3D Geronotlogy:
Delirum, Dementia and Deprescribing

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Confusion Assessment Method (CAM)

*The diagnosis of delirium requires presence of **BOTH A and B***

A □	**Acute onset / fluctuating Course**	○ Is there evidence of an acute change in mental status form patient baseline. ○ Does the behaviour • Come and go? • Fluctuate during the day ? • Increase / decrease in severity?
B □	**Inattention**	Does the patient: ○ Have difficulty focusing attention? ○ Become easily distracted? ○ Have difficulty keeping track of what is said?

Confusion Assessment Method (CAM) (cont)

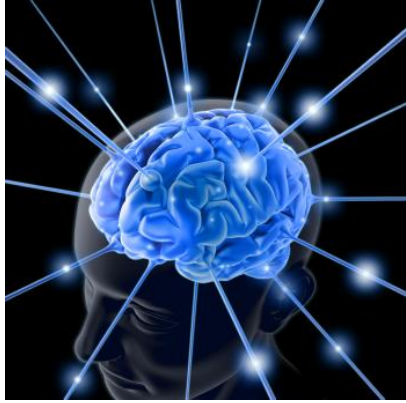
and the presence of **EITHER C or D**		
C ☐	**Disorganised Speech**	Is the patient's thinking: o Disorganised o Incoherent For example, does the patient have: - Rambling speech / irrelevant conversation? - Unpredictable switching of subjects? - Unclear or illogical flow of ideas?
D ☐	**Altered Level of Consciousness**	Overall is the patients level of consciousness: o Alert (normal) o Vigilant (hyper-alert) o Lethargic (drowsy but easily roused) o Stuperous (difficult to rouse) o Comatose (unrousable)

The rest of the CAM screen

- Disorientation: time, location
- Memory impairment?
- Perceptual disturbances?

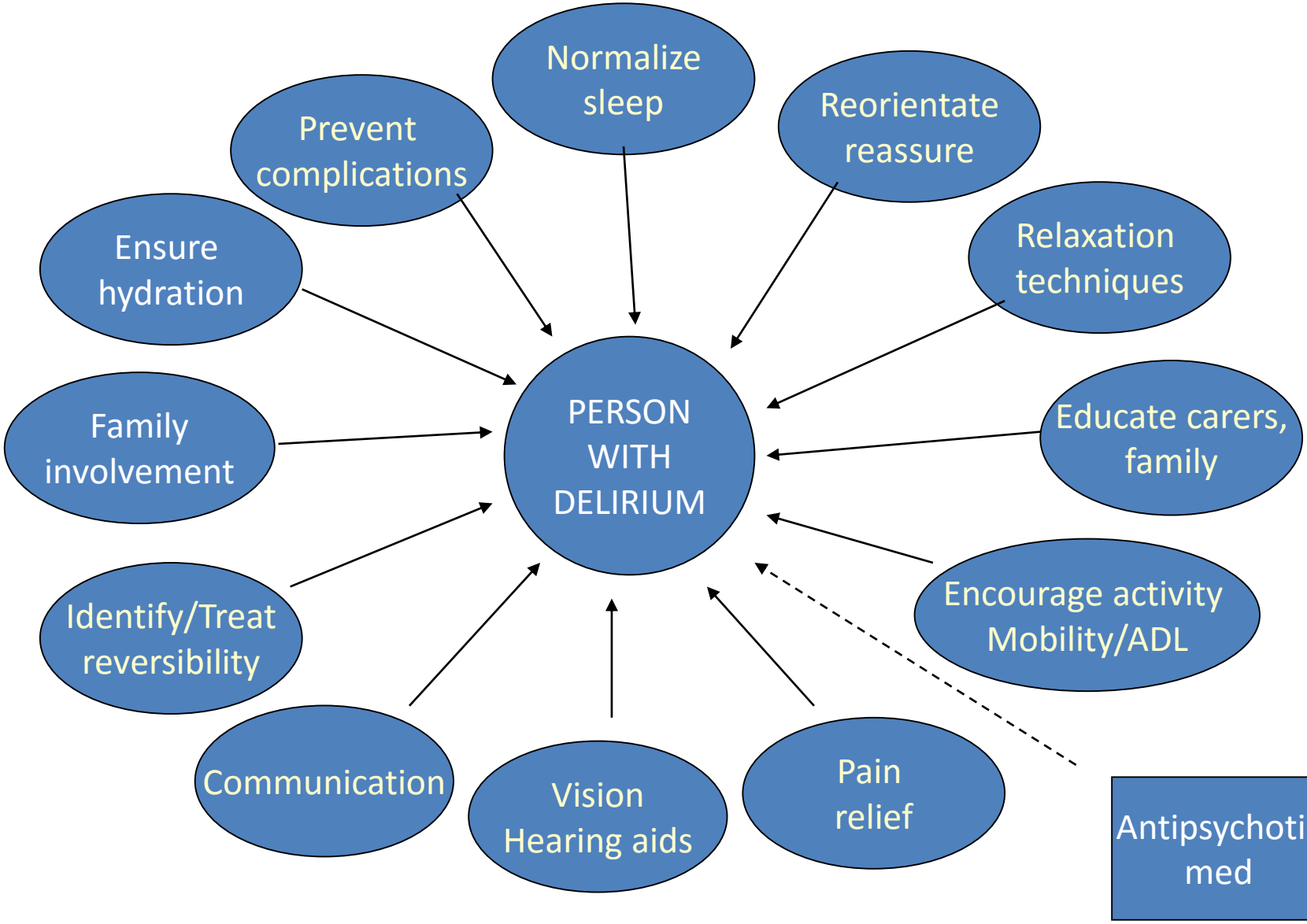
  Hallucinations / illusions
- Altered sleep-wake cycle: sleep in day, insomnia at night

Basic Delirium Screen Tests



- Midstream urine / urinalysis
- Full blood count
- Urea and electrolytes + calcium
- Renal function
- Glucose
- Liver function
- CRP (ESR?)
- Thyroid function
- Troponin I (?)
- Serum medication levels
- ECG
- Chest X-ray

CT head, blood cultures, ABG, LP (acute care)


Normalize sleep
Prevent complications
Reorientate reassure
Ensure hydration
Relaxation techniques
Family involvement
PERSON WITH DELIRIUM
Educate carers, family
Identify/Treat reversibility
Encourage activity Mobility/ADL
Communication
Vision Hearing aids
Pain relief
Antipsychotic med

