Symptom Treatment versus Prevention
OLLI 2017

Kenneth Brummel-Smith, MD
Charlotte Edwards Maguire Professor of Geriatrics
Florida State University College of Medicine

Definitions

- Symptoms – abnormal sensations felt by the person
  - Often a sign of disease
  - Immediate relief or reduction in symptoms usual goal
- Prevention – doing something to prevent a problem which *may* occur in the future
  - Often related to risk factors

Symptoms

- May be sudden (“acute”) or prolonged (“chronic”)
- Affected by attention and emotions
- Physical, mental, existential (spiritual)
- Always are subjective
- Not the same thing as “signs”
  - Changes that can be observed by others – swelling, redness, vomiting

Symptoms and Right Care

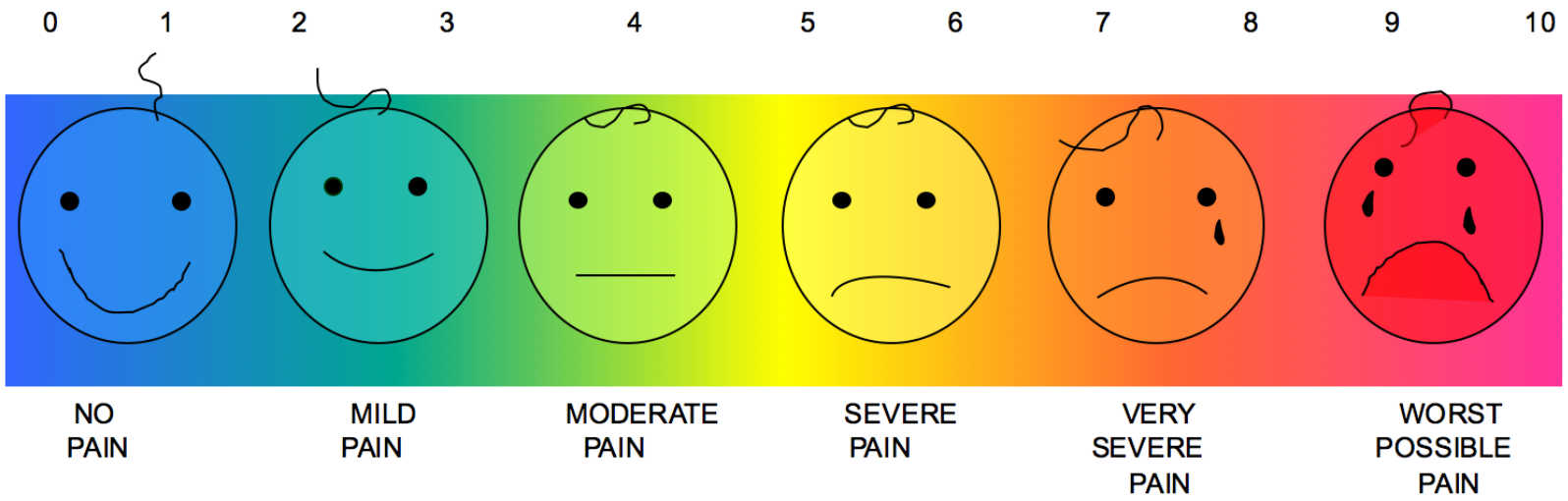
- Balance of benefits and harms
  - Recommended treatment
  - Alternative treatments
  - Doing nothing
- Duration of each is critical
  - Short term or temporary?
  - Long term or permanent?

Pain

- Frequent symptom complaint of older people
- Can be caused by numerous conditions
  - Specific – broken bone
  - Non-specific – low back pain
  - Referred - heart, gall bladder
- Acute versus chronic
- Three main types of pain
  - "Nociceptive" – sensory nerves response to harmful stimuli. Correct signals sent to pain centers.
  - "Neuropathic" – nerves are damaged or dysfunction. Incorrect signals sent to pain centers
    - Central – pain caused by the brain about a distant body part

Approach to Pain

- "Measure" the pain
- Treat the cause
- Reduce the pain
- Prevent recurrence



Pain and Right Care

- Nociceptive pain – pharmacologic treatment
  - Aspirin
  - Acetaminophen (Tylenol)
  - Non-steroidal anti-inflammatory drugs (NSAID)
    - Ibuprofen, naproxen, etc.
  - Narcotics
  - “Adjuvants” – more to come

1986	Dr. Portenoy co-wrote a seminal paper arguing that opioids could be used in people without cancer suffering pain. This paper was based on 38 cases and included several caveats.
1996	The American Pain Society trademarked the slogan "Pain: The Fifth Vital Sign"
1996	Purdue Pharma released OxyContin, the most widely used narcotic pain killer today
1998	The Veterans Health administration made pain a "fifth vital sign" The Joint Commission for Accrediditon of Healthcare Organizations (JCAHO) did the same.
Late 1990s	Groups such as the American Pain Foundation, of which Dr. Portenoy was a director, urged tackling the epidemic of untreated pain. Physicians were falsely educated that the risk of addiction of opioids was less than 1%
1998	The Federation of State Medical Boards released a recommended policy reassuring doctors that they would not face regulatory action for prescribing even large amounts of narcotics.
2001	The JCAHO issued new standards telling hospitals to regularly ask patients about pain and to make treating it a priority.
2001	The JCAHO published a guide sponsored by Purdue Pharma that stated "Some clinicians have inaccurate and exaggerated concerns" about addiction, tolerance and risk of death. "This attitude prevails despite the fact there is no evidence that addiction is a significant issue when persons are given opioids for pain control.
2004	The Federation of State Medical Boards called on state medical boards to make under treatment of pain punishable for the first time. This policy was drawn up with the help of several people with links to opioid makers. The Federation received nearly $2 million from opioid makers since 1997.
2007	Purdue Pharma and three executives pleaded guilty to "misbranding" of the drug as less addictive and less subject to abuse than other pain medications and paid $635 million in fines.
2012	259 Million prescriptions written for Opioids. Sales of opioid painkillers total more than $9 billion per year
2013	Opioid overdose deaths surpass car accidents as the leading cause of accidental death, a 4-time increase in deaths from 1999.

