Rocky Mountain Hospital Medicine Symposium

Curbside Confidential
Addressing Common Geriatric Medicine Issues

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Disclosures

- None

Curbside Confidential

- **Learning Objectives**
  - **Outline blood txn guidelines & optimal iron supplementation approaches in older adults**
  - **Describe approaches to ↓/manage delirium**
  - **Manage pain in older adults**
  - **Identify medications to avoid in older pts**

Consult Re: Blood Loss and Iron Deficiency Anemia in Older Adults

- **How should I apply transfusion threshold guidelines in older adults, and when and how is it best to provide iron supplementation?**

- **A 75-year-old woman falls and suffers a hip fracture. S/P hip repair her Hgb drops from 12 pre-op to 8. PHM: HTN & DM w/o known cardiovascular dz. She feels fine save for mild fatigue. What do you recommend for her anemia?**

A) Fe So4 325 mg QD

B) Fe So4 325 mg BID

C) Fe Gluconate 325 mg QD

D) Transfuse 1 U PRBC

Excessive iron supplementation is one of my pet peeves

- **What do you recommend for her anemia?**

A) Fe So4 325 mg QD – 65mg elemental iron (EI)

B) Fe So4 325 mg BID – marginal benefit BID dose

C) Fe Gluconate 325 mg QD – 37.5mg EI

D) Transfuse 1 U PRBC – no s/s to warrant txn
- 2016 US guideline: txn threshold Hgb 8g/dL for pts having orthopedic or cardiac surgery or preexisting cardiovascular dz (o/w 7g/dL)

AABB RBC Txn Guidelines JAMA 2016;316:2025-35

AABB Recommendations for Txn Thresholds

Population	Txn threshold	Level of Rec	Rationale
Most hospitalized adults, including critically ill	7g/dL	Strong	No harm w/restrictive threshold, trend toward lower 30d mortality
• Ortho surg • Cardiac surg • Known CV dz	8g/dL	Strong	Trials in these pts used 8g/dL as restrictive cutoff rather than 7g/dL
ACS	• AABB ? • ACP 7-8 • British 8-9 • Eur CV 7	NA from AABB	Weak evidence suggests benefit from liberal transfusion cutoff in ACS

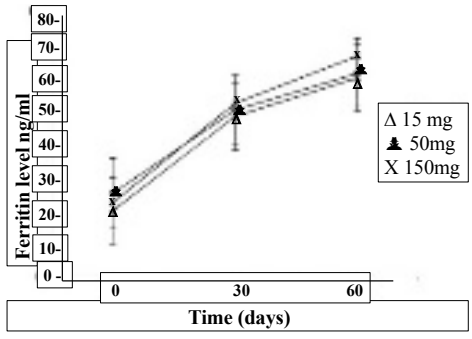
Is Low Dose Elemental Iron The Way to Go in Older Adults?

- **RCT 90 inpts age 80+ w/iron deficiency anemia**
- **Elemental iron*: 15 mg or 50 mg of liquid ferrous gluconate, or 150 mg of ferrous calcium citrate**
- **60 day f/u: Hgb ↑ $\bar{x}$ 1.4 g/dL, Ferr ↑ $\bar{x}$ 40**
- **No difference in rise in hemoglobin or ferritin levels between groups over 60 days**

*** Elemental iron (EI): FeSo4 325mg = 65mg EI, FeGluconate 325mg = 37.5mg EI**

Am J Med 2005;118: 1142-47

Variable dose iron effect on ferritin



Is Low Dose Iron The Way to Go in Older Adults?→ YES!

