Institute *for* Healthcare Improvement

Improving Medication Safety through Deprescribing

Frank Federico, Vice President
Dr. Akhnuwkh Jones
Sr. Consultant GIM, Hamad General Hospital

Mid-East Forum

As part of our extensive program and with CPD hours awarded based on actual time spent learning, credit hours are offered based on attendance per session, requiring delegates to attend **a minimum of 80%** of a session to qualify for the allocated CPD hours.

- **Less than 80%** attendance per session = **0 CPD hours**
- **80% or higher** attendance per session = **full allotted CPD hours**

Total CPD hours for the forum are awarded based on the sum of CPD hours earned from all individual sessions.

Disclosure

- The presenters have no conflict of interest to disclose

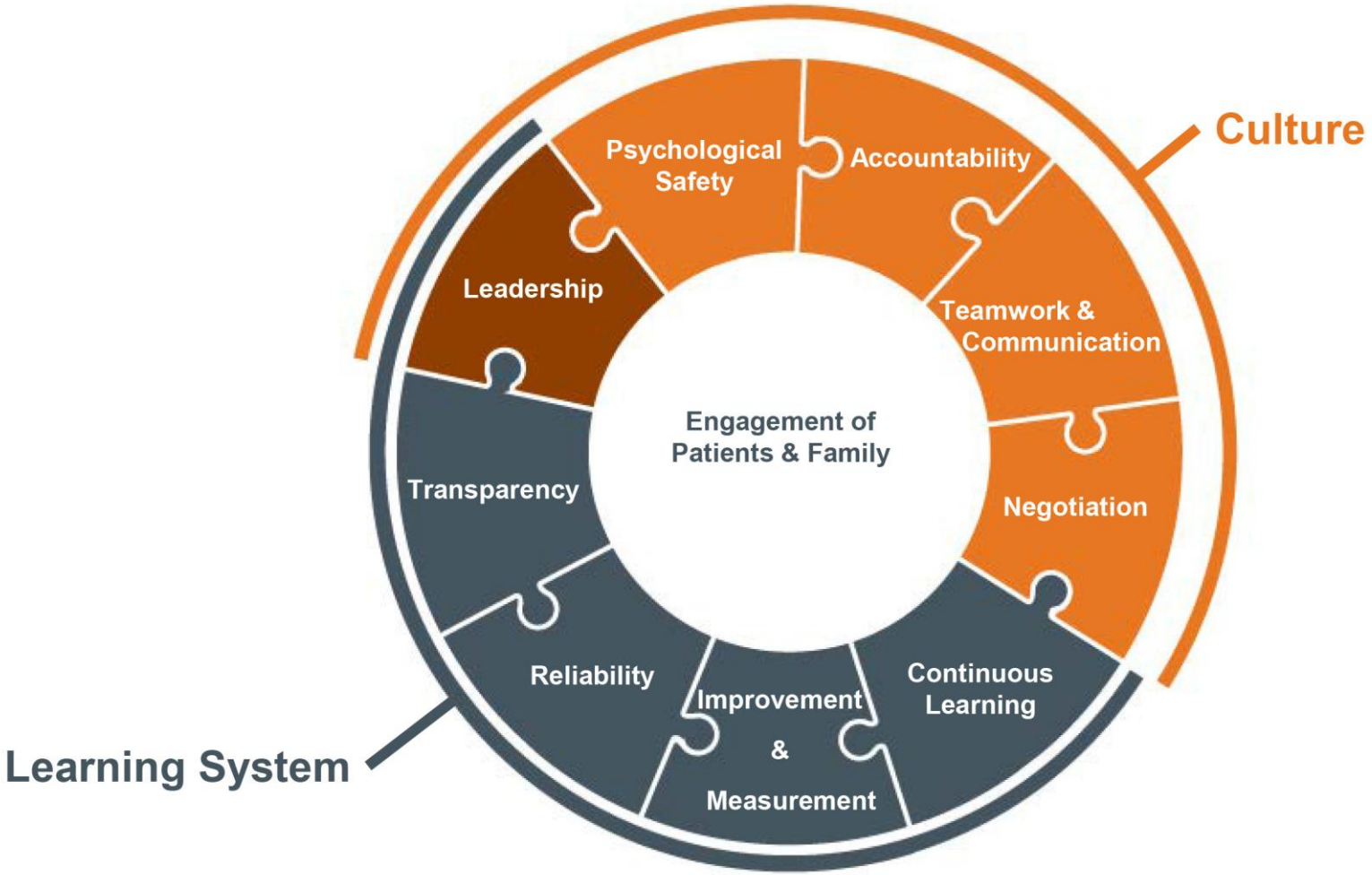
Improving Medication Safety through Deprescribing

Medications are the most common intervention in health care and associated with the most errors and harm. In this session, faculty will review the principles of medication safety through the lens of optimization of medication treatment plans including deprescribing. Reducing the number of medications that a patient is taking to the essential few through programs such as deprescribing, developed in Canada and spreading throughout the world, is one way to decrease the opportunity for errors and harm. In this session, participants will learn how to apply the principles to their own efforts to improve medication safety.