Adjuvant Drugs

- Epilepsy drugs
  - carbamazapine (Tegretol)
  - valproic acid (Depakote)
  - gabapentin (Neurontin) & pregabalin (Lyrica)
- SNRI antidepressants – duloxetine (Cymbalta)
- Tricyclic antidepressants
  - desipramine (Norpramin)
  - nortriptylene (Pamelor)
  - amitriptylene (Elavil)
- Steroids - decadron, prednisone

Issues with Adjuvant Drugs

- Efficacy
  - 35 out of a 100 get relief (placebo 21)
  - 50 out of 100 will get no relief
- Harms
  - All act on the central nervous system
  - 10% - 17% stop due to side effects
- Expensive - $400/mo

Non-drug Approaches

- Cognitive behavioral therapy
- Massage
- Heat
- Ice
- Acupuncture
- TENS units
- Reiki
- Topical creams
- PT/OT
- Chiropractic
- Distraction
- Laughter
- Prayer

Pain As a "Warning" Sign

- Coronary artery bypass to prevent death
- Early invasive management of acute coronary pain (not heart attack)
- Sciatica
- MRI for acute back pain
- MRI for chronic back pain
- Antibiotics for sinusitis

15 Year Heart Study

- 2287 patients with angina
  - PCI (angioplasty or stent) + medical therapy
  - Medical therapy
- 284 deaths in the PCI group
- 277 deaths in the medical therapy group
- No difference in outcomes

Sedlis SP, COURAGE trial, NEJM, 2015;373:20

Prevention

- Screening to prevent illness or detect it at an early stage
  - Mammogram
- Treatment of risk factors to prevent long term complications
  - Blood pressure, high cholesterol
- Treatment of a condition to prevent death or serious morbidity
  - Stenting a coronary artery

U.S. Preventive Services TASK FORCE

Search USPSTF

E-mail Updates ▪ Text size: a A A

- Home
- Recommendations
  - Published Final Recommendations
  - Recommendations in Progress
  - Copyright Notice
- Information for Health Professionals
- Information for Consumers
- Public Comments and Nominations
- Methods and Processes
- About the USPSTF
- Newsroom
- Announcements

You are here: Home » **Recommendations for Primary Care Practice**

Recommendations for Primary Care Practice

The U.S. Preventive Services Task Force is an independent panel of experts in primary care and prevention who systematically reviews the evidence of effectiveness and develops recommendations for clinical preventive services. These reviews are published as U.S. Preventive Services Task Force recommendations on the Task Force Web site and/or in a peer-reviewed journal.

Browse All Published Recommendations

- or -

Use the search field(s) below to find specific recommendations.

Search USPSTF Topics | Search

Frequently Viewed Topics

- **Prostate Cancer: Screening, May 2012**
  Cancer (Adult) (2012)
- **Cervical Cancer: Screening, March 2012**
  Cancer (Adolescent, Adult) (2012)
- **Lung Cancer: Screening, December 2013**
  Cancer (Adult) (2013)
- **Osteoporosis: Screening, January 2011**
  Musculoskeletal Disorders (Adult, Senior) (2011)
- **Abdominal Aortic Aneurysm: Screening, June 2014**
  Cardiovascular Disorders (Heart and Vascular Diseases) (Adult, Senior) (2014)

Affordable Care Act and USPSTF Recommendations

The following are preventive services that have an A or B grade from the U.S. Preventive Services Task Force that are relevant for implementing the Affordable Care Act. The recommendations are presented in alphabetical order and by date.

- USPSTF A and B Recommendations
- USPSTF A and B Recommendations by Date

For more information about the Affordable Care Act and preventive services, go to https://www.healthcare.gov/what-are-my-preventive-care-benefits/.

Recommendations In Progress

Find out which recommendations the Task Force are working on right now.

See recommendations under development »

Get USPSTF recommendations on your mobile device!

Download the ePSS app to search for USPSTF recommendations by specific patient characteristics:

- age,
- gender, and
- selected behavioral risk factors.

Download the ePSS app here »

