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# Overcoming the Challenge of Medication Error and Harm

*Frank Federico*
*Aravindan Veiraiah*
*Liv Finne Nybø*

# Description

- Medications are often misused resulting in poorer quality of life, higher rate of adverse events, hospitalisation and increased costs. Participants will learn of two approaches to optimising a patient's medications to meet the patient's expectations, minimise harm and work towards positive outcomes. The session will include a financial analysis of costs saved through one of the programs.
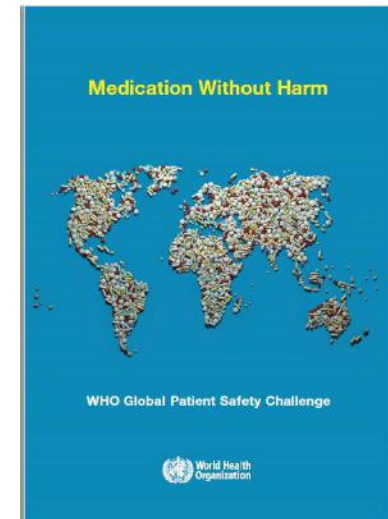
# Medication-related Harm

- Medications: most common intervention in health care
- Medication errors are the most frequently reported errors
- Area of focus for all of health care
- Errors and harm continue

# WHO Third Challenge: Medication Safety

- Ask countries and key stakeholders to make strong commitments, prioritize and take early action, and effectively manage three key areas to protect patients from harm, namely:
  - high-risk situations
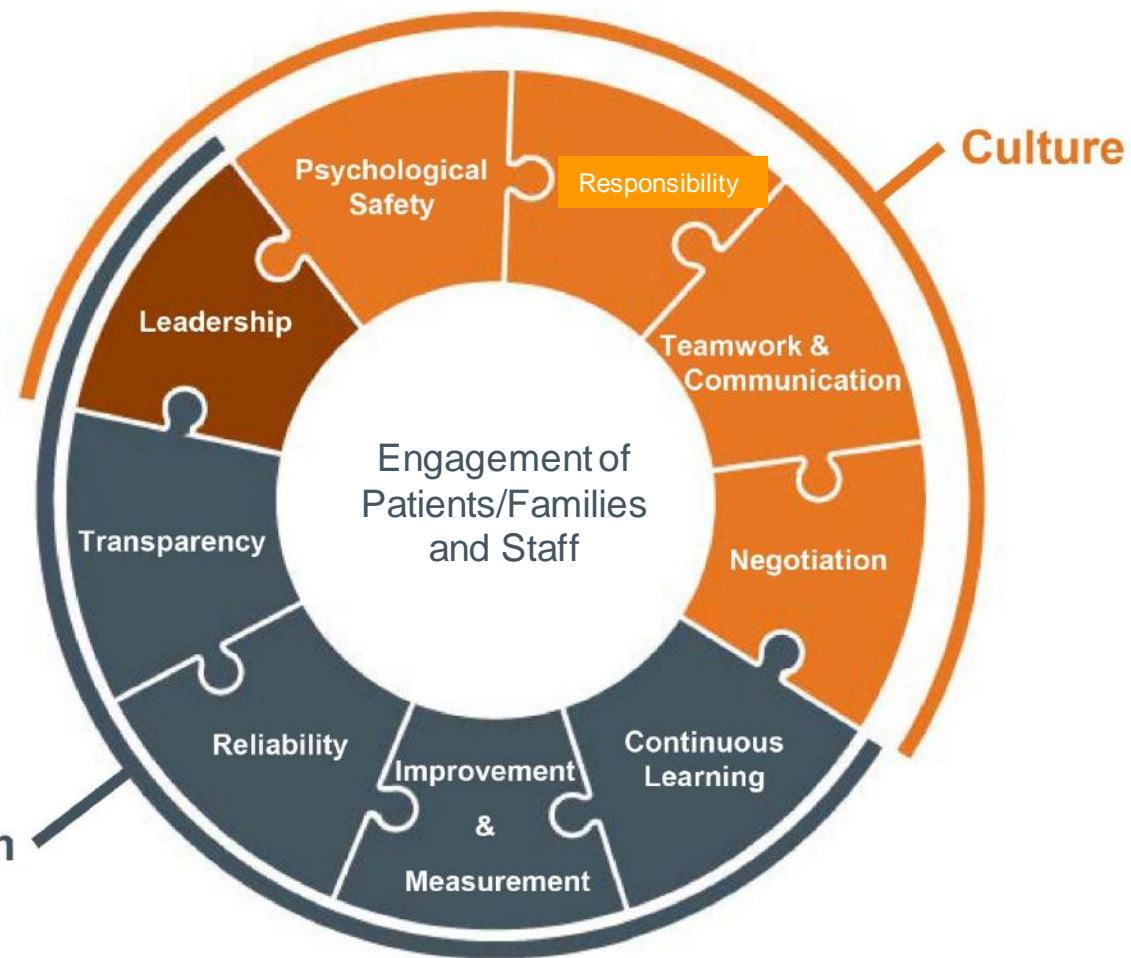  - polypharmacy
  - transitions of care

