Patient Safety

Development of a Core Set of Potentially Inappropriate Medications associated with Major Adverse Cardio and Cerebrovascular Events

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AGENDA AND MOTIVATIONAL QUESTION

A. AGENDA:

1. Background
    a) State of the art – Why are Drug Related Problems so important for Public Health?
    b) An overview of the PhD project
2. Main goals
3. Methods
4. Key-findings
5. Conclusions and Future Work

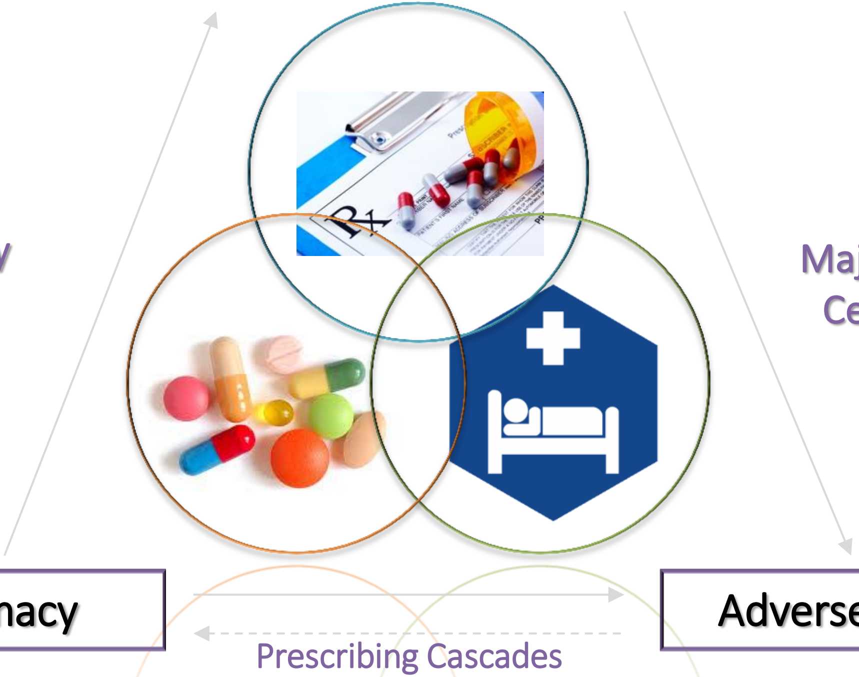
B. MOTIVATIONAL QUESTION:

1. Can **Major Adverse Cardio and Cerebrovascular Events (MACCE)** be prevented by using a simple and easy to use **Potentially Inappropriate Medications (PIM) List**?

WHY ARE DRUG RELATED PROBLEMS SO IMPORTANTE FOR PUBLIC HEALTH?

Inappropriate Medications

PIM Lists to foster deprescribing and increase patient safety



Multimorbidity

Elderly

Major Adverse Cardio and Cerebrovascular Events

Polypharmacy

Adverse Drug Events

Prescribing Cascades

Direção Geral de Saúde (2014). Programa Nacional para as Doenças Cérebro-Cardiovasculares; Scott et al (2015). JAMA Inter Med; Dalleur et al (2015).BMC Geriatrics.

AN OVERVIEW OF THE PHD PROJECT

Task 1

Identification of a Core Set of medicines with MACCE risk of occurrence

Task 2

Validation of the preliminary PIM-list by a Delphi Panel

Task 3 and 4

Assessment of the likelihood of MACCE occurrence after drug exposure, using real life data

Task 5

Inclusion of the final PIM-list in the healthcare's software as an alert pop-up system

MAIN GOAL

To increase Patient Safety by decreasing MACCE risk of occurrence

WHAT DO WE WANT TO ACCOMPLISH WITH THIS FIRST TASK?

