MULTIMORBIDITY AND POLYPHARMACY

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TO DISCUSS

- Definition of multimorbidity
- Prevalence
- What contributes to multimorbidity
- Impact of multimorbidity
- How to approach a patient with multimorbidity

CASE STUDY

Mrs SM - 86yr old lady

Hypertension

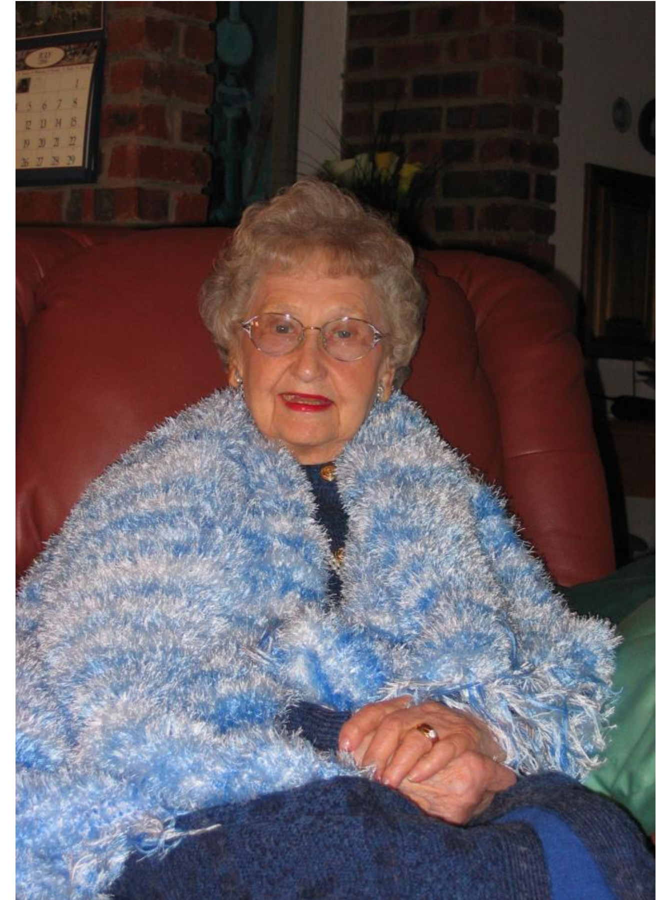
T2 diabetes for >10yrs

Atrial fibrillation

Sensory peripheral neuropathy

Falls

Urinary incontinence



MRS SM

Warfarin

Carvedilol

HCTZ

Enalapril

Metformin

Gliclazide

Amitriptyline

Solifenacin (vesicare)

Eltroxin

DEFINITION

WHO – 2 or more concurrent illnesses

Chronic long-term conditions

- Non-communicable diseases
- Mental health diseases
- Chronic infectious diseases (eg HIV, Hep C)

Not comorbidity (no primary or index condition)

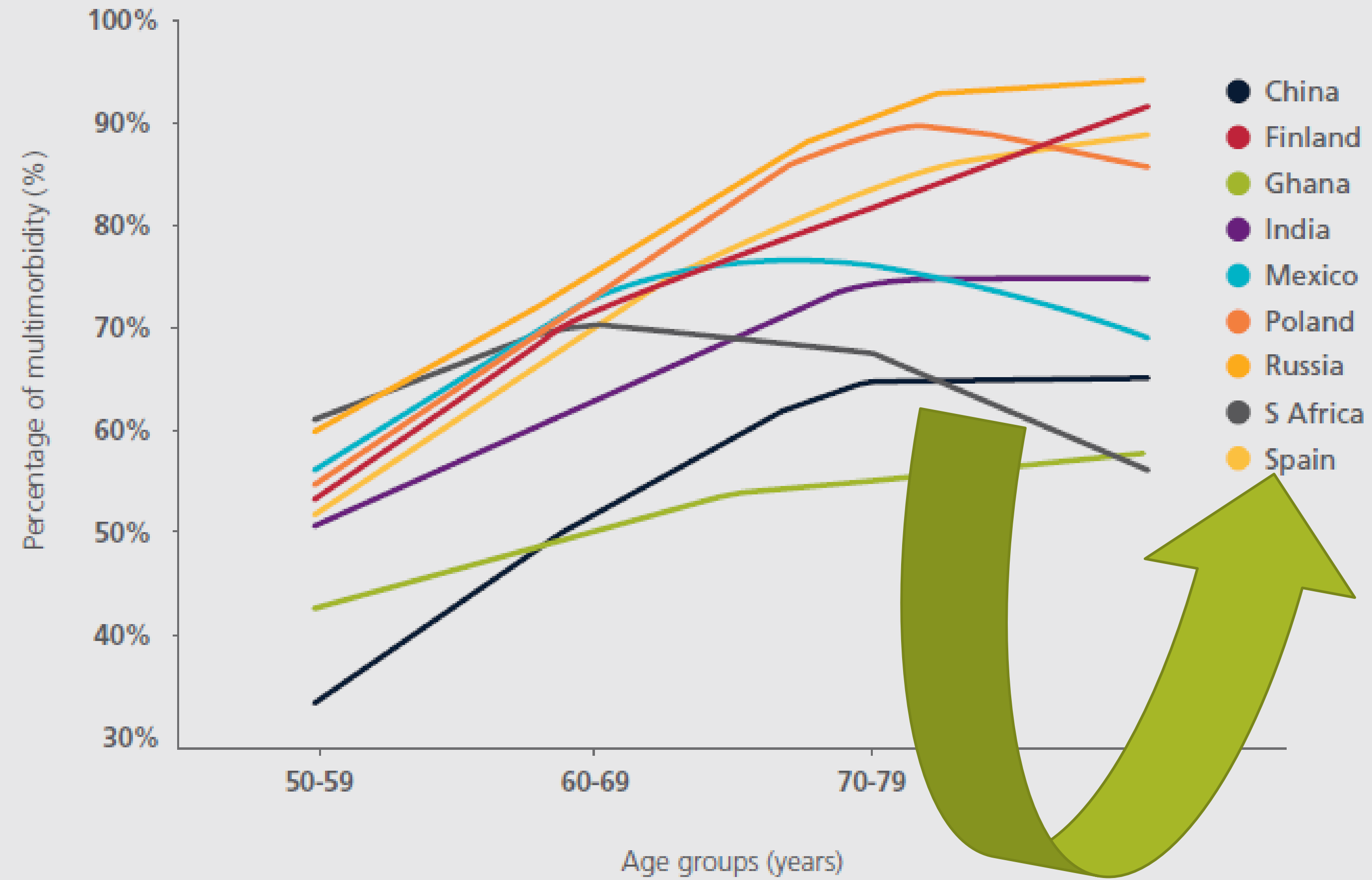
DEFINITION

- Can include (long-term health conditions)
  - Defined physical and mental health conditions
  - Ongoing conditions eg learning disability
  - Symptom complexes – frailty, chronic pain
  - Sensory impairment – vision or hearing loss
  - Alcohol and substance misuse

PREVALENCE

- 13-72% in general population
- 25% in developed countries adults have 2 or more conditions
- 50% in developed countries older adults have 3 or more conditions
- >50 million people in the EU
- ABSOLUTE NUMBER OF PERSONS WITH MM IS HIGHER IN THOSE YOUNGER THAN 65YRS!

