SPRINT – what do I do now

Faculty/Presenter Disclosure

- **Faculty: David Taylor MD, FRCPC**
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- **Relationships with commercial interests:**
  - **Grants/Research Support:** None
  - **Speakers Bureau/Honoraria:** None
  - **Consulting Fees:** None
  - **Other:** None

Objective

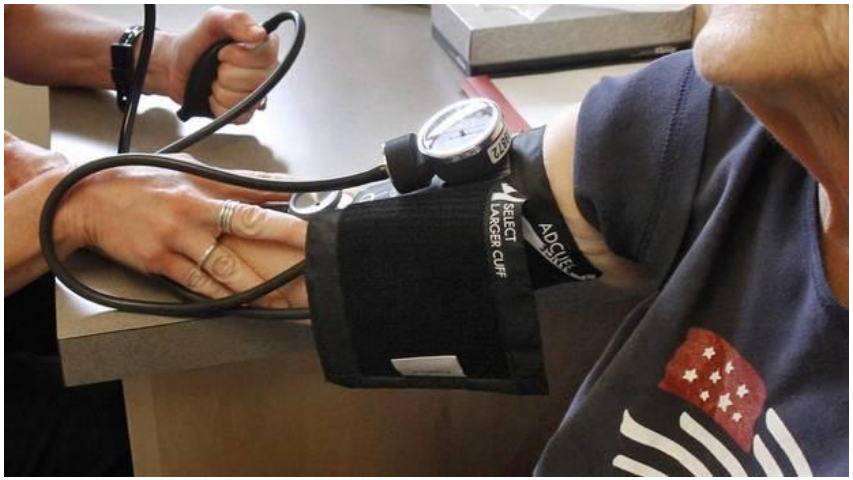
- By the end of the session, participants will be able to pragmatically incorporate the findings of the SPRINT trial into clinical practice

SPRINT Trial in the Peer-Reviewed Literature

THE GLOBE AND MAIL

Aggressive treatment of high blood pressure could save lives: study

LAURAN NEERGAARD
The Associated Press
Published Tuesday, Sep. 15, 2015



Aiming lower saves more lives when it comes to controlling high blood pressure, says a major new study that could spur doctors to more aggressively treat patients over 50.

Patients who got their blood pressure well below today's usually recommended level significantly cut their risk of heart disease and death, the National Institutes of Health announced Friday. The benefit was strong enough that NIH stopped the study about a year early.

study. He called the research a possible road map to treatment strategies "that will save a significant amount of lives."

About 1 in 3 adults in the U.S. has high

Two and a half months later

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 NOVEMBER 26, 2015 VOL. 373 NO. 22

A Randomized Trial of Intensive versus Standard Blood-Pressure Control

The SPRINT Research Group*

ABSTRACT

BACKGROUND

The most appropriate targets for systolic blood pressure to reduce cardiovascular morbidity and mortality among persons without diabetes remain uncertain.

METHODS

We randomly assigned 9361 persons with a systolic blood pressure of 130 mm Hg

The members of the writing committee (Jackson T. Wright, Jr., M.D., Ph.D., Jeff D. Williamson, M.D., M.H.S., Paul K. Whelton, M.D., Joni K. Snyder, R.N., B.S.N., M.A., Kaycee M. Sink, M.D., M.A.S., Michael V. Rocco, M.D., M.S.C.E.

Why don’t we know the target?

- Life Insurance
- Correlation ≠ Cause
- Pharmaceutical companies

Trials looking at BP targets

Favours Intensive Therapy

- ABCD Trial (n=400; DM)
- MDRD (n=840; CKD c prot)
- Cardio-Sis (n=1111; no DM)

Favours Less Intensive Therapy

- ACCORD (n=4687; DM)
- MDRD (n=840; CKD s prot)
- AASK (n=1094; AA with CKD)
- Rikugi (n=3260; elderly)

SPRINT Trial – Question

In hypertensive patients who do not have diabetes, does a lower blood pressure target prevent hypertension-related complications compared to the standard target?