MAIN GOAL

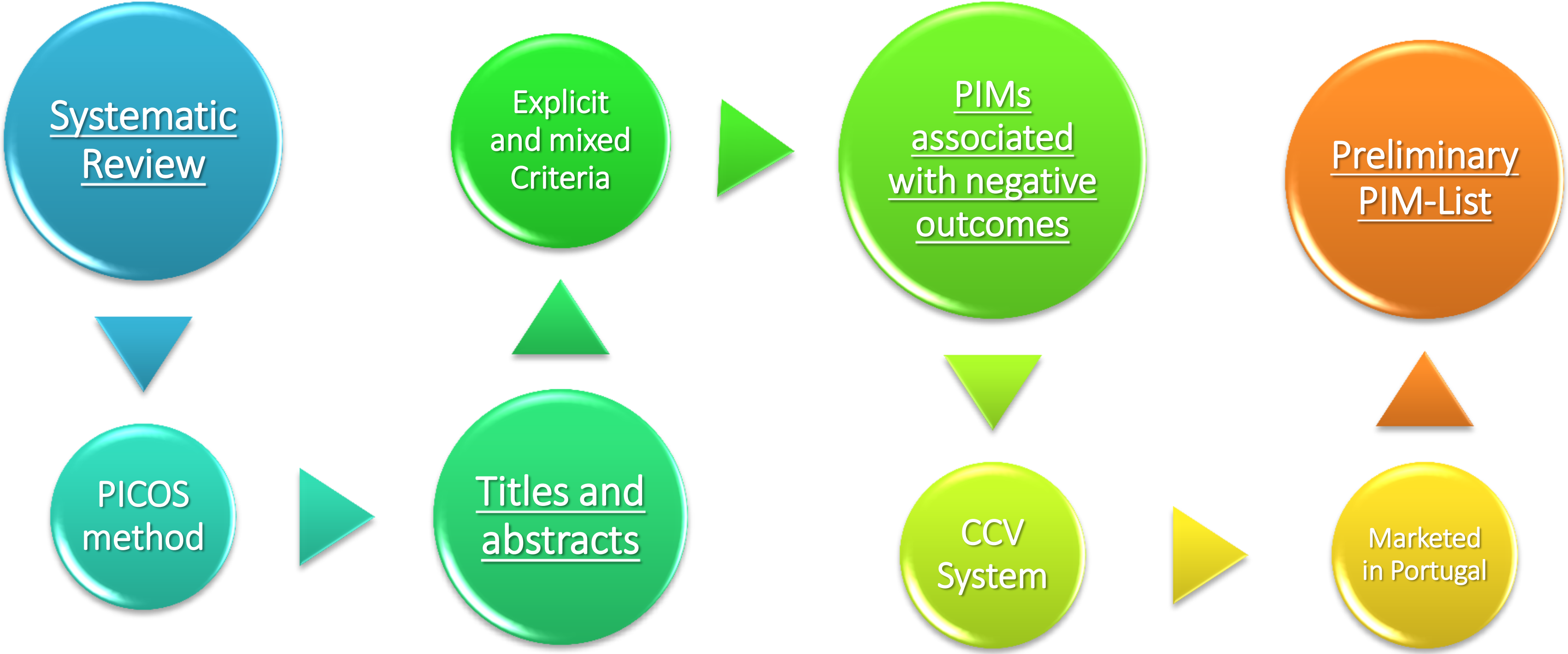
- To identify a **Core Set of Potentially Inappropriate Medications** associated with **MACCE risk of occurrence**

SPECIFIC OBJECTIVES

- To enable the **identification of several screening tools** describing PIMs associated with MACCE risk of occurrence
- To study the **reliability of the different tools**, regarding the identified PIMs

3. METHODS

How to Identify the Core Set of PIM associated with MACCE risk of occurrence?



