The elderly @ risk: reducing medication safely to meet life's changes

Francesca Venturini
Hospital Pharmacy Services Director
Ospedale Maggiore Policlinico
Milano, Italy

Sistema Socio Sanitaria

Fondazione IRCCS Ca' Granda
Ospedale Maggiore Policlinico

Regione Lombardia

22ND CONGRESS OF
eahp
european association
of hospital pharmacists

Cannes, 22-24 March 2017

Disclosure

- Relevant financial relationship
  - None

Self assessment questions

1. Models of pharmacist's intervention in medication review are identical across settings and countries (T/F)

2. Simulation medicine uses unrealistic scenarios as learning tools (T/F)

3. Improving the process of medication management automatically means to improve patient outcomes (T/F)

Objectives

Participants will be able to:

1. Explain systematic and patient-centred deprescribing processes
2. Describe the steps involved in deprescribing
3. Demonstrate models of pharmacist involvement

The framework

Medication review performed by hospital pharmacists is not a routine activity in Italy

The key elements to set up an effective model of med-rev and de-prescribing are:

1. to find good "partners"
2. to target interventions for the best possible impact
3. to build a reputation
4. to build up competencies
5. to be able to measure outcomes

---

1. The "partners": the REPOSI registry

- The REPOSI registry: network of internal medicine wards to investigate the prevalence and correlates of polymorbidity and polypharmacy in hospitalized elderly patients.
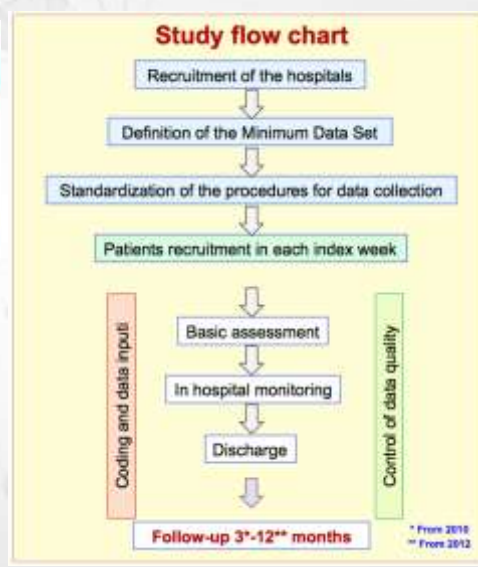
The REPOSI registry

AIMS
- ◆ To describe the prevalence of multiple concurrent diseases and treatments in hospitalized elderly patients,
- ◆ to correlate the patient's clinical characteristics with the type and number of diseases and treatments,
- ◆ to evaluate the main clinical outcomes at discharge.

INCLUSION CRITERIA
- ◆ 65 years or older
- ◆ informed consent.
- ◆ Minimal recruitment: at least the first 5 consecutive pts x index week

MINIMUM DATASET (CRF)
- ◆ basic socio-demographic details
- ◆ clinical and laboratory parameters,
- ◆ diagnoses (comorbidities)
- ◆ cognitive function (Belssed test)
- ◆ disability (Barthel index)
- ◆ drugs at hospital admission, during hospital stay, and at discharge,
- ◆ clinical adverse events
- ◆ outcome at discharge and 3-12 months follow-up.
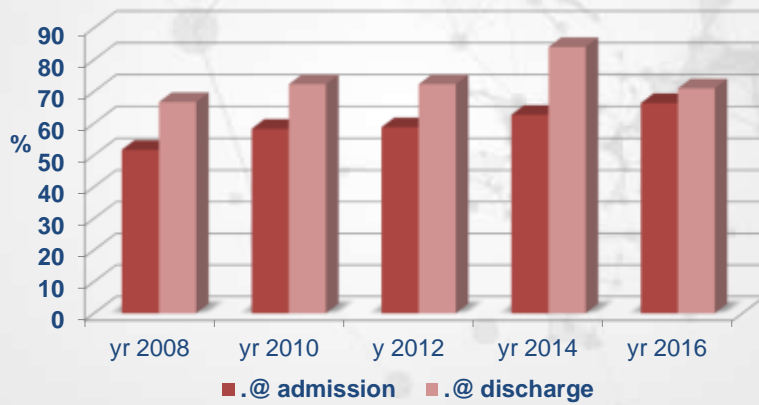
The REPOSI registry