SPRINT - Hypertension in Non-Diabetics

- Participants:
  - Inclusion:
    - 50 years of age or older
    - SBP of 130 – 180
    - Defined cardiovascular risk
  - Exclusion:
    - Stroke
    - Diabetes
- Enrollment = 9361

Baseline Characteristics

- Average SBP = 139.7
  - 2/3 had a SBP < 145
  - On an average of 1.8 blood pressure medications
    - 10% on no anti-hypertensives

Protocol

- Sensible approach to medication choice
  - Thiazides first
  - CCB, ARB, ACEI as next line
  - ACE/ARB and loop diuretics for CKD
  - Beta blockers for CAD

- Study visits
  - Monthly for the first three months (and while medication titration on-going)
  - Every 3 months thereafter

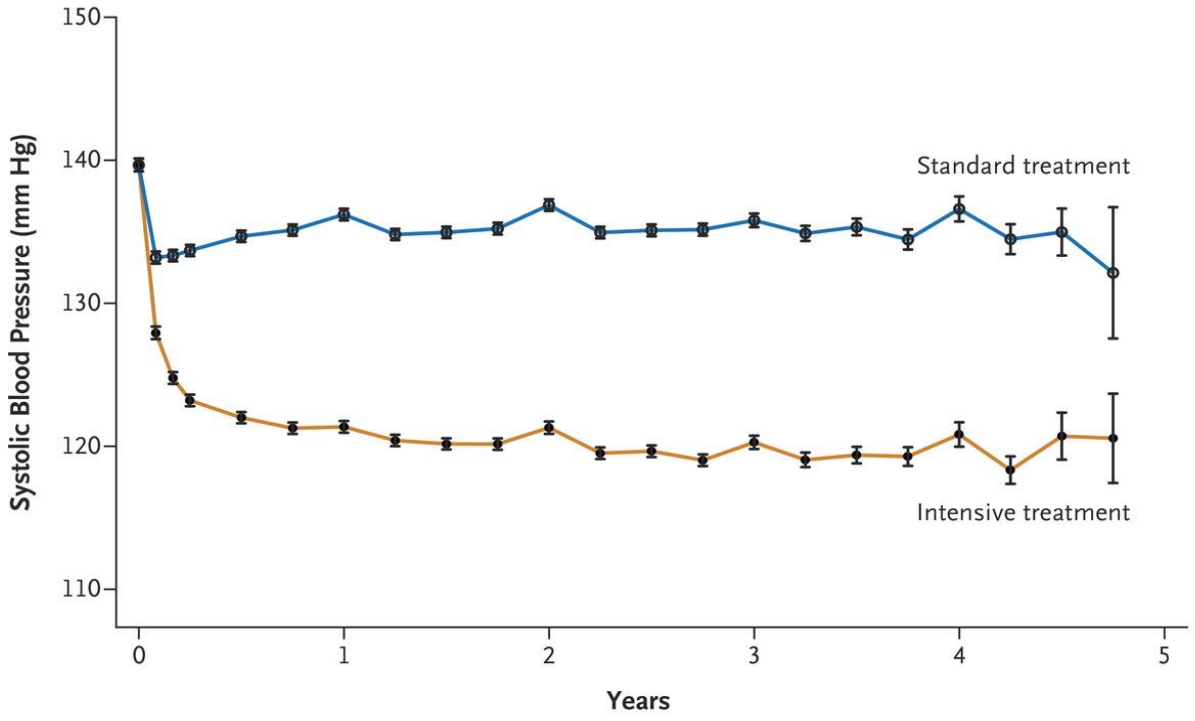
Protocol

- Blood pressure measurement
  - Seated
  - Mandated rest period
    - Undefined length
  - Automated measurement
    - Without repeats or averaging
  - No ambulatory measurements

Outcomes being targeted

- Primary – **Composite** of any of:
  - ACS
  - Stroke
  - Acute decompensated heart failure
  - CV death
- Secondary:
  - Total mortality
  - Total mortality + primary outcome
  - Individual components of primary outcome

Systolic Blood Pressure in the Two Treatment Groups over the Course of the Trial.



No. with Data										
Standard treatment	4683	4345	4222	4092	3997	3904	3115	1974	1000	274
Intensive treatment	4678	4375	4231	4091	4029	3920	3204	2035	1048	286
Mean No. of Medications										
Standard treatment	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9
Intensive treatment	2.3	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.0

The SPRINT Research Group. N Engl J Med 2015;373:2103-2116.