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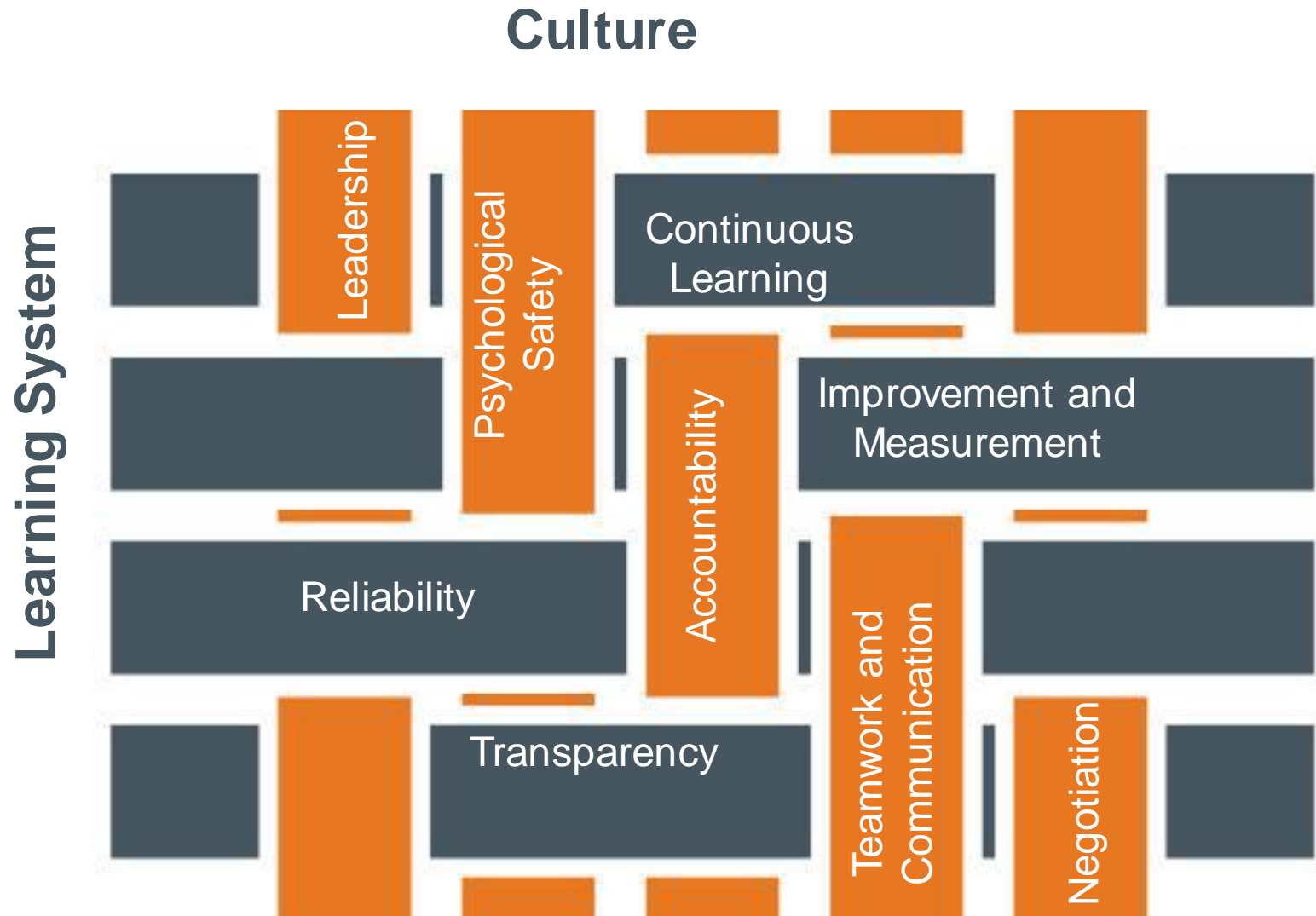Source: Frankel A, Haraden C, Federico F, Lenoci-Edwards J. *A Framework for Safe, Reliable, and Effective Care*. White Paper. Cambridge, MA: Institute for Healthcare Improvement and Safe & Reliable Healthcare; 2017. (Available at ihi.org)

