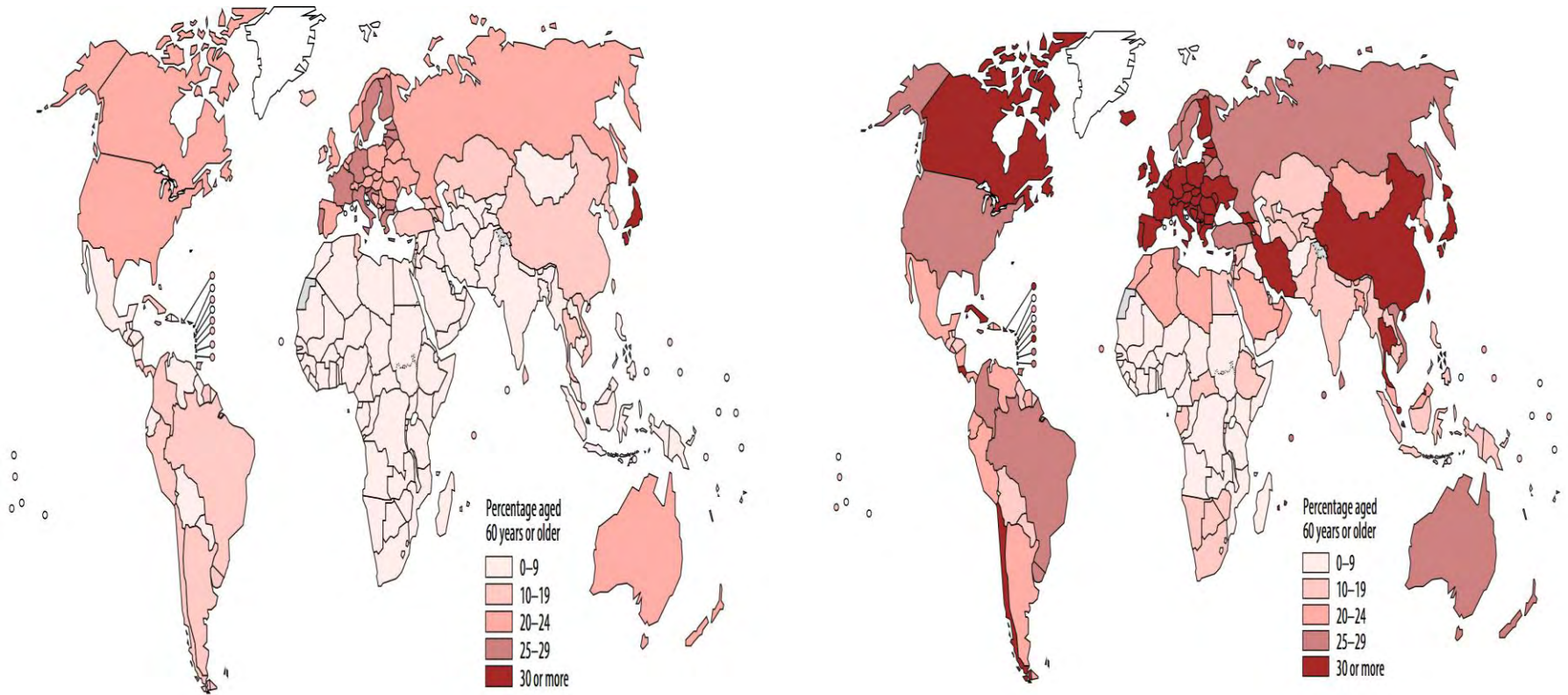


# Scottish Polypharmacy Guidance: Realistic Medicine Quality strategies for Prescribing

**Alpana Mair, Project Coordinator SIMPATHY, @alpanamair**  
**Head of Effective Prescribing & Therapeutics, Scottish Government**  
**WHO polypharmacy Lead**

## Survival at younger age & socioeconomic development



# What is ageing and healthy aging?



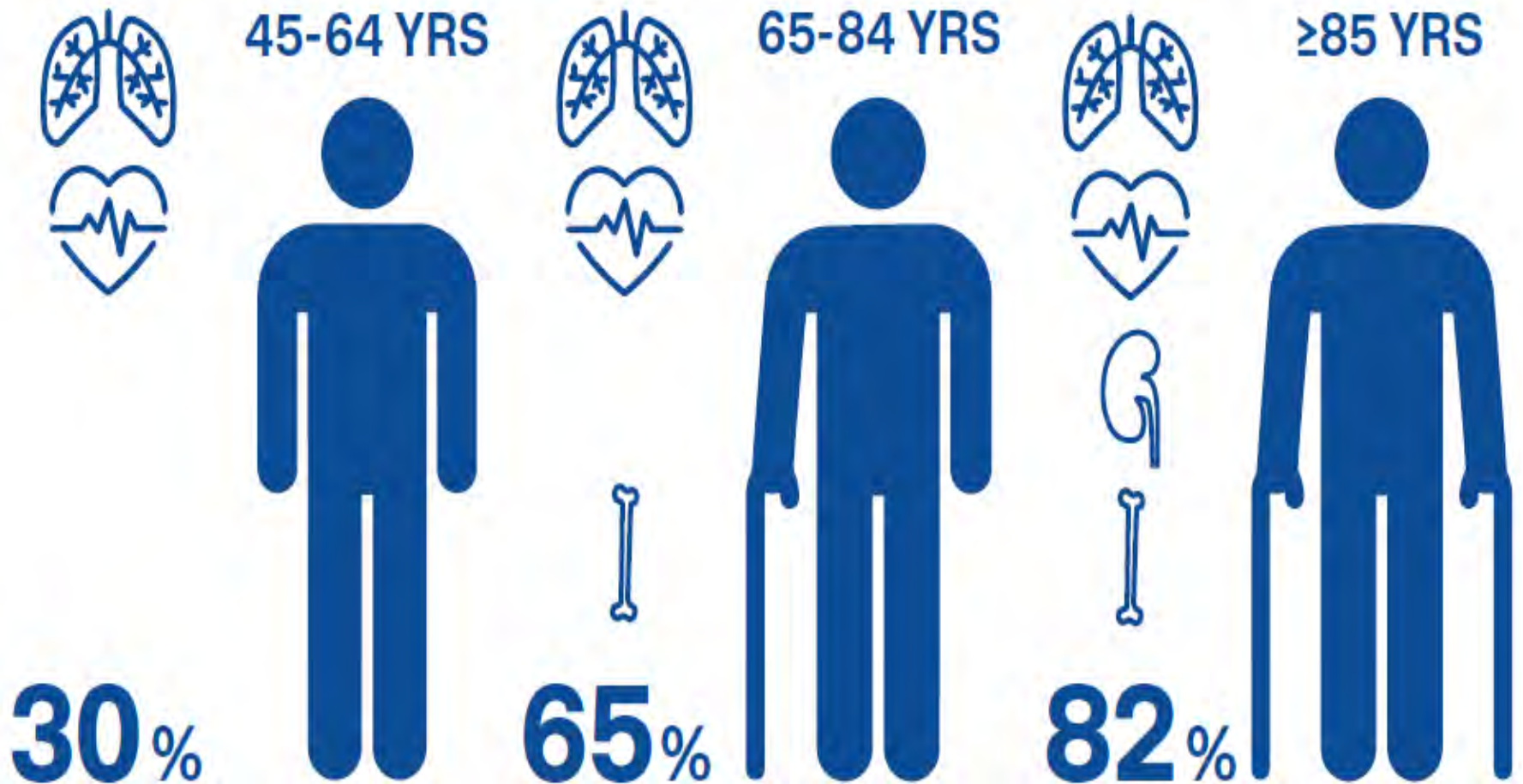
- Ageing is not a linear process
- Healthy aging
  - “ process of developing and maintaining functional ability which enables well being in old age”