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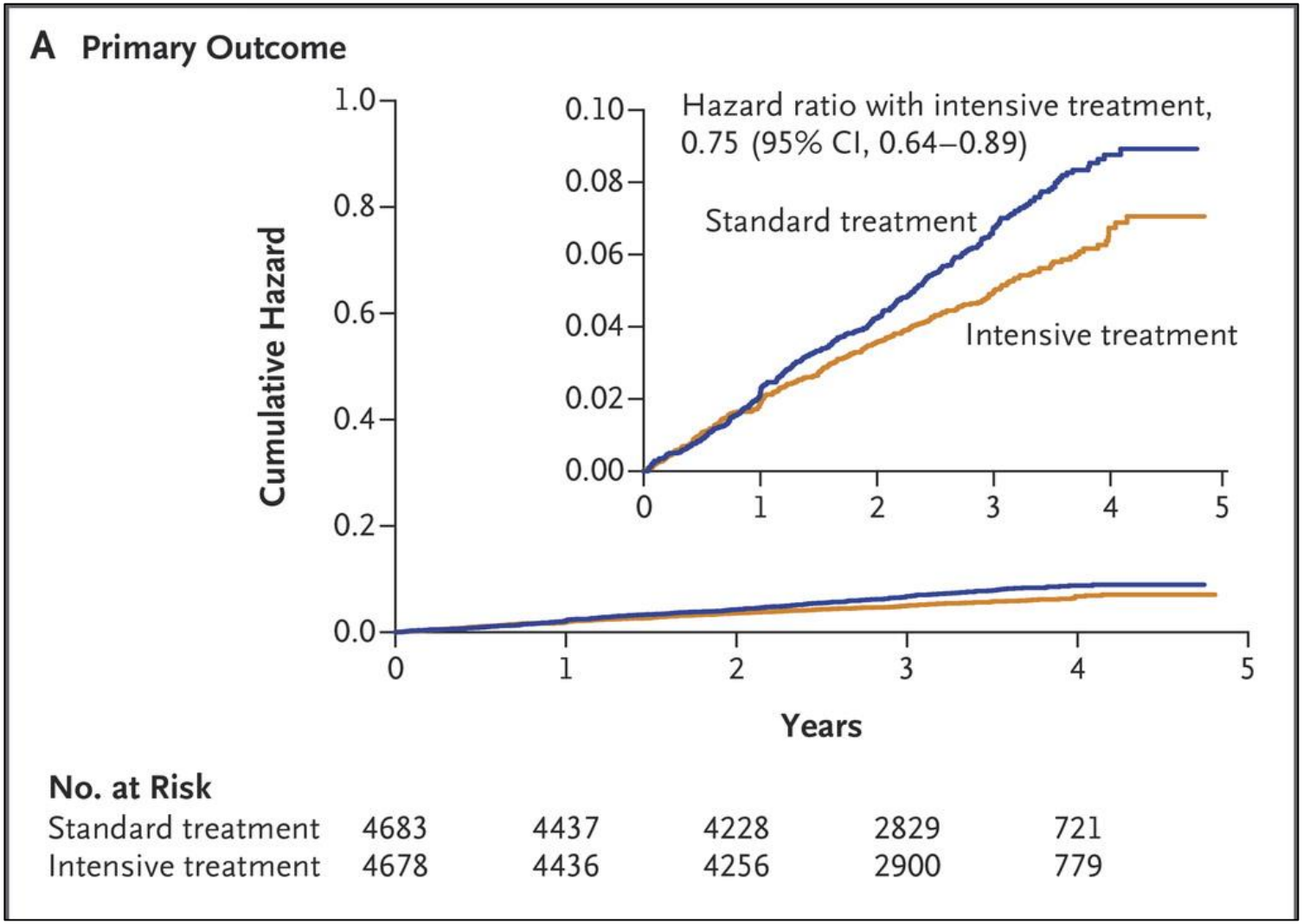
Primary Outcome (composite)



NNT = 62 (over 3.2 years)

The SPRINT Research Group. N Engl J Med 2015;373:2103-2116.