Figure 1. Multimorbidity prevalence across high-, middle-, and low-income countries



Source: Garin N, *et al.* (2016).[82]

IN SOUTH AFRICA

- Currently African mortality dominated by:
  - Communicable disease
  - Maternal
  - Nutritional
  - Perinatal conditions
- WHO projects by 2030 – NCD will be biggest cause of death

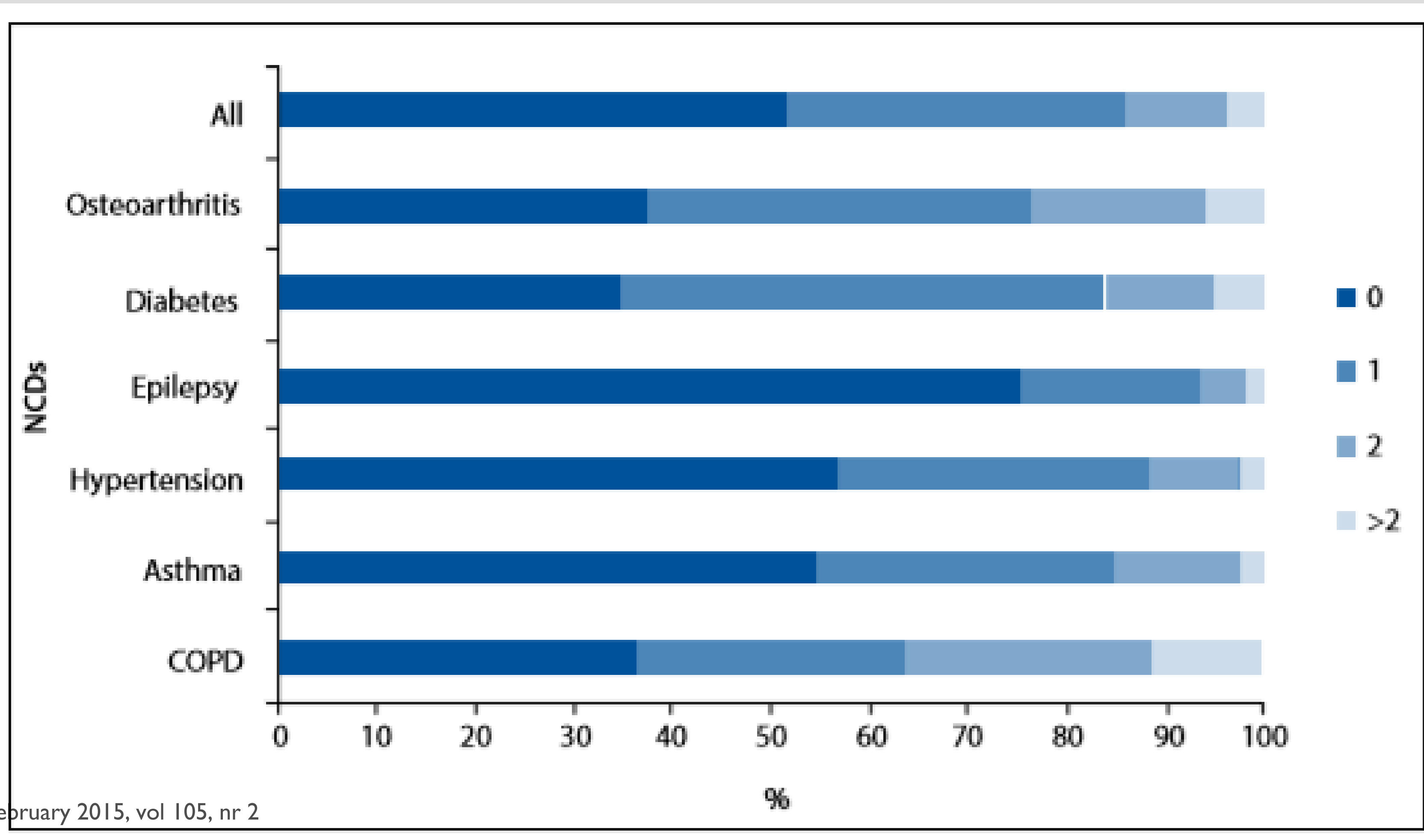
- 30% of older people with HIV has comorbidity

MULTIMORBIDITY IN NCD IN SA PRIMARY HEALTHCARE

- A dataset obtained from a previous morbidity survey of SA ambulatory PHC
- 18 856 consultations were included
- 66.9% pts consulted a nurse
- 33.1% pts consulted a doctor.
- **14.4% pts had multimorbidity**

SAMJ February 2015, vol 105, nr 2

MULTIMORBIDITY IN NCD IN SA PRIMARY HEALTHCARE



23.7%

16.3%

16.7%

12.0%

15.3%

36.4%

SAMJ February 2015, vol 105, nr 2

RISK FACTORS

- Older age
- Female
- Low socio-economic status
- Impaired cognitive function
- Mental health status
- High BMI