Intrinsic and environmental factors affect functional ability

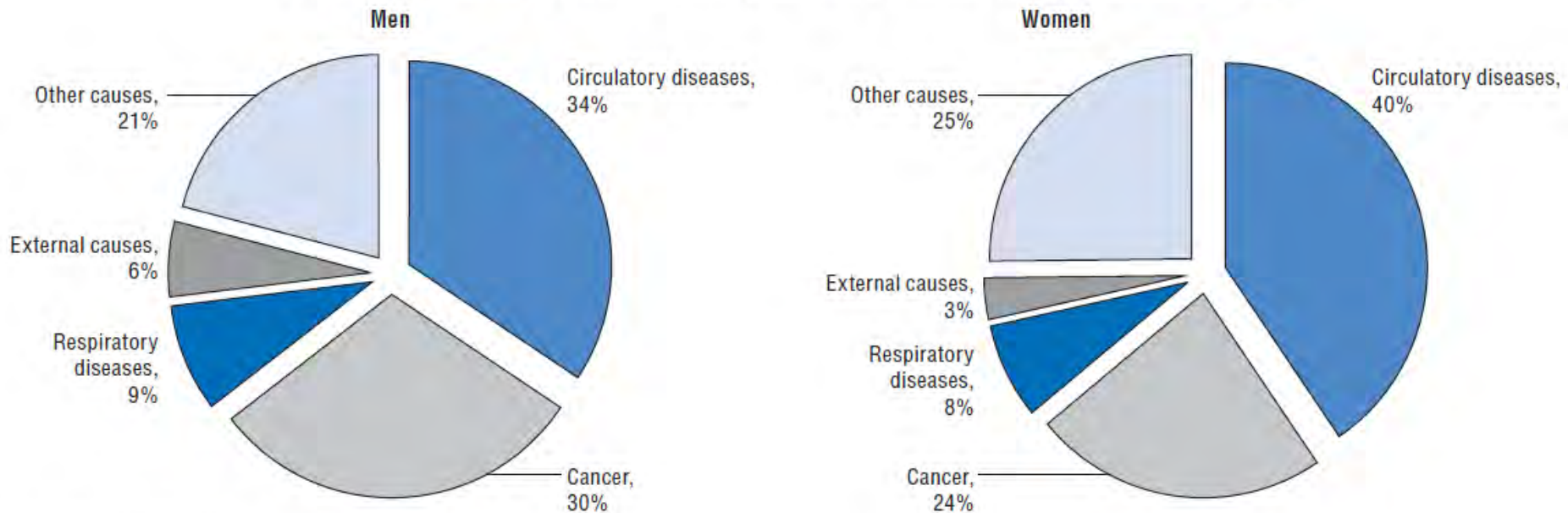
# Multiple morbidity is common



**MORE PEOPLE HAVE MULTIMORBIDITY  
THAN A SINGLE DISEASE**



## 3.6. Main causes of deaths among men and women in EU countries, 2013



Source: Eurostat Database.

OECD/EU (2016), *Health at a Glance: Europe 2016 – State of Health in the EU Cycle*, OECD Publishing, Paris.  
<http://dx.doi.org/10.1787/9789264265592-en>

# Multiple morbidity & health care system design



- Mental health can have an impact on patients ability to manage non communicable disease and treatment
- Deprivation
- Untreated conditions can lead to increase in morbidity e.g hypertension
- Consider design of health care system- person centered care- coordination of treatment by specialists? Integrated care

# People: Impact of Frailty- renal & liver disease

## FRAILTY AND THE NUMBER OF MEDICINES

MORE FRAILTY



MORE MEDICINES

## PHARMACOLOGY







# What is Polypharmacy ?



- >4
- >10
- More that patient can handle
- ???
- More drugs than you need taking in to account
  - Side effects
  - Time to Benefit – Number needed to Treat
  - Adherence -50%
  - ++++++
- USA 8.2% in 2000 to 15% in 2011
- China 12-30%
- Indian 9%
- Australia >50 years 34%
- NZ 25% in 2005 to 32% in 2013
- Africa 25-29%
- Saudi 41%



## Polypharmacy Clinic in rural Uganda



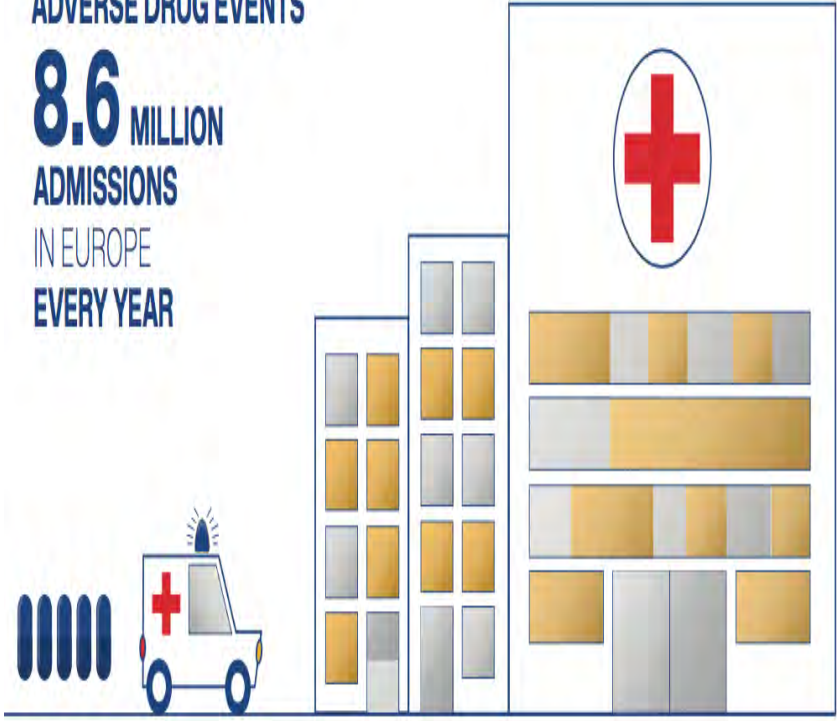
- **Appropriate polypharmacy** is present, when all drugs are prescribed for the purpose of achieving specific therapeutic objectives that have been agreed with the patient
- **Inappropriate polypharmacy** is present, when one or more drugs are prescribed that are not or no longer needed