Waitemata DHB Delirium Study

Tan and Scott NZMJ, 2015Volume 128 Number 1411

Table 5. Delirium and mortality at 6 months

Variable	Number	Rate
CAM-negative	222	10%
CAM-positive	28	39%

Table 7. Delirium and increase in level of care (note that the denominator here is 244 as 6 patients who died while in hospital were excluded)

Variable	Number	Rate
CAM-negative	219	13.8%
CAM-positive	25	66.6%

Table 6. Delirium and length of inpatient hospital stay

Variable	Number	Mean length of stay (days)	Standard Deviation (days)
CAM- negative	222	21.6	18.6
CAM-positive	28	25.4	19.7

Resolved Delirium

McAvay et al., Volume 54, Issue 82006 JAGS

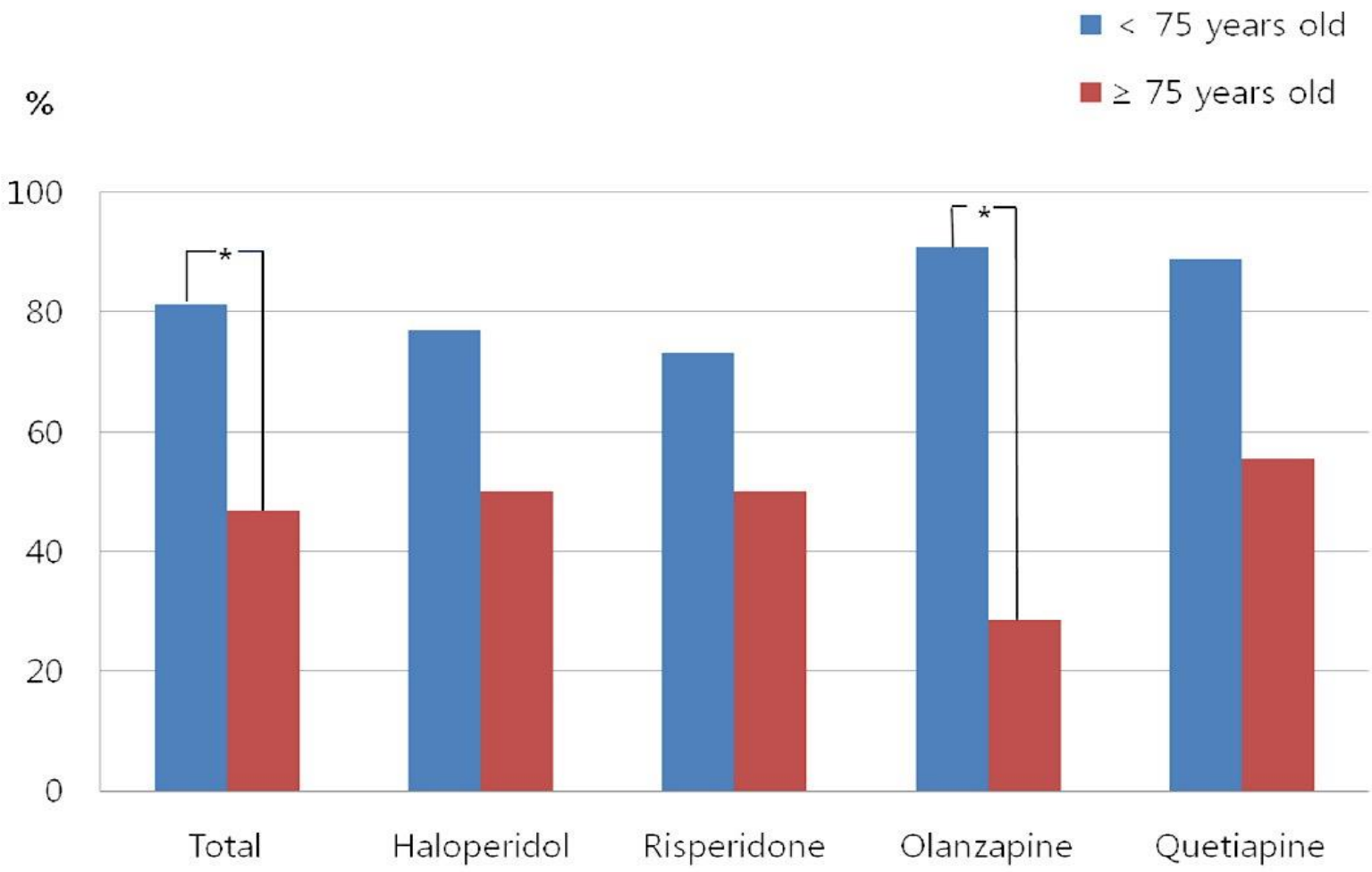
Delirium Status	Nursing Home Placement	Percentage of Days in Nursing Home*	Death	Days of Survival	Death or Nursing Home Placement	Days Until Death or Nursing Home Placement
	n/N (%)	Mean ± Standard Deviation	n/N (%)	Mean (SE)†	n/N (%)	Mean (SE)†
Never delirious	111/378 (29.4)	24.1 ± 29.9	75/378 (19.8)	323.9 (4.8)	157/378 (41.5)	254.8 (7.7)
Delirium resolved	14/31 (45.2)	40.6 ± 37.9	8/31 (25.8)	313.8 (17.8)	21/31 (67.7)	180.9 (28.2)
Delirium at discharge	19/24 (79.2)	52.8 ± 40.0	9/24 (37.5)	234.0 (26.2)	20/24 (83.3)	80.1 (27.2)
P-value ‡	<.001	<.001	.03	.05	<.001	<.001

Pharmacologic treatment

Class & Drug	Dose	Adverse Effects	Comments
Antipsychotic Haloperidol	0.25-1mg BD po with prn doses q4hrly (peak 4-6hrs)	EP symptoms Prolonged QT	Usual agent of choice. Effectiveness demonstrated in RCT Avoid IV
Atypical antipsychotic Risperidone Olanzapine Quetiapine	0.25mg BD 2.5-5mg daily 12.5-50mg daily	EP effects equivalent to or slightly less than Haloperidol Prolonged QT	Tested only in small studies Associated with increased mortality in older people with sc
Benzodiazepine Lorazepam Temazepam	0.5-1mg, add doses q4hrly as needed Avoid monotherapy	Paradoxical excitation, resp depression, oversedation	2nd line agent Assoc with prolongation, worsening of symptoms Use for withdrawal, Parkinson's