Mental health

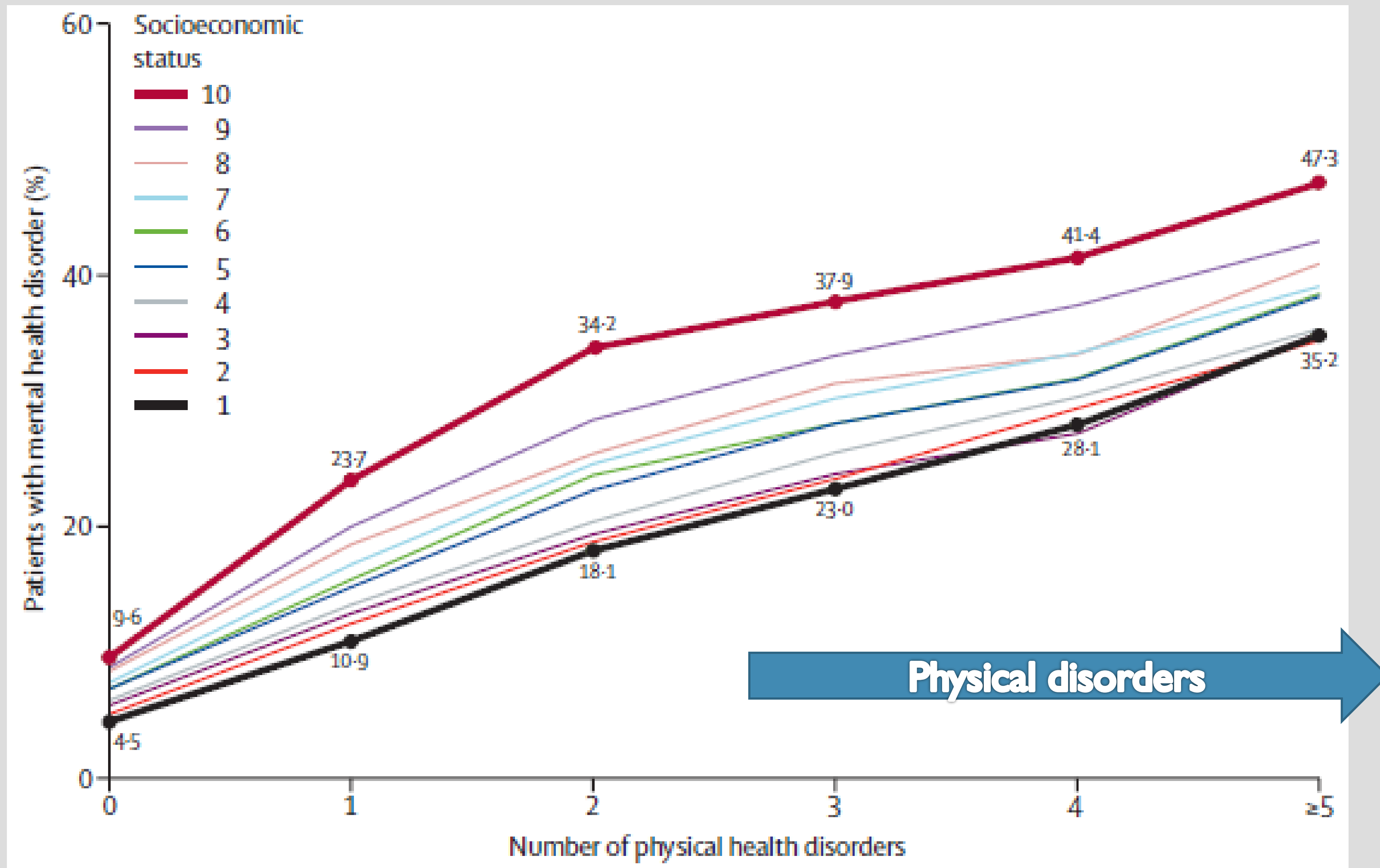


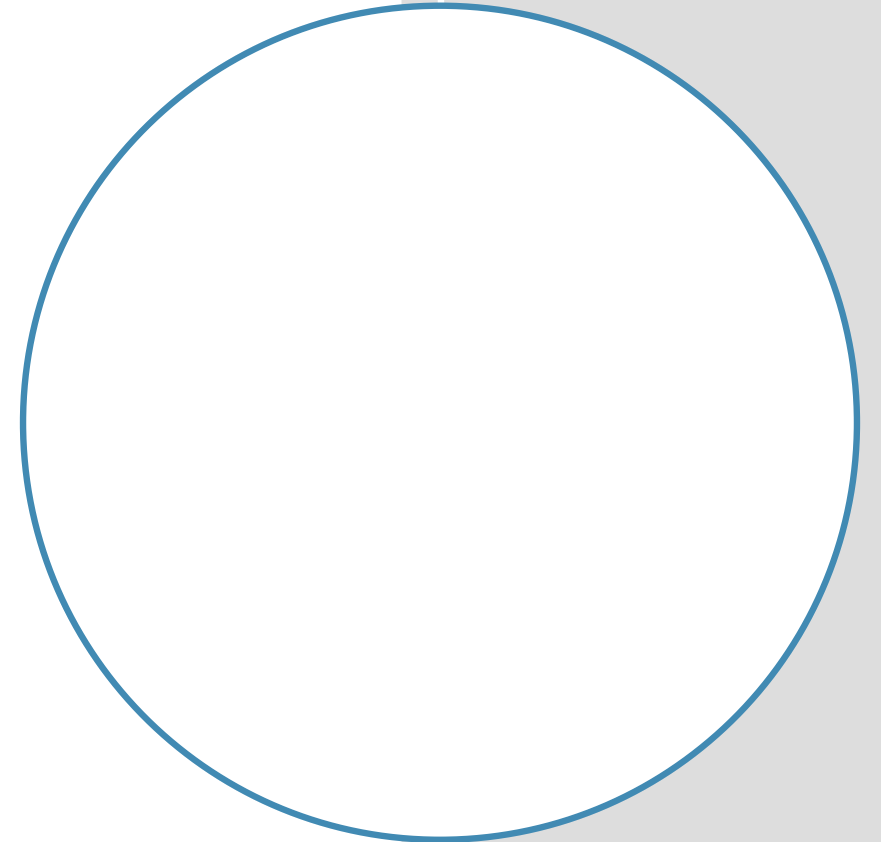
Figure 3: Physical and mental health comorbidity and the association with socioeconomic status
On socioeconomic status scale, 1=most affluent and 10=most deprived.

Lancet 2012;(380):37-43

Rank	Conditions or risk factors	Appearance (n)
Diseases:		
1	Cardiovascular and heart disease	340
2	Depression	195
3	Diabetes mellitus	94
4	Dementia	85
5	COPD	78
6	Cancer	70
7	Hypertension	56
8	Alzheimer disease	41
9	Chronic kidney disease	34
10	Cognitive impairment	33
Risk factors:		
1	Physical activity	51
2	Obesity	45
3	Body mass index	30

J Glob Health. 2017 Jun; 7(1): 010414

- Different things go together (clusters)
  - Most common:
    - Depression
    - Cardiometabolic disorders
    - Musculoskeletal disorders
  - Differences between genders
    - Men – cardiovascular diseases
    - Women – psychogeriatric diseases



IMPACT

- Death (and premature death)
- Functional limitation and disability
- Frailty
- Institutionalisation
- Decreased QOL
- Increased hospitalisation – longer stay, re-admission, ER visits
- Increased costs/socio-economic impact

IMPACT

- INCREASED PATIENT WORKLOAD FOR PROVIDER AND PATIENT
  - Scheduling and attending appointments
  - Preventative care
  - Drug management
  - Self-monitoring
  - Visits to the doctor
  - Laboratory tests
  - Changes of lifestyle
  - Paperwork

IMPACT

1 + 1 =

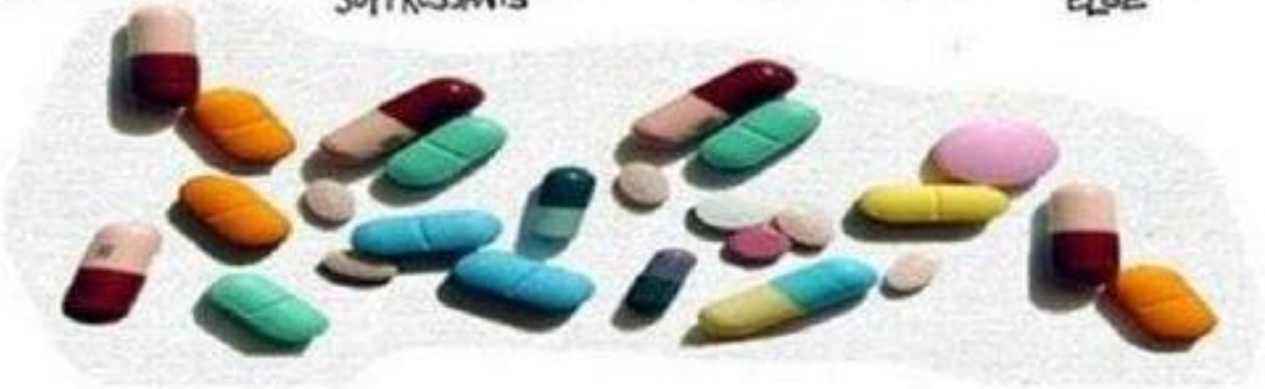
- More complexity
- Interactions
  - Disease – disease
  - Disease – drug
  - Drug – drug

30

- More depression
- Falls
- Polypharmacy
- Adverse drug reactions
- Less time to care
- Increased non-compliance and neglect