# Urgency: Public health challenge : address @initiation & @review of medication



UNPLANNED HOSPITAL  
ADMISSIONS CAUSED BY  
ADVERSE DRUG EVENTS

**8.6** MILLION  
ADMISSIONS  
IN EUROPE  
EVERY YEAR



50% OF HOSPITAL ADMISSIONS  
DUE TO ADVERSE DRUG  
EVENTS ARE PREVENTABLE

**70%** OF  
THESE ARE



IN PATIENTS  
OVER **65** YEARS  
OF AGE

AND

ON **5** OR MORE  
MEDICINES



**186 countries: 4% of total avoidable costs due to polypharmacy. Total of 0.3% global health expenditure could be saved = \$18bn**

# Medication Safety across The UK



The screenshot shows a web browser window with the URL [telegraph.co.uk/news/2018/02/23/nhs-drug-errors-may-causing-22000-deaths-every-year/?WT.mc\\_id=tmg\\_share\\_em](https://www.telegraph.co.uk/news/2018/02/23/nhs-drug-errors-may-causing-22000-deaths-every-year/?WT.mc_id=tmg_share_em). The article title is "NHS drug errors may be causing up to 22,000 deaths every year". Below the title are social media sharing icons for Facebook, Twitter, and Email. A large image shows a man in a suit in front of a blue NHS logo. To the right of the main article is a "MORE STORIES" section with five numbered items:

- 1 Brexit Britain is escaping the sinking EU ship
- 2 King Coal rules Australia again. When will UK politicians see which way the wind's blowing?
- 3 How Whatsapp is spreading chaos throughout the third world and beyond
- 4 I backed Chequers but can no longer support this humiliation
- 5 Burnley vs Manchester United. Premier League 2018-19: What time is kick-off today, what TV...

Below the list is a "FOLLOW TELEGRAPH NEWS" section with links for "Follow on Facebook" and "Follow on Twitter". At the bottom right of the browser window, the time is 16:27 and the date is 02/09/2018.

# Scotland's Actions : EU commitment: Signing pledge to Global



# Action Undertaken to Global Challenge



## Admissions

NSAIDs + aspirin 29.6%

Diuretics 27.3%

Warfarin \* 10.5%

ACE 7.7

Antidepressants 7.1

Beta blockers 6.8

Opiates 6.0

Digoxin 2.9

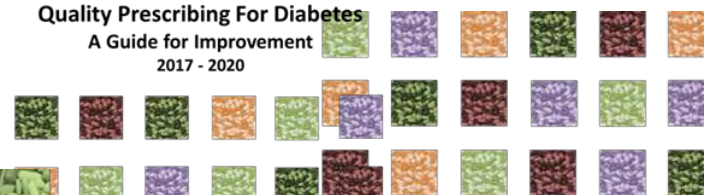
Prednisolone 2.5

Clopidogrel 2.4

\*Will include DOACS



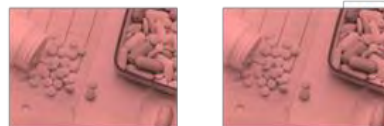
Quality Prescribing For Diabetes  
A Guide for Improvement  
2017 - 2020



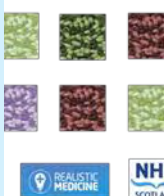
Quality Prescribing For Diabetes  
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2017 - 2020



Polypharmacy Guidance  
Realistic Prescribing  
2018



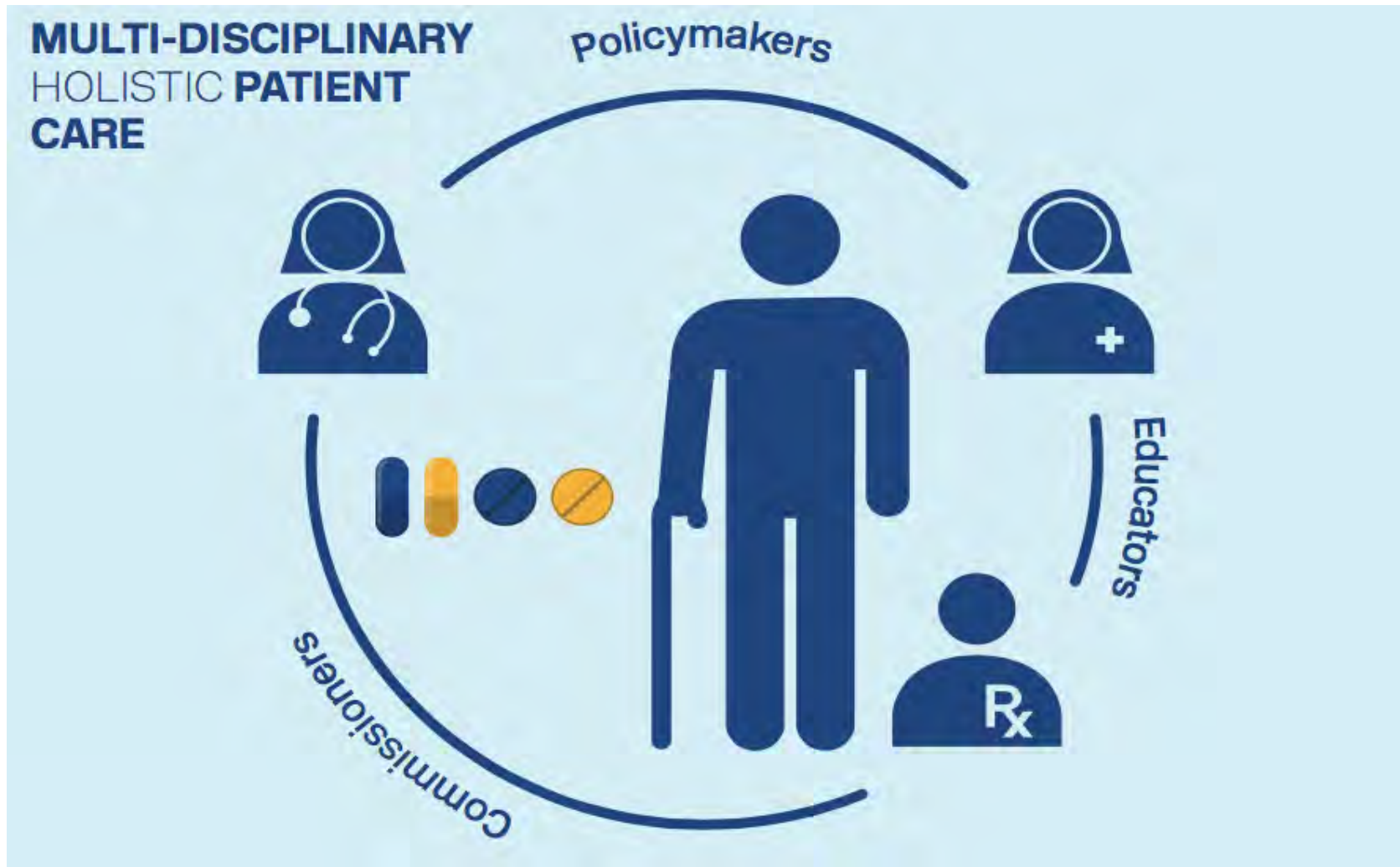
**Polypharmacy Management by 2030: a patient safety challenge**





