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PREVENT HEART ATTACKS AND STROKES EVERYDAY

Regional Seminar on the Implementation of the Cardiovascular Risk Reduction Project in the Americas

May 17, 2017 Santiago, Chile

Key elements in the management of high blood pressure: Experience of Kaiser Permanente, Northern California

Presented by:

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Original Investigation

Improved Blood Pressure Control Associated With a Large-Scale Hypertension Program

Marc G. Jaffe, MD; Grace A. Lee, MD; Joseph D. Young, MD; Stephen Sidney, MD, MPH; Alan S. Go, MD

IMPORTANCE Hypertension control for large populations remains a major challenge.

OBJECTIVE To describe a large-scale hypertension program in Northern California and to compare rates of hypertension control in that program with statewide and national estimates.

DESIGN, SETTING, AND PATIENTS The Kaiser Permanente Northern California (KPNC) hypertension program included a multifaceted approach to blood pressure control. Patients identified as having hypertension within an integrated health care delivery system in Northern California from 2001-2009 were included. The comparison group comprised insured patients in California between 2006-2009 who were included in the Healthcare Effectiveness Data and Information Set (HEDIS) commercial measurement by California health insurance plans participating in the National Committee for Quality Assurance (NCQA)

J Clin Hypertension 18(4):260-261, April 2016

JCH The Journal of Clinical Hypertension

OFFICIAL JOURNAL OF THE WORLD HYPERTENSION LEAGUE

FROM THE WORLD HYPERTENSION LEAGUE

The Kaiser Permanente Northern California Story: Improving Hypertension Control From 44% to 90% in 13 Years (2000 to 2013)

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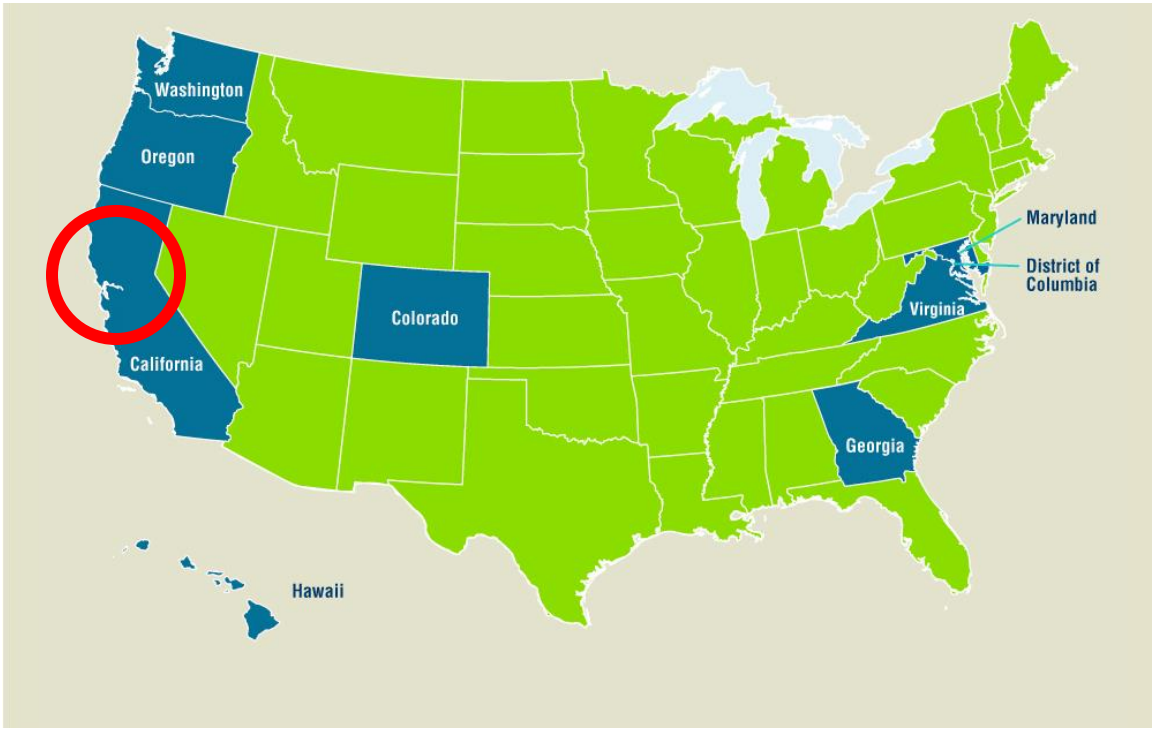
Kaiser Permanente Northern California (KPNC)

