



FONDAZIONE IRCCS CA' GRANDA
OSPEDALE MAGGIORE POLICLINICO

Sistema Sanitario  Regione
Lombardia

INAPPROPRIATE DRUG PRESCRIBING IN OLDER ADULTS: HOW TO REDUCE IT

THE POINT OF VIEW OF THE HOSPITAL PHARMACIST

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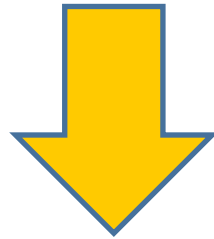
FONDAZIONE IRCCS CA' GRANDA
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INTERNATIONAL SEMINAR
REPOSI2015
Milan, Italy 24-25 September
**TARGETING THE BURDEN
OF POLYPHARMACY
IN THE ELDERLY**

Dr Petrovic's "take home message"

- LACK OF STANDARDIZATION
- NEED FOR A GLOBAL INTEGRATED APPROACH



EXTERNAL VALIDITY
FEASIBILITY

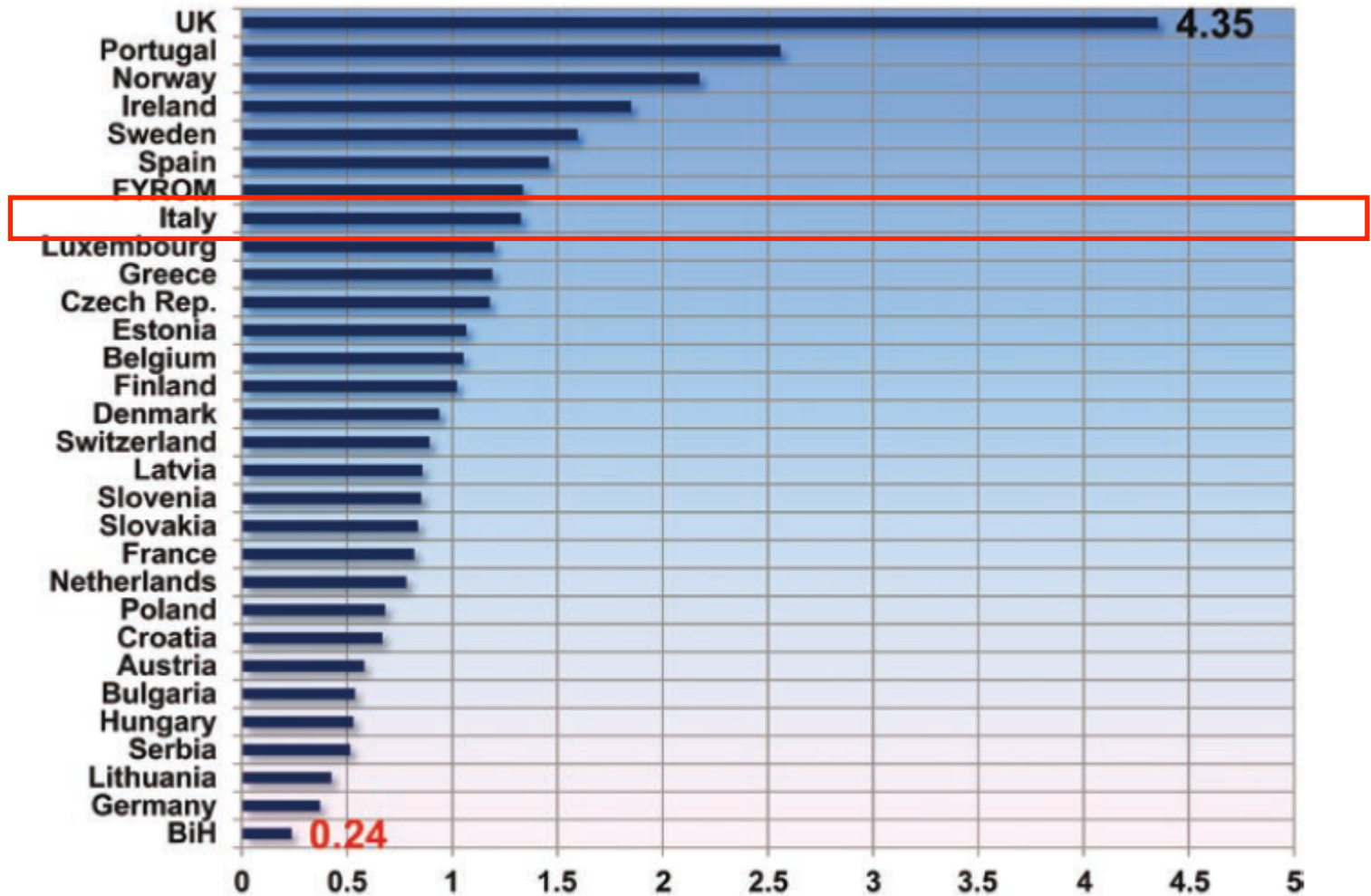
ONE SIZE DOES **NOT** FIT ALL



Differences in:

- Staff
- Instruments
- Organization/ logistics
- Competencies

1. No. of pharmacists/ 100 beds – EAHP Survey 2010



2. INSTRUMENTS

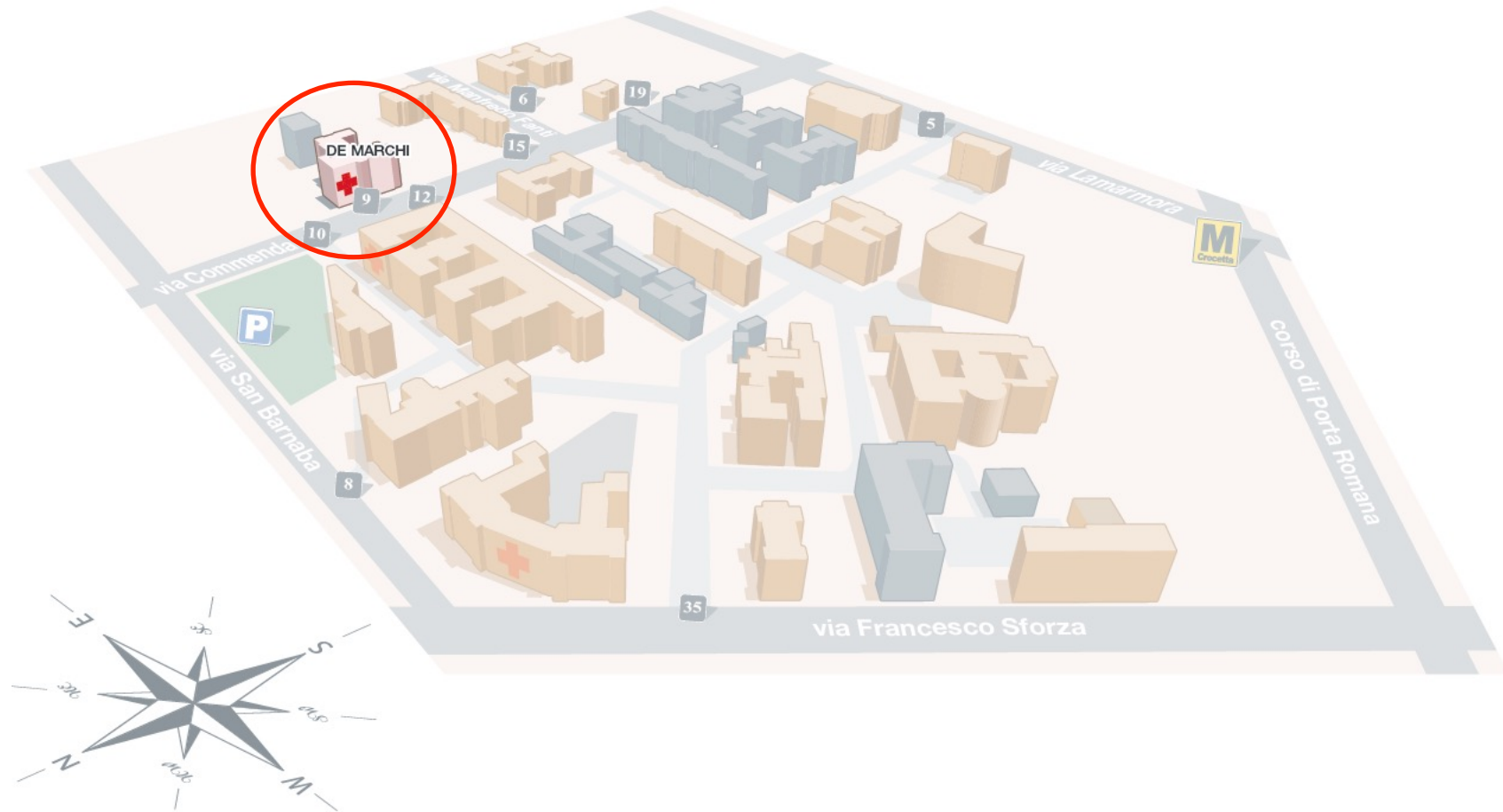
- No formal CPOE in place: acquisition in progress
- Availability of a CDSS for drug interactions