- **Scottish Patient Safety Programme**
- **Electronic prescribing**
- **Quality improvement in prescribing & Preventing Inappropriate prescribing**
- **Polypharmacy Guidance 2018 presents 18 polypharmacy prescribing indicators**
- **Twelve interface indicators**
- **Quality Prescribing for Chronic Pain 2018, Diabetes & Respiratory**
- **Patient identifier indicators**
- **Clinical decision support : Polypharmacy App & Patient Polypharmacy App**
- **Anticipatory Care App**
- **Data linkage for clinical outcomes.**
- **Education and training**

# 1. Multidisciplinary Leadership with Systems approach- Innovation = pharmacist in the team



# Scotland's Approach



Scotland has a well developed polypharmacy review programme. The National Polypharmacy Guidance (2015) has been adopted by all 14 health boards (100%), with each board developing plans to identify priority patients who have potentially inappropriate elements to their polypharmacy, and to implement reviews for those patients at highest risk of harm.

**Introduction of mobile app has sustained acceleration.**



<http://www.polypharmacy.scot.nhs.uk/>

Management of polypharmacy using the Scottish multi-disciplinary approach helped develop therapeutic partnerships between doctors and pharmacists in primary care that has been integrated into national program of work.

All 14 Scottish Health Boards use the Polypharmacy Guidance.

**€20 m**

is being invested to increase the number of pharmacists working in GP practices. Mobile App for clinicians developed.

Generating short term wins includes the evidence that on average one or two medicines were stopped at each polypharmacy review. There are approximately 12,000 polypharmacy reviews every year in Scotland. Of those patients identified to be at high risk of hospital admission, pilot work suggested a 40% reduction in hospital admissions following a polypharmacy review. Further reduction in high risk medication related issues is expected from roll out.

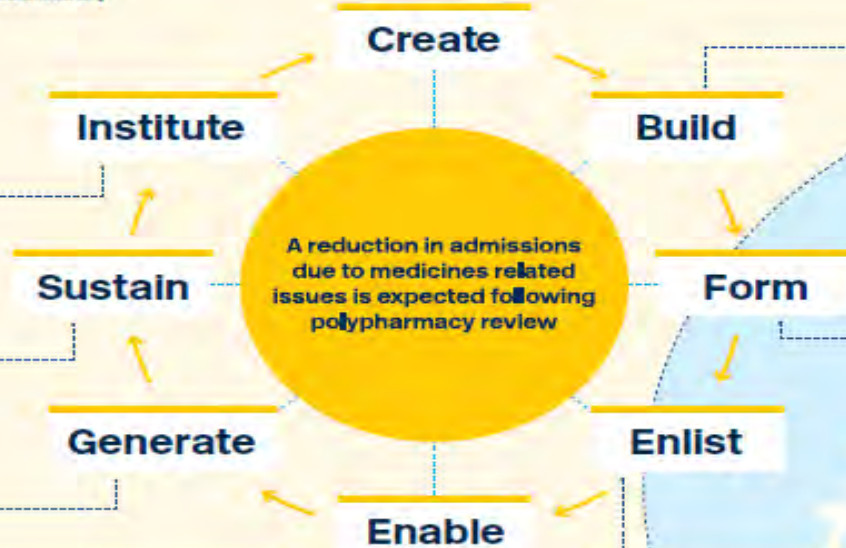
Removing barriers to implementation included successful addition of a contractual requirement for GPs, and recognising the potential role of Pharmacist non-medical prescribers. Design delivery process to enable care to be integrated into existing patient pathway.

The sense of urgency was created by highlighting that current prescribing of medicines was not fit to meet the changing needs of an aging population with increasing multiple long term conditions, particularly in terms of the increasing potential to cause harm and risk to financial sustainability of prescribing patterns.

Building the guiding coalition came from linking the pioneering work by NHS Highland and NHS Tayside with key clinical policy makers. Crucial was the early engagement of clinicians and operational leaders.

Formation of the strategic vision came through refinement of the adoptive work by NHS Lothian and the Scottish Government. Policy leadership was essential with clinical leadership to meet the needs of patients and prescribers.

Enlisting the volunteer army was exemplified by NHS Greater Glasgow and Clyde, who serve 25% of the Scottish population, and were able to implement the Polypharmacy Guidance at scale through using established means of implementation through practice pharmacist networks working with GPs.



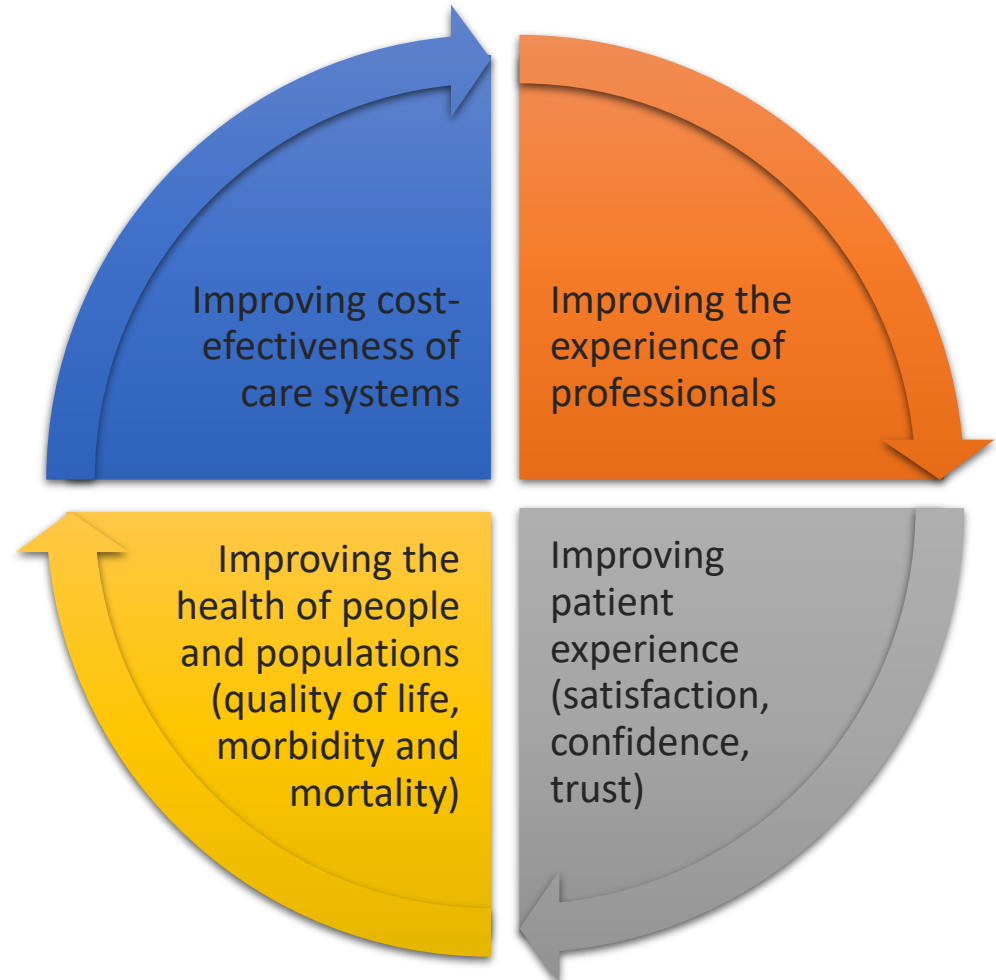
- 1 NHS Ayrshire and Arran   2 NHS Borders   3 NHS Dumfries and Galloway   4 NHS Fife   5 NHS Forth Valley   6 NHS Grampian   7 NHS Greater Glasgow and Clyde
- 8 NHS Highland   9 NHS Lanarkshire   10 NHS Lothian   11 NHS Orkney   12 NHS Shetland   13 NHS Tayside   14 NHS Western Isles

