



2019 Update in Geriatrics (for the non-Geriatrician)

Katarzyna Wilamowska, MD PhD

August 2019

Slides courtesy of David R. Scrase, MD

Disclosures

- I have no actual or potential conflict of interest in relation to this program/presentation.

Clinical Questions

1. What BP target should I use in treating hypertension in those ≥ 75 years old?
2. What are the chances that my patient will live to be 100 years old?
3. Are there any interventions that can shorten the period of disability before death?
4. At what age can I stop screening my patients for cancer?

Learning Objectives

At the end of this presentation, the learner will:

1. Weigh the competing RCT evidence vs. Panel of Expert recommendations related to a systolic BP target for treating HTN in individuals ≥ 75 y.o.
2. Understand the concept of “compression of disability” and the factors that may accomplish it
3. Be able to use a phone app to assess the benefits and risks of cancer screening in Seniors
4. Say that they both had fun *and* learned something relevant to their practice



Clinical Question 1:
What BP target should I use in treating
hypertension in those ≥ 75 years old?

Currently I use this systolic BP target for treating hypertension in those ≥ 75 years old:

1. 180
2. 150
3. 140
4. 120
5. 100



JNC 8 vs. SPRINT

Clinical Review & Education

Special Communication

2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8)

Paul A. James, MD; Suzanne Oparil, MD; Barry L. Carter, PharmD; William C. Cushman, MD; Cheryl Denison-Himmelfarb, RN, ANP, PhD; Joel Handler, MD; Daniel T. Lackland, DPH; Michael L. LeFevre, MD, MSPH; Thomas D. Mackenzie, MD, MSPH; Oluwengbo Ogudegbe, MD, MPH, MS; Sidney C. Smith Jr, MD; Laura P. Svetkey, MD, MHS; Sandra J. Taler, MD; Raymond R. Townsend, MD; Jackson T. Wright Jr, MD, PhD; Andrew S. Narva, MD; Eduardo Ortiz, MD, MPH

Hypertension is the most common condition seen in primary care and leads to myocardial infarction, stroke, renal failure, and death if not detected early and treated appropriately. Patients want to be assured that blood pressure (BP) treatment will reduce their disease burden, while clinicians want guidance on hypertension management using the best scientific evidence. This report takes a rigorous, evidence-based approach to recommend treatment thresholds, goals, and medications in the management of hypertension in adults. Evidence was drawn from randomized controlled trials, which represent the gold standard for determining efficacy and effectiveness. Evidence quality and recommendations were graded based on their effect on important outcomes.

There is strong evidence to support treating hypertensive persons aged 60 years or older to a BP goal of less than 150/90 mm Hg and hypertensive persons 30 through 59 years of age to a diastolic goal of less than 90 mm Hg; however, there is insufficient evidence in hypertensive persons younger than 60 years for a systolic goal, or in those younger than 30 years for a diastolic goal, so the panel recommends a BP of less than 140/90 mm Hg for those groups based on expert opinion. The same thresholds and goals are recommended for hypertensive adults with diabetes or nondiabetic chronic kidney disease (CKD) as for the general hypertensive population younger than 60 years. There is moderate evidence to support initiating drug treatment with an angiotensin-converting enzyme inhibitor, angiotensin receptor blocker, calcium channel blocker, or thiazide-type diuretic in the nonblack hypertensive population, including those with diabetes. In the black hypertensive population, including those with diabetes, a calcium channel blocker or thiazide-type diuretic is recommended as initial therapy. There is moderate evidence to support initial or add-on antihypertensive therapy with an angiotensin-converting enzyme inhibitor or angiotensin receptor blocker in persons with CKD to improve kidney outcomes.

Although this guideline provides evidence-based recommendations for the management of high BP and should meet the clinical needs of most patients, these recommendations are not a substitute for clinical judgment, and decisions about care must carefully consider and incorporate the clinical characteristics and circumstances of each individual patient.

- Editorial pages 472, 474, and 477
- Author Audio Interview at [jama.com](#)
- Supplemental content at [jama.com](#)
- CME Quiz at [jamanetwork.com](#) and CME Questions page 522

Author Affiliations. Author affiliations are listed at the end of this article.

Corresponding Author: Paul A. James, MD, University of Iowa, 200 Hawkins Dr, C0236-0191, Iowa City, IA 52242-1097 (paul-james@uiowa.edu).

JAMA. 2014;311(5):507-520. doi:10.1001/jama.2013.284427
Published online December 18, 2013.

Research

Original Investigation

Intensive vs Standard Blood Pressure Control and Cardiovascular Disease Outcomes in Adults Aged ≥ 75 Years A Randomized Clinical Trial

Jeff O. Williamson, MD, MHS; Mark A. Supiano, MD; William B. Applegate, MD, MPH; Dan R. Berlowitz, MD; Ruth C. Campbell, MD, MSPH; Glenn M. Chertow, MD; Larry J. Fine, MD; William E. Haley, MD; Arnet T. Hawfield, MD; Joachim H. Ix, MD, MAS; Dalane W. Kitzman, MD; John B. Kostis, MD; Maria A. Krossel-Wood, MD; Lenore J. Launer, PhD; Suzanne Oparil, MD; Carlos J. Rodriguez, MD, MPH; Christianne L. Rounie, MD, MPH; Ronald L. Short, MD, MS; Kaycee M. Sink, MD, MAS; Virginia G. Wadley, PhD; Paul K. Whelton, MD; Jeffrey Whittle, MD; Nancy F. Woodard, Jackson T. Wright Jr, MD, PhD; Nicholas M. Pagewski, PhD; for the SPRINT Research Group

IMPORTANCE The appropriate treatment target for systolic blood pressure (SBP) in older patients with hypertension remains uncertain.

OBJECTIVE To evaluate the effects of intensive (<120 mm Hg) compared with standard (<140 mm Hg) SBP targets in persons aged 75 years or older with hypertension but without diabetes.

DESIGN, SETTING, AND PARTICIPANTS A multicenter, randomized clinical trial of patients aged 75 years or older who participated in the Systolic Blood Pressure Intervention Trial (SPRINT). Recruitment began on October 20, 2010, and follow-up ended on August 20, 2015.

INTERVENTIONS Participants were randomized to an SBP target of less than 120 mm Hg (intensive treatment group, n = 1317) or an SBP target of less than 140 mm Hg (standard treatment group, n = 1319).

MAIN RESULTS AND MEASURES The primary cardiovascular disease outcome was a composite of nonfatal myocardial infarction, acute coronary syndrome not resulting in a myocardial infarction, nonfatal stroke, nonfatal acute decompensated heart failure, and death from cardiovascular causes. All-cause mortality was a secondary outcome.

RESULTS Among 2636 participants (mean age, 79.9 years; 37.9% women), 2510 (95.2%) provided complete follow-up data. At a median follow-up of 3.14 years, there was a significantly lower rate of the primary composite outcome (102 events in the intensive treatment group vs 148 events in the standard treatment group; hazard ratio [HR], 0.66 [95% CI, 0.51-0.85]) and all-cause mortality (73 deaths vs 107 deaths, respectively; HR, 0.67 [95% CI, 0.49-0.91]). The overall rate of serious adverse events was not different between treatment groups (48.4% in the intensive treatment group vs 48.3% in the standard treatment group; HR, 0.99 [95% CI, 0.89-1.11]). Absolute rates of hypertension were 2.4% in the intensive treatment group vs 1.4% in the standard treatment group (HR, 1.71 [95% CI, 0.97-3.09]), 3.0% vs 2.4%, respectively, for syncope (HR, 1.23 [95% CI, 0.76-2.00]), 4.0% vs 2.7% for electrolyte abnormalities (HR, 1.51 [95% CI, 0.99-2.33]), 5.5% vs 4.0% for acute kidney injury (HR, 1.41 [95% CI, 0.98-2.04]), and 4.9% vs 5.5% for injurious falls (HR, 0.91 [95% CI, 0.65-1.29]).

CONCLUSIONS AND RELEVANCE Among ambulatory adults aged 75 years or older, treating to an SBP target of less than 120 mm Hg compared with an SBP target of less than 140 mm Hg resulted in significantly lower rates of fatal and nonfatal major cardiovascular events and death from any cause.

TRIAL REGISTRATION clinicaltrials.gov Identifier: NCT01206062

JAMA. 2016;315(24):2673-2682. doi:10.1001/jama.2016.7050
Published online May 19, 2016.

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- Editorial page 2669
- Author Video Interview at [jama.com](#)
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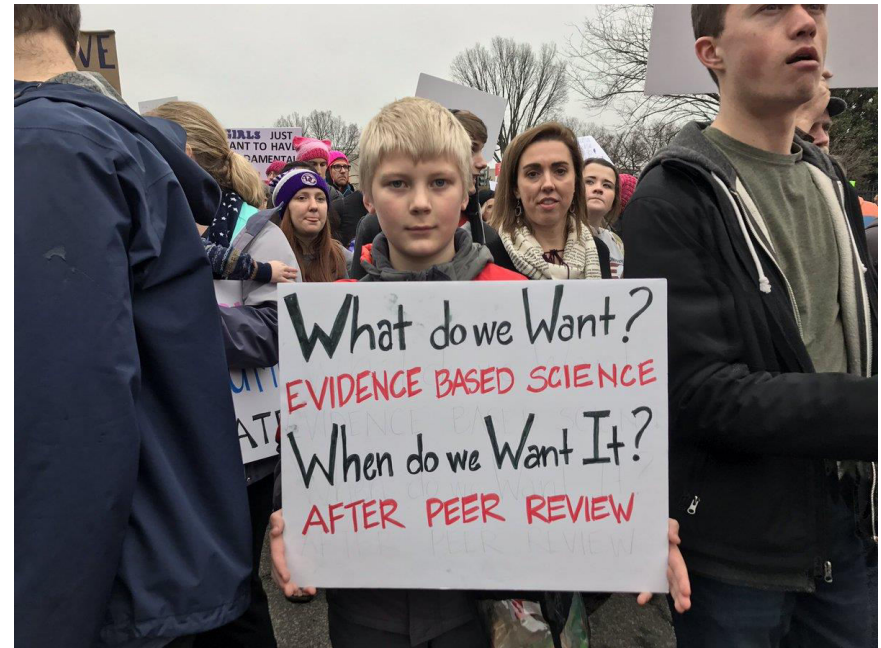
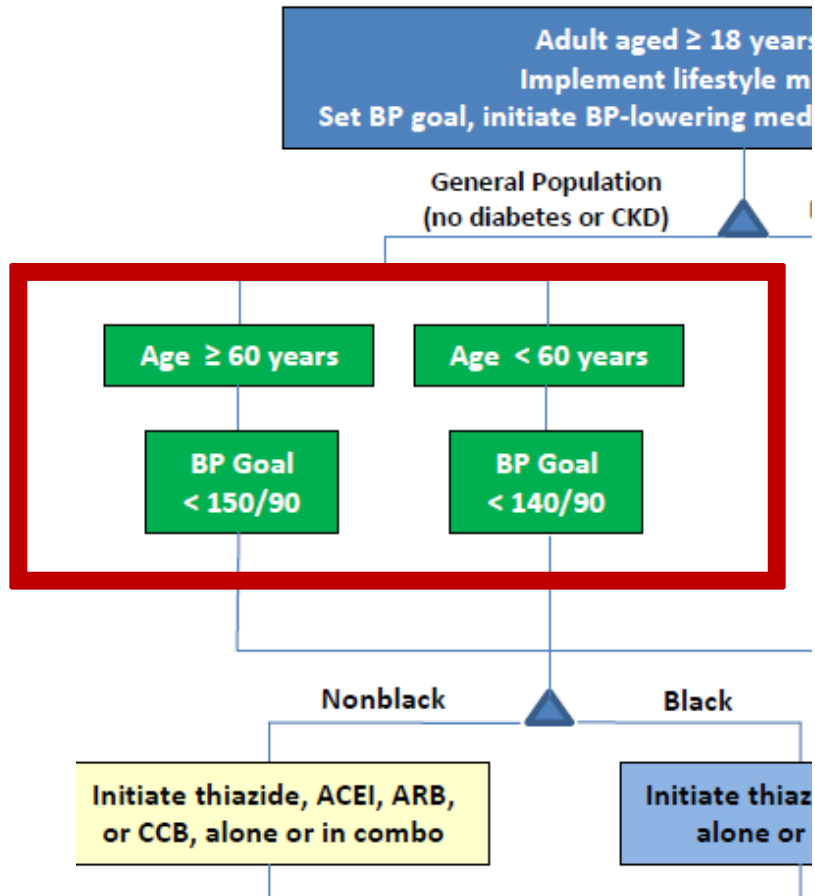
Group Information. The members of the SPRINT Research Group have been published elsewhere.

Corresponding Author: Jeff O. Williamson, MD, MHS, Section on Gerontology and Geriatric Medicine, Stein Center on Aging, Department of Internal Medicine, Wake Forest School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157 (jwilliam@wakehealth.edu).

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JNC 8

James PA, *et al.* 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults. **Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8)**. JAMA. 2014;311(5):507-520. doi:10.1001/jama.2013.284427



The SPRINT Trial for Seniors

Williamson JD, Supiano MA, Applegate WB, *et al.* Intensive vs. standard blood pressure control and cardiovascular disease outcomes in adults aged ≥ 75 years: A randomized clinical trial. JAMA 2016;315(24):2673-2682.

- Hypertension affects over 75% of adults aged ≥ 75 years
- Trial data from over 20 years has not led to consensus for the optimal target systolic blood pressure (SBP) in older adults
- Also unclear if frailty and functional status should modify BP targets

Research

Original Investigation

Intensive vs Standard Blood Pressure Control and Cardiovascular Disease Outcomes in Adults Aged ≥ 75 Years
A Randomized Clinical Trial

Jeff D. Williamson, MD, MHS, Mark A. Supiano, MD, William B. Applegate, MD, MPH, Dan R. Berlowitz, MD, Ruth C. Campbell, MD, MSPH, Glenn M. Chertow, MD, Larry J. Fine, MD, William E. Haley, MD, Arnet T. Hawfield, MD, Joachim H. Ix, MD, MAS, Dalane W. Kitzman, MD, John B. Kostis, MD, Marie A. Krossel Wood, MD, Lenore J. Launer, PhD, Suzanne Oparil, MD, Carlos J. Rodriguez, MD, MPH, Christianne L. Rounie, MD, MPH, Ronald I. Short, MD, MS, Kaycee M. Stok, MD, MAS, Virginia G. Wadley, PhD, Paul K. Whelton, MD, Jeffrey Whittle, MD, Nancy F. Woodard, Jackson T. Wright Jr, MD, PhD, Nicholas M. Pagewski, PhD, for the SPRINT Research Group

IMPORTANCE: The appropriate treatment target for systolic blood pressure (SBP) in older patients with hypertension remains uncertain.

OBJECTIVE: To evaluate the effects of intensive (<120 mm Hg) compared with standard (<140 mm Hg) SBP targets in persons aged 75 years or older with hypertension but without diabetes.

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MAIN RESULTS AND MEASURES: The primary cardiovascular disease outcome was a composite of nonfatal myocardial infarction, acute coronary syndrome not resulting in a myocardial infarction, nonfatal stroke, nonfatal acute decompensated heart failure, and death from cardiovascular causes. All-cause mortality was a secondary outcome.

RESULTS: Among 2636 participants (mean age, 79.9 years; 37.9% women), 2510 (95.2%) provided complete follow-up data. At a median follow-up of 3.14 years, there was a significantly lower rate of the primary composite outcome (102 events in the intensive treatment group vs 148 events in the standard treatment group; hazard ratio [HR], 0.66 [95% CI, 0.51-0.85]) and all-cause mortality (73 deaths vs 107 deaths, respectively; HR, 0.67 [95% CI, 0.49-0.91]). The overall rate of serious adverse events was not different between treatment groups (48.4% in the intensive treatment group vs 48.3% in the standard treatment group; HR, 0.99 [95% CI, 0.89-1.11]). Absolute rates of hypotension were 2.4% in the intensive treatment group vs 1.4% in the standard treatment group (HR, 1.71 [95% CI, 0.97-3.09]), 3.0% vs 2.4%, respectively, for syncope (HR, 1.23 [95% CI, 0.76-2.00]), 4.0% vs 2.7% for electrolyte abnormalities (HR, 1.51 [95% CI, 0.99-2.33]), 5.5% vs 4.0% for acute kidney injury (HR, 1.41 [95% CI, 0.98-2.04]), and 4.9% vs 5.5% for injurious falls (HR, 0.91 [95% CI, 0.65-1.29]).

CONCLUSIONS AND RELEVANCE: Among ambulatory adults aged 75 years or older, treating to an SBP target of less than 120 mm Hg compared with an SBP target of less than 140 mm Hg resulted in significantly lower rates of fatal and nonfatal major cardiovascular events and death from any cause.

TRIAL REGISTRATION: clinicaltrials.gov Identifier: NCT01026062

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Editorial page 2669
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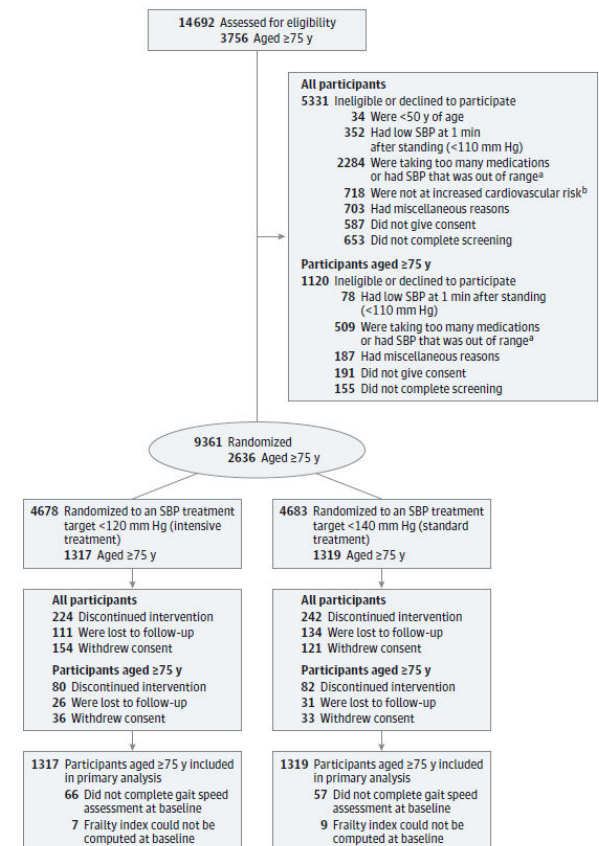
Author Affiliations: Author affiliations are listed at the end of this article.
Group Information: The members of the SPRINT Research Group have been published elsewhere.
Corresponding Author: Jeff D. Williamson, MD, MHS, Section on Gerontology and Geriatric Medicine, Sprints Center on Aging, Department of Internal Medicine, Wake Forest School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157 (jwilliam@wakehealth.edu).

SPRINT Study Design

Williamson JD, Supiano MA, Applegate WB, *et al.* Intensive vs. standard blood pressure control and cardiovascular disease outcomes in adults aged ≥ 75 years: A randomized clinical trial. JAMA 2016;315(24):2673-2682.

- Multicenter trial in 2636 ambulatory community dwelling adults aged ≥ 75 years (mean 80 years)
- Randomized to treatment to achieve one of two target SBPs
 - Intensive (<120 mmHg)
 - Standard (<140 mmHg)
- Primary outcome: CV complications, including death from a CV cause
- Followed for a median of 3 years
- Exclusions: diabetes, dementia, CVA or symptomatic CHF with LVEF $< 35\%$ during prior 6 months, $>10\%$ weight loss, nursing home residents, SBP < 100 mm Hg after 1 minute standing

Figure 1. Eligibility, Randomization, and Follow-up for Systolic Blood Pressure (SBP) Intervention Trial (SPRINT) Participants Aged 75 Years or Older



Outcomes

Williamson JD, Supiano MA, Applegate WB, *et al.* Intensive vs. standard blood pressure control and cardiovascular disease outcomes in adults aged ≥ 75 years: A randomized clinical trial. JAMA 2016;315(24):2673-2682.

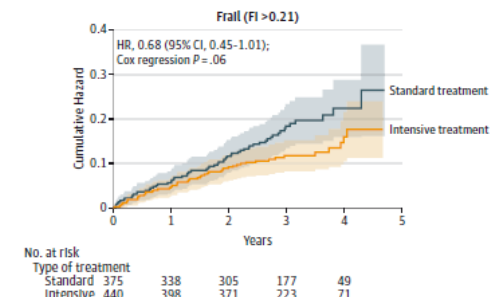
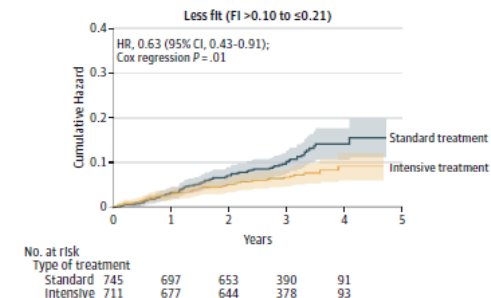
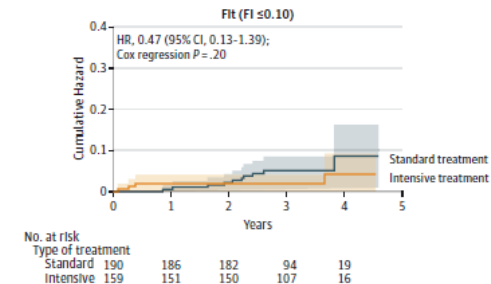
- Cardiovascular Disease
 - Primary: composite of nonfatal MI, ACS w/o MI, nonfatal stroke, nonfatal CHF, and death from cardiovascular causes
 - Secondary: all-cause mortality; composite of the SPRINT primary outcome and all-cause mortality
- CKD
 - In patients with CKD stage ≥ 3 , composite incidence of either $\geq 50\%$ decrease in eGFR or new ESRD requiring hemodialysis or transplant
 - In patients without CKD, incidence of a 30% decrease in eGFR to a value < 60

SPRINT Trial Results

Williamson JD, Supiano MA, Applegate WB, *et al.* Intensive vs. standard blood pressure control and cardiovascular disease outcomes in adults aged ≥ 75 years: A randomized clinical trial. JAMA 2016;315(24):2673-2682.