Delirium Treatment

Yoon et al. 2011 BMC Psychiatry 13:240



Cognitive Impairment
Main Causes

Degenerative

- Alzheimer's
- Fronto-temporal lobe/Pick's
- Lewy Body Dementia
- Parkinson's Dementia
- ALS/MND
- MS
- Huntington's

Vascular

- Multi-Infarct Dementia
- Pellagra
- Vasculitis
- Lupus

Infectious

- HIV
- CJD
- Syphilis
- Herpes Zoster
- Fungal
- Bacterial

Structural

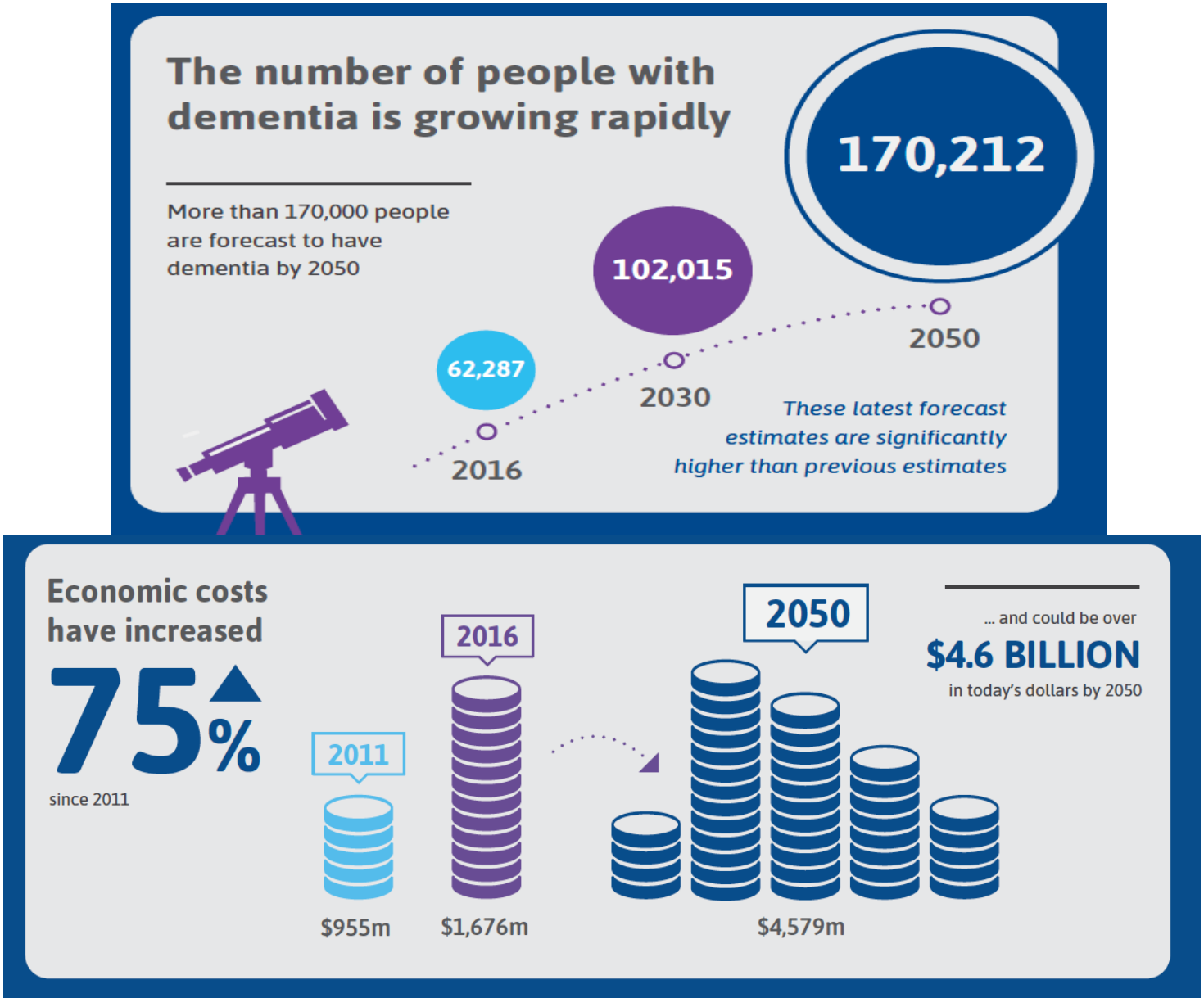
- Normal Pressure Hydrocephalus
- Neoplasm
- Alcohol / Drugs
- Trauma
- Subdural Hematoma

Metabolic

- Electrolyte Imbalance
- Medications
- Wilson's
- Whipple's
- Thyroid
- B12/Folate
- Hepatic

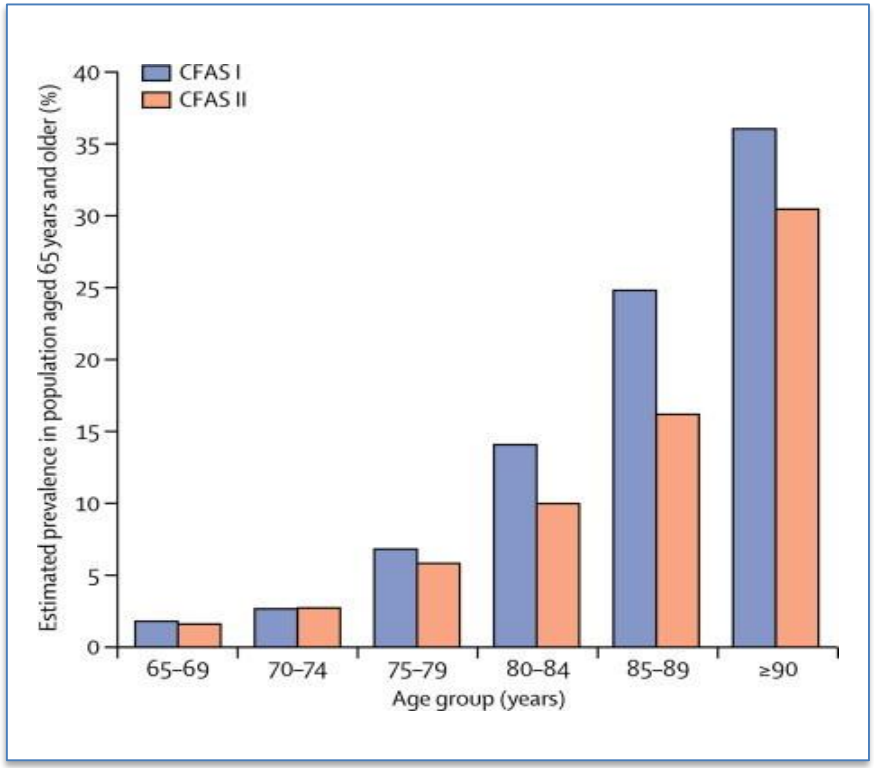
Dementia

(2016 Access/Deloitte)

