
# Ideas for Chronic Disease Prevention and Management

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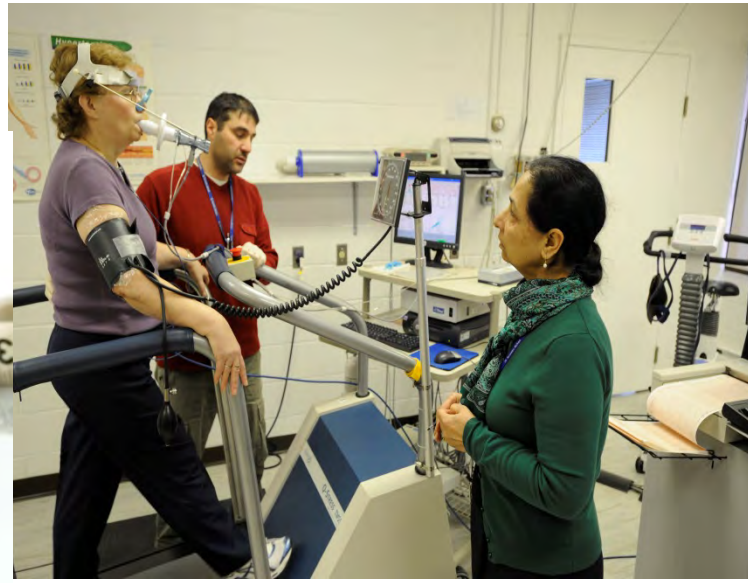
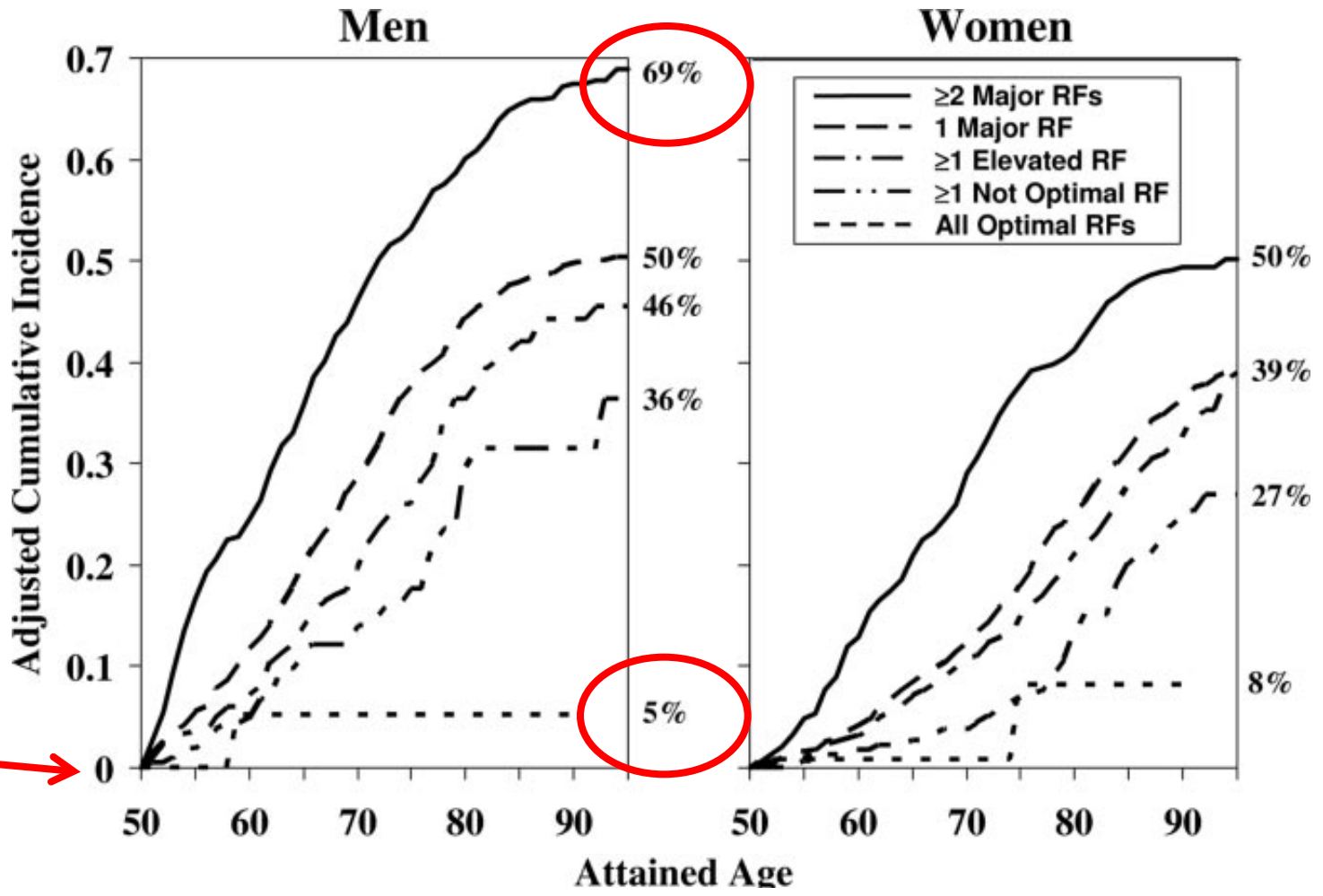
# My Workplace:
# Clinical Care, Education and Research

Toronto Rehab





# Lifetime Cardiac Risk at Age of 50 – The Importance of Risk Factor Control




**Me** →

D. Lloyd-Jones, Circulation. 2006;113:791-798.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2015
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2015
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GoodLife FITNESS TORONTO MARATHON
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UHN
4607
EMIL
MAY 3, 2015 HALF MARATHON
3440
PAUL
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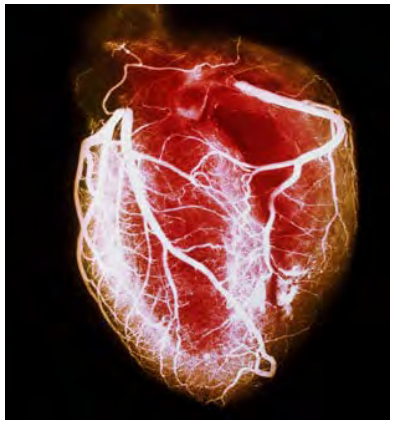
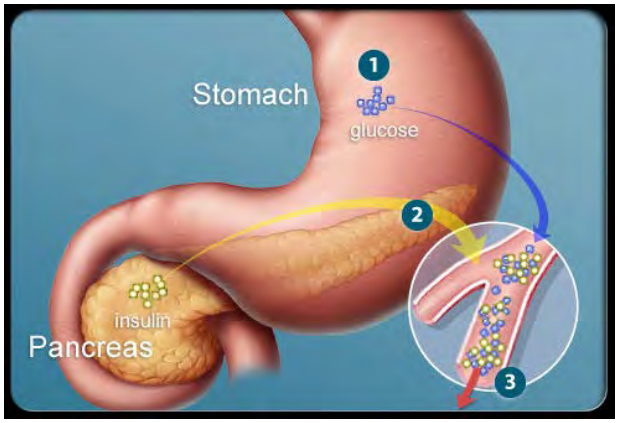
4472
TEE JOO
MAY 3, 2015 HALF MARATHON
4419
MARIA
MAY 3, 2015 HALF MARATHON
BAGGAGE TAG 4419
4815
TRACEY
MAY 3, 2015 HALF MARATHON
BAGGAGE TAG 4815

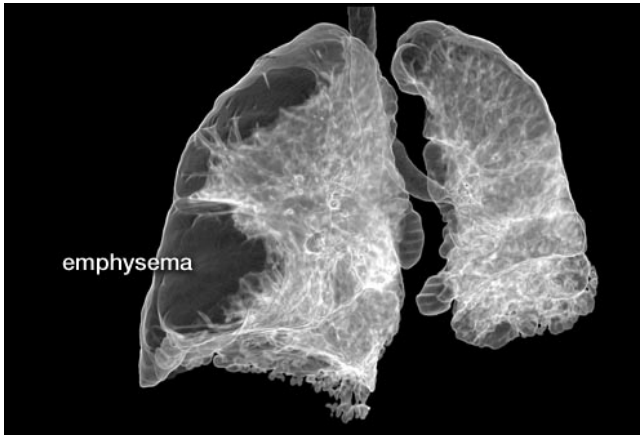
# Outline

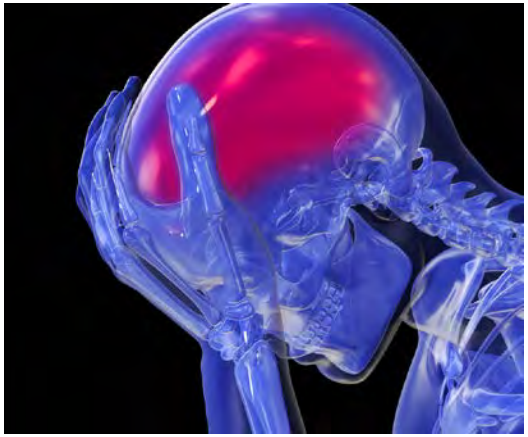
- The burden of chronic disease
- The importance of health behaviours
- Ideas for the prevention and management of chronic diseases
  - Examples in diabetes and hypertension
- **Sharing successes**
  - **interaction please!!**