www.uspreventiveservicestaskforce.org

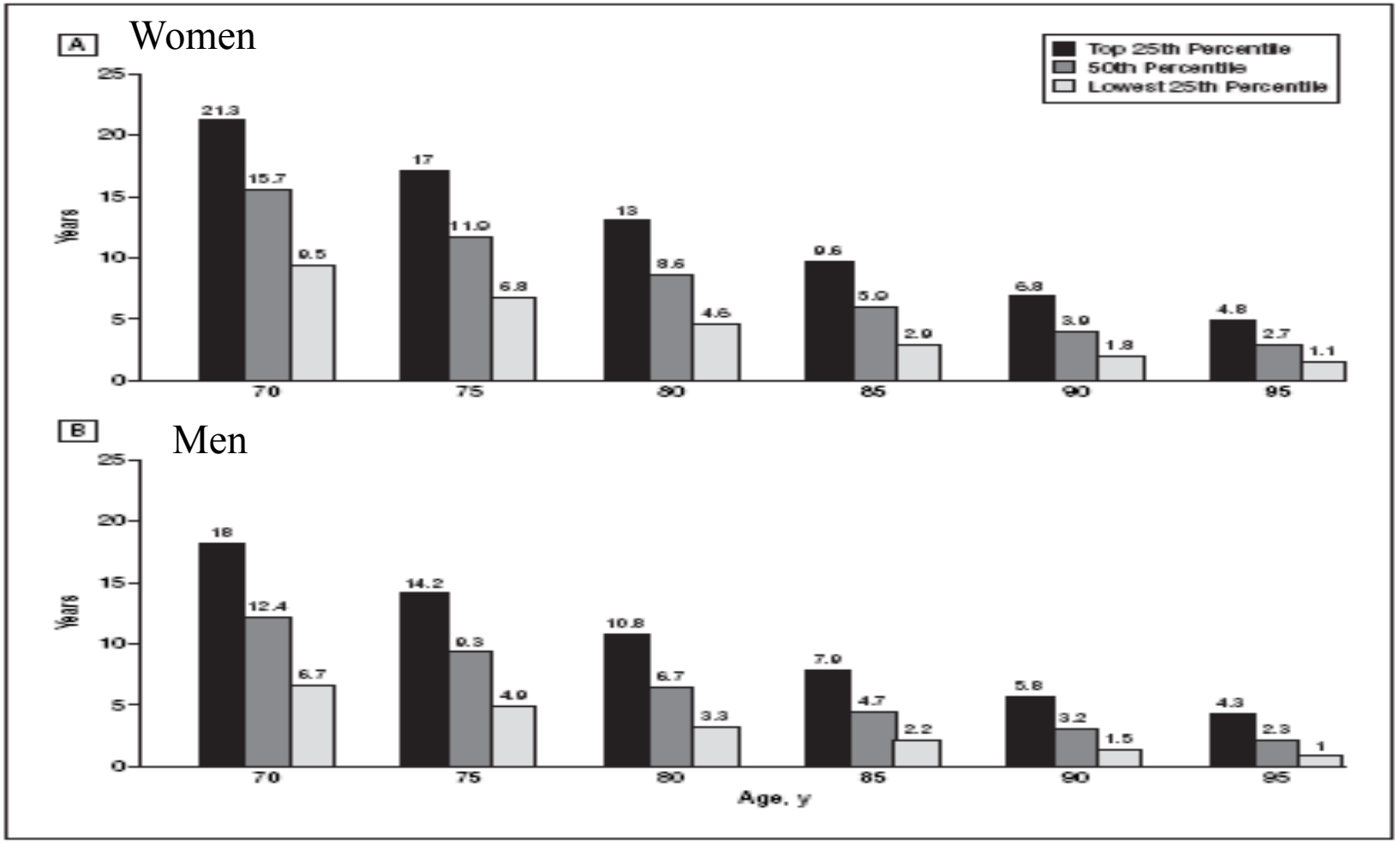
Criteria for Evaluating Screening

- Does the disease that cause serious morbidity and mortality that might be prevented?
- Can the screening test accurately identify healthy people who are at high risk for developing the disease?
- Is the screening test feasible to use in primary care?
- Does treatment given before symptoms occur result in better outcomes than treatment given later?
- Do the overall benefits outweigh the harms of screening and treatment?

USPSTF Grading

Grade		Certainty	Benefit
A	Recommended	High	High
B	Recommended	High Moderate	Moderate High
C	Uncertain	Moderate	Small
D	Not recommended	High/Mod	Harmful
I	Indeterminate	Low	Unknown

Remaining Life Expectancy



Walter LC, JAMA, 2001

Life Expectancy- Women

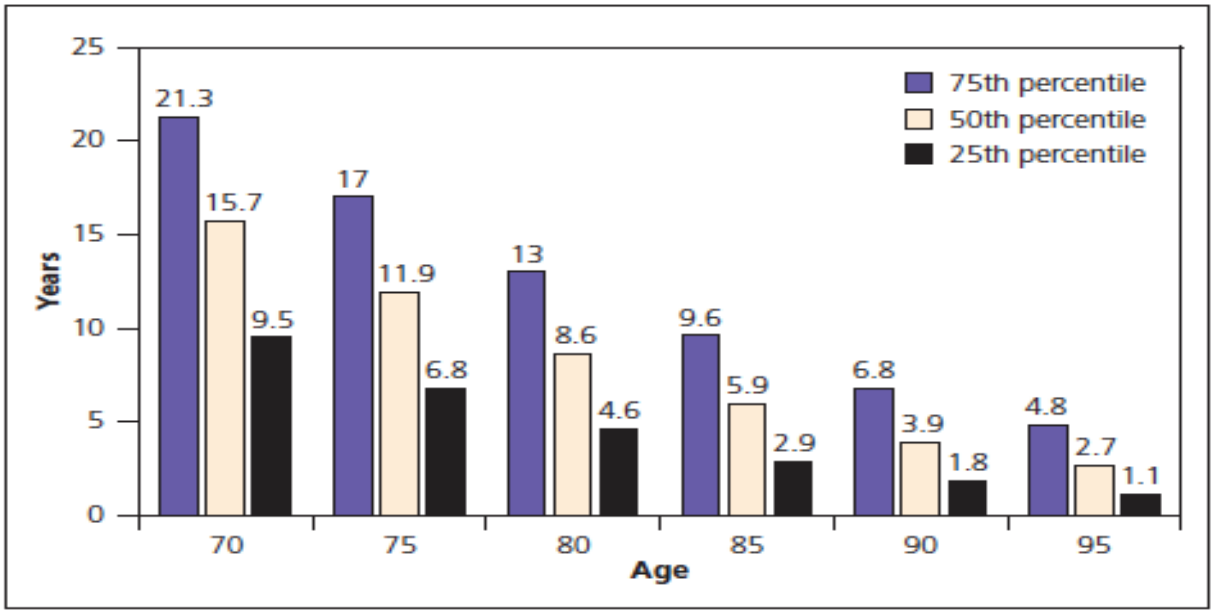


Figure 1. Life expectancy for older women in the United States.

70 Year Old Women

- Grade A – Strong recommendation
  - Colorectal screening (50-75 yrs)
    - Occult blood (3 cards) – annually
    - Flexible sigmoidoscopy – every 5 years
    - Colonoscopy – every 10 years
  - High blood pressure
    - Every 2 years BP <120/80
    - Every year BP 120-139/80-90
  - Syphilis screening – high risk

Non-smoker, sexually active

70 Year Old Women

- Grade B – good recommendation
  - Alcohol misuse - yearly
  - Depression screening – how often?
  - Exercise 150 minutes/week
  - Diet counseling if overweight/obese
  - Hepatitis C testing
  - Mammography – every 1-2 years
  - Osteoporosis – DEXA scan
  - Statin use
    - If all: risk factors, calculated 10-year risk >10%

70 Year Old Women

- Grade C – Uncertain
  - Fall prevention
  - Healthy diet advice in healthy
  - Statin use with risk 7.5% - 10%

70 Year Old Women

- Grade D – not recommended
  - Abdominal aortic aneurysm
  - Screening for bacteria in the urine when there are no symptoms (asymptomatic bacteruria)
  - BRCA (breast cancer gene) mutation in low risk
  - Bladder cancer screening
  - Cardiogram or treadmill in low risk women
  - Carotid artery screen with no symptoms

70 Year Old Women

- Grade D – not recommended
  - Hormone replacement therapy (HRT)
  - Hepatitis B or C screening
  - Ovarian cancer screening
  - Pancreatic cancer screening
  - Skin cancer screening
  - Vitamin E and beta-carotine to prevent heart disease or cancer

70 Year Old Women

- Grade I – indeterminate
  - Aspirin use to prevent heart disease
  - Breast self exam
  - Dementia screening
  - Domestic violence screening
  - Glaucoma screening (except high risk)
  - Lung cancer screening
  - Skin cancer screening

Controversies

- Statin use in older people with no risk factors
- Statin use with risk factors but no history or heart disease or stroke

Implications of Recent Clinical Trials for the National Cholesterol Education Program Adult Treatment Panel III Guidelines

Older Persons at High Risk Without Established CVD

The results of PROSPER…support the efficacy of statin therapy in older, high-risk persons without established CVD.