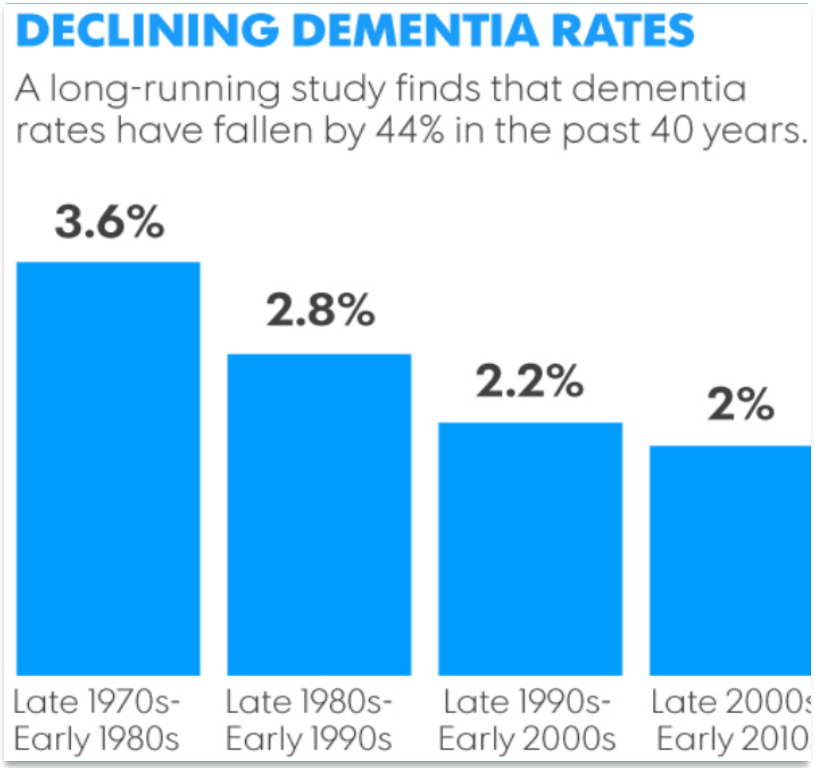


Falling rates of dementia in UK and USA

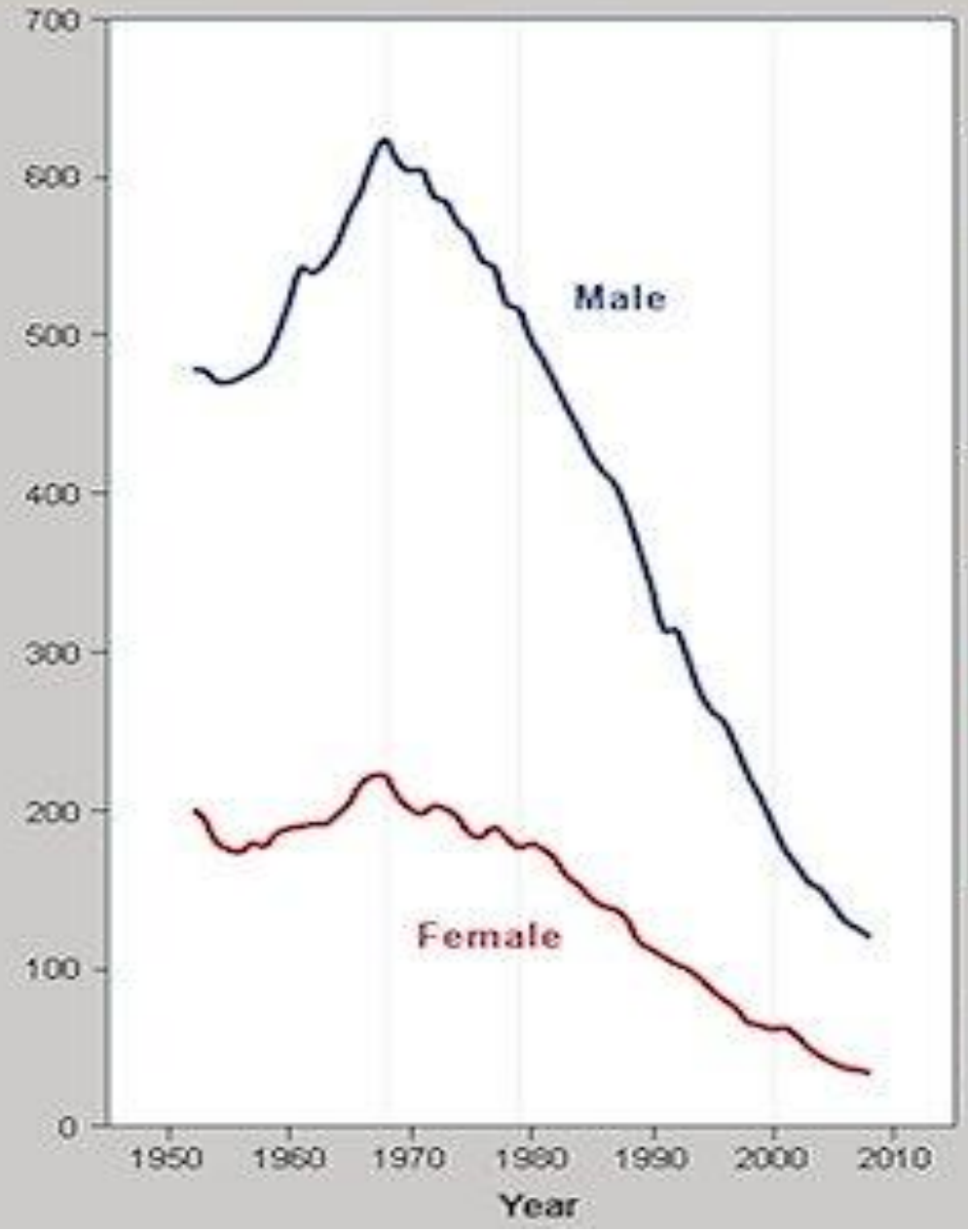
UK (1989-2004)