# “Non-Communicable” Chronic Diseases





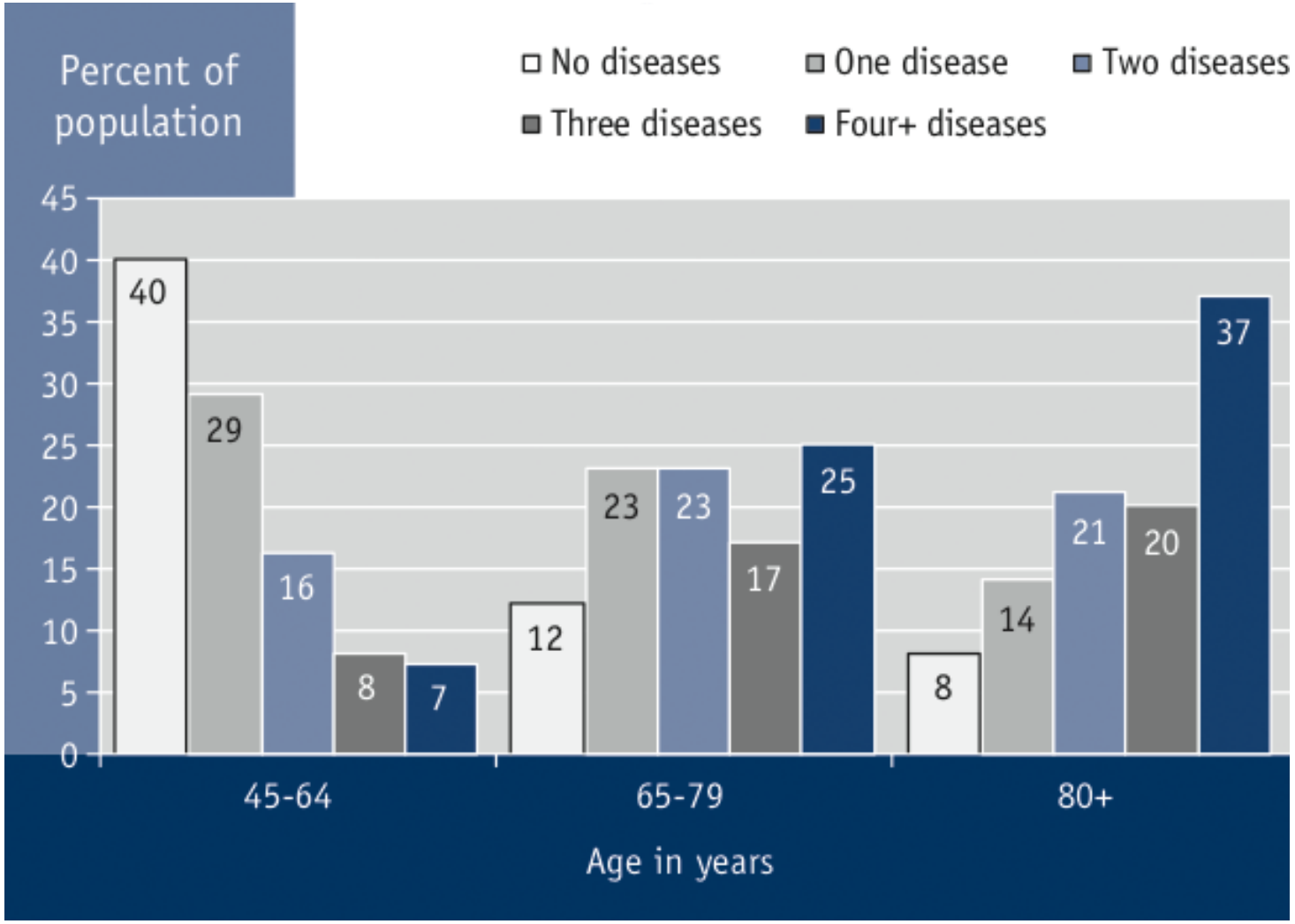



***Many “uncontrolled” or “unaware”***

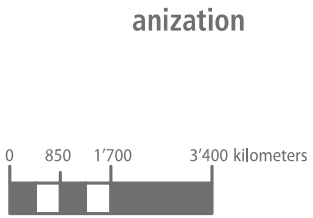
Stats Can, PHAC
CDA, HSF

# ~80% of Canadian Adults live with Chronic Disease




PHAC 2013

# Global Burden of Chronic Diseases - Mortality




WHO Global status report on Noncommunicable Diseases 2014

# The 10 Year Global Cost of Chronic Diseases

**$30,000,000,000,000**

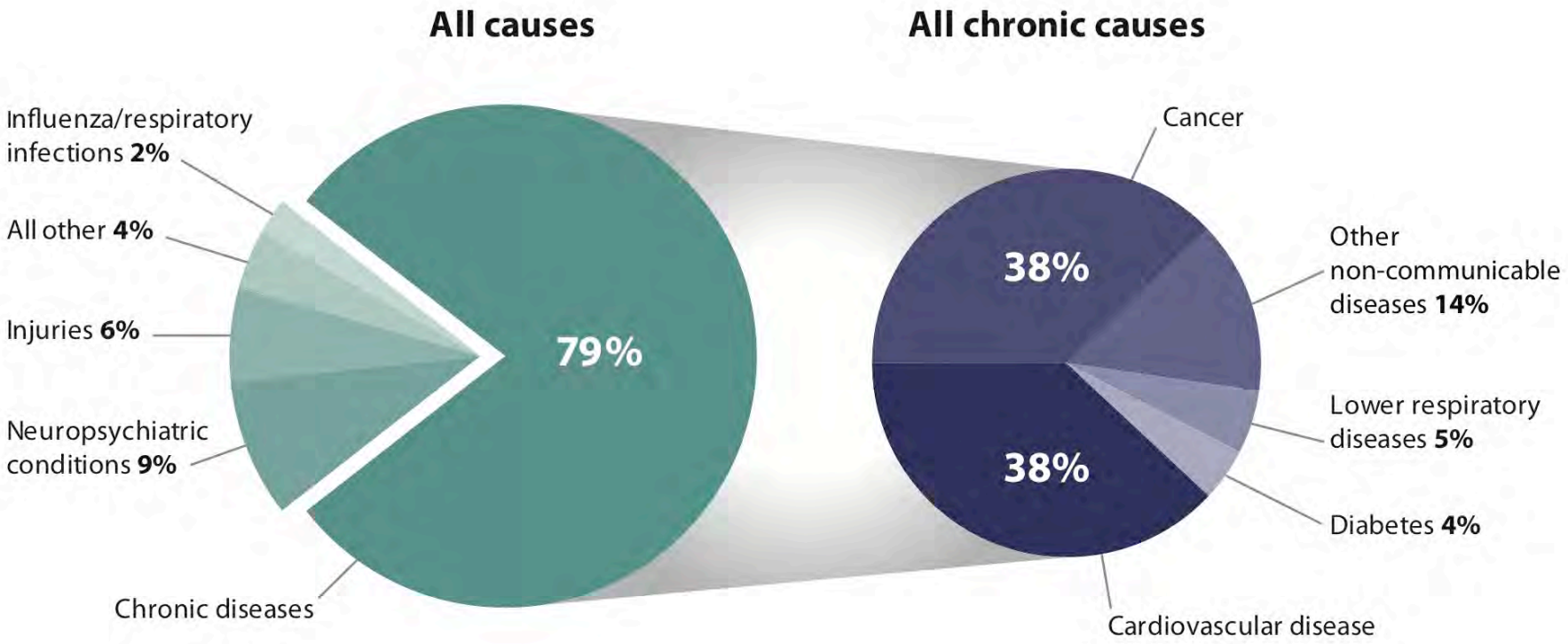
World Health Organization

# Costs of Chronic Diseases in Canada

- 67% of all direct health care costs
- $190 B annually
  - $ 68 B medical
  - $122 B lost productivity

K. Elmslie, Against the Growing Burden of Chronic Disease, PHAC

# The Cost of Chronic Diseases

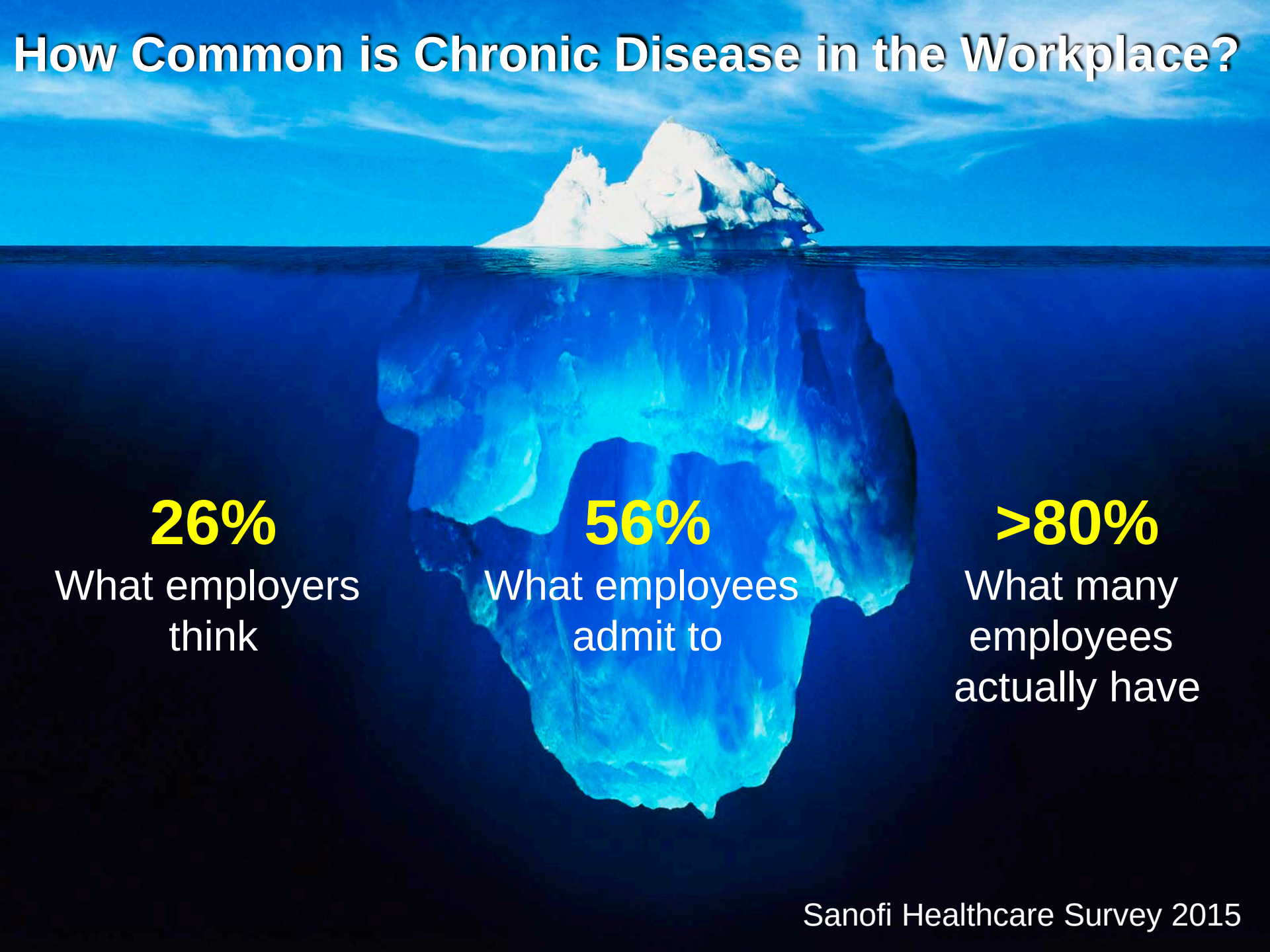



**Data source:** Death, Ontario Ministry of Health and Long-Term Care, IntelliHealth ONTARIO Date data last refreshed Oct, 2011.

**Note:** ICD10 categories adopted from: Word Health Organization. Global burden of disease in 2002: data sources, methods and results (revised February 2004) [Internet]. Geneva: World Health Organization; 2004 [cited 2011 Sep 12].
Available from: http://www.who.int/healthinfo/paper54.pdf

***80% of all deaths***

# How Common is Chronic Disease in the Workplace?

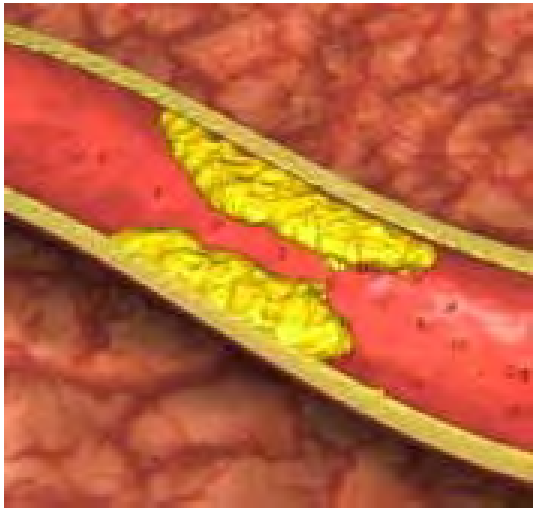



Sanofi Healthcare Survey 2015

# How Common are Chronic Diseases or Risks in the Workplace?

**Age 40-59:**

- **Hypertension 24%**
- **High cholesterol 40%**
- **Diabetes 10%**
- **Mood 11%**