## 2. Culture that prioritises Safety & Quality



### Central Hypothesis

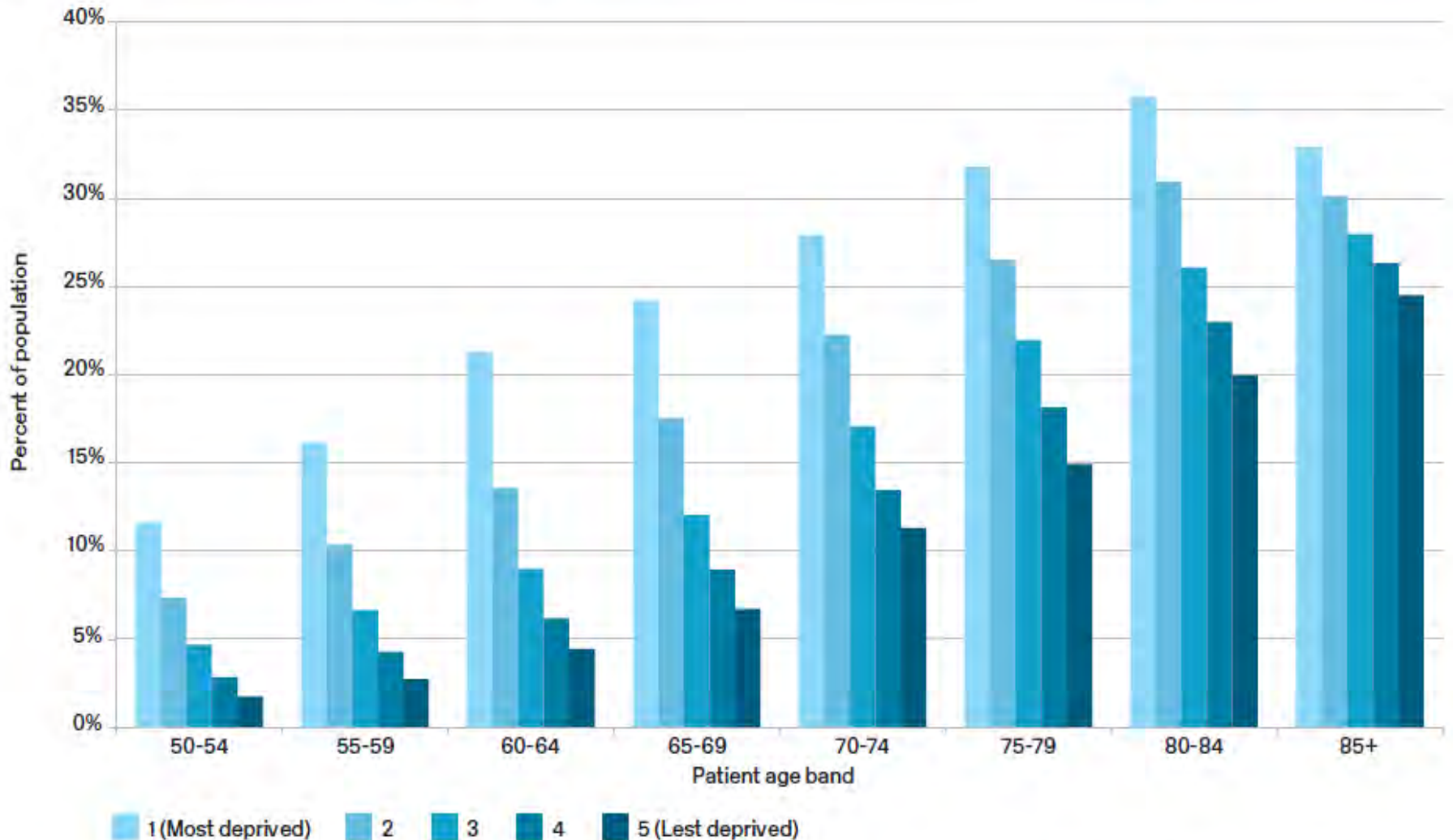
Contribute to meeting the “quadruple aim” goals in health systems



*Berwick, D. M., Nolan, T. W., & Whittington, J. (2008), "The triple aim: care, health, and cost", Health Aff.(Millwood.), vol. 27, no. 3, pp. 759-769. \*\* Bodenheimer, T; Sinsky, C. From Triple to Quadruple Aim: Care of the Patient Requires Care of the Provider. Ann Fam Med 2014;12:573-576. doi: 10.1370/afm.1713.*

