

Delirium Prevention

Keep Grandma the Way She Was!

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Sharp HospiceCare

Disclosures

- National Hospice and Palliative Care Organization (NHPCO)
- Coalition for the Advancement of Palliative Care (CAPC)
- MCE - CME for Primary Care
- Family Medicine Education Consortium (FMEC)
- Goldblatt IT Systems

Know the harms of anticholinergic and high risk medications in this demographic

Anticholinergic Risk:

Per ACB point there is a 10 – 12% associated risk of

- Falls
- Hospitalizations
- Doctor visits
- Mortality

There is 13% increased risk of being diagnosed with dementia per point.

Also increases rates of institutionalization and hospital LOS

ACB Exposure and Dementia

Copeland, Carol, PhD, et al, Anticholinergic Drug Exposure and Risk of Dementia, 2019 June, JAMA

OR of developing dementia increased from 1.06 to 1.49 based on strength of anticholinergic exposure

Does Anticholinergic Activity Affect Neuropathology? Implication of Neuroinflammation in Alzheimer's Disease

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Does Anticholinergic Activity Affect Neuropathology? Implications of Neuroinflammation in Alzheimer's disease. Yasumasa Yoshiyama, et al, Neurodegenerativ Dis 2015;15:140-48

Source: Williams A, Sera L, McPherson ML. Anticholinergic Burden in Hospice Patients with Dementia. Amer. J Hosp & Pall Med. 2019 36(3):222-227

Table 1. Anticholinergic Cognitive Burden Scoring of Medications.^{a,16}

Score 1	Score 2	Score 3
Alprazolam	Amantadine	Amitriptyline
Atenolol	Badofen	Amoxapine
Bupropion	Cetirizine	Atropine
Captopril	Carbamazepine	Benztropine
Chlorthalidone	Cyclobenzaprine	Chlorpheniramine
Cimetidine	Oxcarbazepine	Chlorpromazine
Ranitidine	Olanzapine	Clozapine
Codeine	Pseudoephedrine	Dicyclomine
Colchicine		Diphenhydramine
Coumadin		Doxepin
Diazepam		Hydroxyzine
Digoxin		Hyoscyamine
Fentanyl		Medizine
Furosemide		Nortriptyline
Fluvoxamine		Olanzapine
Haloperidol		Oxybutynin
Hydralazine		Paroxetine
Hydrocortisone		Promethazine
Isosorbide		Quetiapine
Loperamide		Scopolamine
Metoprolol		
Morphine		
Nifedipine		
Prednisone		
Quinidine		
Risperidone		
Trazodone		
Triamterene		

^aA total Anticholinergic Cognitive Burden scale score of ≥ 3 is considered clinically relevant. Bolded medications were found to be one of the top 5 most commonly prescribed.

Delirium is directly related to the number of medicines prescribed and the number of drug-drug interactions.

Table 2. The Association of Medications with Delirium

Drug Class or Variable	Reference(s)	Relative Risk of Delirium
Type/class of drug		
Sedative-hypnotic drugs	29–31	3.0–11.7
Narcotics	30–33	2.5–2.7
Anticholinergic drugs	29, 33, 34	4.5–11.7
Any psychoactive drug	35	3.9
Number of drugs		
≥2 psychoactive drugs	18	4.5
Adding >3 drugs in 24 hours	18	4.0
2–3 drugs	27	2.7
4–5 drugs		9.3
≥6 drugs		13.7

Inouye, Sharon K, et al, *Delirium: A Symptom of How Hospital Care is Failing Older Persons and a Window to Improve Quality of Hospital Care*, Am J Med 1999; 106: 565-73

Cai, Xueya, PhD, et al, *Chronic Anticholinergic Use and the Aging Brain* 2013 *Alzheimer's Dement* 9(4); 377-85

N=3690

The odds ratio of developing MCI with a 90 day exposure with at least 3 meds with a possible ACB of 1 or 1 med with ACB of 2 or 3 was 2.73

Fox, Chris, MD, et al, *Anticholinergic Medication Use and Cognitive Impairment In the Older Population: The Medical Research Council Cognitive Function and Aging Study*, JAGS 2011, 59; 1477-83

N=8334 x=75.2

After adjusting for multiple variables, use of a medication with definite anticholinergic effects was associated with a 0.33 greater decline in their MMSE score over a 2 year window. The decline was slightly higher if the patient had an ACB score or 4 or greater. The greatest effect was seen on persons with the highest baseline MMSE scores. Under a MMSE of 22 the effect cannot be evaluated due to too small a sample.

Mortality was 20% at 2 years if on an anticholinergic versus 7% if not. For every point increase in ACB above 4 there was a 26% greater chance of death.

Medications which put patients at risk for post-operative delirium

- 1. Diphenhydramine OR 2.3
- 2. Meperidine OR 2.7
- 3. Benzodiazepines OR 3.0

Marcantonio, ER, et al, *The relationship of postoperative delirium with psychoactive medications*, JAMA 1994, 272:1518-22

Table 2

Any and Cumulative Anticholinergic Use During Study Period

Medication Class	All participants (N=3434)		TSDD ^a	
	N ^b	%	Total TSDD filled	% of all TSDD
Antihistamines	2,224	64.8	1,158,404	17.2
Gastrointestinal antispasmodics	1,566	45.6	365,141	5.4
Antivertigo/antiemetics	1,433	41.7	154,488	2.3
Antidepressants	1,352	39.4	4,241,590	63.1
Bladder antimuscarinics	668	19.5	702,825	10.5
Skeletal muscle relaxants	175	5.1	20,274	0.3
Antipsychotics	38	1.1	45,888	0.7
Antiarrhythmic	22	0.6	31,249	0.5
Antiparkinson agents	12	0.3	1,615	0.0
Total			6,721,473	100.0

TSDD Total Standardized Daily Dose

^a A participant's study period included 10 years prior to study entry through the time they were diagnosed with dementia or censored. We summed TSDD for all participants for their entire study period.