*Many uncontrolled, unaware or under-treated*

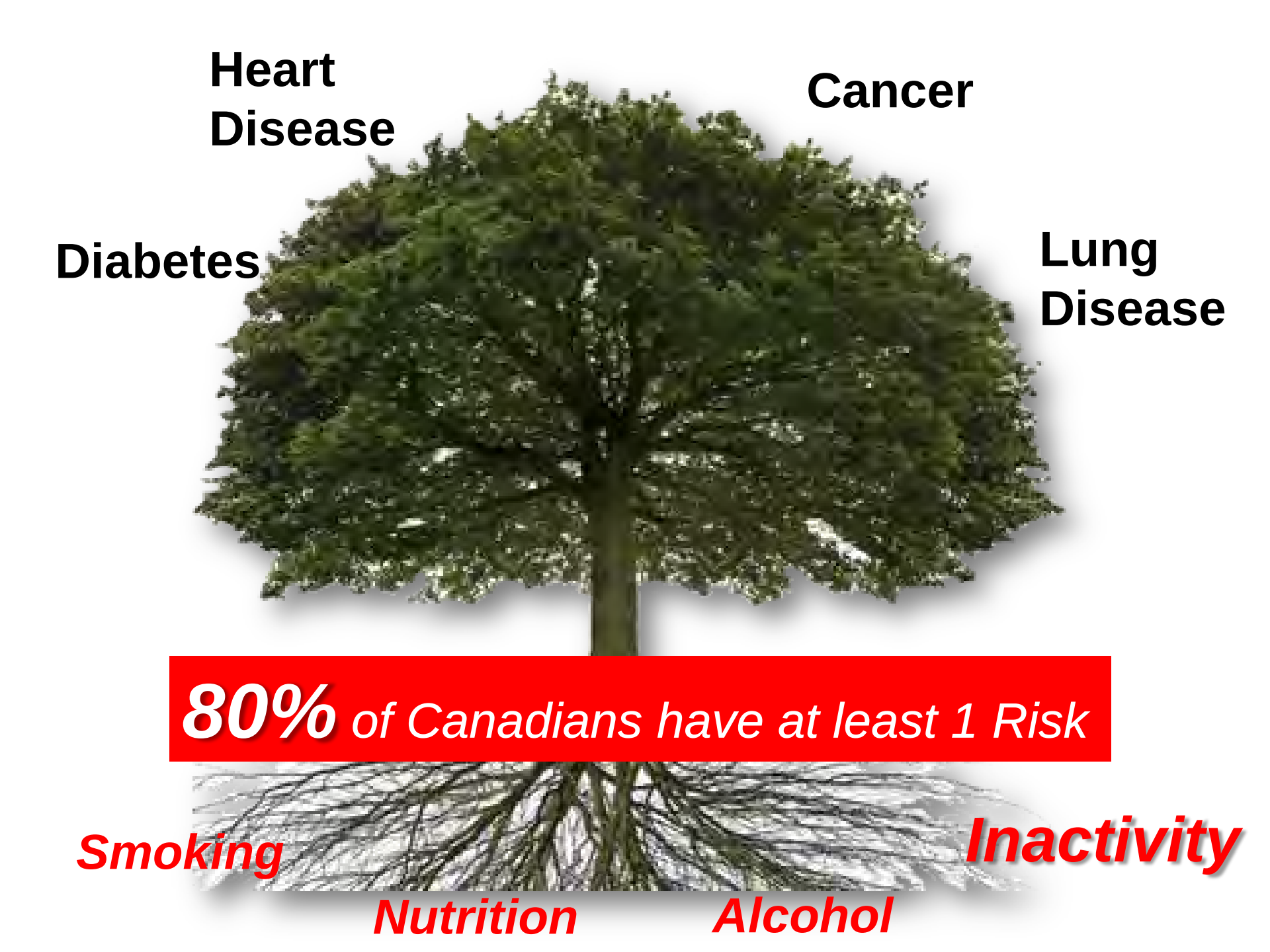
Stats Can,
CDA, PHAC

# Factors predictive of heart attack ?

**90% of risk explained by:**

1) Abdominal Obesity
2) Cholesterol
3) Daily fruits and vegetables
4) Diabetes
5) Hypertension
6) Physical Inactivity
7) Regular alcohol consumption
8) Smoking
9) Stress and Psychosocial Factors

INTERHEART Lancet 2004


Heart Disease
Cancer
Diabetes
Lung Disease
80% of Canadians have at least 1 Risk
Smoking
Inactivity
Nutrition
Alcohol

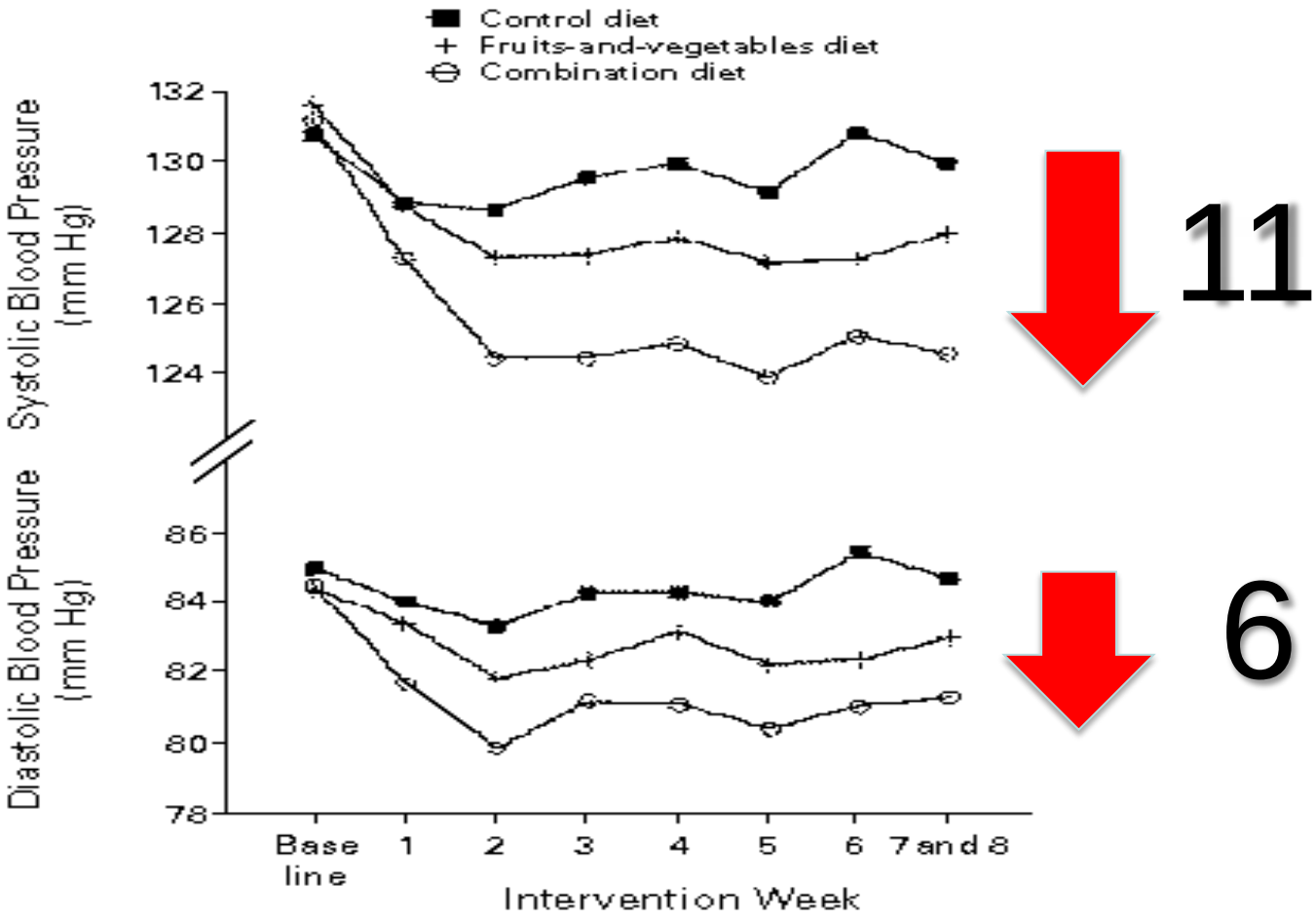
# 1. Food Power

## DASH Study

| Item | Control Diet | Fruits-and-Vegetables Diet | Combination Diet |
|---|---|---|---|
| Food groups (no. of servings/day) | | | |
| Fruits and juices | 1.6 | 5.2 | 5.2 |
| Vegetables | 2.0 | 3.3 | 4.4 |
| Grains | 8.2 | 6.9 | 7.5 |
| Low-fat dairy | 0.1 | 0.0 | 2.0 |
| Regular-fat dairy | 0.4 | 0.3 | 0.7 |
| Nuts, seeds, and legumes | 0.0 | 0.6 | 0.7 |
| Beef, pork, and ham | 1.5 | 1.8 | 0.5 |
| Poultry | 0.8 | 0.4 | 0.6 |
| Fish | 0.2 | 0.3 | 0.5 |
| Fat, oils, and salad dressing | 5.8 | 5.3 | 2.5 |
| Snacks and sweets | 4.1 | 1.4 | 0.7 |

Appel et al N Engl J Med 1997;336:1117-24.

# DASH Diet




Appel et al N Engl J Med 1997;336:1117-24.

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 APRIL 4, 2013 VOL. 368 NO. 14

# Primary Prevention of Cardiovascular Disease with a Mediterranean Diet

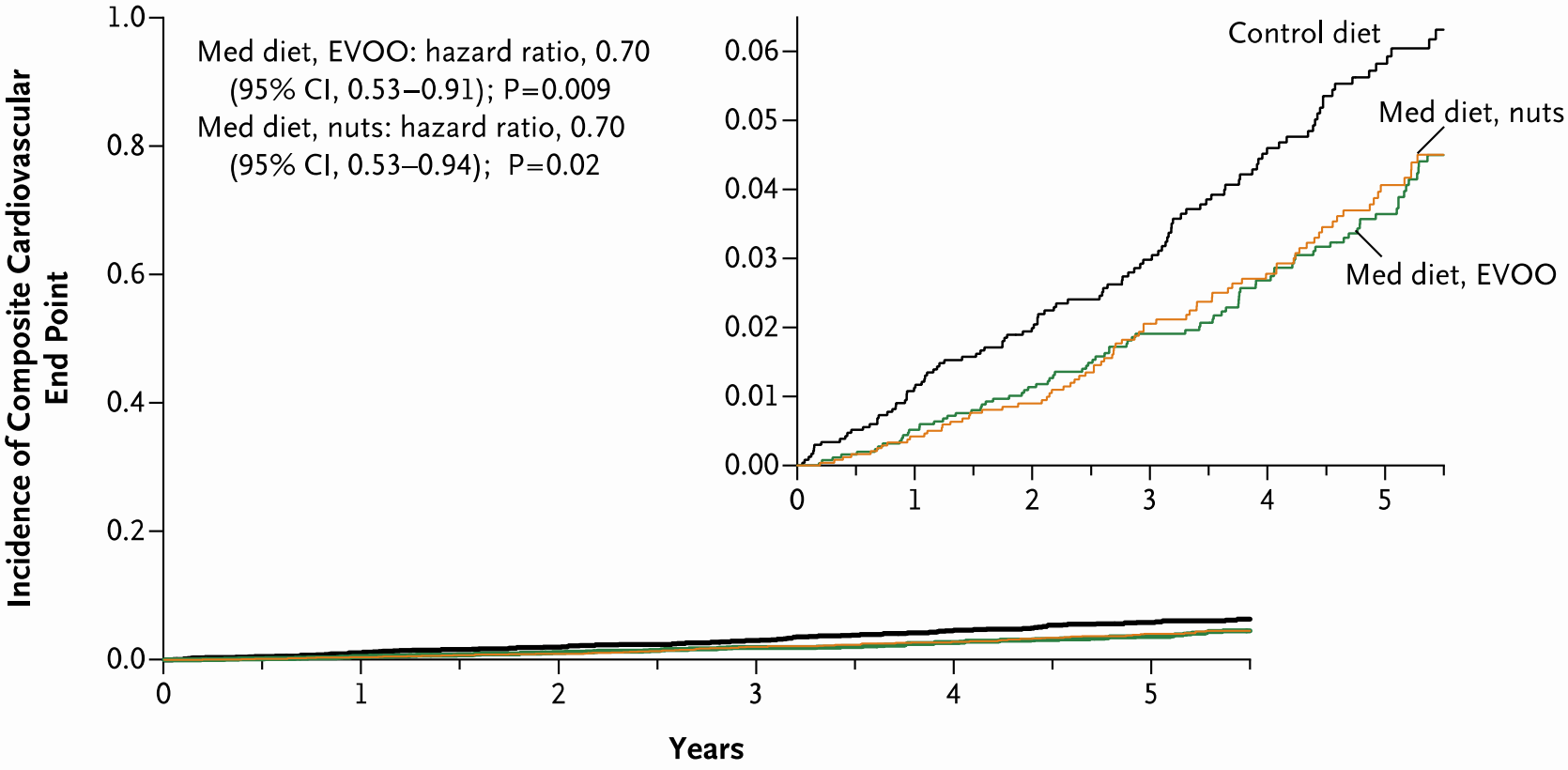
**Table 1. Summary of Dietary Recommendations to Participants in the Mediterranean-Diet Groups and the Control-Diet Group.**