USA



Mortality trends for coronary heart disease: age 35-69 years, New Zealand (Aotearoa)



Male deaths from this cause at age 35-69 years in 2008:

- 843 (20% of deaths at this age)
- 120 out of every 100 000 males at this age, a rate which was:
  - → 37% less than in 2000 (rate: 190)
  - → 79% less than in 1975 (rate: 562)
  - → 75% less than in 1955 (rate: 470)

Female deaths from this cause at ages 35-69 years in 2008:

- 242 (8% of deaths at this age)
- 34 out of every 100 000 females at this age, a rate which was:
  - → 44% less than in 2000 (rate: 61)
  - → 81% less than in 1975 (rate: 184)
  - → 80% less than in 1955 (rate: 175)

Created: 25 Jul 2012, 2:48 pm
Males & females, ages 35-69 years
Coronary heart disease
New Zealand

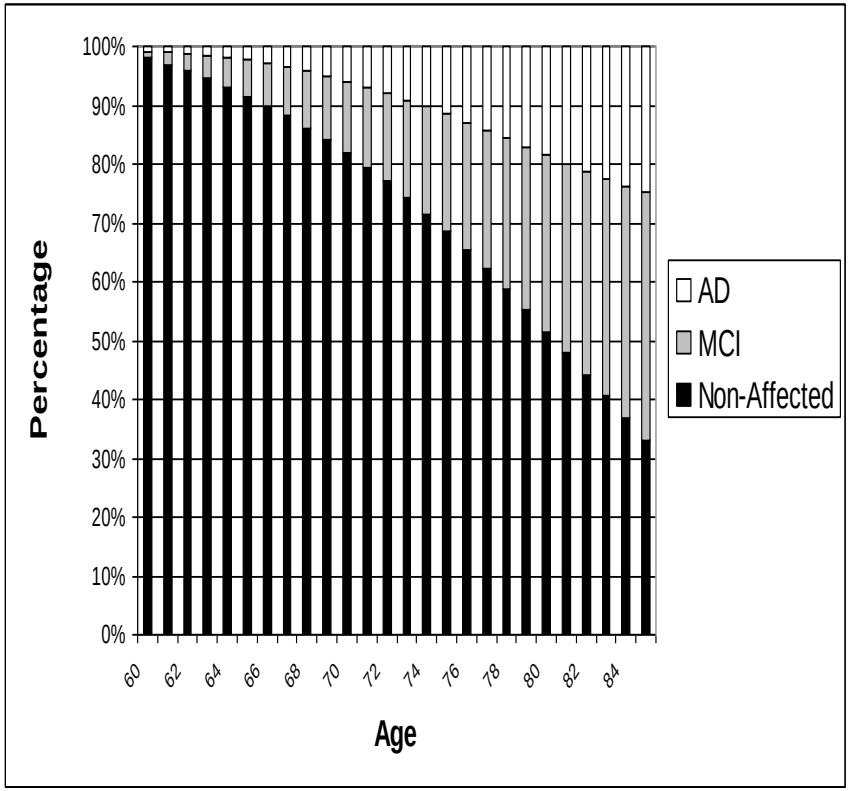
www.mortality-trends.org

Mild Cognitive Impairment (MCI)

- Memory impaired but are otherwise functioning well and do not meet clinical criteria for dementia

- Symptoms include
  - Memory complaint, preferably with corroboration
  - Intact activities of daily living
  - Progression MCI → dementia ~ 10-15% per year in clinic-based studies (Mariani et al, 2007)

- There are currently no recommended treatments for MCI
  - Medication review
  - Exercise and social engagement



Petersen RC. *Neurology*. 2001;56:1133-1142.
Petersen RC et al. *Arch Neurol.* 1999;56:303-308.

Cognitive Impairment Pathway – Waitemata DHB 2014

61 people enrolled in CIP (60 carers)

- *5% dropped out early*
- *20% 'other diagnosis'*
- *34% dementia diagnosis*
- *41% mild cognitive impairment diagnosis*

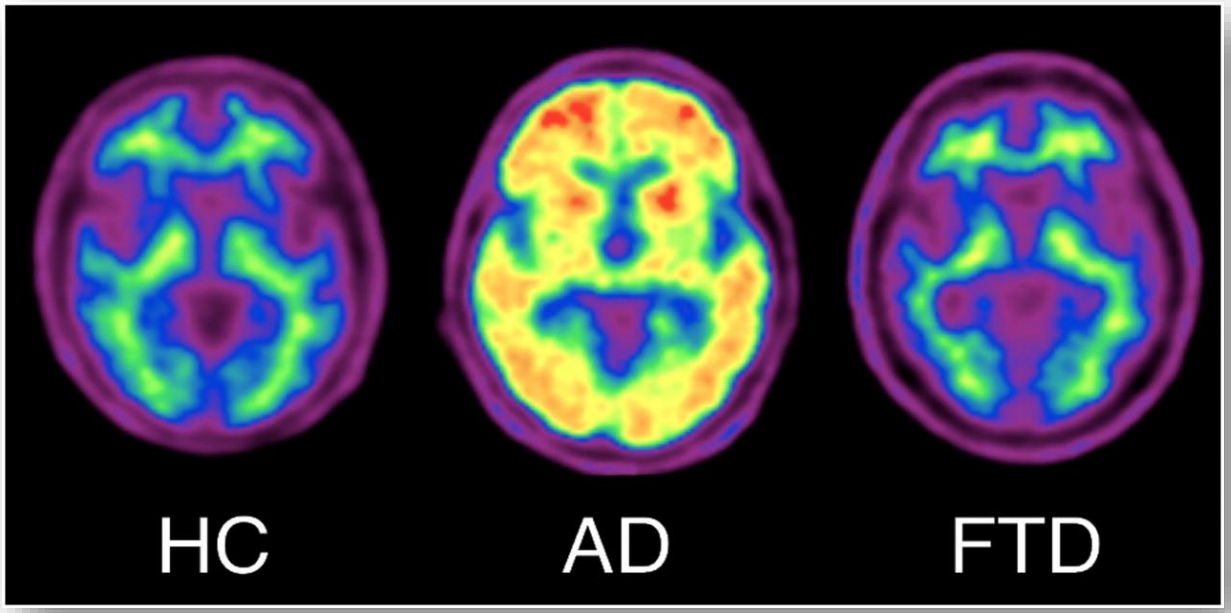
"Other" Diagnoses	Number of Participants
No cognitive impairment	4
Depression	2
Alcohol issues/depression	1
Parkinson's disease	1
Seizure disorder/ inconclusive diagnosis	1
Stroke - admitted to *ARC (died)	1
Brain metastasis (died)	1
Moved out of area/subsequent ARC admit	1