- Average SBP in the two arms were 123 vs. 135 mmHg
- Treatment goal required higher number of medications in intensive group (2.6 vs. 1.8)
- More patients in intensive group required four or more medications to reach goal (23% vs. 7%)
- Diminishing between-group difference with increasing frailty
 - Fit group Δ 13.5 mmHg
 - Frail group Δ 10.8 mmHg

Figure 2. Kaplan-Meier Curves for the Primary Cardiovascular Disease Outcome in Systolic Blood Pressure Intervention Trial (SPRINT) in Participants Aged 75 Years or Older by Baseline Frailty Status



Tinted regions indicate 95% confidence intervals; FI, 37-item frailty index; HR, hazard ratio. The primary cardiovascular disease outcome was a composite of nonfatal myocardial infarction, acute coronary syndrome not resulting in a myocardial infarction, nonfatal stroke, nonfatal acute decompensated heart failure, and death from cardiovascular causes.

Cardiovascular and CKD Outcomes

Williamson JD, Supiano MA, Applegate WB, *et al.* **Intensive vs. standard blood pressure control and cardiovascular disease outcomes in adults aged ≥ 75 years: A randomized clinical trial.** JAMA 2016;315(24):2673-2682.

Outcome	Intensive (%)	Standard (%)	HR (95% CI)	p value
CVD composite	2.59	3.85	0.66 (0.51-0.85)	0.001
CVD + mortality	3.64	5.31	0.68 (0.54-0.84)	<0.001
CKD Outcome				
Patients with CKD	0.38	0.23	1.68 (0.49-6.50)	0.42
Patients w/o CKD	1.7	0.58	3.14 (1.66-6.37)	<0.001

$$\text{NNT}_{\text{Benefit}} = 116$$

Serious Adverse Events

Williamson JD, Supiano MA, Applegate WB, *et al.* Intensive vs. standard blood pressure control and cardiovascular disease outcomes in adults aged ≥ 75 years: A randomized clinical trial. JAMA 2016;315(24):2673-2682.

Serious Adverse Event (SAE)	Intensive (%)	Standard (%)	Hazard Ratio (95% CI)
All SAE	48.4	48.3	0.99 (0.89-1.11)
Hypotension	2.4	1.4	1.71 (0.97-3.09)
Orthostasis	21.0	21.8	0.90 (0.76-1.07)
Syncope	3.0	2.4	1.23 (0.76-2.00)
Falls	4.9	5.5	0.91 (0.65-1.29)

SAE rates were higher with greater frailty or slower walking speed, but were NOT statistically different by treatment group when stratified by frailty status or gait speed

Caveats and Conclusions

Williamson JD, Supiano MA, Applegate WB, *et al.* Intensive vs. standard blood pressure control and cardiovascular disease outcomes in adults aged ≥ 75 years: A randomized clinical trial. JAMA 2016;315(24):2673-2682.

- Generalizability

- Majority were male (62%) and white (75%)
- Populations common to this age range, including those with a history of stroke, diabetes mellitus, and nursing home residents were excluded

- Higher number on ASA in intensive arm (62% vs 58%)

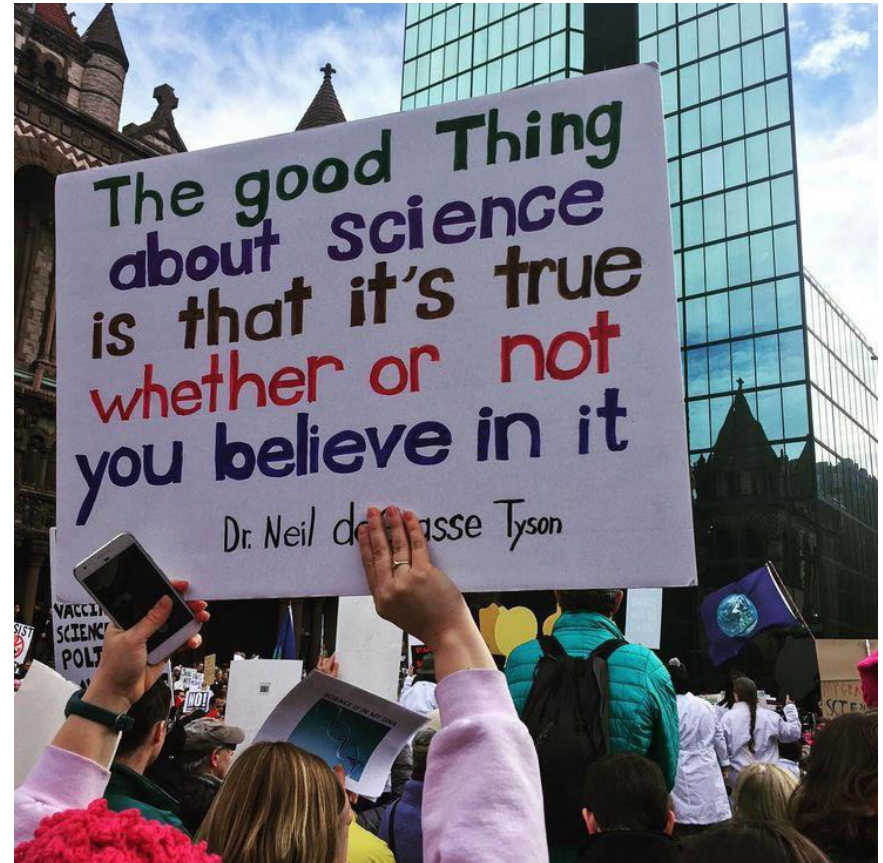
Conclusions

Among ambulatory adults aged 75 years or older, treating to an SBP target of less than 120 mm Hg compared with an SBP target of less than 140 mm Hg resulted in **significantly lower rates of fatal and nonfatal major cardio-vascular events and death from any cause**

Implications

Williamson JD, Supiano MA, Applegate WB, *et al.* Intensive vs. standard blood pressure control and cardiovascular disease outcomes in adults aged ≥ 75 years: A randomized clinical trial. JAMA 2016;315(24):2673-2682.

- Supports more aggressive targets in some older, ambulatory community dwelling adults
- **Need for individualized care and shared decision making,** based on tolerance of more aggressive targets and burdens and risks of additional medications and side effects



Now I plan to use this systolic BP target for treating hypertension in those ≥ 75 years old (without diabetes, dementia, living in nursing home, etc.):

1. 180

2. 150

3. 140

4. 120

5. 100





Clinical Question 2:

What are the chances that my patient will live to be 100 years old?

Actuarial Life Table

Office of the Chief
Actuary

Life Tables

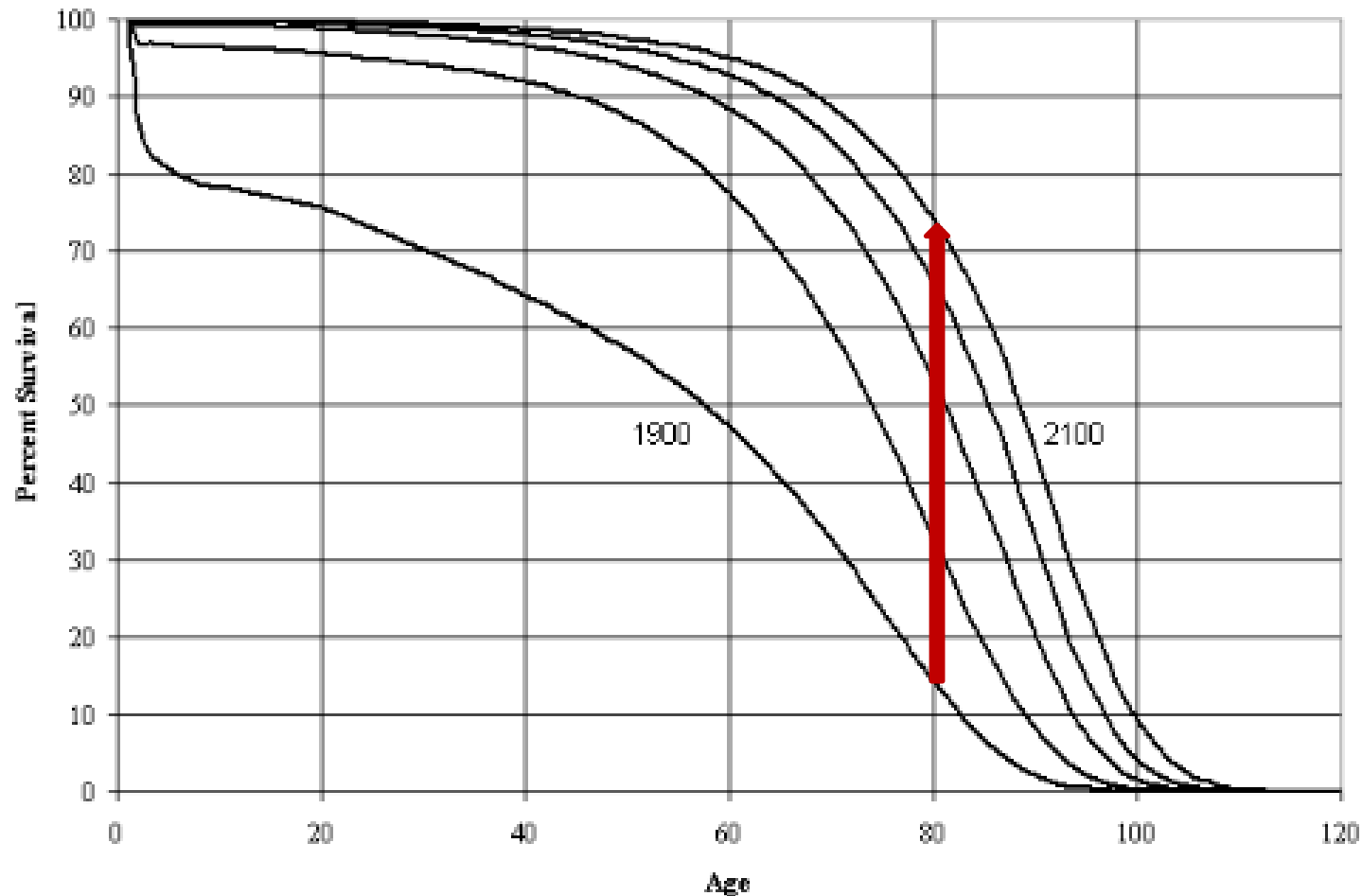
A period life table is based on the mortality experience of a population during a relatively short period of time. Here we present the 2014 period life table for the [Social Security area population](#). For this table, the period life expectancy at a given age is the average remaining number of years expected prior to death for a person at that exact age, born on January 1, using the mortality rates for 2014 over the course of his or her remaining life.

Period Life Table, 2014

Male				Female		
Exact age	Death probability ^a	Number of lives ^b	Life expectancy	Death probability ^a	Number of lives ^b	Life expectancy
75	0.036254	63,686	11.11	0.025297	75,182	12.94
76	0.039882	61,377	10.51	0.028045	73,280	12.26
77	0.043879	58,930	9.93	0.031131	71,225	11.60
78	0.048256	56,344	9.36	0.034582	69,008	10.96
79	0.053123	53,625	8.81	0.038467	66,621	10.33
80	0.058711	50,776	8.28	0.043008	64,059	9.73
81	0.065081	47,795	7.76	0.048175	61,304	9.14
82	0.072139	44,685	7.27	0.053772	58,350	8.58
83	0.079912	41,461	6.80	0.059770	55,213	8.04

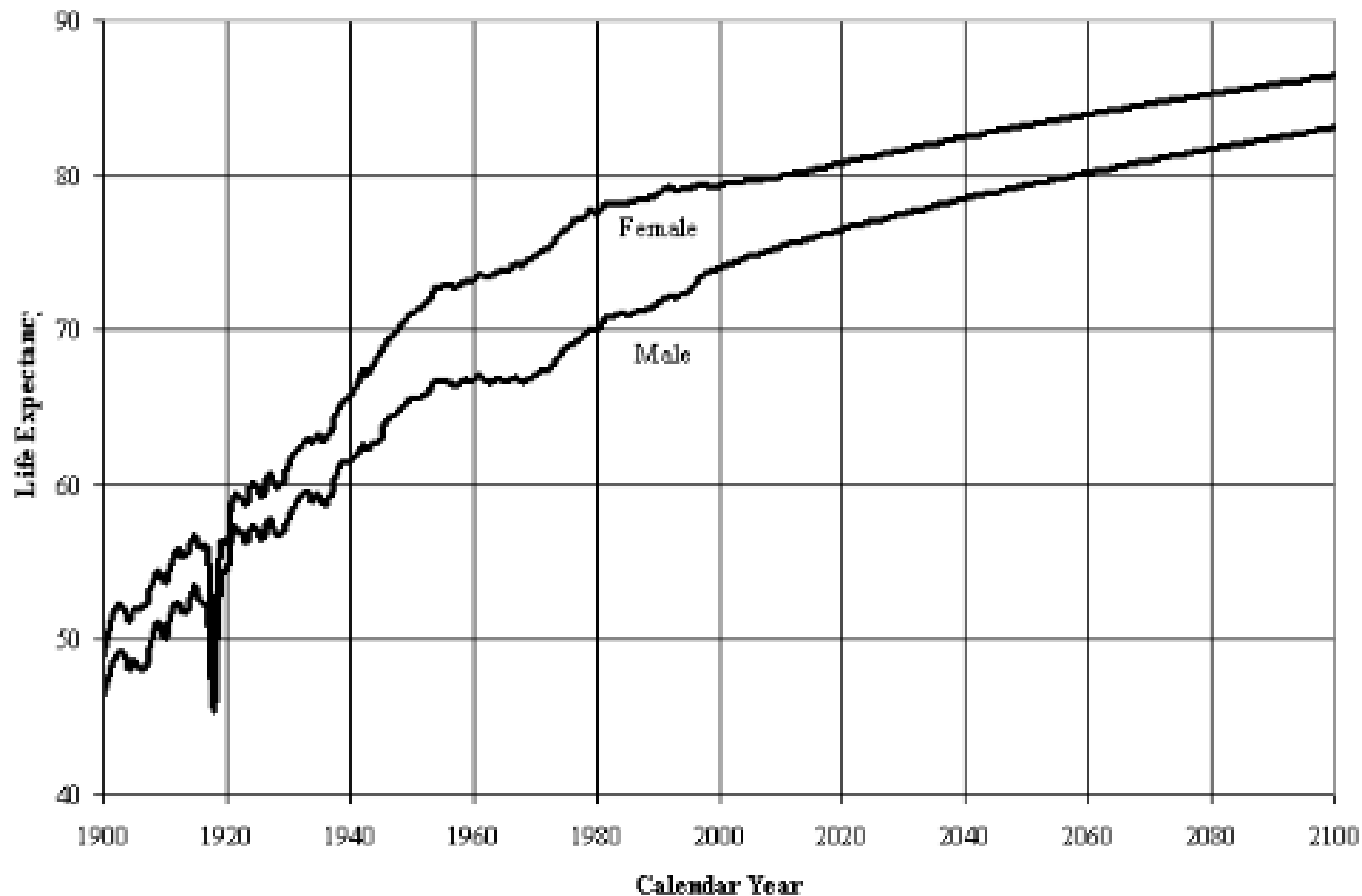
Survival Function for SSA Population for Selected Calendar Years (1900, 1950, 2000, 2050, 2100)

https://www.ssa.gov/oact/NOTES/as120/LifeTables_Body.html#wp1169453



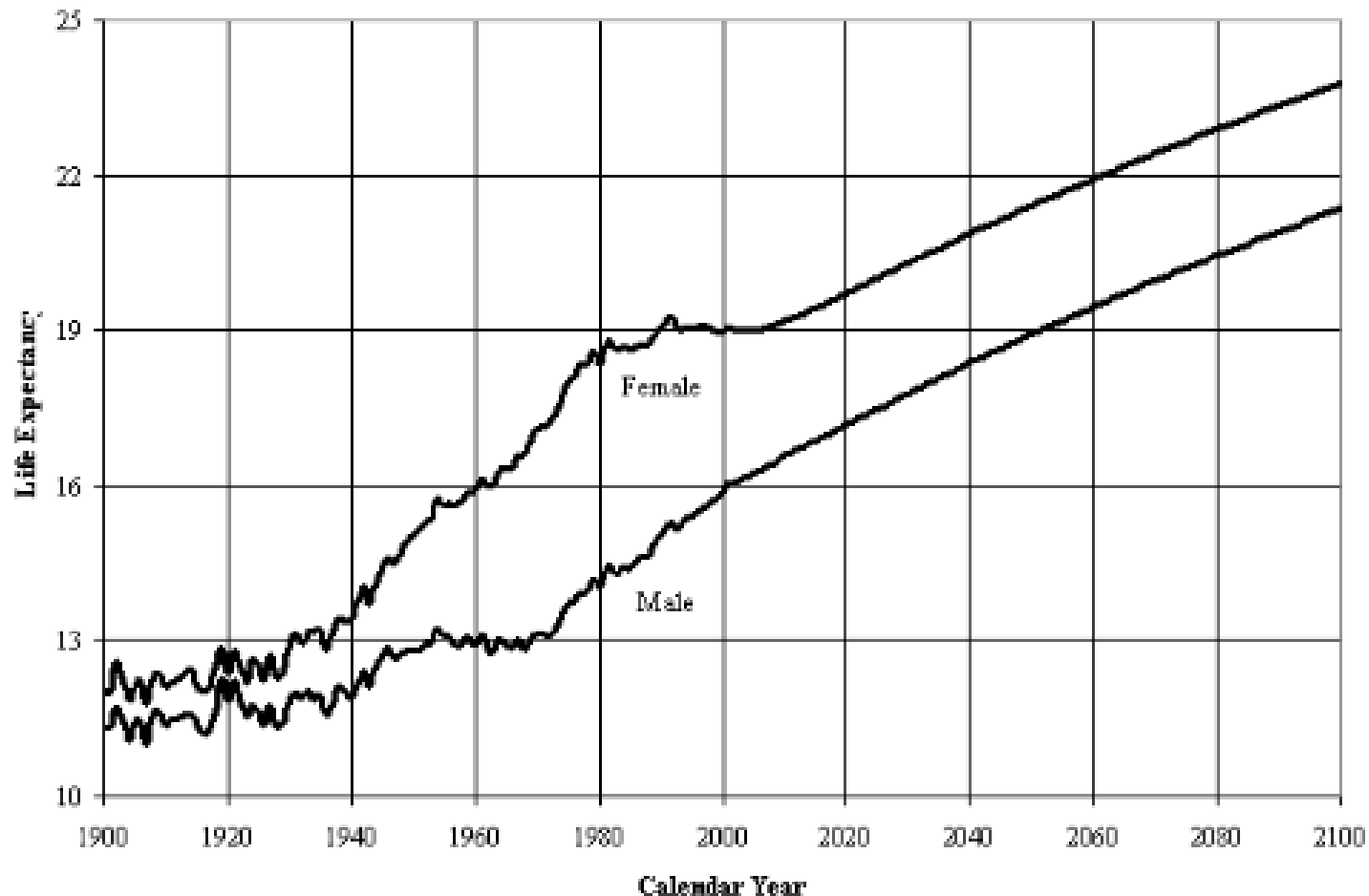
Life Expectancy at age 0 by Sex and Calendar Year

https://www.ssa.gov/oact/NOTES/as120/LifeTables_Body.html#wp1169453



Life Expectancy at age 65 by Sex and Calendar Year

https://www.ssa.gov/oact/NOTES/as120/LifeTables_Body.html#wp1169453



United Healthcare Survey, 2014

<http://www.unitedhealthgroup.com/~media/UHG/PDF/2014/UNH-UHC-100at100-Survey2014.ashx>

- 104 people ≥ 100 years old and 302 Baby Boomers were each surveyed
 - Centenarians:
 - Did you think you **would live** to be 100?
 - Boomers asked:
 - Do you think you **will live** to be 100?