| Food | Goal |
|---|---|
| **Mediterranean diet** | |
| Recommended | |
| Olive oil* | ≥4 tbsp/day |
| Tree nuts and peanuts† | ≥3 servings/wk |
| Fresh fruits | ≥3 servings/day |
| Vegetables | ≥2 servings/day |
| Fish (especially fatty fish), seafood | ≥3 servings/wk |
| Legumes | ≥3 servings/wk |
| Sofrito‡ | ≥2 servings/wk |
| White meat | Instead of red meat |
| Wine with meals (optionally, only for habitual drinkers) | ≥7 glasses/wk |
| Discouraged | |
| Soda drinks | <1 drink/day |
| Commercial bakery goods, sweets, and pastries§ | <3 servings/wk |
| Spread fats | <1 serving/day |
| Red and processed meats | <1 serving/day |

7447 men (55 to 80 years of age) and women (60 to 80 years of age) who had either DM or at least three of: smoking, hypertension, high LDL, low HDL, obesity, family history

# PREDIMED Study

**A** **Primary End Point (acute myocardial infarction, stroke, or death from cardiovascular causes)**




**No. at Risk**

| | | | | | | |
|---|---|---|---|---|---|---|
| Control diet | 2450 | 2268 | 2020 | 1583 | 1268 | 946 |
| Med diet, EVOO | 2543 | 2486 | 2320 | 1987 | 1687 | 1310 |
| Med diet, nuts | 2454 | 2343 | 2093 | 1657 | 1389 | 1031 |

Estruch et al. NEJM 368;14 April 4, 2013

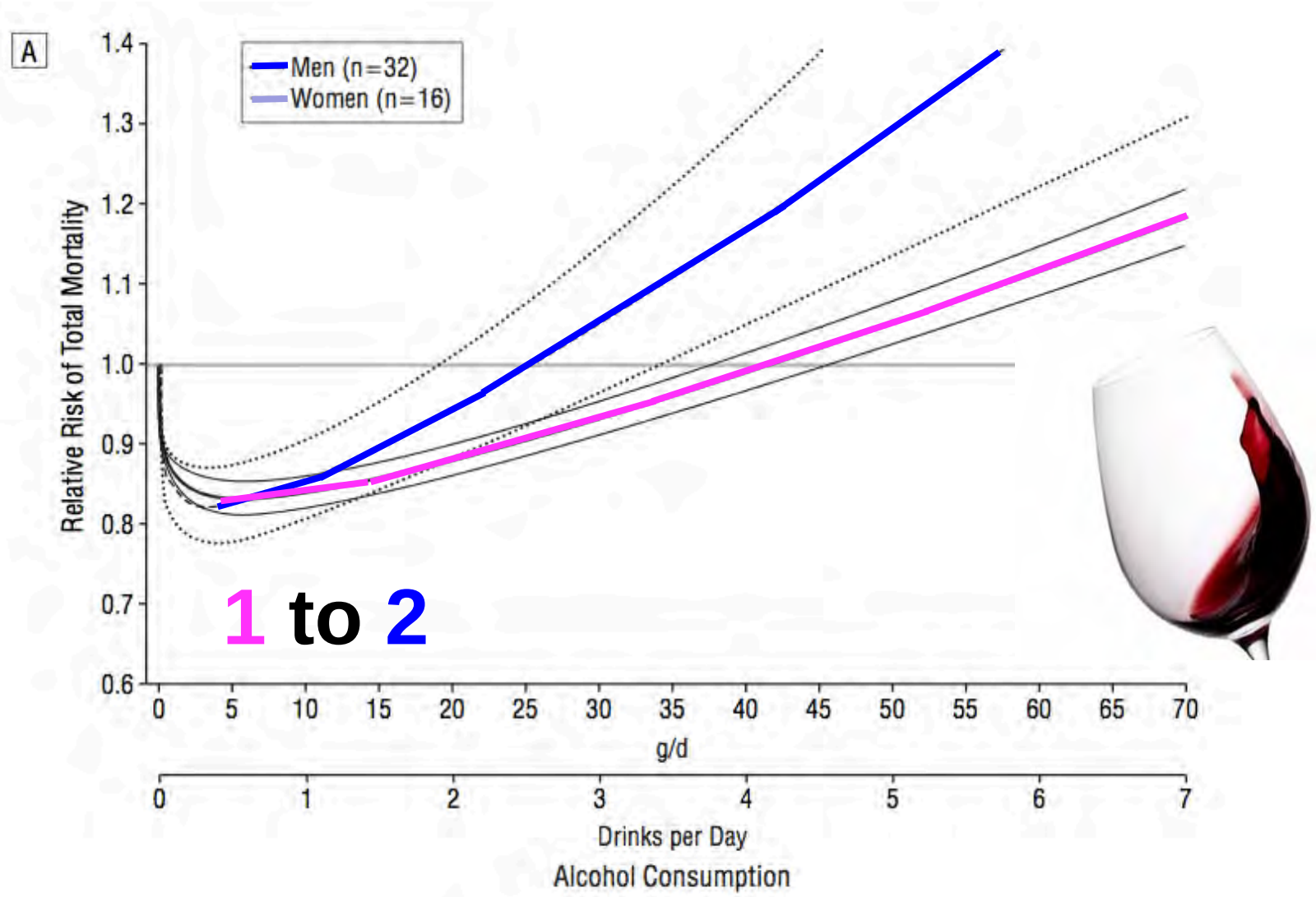
***"F" it Up…***
***Every meal***
***Every day***

## The "F" Plan

- **F**ruit and veg's
- **F**ibre
- **F**ish
- omega-3 **F**atty acids
- healthy **F**at
- no **F**udge

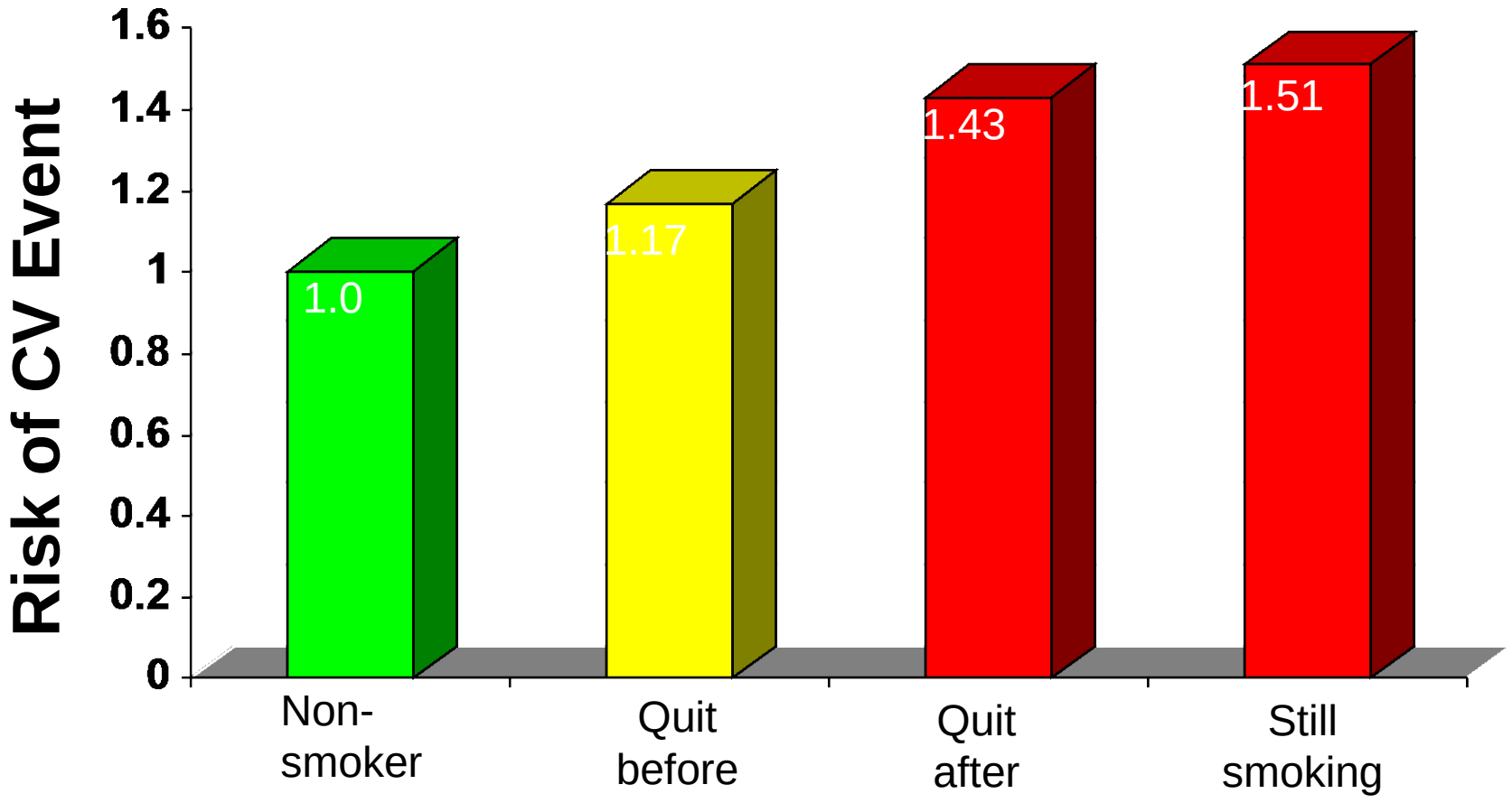
- Diet as a whole vs. individual components
- Food included vs. excluded