From 2008
6,157 patients aged 65
years or older by 107 Italian
and 15 Spanish (only in
2014-2015) internal
medicine and geriatric
wards and more than 300
clinical investigators

The REPOSI registry:

# of patients with > 5 drugs
@ admission vs discharge

2. To target interventions

Number of pharmacists/ 100 beds – EAHP Survey 2010

Frontini R. et al. EJHP 2012; 19: 385-7.

2. To target interventions
PLANNING FOR A MULTIDISCIPLINARY APPROACH

- RETROSPECTIVE: to **describe** the *status quo*
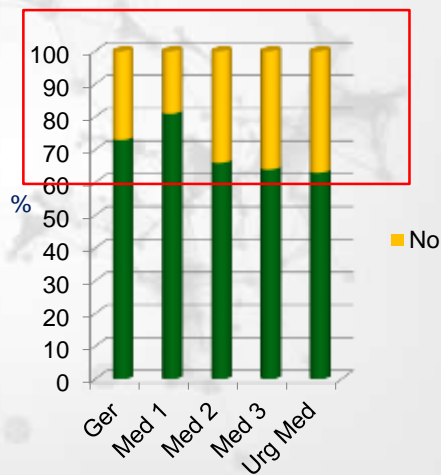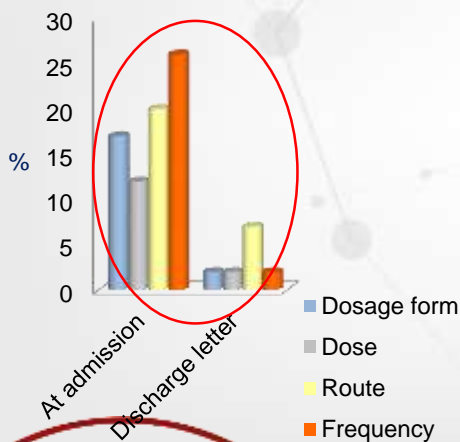
- PROSPECTIVE: to **shape** the intervention

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

---

2. To target interventions
IS MEDICATION RECONCILIATION NEEDED?

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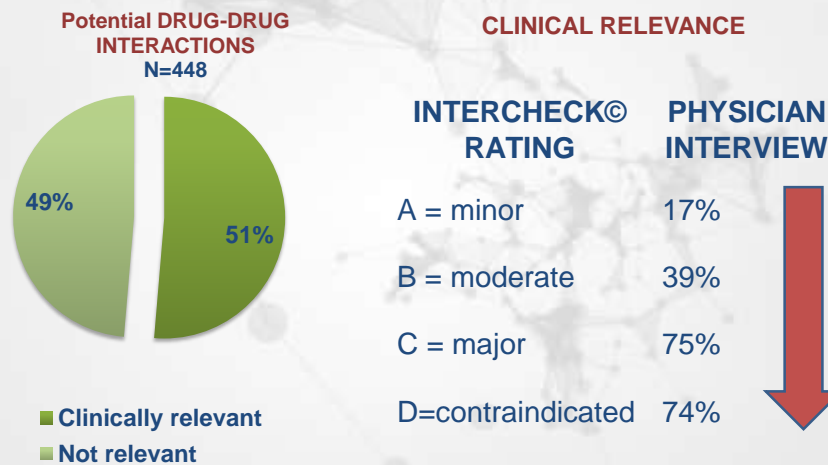
HOME THERAPY, AGREEMENT WITH THE HOSPITAL FORMULARY

Chiarelli MT et al. GIFC 2014

2. To target interventions
IS MEDICATION REVIEW NEEDED?

NOT ADDRESSED DRUG RELATED PROBLEMS

DRUG RELATED PROBLEMS	CASES
Unreported allergies	Acetylcholinesterase inhibitors NSAIDs Ketoprofen Soldesam
Unreported intolerances	Clopidogrel KCl
Unreported ADR	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 pipera/tazo Dermatitis by ciprofloxacin