Objectives

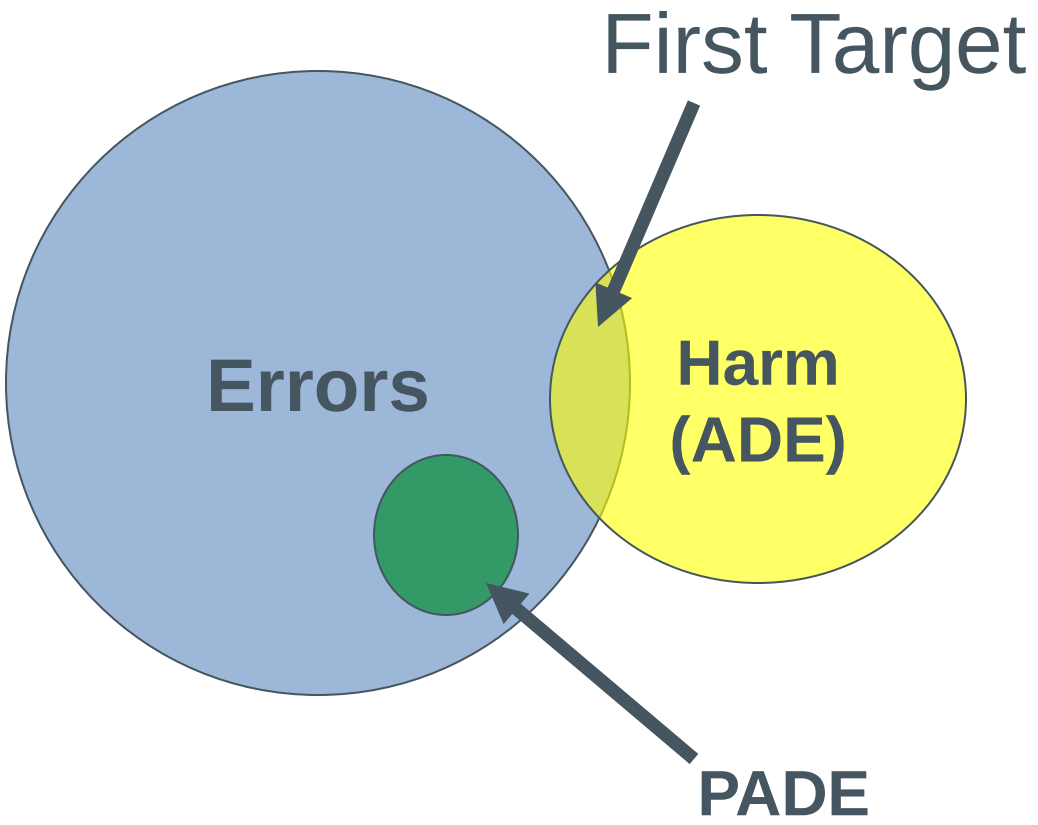
- Describe the principles of a safe medication system
- Discuss how deprescribing can be useful to prevent the opportunity for errors and harm
- Describe different ways in which to engage patients in improving medication safety

Framework for Safe, Reliable, and Effective Care



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)