^b Number of participants with at least 1 fill for a medication in the category at any time during the follow-up period. Participants may have fills in multiple drug categories so the percentages do not sum to 100%.

Shelly L Gray, PharmD, Et al, Cumulative Use of Strong Anticholinergic Medications and Incident Dementia
JAMA Intern Med. 2015 March 1; 175(3): 401–407. doi:10.1001/jamainternmed.2014.7663

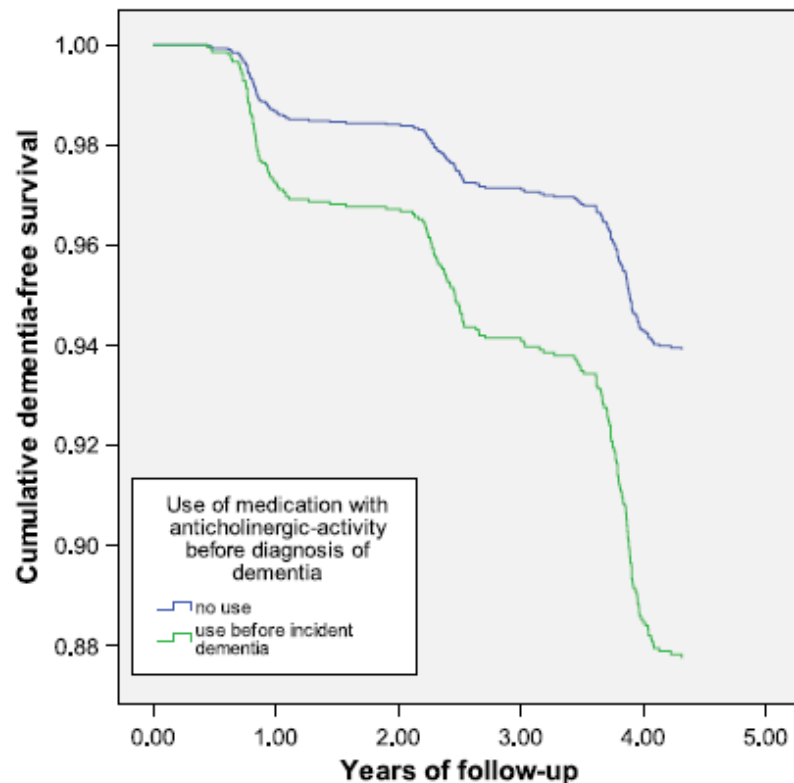


Fig. 1 Dementia-free survival by the use of anticholinergic drugs at any time before dementia diagnosis

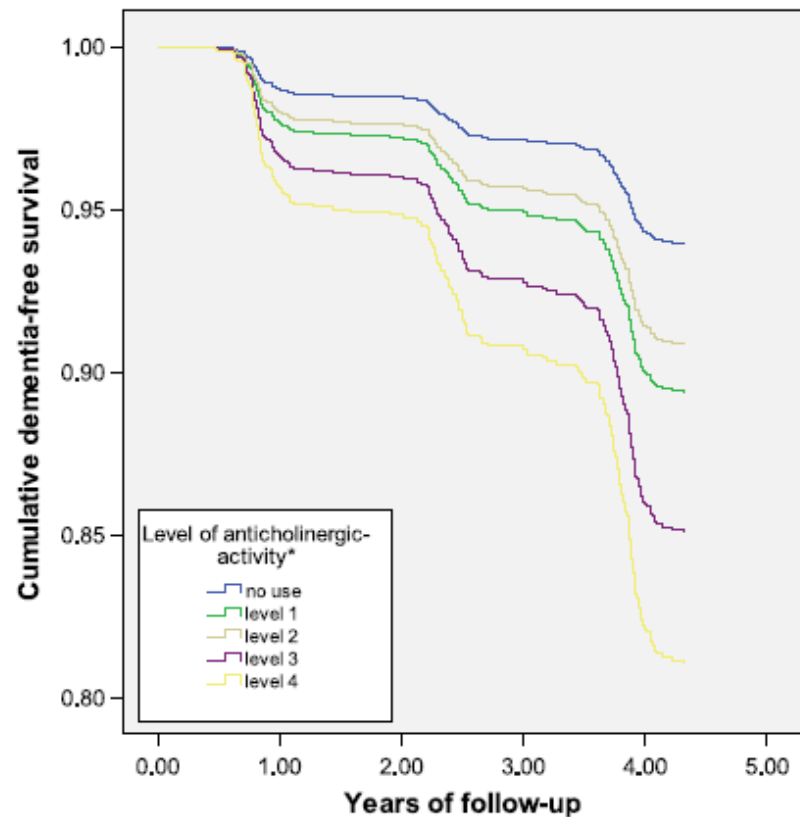


Fig. 2 Dementia-free survival by the level of anticholinergic activity of the drug used before dementia diagnosis. * Anticholinergic activity level [17]

It doesn't matter if you stop the
anticholinergic medication.
The damage appears to be irreversible.

Other Risk Factors for Dementia

1. APOE gene
2. lifestyle

Lee, Susie, MD, et al, *Physical Activity and Postoperative Delirium*, JAGS 2019 67:2260-66

Physical activity was defined by the leisure activity scale. Requires 6 -7 days per week of regular PA.

n=132 41 developed POD (31.1%)

Regular physical activity was associated with a 74% decreased risk of POD.