- 4 million members
- 8,000 doctors
- 21 medical centers
- 237 medical offices
- Comprehensive inpatient and outpatient services



Key Elements of a Successful HTN Program

Element	Description
Hypertension Registry	Validated and comprehensive
Clinic Level Performance Feedback	Facilitates operational and system level change, transparent & visible
Treatment Algorithm	Based on evidence-based guidelines, simple & implementable
Medical assistant visits for BP measurement	Appropriate use of staff skills and reduced barriers to patients
Single Pill Combination Therapy	Increased efficiency and increased adherence

Health System-Wide Hypertension Registry

- KPNC Hypertension Registry developed in 2000
- Elements used for identification
  - Outpatient diagnostic codes
  - Pharmaceutical utilization data
  - Hospitalization records
- Chart review audits of random samples of identified members were conducted
- Grown from 350,000 to >650,000 individuals
- Identified prevalence of hypertension increased from 15 to 27% of adult membership.

KPNC Development of a Hypertension Metric

Developed for Purpose of Quality Improvement

- Pre-2001: no hypertension metric
- 2001-2008: semi-automated metric
  - BP manually recorded on form at each visit
  - Form sent to central processing center
- Post 2008: automated metric
  - All BP automatically sent electronically to central processing data center

Hypertension Metric Performance Feedback

- Annual quality goal targets
- Un-blinded medical center performance reports
- Central hypertension management team identified best practices
- Medical center cardiovascular risk reduction teams to support clinicians
- Best practices disseminated through regional Peer meetings
- Clinic-level feedback to facilitate operational and system-level change.

Evolution of the KPNC Drug Treatment Algorithm

- Evidence-based guideline updated every 2 years
- Diverse guideline development team
  - primary care and specialty physicians
  - cardiologists, nephrologists, endocrinologists
  - pharmacists, evidence-based methodologists
- Simplified drug treatment algorithm
  - single specific drug for each step
  - facilitates the use of fewer drugs
  - improve familiarity/decrease practice variation
  - simplification of teaching materials

Evolution of the KPNC Drug Treatment Algorithm

Drug Treatment Pathway 2001

Step	Medication
1	Thiazide Diuretic or Beta Blocker
2	Thiazide Diuretic + Beta Blocker
3	Thiazide Diuretic + Beta Blocker + ACE Inhibitor
4	Thiazide Diuretic + Beta Blocker + ACE Inhibitor + DCCB
	ACE = angiotensin Converting Enzyme,, DCCB = dihydropyridine calcium channel blocker

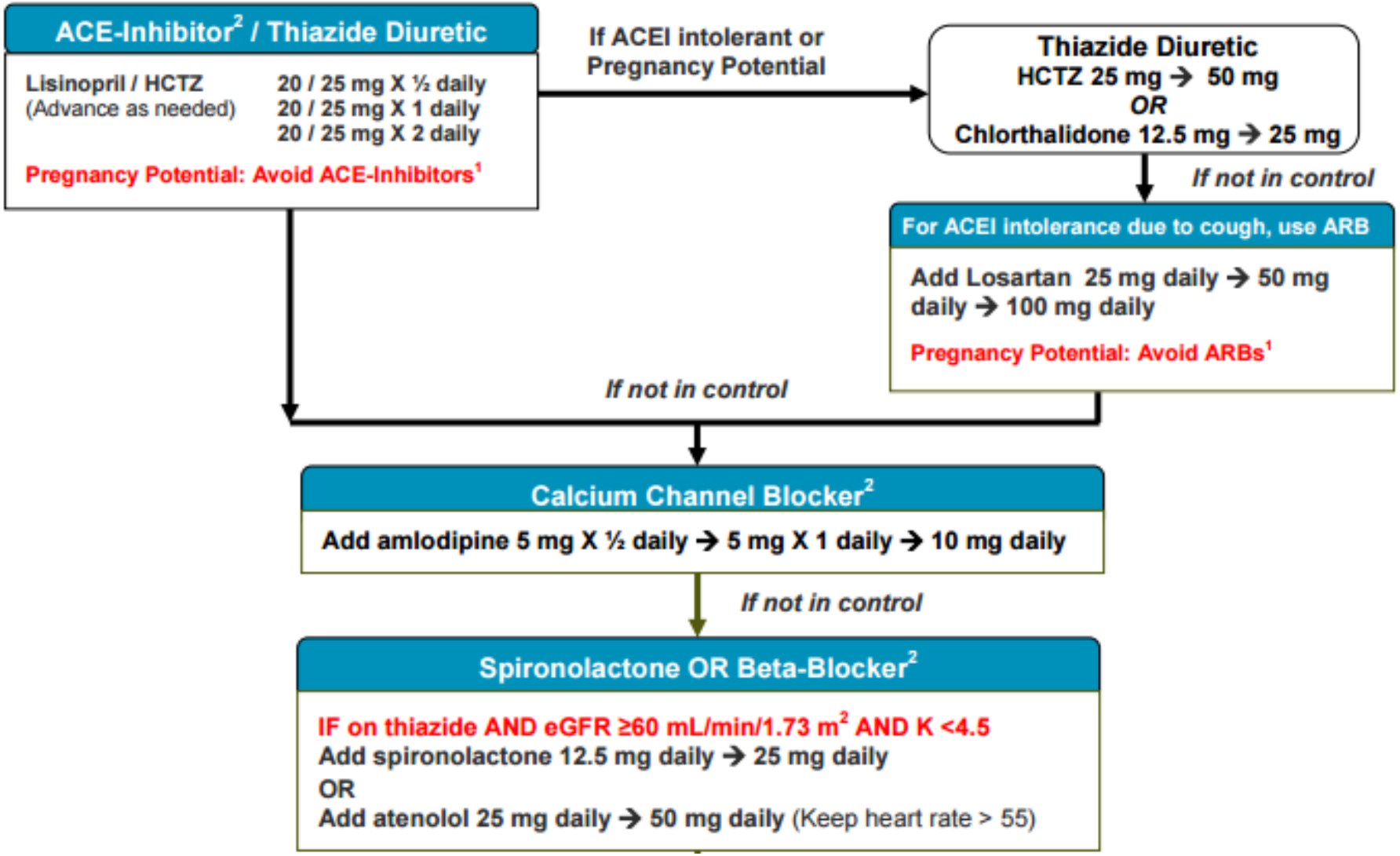
Evolution of the KPNC Drug Treatment Algorithm