2. To target interventions
ARE INFORMATION ON DRUG-DRUG INTERACTIONS RELEVANT FOR PHYSICIANS' DECISIONS?

Potential DRUG-DRUG INTERACTIONS N=448

49% / 51%

- Clinically relevant
- Not relevant

CLINICAL RELEVANCE

INTERCHECK© RATING	PHYSICIAN INTERVIEW
A = minor	17%
B = moderate	39%
C = major	75%
D=contraindicated	74%

Antoniazzi S et al. Eur j Int Med 2015

7

2. To target interventions
IS MEDICATION APPROPRIATENESS FOLLOWED AT DISCHARGE? - The PPIs CASE

PROPHYLAXIS
Chronic treatment w/NSAIDs
or
low dose ASA
plus
History of gastric bleeding
or
Concomitant use of anticoagulants or
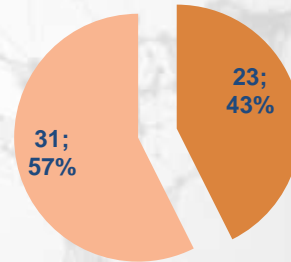steroids treatment

TREATMENT
Peptic ulcer HP positive
or
GERD
or
Zollinger-Ellison syndrome

PPIs prescription

23;
43%

31;
57%

■ Yes ■ No

N =54

---

2. To target interventions
PLANNING FOR A MULTIDISCIPLINARY APPROACH

- RETROSPECTIVE: to **describe** the *status quo*
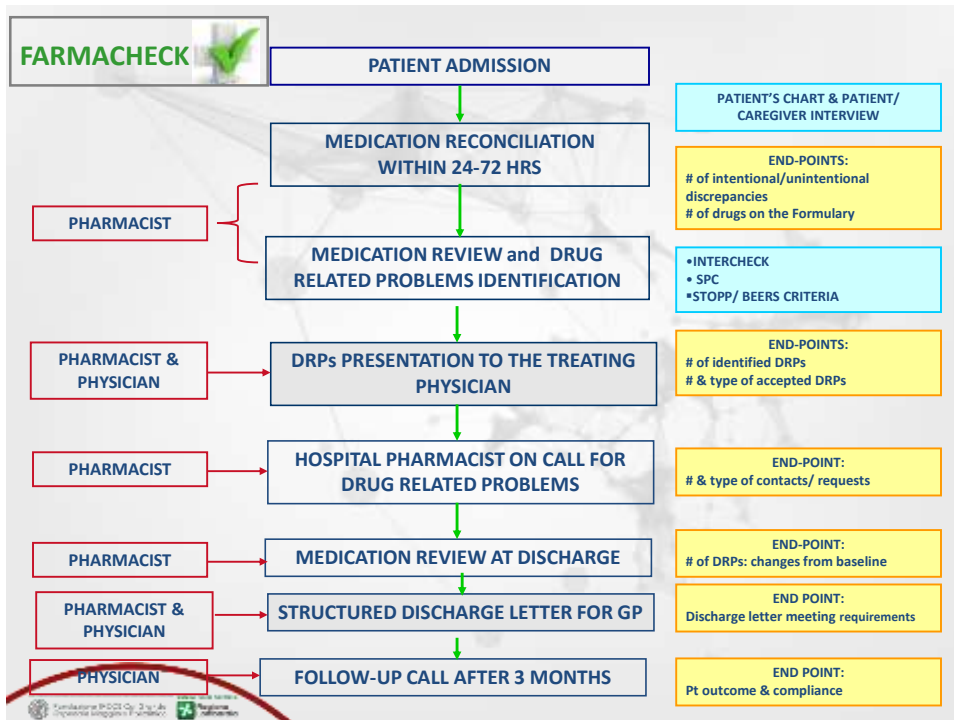
- PROSPECTIVE: to **shape** the intervention

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

8

Medication reconciliation and review performed by the hospital pharmacist in a geriatric hospital setting: identification of Drug Related Problems and model definition – feasibility study FARMACHECK