- Significantly less adverse effects w/lower dose
- Dose 15mg vs 50mg vs 150mg

Abd discomfort	20%	60%	70%
Nausea/vomiting	13%	36%	67%
Constipation	0%	10%	23%
Black Stool	0%	30%	67%
Dropout	7%	17%	27%

Am J Med 2005;118: 1142-47

Iron Repletion in the Elderly

- Side effects of iron may lead to noncompliance
- ↓ absorption if on PPI, take w/OJ or Vit C may ↑
- If can't take/tolerate oral iron → IV rx of choice may be ferric carboxymaltose (injectafer, ferinject)
  - can dose 750mg single dose over 15 minutes
  - may repeat in 7+ days if needed
  - simpler than iron sucrose (venofer) 200mg qd x 5d

Consult Re: Blood Loss and Iron Deficiency Anemia in Older Adults

- How should I apply txn threshold guidelines in older pts, and when & how is it best to provide iron supplementation?

✓ Txn: asxm pt 7g/dl most older adults
- use 7-8g/dL in pts w/chronic CV dz, or pts undergoing ortho or cardiac surg

✓ Iron: IV may be best, if oral → low dose, qd

Speaker Rant: 3 Meds I hate in older pts

- Iron more than once daily (or w/PPIs)
  - Marginal, if any, gain BID/TID iron
  - ↑ adverse GI effects
- Muscle relaxants
  - Sedating, anticholinergic, falls/fx, ?'able efficacy
- Megestrol acetate (Megace)
  - minimal effect on wt, takes months, ↑ thrombotic events, possibly ↑ death

Beers Criteria for Potentially Inappropriate Medication Use in Older Adults J Am Geriatr Soc 2012:60:616 & 2015;63:2227

Consult Re: Sleep problems in hospitalized older adults

- Which, if any, medications for insomnia might be considered and which should be avoided in older hospitalized pts?

Sleep problems in hospitalized older adults

- 81 yo M is hospitalized w/PNA. PMH: HTN & MCI. Meds: hctz & donepezil. Pt c/o poor sleep despite no VS after 10p, quiet environment, & hs milk last night. He requests med rx be available for use tonight

Which of the following sleeping meds might lower this pt's risk of developing delirium?

a) Ramelteon
b) Diphenhydramine
c) Melatonin
d) Suvorexant
e) Zolpidem

Sleep problems in hospitalized older adults

Which of the following sleeping meds might lower this pt's risk of developing delirium?

a) Ramelteon

b) Diphenhydramine

c) Melatonin

d) Suvorexant

e) Zolpidem

Sleep problems in hospitalized older adults

- Non-pharmacologic approach best
  - limited VS, quiet environment, sleep hygiene
- Pharmacologic rx that likely ↑s delirium
  - diphenhydramine, short-acting benzo[s]

J Am Geriatr Soc 2013;61:923

- Melatonergic pathway may be r/t delirium
  - RCTs melatonin mixed, largest in hip fx pts (-)
    - *s/p hip fx* (-): 30% melatonin 3mg vs 26% plcbo
    - *med ward pts (+)*: 11% mltn 0.5mg vs 31% plcbo
    - *elective THA* (+): 9% melatonin 5mg vs 33% plcbo

CMAJ 2014;186:E547 Mol Neurobiol July 2015 PMID 26189834

Sleep problems in hospitalized older adults

- Ramelteon 8mg
  - Melatonin agonist
  - FDA approved tx insomnia (difficulty falling asleep)
- RCT to prevent delirium
  - 67 med ward/med ICU pts, mean age 78
  - Delirium incidence: 3% vs 32%, ARR 29%, RR 0.09
  - No clinical outcome data
  - MOA? – no clear improvement in sleep

JAMA Psychiatry 2014;71(4):397

Sleep problems: Other med rx considerations

- **Whats new? --- Suvorexant (Belsomra)**
  - **FDA-approved 8/14: difficulty falling/staying asleep**
  - **Orexin receptor antagonist suppresses wake drive**
  - **marginal impact on sleep, potential serious ADEs (eg, sleep paralysis, ↓ balance, "mild cataplexy"**