Medication Errors and Harm

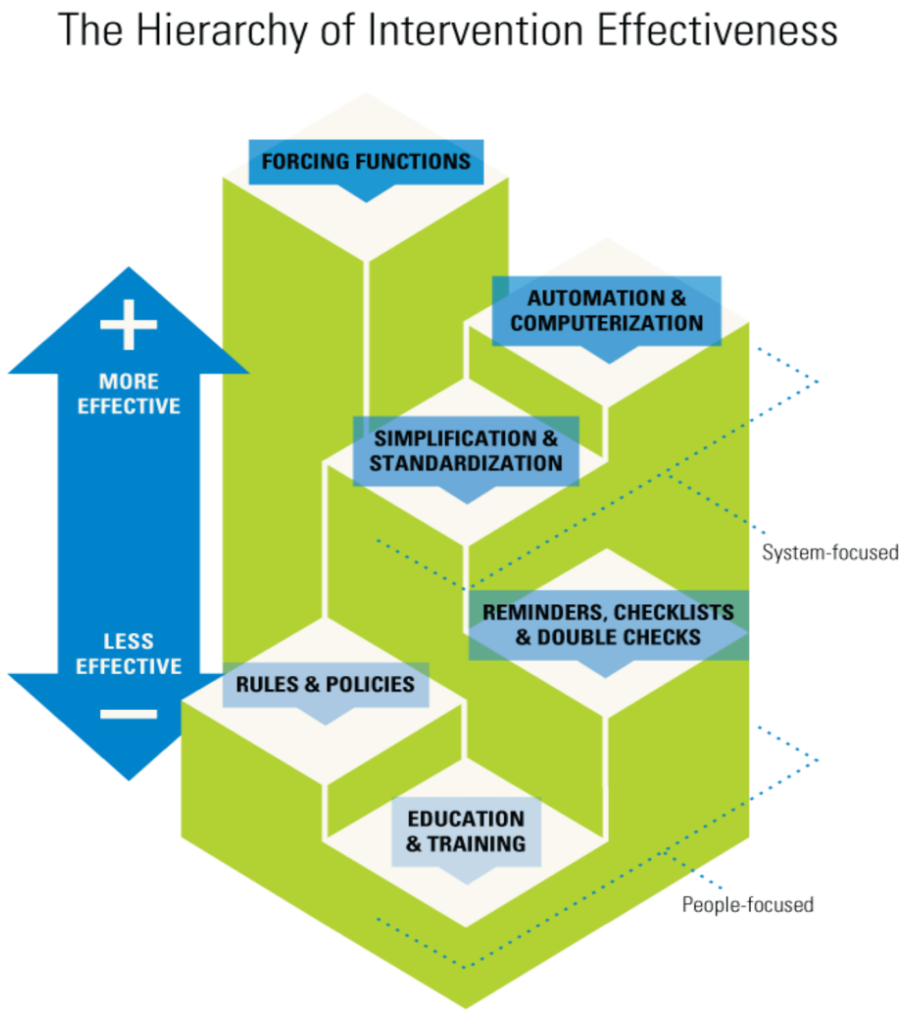


ADE: Adverse Drug Events
PADE: Potential Adverse Drug Event

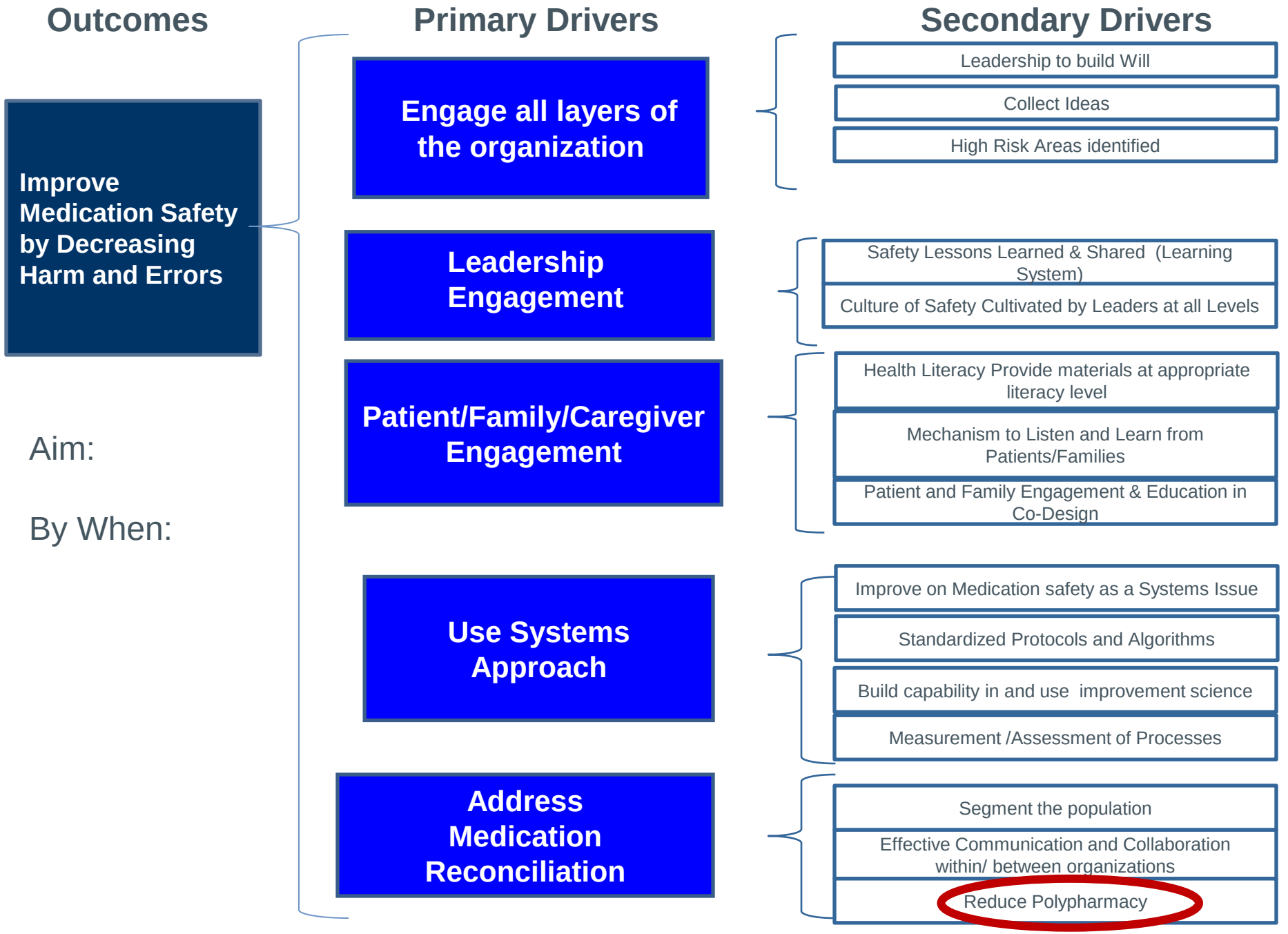
Adapted from Bates

Principles of a Safe System

- Prevent
- Detect
- Mitigate

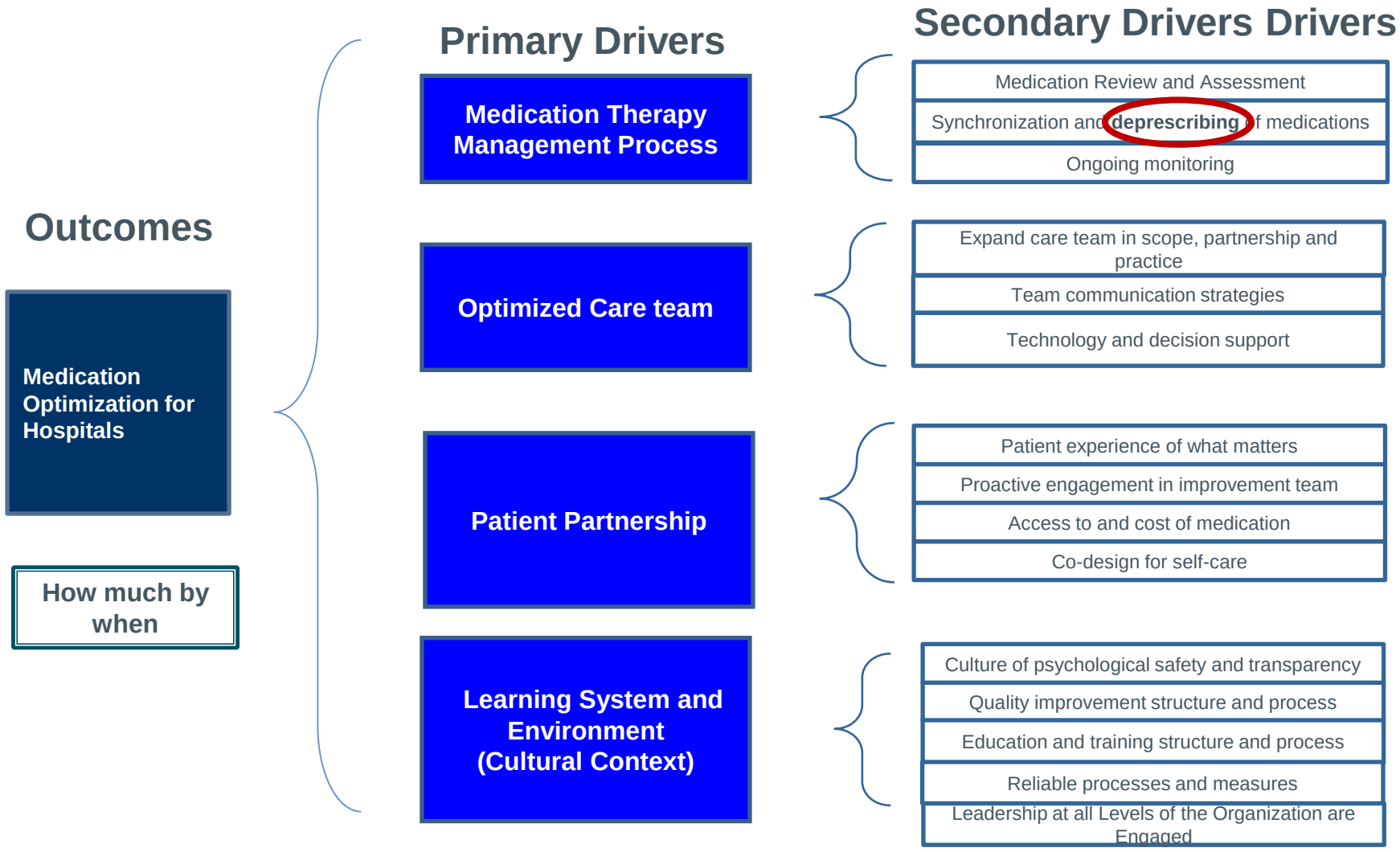


Cassie McDanie
https://patientsafe.wordpress.com/the-hierarchy-of-intervention-effectiveness/l


Outcomes
Primary Drivers
Secondary Drivers
Improve Medication Safety by Decreasing Harm and Errors
Aim:
By When:
Engage all layers of the organization
Leadership to build Will
Collect Ideas
High Risk Areas identified
Leadership Engagement
Safety Lessons Learned & Shared (Learning System)
Culture of Safety Cultivated by Leaders at all Levels
Patient/Family/Caregiver Engagement
Health Literacy Provide materials at appropriate literacy level
Mechanism to Listen and Learn from Patients/Families
Patient and Family Engagement & Education in Co-Design
Use Systems Approach
Improve on Medication safety as a Systems Issue
Standardized Protocols and Algorithms
Build capability in and use improvement science
Measurement /Assessment of Processes
Address Medication Reconciliation
Segment the population
Effective Communication and Collaboration within/ between organizations
Reduce Polypharmacy

Addressing Polypharmacy

DRAFT




Polypharmacy

What is polypharmacy?