Systematic Review

PICOS method

Titles and abstracts

Explicit and mixed Criteria

PIMs associated with negative outcomes

CCV System

Marketed in Portugal

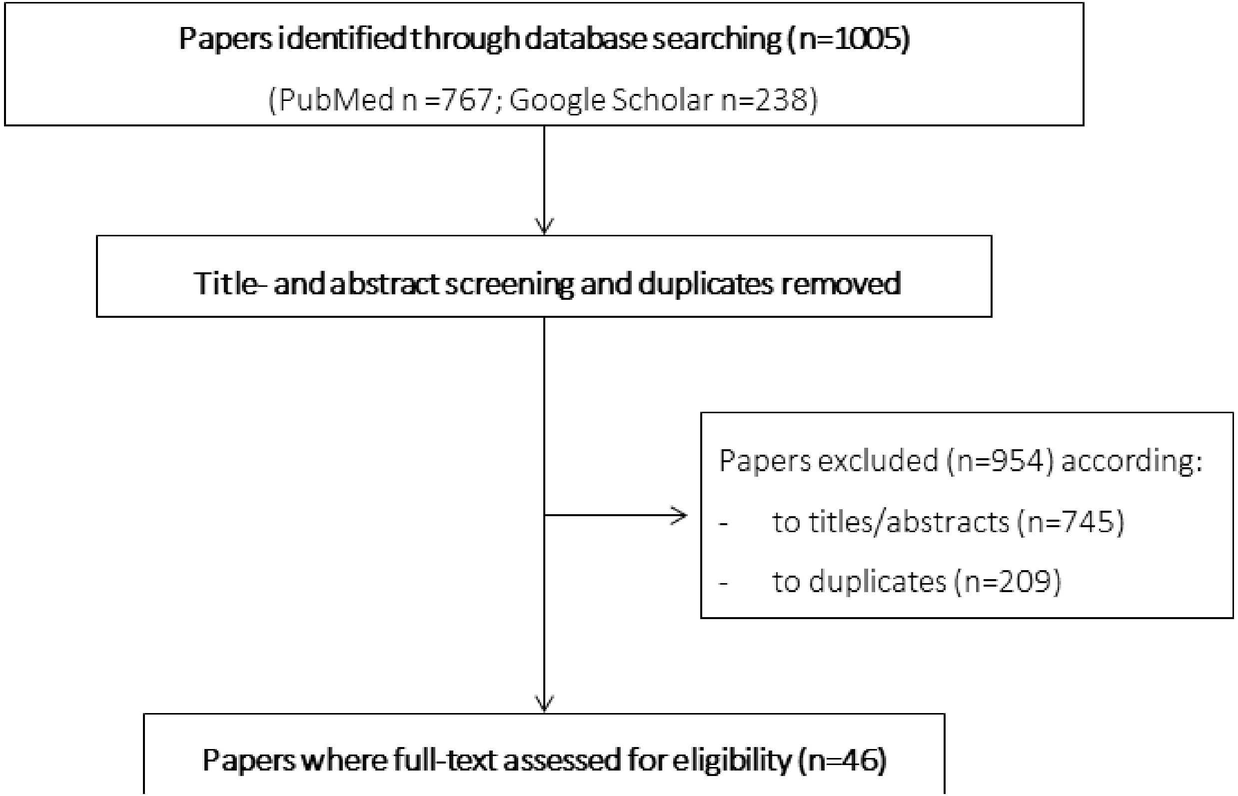
Preliminary PIM-List

Statistical analysis:

Intra-class correlation coefficient was calculated, considering the different tools as raters fot this analysis (SPSS v.24.0)

CCV – Cardio and Cerebrovascular System

PRISMA FLOWCHART- SELECTION PROCESS FOR THE ARTICLES STUDIED



Papers identified through database searching (n=1005)

(PubMed n =767; Google Scholar n=238)

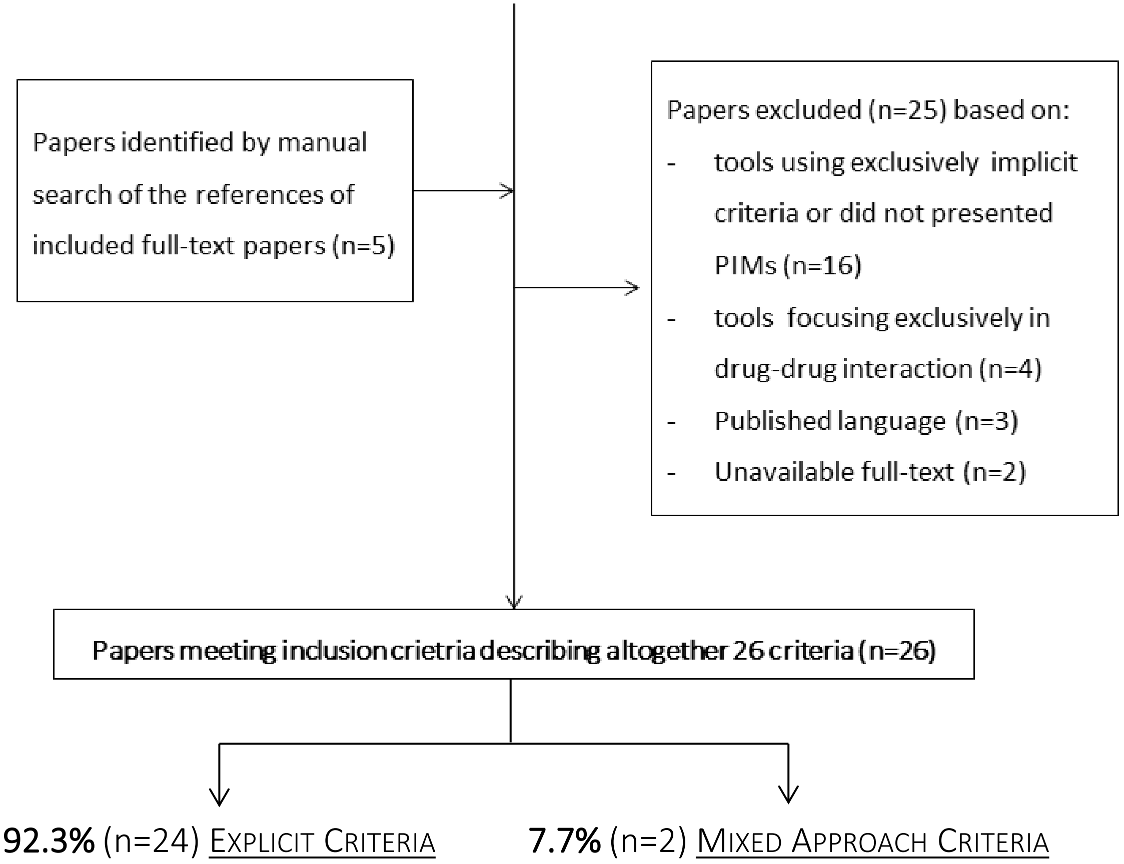
Title- and abstract screening and duplicates removed