    ***Neurology* 2012;79:2265**
- **Trazodone 25-100mg**
  - **Limited data that comparable to zolpidem effects on sleep latency/efficacy but effects NS at 2 wks**
  - **Case series (7 pts) that trazodone ↓ delirium**

    JAMA 2013;309:706

Sleep problems in hospitalized older adults

- **Which, if any, medications for insomnia might be considered and which should be avoided in older hospitalized pts?**

  ✓ **Non-pharm strategies best**

  ✓ **Med Rx: Ramelteon 8mg or melatonin 0.5-5mg**

  ✓ **Avoid: benzo's & diphenhydramine > trazodone**

Consult: When, if, & how to use antipsychotics in older pts w/delirium

- **When is the use of an antipsychotic appropriate in the management of an older adult with delirium?**

Management of agitated delirium in older pt

- **An 83 yo M falls & fx's hip. S/P ORIF confusion increases and pt c/o pain. APAP scheduled + oxycodone prn ordered. Agitation ↑ thru the night, pt striking out against sitter, pulled out IV and constantly trying to get OOB.**

The most appropriate intervention at this time is?

1) **Soft restraints**
2) **Haloperidol**
3) **Lorazepam**
4) **Stop oxycodone**
5) **Donepezil**

Antipsychotics in older pts w/delirium

- **The most appropriate intervention at this time is?**

1) **Soft restraints – can ↑ agitation, safety risk**
2) **Haloperidol**
3) **Lorazepam – never 1st line unless benzo or etoh w/d**
4) **Stop oxycodone – adequate pain control vital**
5) **Donepezil – RCTs for prevention and/or tx (-)**

AGS 2014 Guideline for Postoperative Delirium in Older Adults

- **When to consider antipsychotics**
  - **to treat severely agitated or distressed pts *who***
  - **are threatening substantial harm to self and/or others, *and***
  - **behavioral interventions have failed or are not possible**
- **Use the lowest effective dose for the shortest possible duration --- lets operationalize that**

J Am Geriatr Soc 2015; 63:142

Pharmacologic Treatment - ICU

- **Haloperidol is the preferred rx for delirium in critically ill patients. (Grade C recommendation)**

Dose: Haloperidol 2 mg q20 min while agitation persists

OR

Degree of Agitation	Initial Dose Haloperidol *PO, IM or IV*
Mild*	0.25-2mg
Moderate	2-4mg
Severe	4-8mg

***or elderly pt**

Jacobi et al. Crit Care Med 2002; 30(1):119
Inouye et al Delirium in elderly. Lancet 2014:383;911-922

Pharmacologic Treatment - ICU

Haloperidol Maintenance Dosing Dose:

- **50% of total loading dose is the daily maintenance dose divided every 6-8 hours**
- **Continue maintenance dose for 24-48 hours**
- **Assess for akathisia and extrapyramidal effects**
- **Monitor for EKG Δs (QT interval ↑ & arrhythmias)**

Taper

- **Taper maintenance dose by 20-30% daily to d/c**

Jacobi et al. Crit Care Med 2002; 30(1):119

Pharmacologic Tx Example - ICU

	Haloperidol Administration
Control	Moderate-Severe Agitation 2:00AM – 2mg IV 2:30AM – 2mg IV 3:00AM – 2mg IV 3:30AM – Agitation controlled
Maintain	Order 1mg TID IV or PO x 24 hrs. Keep daily dose for 24 – 48 hrs.
Taper	0.5mg PO TID for 24 hrs, then DC

Jacobi et al. Crit Care Med (2002); 30(1):119

Delirium Management
Pharmacologic approaches

- Exception to haloperidol
  - PD or EPS → quetiapine 25-100mg 1-2x/d
  - General rule: 1mg haloperidol ≈ 100mg quetiapine
- Gen NOT benzos unless benzo or Etoh withdrawal