OR 0.26

However, the benefit was markedly greater for women than men

Women	OR = 0.08
Men	OR = 0.93

Medically Structured Prevention

Marcantonio, Edward R, et al, *Reducing Delirium After Hip Fracture: A Randomized Trial*, JAGS 2001; 49: 516-22

126 = n
X = 79.8

Intervention group received structured geriatric management.

	Delirium	Severe Delirium
Intervention Group	20/62 (32%)	7/60 (12%)
Usual Care	32/64 (50%)	18/62 (29%)

Table 2. Content of the Structured Geriatrics Consultation

Module/Recommendation	Recommended n (%)	Adherence n (%)
1. Adequate CNS oxygen delivery:		
a) Supplemental oxygen to keep saturation >90%, preferably >95%	18 (29%)	18 (89%)
b) Treatment to raise systolic blood pressure >2/3 baseline or >90 mmHg	4 (6%)	4 (100%)
c) Transfusion to keep hematocrit >30%	57 (92%)	45 (79%)
2. Fluid/electrolyte balance:		
a) Treatment to restore serum sodium, potassium, glucose to normal limits (glucose <300 mg/dl, <16.5 mmol/L for diabetics)	23 (37%)	22 (96%)
b) Treat fluid overload or dehydration detected by examination or blood tests	30 (48%)	27 (90%)
3. Treatment of severe pain:		
a) Around-the-clock acetaminophen (1 gram four times daily)	25 (40%)	8 (32%)
b) Early-stage break-through pain: low-dose subcutaneous morphine, avoid meperidine	13 (21%)	8 (62%)
c) Late-stage break-through pain: oxycodone as needed	3 (5%)	2 (67%)
4. Elimination of unnecessary medications:		
a) Discontinue/minimize benzodiazepines, anticholinergics, antihistamines	42 (68%)	35 (83%)
b) Eliminate drug interactions, adverse effects, modify drugs accordingly	13 (21%)	7 (54%)
c) Eliminate medication redundancies	8 (13%)	5 (63%)
5. Regulation of bowel/bladder function:		
a) Bowel movement by postoperative day 2 and every 48 hours	42 (68%)	24 (57%)
b) D/c urinary catheter by postoperative day 2, screen for retention or incontinence	44 (71%)	39 (89%)
c) Skin care program for patients with established incontinence	2 (3%)	2 (100%)
6. Adequate nutritional intake:		
a) Dentures used properly, proper positioning for meals, assist as needed	35 (56%)	23 (66%)
b) Supplements: 1 can Ensure,* 3 cans Ensure* for poor oral intake	22 (35%)	10 (45%)
c) If unable to take food orally, feed via temporary nasogastric tube	1 (2%)	1 (100%)
7. Early mobilization and rehabilitation:		
a) Out of bed on postoperative day 1 and several hours daily	36 (58%)	29 (81%)
b) Mobilize/ambulate by nursing staff as tolerated, such as to bathroom	18 (29%)	13 (72%)
c) Daily physical therapy; occupational therapy if needed	1 (2%)	1 (100%)
8. Prevention, early detection, and treatment of major postoperative complications:		
a) Myocardial infarction/ischemia—electrocardiogram, cardiac enzymes if needed	21 (34%)	17 (81%)
b) Supraventricular arrhythmias/atrial fibrillation—appropriate rate control, electrolyte adjustments, anticoagulation	3 (5%)	3 (100%)
c) Pneumonia/chronic obstructive pulmonary disease—screening, treatment, including chest therapy	27 (44%)	18 (67%)
d) Pulmonary embolus—appropriate anticoagulation	31 (50%)	31 (100%)
e) Screening for and treatment of urinary tract infection	32 (52%)	20 (63%)
9. Appropriate environmental stimuli:		
a) Appropriate use of glasses and hearing aids	3 (5%)	2 (67%)
b) Provision of clock and calendar	0 (0%)	—
c) If available, use of radio, tape recorder, and soft lighting	0 (0%)	—
10. Treatment of agitated delirium:		
a) Appropriate diagnostic workup/management	1 (2%)	1 (100%)
b) For agitation, calm reassurance, family presence, and/or sitter	2 (3%)	2 (100%)
c) For agitation, if absolutely necessary, low-dose haloperidol 0.25–0.5 mg every 4 hours as needed; if contraindicated, use lorazepam at same dose	12 (19%)	10 (83%)

Table 2. Content of the Structured Geriatrics Consultation

1. Adequate CNS oxygen delivery
2. Fluid/electrolyte balance
3. Treatment of severe pain
4. Elimination of unnecessary medications
5. Regulation of bowel/bladder function
6. Adequate nutritional intake
7. Early mobilization and rehabilitation
8. Prevention, early detection, and treatment of major postoperative complications
9. Appropriate environmental stimuli
10. Treatment of agitated delirium

Intervention does matter!

Non pharmacologic nursing delirium prevention programs.

- NICHE program
- HELP program

Delirium Reduction: Sweden

Nursing Staff Education in Delirium Prevention Strategies

n = 400

Age 70 and older

Same admit percentage of delirium cases:

30.2% versus 59.7% remained delirious on day 7

mean LOS 9.4+/- 8.2 days versus 13.4 +/- 12.3 days

(specifically for delirious patients it was 10.8 days versus 17.2 days)

2 deaths in the delirium intervention ward versus 9 in the usual care ward.