Articles

Pravastatin in elderly individuals at risk of vascular disease (PROSPER): a randomised controlled trial

Incidence of Coronary Death, Non-Fatal MI, Fatal and Non-Fatal Stroke

	Placebo		Pravastatin		Hazard ratio (95% CI)
	Total number	Number with event (%)	Total number	Number with event (%)	
Previous vascular disease†					
No					
Yes					

*p for interaction values for heterogeneity of treatment across subgroups. †Any of stable angina or intermittent claudication, or stroke, transient ischaemic attack, myocardial infarction, arterial surgery, or amputation for vascular disease more than 6 months before study entry.

Table 3: **Incidence of primary end point, according to subgroup**

Lancet 2002; **360:** 1623–30.

Pravastatin in elderly individuals at risk of vascular disease (PROSPER): a randomised controlled trial

Incidence of Coronary Death, Non-Fatal MI, Fatal and Non-Fatal Stroke

	Placebo		Pravastatin		Hazard ratio (95% CI)
	Total number	Number with event (%)	Total number	Number with event (%)	
Previous vascular disease†					
No	1654	200 (12·1)	1585	181 (11·4)	0·94 (0·77–1·15)
Yes	1259	273 (21·7)	1306	227 (17·4)	0·78 (0·66–0·93)

*p for interaction values for heterogeneity of treatment across subgroups. †Any of stable angina or intermittent claudication, or stroke, transient ischaemic attack, myocardial infarction, arterial surgery, or amputation for vascular disease more than 6 months before study entry.

Table 3: **Incidence of primary end point, according to subgroup**

Lancet 2002; **360:** 1623–30.

Pravastatin in elderly individuals at risk of vascular disease (PROSPER): a randomised controlled trial

First New Cancer Diagnoses by Site and Year

Site	Treatment	Year				Hazard ratio (95% CI)	p
		1 (placebo n=2869, pravastatin n=2839)	2 (placebo n=2729, pravastatin n=2704)	3 (placebo n=2622, pravastatin n=2584)	4 (placebo n=804, pravastatin n=814)		
Total	Placebo	58	70	50	21		
	Pravastatin	65	79	69	32	1·25 (1·04–1·51)	0·020

Numbers=first new cancers, by site. Number of individuals at risk shown in table header are those at the midpoint of each year of study. Hazard ratio for effect of treatment adjusted for the covariates in table 1.

Table 4: **First new cancer diagnoses by site and year**

Lancet 2002; **360:** 1623–30.

Articles

Pravastatin in elderly individuals at risk of vascular disease (PROSPER): a randomised controlled trial

First New Cancer Diagnoses by Site and Year

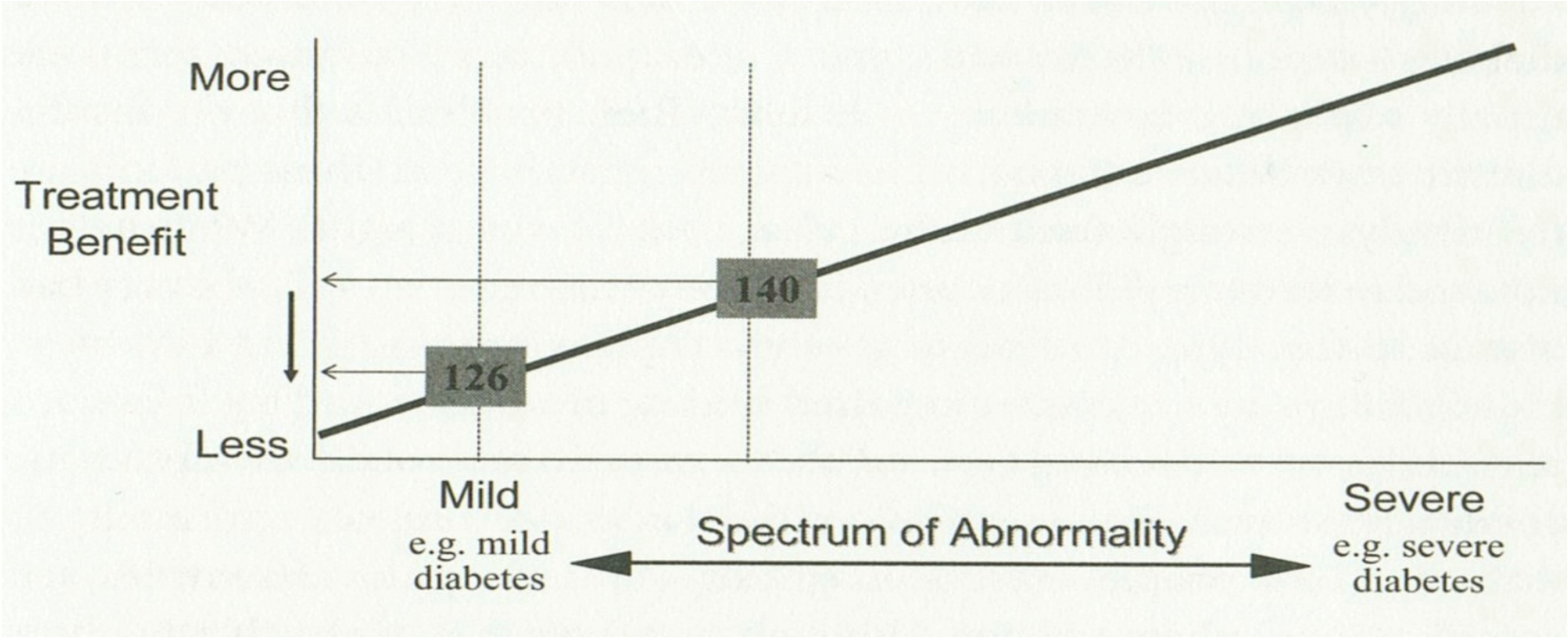
Site	Treatment	Year				Hazard ratio (95% CI)	p
		1 (placebo n=2869, pravastatin n=2839)	2 (placebo n=2729, pravastatin n=2704)	3 (placebo n=2622, pravastatin n=2584)	4 (placebo n=804, pravastatin n=814)		
Total	Placebo	58	70	50	21		
	Pravastatin	65	79	69	32	1·25 (1·04–1·51)	0·020

Numbers=first new cancers, by site. Number of individuals at risk shown in table header are those at the midpoint of each year of study. Hazard ratio for effect of treatment adjusted for the covariates in table 1.