# 2. Alcohol

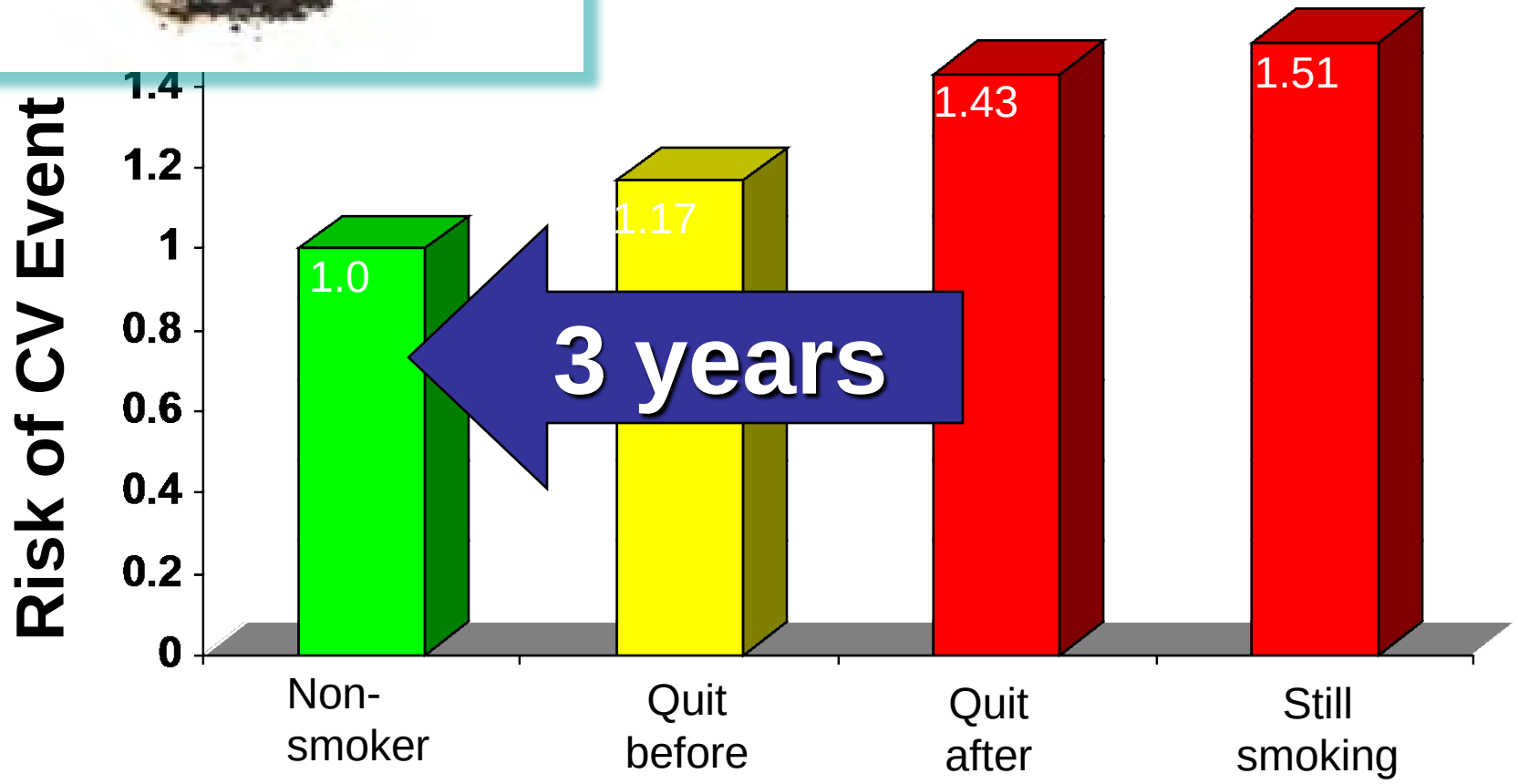



Arch Intern Med. 2006;166:2437-2445

# 3. Smoking and Recurrent MI



# Smoking and Recurrent MI

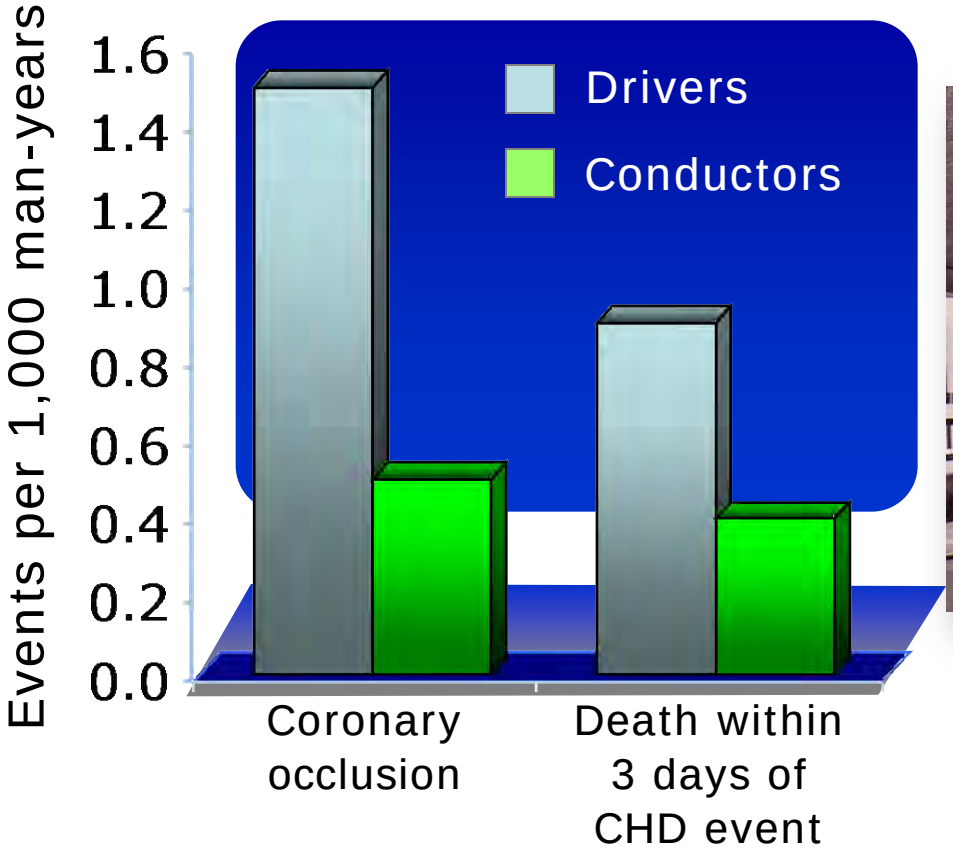



Ann Int Med Sept 2002

# 4. Physical Activity

***Mick Jagger is 73!***

# Physical Activity at Work and CHD Events

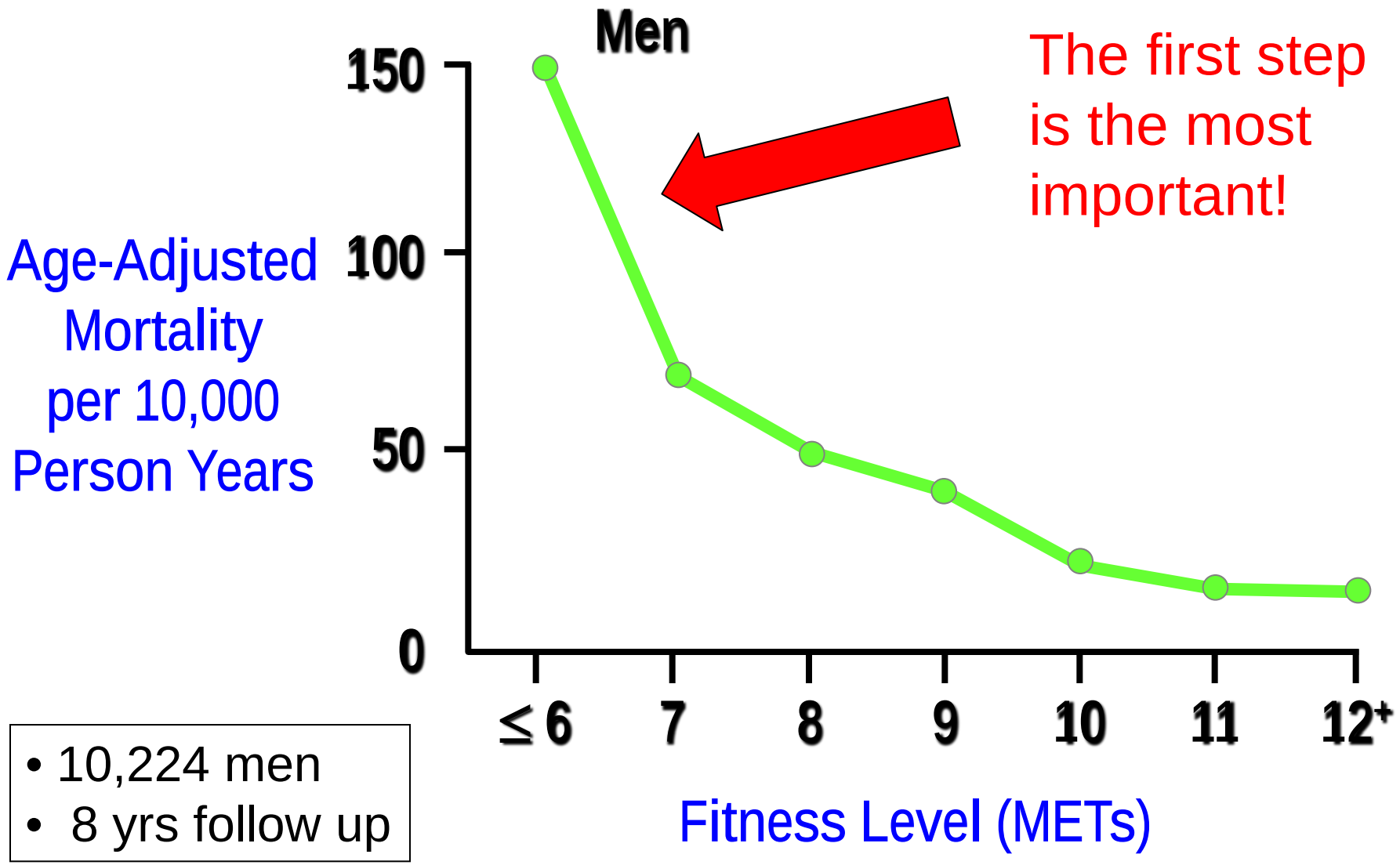




**31,000 London Transport Workers**

Morris Jeremy N, et al. *Lancet.* 1953;265:1111-1120.