- PATIENTS: all consecutive patients admitted with:
  - > 65 years
  - At least 5 drugs at home
  - Life expectancy at least 6 months
  - Informed consent
- OUTCOMES
  - Medication discrepancies
  - DRPs
  - Pharmacist's consultation acceptance
- INTERVENTION
  - Once a day for 1 hour within 24-72 hours from admission

FARMACHECK

Role	Step	End-points / Notes
	PATIENT ADMISSION	PATIENT'S CHART & PATIENT/ CAREGIVER INTERVIEW
PHARMACIST	MEDICATION RECONCILIATION WITHIN 24-72 HRS	END-POINTS: # of intentional/unintentional discrepancies # of drugs on the Formulary
	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

Medication review: pharmacist's instruments toolkit

INSTRUMENTS	DRPs	FARMACHECK
INTERcheck®	Drug – drug interaction Duplicates Renal and liver insufficiency Anticholinergic load (AC burden scale)	
STOPP & BEERS criteria	Inappropriate treatments in the elderly	
Micromedex®	Appropriate dosage and schedule	
Summary of Product Characteristics	In label/ off label use ADR identification	

FARMACHECK

http://www.intercheckweb.it

10

MEDICATION RECONCILIATION

FARMACHECK

No. of patients = 75
No. of prescriptions = 778
No. of discrepancies = 227
Ave discrepancies/pt = 3.02
% discrepancies/prescriptions = 29 %

DISCREPANCIES
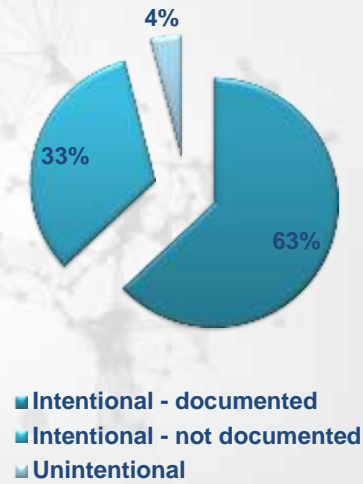
DISCREPANCIES	NO.
Omission	131
Change within drug class	40
Change with other drug	19
Reduced dose	17
Administration route change	11
Dose increase	8
Formulation change	1

4%
33%
63%

- Intentional - documented
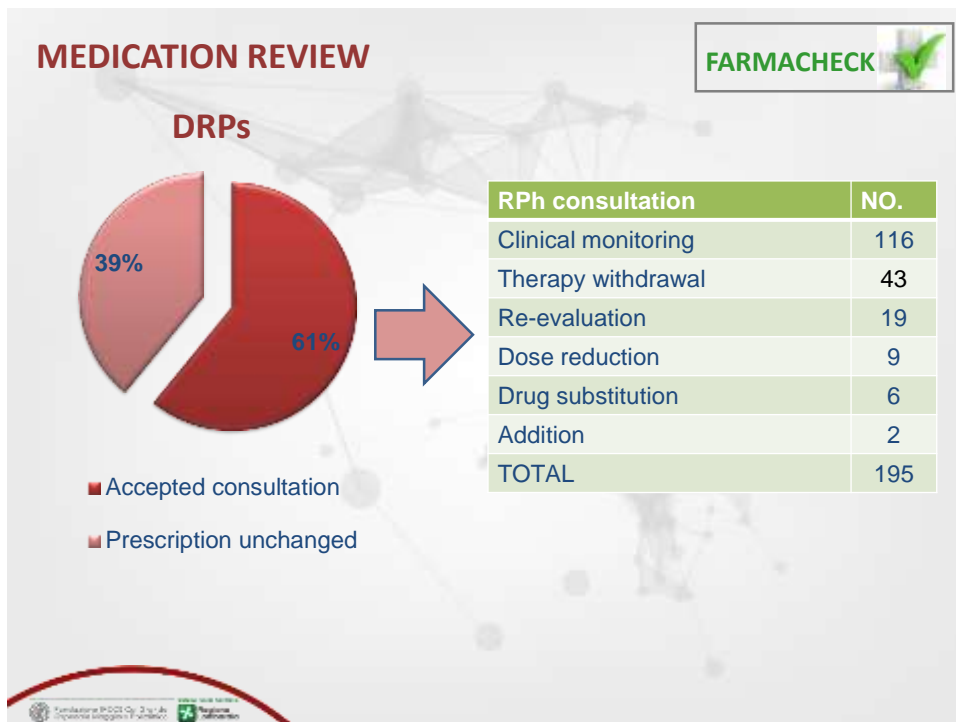- Intentional - not documented
- Unintentional