Table 4: **First new cancer diagnoses by site and year**

Lancet 2002; **360:** 1623–30.

Giving People Diabetes



1997 – NHLBI Study :
"We were unable to find the precise cause of the increased risk of death"

Welch G, Overdiagnosed, 2011

Intensive Control of Risks

- 25,966 patients over 80 followed 2 years
- Mortality was lowest with:
  - BP 150/90 – 155/95
  - Total cholesterol – 174 - 190
  - A1C 7.0-7.5%
- Mortality was highest with:
  - BP < 130/70
  - Total cholesterol < 116
  - A1C < 6.0

Hamada S, J Amer Geriatr Soc, 2016;64:1425

Colon Screening

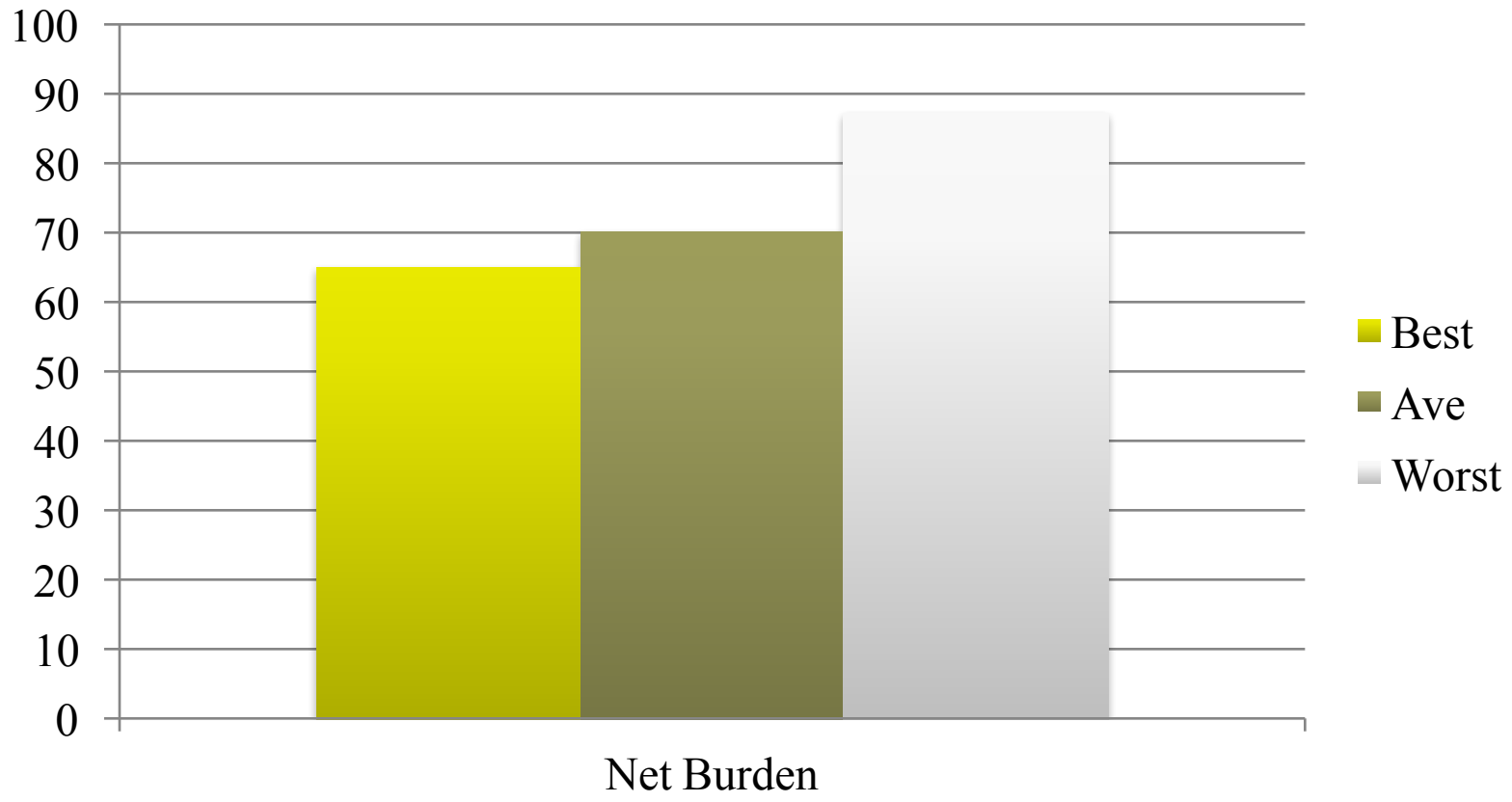
- Only fecal occult blood testing has been shown to reduce mortality
  - Colonoscopy has never been shown to reduce mortality in a randomized trial
- Risk of harms from colonoscopy rise with age
  - Perforation – 4/10,000, major bleed – 8/10,000
  - Sedation
  - Cost

The Burden of Screening

- Longitudinal cohort study of 212 veterans with + FOBT
- Mean age 76, followed for 7 years
- Separated subjects into 3 groups:
  - Best life expectancy
  - Average life expectancy
  - Worst life expectancy
- Definitions:
  - Benefit – found a polyp or cancer and lived at least 5 years
  - Burden – found something but died in less than 5 years, found nothing, did not have a colonoscopy

Kistler CE, Arch Intern Med, 2011; 171(15), 1344-1351

% Experiencing a Net Burden



Blood Pressure

- Veterans Administration study in the early 1960s
- Diastolic BP of 119 - 129
- RCT of 140 patients, 1.5 years
- NNT = 1.4

Outcome	No Treatment (Control)	Treatment (Intervention)
Death	4	0
Stroke	4	1
Heart failure	4	0
Heart attack	2	0
Kidney failure	3	0
Eye hemorrhage	7	0
Hospitalized for high blood pressure	3	0
Treatment complication	0	1
Total	**27**	**2**

What About Lower BP?