Drug Treatment Pathway 2017

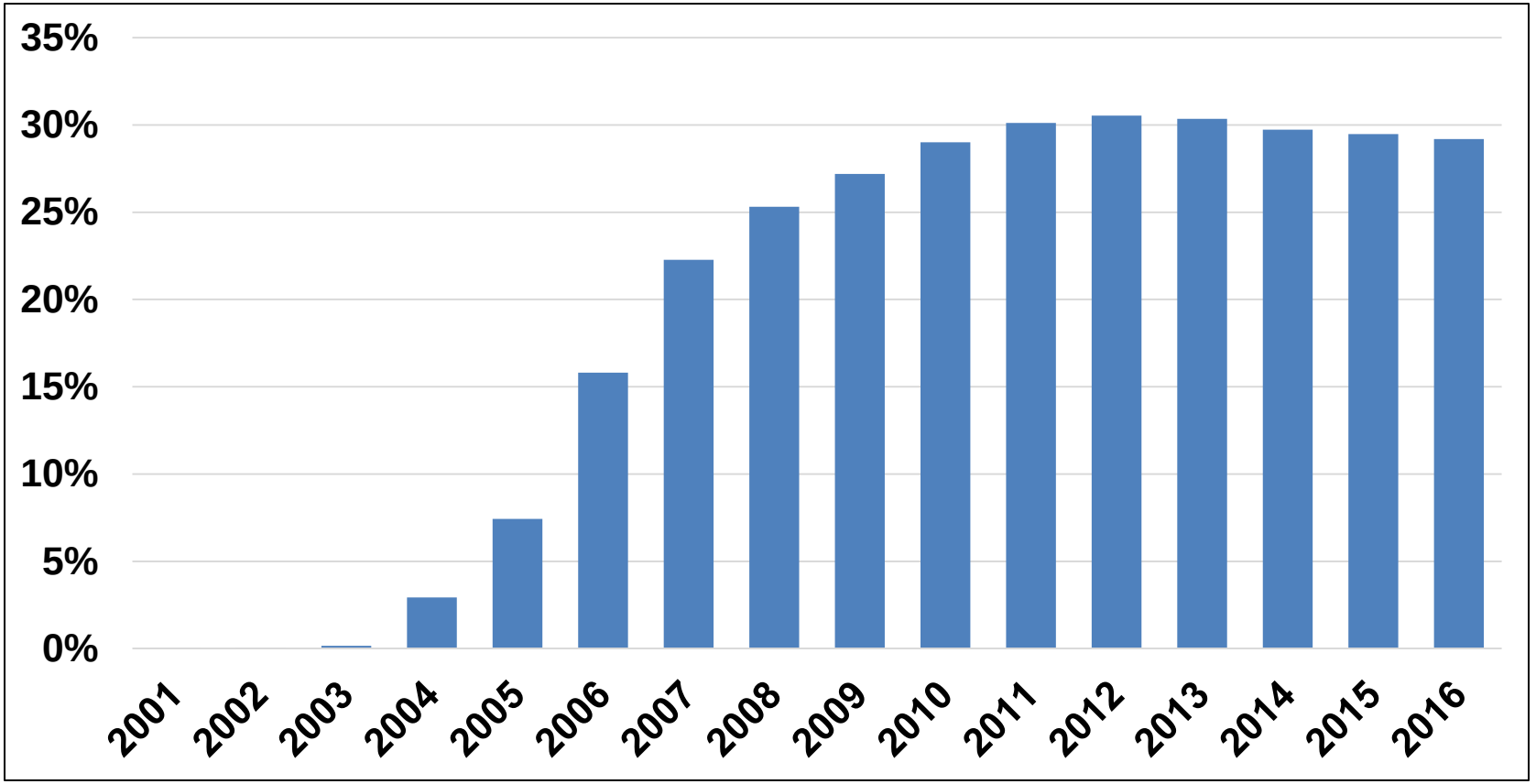
Step	Medication
1	Thiazide Diuretic + ACE Inhibitor (Single Pill) or Thiazide Diuretic
2	Thiazide Diuretic + ACE Inhibitor (Single Pill)
3	Thiazide Diuretic + ACE Inhibitor + DHP calcium channel blocker
4	Thiazide Diuretic + ACE Inhibitor + DHP calcium channel blocker + SPIR or BB
	ACE = angiotensin Converting Enzyme, DHP = dihydropyridine, SPIR = Spironolactone, BB = Beta Blocker