*ARC = Aged Residential Care

Beta Amyloid Plaques

Midlife vascular risk factors were associated with elevated levels of brain amyloid later in life (JAMA 2017)

- obesity
- high blood pressure
- diabetes
- high cholesterol
- smoking



Rowe, et al., J Nucl Med **2011** vol. 52 no. 11

Vascular Dementia

- Previously thought to be about 20% of all dementias
- Now thought that there is very little 'pure vascular dementia'
- Does the ischaemic changes from cardiovascular disease promote plaques and tangles?
- The Nun Study: lacunar strokes increase dementia risk 20 fold with fewer plaques and neurofibrillary tangles before showing signs of dementia.

TREATMENT:

Cardiovascular Health

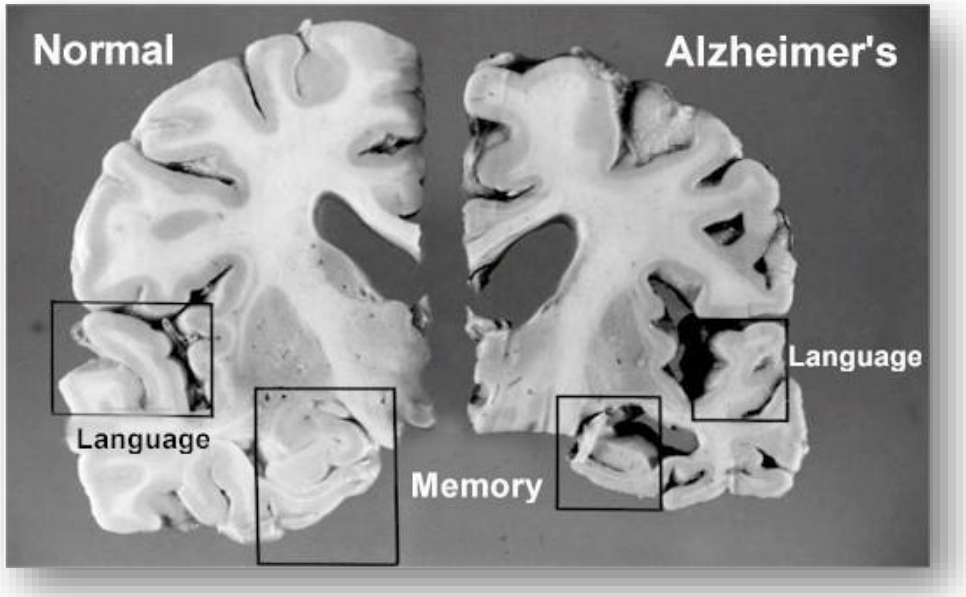
Exercise

Active Mind

Socially Active

Link between Fizzy Drinks and Dementia (JAMA April 2017)

- Those who drink sugary drinks showed:
  - Poorer memory
  - More atrophy
  - Small hippocampus



- Those that diet soda daily were almost three times likely to develop stroke when compared to those that do not.

Deprescribing

Definition:

The systematic process of identifying and discontinuing drugs when:

- existing or potential harms outweigh existing or potential benefits within the context of an individual patient's care goals
- current level of functioning
- life expectancy
- values, and preferences.

Scott IA et al. JAMA Internal Medicine May 2015

When to consider deprescribing?

- Patient presents with new symptoms which could be adverse drug effect (i.e. falls, confusion, fatigue)
- End-stage disease/ terminal illness
- Receiving high-risk drugs/ combinations
- Receiving preventive drugs in scenarios where drug can be safely discontinued

Scott IA et al. JAMA Internal Medicine May 2015

Priority Drugs for Deprescribing

- Survey of 65 Canadian geriatrics experts (36 pharmacists, 19 physicians, 10 CRNP), Modified Delphi approach
- Aim to ID and prioritize med classes where evidence-based deprescribing guidelines would be of benefit
- 5 priorities:
  - benzodiazepines
  - atypical antipsychotics
  - statins
  - tricyclic antidepressants
  - proton pump inhibitors.

Farrell B, et al. Plos ONE. Jan 1 2ol 10 Issue 4. re

5 Steps of Deprescribing

1.) Ascertain all drugs the patient is currently taking and reasons for each one

2.) Consider overall risk of drug-induced harm to determine the appropriate intensity of deprescribing intervention

3.) Assess each drug for its current or future benefit potential compared with current or future harm/ burden potential

Scott IA et al. JAMA Internal Medicine May 2015

5 Steps (cont).*

4.) Prioritize drugs with

- lowest benefit-harm ratio
- lowest likelihood of adverse withdrawal reactions
- Lowest disease rebound syndromes

5.) Implement a discontinuation regimen and monitor patients closely for improvement in outcomes or onset of adverse effects.

Scott IA et al. JAMA Internal Medicine May 2015

Drug Withdrawal Trials

- Systematic review of 31 withdrawal trials (15 RCT, 16 observational)
  (Iyer at al. Drugs Aging, 2008:25(12)1021-1032).