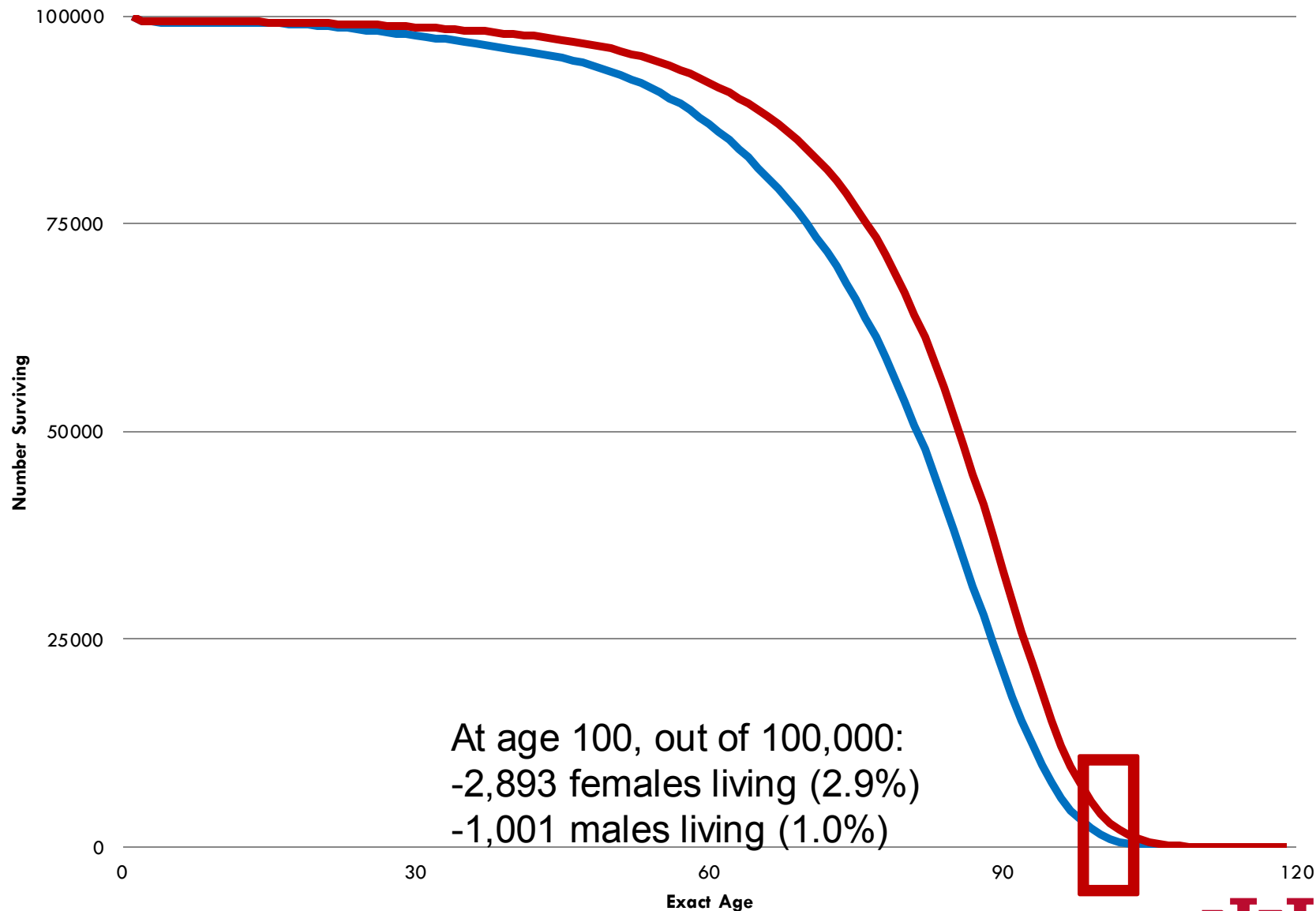
Here's what they said...

Choice #	Centenarians: “Thought I would live to be 100”	Boomers: “Think I will live to be 100”
1	4%	9%
2	14%	19%
3	24%	29%
4	26%	49%
5	28%	89%

According to the Social Security life tables, the chance of living to 100 is approximately...

Choice #	Men	Women
1	0.0%	0.0%
2	0.5%	1.0%
3	1.0%	2.9%
4	5.5%	6.4%
5	10.2%	15.2%

Number of People Surviving by Exact Age (starting with 100,000 males and females at age 0)



At age 100, out of 100,000:
-2,893 females living (2.9%)
-1,001 males living (1.0%)

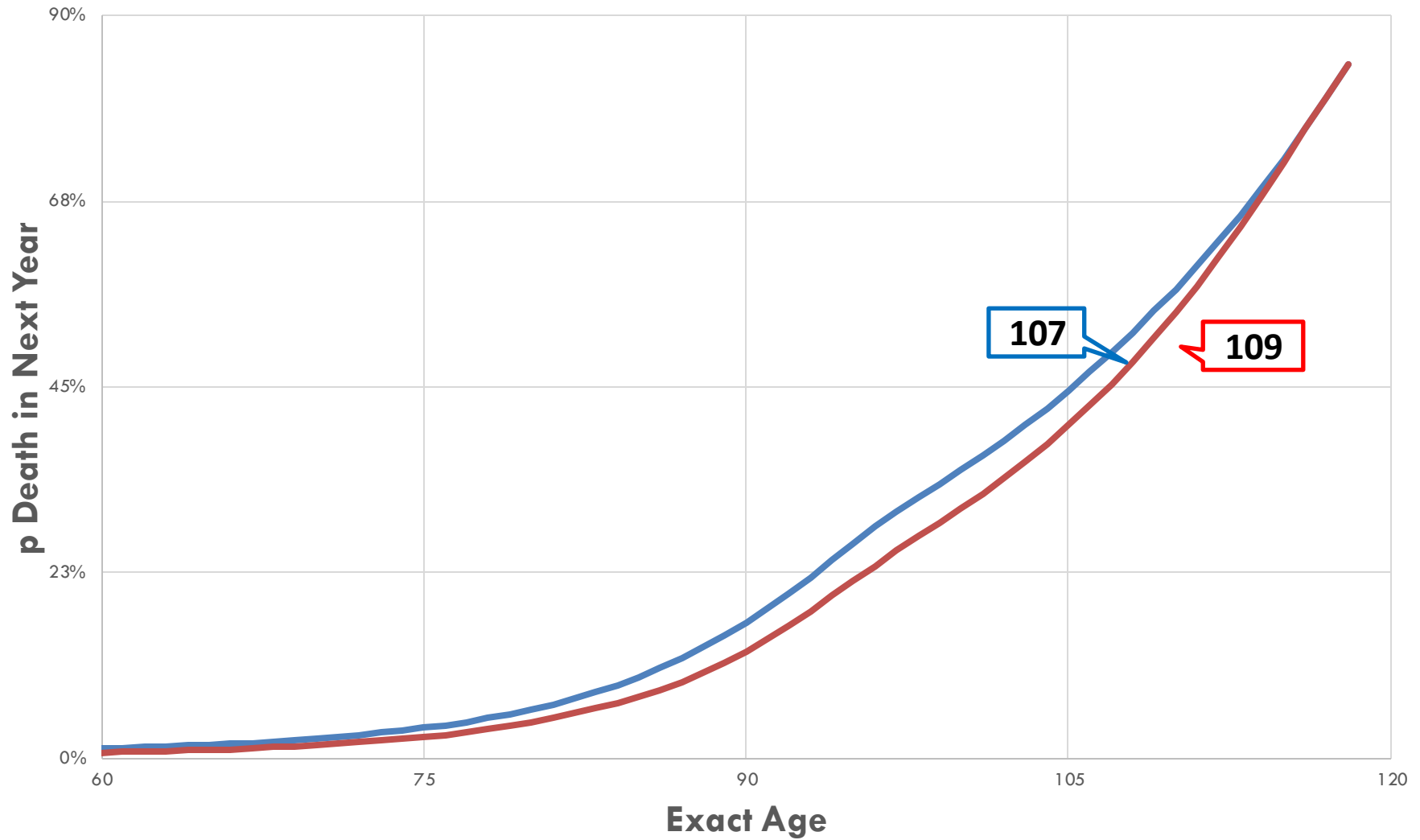
I think that the ages at which a man and a woman each have a >50% probability of dying in the next year are...

1. man age 81, woman age 83
2. man age 92, woman age 95
3. man age 98, woman age 101
4. man age 103, woman age 104
5. man age 107, woman age 109



"Well, so much for happy hour."

Probability of Death in the Next Year

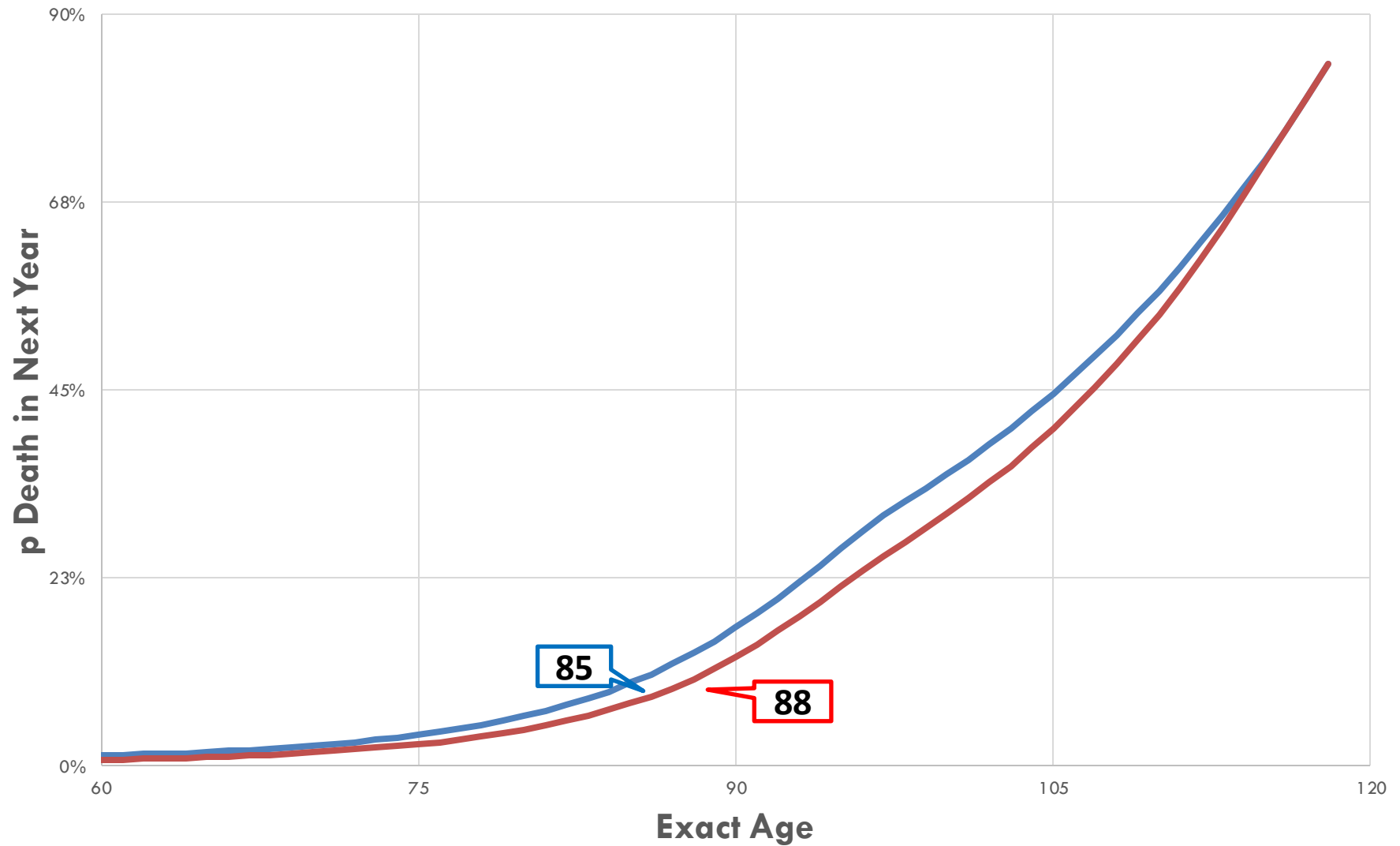


— Male Death Probability — Female Death Probability

I think that the ages at which a man and a woman each have a 10% probability of dying in the next year are...

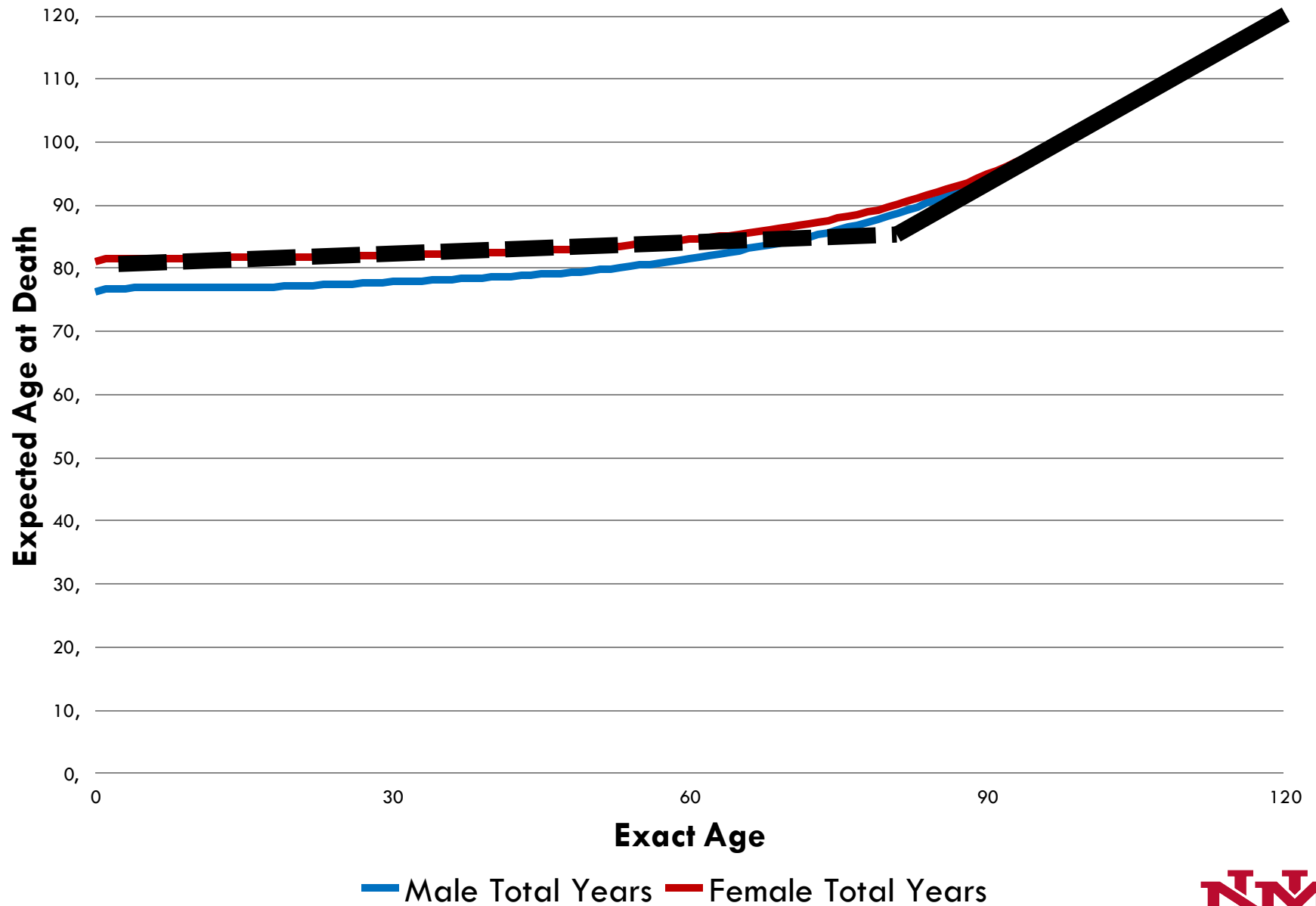
- man age 77, woman age 80
- man age 81, woman age 84
- man age 85, woman age 88
- man age 89, woman age 92
- man age 93, woman age 96

Probability of Death in the Next Year



— Male Death Probability — Female Death Probability

Expected Age at Death as a Function of Exact Age



Why is this?

Age	<u>Males:</u> Added <u>Years</u> of Life Expectancy for Each Year Lived	<u>Males:</u> Added <u>Days</u> of Life Expectancy for Each Year Lived	<u>Females:</u> Added <u>Years</u> of Life Expectancy for Each Year Lived	<u>Females:</u> Added <u>Days</u> of Life Expectancy for Each Year Lived	Difference Female – Male
0-80	0.15	54.56	0.11	39.36	-15.20
80-118	0.80	292.20	0.76	278.26	-13.94
>80 : <80		5.36x		7.07x	

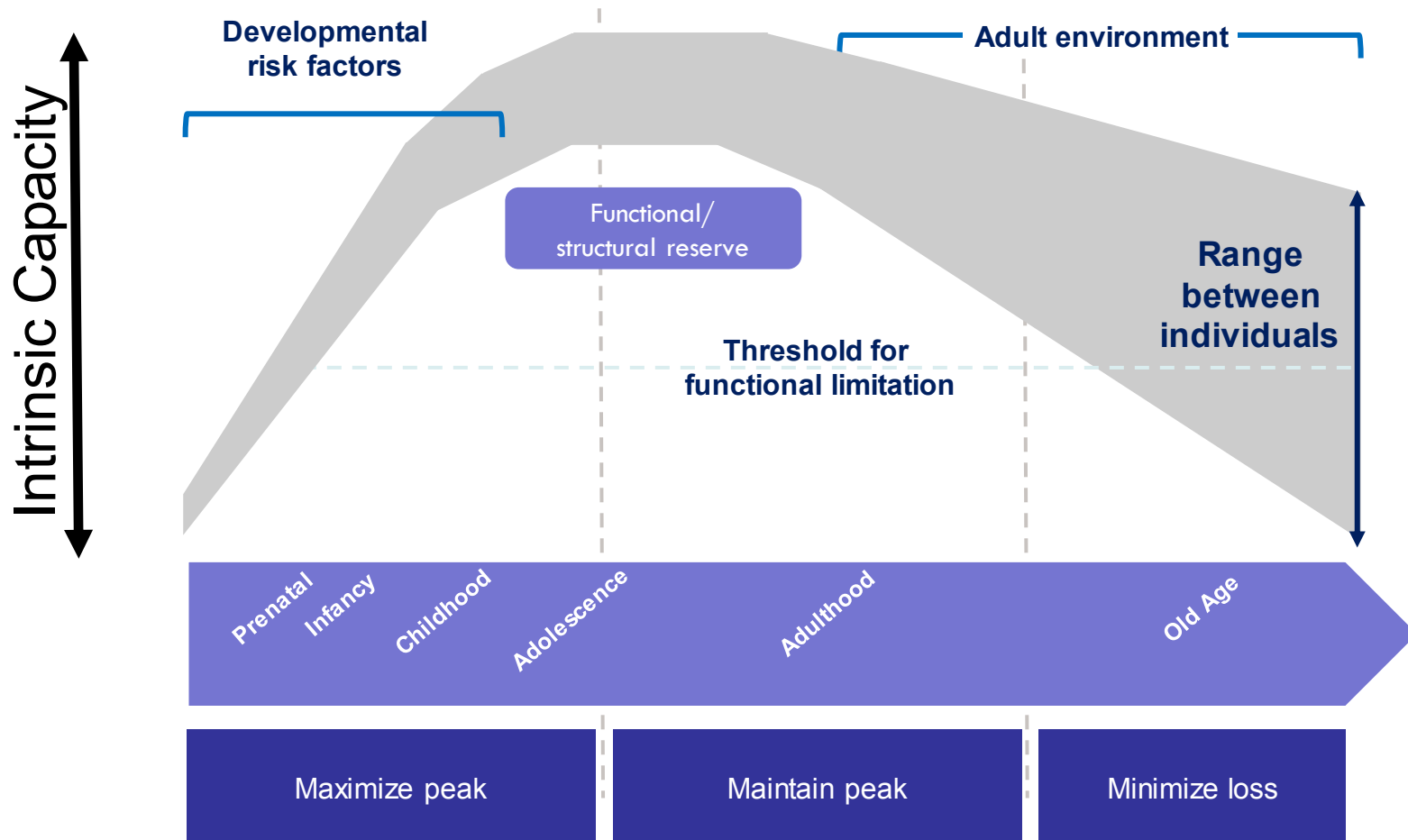


Clinical Question 3:

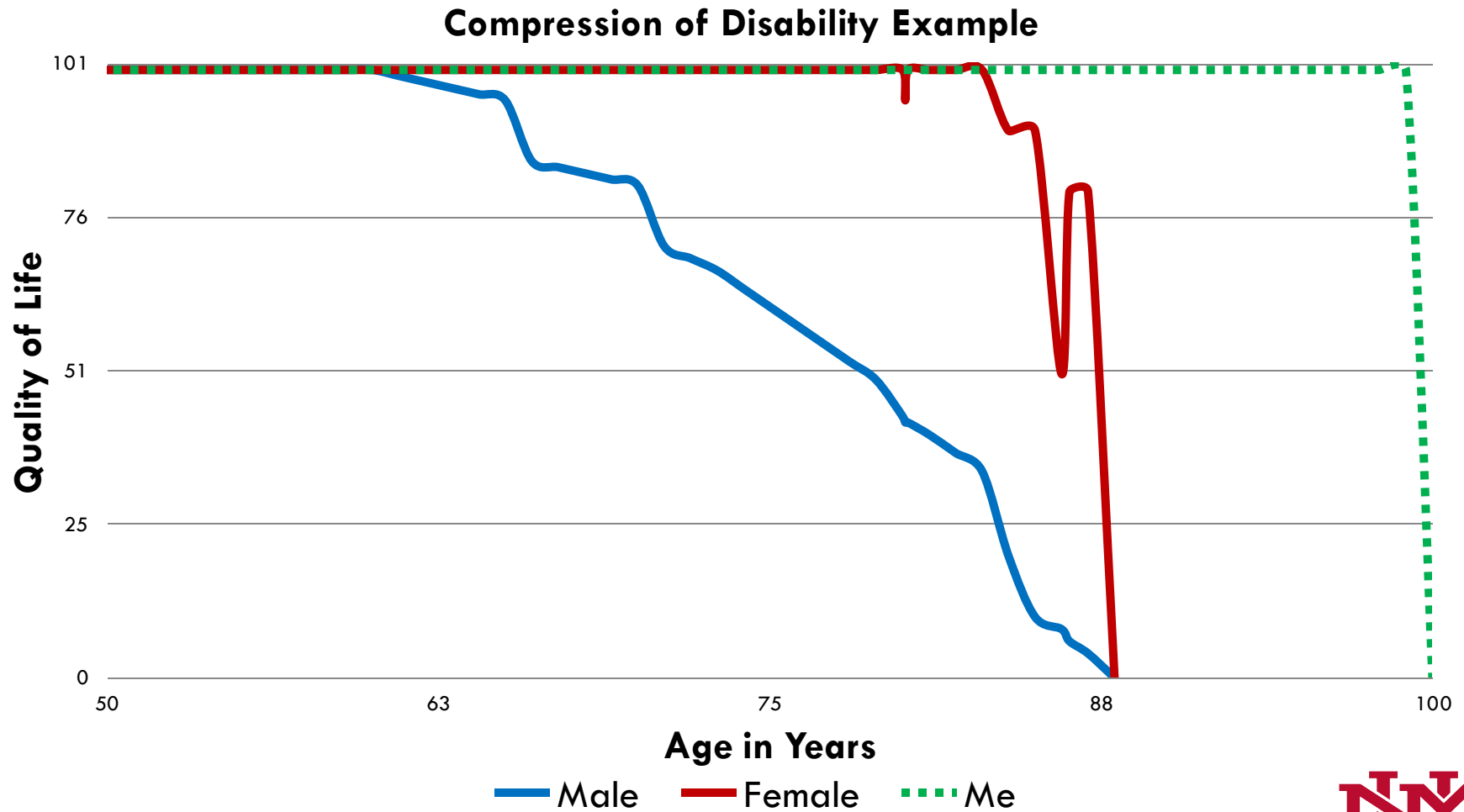
Are there any interventions that
can shorten the period of disability before
death?