GERIATRIC GIANTS

PHARMACOLOGIC ASPECTS OF AGING

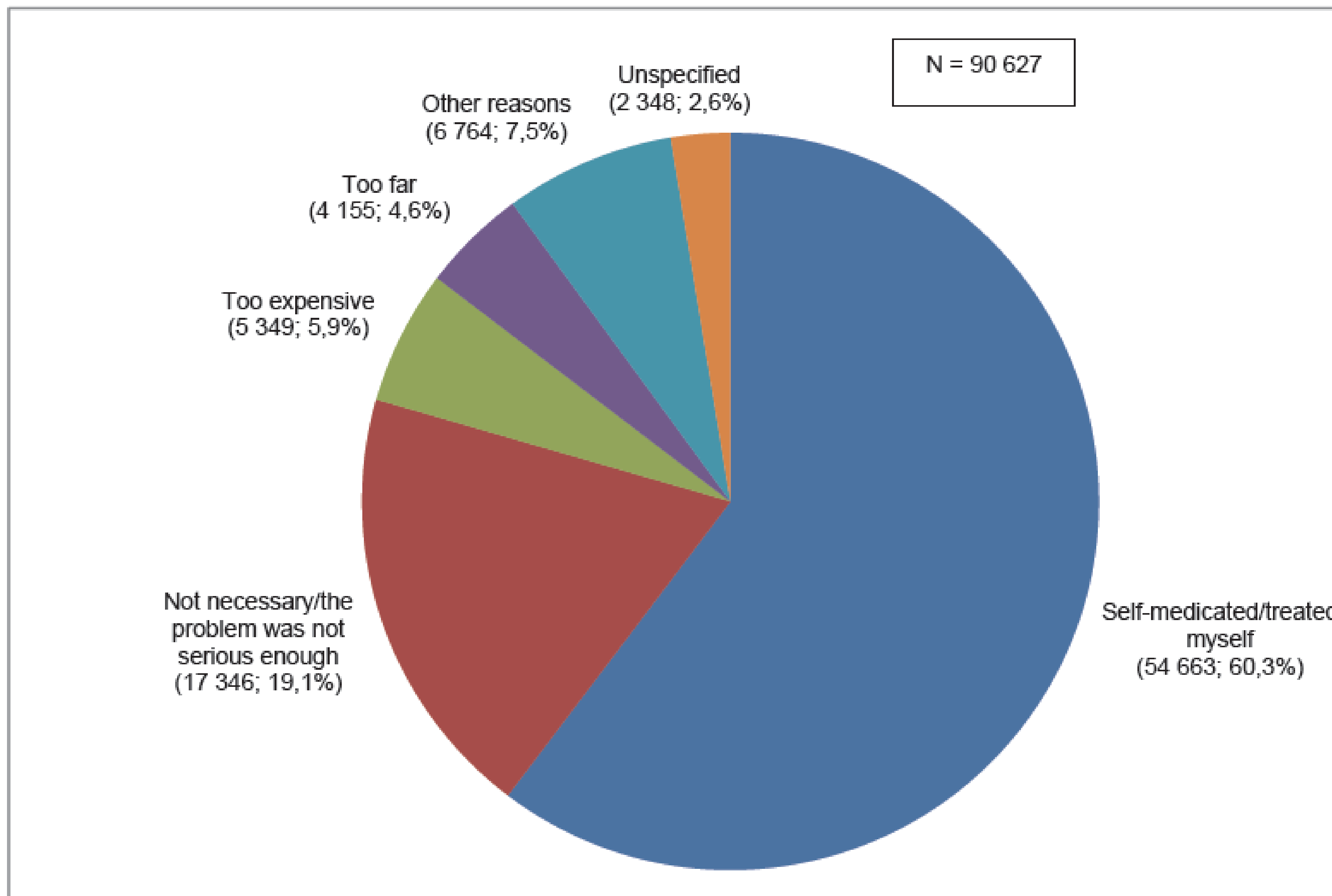


POLYPHARMACY

= Multiple drug consumption and excessive drug use

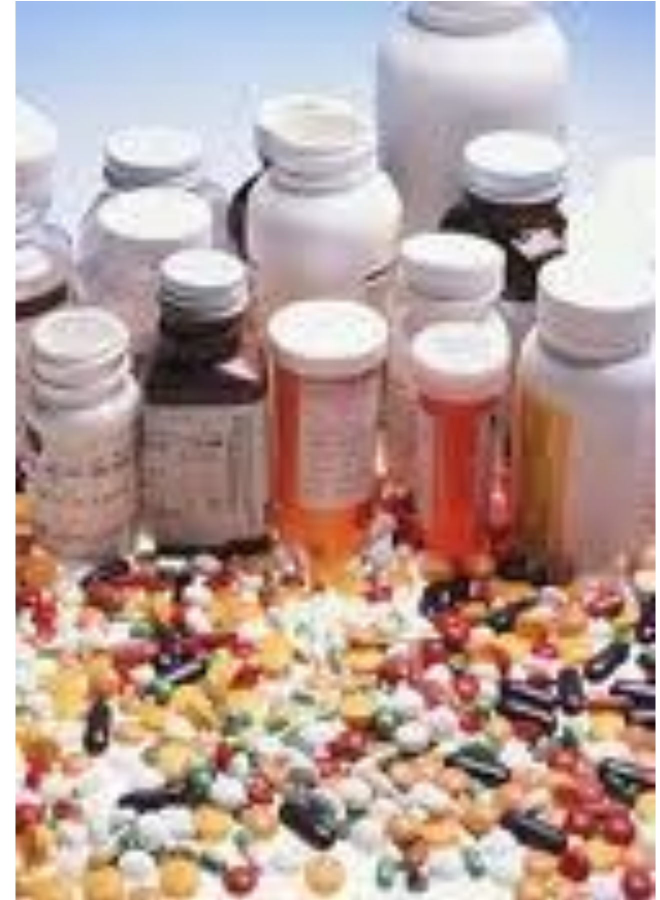
- 5 or more drugs (not limited to prescription medications)

Figure 4.6: Percentage distribution of older persons by reasons given for not consulting a health worker when ill a month before the survey, South Africa, 2013



POLYPHARMACY LEADS TO…

- Adverse drug reactions
- Falls
- Non-adherence (and poor health outcomes)
- Inappropriate prescribing
- Underuse by patient
- Under prescribing by doctor
- Adverse patient outcomes
  - Institutionalisation/hospitalisation
  - Impaired mobility
  - Death



ADVERSE DRUG EVENTS

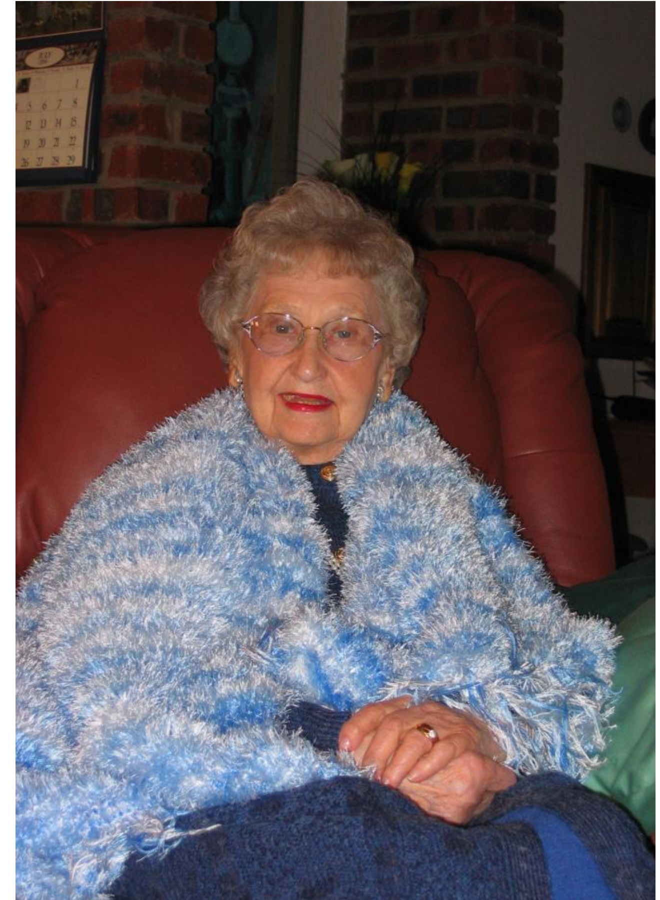
- The risk increases with:
  - Age (physiological changes)
    - Reduced physiological reserves
    - Decreased clearance of drugs
  - Polypharmacy
  - Multimorbidity
  - Frailty
  - Alcohol intake
  - Poor cognitive function and depression
  - Community dwelling older people

