug use?

Or more:

Recommendation

Agreement with the patient/physician

Intervention

Care

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Or more:

Recommendation

Agreement with the patient/physician

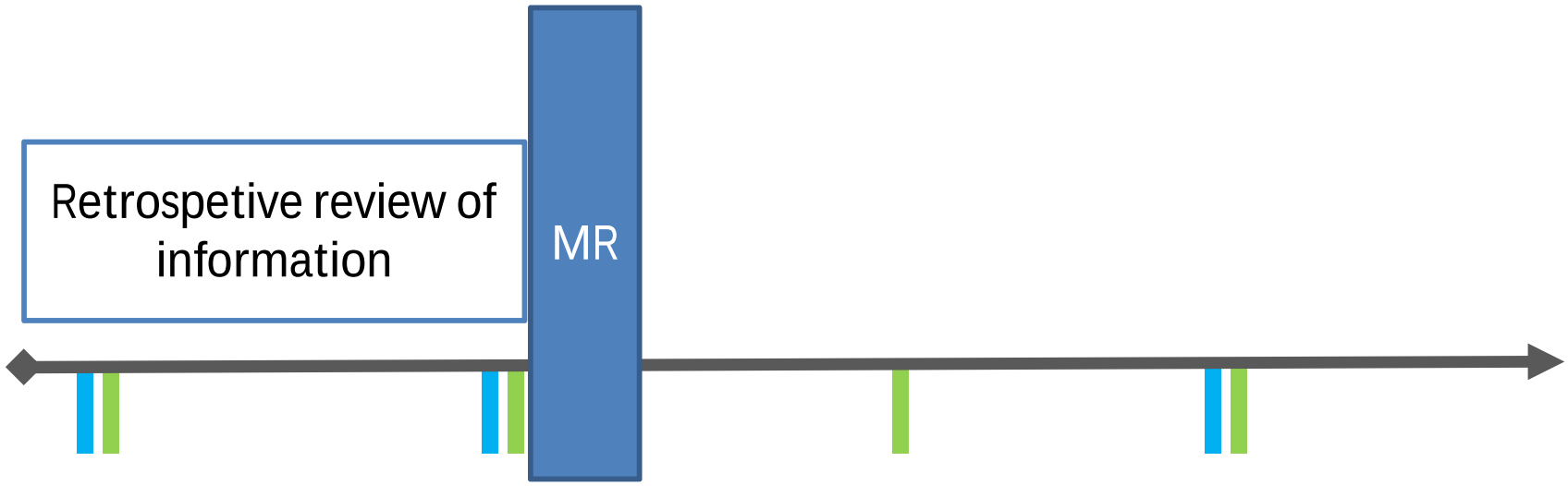
Intervention

Care

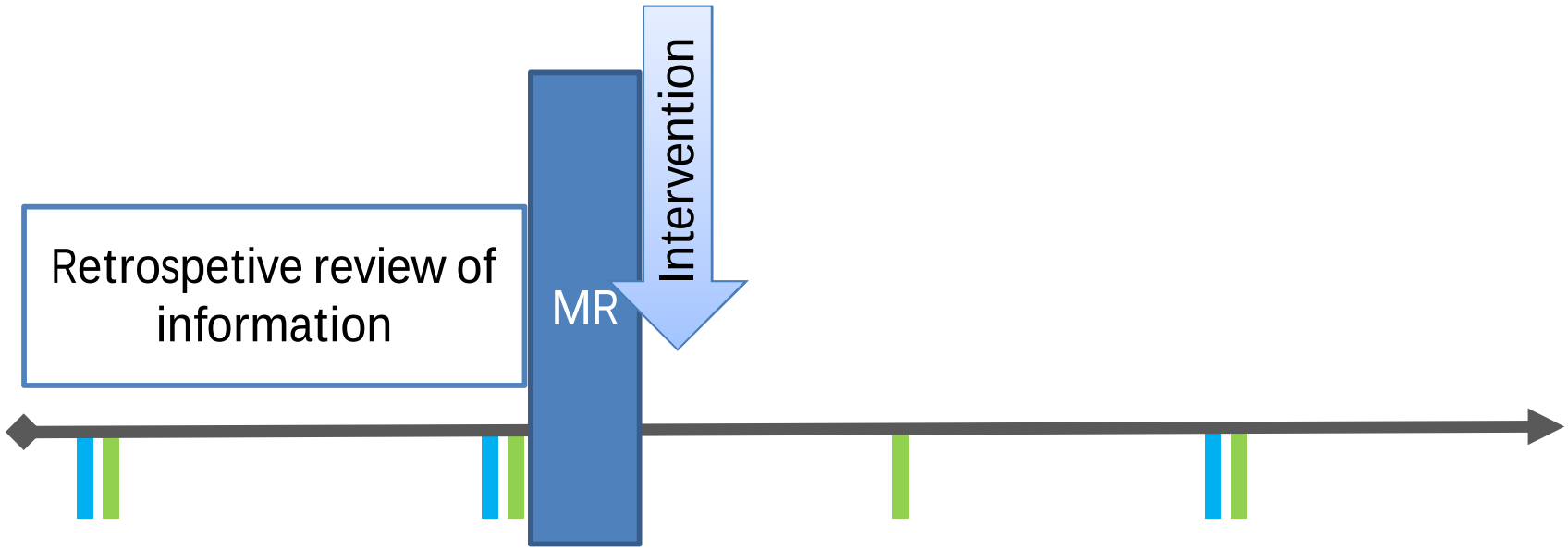
Service in practice?