Evolution of the KPNC Drug Treatment Algorithm

http://kpcmi.org/how-we-work/hypertension-control/



Percentage of ACE-I Prescriptions dispensed as Single-Pill Combination (SPCs) tablets in KPNC



From 2001 to 2016 lisinopril-hydrochlorothiazide prescriptions increased from <20 to 26,000 per month. The percentage of ACE-inhibitors dispensed as lisinopril-hydrochlorothiazide increased from <1% to 29%

Medical Assistant BP Measurement Checks

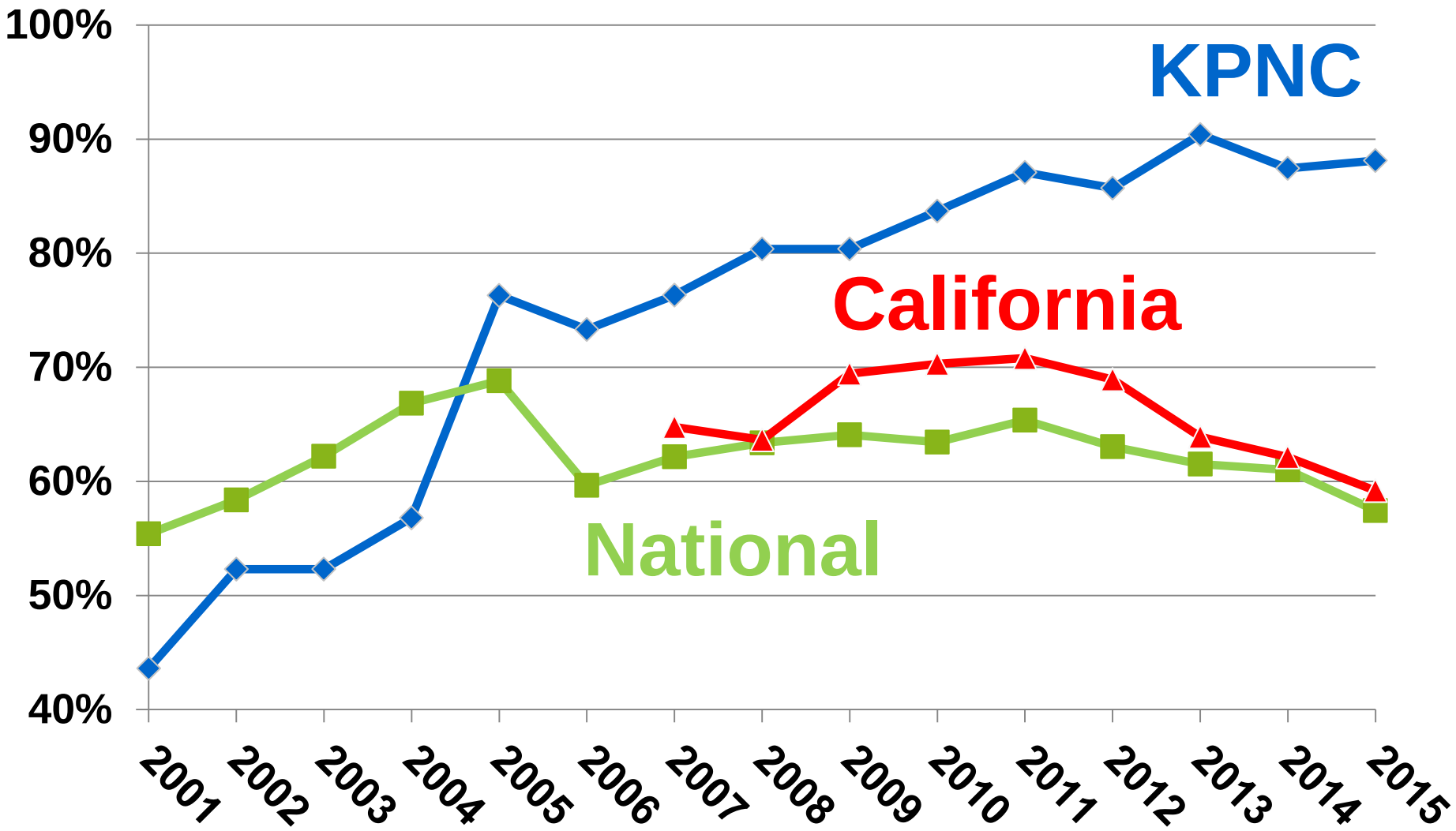
Because Doctor Office Visits are neither cost-effective nor convenient for BP measurement