INTERCheck WEB

Disegnato April 2013/21

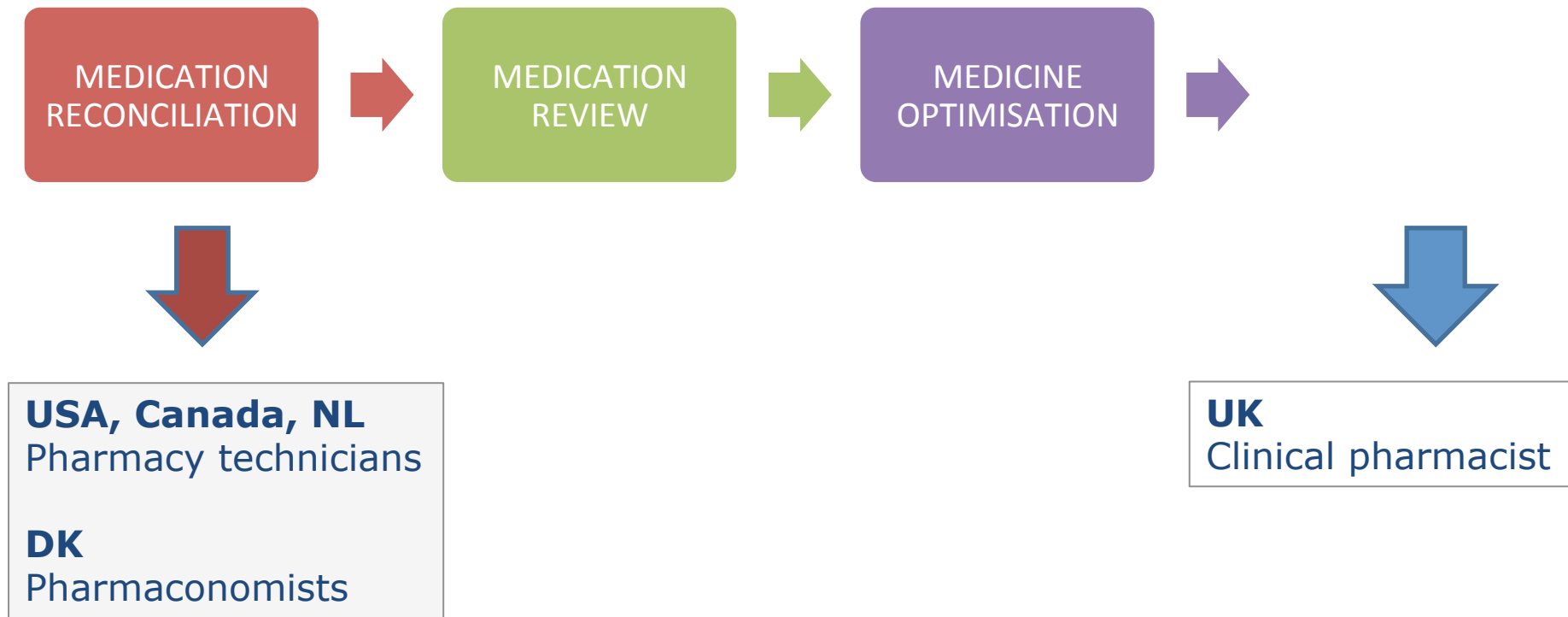
MN
ISTITUTO DI RICERCHE
FARMACOLOGICHE
MARIO NEGRI
IRCCS

3. ORGANIZATION/ LOGISTICS



**Fondazione ICSS Ca' Granda Ospedale Maggiore Policlinico, Milan
Hospital map**

4. COMPETENCIES: WHO PERFORMS WHAT



*Van den Beents PMLA et al. Ann Pharmacother 2009; 43 (5): 868-74.
Buck TC et al. EJHP 2012; 19: 549*