Landstrom, Maria, RN PhD, et al, " A Multifactorial Intervention Program Reduces the Duration of Delirium, Length of Hospitalization, and Mortality in Delirious Patients", 2005 JAGS 53: 622-28

HELP Outcomes: China

RTC - Randomized to HELP or Usual care

N=281 Noncardiac surgical patients

X = 74.7

	HELP	Usual Care
Post-op Delirium	4(2.6%)	25 (19.4%)
Decline in ADLs	-5	-10 (p<.001)
Decline in iADLs	-2	-4 (p<.001)
Cognitive Decline SPMSQ	1	8 (p=.009)
LOS	12.15	16.41 (p<.001)*

*China does not have SNF care at the level of the US.

Wang, Yan-Yan, et al, "Effect of a Tailored, Family Involved Hospital Elder Life Program on Postoperative Delirium and Function in Older Adults"; a Randomized Clinical Trial JAMA Int Med 2019, E1-E9

Where did the idea that delirium was 40% preventable come from:

Rate of delirium	intervention	Usual care
	9.9%	15%

Inouye, S, et al, "A Multicomponent Intervention to Prevent Delirium In Hospitalized Older Patients", NEJM 1999, 340(9): 669-676

Intervention areas:

1. Cognitive Stimulation
2. Non-pharmacologic Sleep Protocol
3. Early and often mobilization
4. Visual Assistance
5. Hearing assistance
6. Preventing dehydration

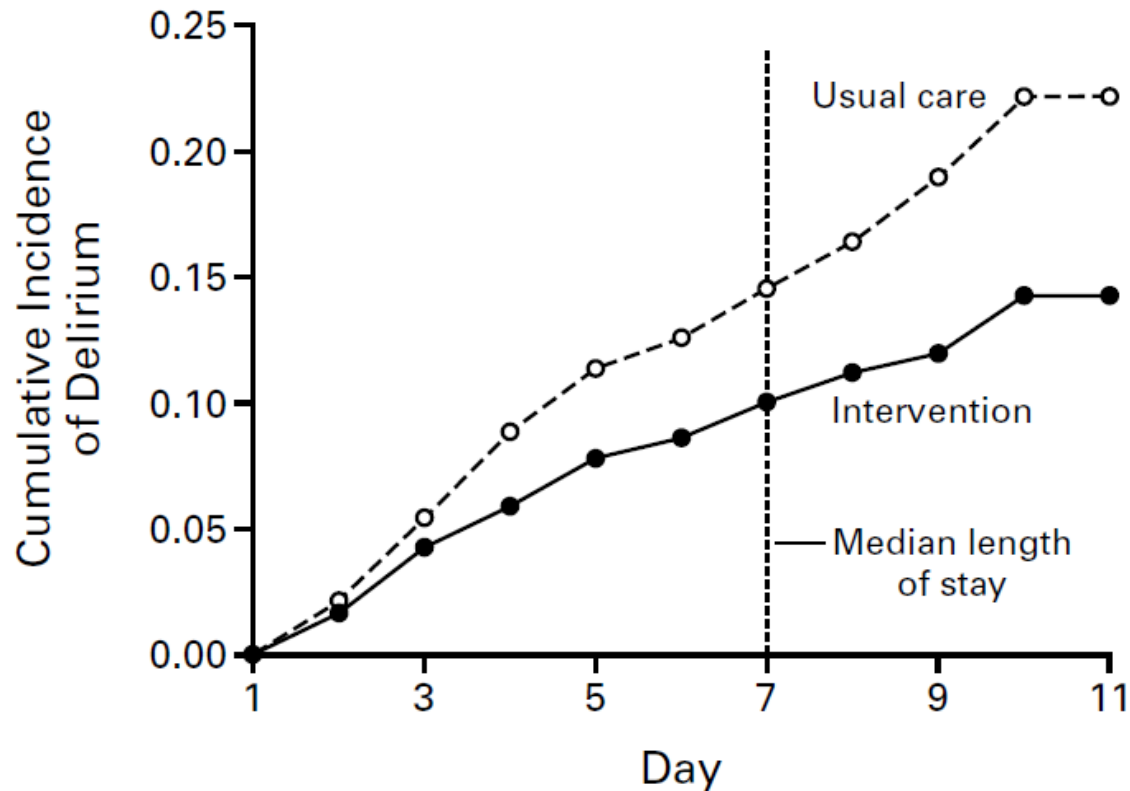


Figure 1. Cumulative Incidence of Delirium According to Study Group.

A Multicomponent Intervention to Prevent Delirium in Hospitalized Older Patients, Sharon K. Inouye, et al. March 4, 1999 N Engl J Med 1999; 340:669-676.

Reorientation for Reducing Delirium In the Critically Ill

22% versus 35% with reorientation protocol

Columbo, R, et al, "A Reorientation Strategy for Reducing Delirium in the Critically Ill. Results of an Interventional Study " Minerva Anestesiol 2012, 78(9): 1026-33

Magaziner, Jay. Et al, *Predictors of Functional Recovery One Year Following Hospital Discharge for Hip Fracture: A Prospective Study*, Journal of Gerontology, 1990; 45(3): M101-07

Age > 65 n = 536

Factors for Weak recovery:

1. Older age
2. Longer Hospital Stay
3. Rehospitalization
4. Acute Cognitive Change - Delirium
5. Chronic Cognitive Change – Dementia

Factors for Weak recovery (cont.)

6. Depressive Symptoms
7. Poor Eyesight
8. Institutional Discharge
9. Major Fall
10. Greater number of Hospital PT Sessions

Literature Review reports 26%-76% of patient never recovery to their previous level of function.