- Definitions:
  - More than 5 medications
  - More than 7 medications
  - More than a patient can handle

- Patients more likely to experience harm with multiple medications
  - Drug interactions
  - Therapeutic duplication
  - Too many medications to manage

Where to Start?

- Elderly
  - Overmedicated
  - More sensitive to side effects
  - Organ function decreases and more likely to experience toxicities because of poor elimination
  - Known medications that should not be used- contraindicated
  - Medications that will not have benefit in this age group- time to treat

Bitter Pill: How the Medical System is Failing the Elderly

How to Address Polypharmacy

- Collect list of all medications that a patient is taking
- Include herbals and non-prescription medications
- Check for adherence
- Review for indication and duration of treatment
- Work with medical team to discontinue medications (deprescribing) due to
  - therapeutic duplication,
  - side effects,
  - duration of therapy (no longer needed)
  - danger to the patient

Deprescribing

Deprescribing is the planned and supervised process of dose reduction or stopping of medication that might be causing harm, or no longer be of benefit.

Deprescribing is part of good prescribing – backing off when doses are too high, or stopping medications that are no longer needed.

https://deprescribing.org/what-is-deprescribing/

Origin

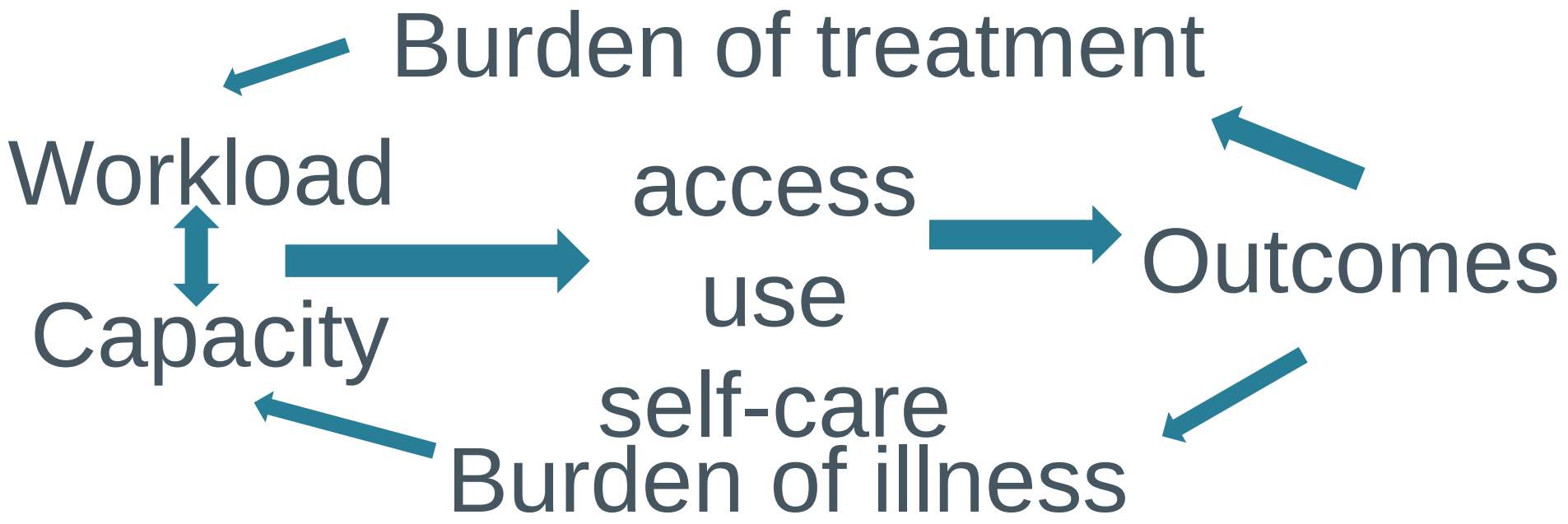
- Started by Dr. Barbara Farrell and Dr. Cara Tannenbaum at the Bruyère Research Institute (Ottawa) and Université de Montréal

"Safely reducing or stopping medications is a team effort."

Aims of Deprescribing

- Improve quality of life
- Avoid worsening of disease or causing withdrawal effects
- Be effective in reducing pill burden

Cumulative Complexity Model



Shippee et al 2011

Who May Benefit

- Multi-morbidity patients- presence of two or more long-term health conditions
- Polypharmacy- patients taking large numbers of medicines (>15)
- Elderly (>75yr) frail patients
- Housebound patients
- Patients with indications of shortened life expectancy/ end of life
- Vulnerable patients
- Decline in hepatic function / renal function

Start with Shared Decision Making

- Studies tell us that clinicians tend to talk more about benefits than harms and often don't ask for patients' input[1]
- **What Matters to You:** individual judgements about what matters (values), informed by balanced information is of central importance

1. Fagerlin, Angela and al. Patients' Knowledge about 9 Common Health Conditions: The DECISIONS Survey. Med Decis Making 2010;30:35S–52S

A Guide Key Points

- Discuss deprescribing before initiating any new medicines for a trial period.
- It is essential to deprescribe, reduce or substitute inappropriate medicines.
- Deprescribing should be planned, one medicine at a time, offered as a trial, the dose gradually tapered and any returning symptoms monitored.
- Deprescribing should be performed as a partnership between the patient and the prescriber.