Life Course Epidemiology of Intrinsic Capacities

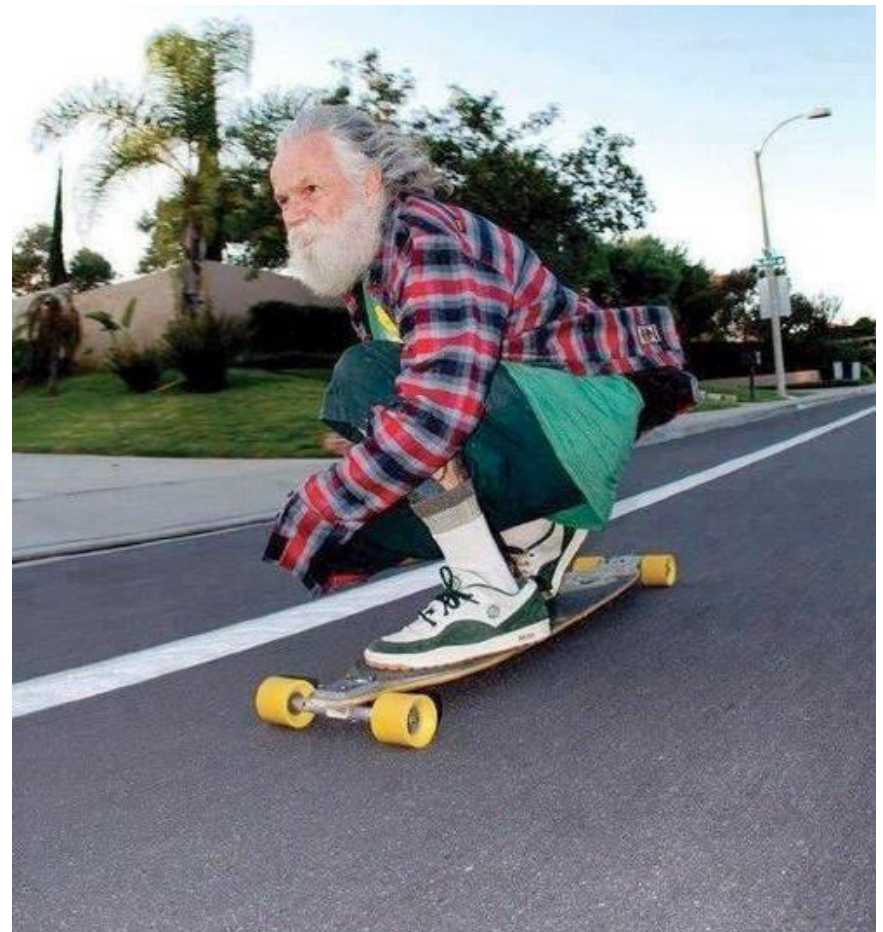
Bruno Vellas, Prevention of Frailty with Aging, UNM Geriatric Interest Rounds, August 3, 2017



Compression of Disability



Compression of Disability



Jacob ME, *et al.* Can a Healthy Lifestyle Compress the Disabled Period in Older Adults?

Journal of the American Geriatric Society 64:1952-1961, 2016.

- Study Design
 - Community-based cohort study
 - Data from Cardiovascular Health Study which followed adults aged 65 and older at baseline from 1990 for 25 years, **average age recruited = 73**
 - Data collected on years of life (years from baseline to death) and years of able life (years without any reported loss of ADLs)
 - 544 participants were still alive at the end of the study and their years of life and years of able life were estimated
 - Lifestyle information collected including BMI, smoking, alcohol, social support, dietary habits and exercise

Can a Healthy Lifestyle Compress the Disabled Period in Older Adults?

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OBJECTIVES: To determine whether lifestyle factors, measured late in life, could compress the disabled period toward the end of life.

DESIGN: Community-based cohort study of older adults followed from 1989 to 2015.

SETTING: Four U.S. communities.

PARTICIPANTS: Community-living men and women aged 65 and older (N = 5,248; mean age 72.7 ± 5.5, 57% female, 15.2% minority) who were not wheelchair dependent and were able to give informed consent at baseline.

MEASUREMENTS: Multiple lifestyle factors, including smoking, alcohol consumption, physical activity, diet, body mass index (BMI), social networks, and social support, were measured at baseline. Activities of daily living (ADLs) were assessed at baseline and throughout follow-up. Years of life (YoL) was defined as years until death. Years of able life (YAL) was defined as years without any ADL difficulty. YAL/YoL%, the proportion of life lived able, was used to indicate the relative compression or expansion of the disabled period.

RESULTS: The average duration of disabled years was 4.5 (out of 15.4 mean YoL) for women and 2.9 (out of 12.4

mean YoL) for men. In a multivariable model, obesity was associated with 7.3 percentage points (95% confidence interval (CI) = 5.4–9.2) lower YAL/YoL% than normal weight. Scores in the lowest quintile of the Alternate Healthy Eating Index were associated with a 3.7% (95% CI = 1.6–5.9) lower YAL/YoL% than scores in the highest quintile. Every 25 blocks walked in a week was associated with 0.5 percentage points (95% CI = 0.3–0.8) higher YAL/YoL%.

CONCLUSION: The effects of healthy lifestyle factors on the proportion of future life lived free of disability indicate that the disabled period can be compressed, given the right combination of these factors. *J Am Geriatr Soc* 64:1952–1961, 2016.

Key words: disability; older adults; lifestyle; active life expectancy

The duration of the disabled period near the end of life has enormous personal and societal implications.¹ A disabled older adult has poorer quality of life² and poorer health outcomes, including frequent hospital admissions³ and higher risk of mortality.^{4,5} Years lived with disability contribute substantially to Medicare costs,⁶ which are already projected to increase because of the aging of the baby-boom generation. Informal caregiving for disabled older adults, primarily by family members, result in considerable invisible cost.⁷ Despite these implications, and the obvious public health need to compress this terminal morbid period, there is limited evidence regarding the factors that influence the length and proportion of the disabled period near the end of life.

The average length of the disabled period in populations and its change over time in the context of increasing life expectancy has been the subject of much debate.⁸ Central to this debate is the compression of morbidity paradigm, which argues that healthy lifestyle factors can postpone the onset of disease and disability, compressing the morbid period.⁹ A healthy lifestyle can help postpone

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DOI: 10.1111/jgs.14314

JAGS 64:1952–1961, 2016

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0002-8614/16/\$15.00



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Lifestyle Factors

- Smoking (self-reported)
- Alcohol consumption (self-reported)
- Leisure time activity (Minnesota Leisure Time Activities Questionnaire, total kcal/week)
- Distances walked (self-reported blocks per week)
- Diet (National Cancer Institute Food Frequency Questionnaire)
- BMI
- Social Support (Interpersonal Support Evaluation List)
- Social Networks (Lubben Social Network Scale)

Potential Confounders Considered

- Sociodemographic factors: age, sex, race, education, income, marital status
- Baseline health indicators: self reported health, change in weight, IADL difficulties (telephone use, shopping, food preparation, housekeeping, and managing finances)
- Chronic health conditions
- Cognition (MMSE)
- Multiple medical issues (HTN, CAD, CHF, PAD, CVA, TIA, depression)

Jacob ME, *et al.* Can a Healthy Lifestyle Compress the Disabled Period in Older Adults?

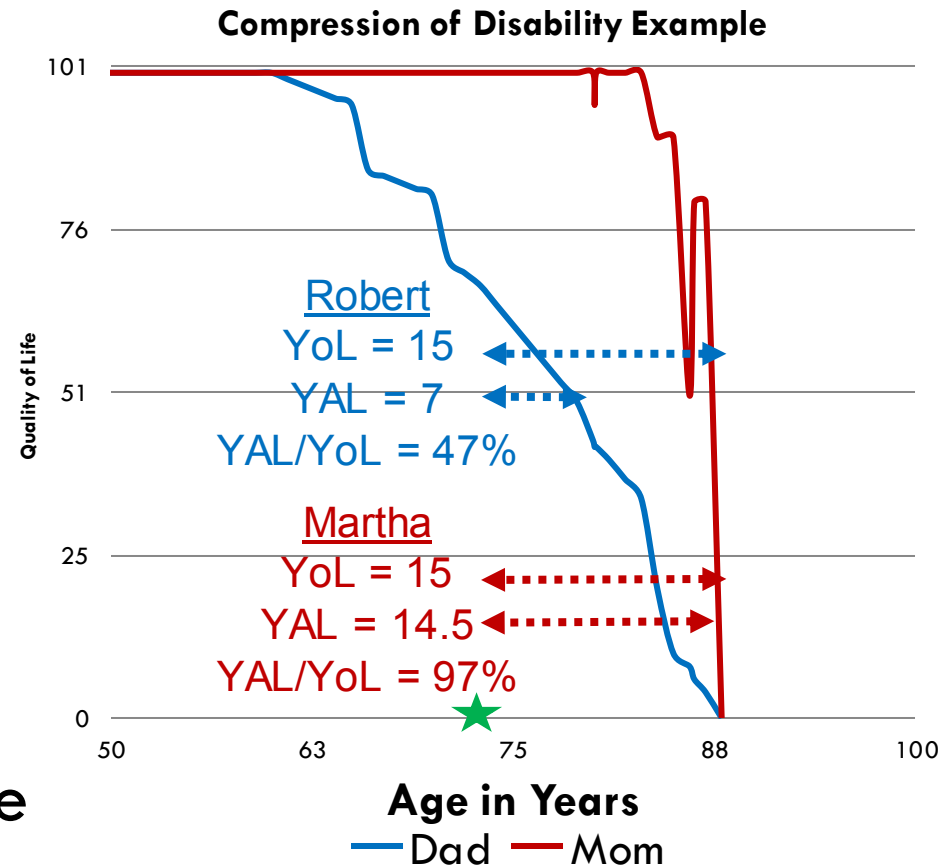
J Am Geriatr Soc 64:1952-1961, 2016.

Factor	“Healthy “Lifestyle	“Unhealthy” Lifestyle
Smoking	Never	Current
Alcohol	1 – 7 drinks/week	14 or more drinks/week
BMI	18.0 – 24.9 kg/m ²	≥30 kg/m ²
Exercise	High intensity	None
Leisure time activity/week	2,300 kcal/week (75 th %ile)	375 kcal/week (25 th %ile)
Blocks walked/week	48 (75 th %ile)	6 (25 th %ile)
Social network score	38 (75 th %ile)	28 (25 th %ile)
Social support score	6 (25 th %ile)	9 (75 th %ile)

Jacob ME, *et al.* Can a Healthy Lifestyle Compress the Disabled Period in Older Adults?

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- YAL = years of active life with no ADL deficit (dressing, grooming, toileting, mobility, eating)
- YoL = years of life
- (YoL – YAL = years of disabled life)
- Authors calculated YAL to YoL ratios as a percentage (higher is better)



Jacob ME, *et al.* Can a Healthy Lifestyle Compress the Disabled Period in Older Adults?

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- In older adults (mean 73 y.o.) the duration of the disabled period is:

- 2.9 years for men
- 4.5 years for women

- Lifestyle factors may compress or expand this disabled period
 - BMI ≥ 30 and unhealthy diet increase it
 - Walking more blocks / week can decrease it

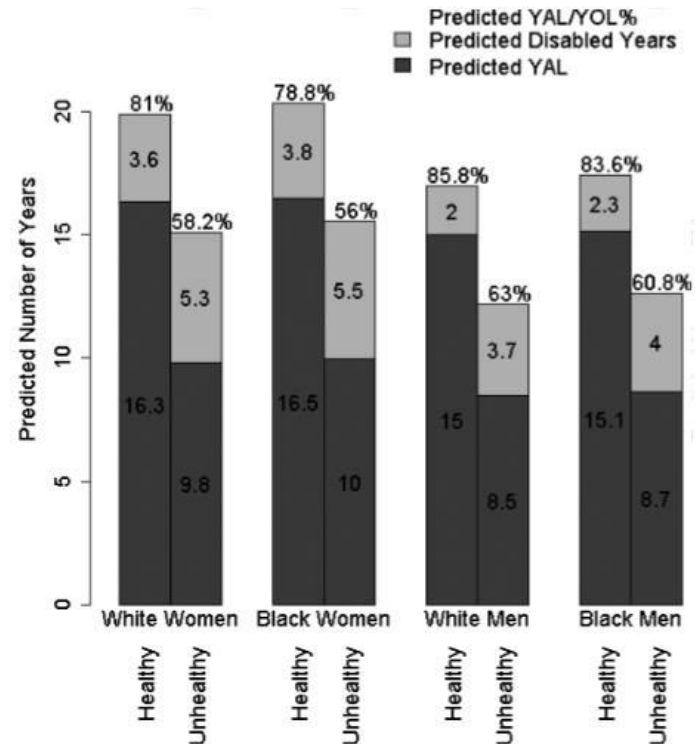
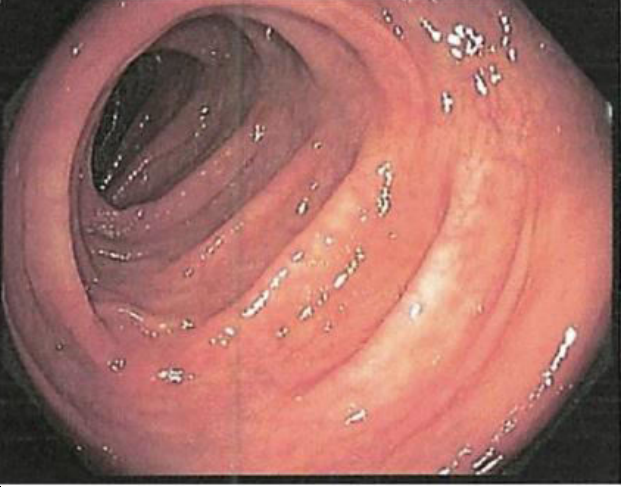


Figure 1. Predicted number of years of able life (YAL), disabled years, years of life (YoL), and YAL/YoL% in different race and sex groups with healthy and unhealthy lifestyles.

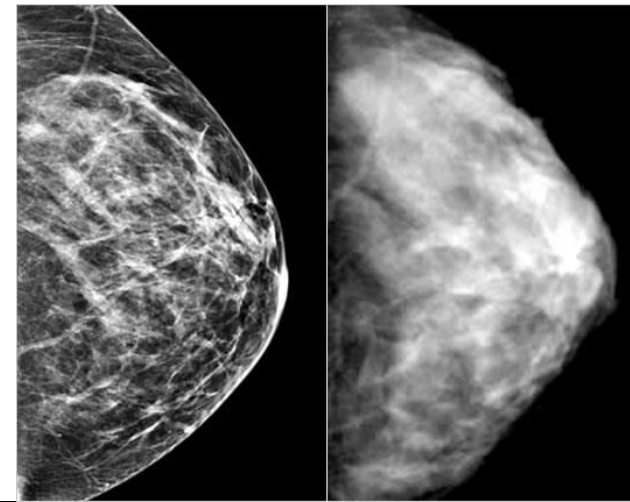
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Factor	Years of Life (YoL)	p-Value	Years of Active Life (YAL)	p-Value	YAL/YoL %	p-Value
Former Smoking	-1.3	<0.001	-1.2	<0.001		
Current Smoking	-3.5	<0.001	-3.1	<0.001	-2.6	
Former Drinker	1.1	0.001				
Blocks Walked per Week (per 25 blocks)					0.5	<0.001
Total Energy Expenditure kcal/week	0.2	0.003	0.3	0.001		
Eating Index (worst diet)	-1.5	<0.001	-1.5	<0.001	-3.7	0.001
BMI<18.5 (vs 18.5-24.9)	-3.0	<0.001				
BMI≥30.0 (vs 18.5-24.9)					-7.3	<0.001



Clinical Question 4:
At what age can I stop screening my
patients for cancer?



US Preventive Services Task Force

<https://www.uspreventiveservicestaskforce.org/Page/Name/focus-on-older-adults>

- Breast cancer screening
 - USPSTF recommends screening mammography for women, with or without clinical breast examination, every 1 to 2 years for women age 40 years and older.
 - Level of evidence = B
- Colon cancer screening
 - USPSTF recommends screening for colorectal cancer starting at age 50 years and continuing until age 75 years.
 - Level of evidence = A

U.S. Preventive Services TASK FORCE

Search USPSTF Website

E-mail Updates Text size: A A

You are here: Home » Methods and Processes » Special Populations » Focus on Older Adults

Focus on Older Adults

What is the U.S. Preventive Services Task Force?

The USPSTF is an independent panel of experts in prevention and primary care that evaluates available evidence and makes recommendations about clinical preventive services, including screenings, counseling, and preventive medications. The Task Force determines whether or not the evidence supports providing a clinical preventive service in primary care settings to people without symptoms. For a service to be recommended, the evidence must show that the potential benefits of providing that service outweigh the potential harms.

Select to learn more [about the USPSTF](#).

Select to learn more [about how the USPSTF reviews and rates evidence](#).

Some recommendations made by the USPSTF apply to people in specific age groups. Therefore, the USPSTF includes members with expertise related to different stages of life. USPSTF membership includes geriatricians, family physicians, and nurse practitioners who specialize in the care of older adults. In addition, the USPSTF seeks advice from Federal agencies and major professional societies focused on the health of older adults, including the Veterans Health Administration, the Administration on Aging, the American Academy of Family Physicians, the American Medical Association, and AARP. The USPSTF also convenes an Older Adults Workgroup to address the specific preventive health needs of this population.

What is the USPSTF Older Adults Workgroup and What Does It Do?

The Older Adults Workgroup of the USPSTF is a group of USPSTF members and other experts with interest and expertise in special issues facing older adults. The goal of the Older Adults Workgroup is to provide feedback to the larger Task Force on methods of reviewing evidence and developing evidence-based recommendations on preventive services specific to older adults.

Activities of the Older Adults Workgroup include:

- Advising the Task Force on the refinement of its methods.
- Publishing articles on USPSTF methods related to older adults.
- Serving as consultants and peer reviewers on relevant Task Force projects.
- Discussing the scope of preventive health topics for older adults under review by the Task Force.

Select for a list of [current USPSTF Older Adults Workgroup members](#).

How Does the USPSTF Review Evidence on the Health of Older Adults?

Developing evidence-based recommendations on preventive services for older adults is challenging because: 1) many diseases in older adults have multiple different risk factors and causes; 2) individual preventive interventions for older adults address multiple diseases and outcomes; 3) older adults are not often included in medical studies; and 4) important outcomes may not be studied or reported in ways conducive to evidence synthesis and interpretation. To address these challenges, the USPSTF has committed to identifying ways to focus on older adults in all stages of its work, from topic selection and prioritization to post-publication dissemination. The USPSTF Older Adults Workgroup has developed a draft analytic framework to use when reviewing the evidence on the benefits of preventive services for older adults; the analytic framework will be further refined in future work.

Current Research to Improve the Health of Older Adults

USPSTF Recommendations for Older Adults

The following topics either include specific recommendations for adults ages 65 years and older or target preventive services primarily provided to older adults, diseases that carry a higher burden for older adults, or diseases that generally occur in older adults.