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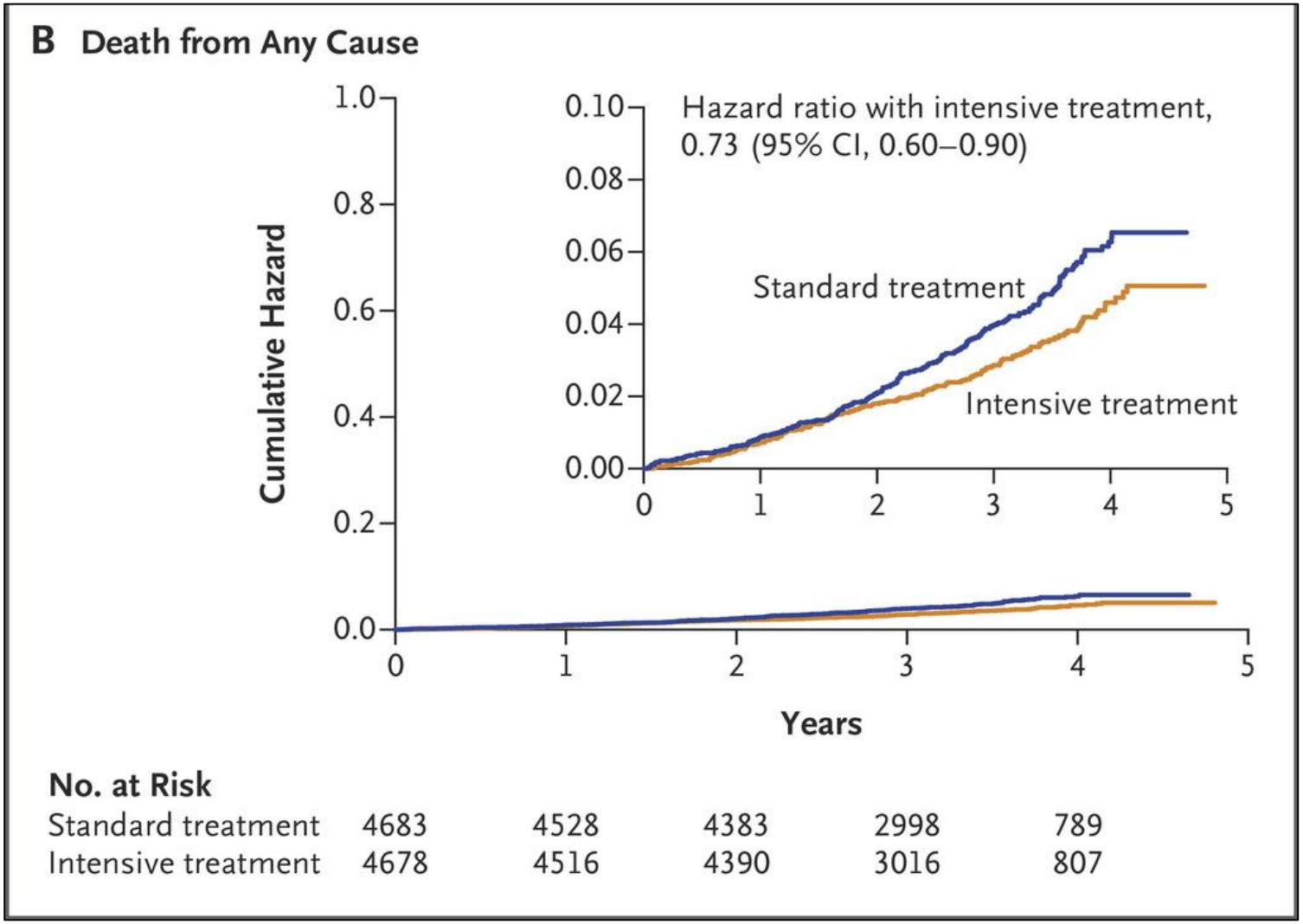
Secondary Outcome - Death from Any Cause.



NNT = 85 (over 3.2 years)

The SPRINT Research Group. N Engl J Med 2015;373:2103-2116.