1. Fagerlin, Angela and al. Patients' Knowledge about 9 Common Health Conditions: The DECISIONS Survey. Med Decis Making 2010;30:35S–52S

A Guide Key Points

- Regular patient review, with support from a healthcare professional is required for successful deprescribing.
- It is sometimes better not to start a medicine than to tackle deprescribing in the future, particularly in certain therapeutic areas.
- Older people, those who are end of life and those with increasing frailty are frequently prescribed unnecessary or higher risk medicines and should have more frequent medication reviews.

1. Fagerlin, Angela and al. Patients' Knowledge about 9 Common Health Conditions: The DECISIONS Survey. Med Decis Making 2010;30:35S–52S

Example of Deprescribing Proton Pump Inhibitors

- Deprescribing can include stopping, stepping down, or reducing doses
- Stopping can be done either via abrupt discontinuation or a tapering regimen
- Stepping down involves abrupt discontinuation or tapering of the PPI followed by prescription of an H_2RA (any H_2RA at any approved dose and dosing interval according to the drug monograph)

(H_2RA—histamine-2 receptor antagonist, PPI—proton pump inhibitor)

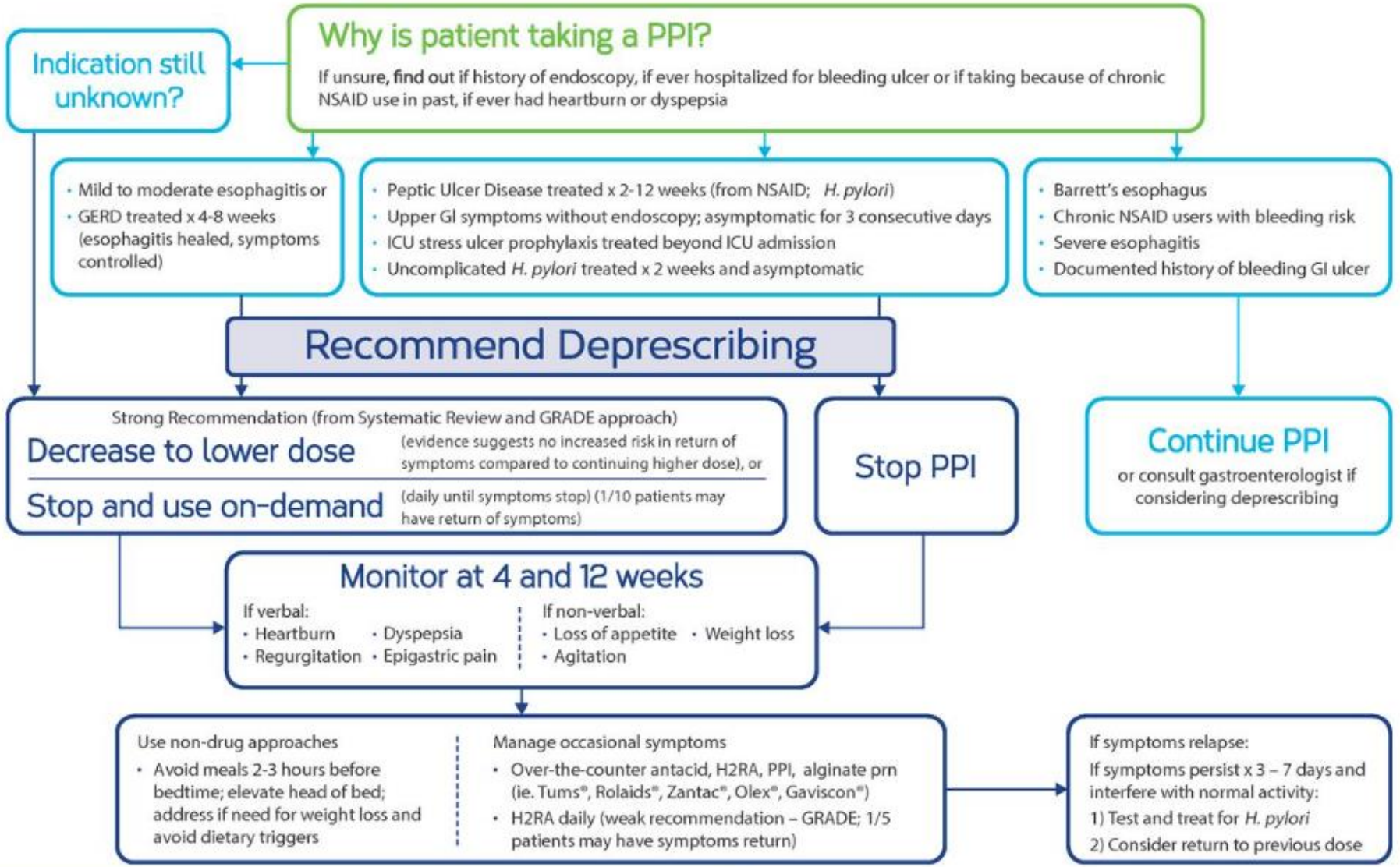
Example of Deprescribing Proton Pump Inhibitors