Papers excluded (n=954) according:

- to titles/abstracts (n=745)
- to duplicates (n=209)

Papers where full-text assessed for eligibility (n=46)

PRISMA FLOWCHART- SELECTION PROCESS FOR THE ARTICLES STUDIED (CONTINUED)



Papers identified by manual search of the references of included full-text papers (n=5)

Papers excluded (n=25) based on:

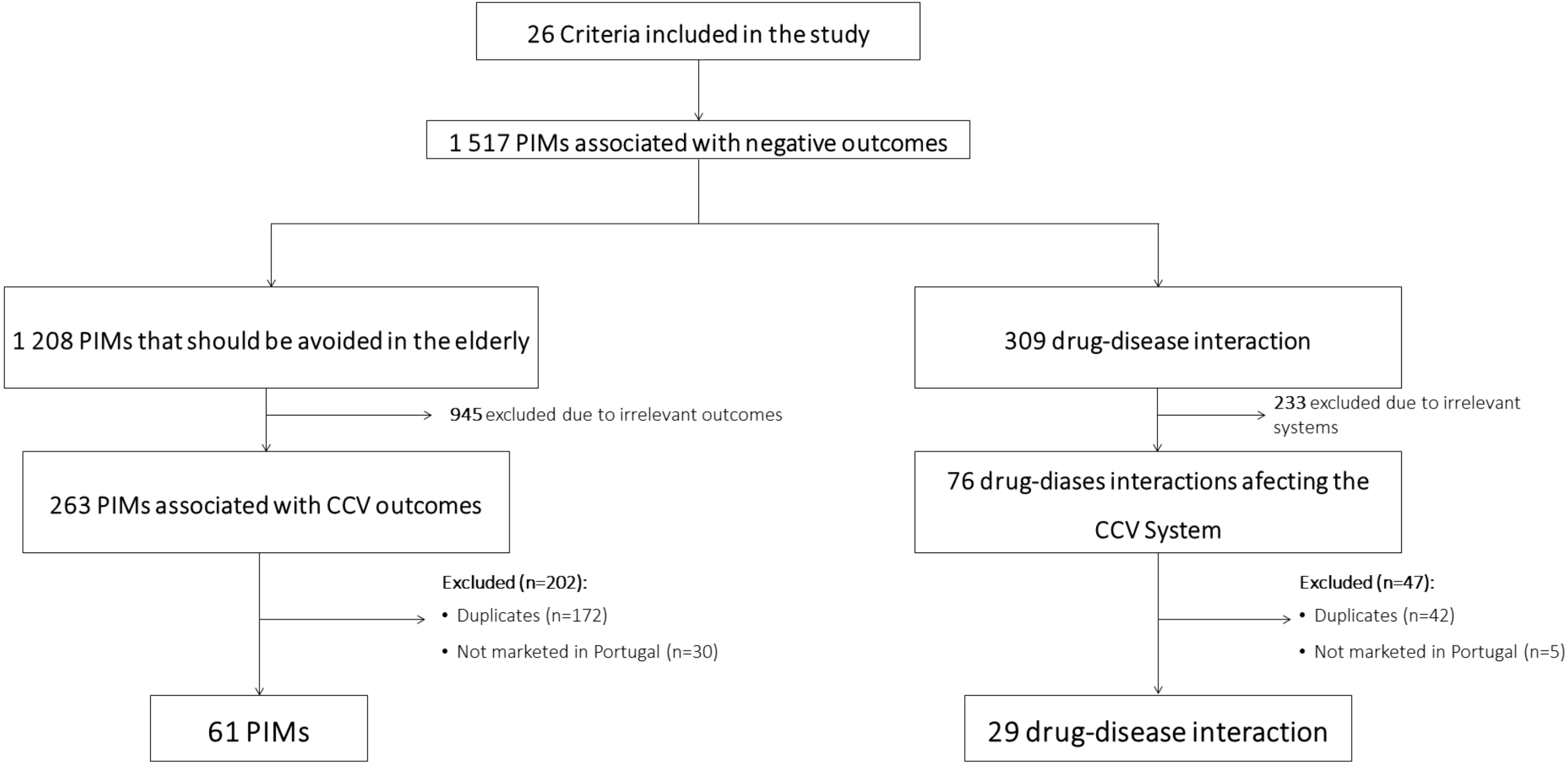
- tools using exclusively implicit criteria or did not presented PIMs (n=16)
- tools focusing exclusively in drug-drug interaction (n=4)
- Published language (n=3)
- Unavailable full-text (n=2)