# Addressing Health inequalities

## PERCENTAGE OF PATIENTS PRESCRIBED TEN OR MORE MEDICINES BY AGE GROUP AND DEPRIVATION

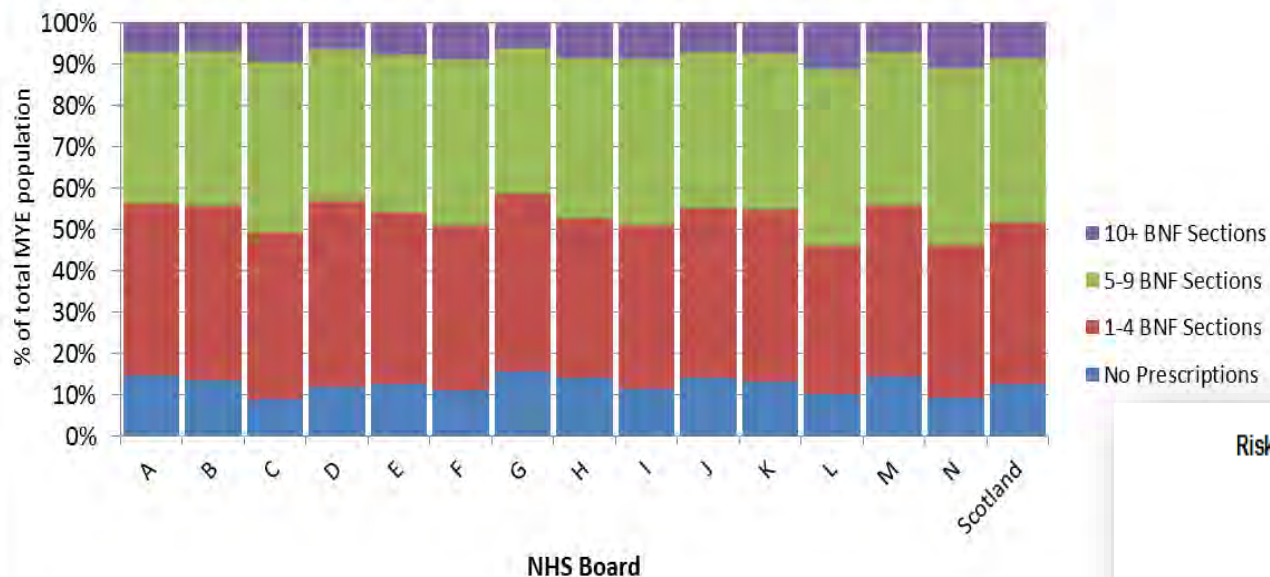


# Risk Stratification

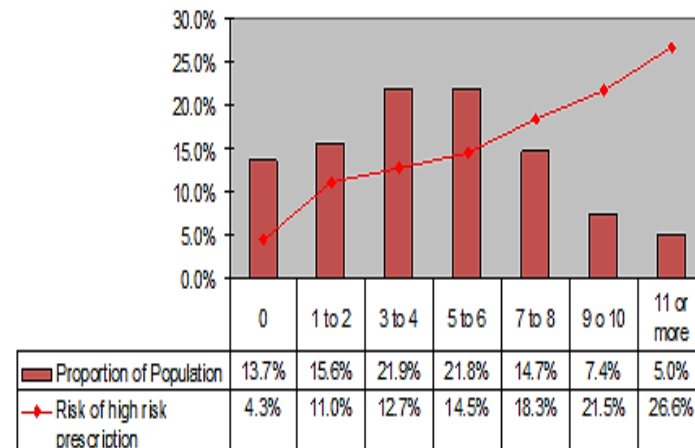
Percentage of total population receiving prescriptions by number of BNF sections ( $\geq 65$  years only)

May- Jul 2011

Source: PIS Provisional Analysis



Risk of High Risk Prescription v Number of Active Repeat Prescriptions



# Why did you jump off a cliff?



Because the Guideline told me to.  
 The Scottish Government

# Is polypill the answer?....

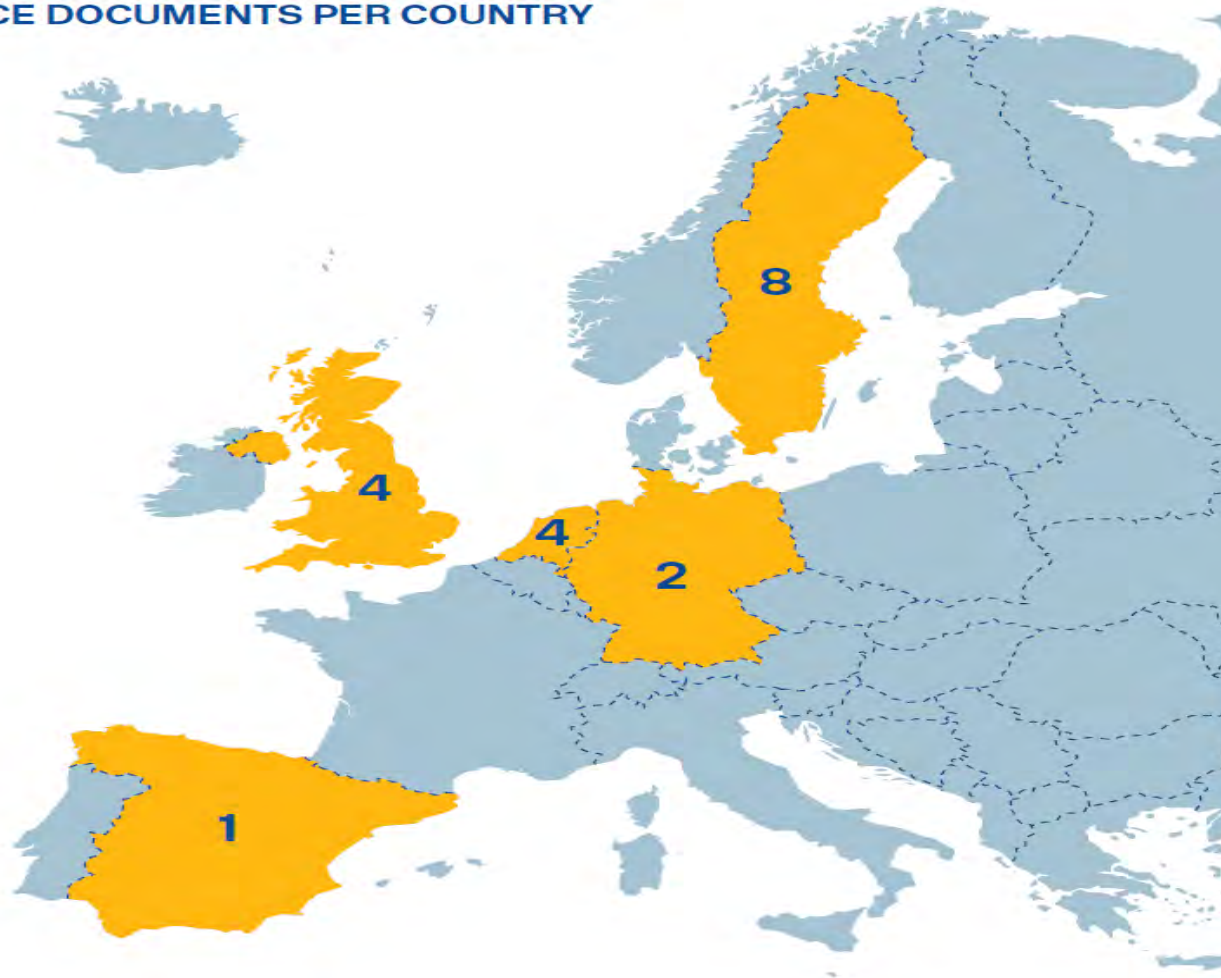




# Person centred: Pharmacogenetics?



## NUMBER OF POLYPHARMACY GUIDANCE DOCUMENTS PER COUNTRY



IY

- EU evaluation: 5 countries with guidance- 3 scored highly
- BEERS, STOP START
- Australian- deprescribing