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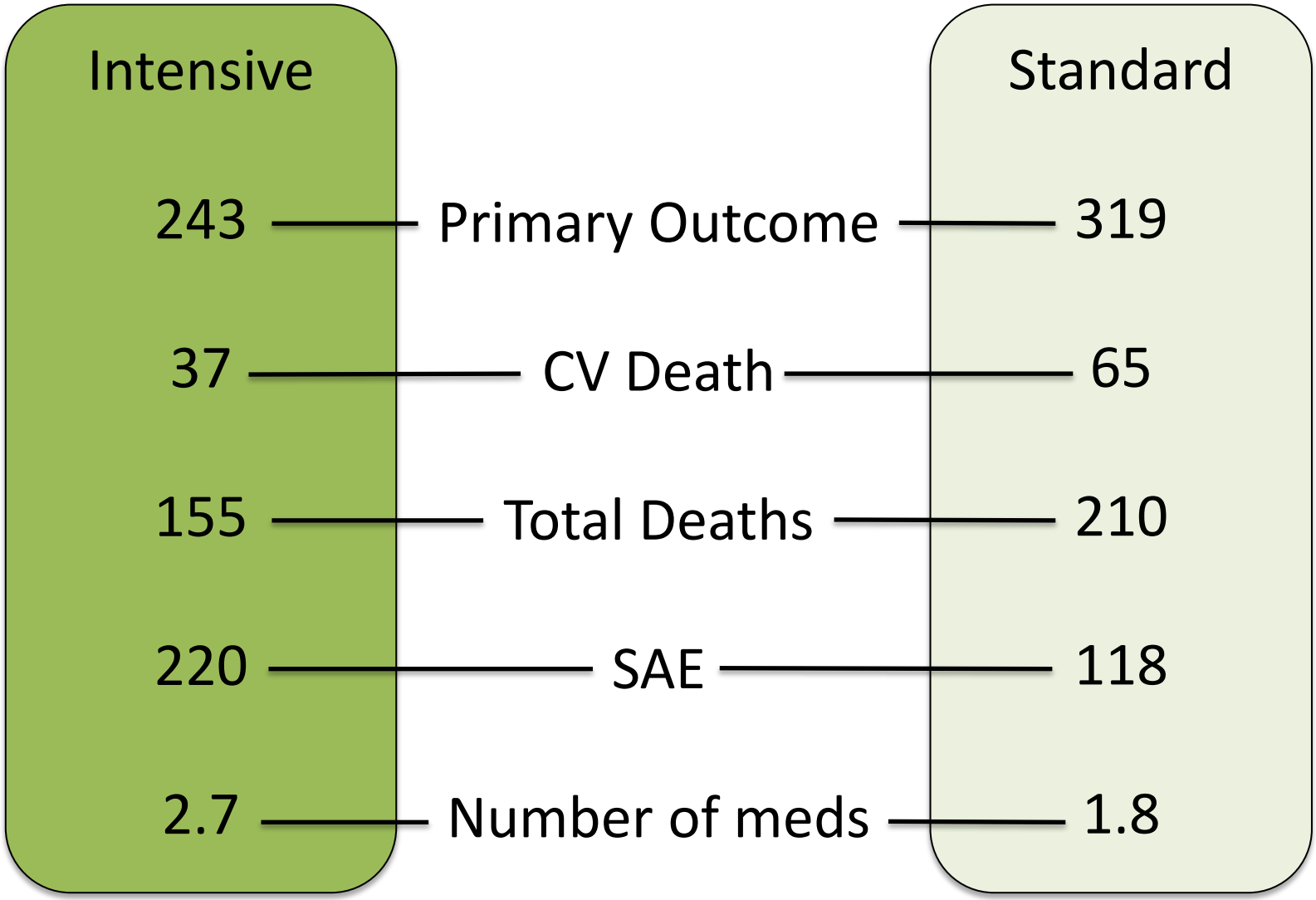
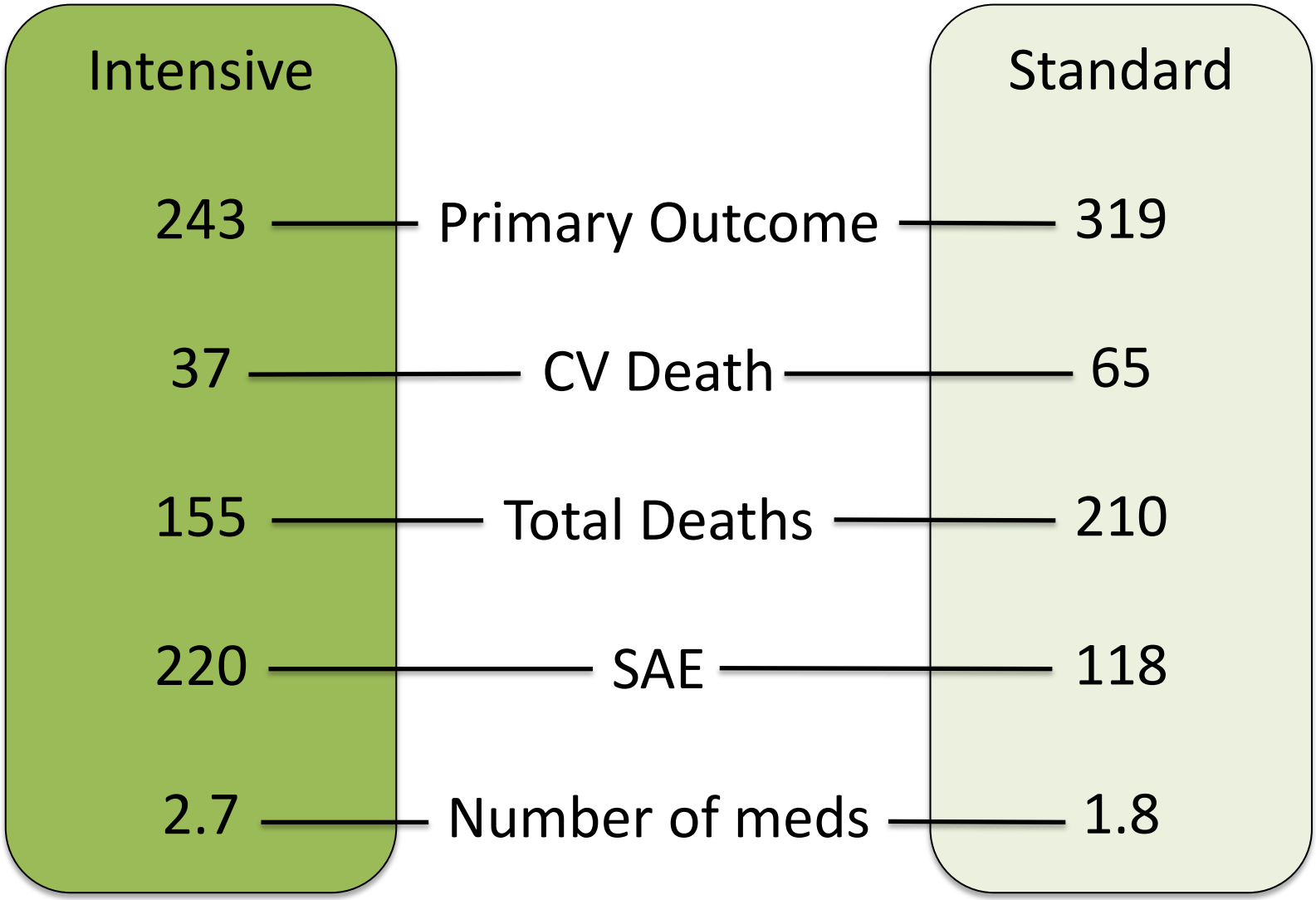
Differences between the groups