MRS SM

14 potential drug interactions

ADE: Falls/ Bleeds/ Electrolyte abnormalities /Anticholinergic burden

13 drugs at 5 different times



Frequency of adverse drug events by type

Type	Total adverse drug events (n = 815) N (percent)	Preventable adverse drug events (n = 338) N (percent)
Neuropsychiatric	199 (24)	97 (29)
Hemorrhagic	159 (20)	53 (16)
Gastrointestinal	140 (17)	55 (16)
Renal/electrolytes	80 (10)	40 (12)
Metabolic/endocrine	64 (8)	35 (10)
Cardiovascular	36 (4)	15 (4)
Dermatologic	36 (4)	4 (1)
Extrapyramidal symptoms	30 (4)	7 (2)
Fall with injury	21 (3)	17 (5)
Fall without injury	21 (3)	11 (3)
Infection	19 (2)	1 (<1)
Syncope/dizziness	16 (2)	8 (2)
Anticholinergic	9 (1)	3 (1)
Ataxia/difficulty with gait	9 (1)	5 (2)
Hematologic	8 (1)	3 (1)
Respiratory	6 (1)	4 (1)
Anorexia	3 (<1)	2 (<1)
Functional decline	3 (<1)	2 (<1)
Hepatic	1 (<1)	1 (<1)

Adverse drug events could manifest as more than one type. Neuropsychiatric events include oversedation, confusion, hallucinations, and delirium. Anticholinergic effects include dry mouth, dry eyes, urinary retention, and constipation.

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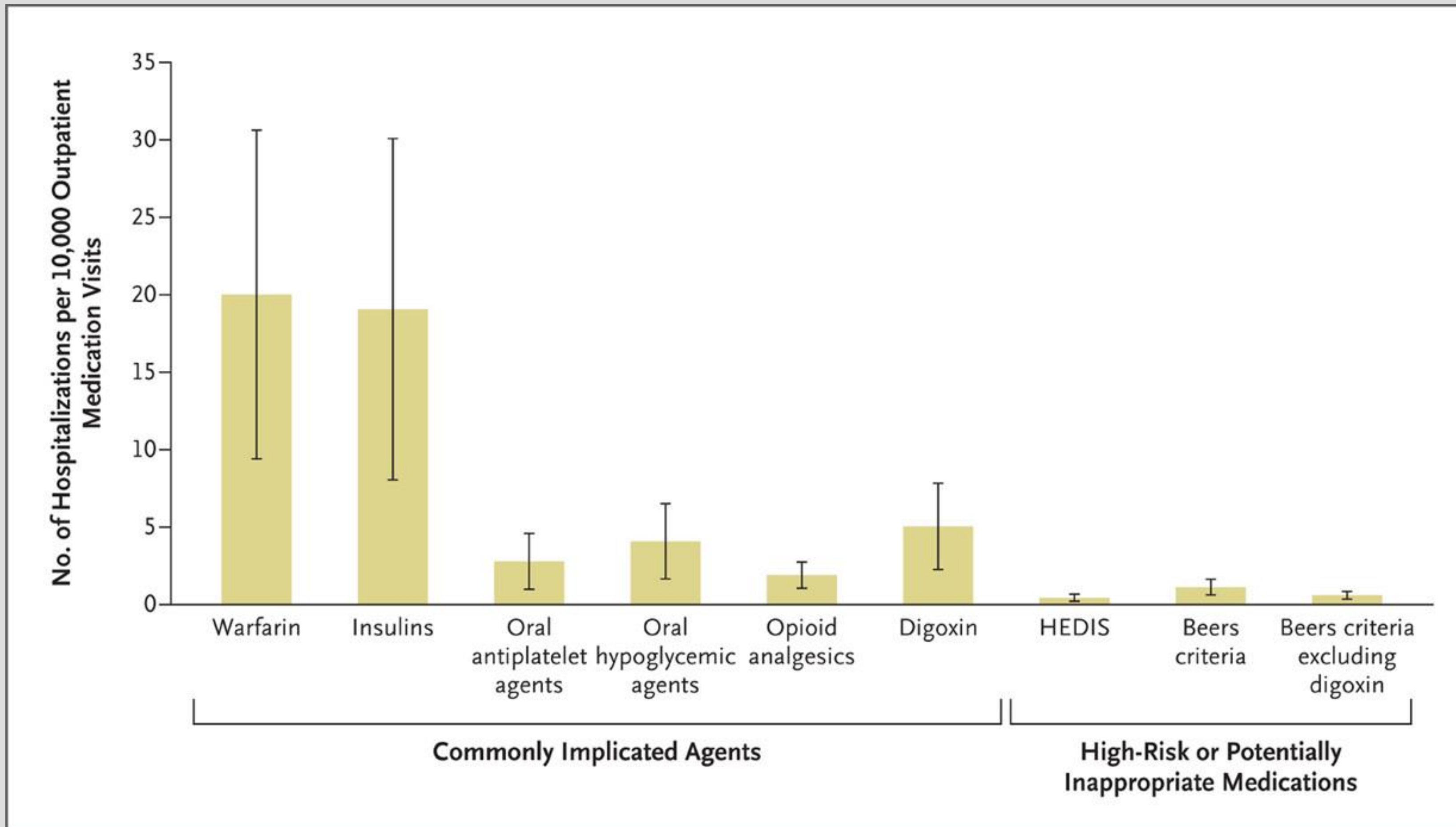
ADVERSE DRUG EVENTS (USA)

- 12% admissions of older patients
- 2/3 were accidental overdose

Estimated Rates of Emergency Hospitalizations for Adverse Drug Events in Older U.S. Adults, 2007–2009.



BUDNITZ DS ET AL. N ENGL J MED 2011;365:2002-2012.

SOUTH AFRICA

- 23% of admissions of older patients
- Drugs associated with higher likelihood of ADE
  - ACE inhibitor
  - B-Blocker
  - NSAID
  - Andi-diabetic agents
  - Corticosteroids (oral)
  - Diuretics
  - Warfarin

REMEMBER COMBINATION PILLS

- Stillpane = codeine phosphate + meprobamate + paracetamol + caffeine anhydrous
- Multivitamin = ???