J Gen Intern Med 2009;24(7):848 Lancet 2014;383:911

AGS 2014 Guideline for Postoperative Delirium in Older Adults

Other key points

- Prevention is the best approach
- Optimize pain management (preferably w/nonopioids)
- Med w/u if occurs: meds > infxn > metabolic > other
- Multicomponent nonpharmacologic interventions should be administered to all at-risk older adults to prevent delirium --- lets operationalize that

J Am Geriatr Soc 2015; 63:142

Delirium Prevention

Multi-Component Interventions To Prevent Delirium

Risk Factors	*Six EBM Interventions*
Cognitive Impairment	Orientation protocol
Sleep Deprivation	Sleep enhancement
Immobility	Early mobility, ↓ lines/foley
Visual Impairment	Glasses, vision correction
Hearing Impairment	Hearing protocol
Dehydration	Hydration protocol, close f/u

JAMA Intern Med 2015:175:512

Delirium Management Non-pharmacologic approaches

- Multifactorial approach is most successful because multiple factors contribute to delirium
  - frequent orientation (where they are, why, etc)
  - optimize sensory input (& windows/outside light)
  - reduce lines/catheters, etc
- Provide "social" restraints: sitter or family in room
- Avoid physical or pharmacologic restraints

J Gen Intern Med 2009;24(7):848

Consult Question: Anticoagulants and antiplatelet agents

- Should aspirin be stopped when anticoagulants are started for AF or VTE in older adults with stable CAD?

Know the Troublesome Meds: Emergency Hospitalizations for Adverse Drug Events (ADEs) in Older Americans

- National electronic ADE surveillance 2007-09
- Hospitalization rates after ED visits for ADEs
- Pts age 65+ had 100,000 admits/yr d/t ADEs
- Four meds/classes causes 2/3 of the mayhem
  - Warfarin 33% - oral antiplatelet drugs 13%
  - insulins 14% - oral hypoglycemics 11%
- "high risk" meds implicated in only 1% of admits
- Lets address anticoagulation & antiplatelet issues

NEJM 2011;365:2002-12

An 87 yo F w/stable CAD, HTN, CKD (eGFR 30), hx iron deficiency (2014, declined GI w/u) falls → hip fx

Meds PTA: ASA 81mg, metoprolol, lisinopril, atorvastatin, omeprazole

Course: 3 wks post-op develops DVT, LMWH started

Question: The best approach to manage her anticoagulant & antiplatelet indications is:

1) **Warfarin and continue ASA for CAD**
2) **Warfarin and stop ASA**
3) **Dabigatran and stop ASA**
4) **Caval Filter (anticoag too risky)**

Anticoag + Antiplatelet rx in Elderly

The best approach to manage her anticoagulant & antiplatelet indications is:

1) **Warfarin and continue ASA for CAD**
2) **Warfarin and stop ASA - warfarin (and likely Xa inhibitors) provides cardioprotection in stable CAD, combo anticoag + antiplatelet agent more than doubles bleed risk w/o clear additional benefit**
3) **Dabigatran and stop ASA – age, CKD, & may not be cardioprotective make thrombin-inhib rx poor choice**
4) **Caval Filter (anticoag too risky)**

Anticoag + Aspirin in Elderly: Oil and Water?

Benefits: Warfarin and ischemic heart dz

1^0 prevention: Warfarin ↓ angina > ASA in ↑ risk pts
Arch Intern Med 2002;162:881

2^0 prevention CAD pts: Warfarin INR 2-3 vs control

- **Mortality risk ↓ 18% (95% CI, −6% to 37%)**
- **MI risk ↓ 52% (95% CI, 37%-64%);**
- **Stroke risk ↓ 53% (95% CI, 19%-73%)**

JAMA 1999;282:2058-2067

2^0 prevent s/p MI RCT: W INR 2.8-4.2 vs ASA 160mg

- **W ↓ reinfarction 26%, CVA 48%, mortality NS Δ**

NEJM 2002; 347(13):969

Anticoag + Aspirin in Elderly: Oil and Water?