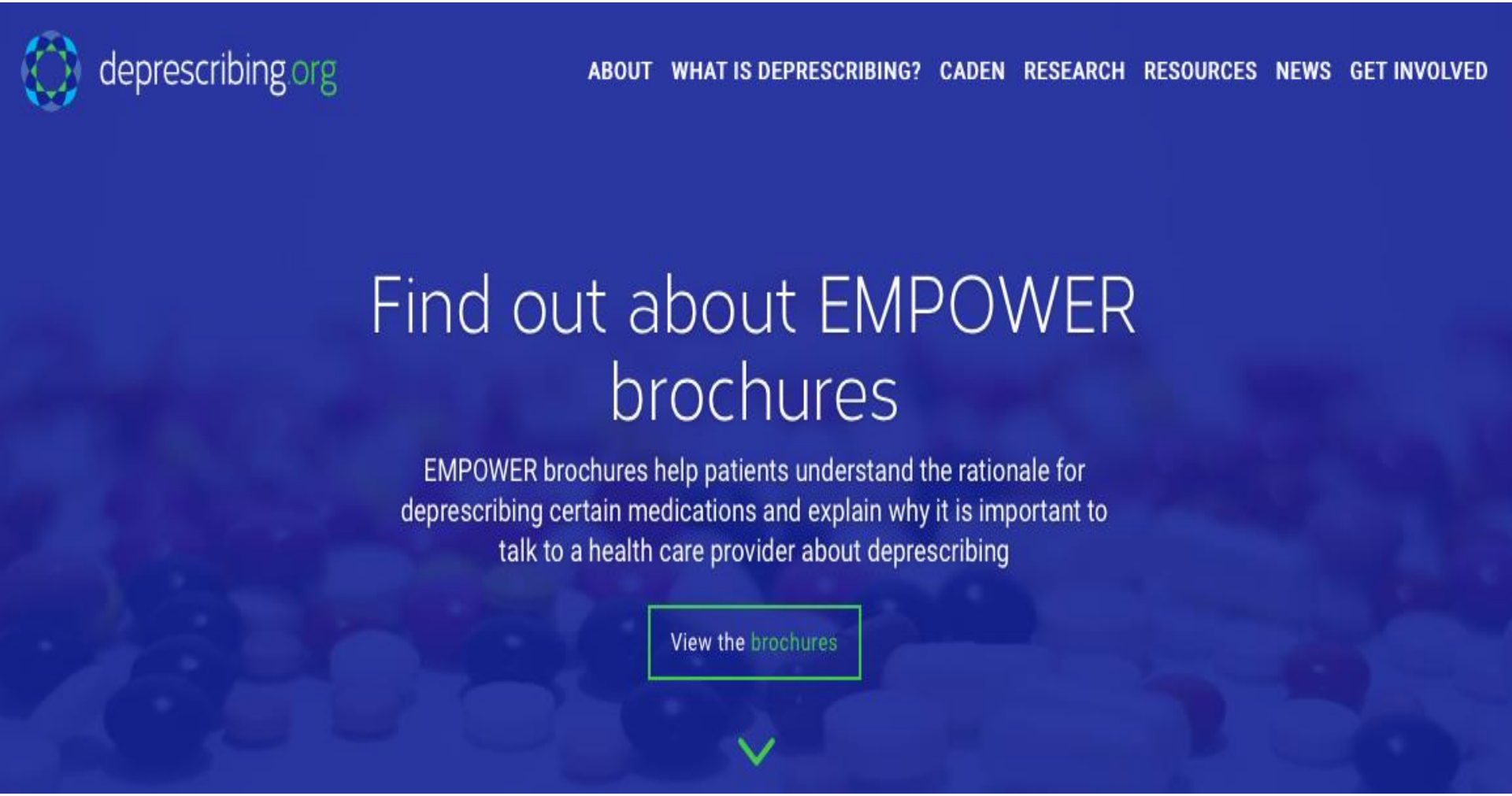
  - Pts 65 and over
  - Multiple drug categories: Antihypertensives, psychotropics, benzodiazepines
  - Dc'd without harm in 20 to 100% of patients

- Reduction in falls and improvement in cognitive and psychomotor function (Psychotropics, Benzos)
  - Also replicated in another review (van der Cammen)

- 80% of participants with dementia were able to safely stop antipsychotics (Declercq T et al. Cochrane Database Syst Rev. 2013).

- Australian National Blood Pressure study
  - Found that 37% of participants remained normotensive 1 yr after drug withdrawal (Neson MR, et al. BMJ. 2002)

Deprescribing.org



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

September 2015

Why is patient taking a PPI?

If unsure, find out if history of endoscopy, if ever hospitalized for bleeding ulcer or if taking because of chronic NSAID use in past, if ever had heartburn or dyspepsia

Indication still unknown?

- Mild to moderate esophagitis or
- GERD treated x 4-8 weeks (esophagitis healed, symptoms controlled)

- Peptic Ulcer Disease treated x 2-12 weeks (from NSAID; *H. pylori*)
- Upper GI symptoms without endoscopy; asymptomatic for 3 consecutive days
- ICU stress ulcer prophylaxis treated beyond ICU admission
- Uncomplicated *H. pylori* treated x 2 weeks and asymptomatic

- Barrett's esophagus
- Chronic NSAID users with bleeding risk
- Severe esophagitis
- Documented history of bleeding GI ulcer

Recommend Deprescribing

Strong Recommendation (from Systematic Review and GRADE approach)

Decrease to lower dose (evidence suggests no increased risk in return of symptoms compared to continuing higher dose), or

Stop and use on-demand (daily until symptoms stop) (1/10 patients may have return of symptoms)

Stop PPI

Continue PPI

or consult gastroenterologist if considering deprescribing

Monitor at 4 and 12 weeks

If verbal:

- Heartburn
- Dyspepsia
- Regurgitation
- Epigastric pain

If non-verbal:

- Loss of appetite
- Weight loss
- Agitation

Use non-drug approaches

- Avoid meals 2-3 hours before bedtime; elevate head of bed; address if need for weight loss and avoid dietary triggers

Manage occasional symptoms

- Over-the-counter antacid, H2RA, PPI, alginate prn (ie. Tums®, Rolaids®, Zantac®, Olex®, Gaviscon®)
- H2RA daily (weak recommendation – GRADE; 1/5 patients may have symptoms return)

If symptoms relapse:

If symptoms persist x 3 – 7 days and interfere with normal activity:

1) Test and treat for *H. pylori*
2) Consider return to previous dose

deprescribing.org | Antipsychotic (AP) Deprescribing Algorithm

October 2016

Why is patient taking an antipsychotic?