Culture

Learning System

Leadership

Psychological Safety

Continuous Learning

Accountability

Improvement and Measurement

Reliability

Teamwork and Communication

Transparency

Negotiation

© IHI and Safe and Reliable Healthcare

# Relationship Between Medication Errors and Harm
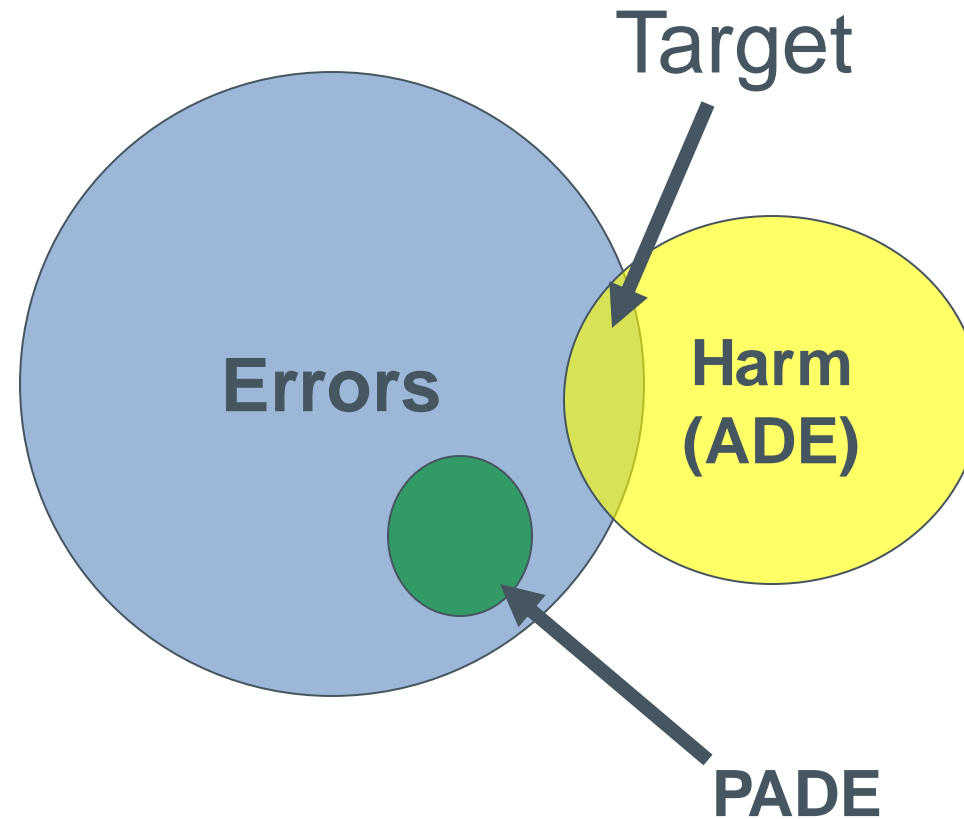


ADE: Adverse Drug Events
PADE: Potential Adverse Drug Event

NCCMERP.org
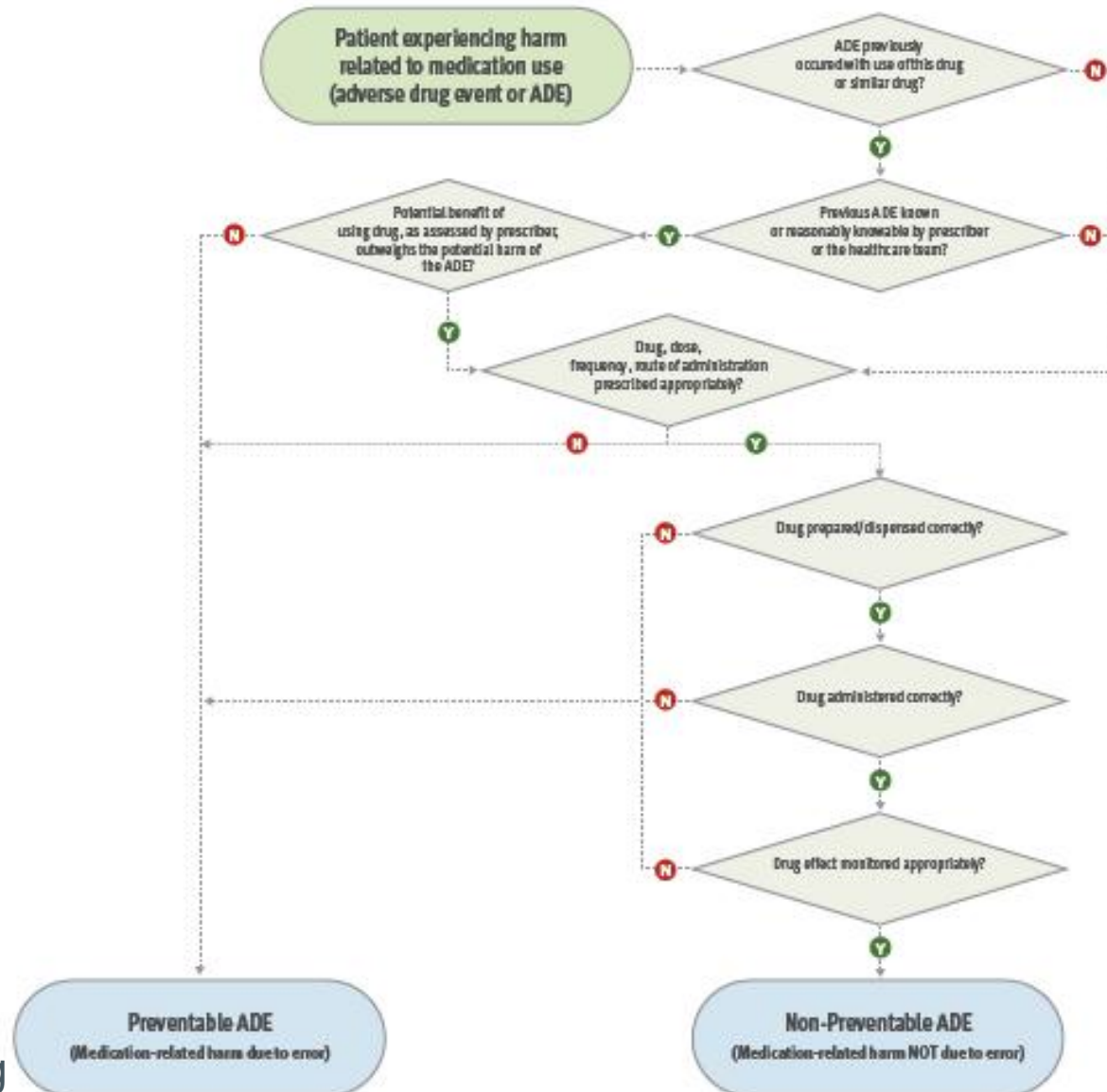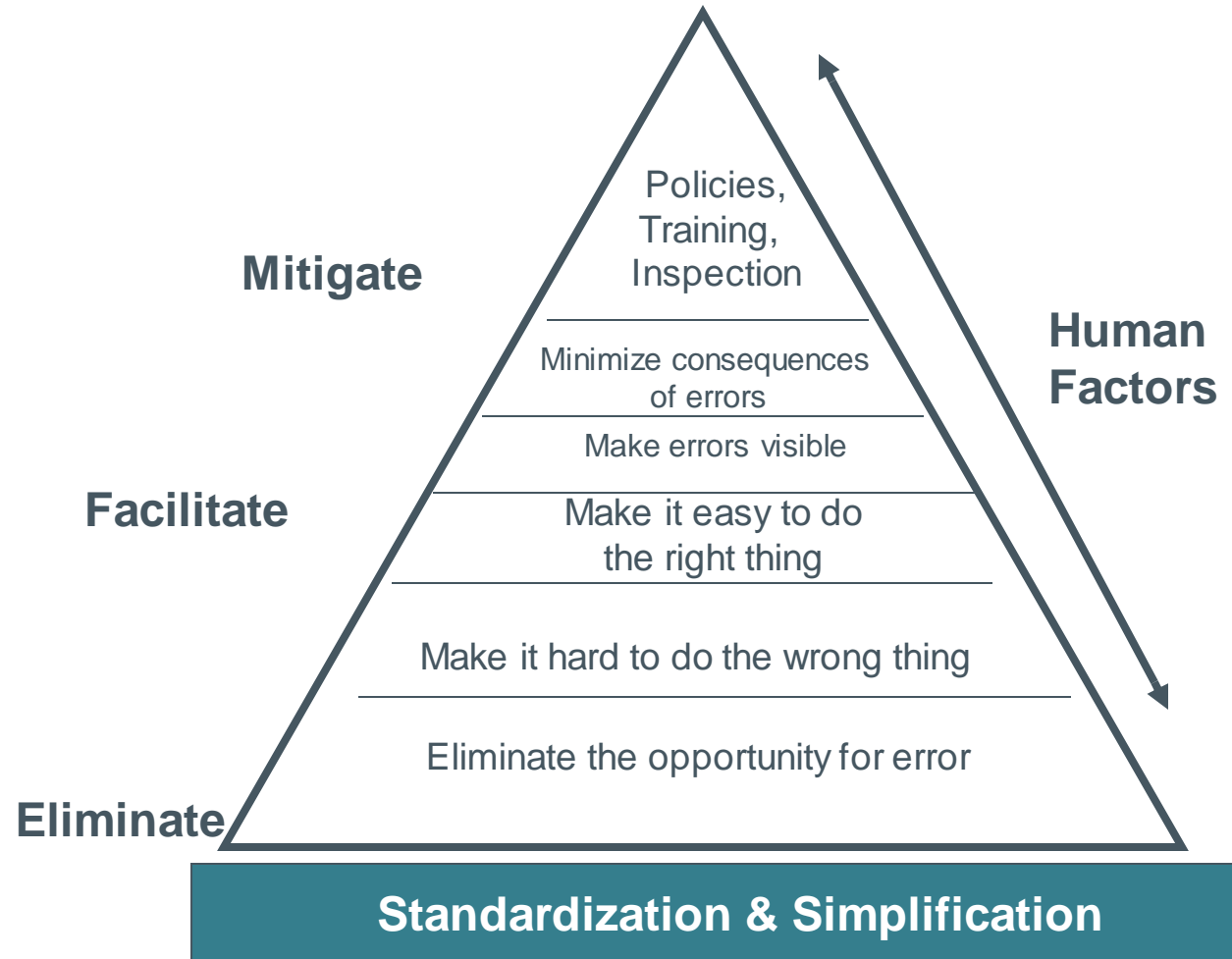
# Error and Harm Reduction Overview: Hierarchy of Controls



Adapted by D. Bonacum KP

## Outcomes

**Improve Medication Safety by Decreasing Harm and Errors**

Aim:

By When:

## Primary Drivers

**Engage all layers of the organization Culture and Learning System**

**Patient/Family/Caregiver Engagement**

**Use Systems Approach**

**Optimize Medications**

## Secondary Drivers

Build Will

Collect Ideas

No-Blame Reporting Culture Cultivated

High Risk Areas identified

Safety Lessons Learned & Shared

"What Matters to You?