Degree of Hypertension	Five-year Risk of Bad Event		Chance of Benefit	Number Needed to Treat
	No Treatment	Treatment		
Severe [Diastolic BP 115–129]	80%	8%	72%	1.4
Moderate[10] [Diastolic BP 105–114]	38%	12%	26%	4
Mild [Diastolic BP 90–104]	32%	23%	9%	11
Very Mild[11] [Diastolic BP 90–100]	9%	3%	6%	18[12]

"Prehypertension"

4 RCTs – JAMA

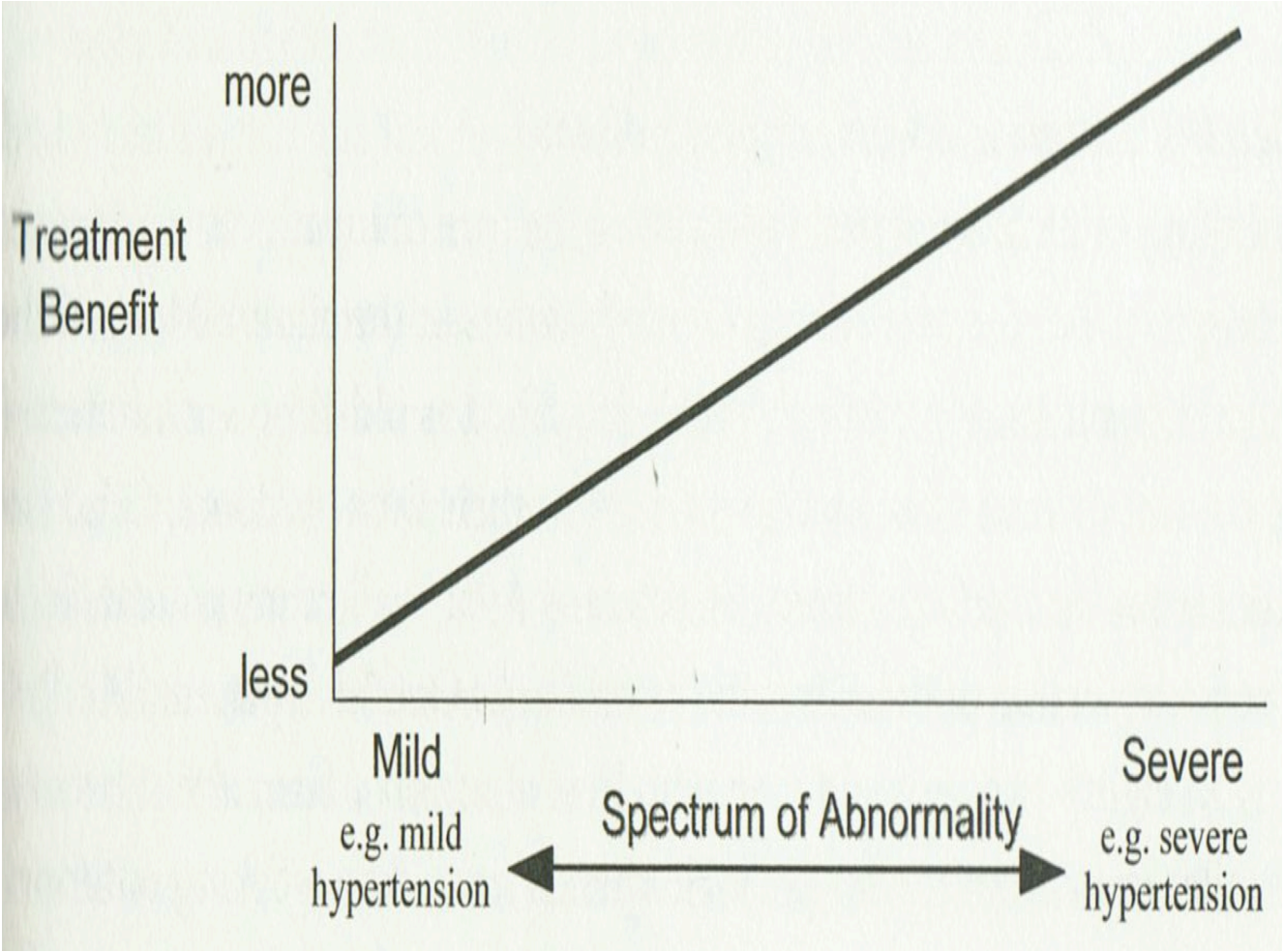
Prevention Meds – Risks/Benefits

Medication	Benefit	# of people out of 100 who will have an event prevented	# out of 100 who will be harmed
Statins (5 yrs)	Reduced MI, stroke	1-2 if no risks 5-7 if risks	5-10 muscle aches 2 – inc LFTs 5/10000 rabdo
BP meds	Reduced MI, stroke	1-2 2-3 if syst BP>160	10 – low BP, falls
Metformin (5yrs)	Reduced MI, stroke	5 (1 meta-analysis says no benefit)	10 – stomach intolerance
Other glucose pills	Reduced MI, stroke	0	10 – hypoglycemia 10 – wt gain
Warfarin for a.fib for 1 yr	Reduced stroke	4	2-3 severe bleed