Retrospective review => Ph. Care

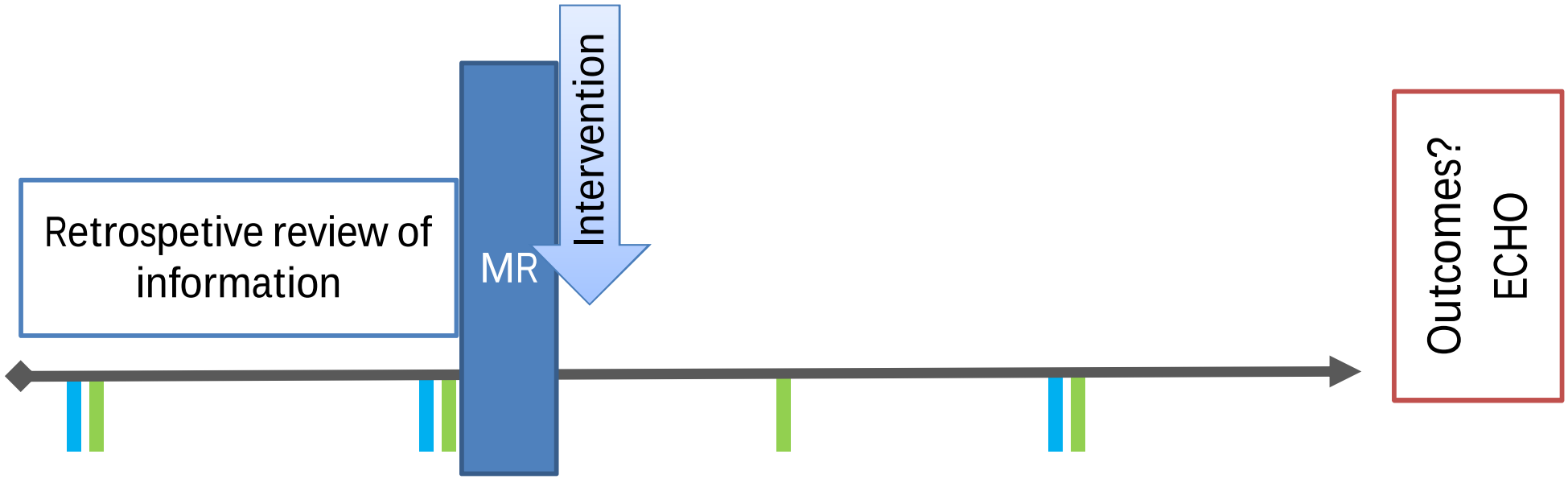
Retrospective review => Ph. Care



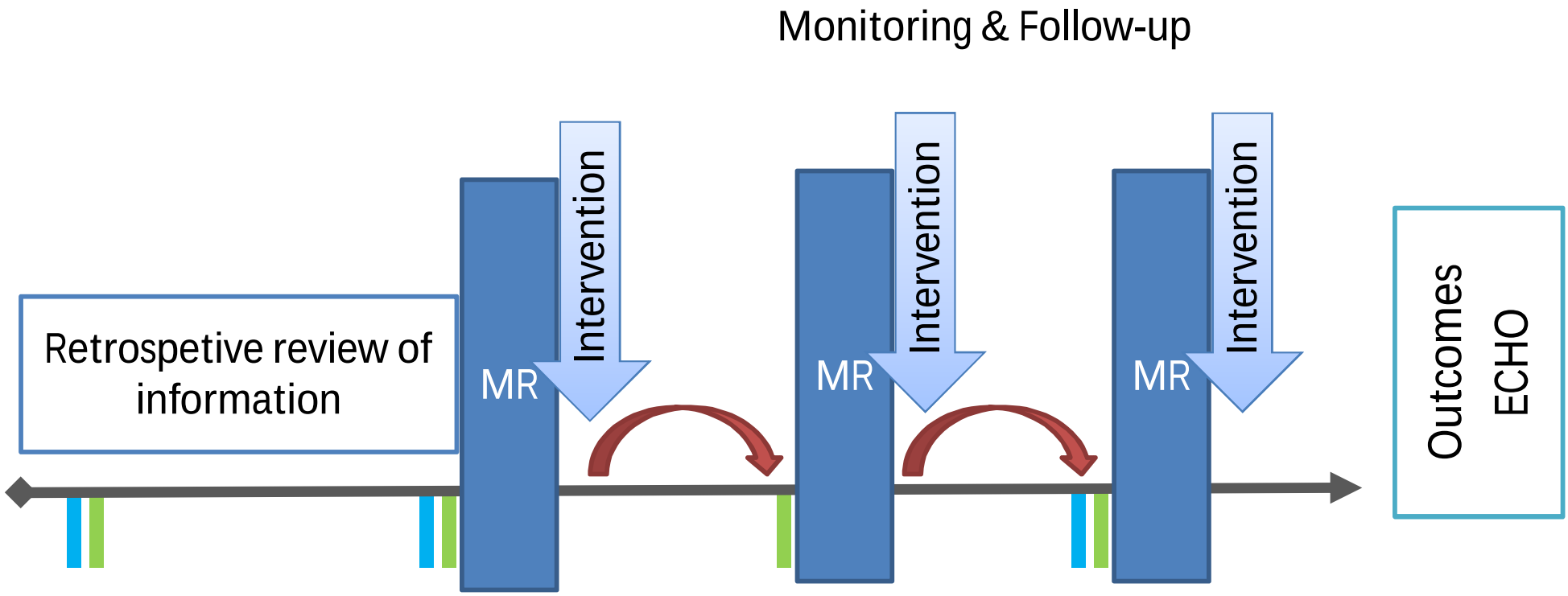
Retrospective review => Ph. Care



Retrospective review => Ph. Care



Retrospective review => Ph. Care



Types of medication review

(PCNE)

	Medi-cation history	Patient	Clinical data	Information source
„Simple“ **Type 1)** Based on the medication history in the pharmacy	+			
„Intermediate“ **Type 2a)** Medication history + patient interview • MUR, Polymedication-Check • „Brown Bag“-Method	+	+		
Type 2b) Medication history + clinical data • In hospital pharmacies • In Dutch communty pharmacies	+		+	
„Advanced“ **Type 3)** Medication history + patient interview + clinical data (clinical medication review)	+	+	+	

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An event or circumstance involving drug therapy that actually or potentially interferes with desired health outcomes.

Manifested problem

vs

Risks

(Causes in PCNE Class.)