Health Literacy

Mechanism to Listen and Learn from Patients/Families

Patient and Family Engagement & Education

Get Results

Standardized Protocols and Algorithms

Use improvement science

Measurement /Assessment of Processes

Segment the population

Effective Communication and Collaboration within/ between organizations
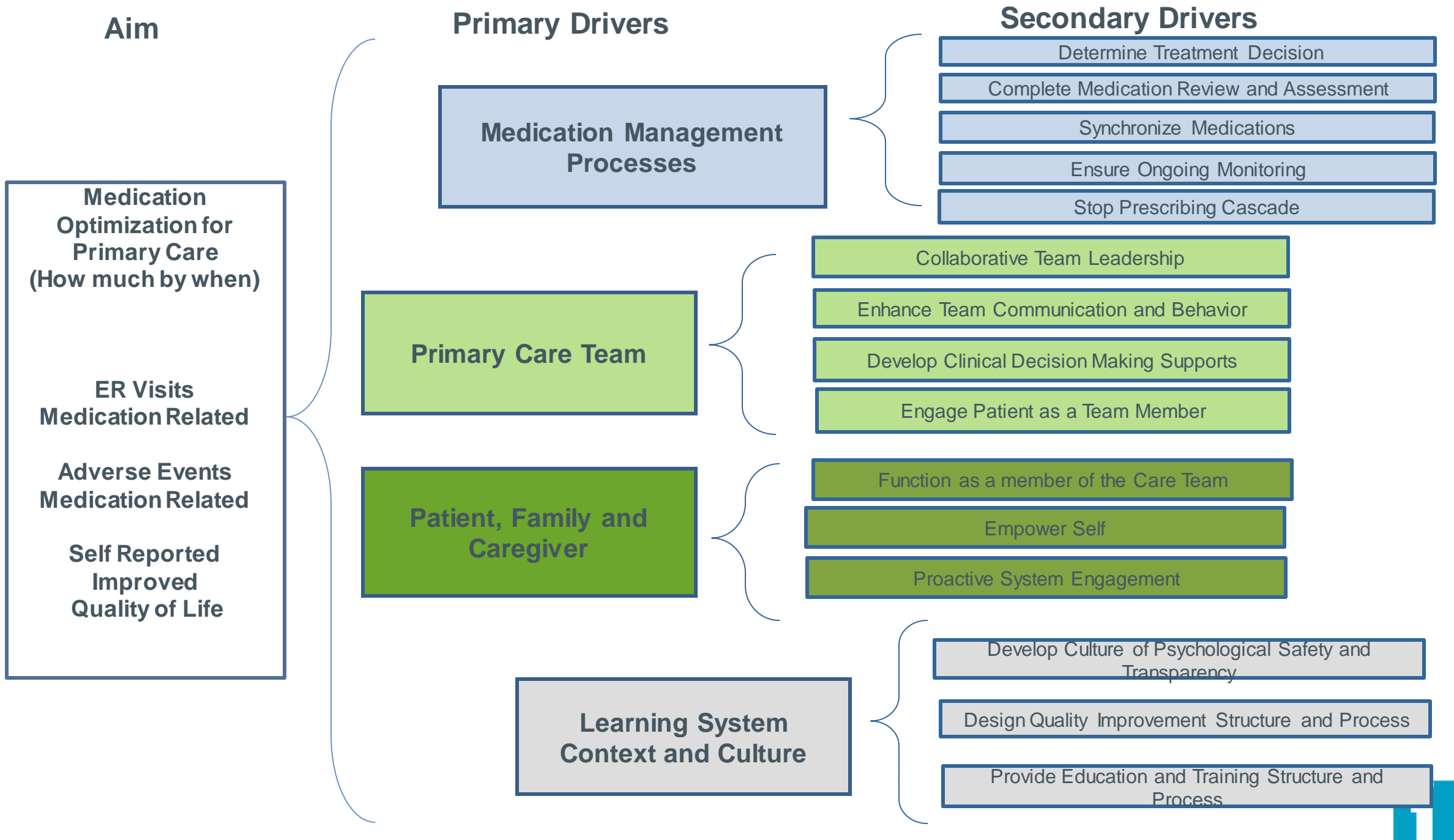**Medication Reconciliation**

Reduce Polypharmacy

Deprescribing

# Medication Optimization

*An approach to **medication management** that focuses on all aspects of the patient's journey from **initiation of treatment** (or decisions to forego treatment), to **follow-up**, to **ongoing review and support** of their medication treatment plan.*

## Aim

## Primary Drivers

## Secondary Drivers

**Medication Optimization for Primary Care (How much by when)**

**ER Visits Medication Related**

**Adverse Events Medication Related**

**Self Reported Improved Quality of Life**

**Medication Management Processes**

- Determine Treatment Decision
- Complete Medication Review and Assessment
- Synchronize Medications
- Ensure Ongoing Monitoring
- Stop Prescribing Cascade

**Primary Care Team**

- Collaborative Team Leadership
- Enhance Team Communication and Behavior
- Develop Clinical Decision Making Supports
- Engage Patient as a Team Member

**Patient, Family and Caregiver**

- Function as a member of the Care Team
- Empower Self
- Proactive System Engagement

**Learning System Context and Culture**

- Develop Culture of Psychological Safety and Transparency
- Design Quality Improvement Structure and Process
- Provide Education and Training Structure and Process