This presentation is part of the SIMPATHY project (663082) which has received funding from the European Union's Health Programme (2014-2020)

# 7 STEPS TO APPROPRIATE POLYPHARMACY



## Identify objectives

### Aims

#### 1. What matters to the patient

Review diagnoses and identify therapeutic objectives with respect to:

- Identify objectives of drug therapy
- Management of existing health problems
- Prevention of future health problems

<http://www.polypharmacy.scot.nhs.uk>

# Patients shared decision making : Patient advocate



# Step 2 & Step 3

## Identify essential and unnecessary treatment

### Need

2. Identify essential drug therapy

**Identify essential drugs (not to be stopped without specialist advice)**

- Drugs that have essential replacement functions (e.g. thyroxine)
- Drugs to prevent rapid symptomatic decline (e.g. drugs for Parkinson's disease, heart failure)

3. Does the patient take unnecessary drug therapy?

**Identify and review the (continued) need for drugs**

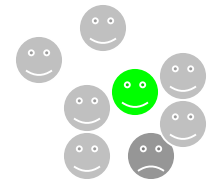
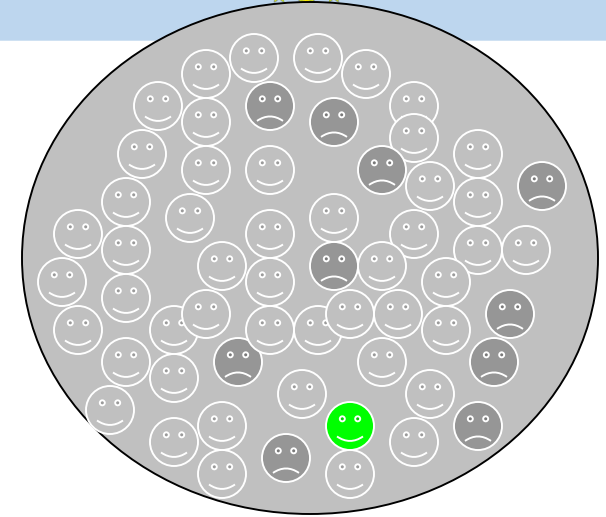
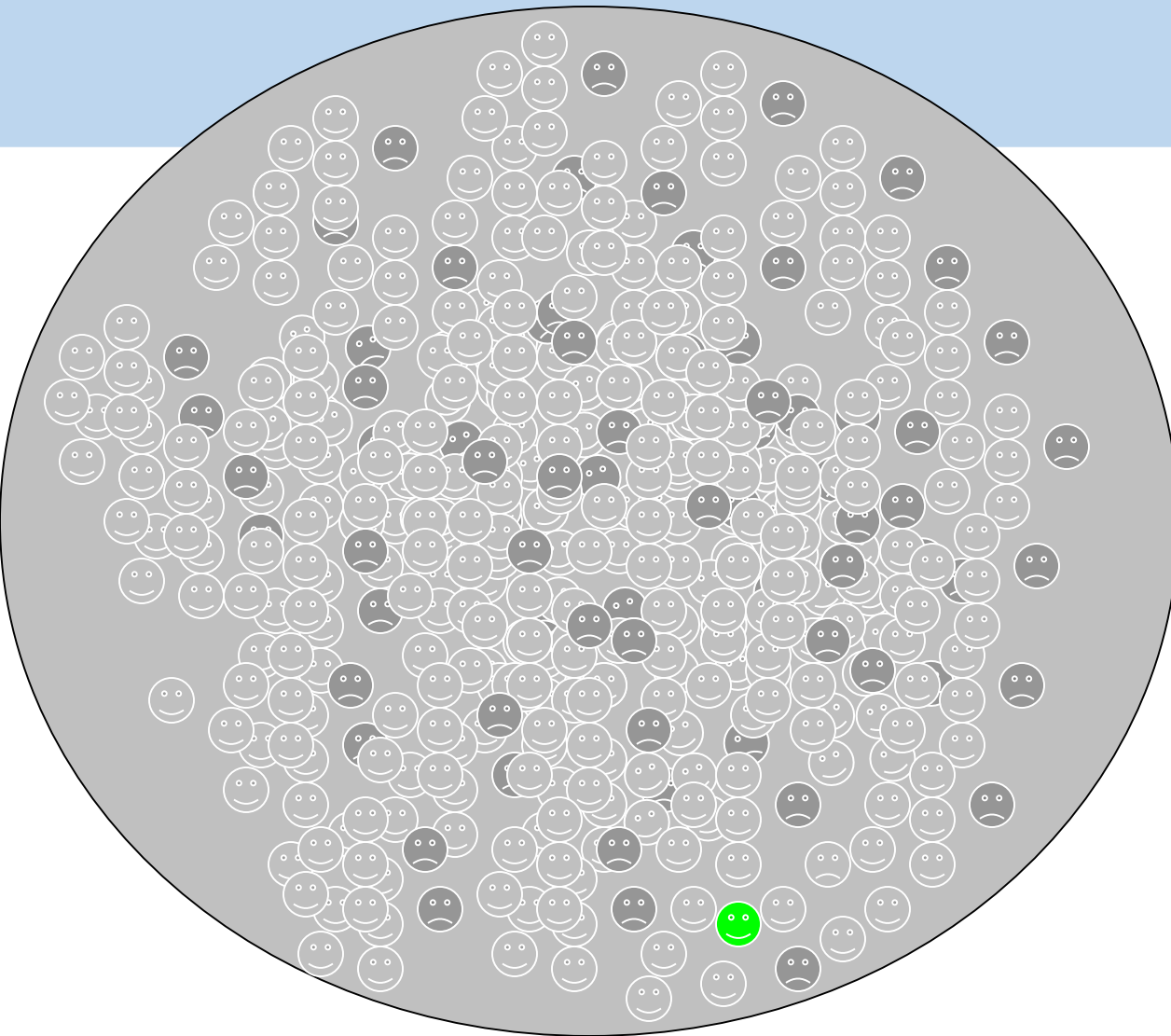
- with temporary indications
- with higher than usual maintenance doses
- with limited benefit in general for the indication they are used for
- with limited benefit in the patient under review ([see Drug efficacy & applicability \(NNT\) table](#))

- The risk ratio (NNT/NNH) requires to be balanced for each individual patient.
- It may vary considerably in people with polypharmacy.
- It depends on absolute risk, life expectancy and vulnerability to adverse drug reactions (ADRs).