Manifested problem

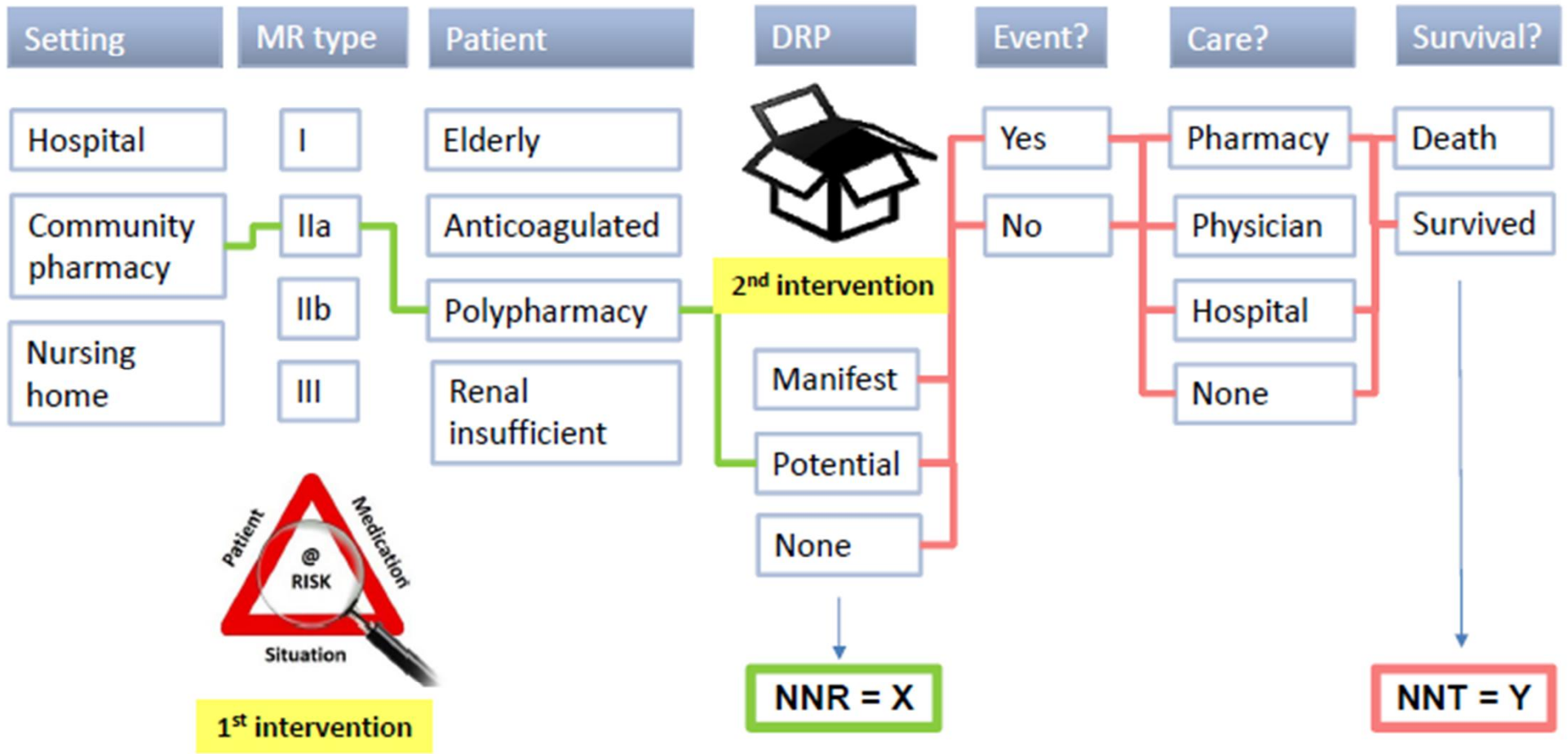
vs

Risks

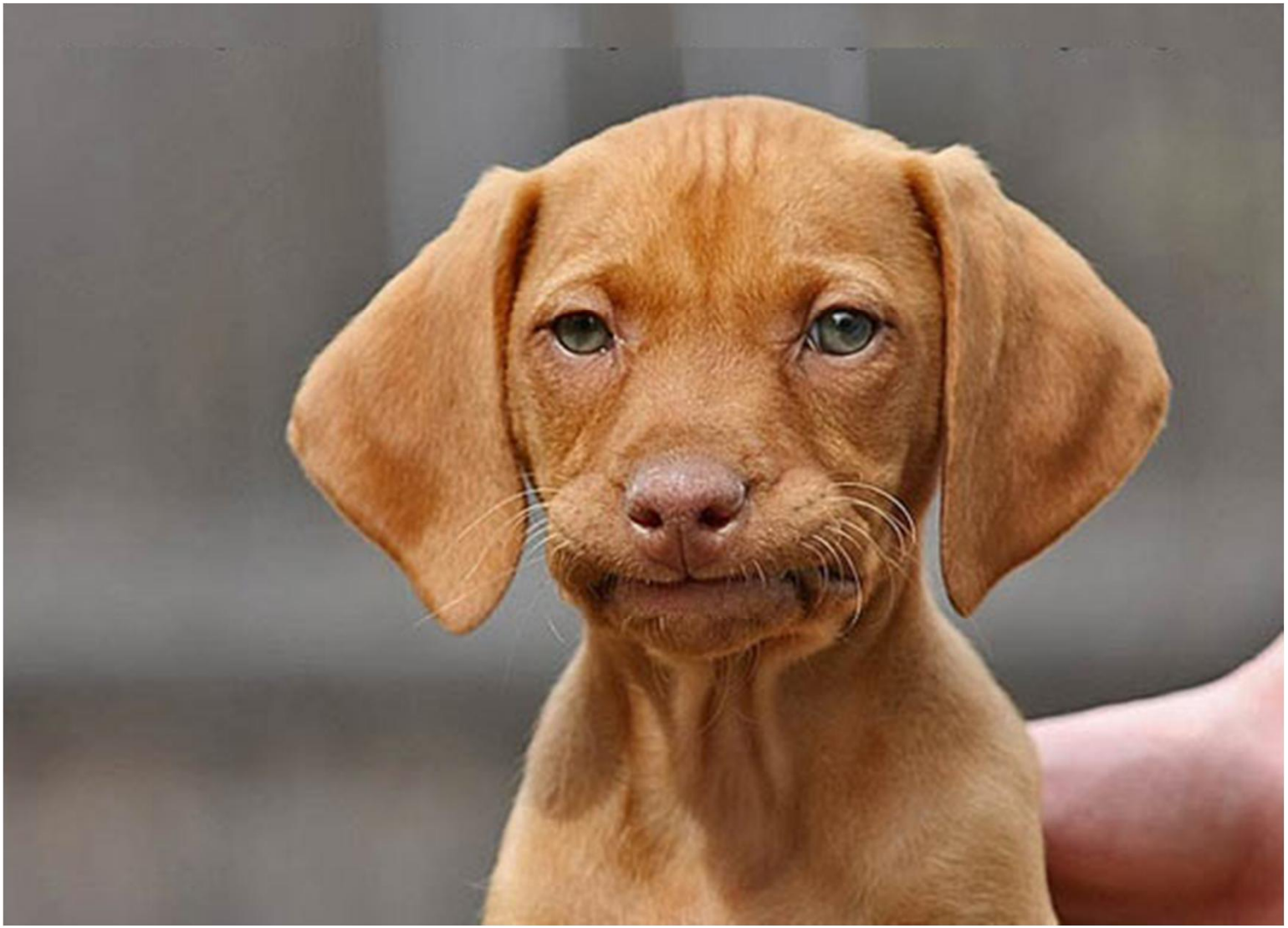
(Causes in PCNE Class.)

e.g. interaction between drugs

Number Needed to Review (NNR) vs Number Needed to Treat (NNT): 2nd intervention matters!



Research Evidence



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Does pharmacist-led medication review help to reduce hospital admissions and deaths in older people? A systematic review and meta-analysis

Richard Holland, James Desborough,[1] Larry Goodyer,[2] Sandra Hall,[2] David Wright[1] & Yoon K. Loke

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Keywords
medication review, meta-analysis, pharmacist, systematic review