MEDICATION REVIEW

FARMACHECK

No. of patients = 75
No. of prescriptions = 778
No. of DRPs = 381
Ave DRPs/pt = 5
% DRPs/prescriptions = 49 %

DRPs
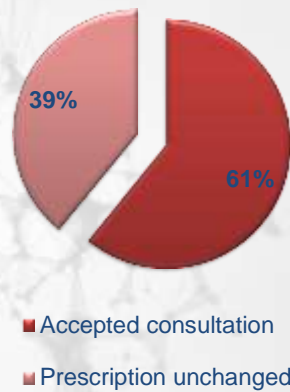
DRPs	NO.
Inappropriate drug	139
DD interaction – contraindicated	113
DD interaction – major problem	106
Undetected ADR	11
Overdosage	9
Duplicates	3
Off label	2

39%
61%

- Accepted consultation
- Prescription unchanged

MEDICATION REVIEW

FARMACHECK

DRPs

39%

61%

- Accepted consultation
- Prescription unchanged

RPh consultation	NO.
Clinical monitoring	116
Therapy withdrawal	43
Re-evaluation	19
Dose reduction	9
Drug substitution	6
Addition	2
TOTAL	195

PHARMACIST CONSULTATION: examples

FARMACHECK

DRUG(S) RELATED TO DRP	REASON	PHARMACIST CONSULTATION
FUROSEMIDE-ALOPERIDOL-SERTRALINE	Increased risk of hyponatriemia	Natriemia monitoring
ASA-PAROXETINE	The interaction increases the bleeding risk	Substitute paroxetine with fluvoxamine
ALLOPURINOL	Drug not needed based on uric acid level	Withdrawal
CITALOPRAM –FUROSEMIDE interaction	The drug-drug interaction increases risk of cardiotoxicity (QT interval, torsades de pointes, cardiac arrest) and hyponatriemia. Avoid citalopram in patients with heart failure.	Substitute citalopram with fluvoxamine
LANSOPRAZOLE	Unjustified chronic use	Taper therapy withdrawal
FUROSEMIDE in patient with hyponatriemia at admission	The drug inhibits sodium readsorbption	Natriemia monitoring

DISCHARGE LETTER to the GP

TAKE

SUSPEND

---

3. To build up a "reputation"

- Be part of the physician education process

SIMI WINTER SCHOOL
Italian Society of Internal Medicine

**NEW PARADIGMS FOR THE COMPLEX ELDERLY
YEARLY EDITION since 2014**

TARGET: Internal Medicine specialists/ other specialties Residents

DURATION: 3 full days

CLINICAL CASE: from the REPOSI network – clinical scenarios

METHODOLOGY: **Simulation medicine**

WHAT IS SIMULATION MEDICINE

Medical simulation is the use of a material that in virtual reality creates a standard patient for reproducing health care situations and environments, with the purpose of teaching diagnostic and therapeutic procedures, repeat medical processes and concepts, and decision making by a medical professional or a team of professionals

Role playing: cognitive and emotional involvement of the trainees in the transfer of theoretical knowledge to practice in a "safe environment" where it is possible to make errors

Debriefing: constructive critique of the facts, in order to obtain elements to correctly apply theoretical knowledge or to supply to lack of knowledge or human factors

Interactive disc.: deepening knowledge on technical factors

SIMI WINTER SCHOOL
Società Italiana di Medicina Interna,
Italian Society of Internal Medicine

SCENARIO #1: Elderly patient @ the ER for a fall episode

SCENARIO #2: Arhytmic episode during hospital stay

SCENARIO #3: Transfer to internal medicine ward after PM positioning

SCENARIO #4: Medication review: clinician and **hospital pharmacist**

SCENARIO #5: Discharge

I didn't know omeprazole dose should be tapered b/f withdrawal

Useful to know that myalgia in that pt may derive from levofloxacin use

I usually contact pharmacists for authorization on expensive meds

4. To build up competencies
Examples of MED-REC/ MED-REV projects:
Which training did you require for the performance of the activity?