Papers meeting inclusion crietria describing altogether 26 criteria (n=26)

92.3% (n=24) EXPLICIT CRITERIA

7.7% (n=2) MIXED APPROACH CRITERIA

SELECTION PROCESS OF THE PIMS ASSOCIATED WITH MACCE RISK OF OCCURRENCE



26 Criteria included in the study

1 517 PIMs associated with negative outcomes

1 208 PIMs that should be avoided in the elderly

945 excluded due to irrelevant outcomes

263 PIMs associated with CCV outcomes

Excluded (n=202):

- Duplicates (n=172)
- Not marketed in Portugal (n=30)

61 PIMs

309 drug-disease interaction

233 excluded due to irrelevant systems

76 drug-diases interactions afecting the CCV System

Excluded (n=47):

- Duplicates (n=42)
- Not marketed in Portugal (n=5)

29 drug-disease interaction

KEY FINDINGS: WHAT HAVE WE OBSERVED FROM THESE RESULTS?

SCREENING TOOLS

- **Europe: 46.2% (n=12)**
- **North America: 38.5% (n=10)**
- Asia: 11.5% (n=3)
- Oceania: 3.8% (n=1)

RELIABILITY OF THE ANALYZED TOOLS

- ICC coefficient = **0.212**; 95%CI: 0.112 – 0.768
- A **low relative agreement** was obtained for the PIMs considered in all the analyzed tools

Key Findings: What have we observed from these results?

Preliminary PIM-List

- **20 Drug classes** were identified:
  - **Non-steroids anti-inflammatory drugs (NSAIDs)** and **Tricyclic Antidepressants**: most frequently described
- From the **61 PIMs to be avoided in the elderly**:
  - Most frequently described PIMs:
    - **Amitriptyline (described in 17 tools)**
    - Digoxin (13 tools)
    - Methyldopa (12 tools)
    - Non-sustained release nifedipine (11 tools)

KEY FINDINGS: WHAT HAVE WE OBSERVED FROM THESE RESULTS?

PRELIMINARY PIM-LIST (CONTINUED)

- ONLY 5 PIMS (8.2%) WERE ASSOCIATED WITH MACCE RISK OF OCCURRENCE

FLECAINIDE	Heart attack
NIFEDIPINE	Acute myocardial infarction
ANTIPSYCHOTICS	Increased risk of stroke
NSAIDS	Acute myocardial infarction or stroke
ESTROGENS	Coronary Disease and Pulmonary Thromboembolism

Key Findings: What can we conclude?

Preliminary Results

The majority of the existing lists focus on **minor negative outcomes**

What do we need?

Information on **major negative outcomes** and their **risk quantification**

Future Work

Validation of the Preliminary PIM-List and risk quantification

THANK YOU ALL FOR YOUR TIME!

Questions?