# Fitness and Mortality




- 10,224 men
- 8 yrs follow up

Blair et al. JAMA 1989;262:2396-2401


Are you getting enough?
At least 30 minutes per day
10
+10
+10
= 30

Annals of Internal Medicine
Established in 1927 by the American College of Physicians





20 January 2015, Vol 162, No. 2>

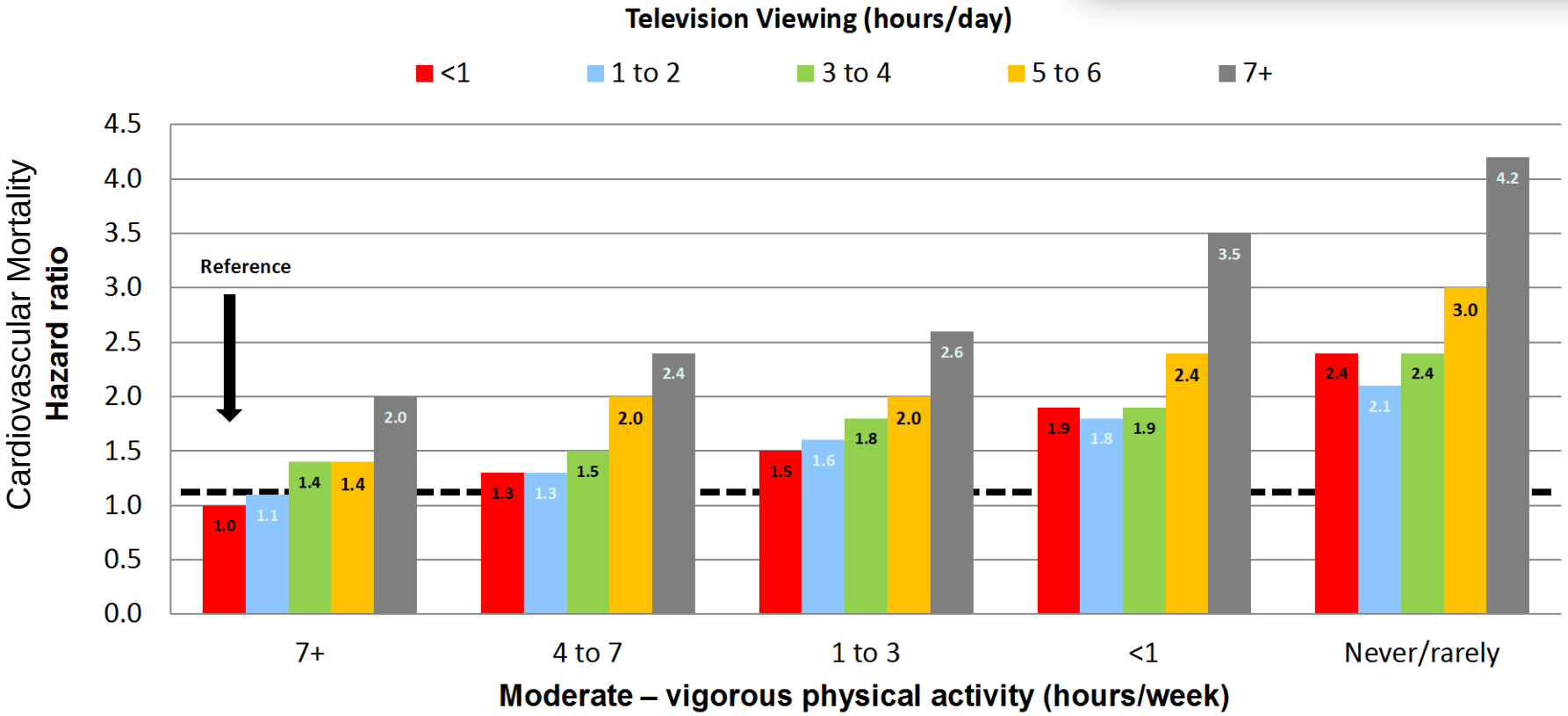
**Sitting increases CVD, diabetes and death**


Reviews | 20 January 2015

# Sedentary Time and Its Association With Risk for Disease Incidence, Mortality, and Hospitalization in Adults: A Systematic Review and Meta-analysis

Aviroop Biswas, BSc; Paul I. Oh, MD, MSc; Guy E. Faulkner, PhD; Ravi R. Bajaj, MD; Michael A. Silver, BSc; Marc S. Mitchell, MSc; and David A. Alter, MD, PhD

# Watching TV is Deadly!!




Matthews, C.E., S.M. George, S.C. Moore, H.R. Bowles, A. Blair, Y. Park et al.: Amount of time spent in sedentary behaviors and cause-specific mortality in US adults. Am J Clin Nutr, 2012. 95, 437-445.

Baker IDI
HEART & DIABETES INSTITUTE

# The Most Dangerous Place in the House or at Work

# ACCELERATION

An **ac**tivity, smoking **ce**ssation, hea**l**thy **e**ating and alcohol inte**r**vention, and motiv**ation** program -

a model for prevention of cancer and other chronic diseases.

*ACCELERATION is one of five pan-Canadian coalitions funded by the Canadian Partnership Against Cancer (CPAC), Heart and Stroke Foundation of Canada and Health Canada as part of the Coalitions Linking Action and Science for Prevention (CLASP) program.*

***Supported in part by Medavie Blue Cross***

ACCELERATION
12 weeks 4 health

# Recruitment of Diverse Cohorts


CANADA – Political
International boundary
Provincial/territorial boundary
Alberta Province/territory
Ottawa National capital
Regina Provincial/territorial capital
0 250 500 750 1 000 km

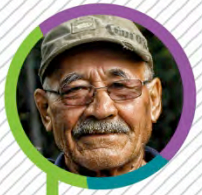
ACCELERATION
12 weeks 4 health

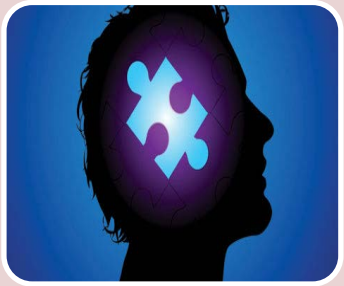
# 12 Weeks 4 Health (www.acceleration4health.ca)

- targeting common risk factors
  - Physical activity
  - Healthy eating
  - Smoking cessation
  - Moderate alcohol intake
    - Through weekly education sessions, motivational interviewing and coaching
    - On site and On line

# ACCELERATION Evaluation

**92% of participants would recommended the program!!!**





| Avg # of mins (MVPA) | Consuming <5 fruit/veg/day: | "Normal" Depression Level | Sleep Quality "Good" |
|---|---|---|---|
| **B:** 65 mins | **B:** 73% | **B:** 71% | **B:** 29% |
| **12-wk:** 148 mins | **12-wk:** 35% | **12-wk:** 86% | **12-wk:** 39% |
| ↑ **83 mins** | ↓ **38%** | ↑ **15%** | ↑ **10%** |

**<u>Additional Improvements:</u>** lipid profile, strength & fitness, weight attractive cost effectiveness

# What Works in Wellness ?
# Identification of key risk conditions

- Hypertension screening
- Diabetes screening
- Mental health awareness

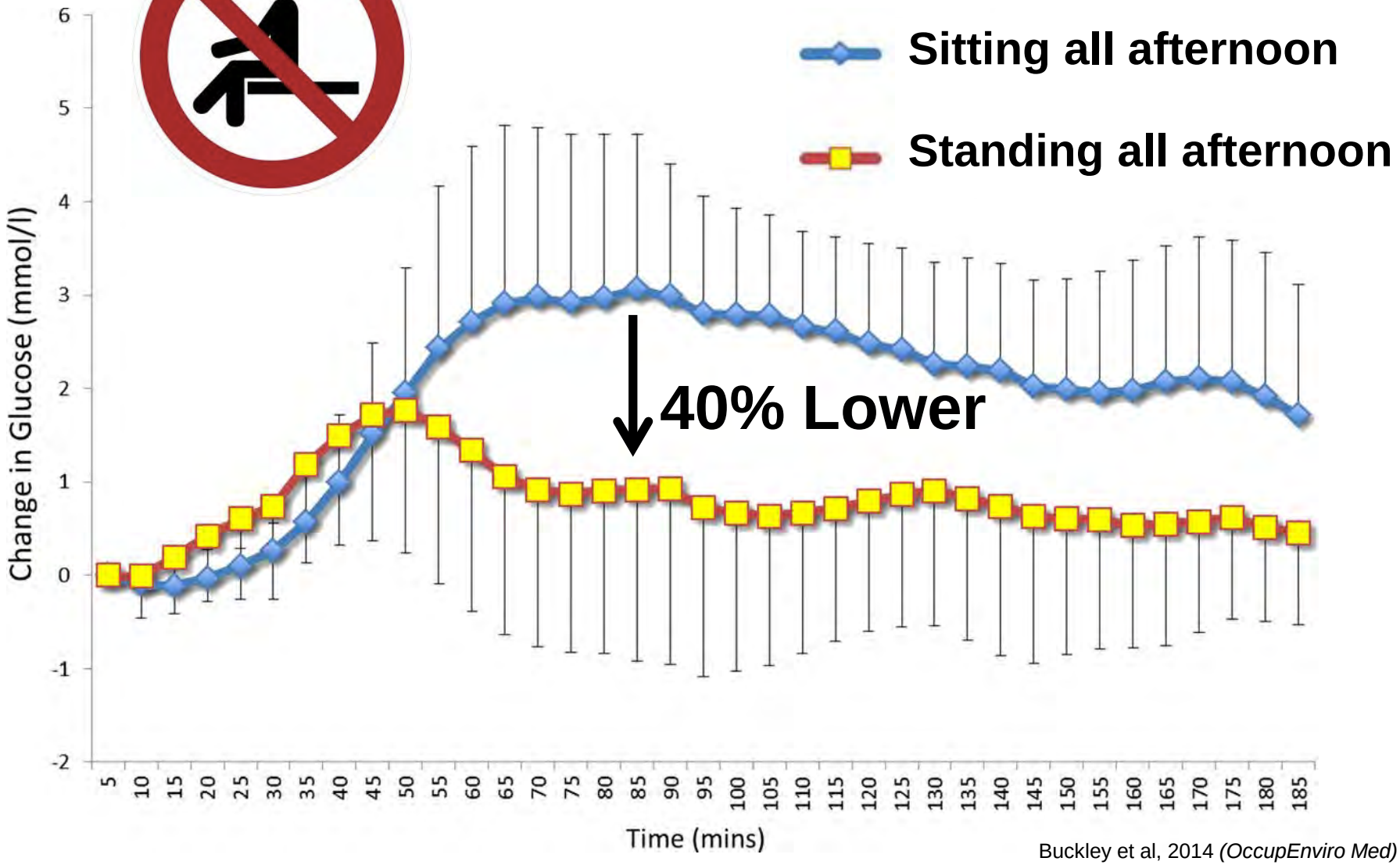
# What Works in Disease Prevention? The Example of Diabetes

- health risk assessment
- healthy choices in the cafeteria
- onsite nutrition and exercise classes
- promote increased physical activity
- pedometers
- lactation
- health education
- health club membership
- glucose testing station