- EHR enables asynchronous communication
- MA Measurement reduces white-coat effect
- Enhanced compliance because of
  - No co-pay
  - Member convenience - delays are rare
- Enables “repatriation” to Primary Care when BP measurement is high outside of Primary Care.

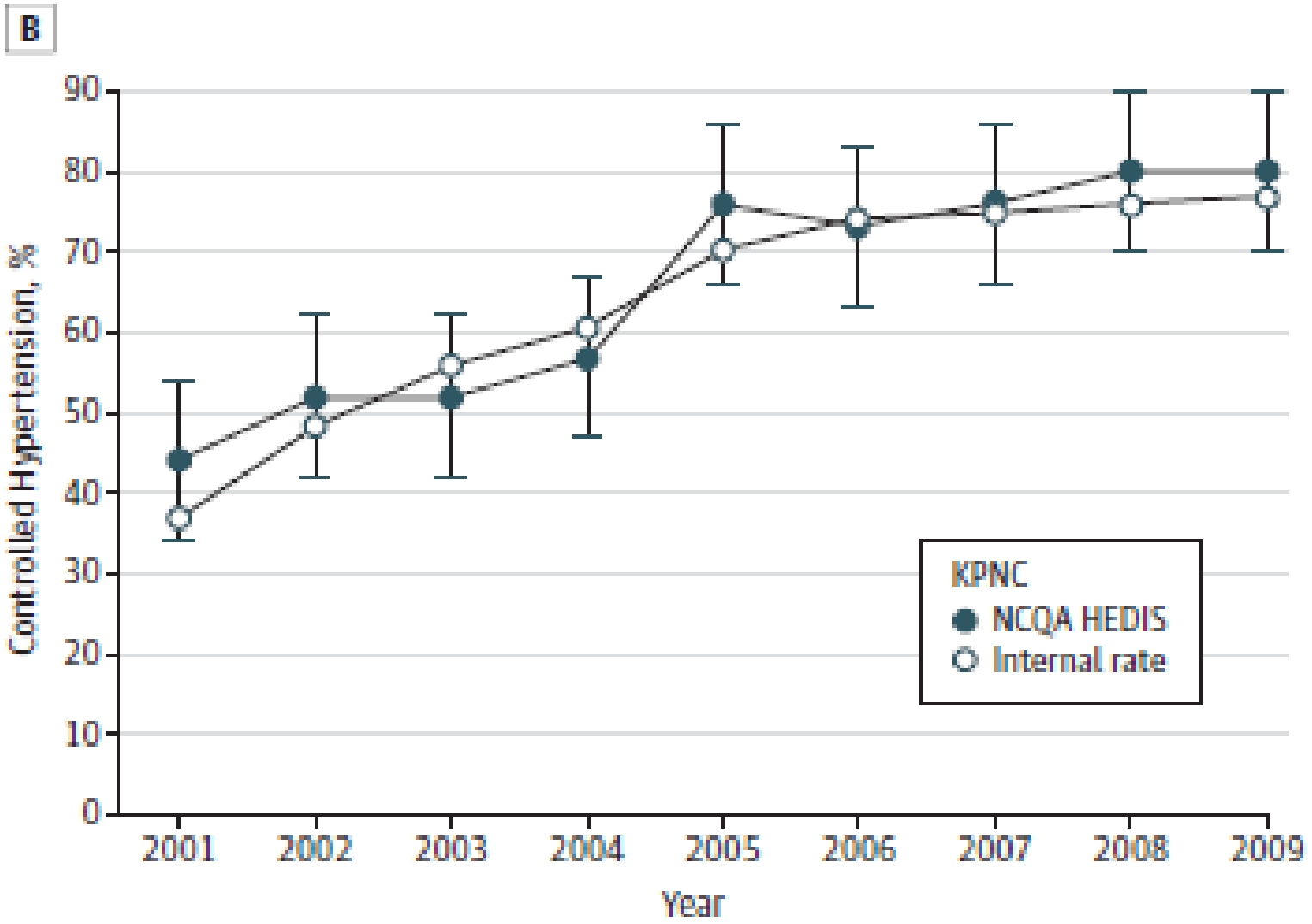
Cardiovascular Outcomes

- Does this work?

KPNC vs. National and California HTN Control



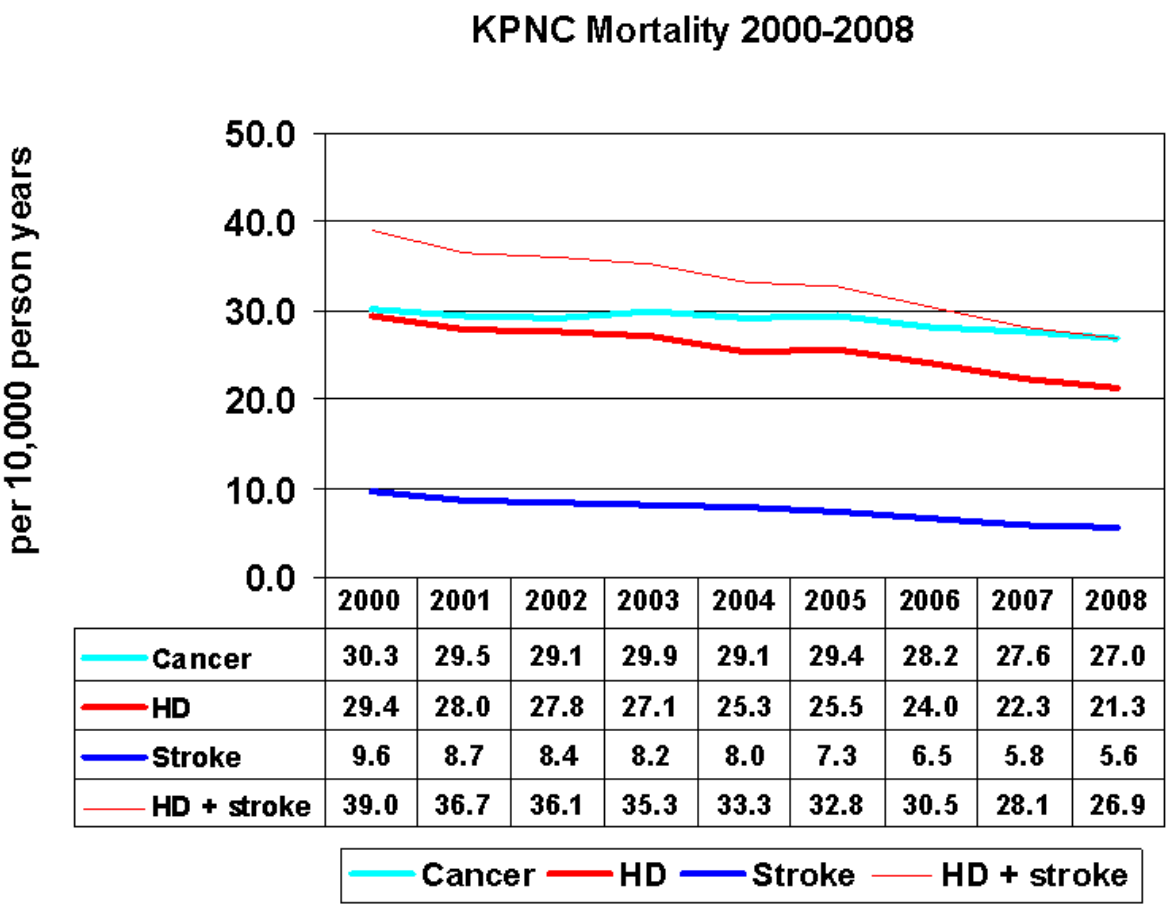
KPNC HTN Control rates (internal v external)