# Principles of Medication Optimization

- Understanding what matters to the patient
- Partnering with patients to co-develop in a shared decision-making approach, a personalized medication treatment plan, accounting for health literacy and including options for non-medication-related treatments or decision to forego treatment
- Supporting adherence and self-care by the patient
- Applying healthcare expertise (clinical and pharmaceutical) to the plan
- Ensuring that the patient is on the essential few medications to achieve the desired outcome
- Ensuring safety, quality, and better outcomes
- Ensuring access to medications; focusing on cost and availability
- Communicating with other health care professionals
- Providing appropriate monitoring and review of a treatment plan
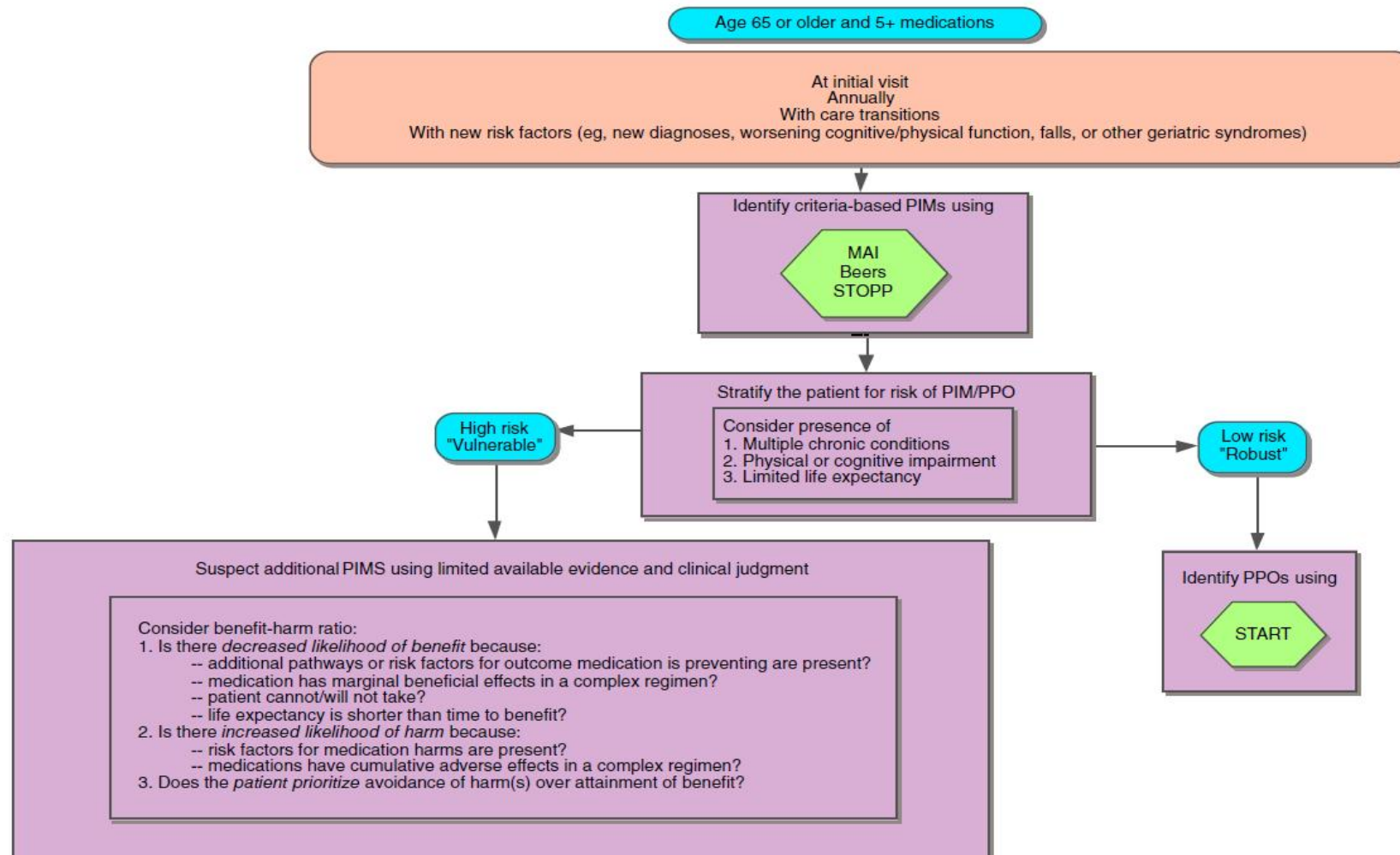- Coordinating care for patients transitioning out of acute care

# Medication Appropriateness in Vulnerable Older Adults: Healthy Skepticism of Appropriate Polypharmacy

Terri R. Fried, MD*† [ID] and Marcia C. Mecca, MD*†

Age 65 or older and 5+ medications

At initial visit
Annually
With care transitions
With new risk factors (eg, new diagnoses, worsening cognitive/physical function, falls, or other geriatric syndromes)

Identify criteria-based PIMs using

MAI
Beers
STOPP

Stratify the patient for risk of PIM/PPO

Consider presence of
1. Multiple chronic conditions
2. Physical or cognitive impairment
3. Limited life expectancy

High risk "Vulnerable"

Low risk "Robust"

Suspect additional PIMS using limited available evidence and clinical judgment

Consider benefit-harm ratio:
1. Is there *decreased likelihood of benefit* because:
    -- additional pathways or risk factors for outcome medication is preventing are present?
    -- medication has marginal beneficial effects in a complex regimen?
    -- patient cannot/will not take?
    -- life expectancy is shorter than time to benefit?
2. Is there *increased likelihood of harm* because:
    -- risk factors for medication harms are present?
    -- medications have cumulative adverse effects in a complex regimen?
3. Does the *patient prioritize* avoidance of harm(s) over attainment of benefit?

Identify PPOs using

START

# Patient and Family/Caregiver Involvement in Self-Care

- Self-administration
- Self-monitoring
- Provide appropriate education
- Medication reconciliation

# Medication Reconciliation

- Information sharing at initiation and handover of care
- Evolved from collecting the best possible list to ensuring that the medications are the effective few
- Paper based (low tech) seemed to work
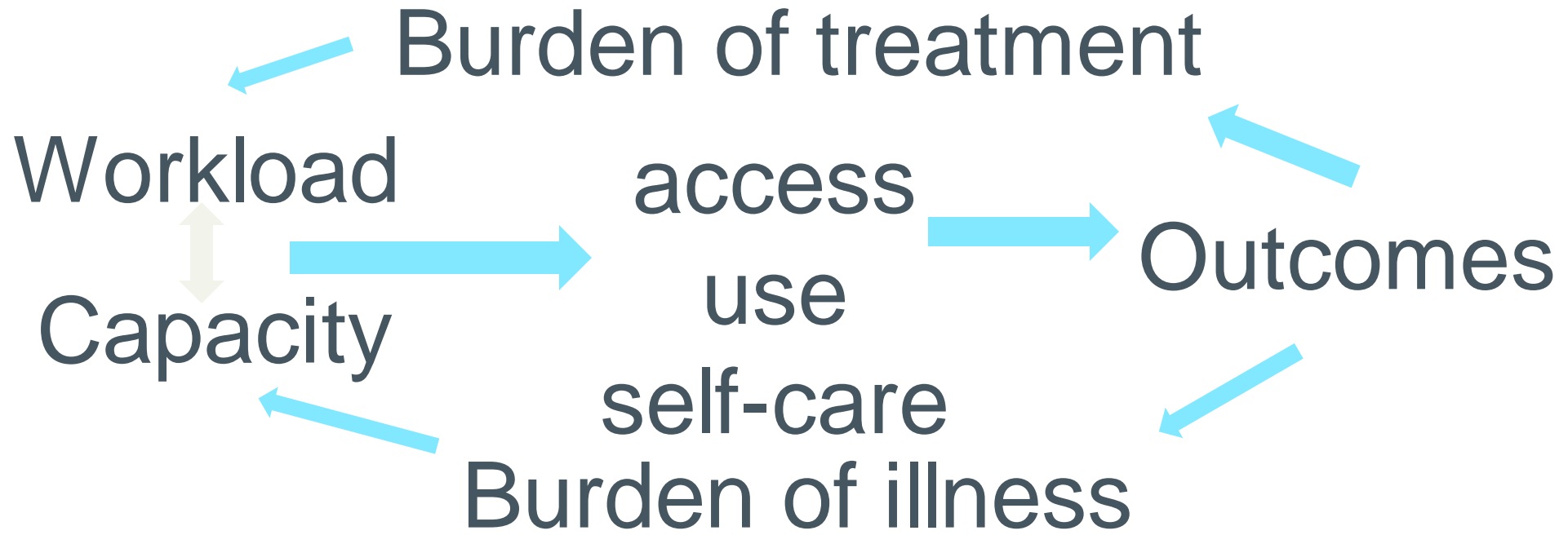- Technology has added complications and complexity