NEJM 2002; 346:393-403

*National Business Group on Health*

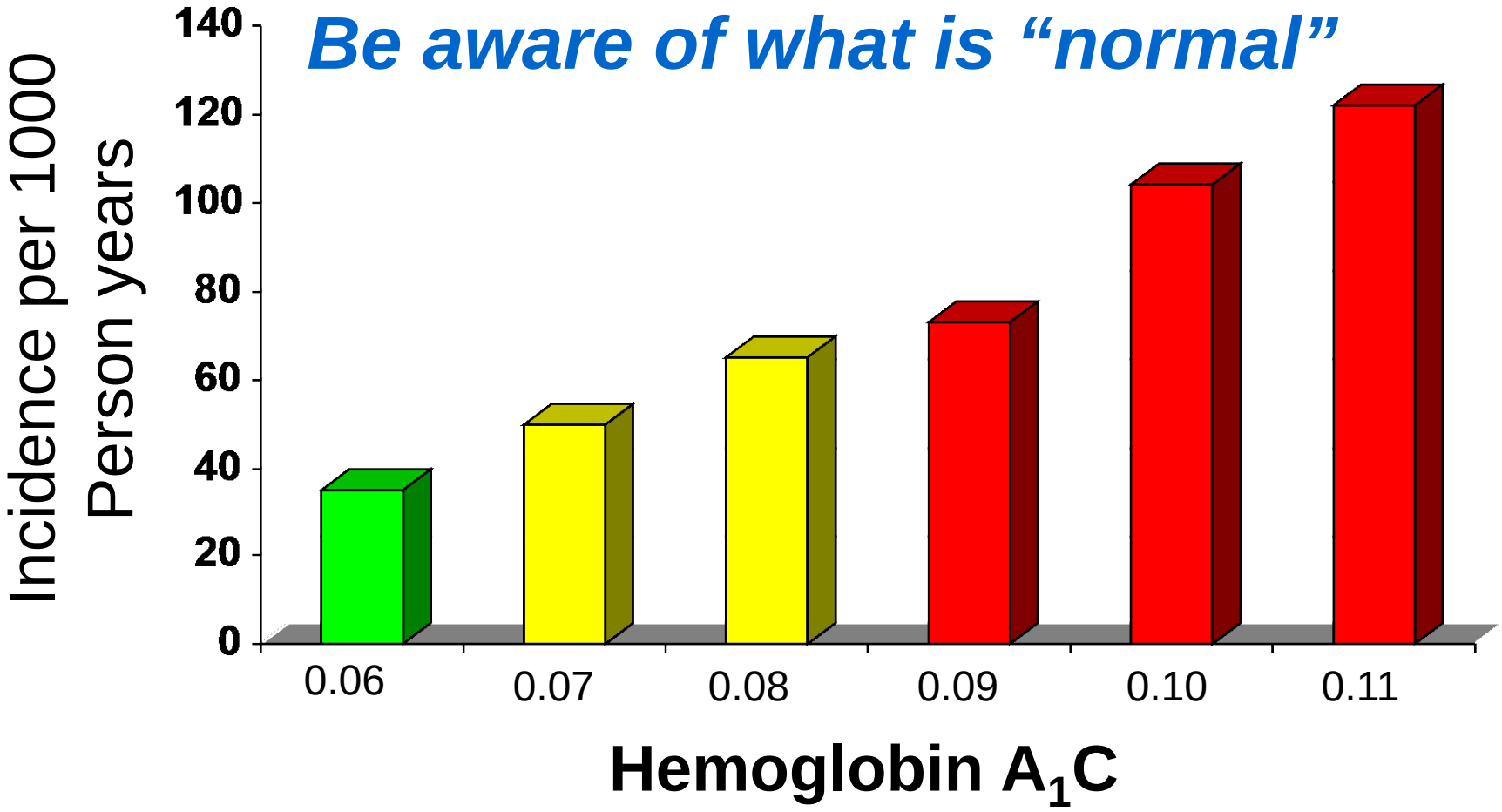
# Standing = Improved Glucose Tolerance




Buckley et al, 2014 *(OccupEnviro Med)*

# What Works in Disease Prevention?
# The Example of Diabetes

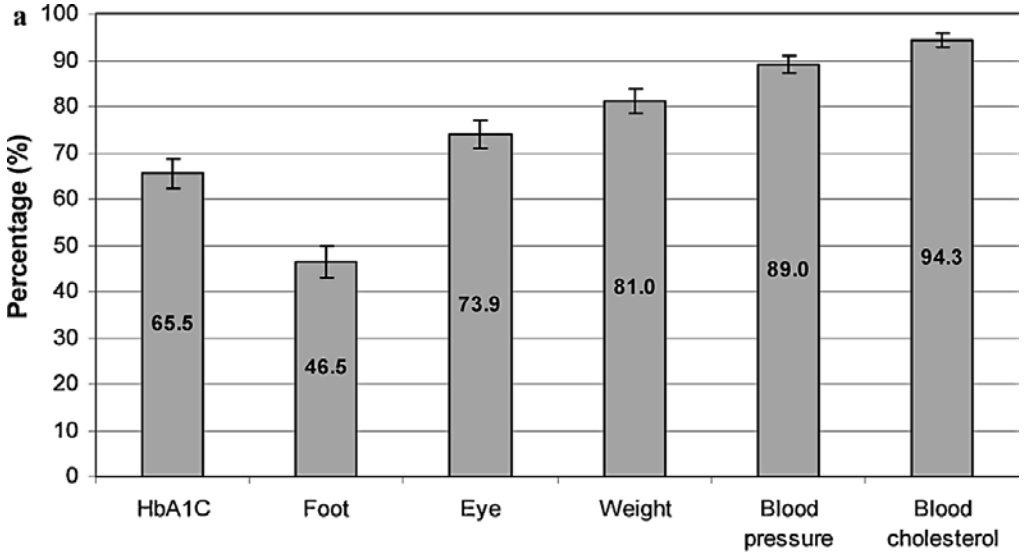
***Optimal glucose is the goal –***
***Be aware of what is "normal"***



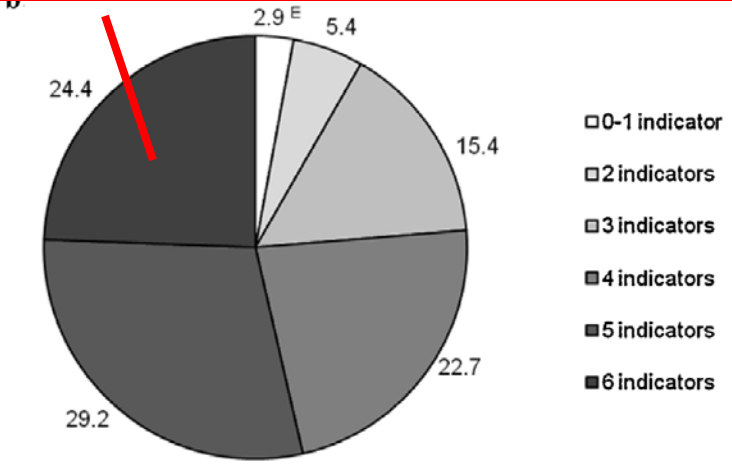

UKPDS, BMJ, 2000

# Monitoring as per Diabetes Guidelines

- A1c tested at least twice in the last year
- foot exam in the last year
- Eye exam in last 2 years
- weight measured during the last year
- BP always or often measured at diabetes related visit
- cholesterol tested within 3 years




1 out of 4 optimally monitored




Baillot et al. Diabetes Research and Clinical Practice 103 (2014) 11–19

# What Works in Disease Management?


**Current quality care metrics for employees**

- **43% $A_1C$ at target**
- **81% LDL below 2.0**
- **46% eye exams**

**Current Practice**

- **35% all 3**

Intervention:

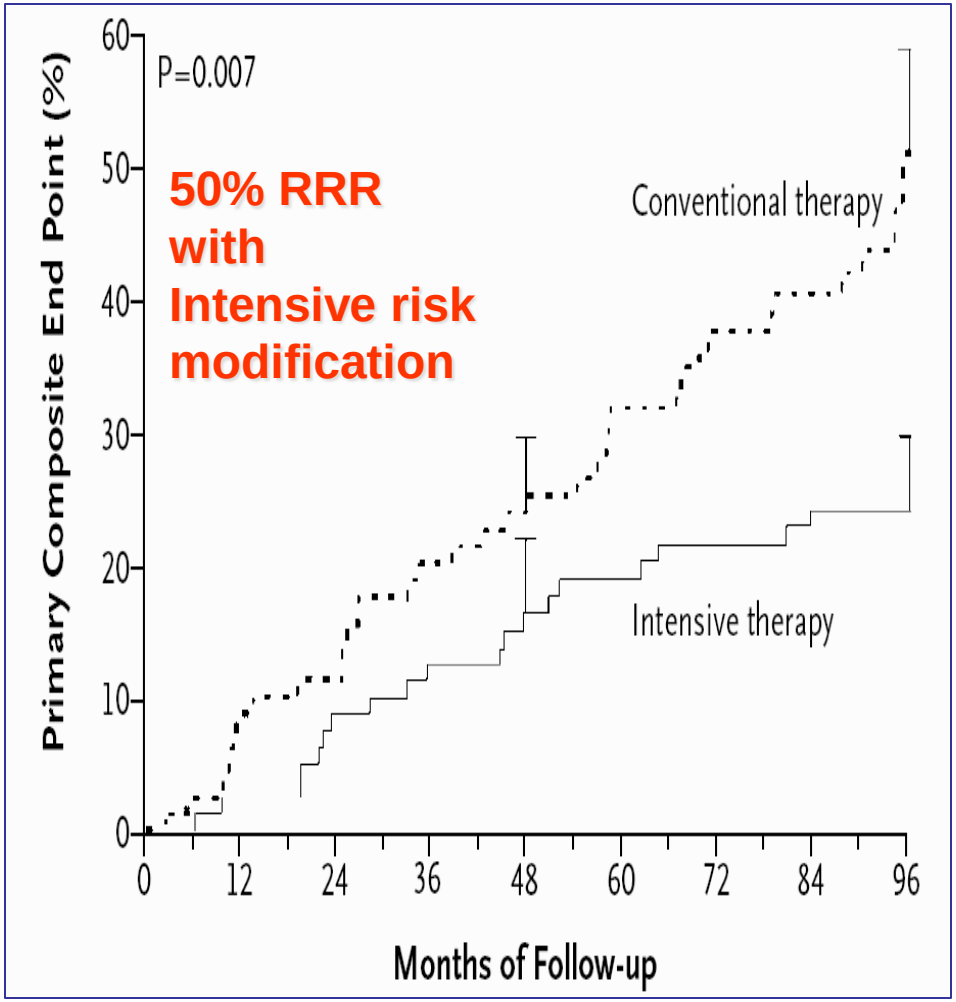
- ☐ Database; client identification
- ☐ Focused education
- ☐ Onsite nutrition; targeted calls
- ☐ Helpline / email

- **$A_1C$ and LDL "significantly improved"**

www.qualityprofiles.org/leadership_series/diabetes/diabetes_prevention.asp

# What Works in Disease Management? The Example of Diabetes

- **STENO-2 Trial**
  - Randomized trial of diabetes care
    - intensive risk factor care
    - Diet + Exercise
  - Vs. Usual care
  - 8 year follow-up
  - mean age 55
  - Composite endpoint
    - CVD death
    - Nonfatal MI and/or stroke
    - Revascularization or amputation