Cardiovascular Outcomes

- Does this matter?

Falling CV Morbidity and Mortality - KPNC



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Cancer	30.3	29.5	29.1	29.9	29.1	29.4	28.2	27.6	27.0
HD	29.4	28.0	27.8	27.1	25.3	25.5	24.0	22.3	21.3
Stroke	9.6	8.7	8.4	8.2	8.0	7.3	6.5	5.8	5.6
HD + stroke	39.0	36.7	36.1	35.3	33.3	32.8	30.5	28.1	26.9

Since Year 2000:

- **30.4% reduction** in CVD mortality
- **42.2% reduction** in stroke mortality
- **10.9% reduction** in cancer mortality

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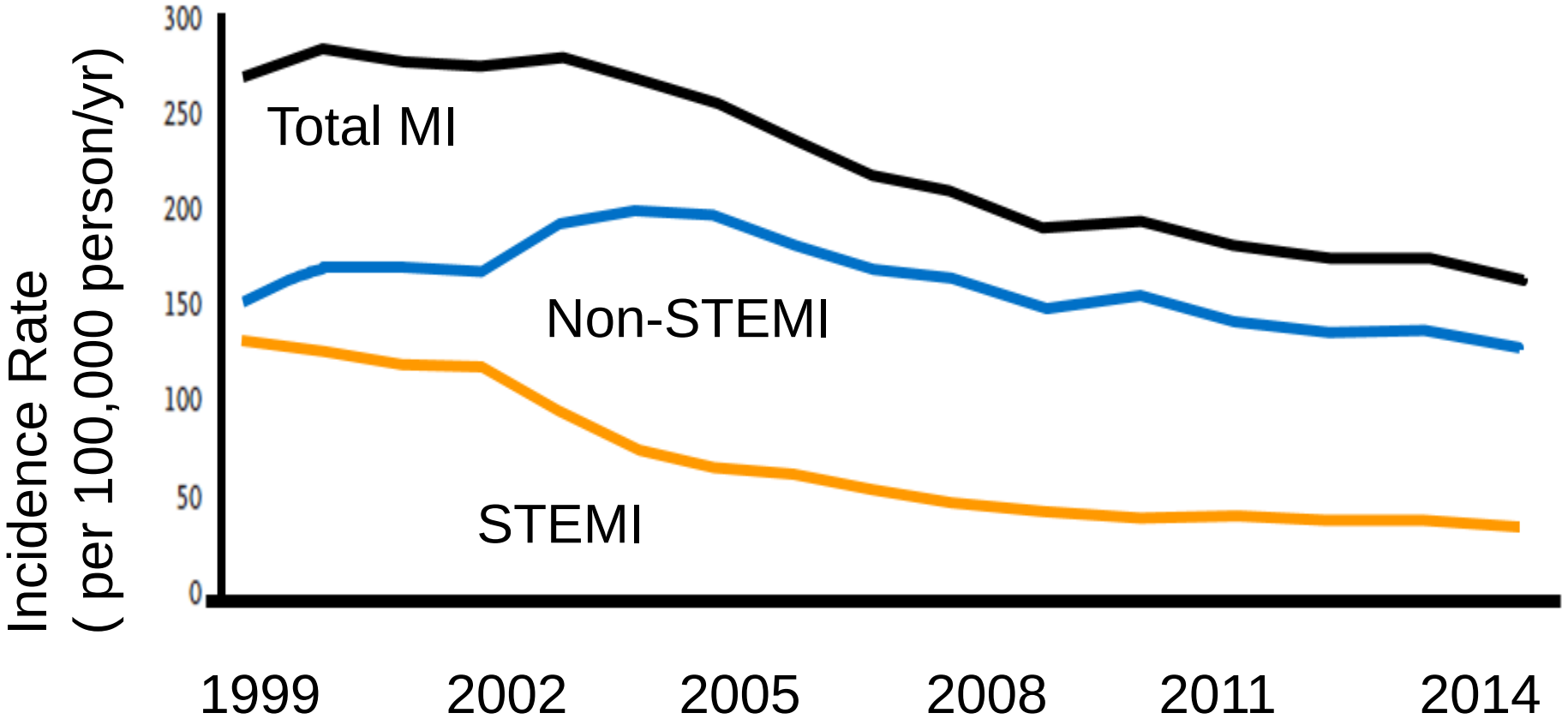
Heart Attack Rates are Falling in Kaiser Permanente Northern California