- Abdominal Aortic Aneurysm Screening
- Breast Cancer Screening
- Carotid Artery Stenosis Screening
- Cervical Cancer Screening
- Colorectal Cancer Screening
- Coronary Heart Disease Screening
- Dementia Screening
- Falls Prevention in Older Adults
- Hearing Loss in Older Adults
- Hormone Replacement Therapy
- Immunizations, Adult
- Osteoporosis Screening
- Ovarian Cancer Screening
- Peripheral Arterial Disease Screening
- Prostate Cancer Screening
- Thyroid Disease Screening
- Vision Screening in Older Adults

For a list of all USPSTF recommendations, go to <http://www.uspreventiveservicestaskforce.org/Fag-and-recommendations>.

Tools for Using the USPSTF Recommendations for Older Adults

Based on recommendations from the USPSTF, these tools are designed to help primary care clinicians access information at the point of care.

- [Pocket Guide to Clinical Preventive Services, 2010-2011](#)^{PDF}
- [Electronic Preventive Services Selector \(ePSS\)](#)^{PDF}
- [Partnership for Health Patient Brochures and Clinician Fact Sheets](#)^{PDF}
- [Men: Stay Healthy at 50+](#)^{PDF}
- [Women: Stay Healthy at 50+](#)^{PDF}

You may want to get out your cell phone...



US Preventive Services Task Force

<https://www.uspreventiveservicestaskforce.org/Page/Name/individualizing-cancer-screening-in-older-adults>

“In the last 4 years, the U.S. Preventive Services Task Force (USPSTF) has issued recommendations for individualizing screening decisions for colon, breast, and cervical cancer in older adults, noting the importance of considering both quantity and quality of life in screening decisions. In addition, the USPSTF rating system has been revised to more explicitly reflect the balance of benefits and harms...”



The screenshot displays the U.S. Preventive Services Task Force (USPSTF) website. The header includes the USPSTF logo, a search bar, and links for E-mail Updates, Text size, and accessibility icons. A breadcrumb trail indicates the current page: Home » Methods and Processes » Special Populations » Focus on Older Adults » Individualizing Cancer Screening in Older Adults. The main title is 'Individualizing Cancer Screening in Older Adults: A Narrative Review and Framework for Future Research'. Below this is a 'Table of Contents' with links to Preface, Abstract, Introduction, Clinical Examples, Challenges, Summary and Recommendations, Acknowledgments, Copyright, and References. The 'Preface' section is expanded, showing the authors (Elizabeth Ekstrom, MD, MPH; David H. Feeny, PhD; Louise C. Walter, MD; Leslie A. Perdue, MPH; and Evelyn P. Whitlock, MD, MPH) and a note that the article was first published in the *Journal of General Internal Medicine*. It includes a 'Return to Table of Contents' link. The 'Abstract' section follows, summarizing the challenges in screening older adults. The 'Introduction' section begins with a paragraph about the USPSTF's revised rating system and its focus on quality of life.

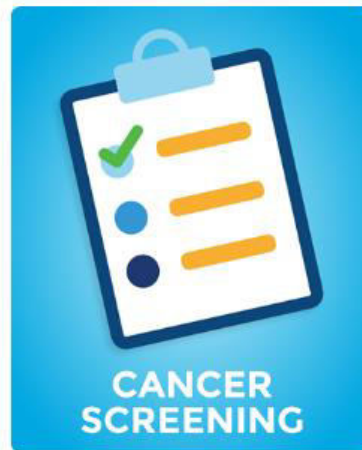


SCHOOL OF MEDICINE

Go to <http://eprognosis.ucsf.edu/> while I am talking...

ePrognosis Web Application

WHAT WOULD YOU LIKE TO DO?



WHAT WOULD YOU LIKE TO SCREEN FOR?



**COLORECTAL
CANCER**



**BREAST
CANCER**



**BOTH
CANCERS**



Question 1-3

50-59

Male

60-64

Female

65-69

Weight :

lbs

lbs

70-74

Height :

feet

ft

inch

in

75-79

80-84

Imperial

85+

Next



Question 4

In general, what would this
person say his or her health is?

Excellent or Very Good

Good

Fair or Poor

Back



Question 5

Has a doctor told this person
that he or she has a chronic
lung disease, such as
emphysema or chronic
bronchitis?

Yes

No

Back



Question 6

Has a doctor told this person
that he or she has cancer
(excluding minor skin cancers)?

Yes

No

Back



Question 7

Has a doctor told this person
that he or she has congestive
heart failure?

Yes

No

Back



Question 8

Has a doctor ever told this
person that he or she has
diabetes or high blood sugar?

Yes

No

Back



Question 9

Which best describes this
person's cigarette use?

Never smoked

Former smoker

Current smoker

Back



Question 10

Does this person have difficulty
walking a quarter mile (several
city blocks) without help from
other people or special
equipment?

Yes

No

Back



Question 11

During the past 12 months,
how many times was this
person hospitalized overnight?

None

Once

Twice

Back



Question 12

Because of a health or memory
problem, does this person have
any difficulty with managing his
or her money, such as paying
bills or keeping track of
expenses?

Yes

No

Back



Question 13

Because of a health or memory problem, does this person have any difficulty with bathing or showering?

Yes

No

Back



Question 14

Because of a physical, mental or emotional problem, does this person need the help of others in handling routine needs such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?

Yes

No



Question 15

Because of a health problem,
does this person have any
difficulty pushing or pulling
large objects like a living room
chair?

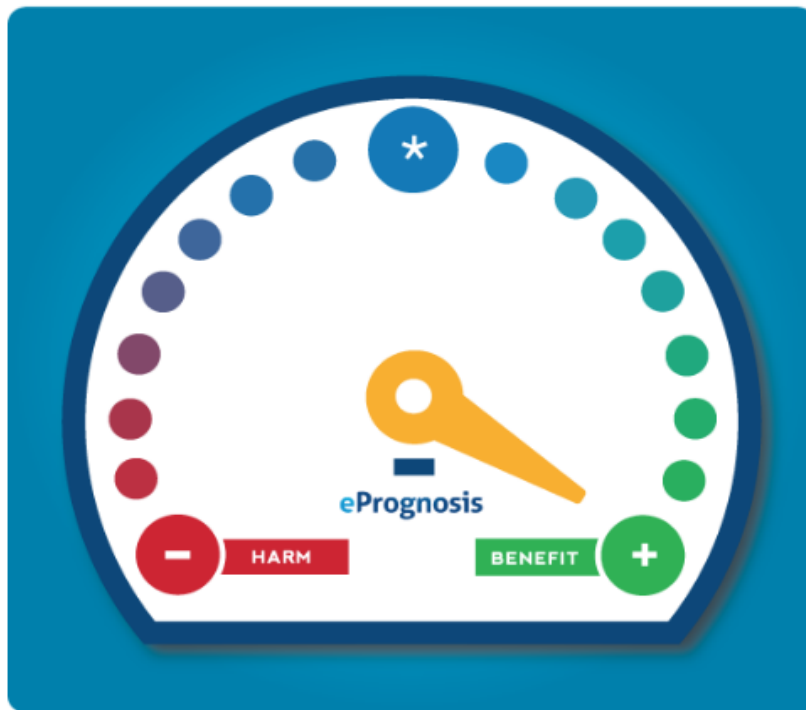
Yes

No

Back

Question	Response
What are you interested in?	Both Cancers
Age	70-74
Gender	Female
Weight and Height	120, 5' 2"
In general, what would this person say his/her health is?	Excellent/Very Good
Chronic bronchitis or COPD?	No
Cancer history (except skin)?	No
CHF?	No
Diabetes or high blood sugar?	No
Cigarette use?	Never smoker
Difficulty walking ¼ mile?	No
Overnight hospitalization in last 12 months?	No
Difficulty paying bills due to health/memory problem?	No
Difficulty bathing due to memory problem?	No
Difficulty with IADLs due to health problem?	No
Difficulty moving large objects (due to health condition)?	No

70-74 year old Female, Excellent Health



RESULTS

SCREENING FOR BREAST OR
COLORECTAL CANCER IS MORE
LIKELY TO HELP THIS PERSON
THAN TO HARM THEM.

THUS, SCREENING WOULD
GENERALLY BE RECOMMENDED.

⊖ VIEW HARMS

⊕ VIEW BENEFITS

BENEFITS

COLORECTAL CANCER

- + Getting tested for colorectal cancer may lower a person's chances of dying from colorectal cancer.
- + Getting tested for colorectal cancer is more likely to find colorectal cancer when it is small, improving a person's chances of only needing a minor surgery.
- + Getting tested for colorectal cancer may help a person feel good about his or her health.

BREAST CANCER

- + A mammogram is more likely to find breast cancer when it is small, improving a woman's chances of only needing a minor surgery.
- + Getting a mammogram may lower a woman's chances of dying from breast cancer.
- + Getting a mammogram may help a woman feel good about herself and her health.

[^ BACK TO TOP](#)

HARMS

COLORECTAL CANCER

- Getting tested for colorectal cancer may cause a person to worry or feel anxious.
- Getting tested for colorectal cancer may be uncomfortable.
- Occasionally, getting tested for colorectal cancer with a colonoscopy can cause severe abdominal pain.
- Occasionally during a colonoscopy, a hole is accidentally made in the wall of the intestines. If this happens a person has to go for an emergency surgery to stop the contents of the intestines from leaking out from the intestines and causing infection.
- In rare cases, testing for colorectal cancer may result in death.

BREAST CANCER

- Getting a mammogram may be uncomfortable or cause anxiety.
- Some women who get a mammogram will experience a false alarm. These women are told their mammogram is abnormal but additional tests do not show breast cancer. Some women find this experience caused anxiety.
- Additional tests include: Additional mammograms, Breast ultrasounds, Breast biopsies
- A mammogram may find breast cancer that could never have caused problems or symptoms in a woman's lifetime.
- Getting a mammogram may increase the number of tests and treatments a woman gets in her lifetime. Some of the tests and treatments may cause pain, bleeding, fatigue, infection, or other symptoms.



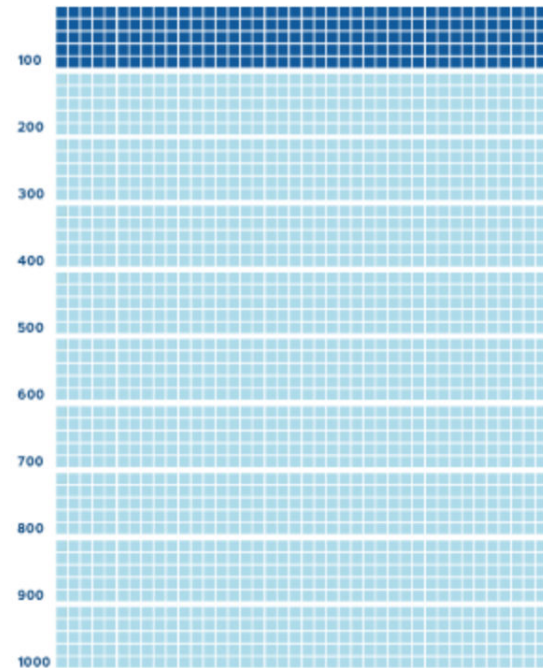
SCHOOL OF MEDICINE

LEARN MORE ✓

OF 1000 PEOPLE LIKE THIS PERSON
WHO GOT TESTED FOR BREAST OR
COLORECTAL CANCER

100

PEOPLE WILL EXPERIENCE HARM IN
THE FIRST YEAR.

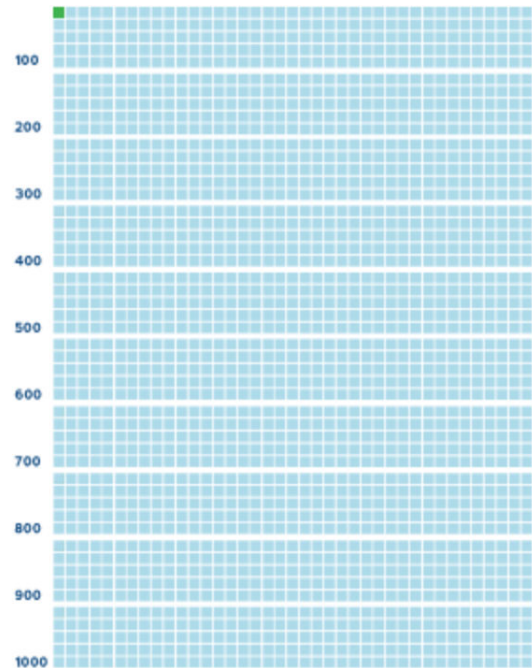


LEARN MORE ✓

AFTER 10 YEARS, OF 1000 PEOPLE LIKE
THIS PERSON WHO GOT TESTED FOR
BREAST OR COLORECTAL CANCER

1

WILL AVOID DEATH FROM BREAST OR
COLORECTAL CANCER.

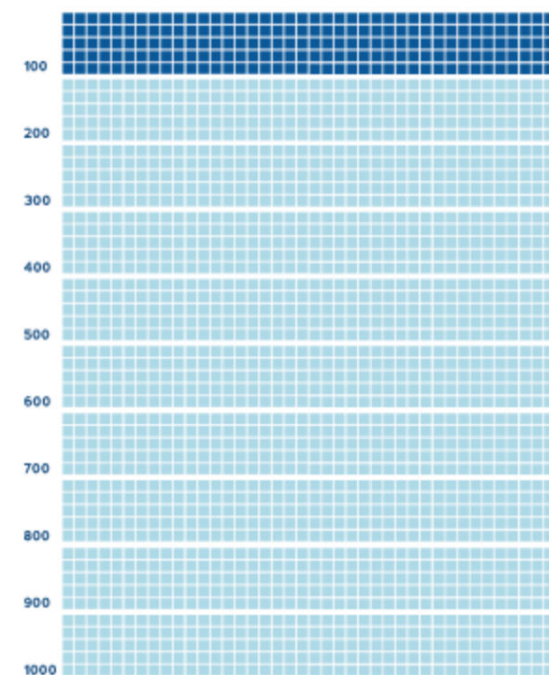


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AFTER 10 YEARS, OF THE 1000 PEOPLE
LIKE THIS PERSON

100

WILL DIE WHETHER OR NOT THEY GOT
TESTED FOR BREAST OR
COLORECTAL CANCER.



SCHOOL OF MEDICINE

[Share](#)[Done](#)

70-74 years old
Excellent Health



Harms

Benefits

Testing for breast cancer and colorectal cancer is more likely to help this person than harm them. Thus, screening would generally be recommended.

[Learn More](#)[Responses](#)

ePrognosis | Cancer Screening

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75-79 years old
Excellent Health



Harms

Benefits

It is not clear that getting tested for breast cancer and/or colorectal cancer will help this person. This person's thoughts and feelings should be the major driver of the decision.

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80-84 years old
Excellent Health



Harms

Benefits

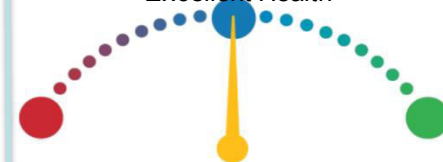
It is not clear that getting tested for breast cancer and/or colorectal cancer will help this person. This person's thoughts and feelings should be the major driver of the decision.

[Learn More](#)[Responses](#)

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85+ years old
Excellent Health



Harms

Benefits

It is not clear that getting tested for breast cancer and/or colorectal cancer will help this person. This person's thoughts and feelings should be the major driver of the decision.

[Learn More](#)[Responses](#)

ePrognosis | Cancer Screening



SCHOOL OF MEDICINE

Question	Response
What are you interested in?	Both Cancers
Age	70-74
Gender	Female
Weight and Height	120, 5' 2"
In general, what would this person say his/her health is?	Good
Chronic bronchitis or COPD?	Yes
Cancer history (except skin)?	No
CHF?	No
Diabetes or high blood sugar?	No
Cigarette use?	Former smoker
Difficulty walking ¼ mile?	Yes
Overnight hospitalization in last 12 months?	Once
Difficulty paying bills due to health/memory problem?	No
Difficulty bathing due to memory problem?	No
Difficulty with IADLs due to health problem?	No
Difficulty moving large objects (due to health condition)?	Yes

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70-74 years old
Excellent Health



Harms

Benefits

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[Learn More](#)

[Responses](#)

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70-74 years old
COPD



Harms

Benefits

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[Learn More](#)

[Responses](#)

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75-79 years old
Excellent Health



Harms

Benefits

It is not clear that getting tested for breast cancer and/or colorectal cancer will help this person. This person's thoughts and feelings should be the major driver of the decision.

[Learn More](#)

[Responses](#)

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75-79 years old
COPD



Harms

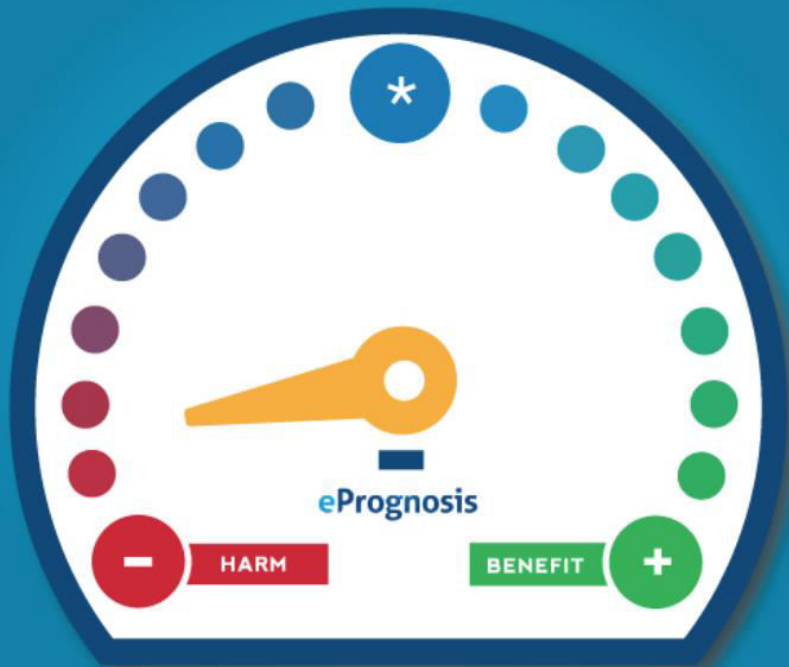
Benefits

Testing for breast cancer and/or colorectal cancer is more likely to harm this person than to help them. Thus, screening would generally not be recommended.

[Learn More](#)

[Responses](#)

85+ year old Female with COPD



RESULTS

SCREENING FOR BREAST OR
COLORECTAL CANCER IS MORE
LIKELY TO HARM THIS PERSON THAN
TO HELP THEM.

THUS, SCREENING WOULD
GENERALLY NOT BE RECOMMENDED.

⊖ VIEW HARMS

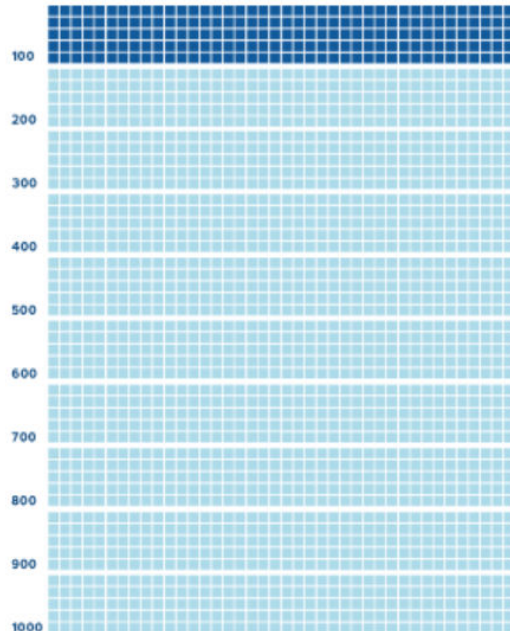
⊕ VIEW BENEFITS

LEARN MORE

OF 1000 PEOPLE LIKE THIS PERSON
WHO GOT TESTED FOR BREAST OR
COLORECTAL CANCER

100

PEOPLE WILL EXPERIENCE HARM IN THE
FIRST YEAR.

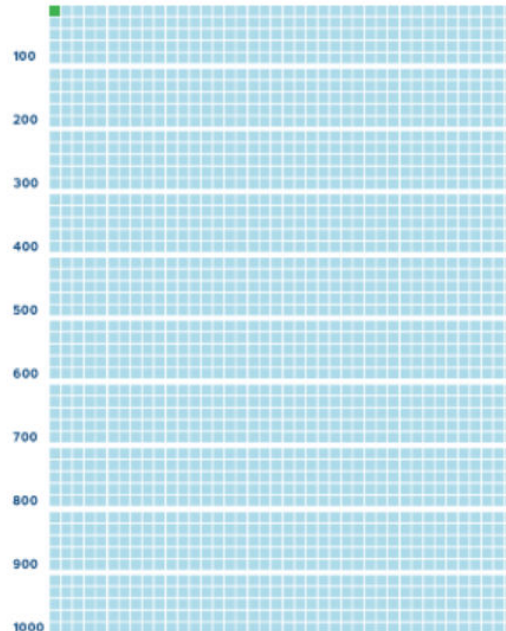


LEARN MORE

AFTER 10 YEARS, OF 1000 PEOPLE LIKE
THIS PERSON WHO GOT TESTED FOR
BREAST OR COLORECTAL CANCER

1

WILL AVOID DEATH FROM BREAST OR
COLORECTAL CANCER.