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We set out to determine the effects of pharmacist-led medication review in older people by means of a systemati
meta-analysis covering 11 electronic databases. Randomized controlled trials in any setting, concerning older peo
> 60 years), were considered, aimed at optimizing drug regimens and improving patient outcomes. Our primary o
emergency hospital admission (all cause). Secondary outcomes were mortality and numbers of drugs prescribed.
on drug knowledge, adherence and adverse drug reactions. We retrieved 32 studies which fitted the inclusion crit
17 trials revealed no significant effect on all-cause admission, relative risk (RR) of 0.99 [95% confidence interval (CI
with moderate heterogeneity ($I^2 = 49.5$, $P = 0.01$). Meta-analysis of mortality data from 22 trials found no significan
mortality of 0.96 (95% CI 0.82, 1.13, $P = 0.62$), with no heterogeneity ($I^2 = 0\%$). Pharmacist-led medication review m
numbers of drugs prescribed (weighted mean difference = −0.48, 95% CI −0.89, −0.07), but significant heterogenei
($I^2 = 85.9\%$, $P < 0.001$). Results for additional outcomes could not be pooled, but suggested that interventions coul
and adherence. Pharmacist-led medication review interventions do not have any effect on reducing mortality or h
older people, and can not be assumed to provide substantial clinical benefit. Such interventions may improve dru
adherence, but there are insufficient data to know whether quality of life is improved.

‘Pharmacist-led medication review interventions do not have any effect on reducing mortality or hospital admission in older people, and can not be assumed to provide substantial clinical benefit.’

Medication review in hospitalised patients to reduce morbidity and mortality (Review)

Christensen M, Lundh A

THE COCHRANE COLLABORATION®

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2013, Issue 2

http://www.thecochranelibrary.com

'We identified 4647 references and included five trials (1186 participants). Follow-up ranged from 30 days to one year.

We found no evidence of effect on all-cause mortality (risk ratio (RR) 0.98; 95% CI 0.78-1.23) and hospital readmissions (RR 1.01; 95% CI 0.88-1.16), but a **36% relative reduction in emergency department contacts (RR 0.64; 95% CI 0.46-0.89).**'

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A systematic review and meta-analysis of pharmacist-led fee-for-services medication review

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AIM
The aim was to examine the impact of fee-for-service pharmacist-led medication review on patient outcomes and quantify this the type of review undertaken, e.g. adherence support and clinical medication review.

METHODS
Relevant published studies were identified from Medline, Embase and International Pharmaceutical Abstract databases (from in February 2011). Study inclusion criteria were fee-for-service medication review, presence of a control group and pre-specified p outcomes. Outcomes were grouped into primary (changes in biomarkers, hospitalization, and mortality) and secondary outcom adherence, economic implications and quality of life). Meta-analyses for primary outcomes were conducted using random effec secondary outcomes were summarized using descriptive statistics.

RESULTS
Of the 135 relevant articles located, 21 studies met the inclusion criteria for primary outcomes and 32 for secondary outcomes. results favouring pharmacists' intervention were found for blood pressure (OR 3.50, 95% CI 1.58, 7.75, $P = 0.002$) and low density (OR 2.35, 95% CI 1.17, 4.72, $P = 0.02$). Outcomes on hospitalization (OR 0.69, 95% CI 0.39, 1.21, $P = 0.19$) and mortality (OR 1.50, 9 3.46, $P = 0.34$) indicated no differences between the groups. On subgroup analysis, clinical medication review (OR 0.46, 95% CI 0 0.01) but not adherence support review (OR 0.88, 95% CI 0.59, 1.32, $P = 0.54$) reduced hospitalization.

CONCLUSIONS
The majority of the studies (57.9%) showed improvement in medication adherence. Fee-for-service pharmacist-led medication positive benefits on patient outcomes. Interventions that include a clinical review had a significant impact on patient outcomes of target clinical biomarkers and reduced hospitalization.

'The majority of the studies (57.9%) showed improvement in medication adherence. Fee-for-service pharmacist-led medication reviews showed positive benefits on patient outcomes.

Interventions that include a clinical review had a significant impact on patient outcomes by attainment of target clinical biomarkers and reduced hospitalization.'

Case of drug effectivenes

Well defined intervention= drug & assure- monitor adherence

Clear study designs:

- with randomization, control, double-blind, relevant inclusion and exclusion criteria, protocol monitoring....

Meta-analysis:

- can only reflect the quality of individual studies
- would clearly divide between different patient populations and combine only those studies that are relevant.

Case of Medication Review

Definition of service/intervention
Performance in practice
Cultural adaptations
Quality of evidence

Benefit in meta-anaylsis?

Health Care Team Collaboration

It will not work for the patient if the collaboration is not in place.

Remember the overall goal for the patient?

Improved health outcomes!

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MR.
Challenge & opportunity

Pharmacy practice

Academica: sci&edu

System