- **"… one can infer that OAC alone targeted to an INR of 2-3 can provide substantial protection against recurrent CAD**

  Chest 2012;141;531S

- **Xa inhibitors – had similar MI event rates as warfarin in RCTs for AF & VTE**

- **Direct thrombin inhibitor dabigatran had signal of ↑ MI rates vs warfarin**

Anticoag + Aspirin in Elderly: Oil and Water?

Risks: Warfarin + aspirin vs warfarin alone

- **Kaiser cohort study: 2500 pts W vs 1600 pts W + ASA**
  - **OR_{adj} hemorrhagic events: 2.75 (95% CI 1.44 - 5.28)**
  - **OR_{adj} coronary events 0.99 (95% CI, 0.37- 2.62)**

  ***Chest* 2008;133:948-954**

- **"There is a cost to adding aspirin to OAC… a doubling of bleeding risk"**

  Chest 2012;141;531S

DOACs + Aspirin in Elderly: Oil and Water?

- **Canadian Recs re: direct oral anticoagulants for stroke prevention in A Fib (Sept 2015)**
  - **Adding aspirin to DOACs doubles bleeding risk**
  - **Routine addition of ASA is discouraged d/t doubles bleeding risk w/o added benefit for ↓ stroke or MI**
  - **Exceptions: mechanical valves, ACS, recent stents**
- **For pts on DOACs + antiplatelet rx, reassess indication & if the antiplatelet rx provides sufficient incremental benefit to warrant the definite increased bleeding risk**

  Ann Intern Med 2015;163:382

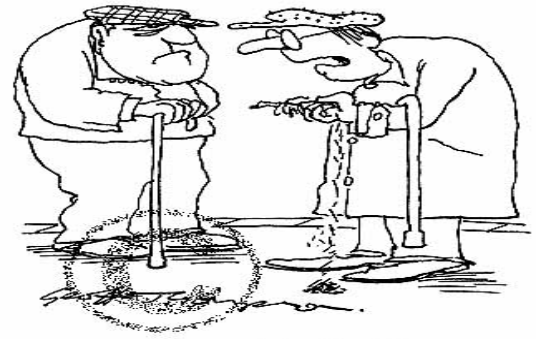
Weigh Risks & Benefits Carefully

- **Case F/U: warfarin added, ASA continued, Hct drop 29 to 20 w/retroperitoneal bleed.**
- **Conclude: Carefully weigh need to continue antiplatelet rx in elderly pts with new indication for coumadin or DOAC (eg, new AF, DVT, P.E.)**
- **Caveats: Pertinent to stable CAD, n/a to pts w/ACS, s/p recent stents, etc**
- **TBD: Anticoag + DAPT after PCI/DES may be no better than AC + clopidogrel but ↑ bleed risk - be esp leery of DAPT + anticoag in the elderly**

Anticoagulants and antiplatelet agents

- **Should aspirin be stopped when anticoagulants are started for AF or VTE in older adults with stable CAD?**
- **Yes unless compelling reasons to remain on ASA**

Pain Management in Older Adults



"I have awful touble with my joints, the cannabis keeps falling out."

Consult: Pain management in older adults

- **Which pain meds & pain reduction approaches are best for my older pts?**

Managing pain in older adults

- **An 82-yr-old woman is seen for persistent dull, non-radiating, low back pain that is limiting function**
- **PMH: osteoarthritis hips & knees, osteoporosis, CKD 3, PUD w/UGIB when on NSAIDs**
- **Oral acetaminophen 1000 mg q6h ↓'s pain for a short time but pt reports inadequate relief**
- **The patient follows her physical therapy regimen**

Pain Management in the Elderly

Which of the following is the most appropriate agent to add at this time?

(A) oxycodone 5mg q4hr prn

(B) ibuprofen 600 mg TID w/PPI

(C) duloxetine 30mg daily

(D) long-acting morphine 15 mg q12h

Pain Management in the Elderly

Which of the following is the most appropriate agent to add at this time?