HOW TO ADDRESS POLYPHARMACY

- Brown bag policy
- Review medication at EVERY visit
  - Check doses and interactions
- Remember less is more
- Prescribing guidelines in elderly
  - BEER's criteria
  - STOPP/START criteria

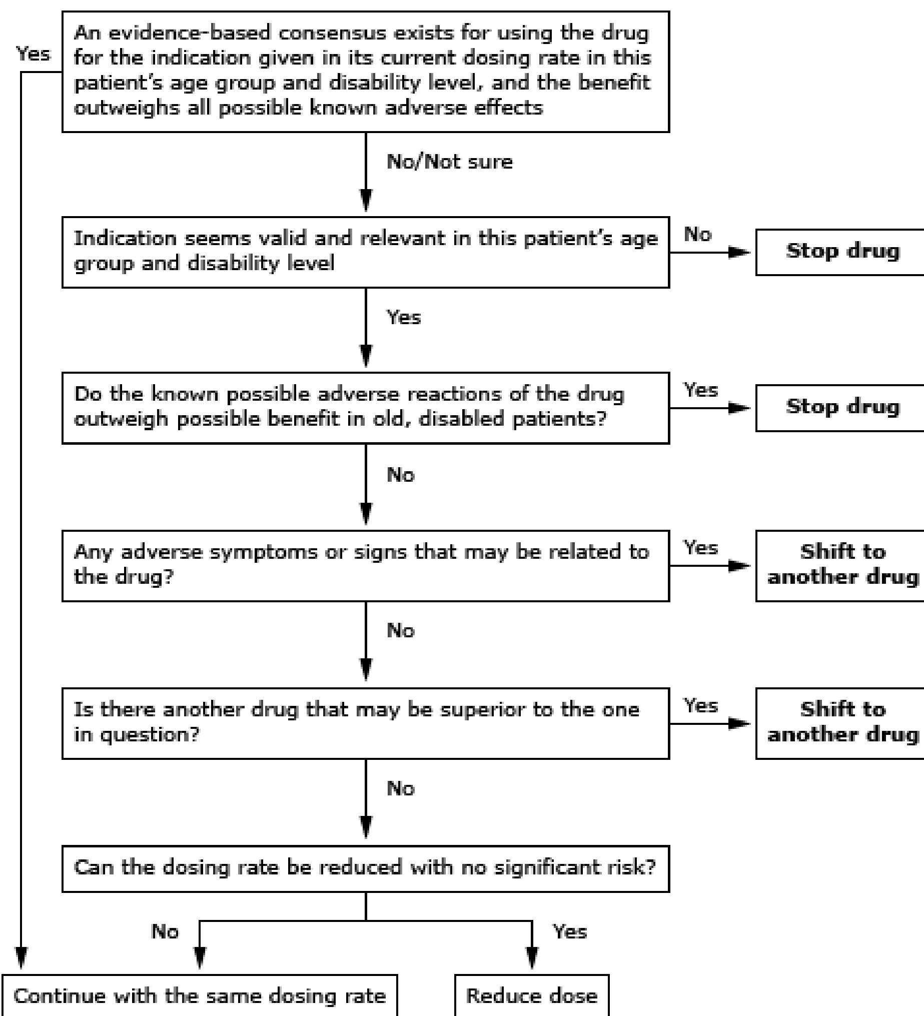
BEERS CRITERIA (AGS) 2019 UPDATED

- JAGS publication
- Improve medicine selection, reduce ADE, provide a tool to assess cost, patterns and quality of care of drugs in people >65yrs
- 30 medications/classes to be avoided in general
- 40 medications/classes to be avoided in certain patients

STOPP/START CRITERIA V2

- STOPP – drugs that are potentially inappropriate to be stopped
- START – drugs that are potentially omitted but have clinical bedside value

Medication review



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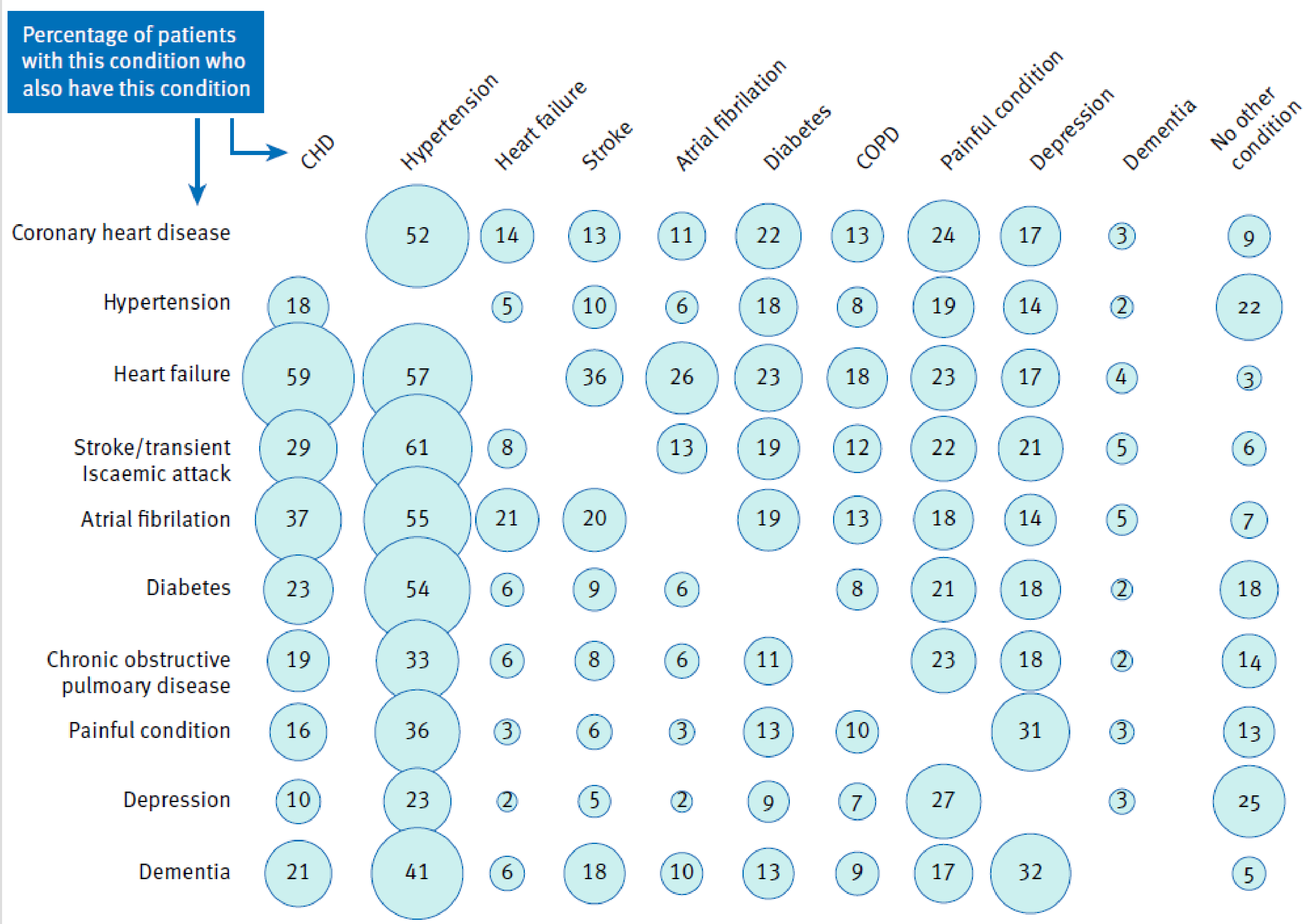
WHAT ARE THE CHALLENGES

Evidence based

Heterogeneity (illness severity/ functional status/ prognosis/ preferences/ risk of adverse events)



Clinical assessment and management of multimorbidity: summary of NICE guidance
BMJ 2016

STUCK?