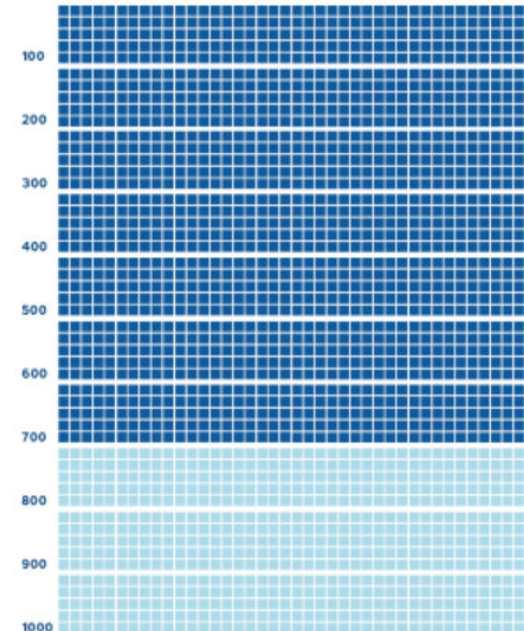


LEARN MORE

AFTER 10 YEARS, OF THE 1000 PEOPLE
LIKE THIS PERSON

700

WILL DIE WHETHER OR NOT THEY GOT
TESTED FOR BREAST OR
COLORECTAL CANCER.



[Share](#)[Done](#)

70-74 years old
Excellent Health

[Harms](#)[Benefits](#)

Testing for breast cancer and colorectal cancer is more likely to help this person than harm them. Thus, screening would generally be recommended.

[Learn More](#)[Responses](#)

ePrognosis | Cancer Screening

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75-79 years old
Excellent Health

[Harms](#)[Benefits](#)

It is not clear that getting tested for breast cancer and/or colorectal cancer will help this person. This person's thoughts and feelings should be the major driver of the decision.

[Learn More](#)[Responses](#)

ePrognosis | Cancer Screening

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80-84 years old
Excellent Health

[Harms](#)[Benefits](#)

It is not clear that getting tested for breast cancer and/or colorectal cancer will help this person. This person's thoughts and feelings should be the major driver of the decision.

[Learn More](#)[Responses](#)

ePrognosis | Cancer Screening

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85+ years old
Excellent Health

[Harms](#)[Benefits](#)

It is not clear that getting tested for breast cancer and/or colorectal cancer will help this person. This person's thoughts and feelings should be the major driver of the decision.

[Learn More](#)[Responses](#)

ePrognosis | Cancer Screening

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70-74 years old
COPD

[Harms](#)[Benefits](#)

It is not clear that getting tested for breast cancer and/or colorectal cancer will help this person. This person's thoughts and feelings should be the major driver of the decision.

[Learn More](#)[Responses](#)

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75-79 years old
COPD

[Harms](#)[Benefits](#)

Testing for breast cancer and/or colorectal cancer is more likely to harm this person than to help them. Thus, screening would generally not be recommended.

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80-84 years old
COPD

[Harms](#)[Benefits](#)

Testing for breast cancer and/or colorectal cancer is more likely to harm this person than to help them. Thus, screening would generally not be recommended.

[Learn More](#)[Responses](#)

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85+ years old
COPD

[Harms](#)[Benefits](#)

Testing for breast cancer and/or colorectal cancer is more likely to harm this person than to help them. Thus, screening would generally not be recommended.

[Learn More](#)[Responses](#)

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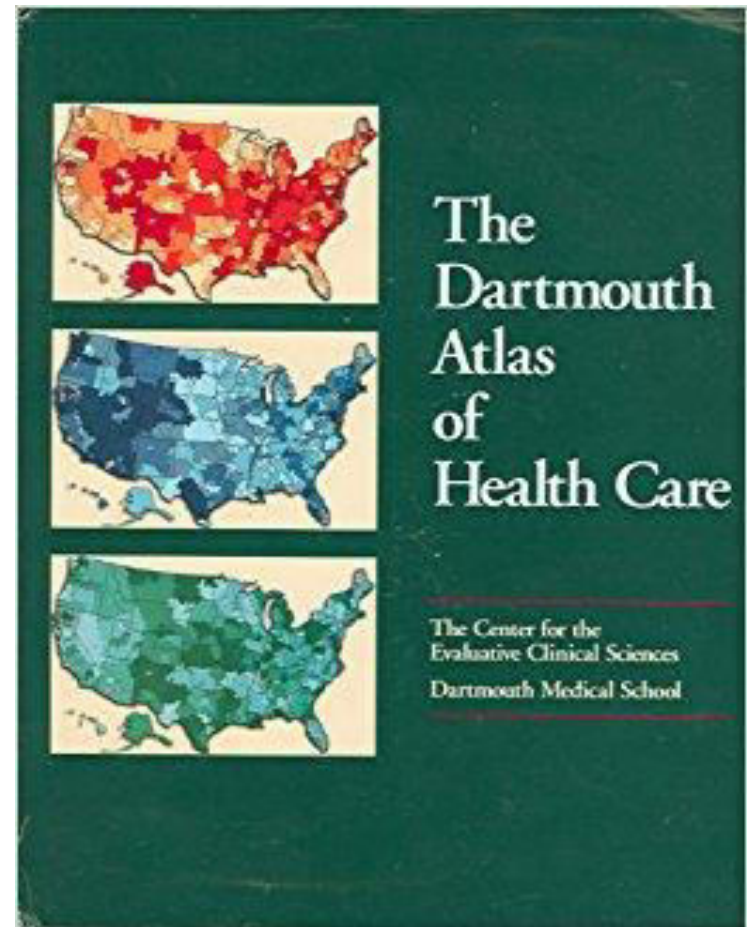


Extra:

How does New Mexico compare to other states in our care of Seniors?

The Dartmouth Atlas of Health Care

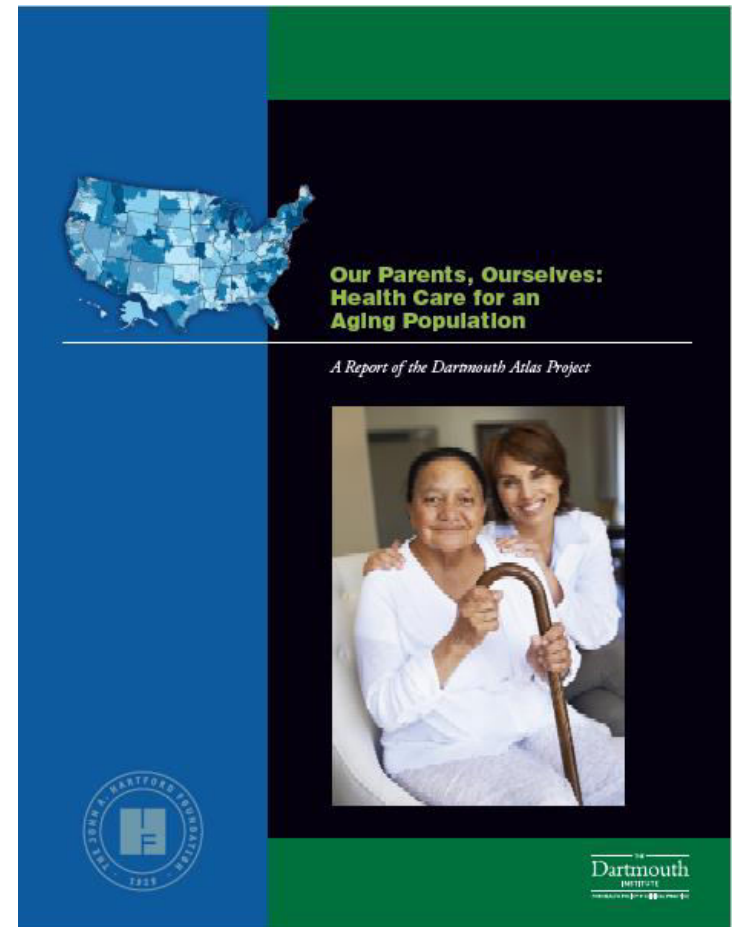
- Created by John Wennberg, MD at Dartmouth
- 20 year history of examining variation in health care:
 - Medicare spending
 - Supply-sensitive care
 - Preference-sensitive care
 - Physician workforce
 - End of life care
 - Racial disparities
 - Effective care
 - Accountable care



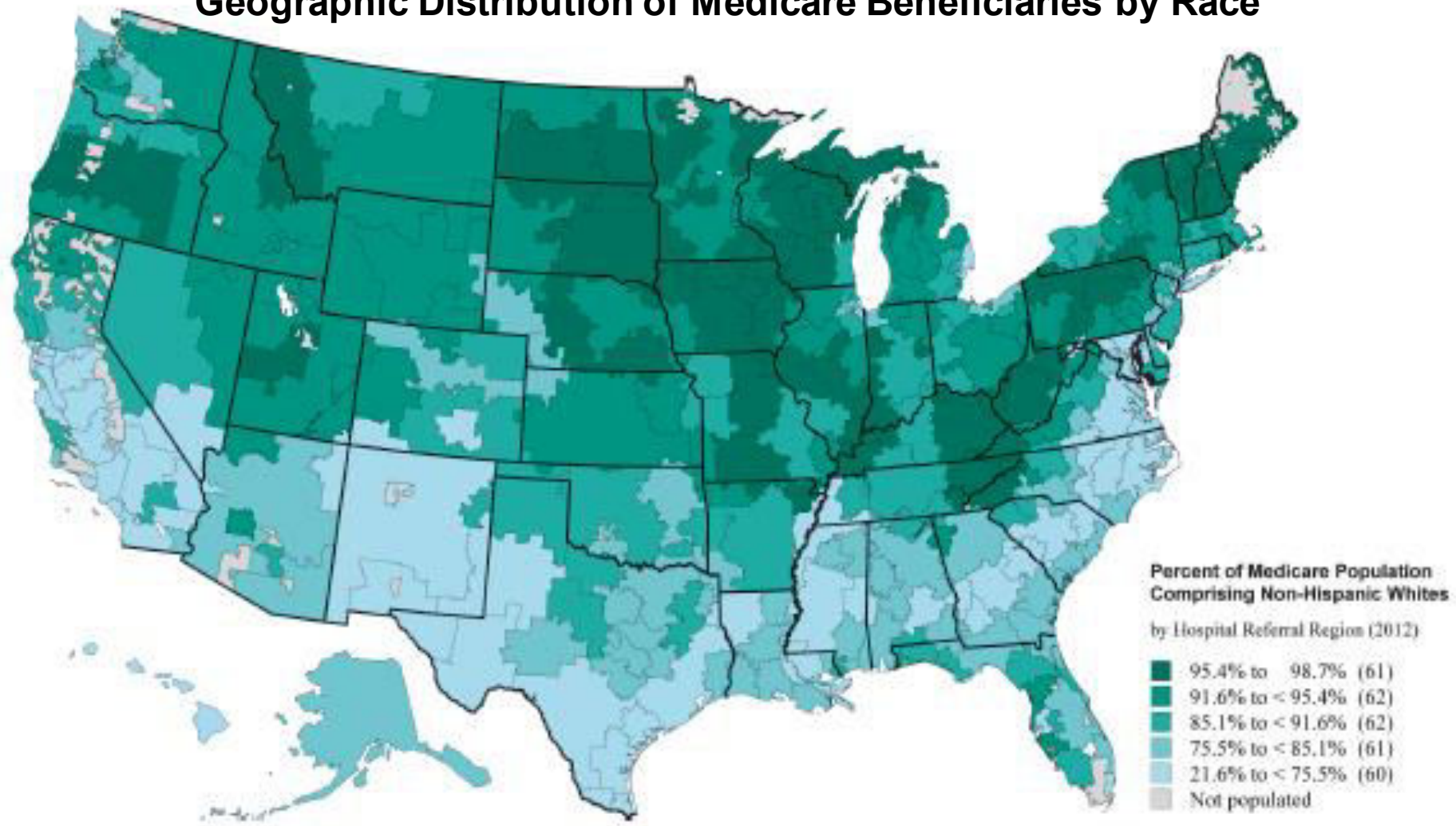
Dartmouth Atlas for Seniors

Our Parents, Ourselves: Health Care for an Aging Population. A Report of the Dartmouth Atlas Project. 2016.
http://www.dartmouthatlas.org/downloads/reports/Our_Parents_Ourselves_021716.pdf

- A new version Dartmouth Atlas focuses specifically on the unique needs of older population
- Differences from earlier Atlas reports that evaluate the type and amount of care:
 - Uses a patient-centered measure of “contact days,” the number of days that a person receives a Medicare service outside of the home (e.g., inpatient, clinic, testing and procedures)
 - Evaluates over- and well as under-treatment
 - Includes care of persons with multiple chronic conditions (MCC) and dementia

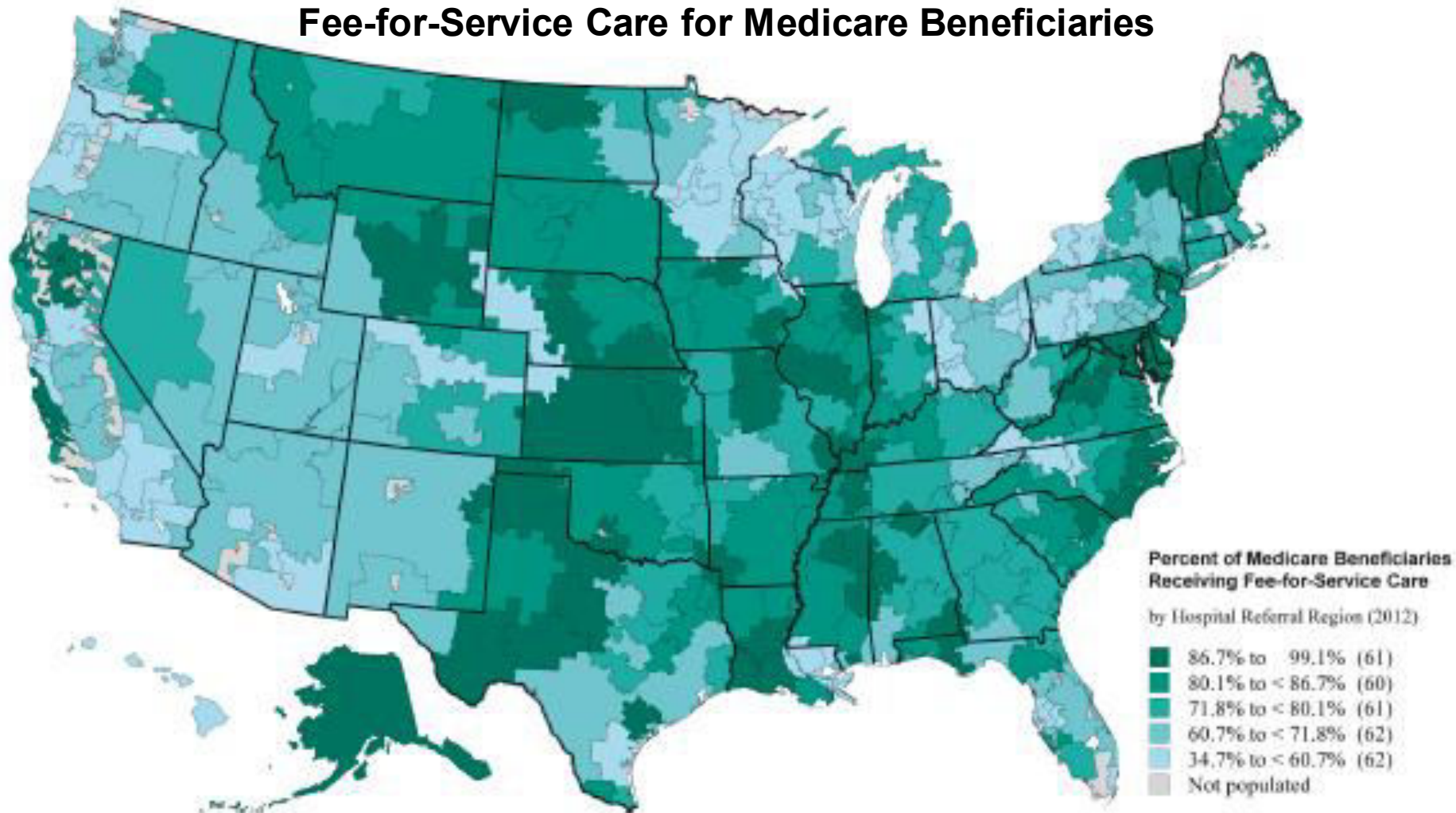


Geographic Distribution of Medicare Beneficiaries by Race



Map 2. Percent of Medicare beneficiaries whose race was non-Hispanic White, by hospital referral region (2012)
Rates are unadjusted.

Fee-for-Service Care for Medicare Beneficiaries



San Francisco



Chicago



New York



Washington-Baltimore

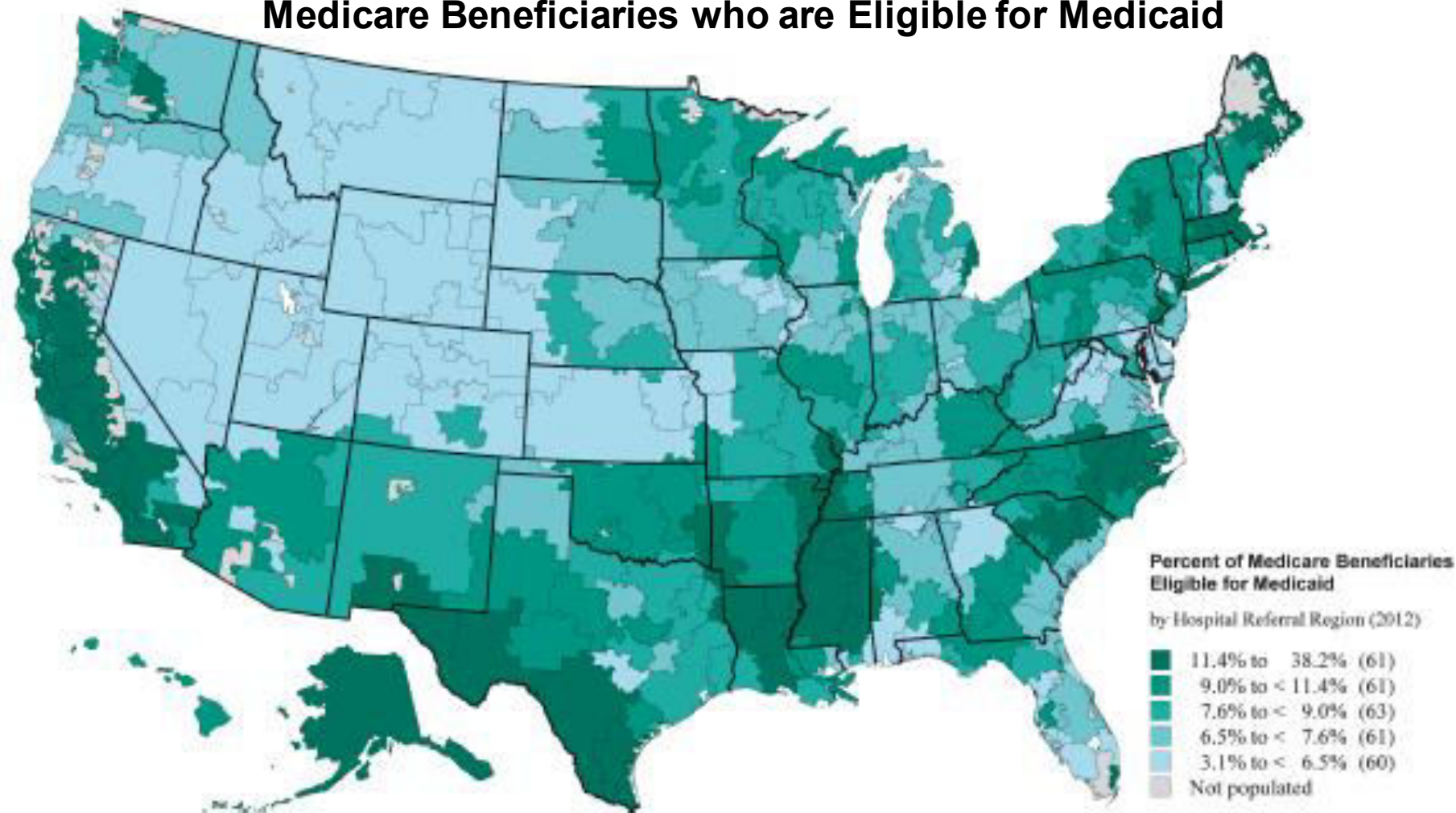


Detroit

Map 3. Percent of Medicare beneficiaries receiving fee-for-service care, by hospital referral region (2012)

Rates are unadjusted.