(A) oxycodone 5mg q4hr prn – SNRI and/or tramadol 1st

(B) ibuprofen 600 mg TID w/PPI – PUD, CKD, Beers

(C) duloxetine 30mg daily

(D) long-acting morphine 15 mg q12h – opiate naive

Pain Management in the Elderly

- **Pain is common in the elderly**
- **Pain is under-recognized and under-treated**
- **Oldest-old & cognitively impaired pts are at highest risk for undertx of pain**
- ***However*, newer guidelines rec avoid opiates for chronic non-cancer pain unless all other tx approaches fail**
- ***And Geriatric recs* strongly advise against chronic NSAID use unless all other approaches fail**

2015 Beers List: J Am Geriatr Soc 2015;63:2227

Duloxetine for Osteoarthritis?

- **Meta-analysis duloxetine vs other oral rx after APAP failure for osteoarthritis related pain**
  - **Duloxetine vs oral NSAIDS, tramadol, opioids**
  - **No significant difference between duloxetine and other post-first line oral treatments for osteoarthritis (OA) in total WOMAC score after 12 weeks of tx**
- **Osteoarthritis Research Society International (OARSI) 2014 Guidelines - also included duloxetine**

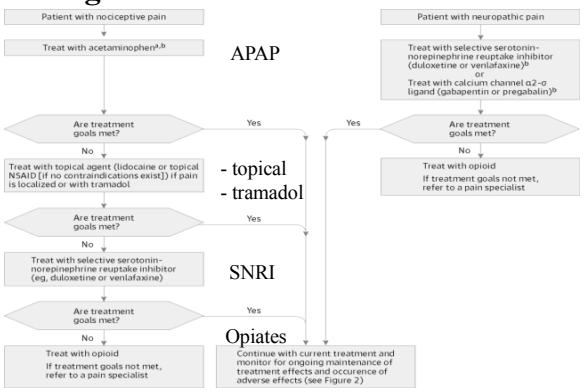
BMC Musculoskelet Disord. 2014;15:76

Whats new for osteoarthritis aches and pains: duloxetine?

- **Am College Rheum 2012 recs for OA (hip, hand, knee)**
- **Start with non-pharm tx**
- **1st line pharm**
  - **APAP**
  - ***topical* NSAIDs and/or intraarticular steroid injxn**
  - **tramadol**
- **2nd line pharmacologic**
  - **included duloxetine for knee OA**
  - **opiates if fail non-pharm + pharm and surgery not viable option**

Arthritis Care & Research 2012;64 (4):465–474

Management Persistent Pain in Older Pt



JAMA 2014;312:825

Consult: Pain management in older adults

- **Which pain meds & pain reduction approaches are best for my older pts?**

✓ **Adjuncts: hot, cold, PT, etc**

✓ **APAP, topical, injections**

✓ **Tramadol, SNRI**

✓ **Opiates**

Managing blood pressure in older pts

- **What blood pressure is considered elevated in older adults and what are appropriate BP tx goals?**

Apply HTN management guidelines to older pts

- **For pts w/o DM or CKD JNC-8 guidelines recommend adjusting systolic BP goals from < 140mmHg to < 150mmHg for persons age 60 and older. In contrast, most international major HTN guidelines don't recommend making this change in SBP goal until age?**
  - **A. 65**
  - **B. 70**
  - **C. 75**
  - **D. 80**

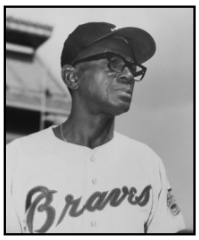
HTN Guidelines: Goal BP by Age
(pts w/o DM or CKD)

Age	JNC-8 2014	ASH/ISH 2013	ESH/ESC 2013	CHEP 2013
< 60y	**< 140/90**	**< 140/90**	**< 140/90**	**< 140/90**
60-79	***< 150/90***	**< 140/90**	**< 140/90**	**< 140/90**
≥ 80	**< 150/90**	**< 150/90**	**< 150/90**	**< 150/90**

Consensus: most of the world → age 80+ raise BP goal

Med Clin NA 2015;99:379

What to do with HTN Guidelines & Age



"How old would you be if you didn't know how old you were?"