GOAL OF THE INTERVENTION

- IMPROVING PROCESSES



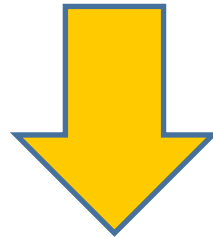
- IMPROVING OUTCOMES



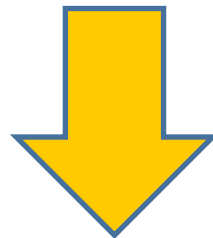


PLANNING FOR A MULTIDISCIPLINARY APPROACH

- RETROSPECTIVE: to **describe** the *status quo*





- PROSPECTIVE: to **shape** the intervention



- PROSPECTIVE CONTROLLED: to measure the **outcomes** of the intervention

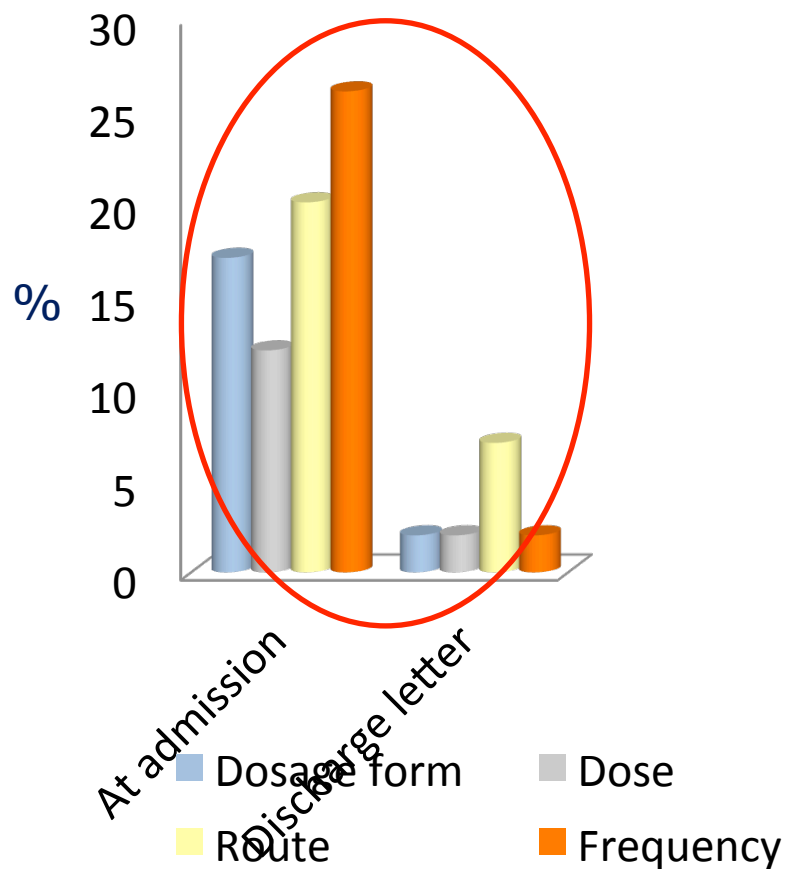
RETROSPECTIVE ANALYSIS

- PERIOD: April – October 2014
- SETTING: 5 internal medicine/ geriatric wards at Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico Milan
- METHODS:
 - chart review (60 pts)
 - Physician's interview on clinical relevance of pDDIs
 - Test the usefulness of software  