Medicare Beneficiaries who are Eligible for Medicaid



San Francisco



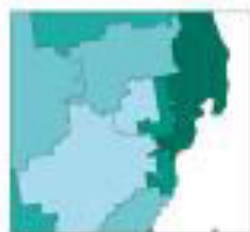
Chicago



New York



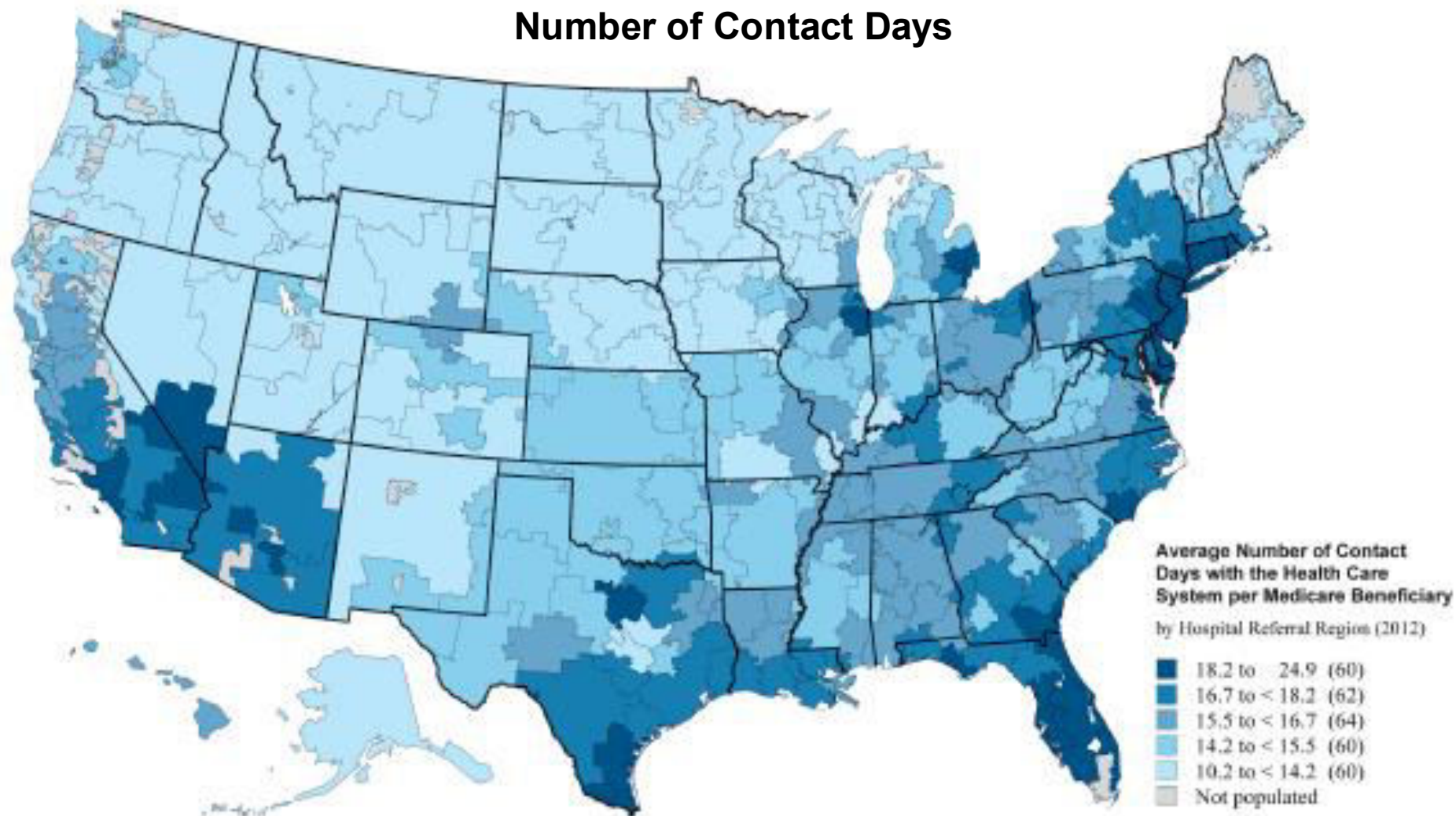
Washington-Baltimore



Detroit

Map 5. Percent of dual-eligible Medicare beneficiaries, by hospital referral region (2012)
Rates are unadjusted.

Number of Contact Days



San Francisco



Chicago



New York



Washington-Baltimore

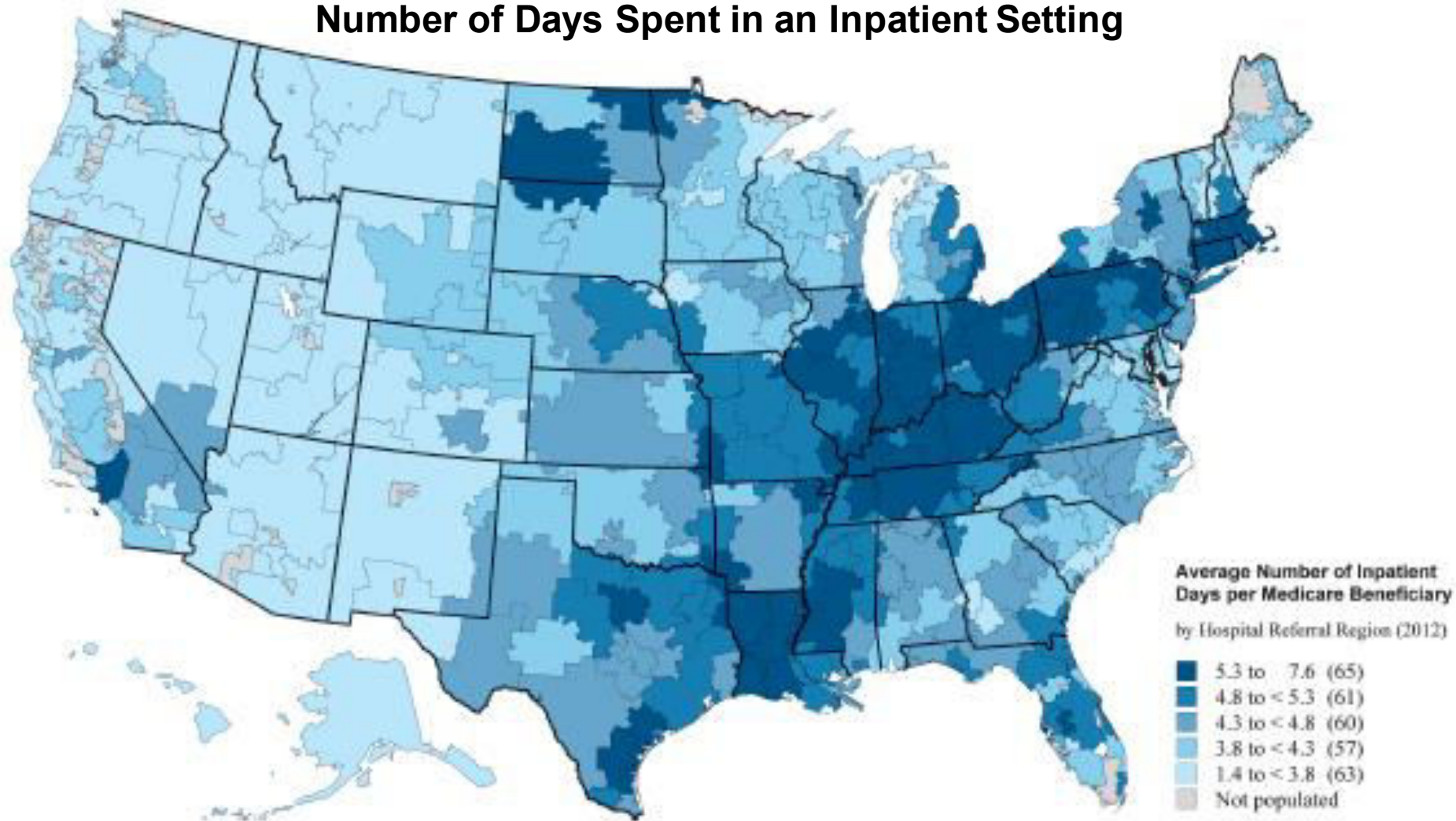


Detroit

Map 7. Average number of days that Medicare beneficiaries were in contact with the health care system, by hospital referral region (2012)

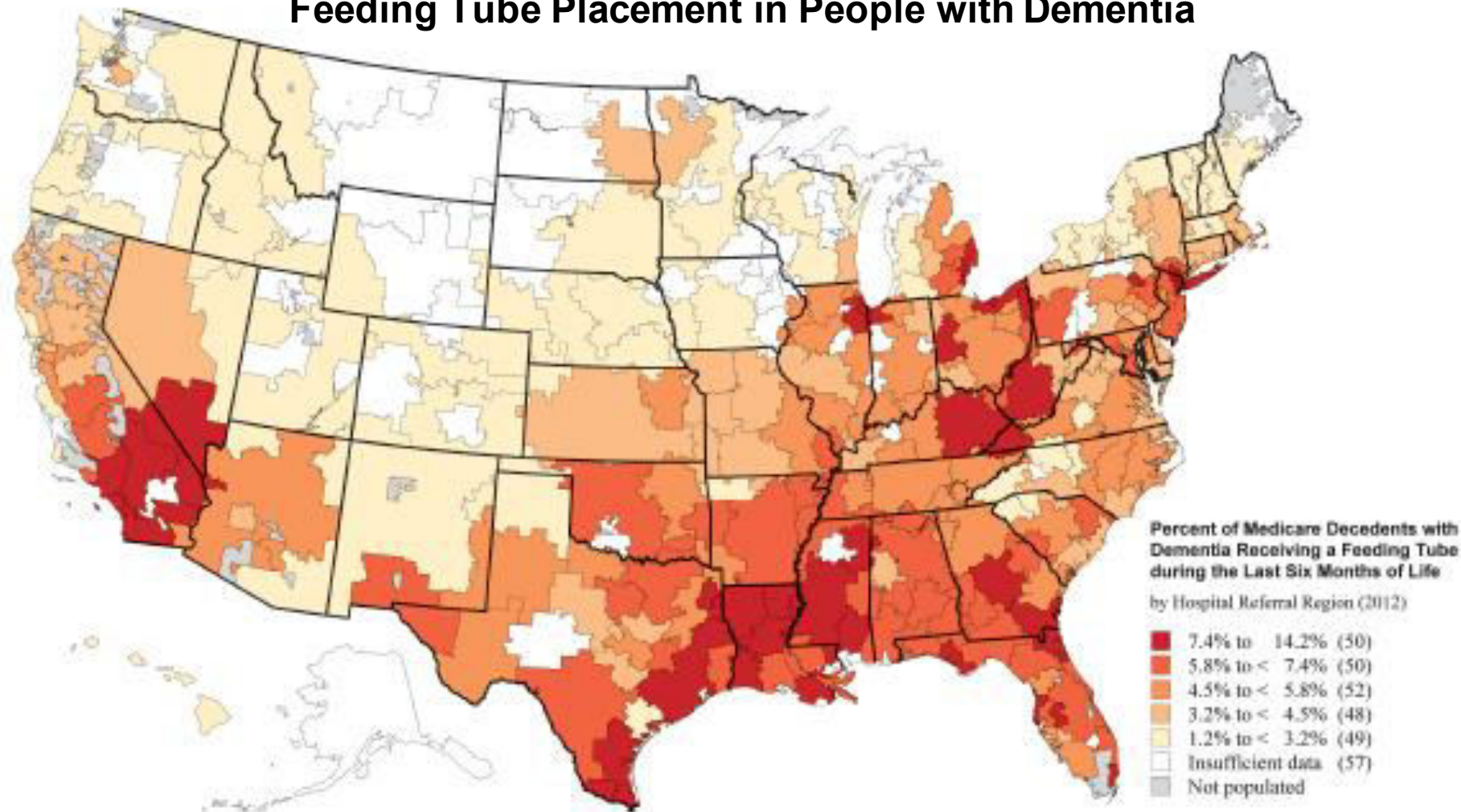
Rates are adjusted for age, sex, and race.

Number of Days Spent in an Inpatient Setting

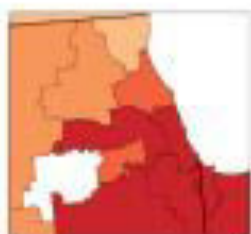


Map 11. Average number of days spent in an inpatient setting per Medicare beneficiary, by hospital referral region (2012)
Rates are adjusted for age, sex, and race.

Feeding Tube Placement in People with Dementia



San Francisco



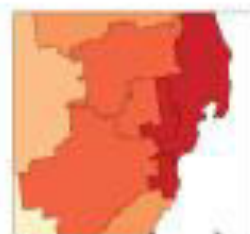
Chicago



New York



Washington, Baltimore

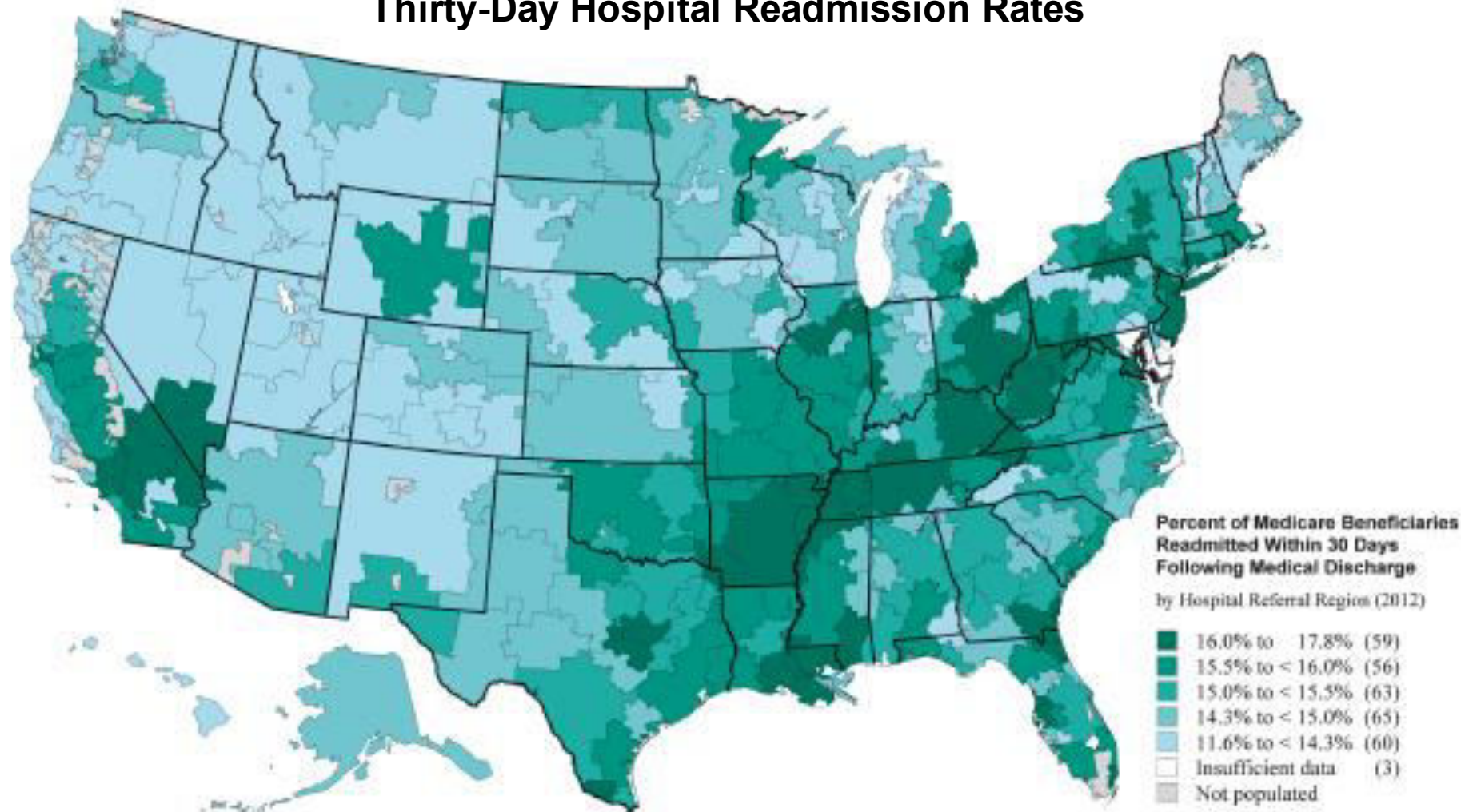


Detroit

Map 15. Percent of Medicare beneficiaries with dementia who received a feeding tube during the last six months of life, by hospital referral region (2012)

Rates are adjusted for age, sex, and race.

Thirty-Day Hospital Readmission Rates



San Francisco



Chicago



New York



Washington, Baltimore



Detroit

Map 20. Thirty-day readmission rate following discharge for medical conditions among Medicare beneficiaries, by hospital referral region (2012)

Rates are adjusted for age, sex, and race.

New Mexico Population Data Sources

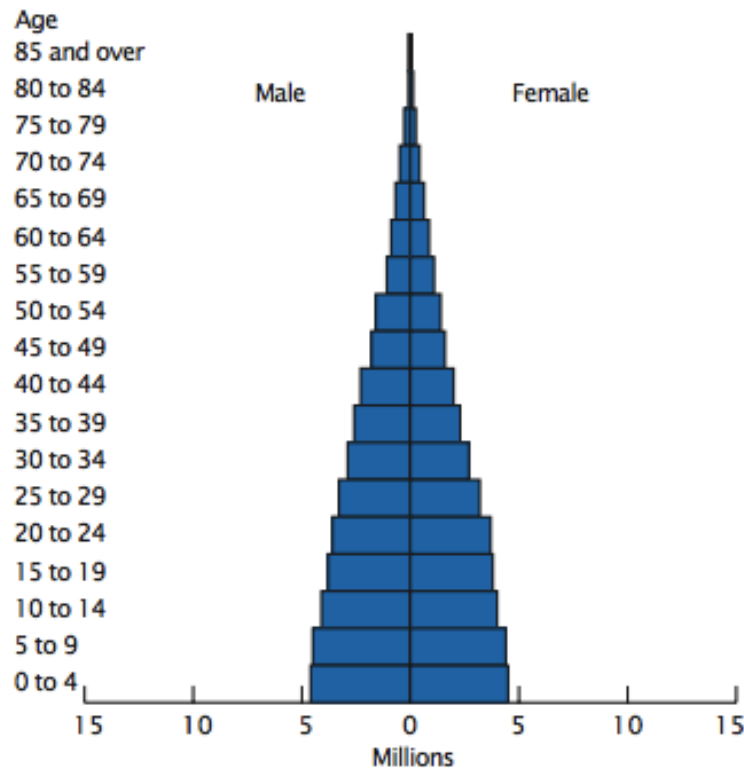
- UNM BBER Population Data: 1900-2010
- UNM Geospatial and Population Studies (GPS): 2020-2040, Robert Rhatigan
- West LA, Cole S, Goodkind D, He W. 65+ in the United States: 2010. US Bureau of Census. 2014.

US and NM Population Data: 1900

Figure 1-5.

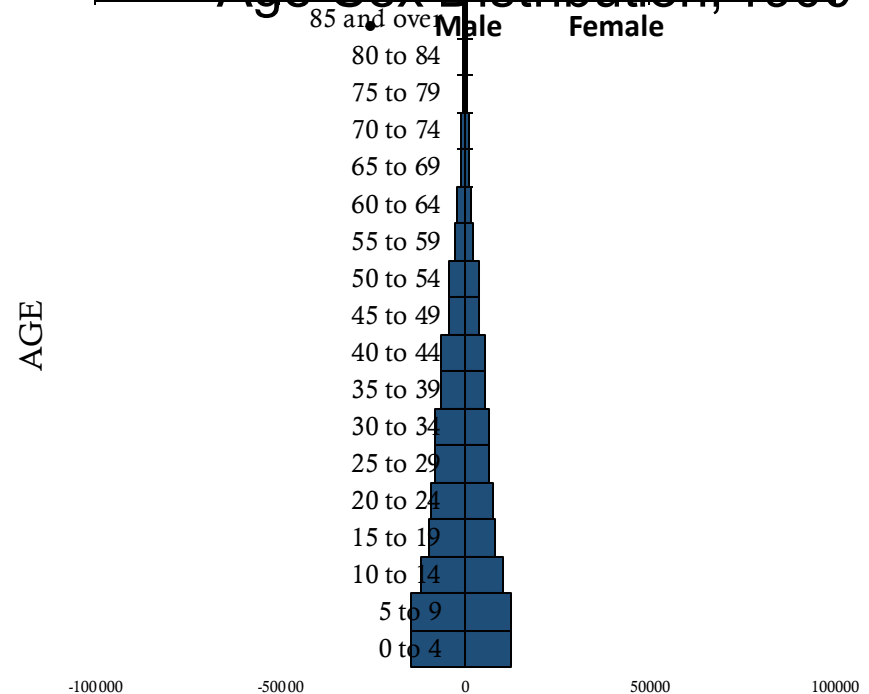
Population by Age and Sex: 1900

(For information on confidentiality protection, nonsampling error, and definitions, see www.census.gov/prod/cen2010/doc/sf1.pdf)



Source: U.S. Bureau of the Census, 1983; 1900 Census.