Factors associated with better recovery:

- Reconnecting with One's Social Network
- Strong Association with Recovery and Psychosocial Factors

If a patient is going to recover they will do it within the first 6 months.

Emphasize:

- Family Presence
- Non-pharmacologic sleep protocol - at least 6-7 hours of uninterrupted sleep.
- Mobilize the patient ASAP

Prehabilitation programs

Prevention of HIV starts in the Outpatient arena

Preparing for Your Surgery

At Sharp Rees-Stealy, your health and well-being is our top priority. To help best prepare you for your upcoming surgery, we wanted to provide you with the following information. If you have any questions please be sure to ask your doctor.

Exercise

Exercise before surgery has been shown to improve outcomes and shorten hospital stays.

Discuss with your doctor which exercises you should be doing before your surgery. Your doctor will let you know whether you should be walking, riding a stationary bike, or doing light weightlifting or other resistance training.

Nutrition

It is important to eat an adequate amount of protein. Your blood level of protein is associated with improved outcomes such as quicker wound healing and fewer infections. Even if your blood protein level is normal, the higher the better. Have a can of Ensure® or other protein supplement daily or eat a protein bar daily in addition to your usual diet for at least a month prior to surgery.

Daniel Hoefer, M.D.

Constipation

Preventing constipation is much easier than waiting to treat it. It is important to avoid constipation after your surgery – some patients are readmitted to the hospital just because they are constipated. Increasing the number of bowel movements you have before surgery is helpful. If necessary to do so, take one capsule of MiraLAX® and water daily for two days prior to your hospitalization. If you are scheduled for abdominal surgery, please follow any bowel preparation recommendations your surgeon may have given to you.

Your hospital stay

Having friends and family stay with in the hospital with their loved one has been shown to help patients stay oriented and be able to go home sooner. Please consider this option.

Plan for your discharge from the hospital

It is better for you long term if you recover at home after leaving the hospital. Before your surgery, talk to your doctor about any equipment or supplies, as well as help from family or friends that you may need when you return home.

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Medications

If you are currently taking any medications, your doctor will let you know if you need to make any changes. It is especially important to avoid antihistamines and many other over-the-counter medications, which can worsen how well you do. (Examples include Tylenol® PM, Benadryl®, Unisom®, etc.). Please let your doctor know what over-the-counter medications you are taking. If you want to take an over-the-counter sleeping aid, melatonin is a reasonable choice.

Water consumption

It is important to drink enough water that you need to urinate every three hours for two days before surgery. Follow pre-surgery instructions so you know when to stop drinking liquids. Avoid caffeine and alcohol.

SHARP Rees-Stealy
Medical Group

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Delirium Prevention for General Hospital Admissions

Author	Results	Ancillary Findings	Dose	Comment
Kotoro, H MD PhD	3%(c) vs 33%(s)		Remalteon (Rozerom) 8m qhs	All admissions
Feb 2014 JAMA Psych				(>64 yo)
Al- Aama, Tareef	12.0 (c) vs 31%.0 (s)		Melatonin 0.5mg daily	All admissions
Inter J Ger Psych 2011			For 14 days or until discharge	(>64 yo)
Okamoto, Y MD, Phd	Too small a study		Trazadone	Further research needed
J Clin Psychopharm 1999				

Delirium Prevention for Surgical Patients

TABLE 1. Description of Studies Included for Analysis

Delirium Prophylaxis with Antipsychotics

Author (Date) Country	Description of Study		Control Group		Intervention Group		Outcomes	
	Study Setting	Intervention	Total (n)	Delirium (n)	Total (n)	Delirium (n)	% Retained	Intervention Outcomes
Prakanrattana and Prapaitrakool (2007) Thailand	Elective cardiac surgery with use of cardiopulmonary bypass, ages >40 years	Risperidone 1 mg po (ODT) in ICU at the moment of emergence from anesthesia (one dose total)[1.4 OHE*/d]	63	20	63	7	100	Incidence of delirium was significantly reduced from 31.7% to 11.1% (NNT 4.85), severity of delirium was significantly lower in the treatment group
Larsen et al. (2010) United States	Hip/knee replacement, ages >65 years or <65 if already had history of delirium	Olanzapine 5 mg po (ODT) preoperatively and postoperatively (2 doses for total 10 mg po) [4 OHE*/d]	204	82	196	28	80.8	Incidence of delirium was significantly reduced from 40.2% to 14.3% (NNT 4), more patients discharged to home rather than to another institution

Prophylaxis with Antipsychotic Medication Reduces the Risk of Post-Operative Delirium in Elderly Patients A Meta-Analysis; Polina Teslyar, M.D., Psychosomatics 54:2, March-April 2013

Delirium Prevention for Surgical Patients

Delirium Prophylaxis with Antipsychotics

								institution
Kalisvaart et al. (2005) The Netherlands	Hip surgery with patients moderate to high risk for delirium (excluded low risk), ages >70 years	Haloperidol 1.5 mg/d po, for 1 to 6 days, preoperatively and postoperatively (at 0.5 mg po tid) + non-pharmacologic intervention for all subjects	218	36	212	32	91.9	No statistically significant reduction of delirium incidence (16.5% vs. 15.1%), however among those who did become delirious, there was a reduction in duration and intensity
Kaneko et al. (1999) Japan	Gastrointestinal surgery, mean age >70 years	Haloperidol 5 mg IV daily for 5 days [10 OHE*/d]	40	13	38	4	100	Incidence of delirium was significantly reduced from 32.5% to 10.5% (NNT 4.55)
Wang et al. (2012) China	Noncardiac surgery, ages >65 years	Haloperidol 1.7 mg IV post operatively + non-pharmacologic intervention for all subjects [3.4 OHE*/d]	228	53	229	35	100	Incidence of delirium was significantly reduced from 23.2% to 15.3% (NNT 12), length of stay in ICU reduced in treatment arm, time to onset of delirium, and delirium free days increased in treatment arm