-Leroy Satchel Paige-

HTN Guidelines & Age

- Stratify tx goal by *physiologic* not *chronologic* age
- Gait speed may help gauge physiologic age & impact of HTN tx?
  - Gait speed > 0.8 meter/sec (~1.8 mph): fast walker
  - Gait speed < 0.8 m/sec: slow walker
  - Unable to walk 20 ft to test speed: poor funx
- Epidem modeling study estimated tx effects SBP goal < 150 vs < 140mmHg by gait speed & CV dz presence

J Am Geriatr Soc 2016:64:1015

HTN Tx Goals by gait speed & CV dz presence (1^0 vs 2^0 tx)

- 2^0 tx (CAD or CVA hx) to goal < 140 vs < 150mmHg
  - < 140 mmHg better CV outcomes & impact on QL regardless of gait speed or poor function
- 1^0 dz prevention: tx to goal < 140 vs 150 mmHg
  - Fast walkers: 140 mmHg goal better outcomes
  - Slow walkers: 150 mmHg beneficial, 140 mmHg uncertain marginal gain r/t < 150mm Hg
  - Poor funx: tx to *either* BP goal led to ↓ disability-adjusted life yrs

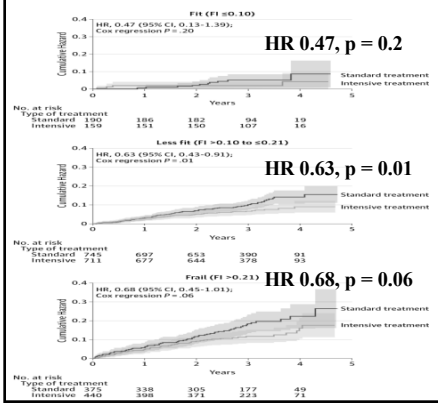
J Am Geriatr Soc 2016:64:1015

Newest data: SPRINT elderly subgroup

- Age > 75 (mean 80yo), n ~ 2600 w/CV dz or high risk pts (by age, CKD, 10yr risk > 15%)
- RCT: SBP goal < 120 vs < 140 mmHg, 3 yr f/u
- Results
  - CV events: HR 0.66, NNT 27
  - All-cause mortality: HR 0.67, NNT 41
  - Few serious adverse events in intensive tx group
- Similar effects in frailer enrollees

JAMA 2016;315:2673

SPRINT Age 75+: Effects by frailty level



HR 0.47, p = 0.2 — Fit (13% pts)

HR 0.63, p = 0.01 — Less Fit (55%)

HR 0.68, p = 0.06 — Frail (30%)

HTN Tx in Older Adult Take Homes

- Age 80+ start w/goal < 150mm Hg
- 2^0 tx and/or good health (eg gait speed > 0.8m/sec)
  - Goal < 140 mmHg likely improves outcomes/QL
- 1^0 dz prevention
  - Goal < 140 mmHg reasonable if good funx
  - Goal < 130 mmHg likely better if good funx and esp if at ↑ CV risk (ie, fits SPRINT pt profile)
  - Poor funx: accept 150-160 mmHg

JAMA 2016;315:2669 J Am Geriatr Soc 2017;65:16-21

Managing blood pressure in older pts

- **What blood pressure is considered elevated in older adults and what are appropriate BP tx goals?**

√ **Don't start tx based on single BP**

√ **Make sure BP taken while seated**

√ **Avoid DBP < 60mmHg**

ANY Questions!