- Reducing includes the following subcategories:
  - Intermittent PPI use, which is defined by the Canadian Consensus Conference as “daily intake of a medication for a predetermined, finite period (usually two to eight weeks) to produce resolution of reflux-related symptoms or healing of esophageal lesions following relapse of the individual’s condition”
  - On-demand PPI use, which is defined by the Canadian Consensus Conference as “the daily intake of a medication for a period sufficient to achieve resolution of the individual’s reflux-related symptoms; following symptom resolution, the medication is discontinued until the individual’s symptoms recur, at which point, medication is again taken daily until the symptoms resolve”
  - Lower dose, which is a reduction from a standard dose to a maintenance dose[6]

What to Look Out For

- Deprescribing must be done judiciously, with monitoring, to avoid worsening of disease or causing withdrawal effects.
- Needs careful discussion on an individual basis to gain patient understanding and acceptance
- Use different terminology for patients
- Treatment and care should take into account individual needs and preferences

Figure 1 | Proton Pump Inhibitor (PPI) Deprescribing Algorithm



Farrell B, Pottie K, Thompson W, Boghossian T, Pizzola L, Rashid FJ, et al. Deprescribing proton pump inhibitors. Evidence-based clinical practice guideline. *Can Fam Physician* 2017;63:354-64 (Eng), e253-65 (Fr).

deprescribing.org

Bruyère Research Institute

openo

deprescribing.org | Proton Pump Inhibitor (PPI) Deprescribing Notes

September 2016

PPI Availability

PPI	Standard dose (healing) (once daily)*	Low dose (maintenance) (once daily)
Omeprazole (Losec®) - Capsule	20 mg+	10 mg+
Esomeprazole (Nexium®) - Tablet	20[a] or 40[b] mg	20 mg
Lansoprazole (Prevacid®) - Capsule	30 mg+	15 mg+
Dexlansoprazole (Dexilant®) - Tablet	30[c] or 60[d] mg	30 mg
Pantoprazole (Tecta®, Pantoloc®) - Tablet	40 mg	20 mg
Rabeprazole (Pariet®) - Tablet	20 mg	10 mg

Legend

a Non-erosive reflux disease

b Reflux esophagitis

c Symptomatic non-erosive gastroesophageal reflux disease

d Healing of erosive esophagitis

+ Can be sprinkled on food

* Standard dose PPI taken BID only indicated in treatment of peptic ulcer caused by *H. pylori*; PPI should generally be stopped once eradication therapy is complete unless risk factors warrant continuing PPI (see guideline for details)

Key

GERD = gastroesophageal reflux disease

NSAID = nonsteroidal anti-inflammatory drugs

H2RA = H2 receptor antagonist

SR = systematic review

GRADE = Grading of Recommendations Assessment, Development and Evaluation

Engaging patients and caregivers

Patients and/or caregivers may be more likely to engage if they understand the rationale for deprescribing (risks of continued PPI use; long-term therapy may not be necessary), and the deprescribing process

PPI side effects

- When an ongoing indication is unclear, the risk of side effects may outweigh the chance of benefit
- PPIs are associated with higher risk of fractures, *C. difficile* infections and diarrhea, community-acquired pneumonia, vitamin B12 deficiency and hypomagnesemia
- Common side effects include headache, nausea, diarrhea and rash

Tapering doses

- No evidence that one tapering approach is better than another
- Lowering the PPI dose (for example, from twice daily to once daily, or halving the dose, or taking every second day) OR stopping the PPI and using it on-demand are equally recommended strong options
- Choose what is most convenient and acceptable to the patient

On-demand definition

Daily intake of a PPI for a period sufficient to achieve resolution of the individual's reflux-related symptoms; following symptom resolution, the medication is discontinued until the individual's symptoms recur, at which point, medication is again taken daily until the symptoms resolve

Farrell B, Pottie K, Thompson W, Boghossian T, Pizzola L, Rashid FJ, et al. Deprescribing proton pump inhibitors. Evidence-based clinical practice guideline. *Can Fam Physician* 2017;63:354-64 (Eng), e253-65 (Fr).