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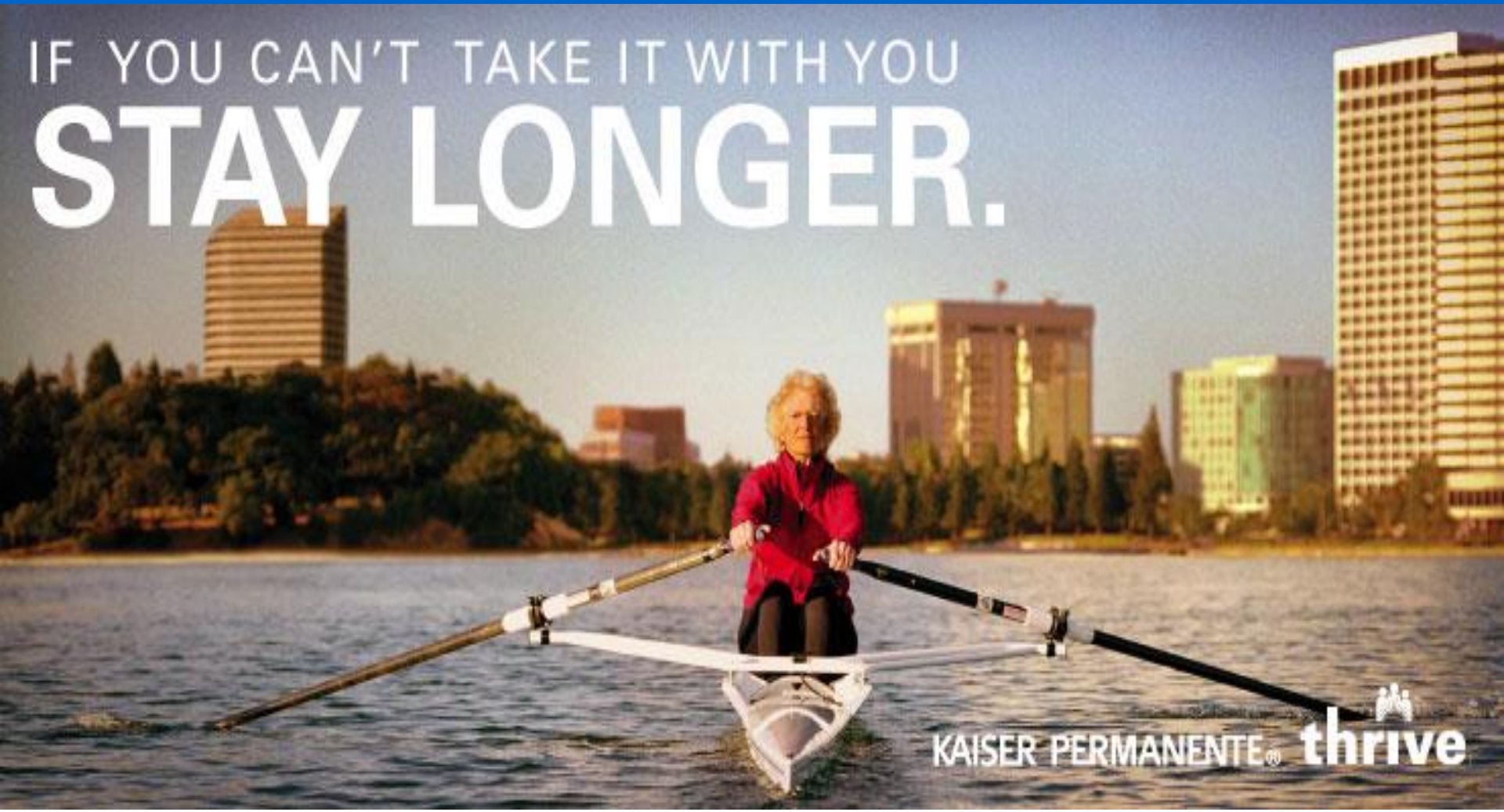
THRIVE!!!



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Selected References

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