# Health Literacy and Medication Adherence You Can't Tell By Looking

# Cumulative Complexity Model

Burden of treatment

Workload

access

use

self-care

Outcomes

Capacity

Burden of illness

# Raising the bar:
## Overcoming persistent challenges through stakeholder engagement

Arvind Veiraiah

Clinical Lead, SPSP Medicines

# Persisting "Meds Rec" challenge 2015 - 2017

SPSP Medicines since July 2015

Raise hands if you have had similar problems (could be other than meds rec)
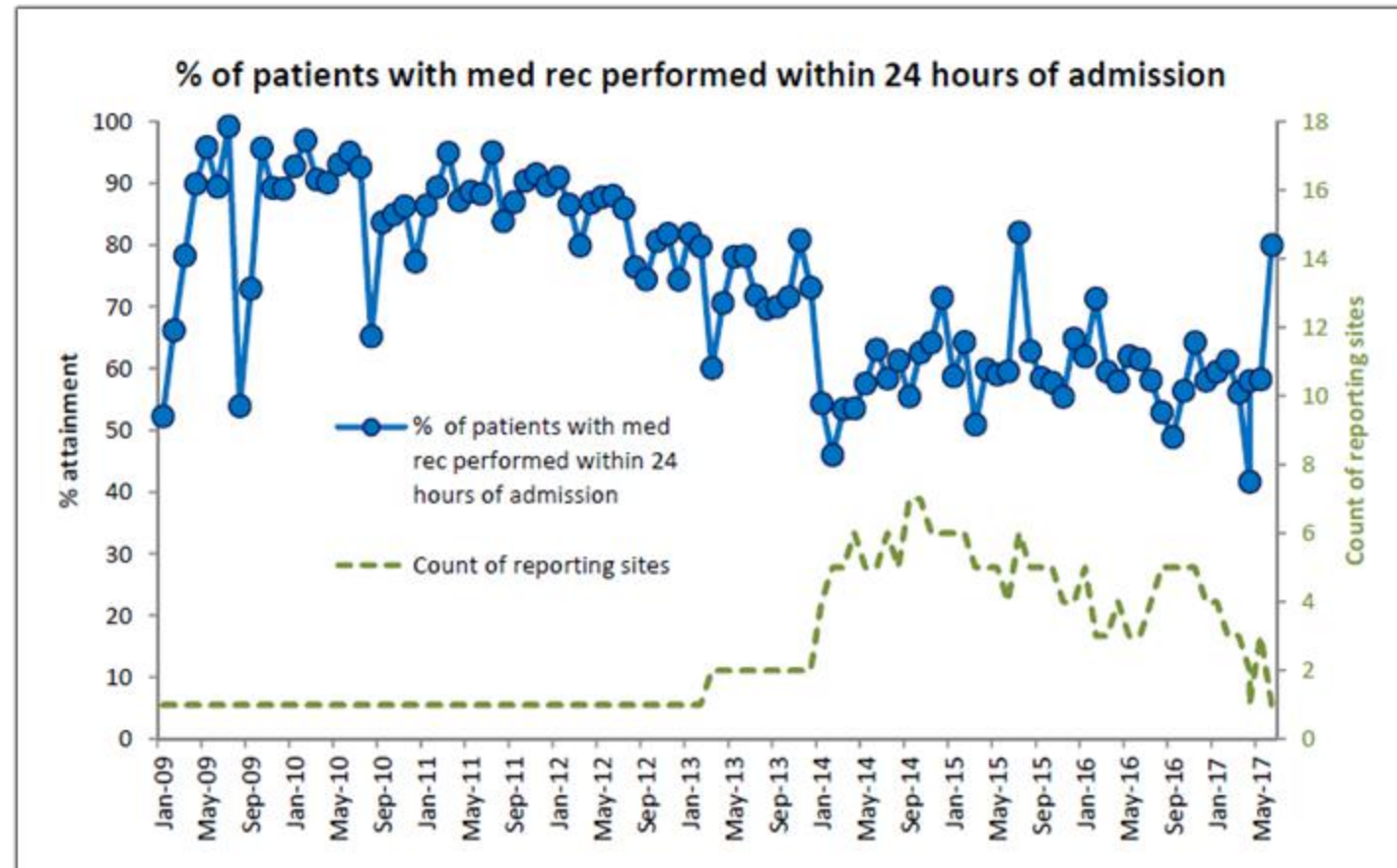
# How would you deal with a persistent challenge?

What did not solve the problem: Encouragement, celebration of bright spots, sharing effective ideas and data.

Meds Rec cannot be mandated in Scotland!

How would you approach a persistent problem of this sort?
Reflect silently or write down ideas…

# How we dealt with this persistent challenge:

We organised three National conferences (among other things) to get stakeholder opinions and ideas:

- Medicines National Learning Event Feb 2016
- Meds Rec Summit Mar 2017
- Stakeholder engagement day Feb 2018

# Summary of recommendations

Empower Patients:

   Media campaigns, patient-held records, co-design

Take a whole system approach:

   Collaborate widely, clarify system around patient

Improve IT systems

Consider new avenues:

   "Rebrand", share data on harms, influence supervision

# Summary of recommendations

Empower Patients: Outside scope of SPSP Medicines
Media campaigns, patient-held records, co-design

Take a whole system approach: Unclear benefits
Collaborate widely, clarify system around patient

Improve IT systems Outside scope of SPSP Medicines

Consider new avenues:
"Rebrand", share data on harms, influence supervision

# Rebrand Meds Rec? SPSP WebEx May 17

From list of common safety phrases "Meds Rec" chosen by only 2/70 delegates interested in medicines safety!