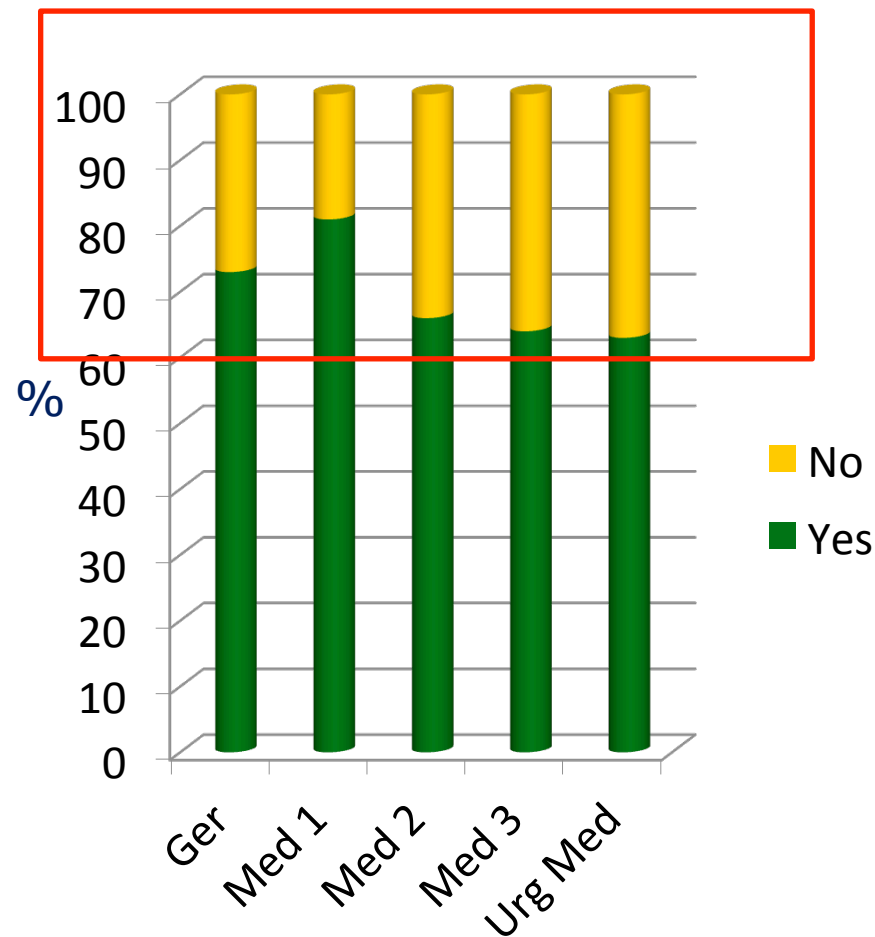
RETROSPECTIVE ANALYSIS

IS MEDICATION RECONCILIATION NEEDED?

OMITTED INFORMATION IN THE RECOGNITION PROCESS, HOME THERAPY (N=634) AND DISCHARGE (N=645)



HOME THERAPY, AGREEMENT WITH THE HOSPITAL FORMULARY



RETROSPECTIVE ANALYSIS

IS MEDICATION REVIEW NEEDED?

NOT ADDRESSED DRUG RELATED PROBLEMS

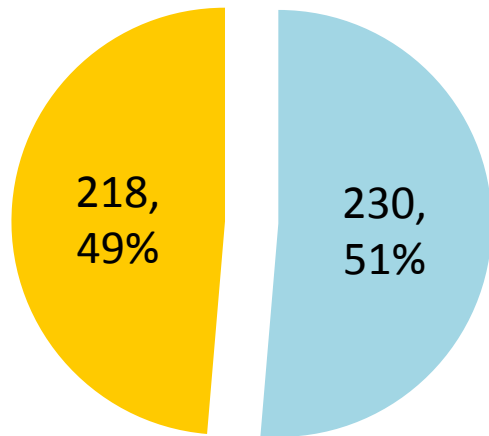
| Drug Related Problem | Cases |
|-------------------------|--|
| Unreported allergies | Acetylcholinesterase inhibitors NSAIDs Ketoprofen Soldesam |
| Unreported intolerances | Clopidogrel KCl |
| Unreported ADRs | Anticoagulants poisoning Iatrogenic dermatitis by allopurinol Iatrogenic dermatitis by lenalidomide Diarrhea by clopidogrel Benzodiazepine abuse Hypothyroidism by amiodarone Confusional state by levofloxacin Hypertensive syndrome by piperacillin/tazobactam Dermatitis by ciprofloxacin |

Table 4. Drug-related problems

RETROSPECTIVE ANALYSIS

ARE INFORMATION ON DRUG-DRUG INTERACTIONS RELEVANT FOR PHYSICIANS' DECISIONS?