Numbers Needed to Treat

Outcome	3.2 yrs	per year
Primary Outcome (any of ACS, stroke, CHF, CV death)	62	202
CV Death	167	546
Death	85	278

Differences between the groups



Difference between study groups

- Difference in CV deaths 28 (37 versus 65)
- Difference in total death 55 (155 versus 210)
- What were the 27 non-CV deaths from?
  - 9 unknown cause (13 vs 22)
  - 6 not determined at publication (15 vs 21)
  - 1 dialysis complication (0 vs 1)
  - 3 cancer (49 vs 52)
  - 2 non-ischemic cardiac cause (0 vs 2)
  - 6 accident/injury/homicide/suicide (4 vs 10)

Numbers Needed to Treat

Outcome	3.2 yrs	per year
Primary Outcome (any of ACS, stroke, CHF, CV death)	62	202
CV Death	167	546
Death	85	278

In other words

- For a practice with roughly 300 patients with hypertension
  - Applying a systolic pressure target of 120 would prevent roughly one death per year

Factors worth considering…

- Benefit present in:
  - Patients over 75
  - Patients with no previous cardiovascular disease
- The intensive treatment arm did see:
  - Increased hypotension and syncope
  - Acute kidney injury and electrolyte abnormalities
    - Hypokalemia and hyponatremia

Serious Adverse Events

- Higher in the intensive group
  - Syncope
  - Hypotension
  - Electrolyte abnormalities
    - Hyponatremia
    - Hypokalemia
  - Acute kidney injury

How do I respond to SPRINT

How do I respond to SPRINT

- Reasonable to target lower blood pressures
- Avoid medications with weak evidence in cardiovascular disease to get from 140 to 120
  - Alpha blockers, clonidine, hydralazine
- Watch for orthostatic symptoms
- Monitor electrolytes and creatinine
- Given the NNT – consider patient priorities