* OHE = oral haloperidol equivalents.^{27,28}

Prophylaxis with Antipsychotic Medication Reduces the Risk of Post-Operative Delirium in Elderly Patients A Meta-Analysis; Polina Teslyar, M.D., Psychosomatics 54:2, March-April 2013

Dexmedetomidine

IV Acetaminophen

18 studies for patients 18 years of age and older
Meta-analysis showed a significant reduction in POD

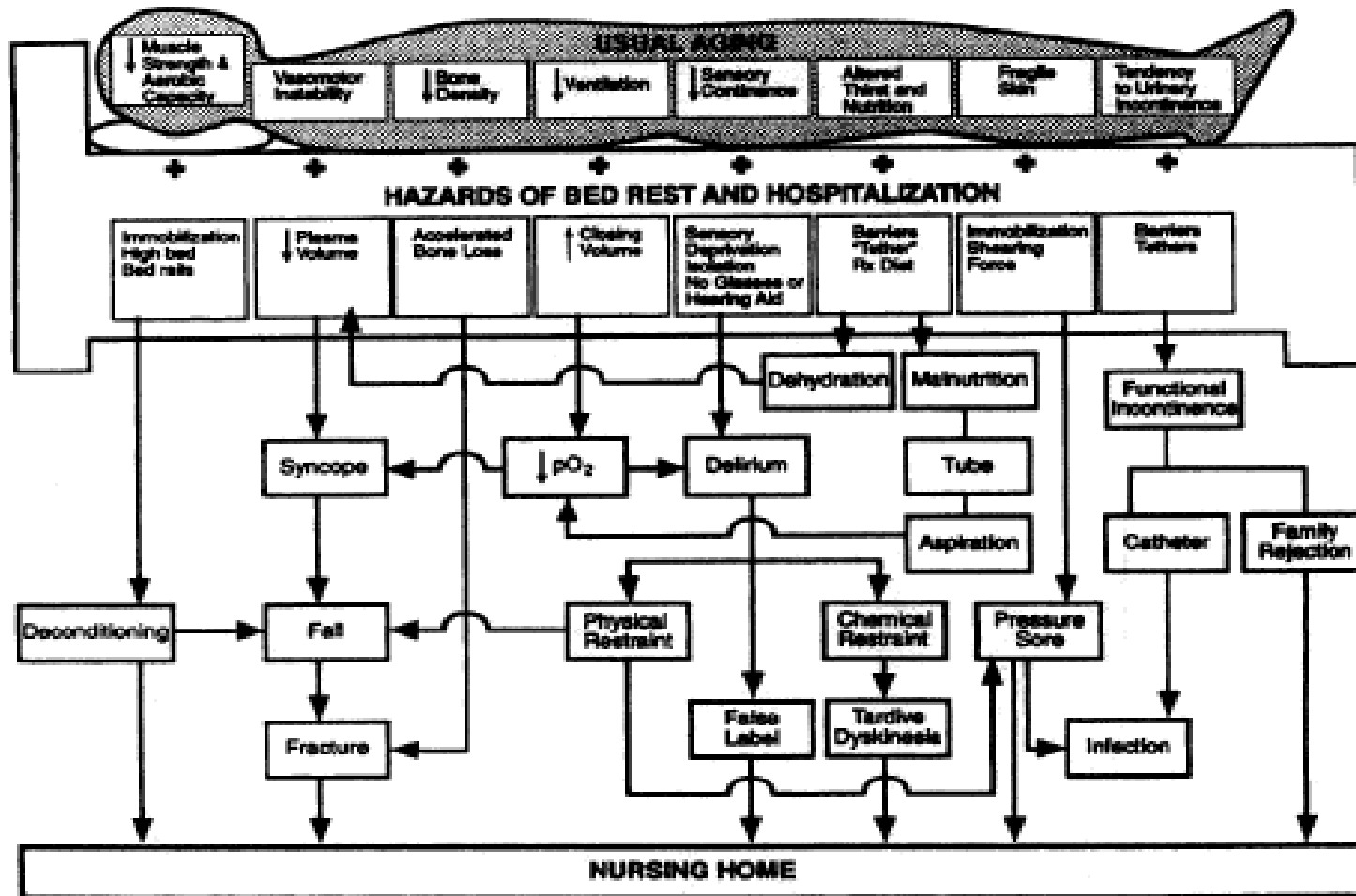
Cardiac Surgery OR = 0.41

Non-cardiac Surgery OR = 0.33

Duan, X, et al, *Efficacy of perioperative dexmedetomidine on post-operative delirium: systematic review and analysis with trial sequential analysis of randomized controlled trials*, British Journal of anesthesia 2018, 121(2); 284-97

“What happens in the nursing home?”