deprescribing.org | Bruyère Research Institute | open

Medications that warrant particular review

Medicine	Comments	Rationale/Evidence
1. **Quinine**	Treatment should be interrupted at intervals of approx. 3 months to assess need for further quinine treatment (see BNF)	BNF recommends a trial discontinuation with long term use, not currently recommended by NICE or NHS evidence. http://arms.evidence.nhs.uk/resources/hub/1028784/attachment http://cks.nice.org.uk/restless-legs-syndrome#!scenario
2. **Betahistine, prochlorperazine metoclopramide domperidone**	Review indication / on-going symptoms. Review ongoing need – easy to restart if symptoms return. Could consider reducing betahistine 16mg TDS to 8mg TDS	**Metoclopramide** restricted to short-term use (up to 5 days) due to risk of neurological adverse effects; http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON300404 **Domperidone** is now restricted to use in the relief of nausea and vomiting and maximum treatment duration 7 days due to risks of cardiac side effects; http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON418518 **Betahistine;** insufficient evidence from RCTs to conclude if prevents Meniere's disease symptoms. The quality of trials suggesting it may help control vertigo, dizziness, or imbalance is limited. http://cks.nice.org.uk/menieres-disease#!supportingevidence1
3. **Furosemide**	Ensure on lowest effective dose – often gets stepped up but then not stepped back down again.	
4. **Antidepressants**	Taper SSRIs and venlafaxine over at least 4 weeks. Low dose Fluoxetine may not need to be tapered, due to a long half-life. A longer discontinuation may be required for drugs with shorter half-life or therapy duration > 8 weeks. E.g. reduce by 25% every four to six weeks. TCAs and related antidepressants (e.g. mianserin) should be withdrawn slowly e.g. by 25% every four weeks.	NICE recommend to continue medication for at least 6 months after remission of an episode of depression and reviewing patients for the need for continued antidepressant treatment beyond 6 months after remission, taking into account: •the number of previous episodes of depression •the presence of residual symptoms •concurrent physical health problems and psychosocial difficulties Depression in adults with a chronic physical health problem | 1-guidance | Guidance and guidelines | NICE
5. **Anti-hypertensives**	Review current BP control and consider if all antihypertensives are necessary. If appropriate to stop any, work backwards through algorithm. Most should be tapered. Taper dose at monthly intervals, over three to six months.	Consider risk of falls
6. **Antipsychotics**	Review quarterly if for behavioural symptoms in dementia Withdraw gradually after long term therapy (1-2 years) and monitor closely to avoid relapse.	DoH 2009. Banerjee, S. The use of antipsychotic medication for people with dementia: Time for action. A report for the Minister of State for Care Services
7. **Weak opioid analgesics**	Consider regular paracetamol as a potential alternative. Consider potential side effects such as constipation, confusion, risk of falls.	

Medications that warrant particular review

<table>
<tr><td>8. PPIs</td><td>Stopping suddenly can cause rebound acid hyper-secretion, reduce to maintenance or PRN dosing for symptom control. Consider alternate day dosing or stepping down to an H2RA if a more gradual taper is required. Ensure if for gastro protection dose is lansoprazole 15mg or omeprazole 20mg.</td><td>Increased risk of C.diff (42%), osteoporotic fractures (29%), hypomagnesaemia (25%) usually > 1year treatment, Community Acquired Pneumonia (30%) within 14-30 days
http://www.awmsg.org/docs/awmsg/medman/All%20Wales%20Proton%20Pump%20Inhibitor%20and%20Dyspepsia%20Resource%20Pack.pdf</td></tr>
<tr><td>9. Statins</td><td>Should not normally be stopped in patients where used for secondary prevention, individual discussion re pro's and con's and quality of life required.</td><td><table><tr><th>Primary prevention outcome</th><th>5 year NNT</th></tr><tr><td>All-cause Mortality</td><td>138</td></tr><tr><td>Total CVD events</td><td>49</td></tr><tr><td>Total CHD events</td><td>88</td></tr><tr><td>Total Stroke</td><td>155</td></tr></table>http://www.nice.org.uk/guidance/cg181/evidence/cg181-lipid-modification-update-full-guideline3</td></tr>
<tr><td>10. Nitrate monotherapy</td><td>If symptom free consider if diagnosis is still correct (can be historical based on symptoms). If symptomatic, review angina therapy and consider beta-blocker or verapamil/diltiazem.</td><td></td></tr>
<tr><td>11. Laxatives</td><td>If >1 laxatives are used, reduce/stop one at a time. Reduce stimulant laxative first, increase the dose of the osmotic laxative if necessary. Restart if relapse occurs. Give advice on lifestyle measures including increased dietary fibre.</td><td>Stimulant laxatives are licensed only for short-term use. Excessive doses of, or inadequate fluid intake with bulk-forming laxatives can cause intestinal obstruction. Inadequate fluid intake with lactulose or macrogols can be dehydrating.</td></tr>
<tr><td>12. NSAIDS</td><td>Any ongoing clinical indication? Can be stopped abruptly or halve the dose for two to four weeks then stop.</td><td>Consider associated risk with NSAIDs e.g. declining renal function in the elderly and adverse GI effects.</td></tr>
<tr><td>13. Iron Supplements</td><td>Should continue for 3 months after deficiency corrected. Can be stopped without tapering</td><td></td></tr>
</table>

References:
A practical guide to stopping medicines in older people. Accessed on 26/11/14. Available at http://www.bpac.org.nz/BPJ/2010/April/stopguide

With acknowledgement to Helen Gregory, North Derbyshire CCG.