Some reasons "Meds Rec" did not inspire:
- Med rec fatigue
- Not catchy, negative connotations, dull
- Doesn't say what it does on the tin
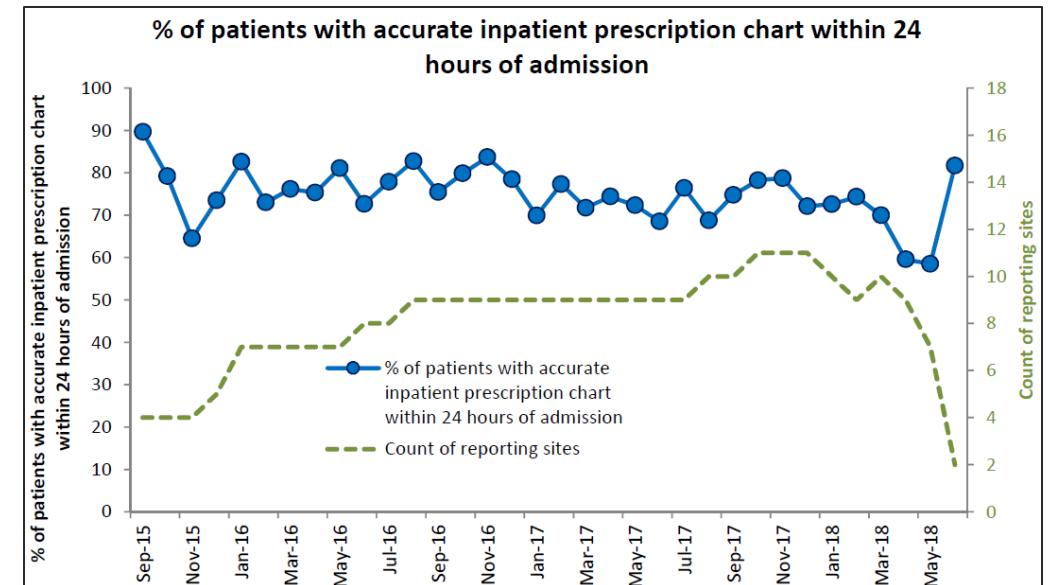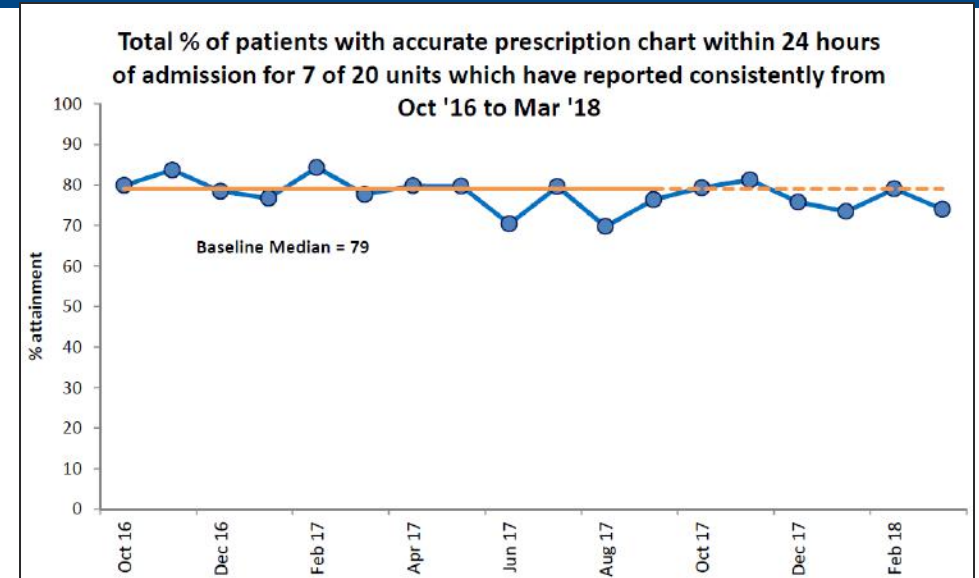- "draining chasing doctors who don't see this as priority"

Names containing combinations of "safe" & "prescribing" preferred

# Outcomes

It seems we increased participation, but not sustainably

And accuracy of prescribing at 24 h did not change

We developed a better understanding and new tools – perhaps better levers for safe prescribing for the future?



Total % of patients with accurate prescription chart within 24 hours of admission for 7 of 20 units which have reported consistently from Oct '16 to Mar '18

Baseline Median = 79



% of patients with accurate inpatient prescription chart within 24 hours of admission

# Meds Rec – the negative feedback loops (red)

# Addressing the problems

| | |
|---|---|
| **Learned helplessness** | Change audits to reflect work as done<br>Support structured feedback to individuals |
| **↓ prescriber attention** | Change focus to prescriber interest (safe prescribing?)<br>Make "sexy" – make part of supervision |
| **Prescriber rationalises deviation** | Share harm data - incident reports, time wasted |

# Tools being tested – structured supervision

**Foundation Year Doctor**
**Reflection on Prescribing Errors**

Trainee name:                                             Date:
NHS Email address:

Brief description of error (*Do not include patient identifiable details*)

What do you think caused you to make this error? (*use diagram on reverse to help answer this question*)

What do you think the impact of this error was?
  Minor ☐  Moderate ☐  Major ☐  Extreme ☐

If it had not been corrected (by team members), what do you think the impact of this error could have been?
  Minor ☐  Moderate ☐  Major ☐  Extreme ☐  Not applicable ☐

*We are testing an alternative impact question. Please answer this and let us know which you prefer.*
Could any adverse experiences as a consequence of this error be described as:
Life-threatening ☐      Caused severe pain or discomfort ☐      Dysfunction lasted more than 1 week ☐
Increased hospital stay ☐    >30 minutes combined staff time spent in correcting & patient communication ☐
Other (give details):

What have you learnt from this error?

What steps will you take to limit this error occurring in the future?

**TO COMPLETE WITH CONSULTANT**

Further training needs

Agreed action plan

Trainee signature  ...........................  Date ...................
Consultant signature  ...........................  Date ...................
**For administration use**
Administrator signature  ...........................  Date completed form received.........

---

**Incident** (Describe medication safety event)

## FACTORS THAT PROTECT AGAINST PRESCRIBING ERROR – tick ALL that apply

| Prescribing | ✓ | Team | ✓ | Organisational & Management | ✓ |
|---|---|---|---|---|---|
| Patient Details clearly written (Name, DOB, CHI, front & top of each page) | | Verbal communication: from/to nurses, patient, seniors | | Resources and constraints – what resources might have helped? *Please specify.* | |
| Allergy Status | | Written communication – clarity (legible) and in the right place (kardex, notes)? | | Organisational structure – conducive to medicines safety? | |
| Medicine Name / Dose and units / Correct route, appropriate abbreviation | | Supervision and seeking help – appropriate escalation? | | Policy, standards and goals – how is medicines safety prioritised and supervised? | |
| Start (& where appropriate) stop date | | Team structure – support available, approachable and knowledgeable | | Safety culture: is safety a priority? | |
| Discontinued correctly where appropriate | | Comments | | Priorities – what else gets in the way? | |
| Each prescription signed and surname printed | | | | Comments | |
| Guidance availability and use, e.g. antimicrobials, anticoagulation, insulin | | | | | |
| Tests ordered and reviewed, e.g. INR, LFT, kidney functions (inc. urine output) | | | | | |
| Decision making aids used (& in record) / ECS printed (with record of 2nd source, plan for all medicines) / Gentamicin prescribing calculator | | | | | |
| Comments | | | | | |

| Patient | ✓ | Individual | ✓ | Environment | ✓ |
|---|---|---|---|---|---|
| Condition (complexity & seriousness e.g. delirium, polypharmacy, rare treatment) | | Had prescribing training at induction | | Staffing levels (Junior/Senior Doctors) | |
| Language & communication factors | | Unfamiliar medicines | | Workload & shift patterns (e.g OOH shift) | |
| Personality & social factors | | Involved in another prescribing error | | IT or other equipment issues (computer access, printer issues) | |
| Comments | | Physical & mental health issues that may affect work | | Physical environment | |
| | | Comments | | Comments | |