Single disease guidelines

Vs

Contextual evidence (often lacking)

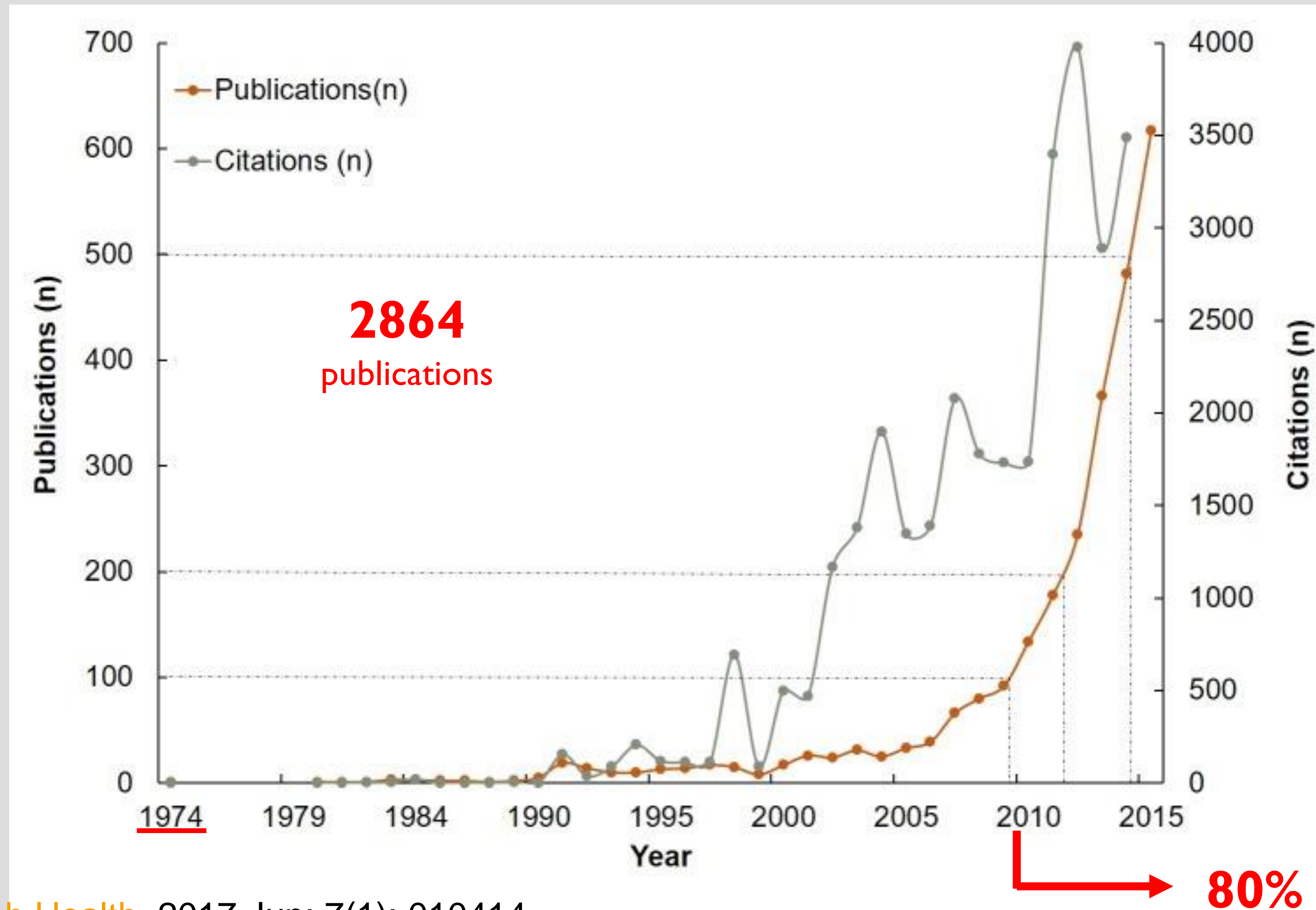
MISMATCH BETWEEN PREVALENCE OF MM AND ITS PUBLICATION OUTPUTS

Conditions	Prevalence (year)	Publications	Ratio of articles on multimorbidity vs on other four conditions
Multimorbidity	13%–83% (1989–2012)* **63%**	2864	1:1
Diabetes	9% (2014)	431 009	1:150
Depression	5.9–14.6 (2000s)	360 666	1:126
Hypertension	22% (2014)	346 894	1:121
COPD	11.7% (2010)	36 866	1:13

*A systematic review included articles from 1989 to 2012, with median prevalence 63%.

J Glob Health. 2017 Jun; 7(1): 010414

Trends of the annual publications and citations on multimorbidity worldwide



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- Go for patient centred approach

APPROACH TO A PATIENT WITH MULTIMORBIDITY

- NICE suggested target groups: RED FLAG PATIENTS
  - Finding difficult to manage their treatment or day-to-day activities
  - Receive care and support from multiple services and still need more
  - Both long-term physical and mental health conditions
  - Frailty or falls
  - Frequently seek unplanned or emergency care
  - Prescribed multiple regular medicines

Age and Ageing 2017: 46: 882-888

Adult with 2 or more long-term health conditions

2 General principles

3 Identifying people who may benefit from an approach to care that takes account of multimorbidity

4 Assessing frailty

5 Delivering an approach to care that takes account of multimorbidity

6 Patient and service user experience

Adult who may benefit from an approach to care that takes account of multimorbidity