pDDIs
n=448



■ Clinically relevant ■ Not relevant

CLINICAL RELEVANCE

INTERCHECK RATING

A = minor

B = moderate

C = major

D=contraindicated

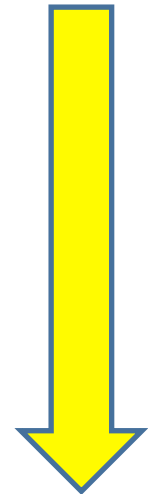
PHYSICIAN INTERVIEW

17%

39%

75%

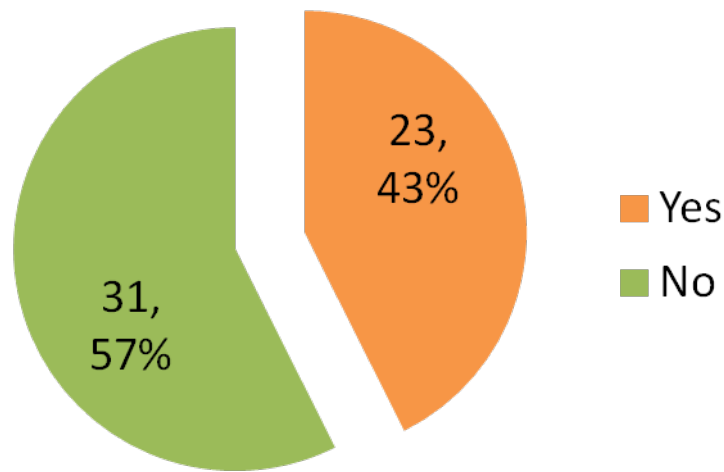
74%



RETROSPECTIVE ANALYSIS

IS MEDICATION APPROPRIATENESS FOLLOWED AT DISCHARGE?

Appropriateness of PPIs prescription



N = 54

- According to prescribing restrictions in
 - Prophylaxis
 - treatment

Lessons learned from the retrospective study

- Home therapy is reported in the patient's chart with several missing information on the dose, form, route of administration and frequency;
- No formal structure for medication reconciliation
- The hospital formulary does not fully respond to all patient's therapeutic needs, with high variability among wards;
- PPI are not appropriately prescribed in almost 50% of the patients at discharge;
- The knowledge of drug – drug interactions before filling the admission medication orders would have influenced the therapeutic choices;
- A high concordance between Intercheck[®] and physician's judgement was found throughout all Intercheck[®] classes;
- Low compliance with Adverse Drug Reaction reporting (ADR).



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PROSPECTIVE PILOT STUDY

FARMACHECK



- **TITLE:** Medication reconciliation and review performed by the hospital pharmacy in a geriatric hospital setting: identification of Drug Related Problems and model definition – feasibility study
- **DESIGN:** prospective pilot study
- **SETTING:** Internal medicine and geriatrics wards in a large teaching hospital
- **PATIENTS:** all consecutive patients admitted with:
 - > 75 years
 - At least 5 drugs at home
 - Life expectancy at least 6 months
 - Informed consent

FARMACHECK



PATIENT ADMISSION

PATIENT'S CHART & PATIENT/
CAREGIVER INTERVIEW

MEDICATION RECONCILIATION
WITHIN 24-72 HRS

END-POINTS:
of intentional/unintentional
discrepancies
of drugs on the Formulary

PHARMACIST

MEDICATION REVIEW and DRUG
RELATED PROBLEMS IDENTIFICATION

• INTERCHECK
• SPC
▪ STOPP/ BEERS CRITERIA

PHARMACIST &
PHYSICIAN

DRPs PRESENTATION TO THE TREATING
PHYSICIAN

END-POINTS:
of identified DRPs
& type of accepted DRPs

PHARMACIST

HOSPITAL PHARMACIST ON CALL FOR
DRUG RELATED PROBLEMS

END-POINT:
& type of contacts/ requests

PHARMACIST

MEDICATION REVIEW AT DISCHARGE

END-POINT:
of DRPs: changes from baseline

PHARMACIST &
PHYSICIAN

STRUCTURED DISCHARGE LETTER FOR GP

END POINT:
Discharge letter meeting requirements

PHYSICIAN

FOLLOW-UP CALL AFTER 3 MONTHS

END POINT:
Pt outcome & compliance

WHICH ANSWERS ARE WE looking for

- Shape a structured intervention model for the prospective controlled study
 - Feasible and with a measurable impact (process and outcomes)
- Target the setting of intervention
 - elderly people in geriatric/ internal medicine wards vs surgical/ICUs/ oncoematology
- Design the CPOE instrument according to the needs
 - specific screenshots on medication reconciliation
 - Integration of the CDSS into the prescribing system

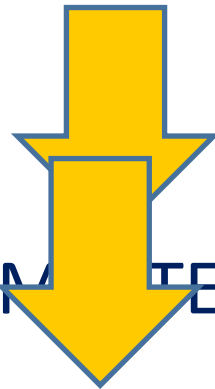
THANK YOU

QUALI DM gestire

- I DM con CND?
- Gli impiantabili?
- Le classi di rischio piu' alte?
- I DM sterili delle classi di rischio piu' basse?
- I DM gestiti a magazzino?

QUALE VALORE AGGIUNTO DELLA GESTIONE

IN FARMACIA



LE COMPETENZE