Cascade of Dependency



Creditor, Morton C, MD, *Hazards of Hospitalization of the Elderly*, 1993, *Annals of Intern Med*, 118:219-223

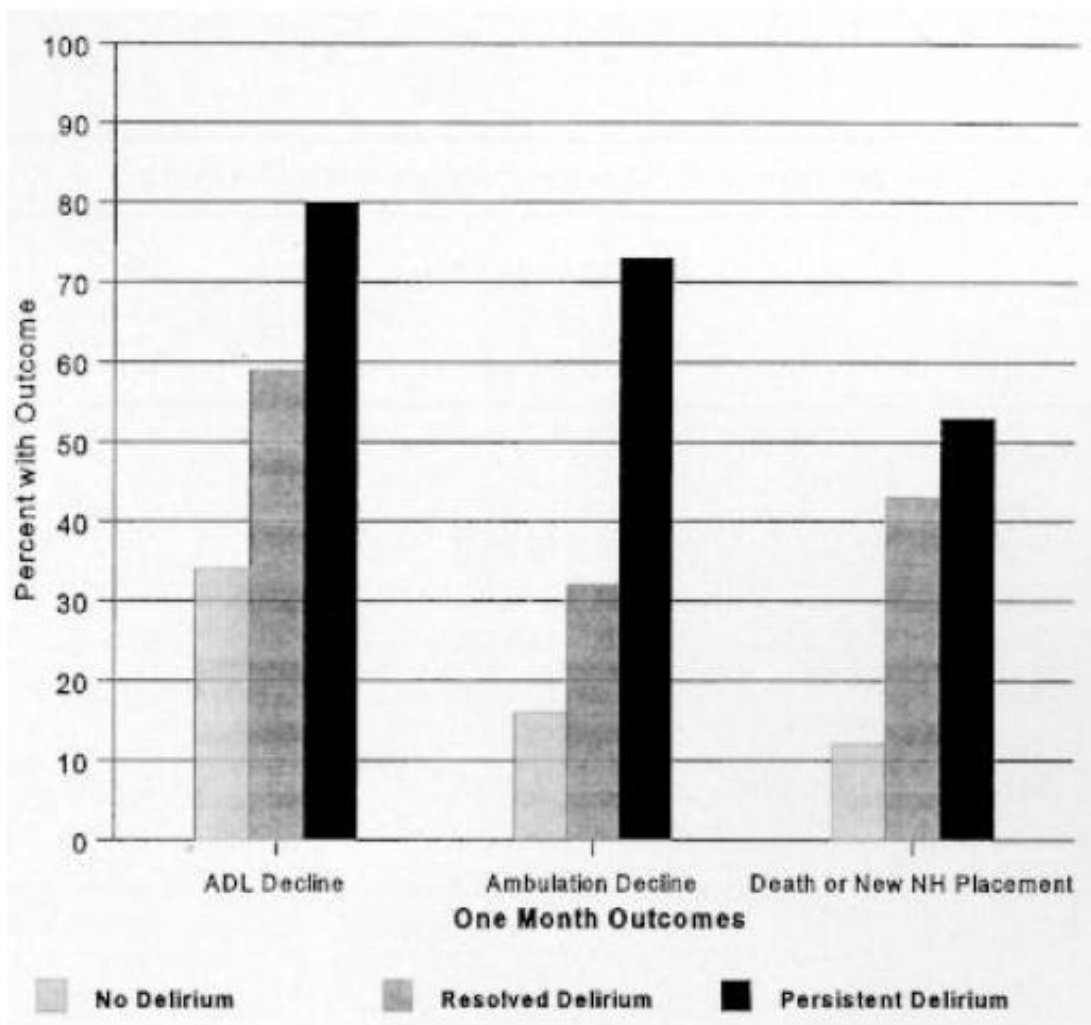


Figure 1. Comparison of outcomes in patients with no delirium, resolved delirium, and persistent delirium at 1 month. All differences are significant at $P < .001$ using the chi² test for trend. ADL = activities of daily living; NH = nursing home.

Marcantonio, Edward, R MD, et al, *Delirium Symptoms in Post-Acute Care: Prevalent, Persistent and Associated with Poor Functional Recovery*, JAGS, 2003; 51(1): 4-9

N = 551

85 post-acute facilities:

1. 55 rehab facilities
2. 30 Skilled Nursing Facilities

Prevalence of delirium on admission was 23%: 1 week later

1. 14% resolved
2. 22% had fewer symptoms
3. 52% had the same number
4. 12 % had more

Of those with no symptoms on admission 4% had new symptoms at 1 week

Patients with the same or worse delirium symptoms had significantly worse ADL and IADL recovery than those with fewer, resolved or no symptoms. This was adjusted for multiple comorbidities.

Persistent or worse delirium patients showed **little or no functional improvement.**

Table 3. Patients' living conditions before admission, on discharge and 6 months after the fracture related to delirium

	Nondelirious (n = 39)	Delirious (n = 15)
Independent living		
On admission	26	7
On discharge	26	4
At 6 months	24	1
Living in an institution		
On admission	13	8
On discharge	13	10
At 6 months	11	10
Mortality		
During hospital stay	0	1
At 6 months	4	4

Table 4. Patients' use of walking aids before the fracture, on discharge, and 6 months after the fracture in nondelirious and delirious patients

	Nondelirious (n = 39)	Delirious (n = 15)
No walking aids		
Before the fracture	19	4
On discharge	0	0
At 6 months	5	0
Walking stick, crutch		
Before the fracture	3	1
On discharge	5	0
At 6 months	7	0
Roller walker		
Before the fracture	17	8
On discharge	30	10
At 6 months	20	6
Bedridden or chair-bound		
Before the fracture	0	2
On discharge	4	4
At 6 months	3	5

Marcantonio, Edward R, MD, SM, et al, *Outcomes of Older People Admitted to Postacute Facilities with Delirium*” JAGS, 2005; 53:963-69

Community	Complications	30 Day rehospitalizations	Discharge to PAC	6 mo mortality
Delirium	73%	30%	30%	25%
Subsyndromal Delirium (intermediate results)				18.3%
No Delirium	41%	13%	73%	5.7%

Complications: falls, pressure ulcers, urinary retention, fecal impaction, aspiration, malnutrition.