OTHER ISSUES

# Tools being tested – error frequency/time

| Patient Number | Error Present? (Y/N) | Total Time Taken To Amend Error (including finding prescriber, amending error and education) | Type of Error | | | | | | | | Comments |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Med Rec | VTE Prophylaxis | TDM/ High Risk Medicines | IDL Amendments | Medicines Optimisation | AKI/NBM | Legality/Legibility | Other (Write in Commenrs) | |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |

# Closing comments

Addressing persistent challenges requires wide engagement

Stakeholder engagement generates ideas, not all are immediately applicable, impacts may be hard to sustain, negative feedback loops may limit growth

Ideas we are currently exploring are:
   "Rebranding"
   Measurement of prescribing error
   Structured supervision of prescribing
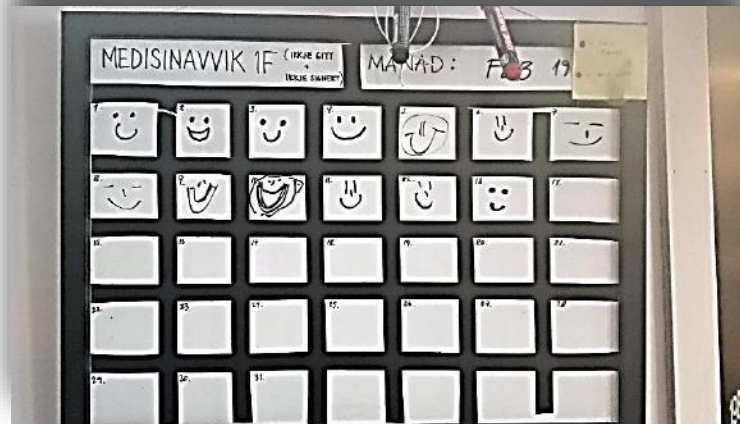
# Thank You!

Aravindan.Veiraiah@nhs.net


To find out more visit
www.scottishpatientsafetyprogramme.scot.nhs.uk

# Visualisation and vigilance as a means for overcoming medication errors

# VOSS, NORWAY

Population: 14 500

Main industries: Agriculture, trade and tourism

Known for: Winter sports, extreme sports

Mountains, fjords

# Department for people with disabilities in Voss

91 FTEs, distributed in six units.

80 service users.
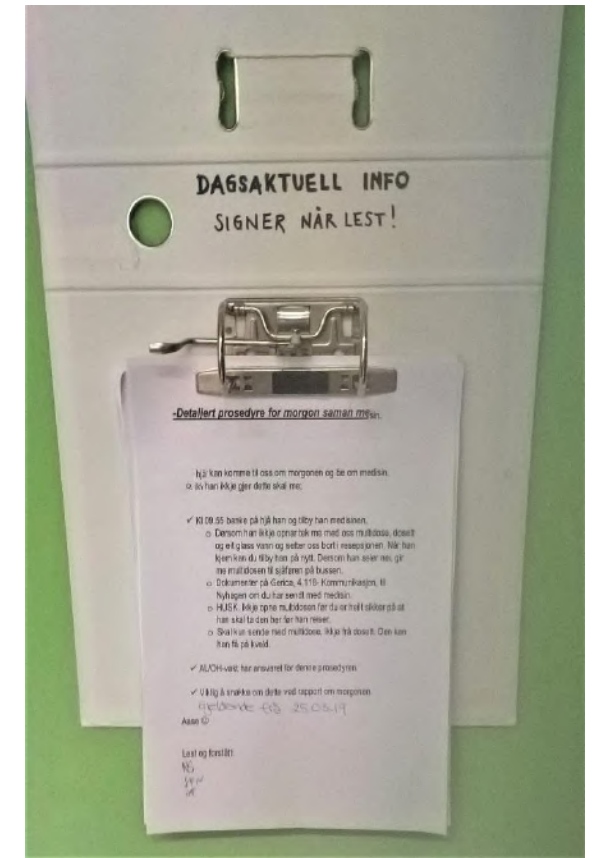
80% of the staff have vocational health education.

# Three main challenges:

1. Poor internal communication between staff

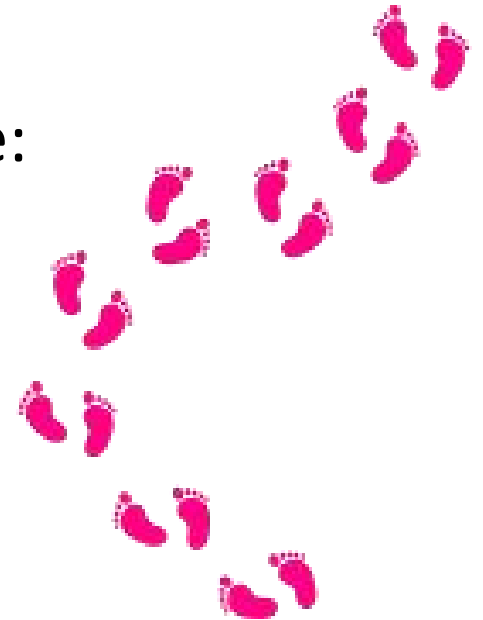Method implemented from The Patient Safety Programme:

## Huddle board for documenting key information

# 2. Lack of insight into the service users perspective

Method implemented from The Patient Safety Programme:

«Walking in the service users footsteps»

# 3. Medication errors

Method implemented from The Patient Safety Programme:

Huddle board for registering medication errors

# Medication board

- No errors: smiley
- Error: sad face

- Blue spot: medication not signed for
- Red spot: medication not administrated

- Control of medication lists twice a day
- Three weeks of smileys: reward!

# Has led to:

- Fewer medication errors
- Less grave medication errors
- Quiet vigilance
- Less tolerance of small errors or ambiguity in the medication records
- General increased awareness regarding medication administration

Tools:

- Medication board

- 1:1 colleague control of medication lists