2 Principles and steps to follow

3 Discuss the purpose of the approach to care

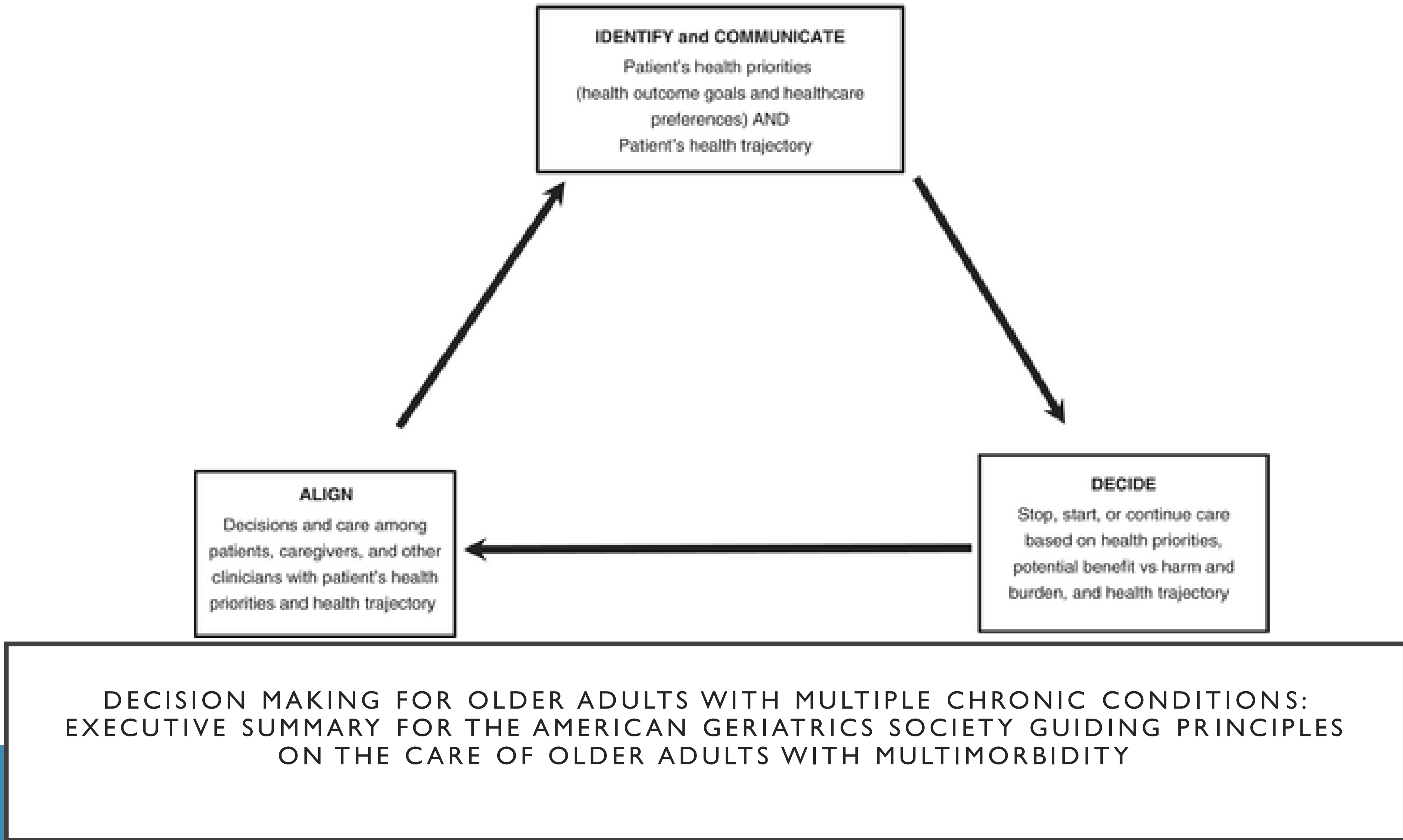
4 Establish disease and treatment burden

5 Identify patient preferences and priorities

6 Review medicines and other treatments

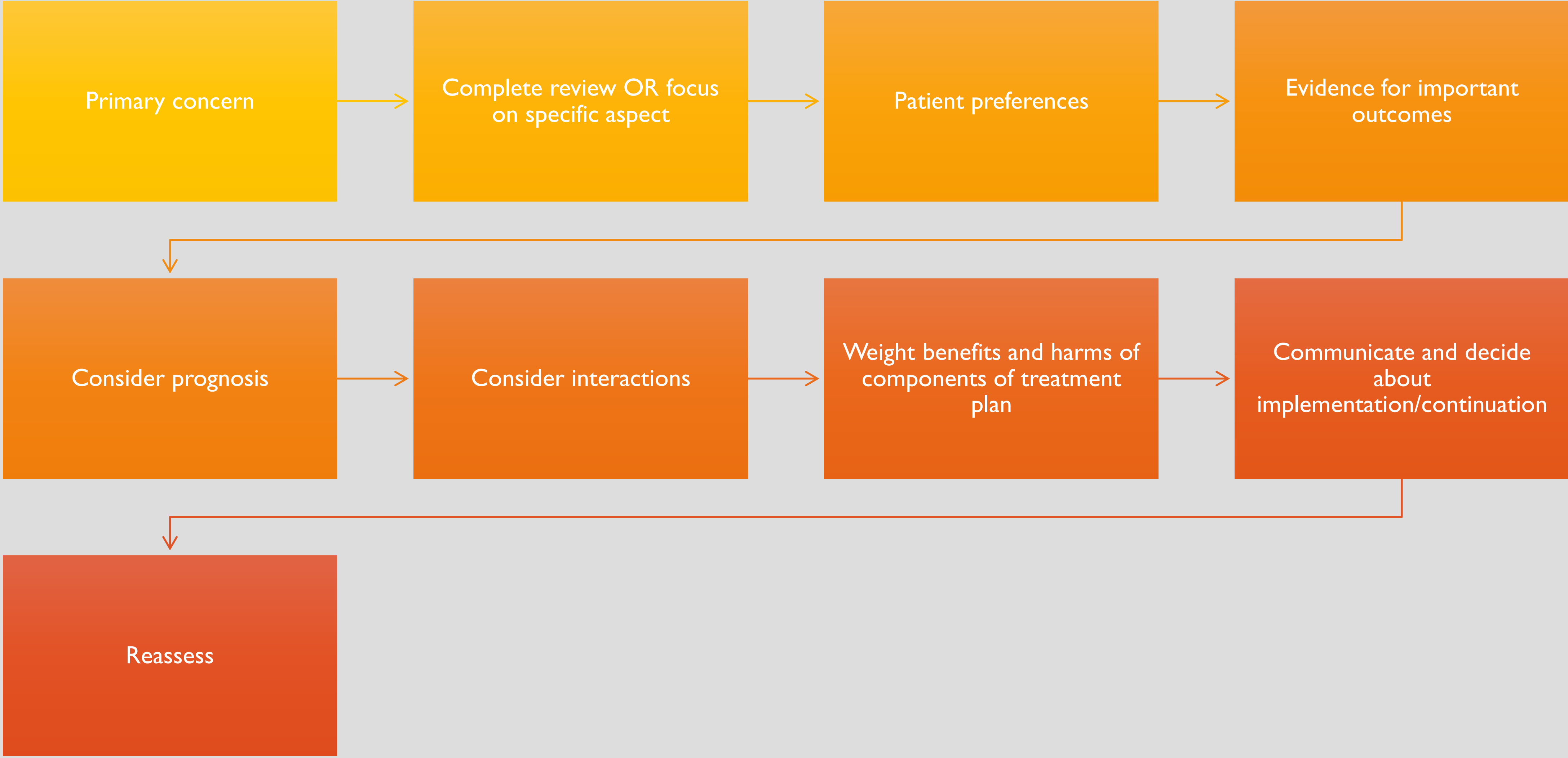
7 Agree an individualised management plan

8 See what NICE says on medicines optimisation



DECISION MAKING FOR OLDER ADULTS WITH MULTIPLE CHRONIC CONDITIONS: EXECUTIVE SUMMARY FOR THE AMERICAN GERIATRICS SOCIETY GUIDING PRINCIPLES ON THE CARE OF OLDER ADULTS WITH MULTIMORBIDITY

Journal of the American Geriatrics Society, Volume: 67, Issue: 4, Pages: 665-673, First published: 21 January 2019, DOI: (10.1111/jgs.15809)



Primary concern
Complete review OR focus on specific aspect
Patient preferences
Evidence for important outcomes
Consider prognosis
Consider interactions
Weight benefits and harms of components of treatment plan
Communicate and decide about implementation/continuation
Reassess

ADDITIONAL PLANS

- Raising awareness among policy-makers for comprehensive health care
- Improve awareness among providers and general public of the relationships between different conditions
- Improve proactive and preventative care
- Strong primary care
- Promote generalism "expert generalists"
- Improve training

WHO guideline to multimorbidity

CONCLUSION

- Multimorbidity is a prevalent problem
- Risks and prevalence will increase unless more preventative medicine done
- Requires a holistic approach
- WATCH OUT: polypharmacy, other geriatric giants to be discussed