- New Mexico
- Age-Sex Distribution, 1900



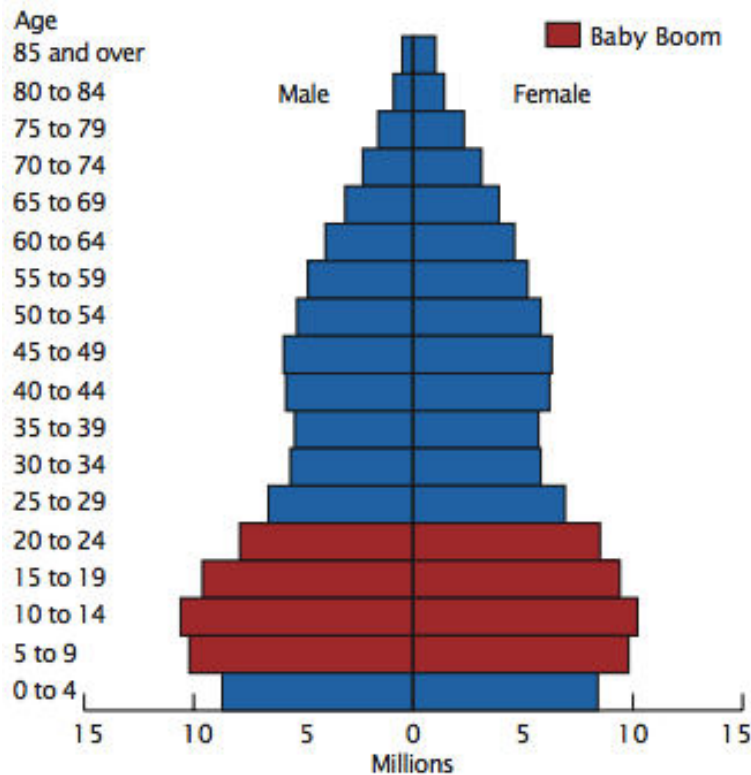
• Source: BBER, UNM

US and NM Population Data: 1970

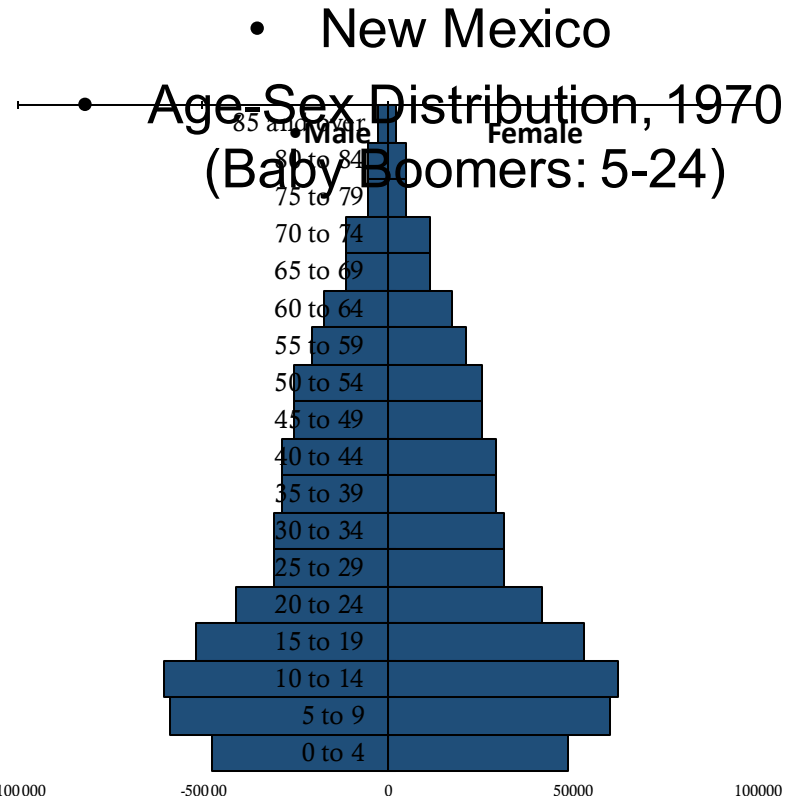
Figure 1-6.

Population by Age and Sex: 1970

(For information on confidentiality protection, nonsampling error, and definitions, see www.census.gov/prod/cen2010/doc/sf1.pdf)



Source: U.S. Bureau of the Census, 1983; 1970 Census.



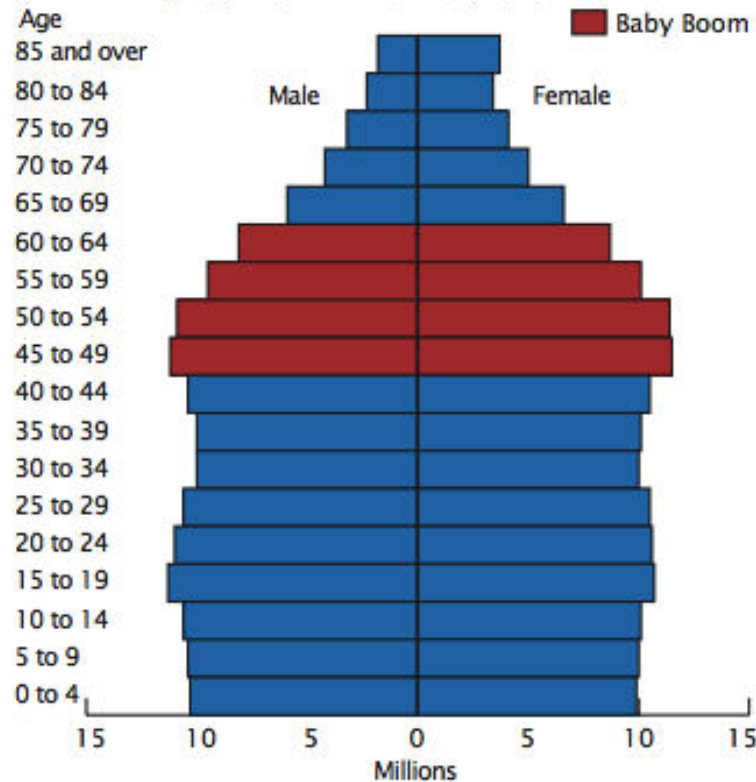
Source: BBER, UNM

US and NM Population Data: 2010

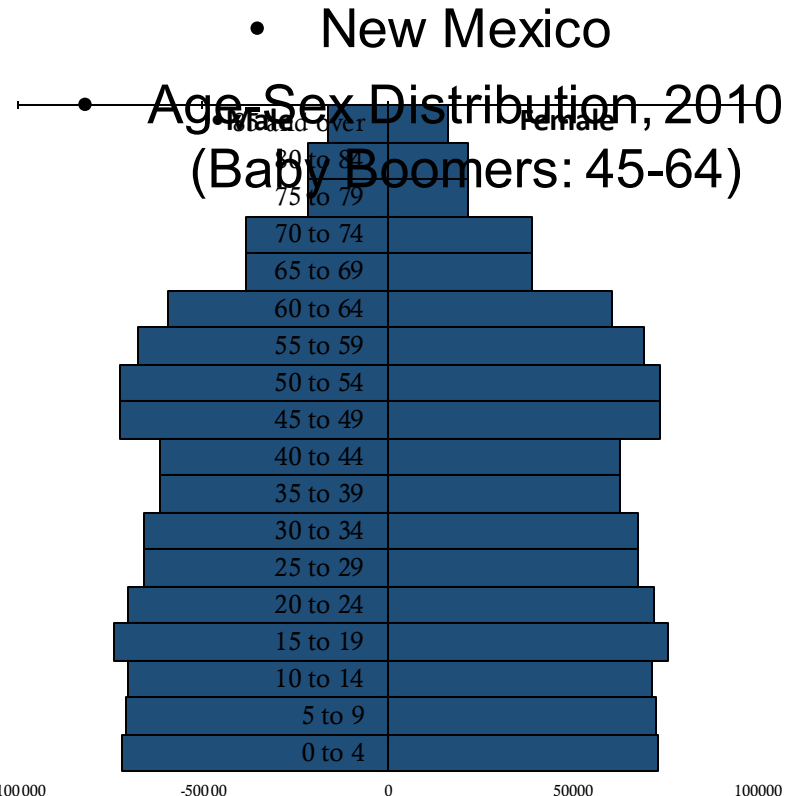
Figure 1-7.

Population by Age and Sex: 2010

(For information on confidentiality protection, nonsampling error, and definitions, see www.census.gov/prod/cen2010/doc/sf1.pdf)



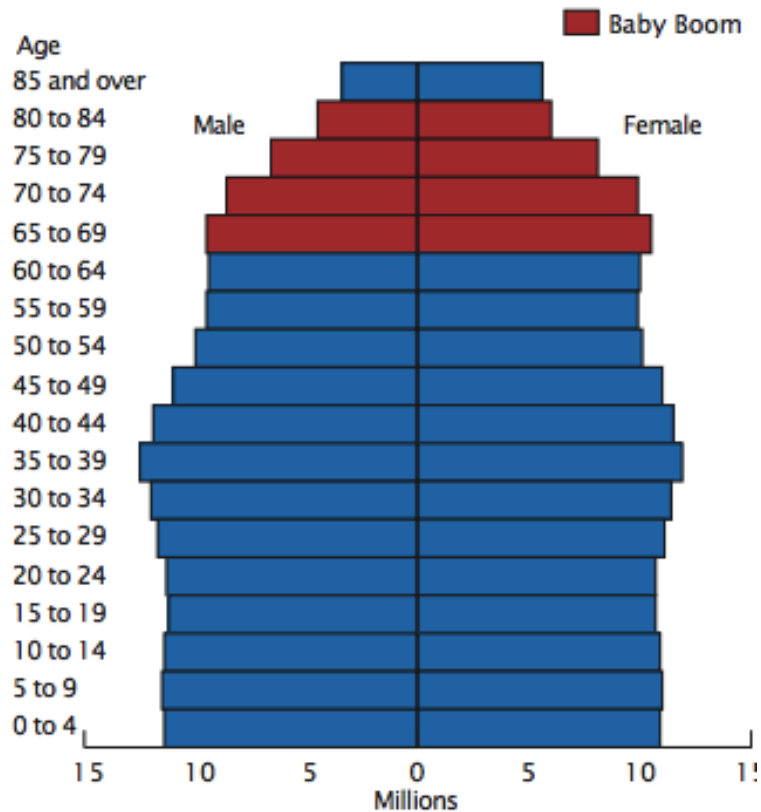
Source: U.S. Census Bureau, 2011; 2010 Census.



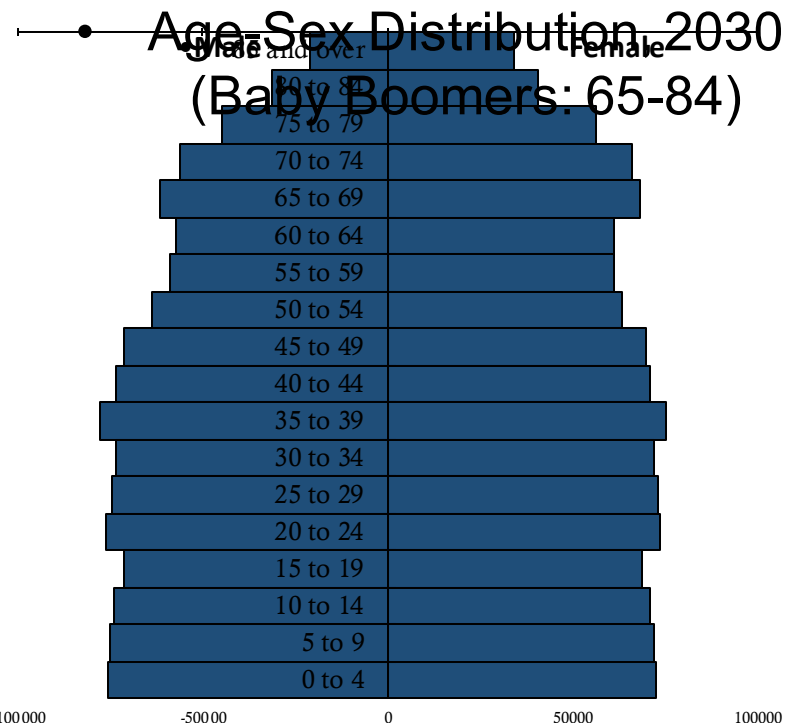
Source: BBER, UNM

US and NM Population Projections: 2030

Figure 1-8.
Population by Age and Sex: 2030



- New Mexico



Ranking of States by projected population age 65 and over: 2000, 2010, and 2030

"Older Americans—A Diverse and Growing Population." *Growing Old in America*. Barbara Wexler. 2008.

<http://ic.galegroup.com/ic/ovc/ReferenceDetailsPage/DocumentToolsPortletWindow?displayGroupName=Reference&jsid=39089e482c48b82edbb>

8752954d5c460&action=2&catId=&documentId=GALE%7CEJ3011870101&u=tel_s_tsla&zid=a8b62bf67a1e49125e7d00fb3ad9b66d last accessed 1/24/2016

2000 state	2000 percent	2000 rank	2010 state	2010 percent	2010 rank	2030 state	2030 percent	2030 rank
United States	12.4	(x)	United States	13.0	(x)	United States	15.7	(x)
Florida	17.6	1	Florida	17.8	1	Florida	27.1	1
Pennsylvania	15.6	2	West Virginia	16.0	2	Maine	26.5	2
West Virginia	15.3	3	Maine	15.6	3	Wisconsin	26.5	3
Iowa	14.9	4	Pennsylvania	15.5	4	New Mexico	26.4	4
North Dakota	14.7	5	North Dakota	15.3	5	Montana	23.8	5
Rhode Island	14.5	6	Montana	15.0	6	North Dakota	25.1	6
Maine	14.4	7	Iowa	14.9	7	West Virginia	24.8	7
South Dakota	14.3	8	South Dakota	14.6	8	Vermont	24.4	8
Arkansas	14.0	9	Connecticut	14.4	9	Delaware	23.5	9
Connecticut	13.8	10	Arkansas	14.3	10	South Dakota	23.1	10
Nebraska	13.6	11	Vermont	14.3	11	Pennsylvania	22.6	11
Massachusetts	13.5	12	Hawaii	14.3	12	Iowa	22.4	12
Missouri	13.5	13	Delaware	14.1	13	Hawaii	22.3	13
Montana	13.4	14	Alabama	14.1	14	Arizona	22.1	14
Ohio	13.3	15	Rhode Island	14.1	15	South Carolina	22.0	15
Hawaii	13.3	16	New Mexico	14.1	16	Connecticut	21.5	16
Kansas	13.3	17	Wyoming	14.0	17	New Hampshire	21.4	17
New Jersey	13.2	18	Arizona	13.9	18	Rhode Island	21.4	18
Oklahoma	13.2	19	Missouri	13.9	19	Wisconsin	21.3	19
Wisconsin	13.1	20	Oklahoma	13.8	20	Alabama	21.3	20
Alabama	13.0	21	Nebraska	13.8	21	Massachusetts	20.9	21
Arizona	13.0	22	Ohio	13.7	22	Nebraska	20.6	22
Delaware	13.0	23	Massachusetts	13.7	23	Mississippi	20.5	23
New York	12.9	24	New Jersey	13.7	24	Ohio	20.4	24
Oregon	12.8	25	New York	13.6	25	Arkansas	20.3	25
Vermont	12.7	26	South Carolina	13.6	26	Missouri	20.2	26
Kentucky	12.5	27	Wisconsin	13.5	27	Kansas	20.2	27
Indiana	12.4	28	Kansas	13.4	28	New York	20.1	28
Tennessee	12.4	29	Tennessee	13.3	29	New Jersey	20.0	29
Michigan	12.3	30	Kentucky	13.1	30	Kentucky	19.8	30
District of Columbia	12.2	31	Oregon	13.0	31	Louisiana	19.7	31
South Carolina	12.1	32	Michigan	12.8	32	Michigan	19.5	32
Minnesota	12.1	33	Mississippi	12.8	33	Oklahoma	19.4	33
Illinois	12.1	34	Indiana	12.7	34	Tennessee	19.2	34
Mississippi	12.1	35	Louisiana	12.6	35	Minnesota	18.9	35
North Carolina	12.0	36	New Hampshire	12.6	36	Virginia	18.8	36
New Hampshire	12.0	37	North Carolina	12.4	37	Nevada	18.6	37
Wisconsin	11.7	38	Virginia	12.4	38	Idaho	18.3	38
New Mexico	11.7	39	Illinois	12.4	39	Oregon	18.2	39
Louisiana	11.6	40	Minnesota	12.4	40	Washington	18.1	40
Maryland	11.3	41	Nevada	12.3	41	Indiana	18.1	41
Idaho	11.3	42	Washington	12.2	42	Illinois	18.0	42
Washington	11.2	43	Maryland	12.2	43	California	17.8	43
Virginia	11.2	44	Idaho	12.0	44	North Carolina	17.8	44
Nevada	11.0	45	California	11.5	45	Maryland	17.6	45
California	10.6	46	District of Columbia	11.5	46	Colorado	16.5	46
Texas	9.9	47	Colorado	10.7	47	Georgia	15.9	47
Colorado	9.7	48	Texas	10.5	48	Texas	15.6	48
Georgia	9.6	49	Georgia	10.2	49	Alaska	14.7	49
Utah	8.5	50	Utah	9.0	50	District of Columbia	13.4	50
Alaska	5.7	51	Alaska	8.1	51	Utah	13.2	51

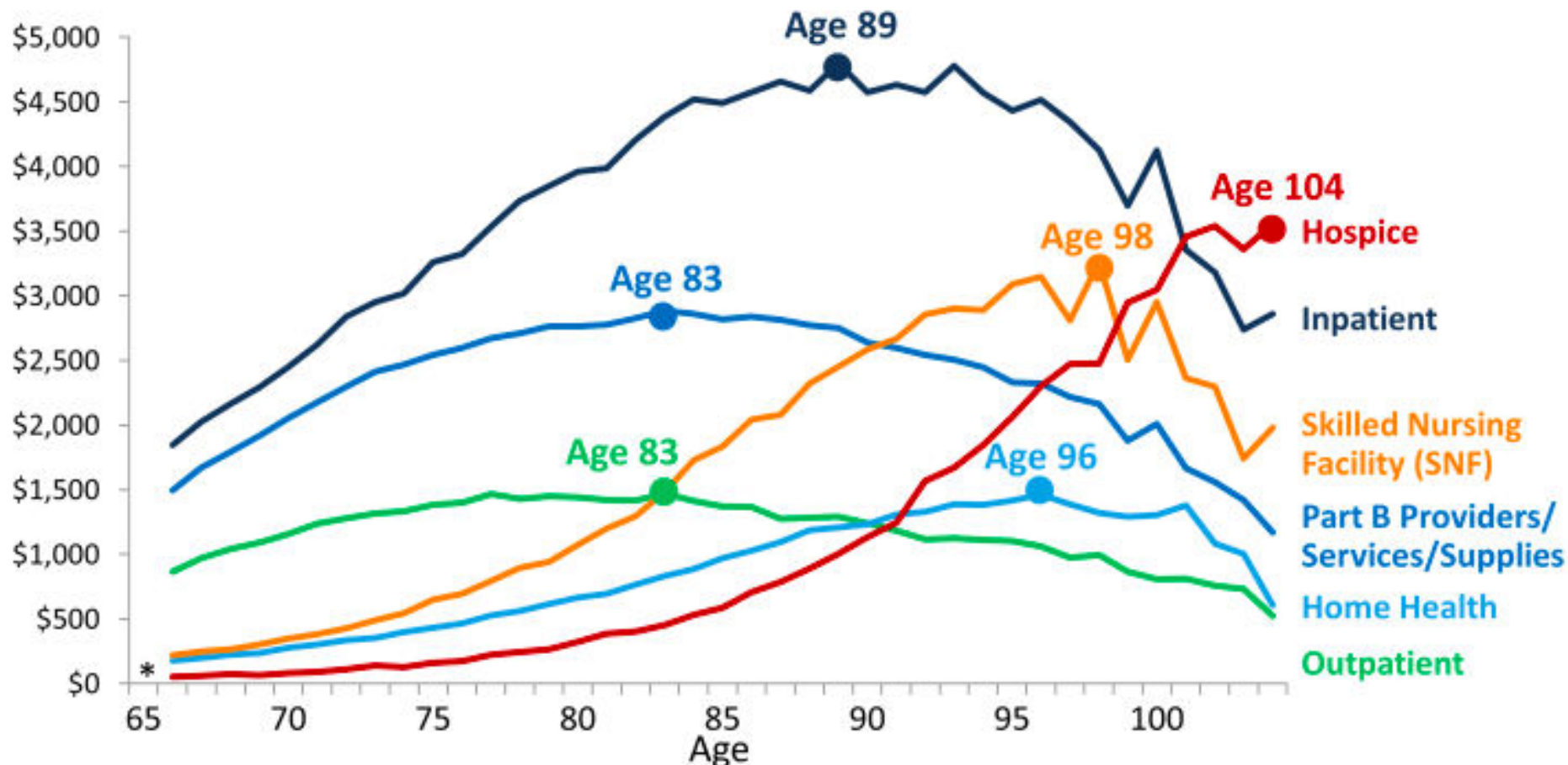
Important Differences in Health Services Use Rates in Older Population Demographics

- Use rates for all adult healthcare services are higher for those > 64
 - Use rates for ages 65-84 are 2.0 to 3.5 times use rates of those <65 (weighted average $\sim 3x$)
 - Use rates for ages 85 and above are 3.5 to 11.5 times use rates of those <65 (weighted average $\sim 6x$)
- The aggregate impact of population growth and use rates will require NM to expand virtually all categories of healthcare services, by 30 to 45 percent, between 2010 and the year 2030
- Nursing home use in NM could double

Exhibit I.3

In 2011, Medicare per capita spending peaked at age 83 for physician and outpatient services, but at older ages for inpatient care (89), home health (96), skilled nursing facility (98), and hospice (104)

Peaks in Medicare per capita spending by type of service for traditional Medicare beneficiaries over age 65, 2011



NOTE: Analysis excludes beneficiaries with Medicare Advantage. *Analysis excludes people age 65 because some of these beneficiaries are enrolled for less than a full year; therefore, a full year of Medicare spending data is not available for all people at this year of age.

SOURCE: Kaiser Family Foundation analysis of a 5 percent sample of Medicare claims from the Chronic Conditions Data Warehouse, 2011.

The Bottom Line

- Managing the ***more than doubling*** of our Senior population from 2000 – 2030 is the real issue
 - 30 to 45% more healthcare resources needed
 - Hospitals, nursing homes, physicians, nurses, other practitioners, pharmacy, lab, many others
- We do not have the resources to create 30 to 45% growth in New Mexico in *any* healthcare sector
- There is an urgent need to develop and leverage technology solutions to redesign our approach to Seniors