Also more likely to develop: PNA, UTI, MI, CHF, COPD exacerbation, Arrhythmia, CVA, GIB or Temp > 101F

PEARL:

Hypoactive delirium is frequently
mistaken for Depression

41.8%

of inpatient referrals to psychiatry for depression were actually
diagnosed with delirium

Table 1. Characteristics of depression, delirium and dementia

	Depression	Delirium	Dementia
Onset	Weeks to months	Hours to days	Months to years
Mood	Low/apathetic	Fluctuates	Fluctuates
Course	Chronic; responds to treatment.	Acute; responds to treatment	Chronic, with deterioration over time
Self-Awareness	Likely to be concerned about memory impairment	May be aware of changes in cognition; fluctuates	Likely to hide or be unaware of cognitive deficits
Activities of Daily Living (ADLs)	May neglect basic self-care	May be intact or impaired	May be intact early, impaired as disease progresses
Instrumental Activities of Daily Living (IADLs)	May be intact or impaired	May be intact or impaired	May be intact early, impaired before ADLs as disease progresses

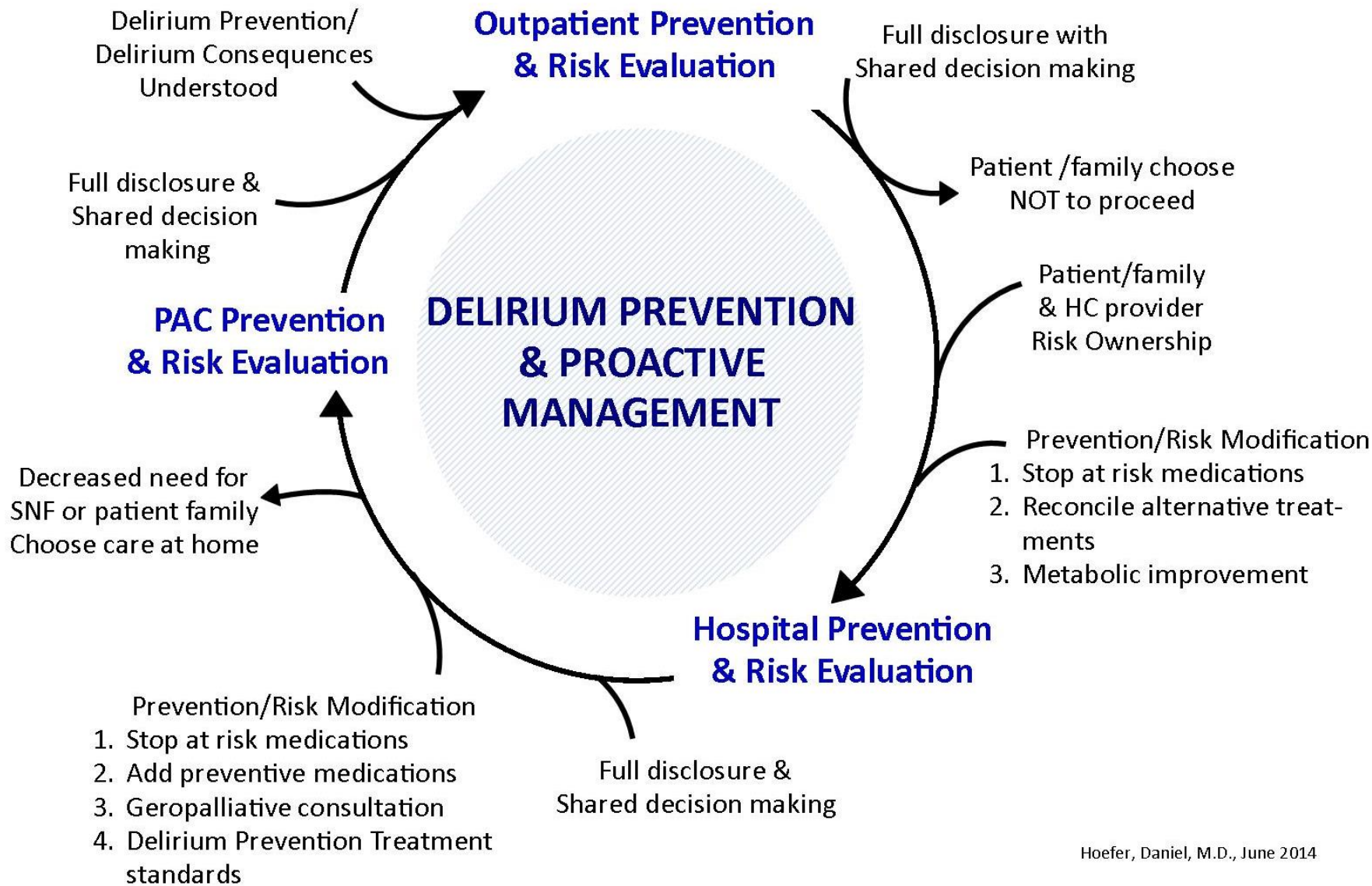
Differentiating among Depression, Delirium, and Dementia in Elderly Patients, Jane P. Gagliardi, MD, *Virtual Mentor*. 2008;10(6):383-388. doi: 10.1001/virtualmentor.2008.10.6.cprl1-0806.

PEARL:

**You Cannot Make the
Diagnosis of Dementia
in the Hospital!**

PEARL:

**Treating delirium as
depression can be harmful**



Hoefer, Daniel, M.D., June 2014

Thank you!