PROJECT/ HOSPITAL	TRAINING
Policlinico, Milan	Software training Learning by doing
Camposampiero hospital	Shadowing senior pharmacists Self documentation
Sant'Antonio hospital, Padova	Self documentation Learning by doing
Rovigo hospital	Info exchange with other hospitals
Alessandria Health District	No training

framnenti 39

4. To build up competencies
MEDICATION REVIEW SERVICES TRAINING PROGRAM

OPERATIONAL	
How to perform med rec & med rev: • Glossary and timing • Instruments (DDIs, Rx info)	DISTANCE LEARNING
CLINICAL	
Elderly and chronic diseases Cardiovascular therapy Infectious diseases Intensive care	DISTANCE LEARNING
PHARMACOLOGY	
Drug interactions	DISTANCE LEARNING
COMMUNICATION SKILLS	
Patient's interview tecnique Interaction with other health care professionals Case scenarios	3 DAYS WORKSHOP SIMULATION MEDICINE
QUALITY PROCESSES	
How to document clinical pharmacy services	DISTANCE LEARNING

5. To measure outcomes
GOAL OF THE INTERVENTION

IMPROVING PROCESSES

IMPROVING OUTCOMES

A trained hospital pharmacist-led medication review to reduce unplanned hospital readmissions in the elderly on polipharmacy: a large scale stepped wedge randomized controlled trial

SUBMITTED

Background: In Italy a specific and defined role of hospital pharmacist in the prevention and identification of medication errors and in the support of the management of therapies of hospitalized older people is still lacking.
Objectives: to assess the effectiveness of the Med-REC and Med-REV intervention, led by a specifically trained hospital pharmacist as support to clinicians in internal medicine and geriatric wards, on the reduction of 3 month unplanned readmission rate in 75 years or older patients exposed to polypharmacy.
Methods: stepped wedge cluster randomized trial (SW-CRT). The randomization unit (cluster) will be the hospital ward. Overall 1530 patients aged 75 years or more, taking at least 5 different drug, will be enrolled in 34 internal medicine and geriatric wards. The participating wards will be firstly randomized to receive the hospital pharmacist-led Med-REC and Med-REV intervention, with (n=17) or without (n=17) a letter for the patient's GP, reporting a detailed indication of the results and decision of the revision done during hospital stay. Secondly the wards will be randomized to the intervention start time.

Pharmacists' training: Before starting the Med-REC and Med-REV intervention, all hospital pharmacists will attend to a teaching course implemented by a multidisciplinary team (involving clinical pharmacologists, hospital pharmacists, geriatricians, internists and nurses) aimed to boost their specific knowledge on the Med-REC and Med-REV processes and geriatric clinical pharmacology skills.

Expected results: The results of this study will provide the National Health Service with indications the clinical impact of a Med-REC and Med-REV intervention, led by a specifically educated and trained hospital pharmacists to improve health outcomes, drug prescribing and therapeutic adherence after hospital discharge in older patients exposed to polypharmacy.

TAKE HOME MESSAGES

1. Models of pharmacist intervention need to be tailored to the specific setting and capacities

2. Interchange training with doctors: be part of their training as recognized health care professional

3. Demonstrate the effect of your intervention

Self assessment questions

1. Models of pharmacist's intervention in medication review are identical across settings and countries (T/F)
   • FALSE
2. Simulation medicine uses unrealistic scenarios as learning examples (T/F)
   • FALSE
3. Improving the process of medication management automatically means to improve patient outcomes (T/F)
   • FALSE

Thank you!
Francesca Venturini
francesca.venturini@policlinico.mi.it