- Psychosis, aggression, agitation (behavioural and psychological symptoms of dementia - BPSD) treated ≥ 3 months (symptoms controlled, or no response to therapy).
- Primary insomnia treated for any duration or secondary insomnia where underlying comorbidities are managed
- Schizophrenia
- Schizo-affective disorder
- Bipolar disorder
- Acute delirium
- Tourette's syndrome
- Tic disorders
- Autism
- Less than 3 months duration of psychosis in dementia
- Mental retardation
- Developmental delay
- Obsessive-compulsive disorder
- Alcoholism
- Cocaine abuse
- Parkinson's disease psychosis
- Adjunct for treatment of Major Depressive Disorder

Recommend Deprescribing

Strong Recommendation (from Systematic Review and GRADE approach)

Taper and stop AP (slowly in collaboration with patient and/or caregiver; e.g. 25%-50% dose reduction every 1–2 weeks)

Stop AP

Good practice recommendation

Continue AP

or consult psychiatrist if considering deprescribing

Monitor every 1-2 weeks for duration of tapering

Expected benefits:

- May improve alertness, gait, reduce falls, or extrapyramidal symptoms

Adverse drug withdrawal events (closer monitoring for those with more severe baseline symptoms):

- Psychosis, aggression, agitation, delusions, hallucinations

If BPSD relapses:

Consider:

- Non-drug approaches (e.g. music therapy, behavioural management strategies)

Restart AP drug:

- Restart AP at lowest dose possible if resurgence of BPSD with re-trial of deprescribing in 3 months
- At least 2 attempts to stop should be made

Alternate drugs:

- Consider change to risperidone, olanzapine, or aripiprazole

If insomnia relapses:

Consider

- Minimize use of substances that worsen insomnia (e.g. caffeine, alcohol)
- Non-drug behavioural approaches (see reverse)

Alternate drugs

- Other medications have been used to manage insomnia. Assessment of their safety and effectiveness is beyond the scope of this deprescribing algorithm. See AP deprescribing guideline for details.

Other Tools for Deprescribing

- PIMs/PIDs/PIP (potentially inappropriate medicines/drugs/prescribing), IPET, STOPP-START
- Beers example:

Drug class or disease	Rationale	Recommendation	Quality of Evidence	Strength of recommendation
PIMs				
Antispasmodics	Highly anticholinergic, uncertain effectiveness	Avoid	Moderate	Strong
PIMs due to concomitant diseases/conditions				
Syncope & alpha blockers	Increases risk of orthostatic hypotension or bradycardia	Avoid	High	Weak
PIMs to be used with caution				
Aspirin for primary prevention of CVD	Lack of evidence of benefit vs. risk in ≥ 80yrs	Use with caution in adults aged ≥ 80 yrs	Low	Weak

Bisphosphonates (alendronate/Fosamax)

Australian Guide to Deprescribing

- 1-3 years treatment – 1 fx prevented for every 40-90 pts
- 5 years of on-going of tx with oral agents will have 5 more years of benefit
  - FLEX trial – no difference in non-vertebral fx
  - Increase in vertebral fx (5.3% vs 2.4) NNT 34
- Need good renal function overall and ability to follow directions for oral med

Bisphosphonates

- For describing
  - Those at low risk of falls who have taken them for 5 years
  - <5 year life expectance
  - No previous vertebral fx in the last 5 years
- For continuing
  - High fracture risk with T-score <2.5
  - Monitor with DEXA every 2 years.

Statins

Australian Guides to Describing

- Estimated time to benefit is 2 years
  - NNT 70-130
- Most LDL reduction benefit occurs with a low dose
- No specific studies for those over 80 years old
  - Significantly reduced MI and stroke in older people with high CV risk (without CV disease)
  - PROSPER: 3.2 year follow-up

  MI, CVA 17.4% (statin) vs 21.7% (no statin)

  - It does not prolong life in the short term

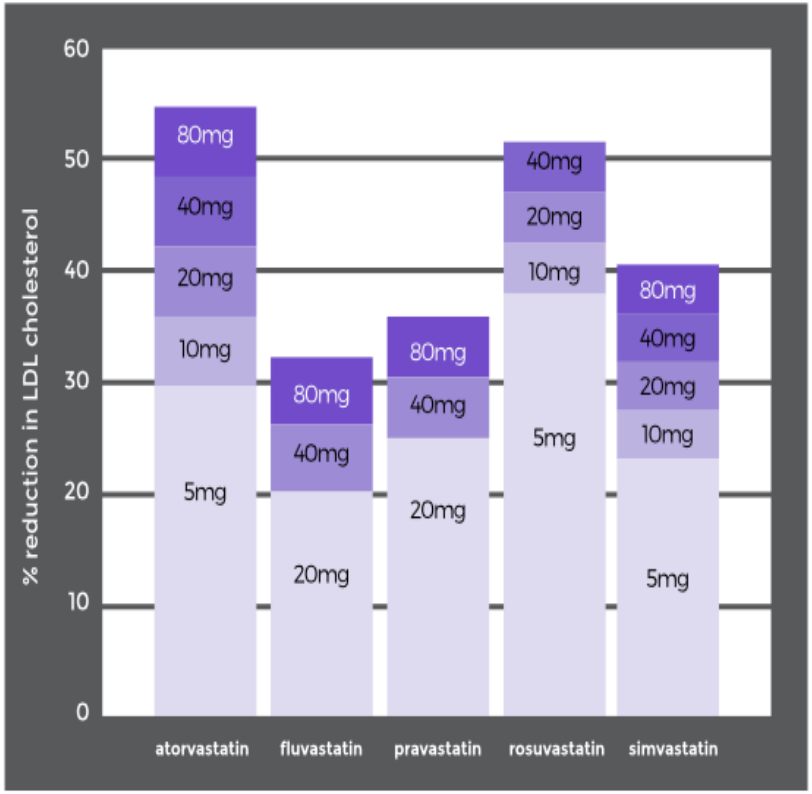


Figure 1: Effects of Statins and their doses[9]

Statins

In Favour of Desprescribing:

- Short Life Expectancy – can improve QoL
- Poor overall functional status
- Low overall cardiovascular risk
- Side effects: muscle aches, lethargy, decreased cognition

- Against Deprescribing
  - Pts that are well with a >5 year life expectancy
  - Those with high CVD risk (diabetes, previous MI, CVA)

Thank You.

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