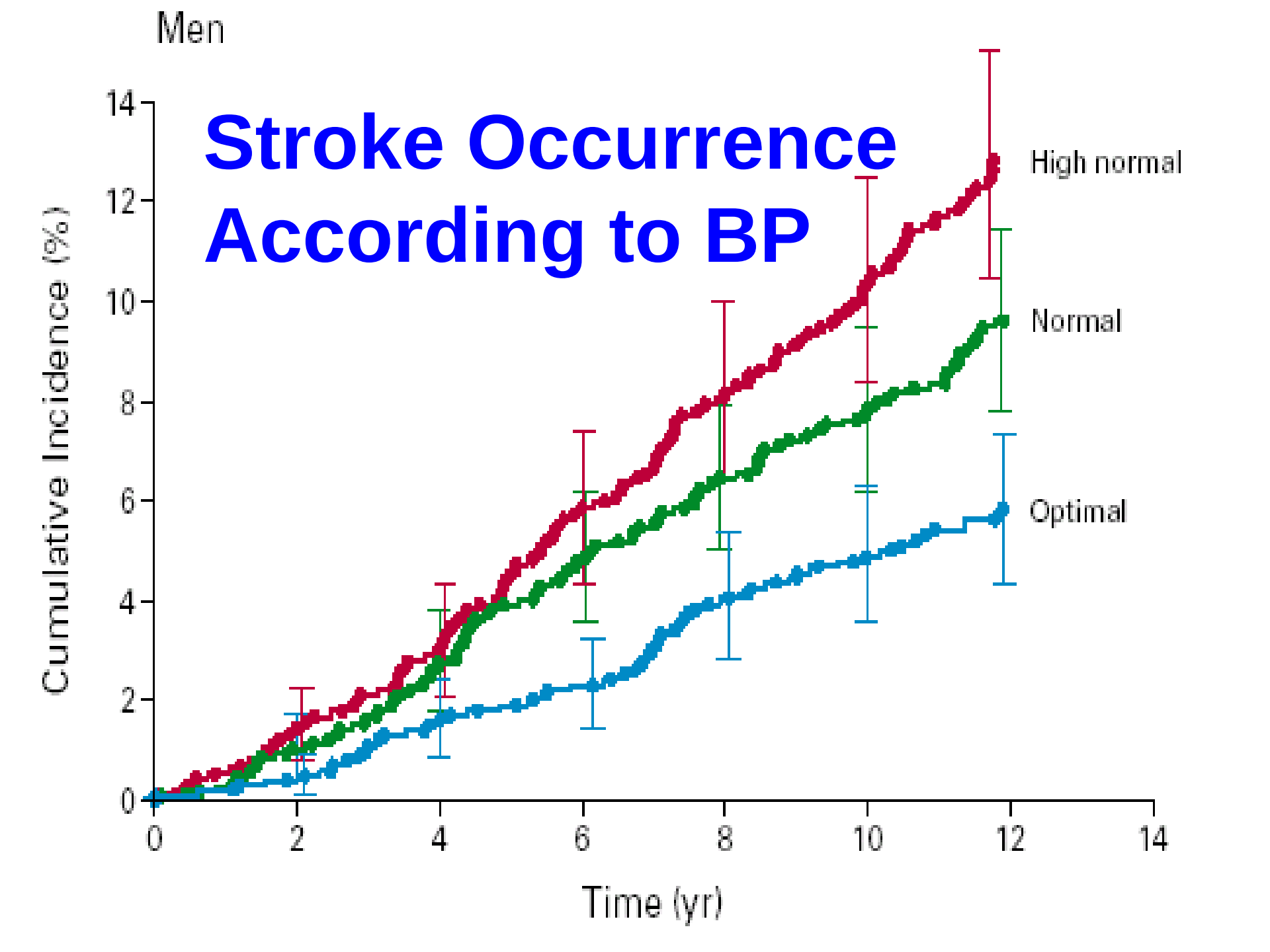



Gaede et al. NEJM, 2003

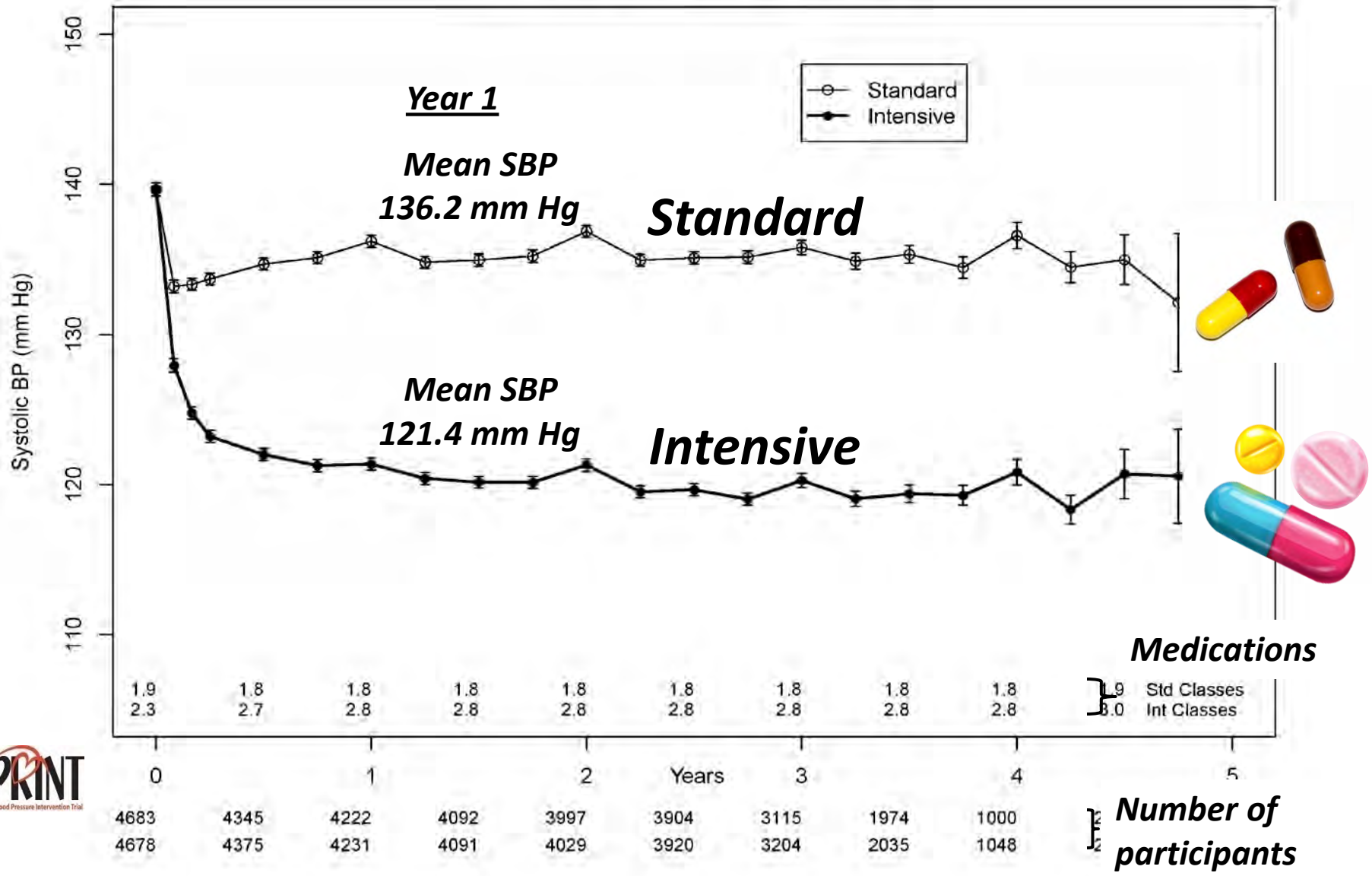
# What Works in Disease Management? The Example of Hypertension

What is “Normal” BP?

$$\frac{140}{90} \quad \text{vs.} \quad \frac{120}{80}$$


Men
Stroke Occurrence According to BP
Cumulative Incidence (%)
0
2
4
6
8
10
12
14
Time (yr)
High normal
Normal
Optimal

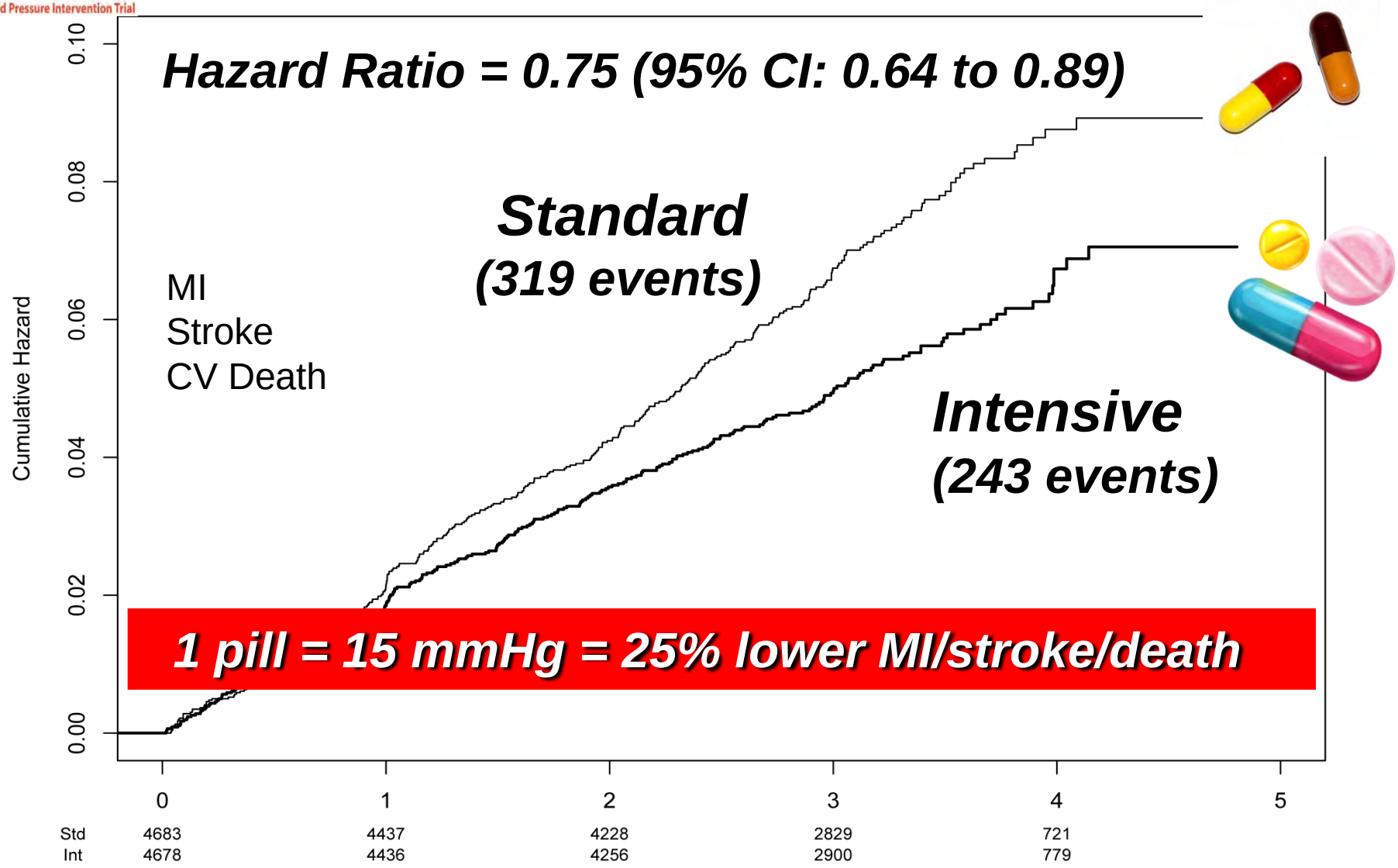
# SPRINT Study – BP Control Comparison




SPRINT Systolic Blood Pressure Intervention Trial

N Engl J Med 2015; 373:2103-2116

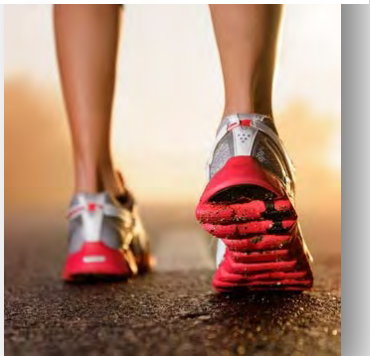
# Reduction in CV Events




N Engl J Med 2015; 373:2103-2116

# Summary I – The Importance of Wellness

- Chronic diseases pose a huge burden in society and the workplace
- Health behaviours are the critical targets
  - physical inactivity is a particular issue



# Summary II – The Approach to Wellness

- Have a strategy and framework
- Understand barriers in your workplace
- Address issues with the work processes and environment
- Identify 1 or 2 key areas of focus – e.g., diabetes or hypertension

# Summary III - Ideas

**“F” it Up…**
**Every meal**
**Every day**




Benefits$^3$

September 21

*Islington Golf Club, Etobicoke*

# Ideas for Chronic Disease Prevention and Management

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