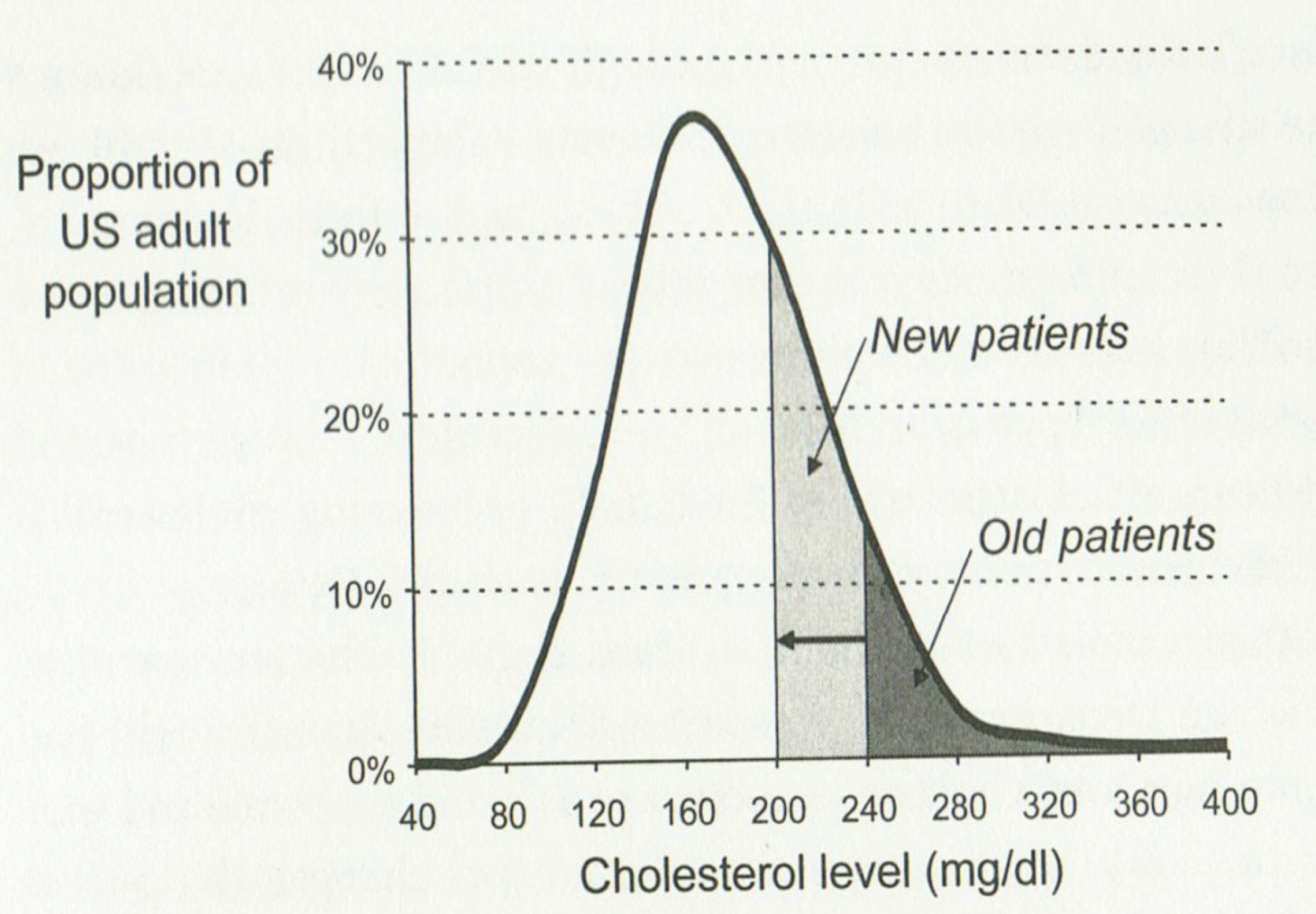
Prevention Meds – Risks/Benefits

Medication	Benefit	# of people out of 100 who will have an event prevented	# out of 100 who will be harmed
ACE/ B Blocker for HF for 3 yrs	HF, death	7	10 – low BP
Bisphosphonates for 2-3 yrs	Fractures	5 vetebral 1 hip	1-2 GI Sx 1-2/1000 osteonecrosis
PPI for 8 wks	Healing/decrease SX	50	2-5 due to SE Increased risks?
SSRI for depression for 8 wks	Not depressed	0 – if mild to mod 7 – if severe	2-5 due to SE Increase mortality?
Cholinesterase inhibitors 1 yr	Better day to day function	0	10 GI SE

Bottom Line


more
Treatment Benefit
less
Mild
e.g. mild hypertension
Spectrum of Abnormality
Severe
e.g. severe hypertension

Changed Definition



Lower Diagnostic Thresholds

Condition Change in Threshold	Disease Prevalence Old Definition	 New Definition	New Cases	Increase
Diabetes Fasting sugar 140 → 126	11,697,000	13,378,000	1,681,000	14%
Hypertension Systolic BP 160 → 140 Diastolic BP 100 → 90	38,690,000	52,180,000	13,490,000	35%
Hyperlipidemia Total cholesterol 240 → 200	49,480,000	92,127,000	42,647,000	86%
Osteoporosis in women T score −2.5 → −2.0	8,010,000	14,791,000	6,781,000	85%

Imaging To Create Disease

- CT study of college students with colds
  - 87% of college students with uncomplicated colds have sinusitis on CT
- MRI study of people's backs
- "Depends on what you look at, obviously. But even more it depends on the way that you see." Bruce Cockburn

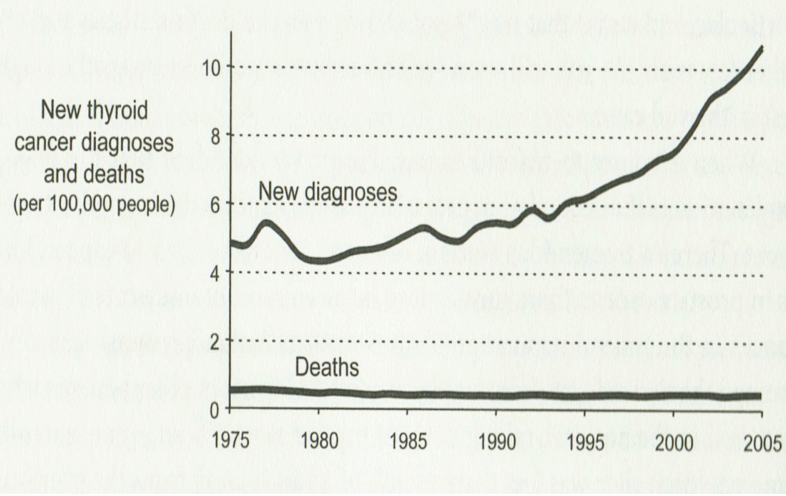
Gwaltney, NEJM, 1994;330:25

What's Normal?