- .....but how much ?







# Develop and Share tools for implementation

## Effectiveness

4.

Are  
therapeutic  
objectives  
being  
achieved?

**Identify the need for adding/intensifying drug therapy in order to achieve therapeutic objectives**

- to achieve symptom control
- to achieve biochemical/clinical targets
- to prevent disease progression/exacerbation

## Safety

### 5.

Does the patient have ADR or is at risk of ADRs?

#### Identify patient safety risks by checking for

- drug-disease interactions
- drug-drug interactions (see [ADR table](#))
- robustness of monitoring mechanisms for high-risk drugs
- drug-drug and drug-disease interactions
- risk of accidental overdosing

Does the patient know what to do if they're ill?

#### Identify adverse drug effects by checking for

- specific symptoms/laboratory markers (e.g. hypokalaemia)
- cumulative adverse drug effects (see [ADR table](#))
- drugs that may be used to treat ADRs caused by other drugs

#### Sick Day rule cards



## Medicine Sick Day Rules



When you are unwell with any of the following:

- Vomiting or diarrhoea (unless only minor)
- Fevers, sweats and shaking (unless only minor)

**Then STOP taking the medicines ticked on the other side of this card by your healthcare professional**

Restart when you are well (after 24-48 hours of eating and drinking normally)

If you are in any doubt, contact your pharmacist, doctor or nurse

Version 2, 2018



## Medicines to stop on sick days



- ACE inhibitors:** medicine names ending in "pril"
- ARBs:** medicine names ending in "sartan"
- Diuretics:** eg, furosemide, bendroflumethiazide
- Metformin:** a medicine for diabetes
- NSAIDs:** eg, ibuprofen, diclofenac, naproxen

### Other medicines to stop taking

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Initially produced by NHS Highland

Cost-  
effectiveness

6. Is drug  
therapy cost-  
effective?

**Identify unnecessarily costly drug therapy by**

- Consider more cost-effective alternatives (but balance against effectiveness, safety, convenience)

7.

Is the patient willing and able to take drug therapy as intended?

## **Does the patient understand the outcomes of the review?**

- Does the patient understand why they need to take their medication?
- Consider [Teach back](#)

## **Ensure drug therapy changes are tailored to patient preferences by**

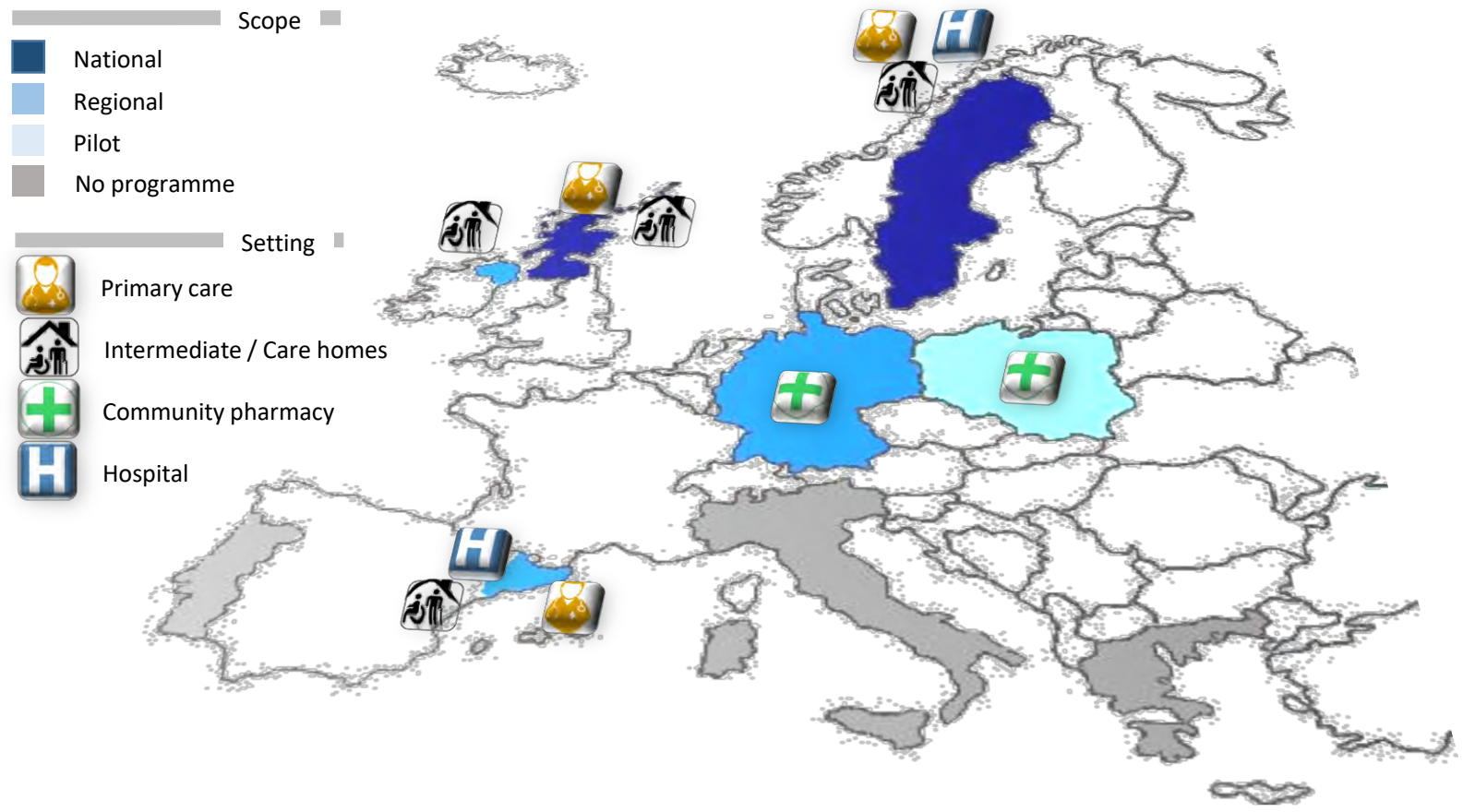
- Is the medication in a form the patient can take?
- Is the dosing schedule convenient?
- Consider what assistance the patient might have and when this is available
- Is the patient able to take medicines as intended?

## **Agree and Communicate Plan**

- Discuss with the patient/carer/welfare proxy therapeutic objectives and treatment priorities
- Decide with the patient/carer/welfare proxies what medicines have an effect of sufficient magnitude to consider continuation or discontinuation
- Inform relevant healthcare and social care carers change in treatments across the care interfaces








# Programmes across the consortium





# 6. Share Tools and guidance



<p>For healthcare professionals</p> 	<p>For patients and carers</p> 	<p>Shared decision making</p> 
<p>Give us your feedback</p> 	<p>About this resource</p> 	

# 7 STEPS TO APPROPRIATE POLYPHARMACY