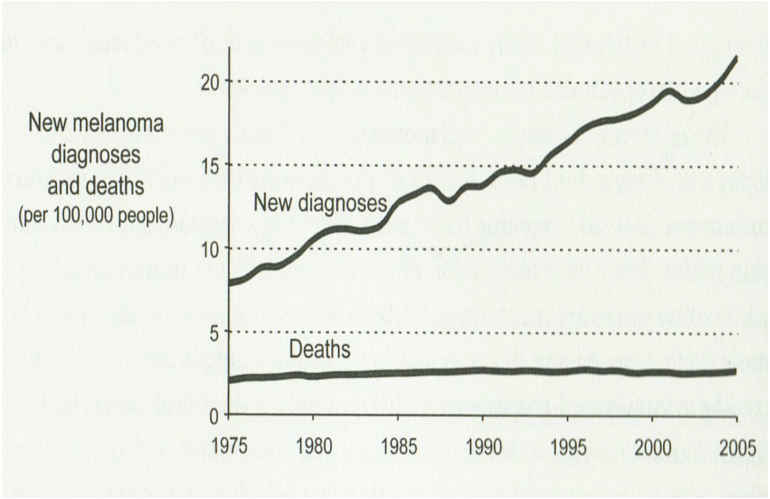
- In people without any symptoms:
  - 10% have gallstones on ultrasound
  - 40% have cartilege injury on MRI
  - 50% of people below 50, and 80% of those over 50, have bulging disks on MRI

Hopper, Invest. Radio, 1991;26:939, Kornick, Radiology, 1990;177:463, Jensen, NEJM, 1994;331:69

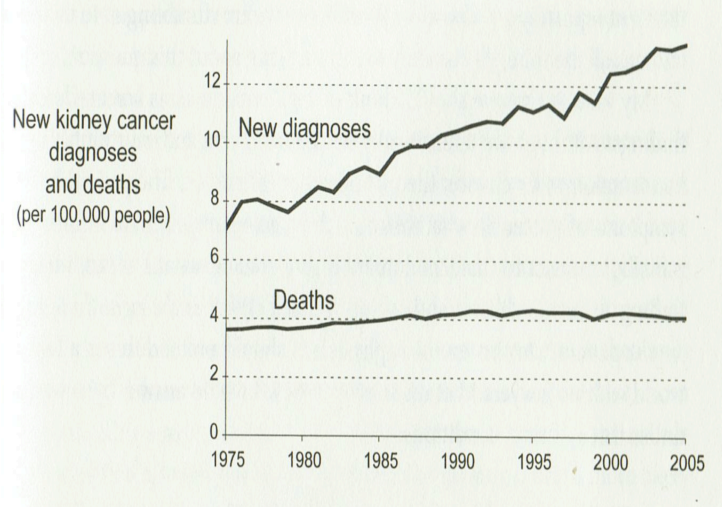
Cancers Overdiagnosed?



Thyroid

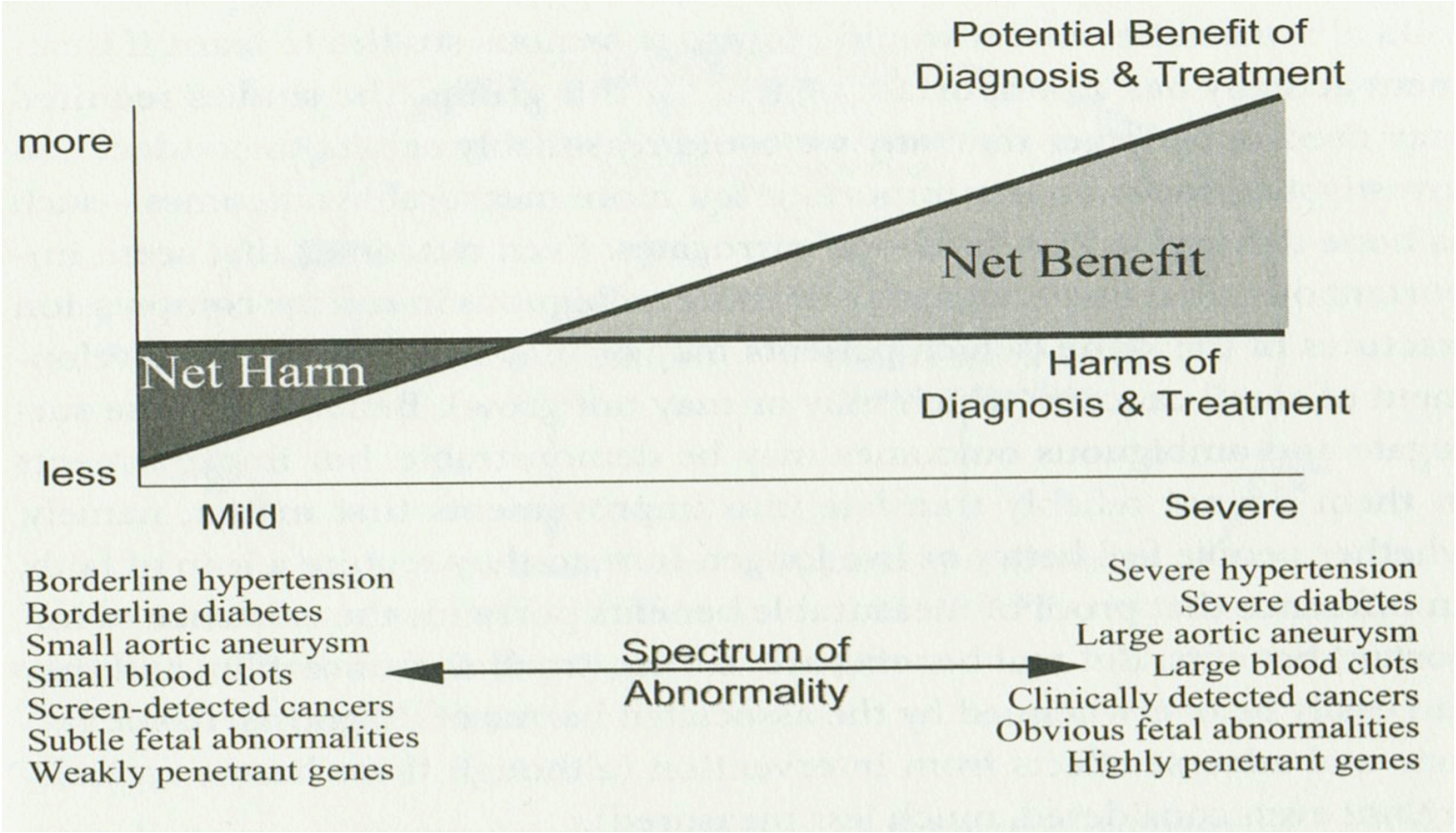


Melanoma



Kidney

Is Medicine Worthless?



How do you want to gamble?