# PHASE
PREVENT HEART ATTACKS AND STROKES EVERYDAY

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# Best practices and recommendations in clinical registries, performance monitoring system and results

Presented by:

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# 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 |
| Task Sharing- BP checks by medical assistants | Appropriate use of staff skills and reduced barriers to patients |
| Single Pill Combination (SPC) Therapy | Increased efficiency and increased adherence |

# User's Guide to Registries Evaluating Patient Outcomes: Summary

Patient registries are organized systems that collect data for scientific, clinical, or policy purposes. Registries are a valuable complement to randomized controlled trials in determining real-world outcomes in the practice of medicine. They do not generally have restrictive inclusion or exclusion criteria, nor do they specify what therapy the health care provider must adhere to. They can be used to evaluate outcomes for diverse purposes ranging from the natural history of a disease, to the safety of drugs or devices, to the real-world effectiveness of therapies.

Gliklich RE, Dreyer NA, eds. Registries for Evaluating Patient Outcomes: A User's Guide. (Prepared by Outcome DEcIDE Center [Outcome Sciences, Inc. dba Outcome] under Contract No. HHSA29020050035I TO1.)

# What should a HTN registry look like?

- Identifies nearly all patients in the community with HTN

- Completeness of the registry validated against expected disease prevalence

- Periodic review to confirm accuracy

- Regular updating (adding members)

- Number of data elements must be determined by balancing clinical utility vs added burden of data capture

# Kaiser Permanente Northern California Health System-Wide Hypertension Registry

- Hypertension Registry developed in 2000

- Elements used for identification
  - Outpatient diagnostic codes
  - Pharmaceutical utilization data
  - Hospitalization records

- Chart review audits of random samples

- Grown from 350,000 to >650,000 individuals

- HTN prevalence increased from 15 to 28%

- Similar to NHANES 29.0% in 2007-2008

- (1) ≥1hypertension diagnoses coded in primary care visits in the past 2 years

- (2) ≥1 primary care hypertension diagnosis and ≥1 hospitalization with a primary or secondary hypertension diagnosis in the past 2 years

- (3) ≥1 primary care hypertension diagnosis and ≥1 filled prescriptions for hypertension medication within the last 6 months

- (4) ≥1 primary care hypertension diagnosis plus ≥1 stroke-related hospitalizations or a history of coronary heart disease, heart failure or diabetes

## Implementing standardized performance indicators to improve hypertension control at both the population and healthcare organization levels

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Population mean systolic blood pressure and mean diastolic blood pressure

Prevalence of hypertension, awareness of hypertension, drug-treated hypertension, and drug-treated and controlled hypertension.

Clinical registries of the prevalence of diagnosed hypertension and the ratio of diagnosed hypertension to that expected by population surveys

Prevalence of controlled hypertension, lack of blood pressure measurement within a year in people diagnosed with hypertension, and missed visits by people with hypertension.

*J Clin Hypertens*. 2017; 00:1-6.

# Proposed Core Data Elements

Age (date of birth)

Sex

Systolic blood pressure (mm Hg)

Diastolic blood pressure (mm Hg)

Antihypertensive medication use (yes, no)

Blood pressure recorded in the past year (yes, no)

Missed last follow-up appointment (yes, no)

# Proposed Core Measurements

| Performance indicator | Numerator | Denominator |
|---|---|---|
| **Core performance indicators** | | |
| Prevalence of diagnosed hypertension | Patients who have systolic blood pressure ≥140 mm Hg or diastolic blood pressure ≥90 mm Hg or who report currently taking medication for the treatment of high blood pressure | Adult patients in the adult clinic population |
| Ratio of prevalence of diagnosed hypertension to the expected prevalence of hypertension | Prevalence of diagnosed hypertension | Expected age-adjusted prevalence of hypertension in the population[a] |
| Cardiovascular risk assessment[b] | Registrants with a recorded cardiovascular risk assessment within 5 y | Registrants with hypertension |
| High calculated cardiovascular risk[b] | Registrants with calculated cardiovascular disease risk ≥20% in 10 y, systolic blood pressure ≥140 mm Hg or diastolic blood pressure ≥90 mm Hg, and taking antihypertensive medication | Registrants with hypertension |
| High calculated cardiovascular risk[b] | Registrants with calculated cardiovascular disease risk ≥20% in 10 y, systolic blood pressure ≥140 mm Hg or diastolic blood pressure ≥90 mm Hg, and not taking antihypertensive medication | Registrants with hypertension |
| Prevalence of controlled hypertension | **Individuals on Registry with last SBP <140 and last DBP <90 (regardless of medication use)** | Registrants with hypertension aged 18–69 y |
| Lack of opportunity | No recorded blood pressure in the past year | Registrants with hypertension |
| Missed visits | Registrants who have missed a hypertension-related appointment | Registrants with hypertension |

# Proposed Optional Performance Indicators

| Optional performance indicators | | |
|---|---|---|
| Uncontrolled hypertension 1 | Registrants with systolic blood pressure ≥140 mm Hg or diastolic blood pressure ≥90 mm Hg and cardiovascular disease, renal disease, or diabetes mellitus | Registrants with hypertension |
| Uncontrolled hypertension 2 | Registrants with systolic blood pressure ≥160 mm Hg or diastolic blood pressure ≥100 mm Hg and not taking antihypertensive medication | Registrants with hypertension |
| Uncontrolled hypertension 3 | Registrants with systolic blood pressure ≥160 mm Hg or diastolic blood pressure ≥100 mm Hg taking antihypertensive medication | Registrants with hypertension |
| Use of recommended antihypertensive drugs[c] | Registrants prescribed "core-recommended" antihypertensive drugs | Registrants with hypertension |
| "Resistant" hypertension[d] | Registrants with blood pressure ≥160/100 mm Hg treated with three or more antihypertensive drugs | Adult patients with hypertension |
| Appropriate treatment of black patients | Registrants who are black and being treated with medications that do not include either a diuretic or calcium channel–blocking antihypertensive medication | Registrants with hypertension who are black |

# Development of the KPNC Hypertension Metric

- Pre-2001: no hypertension metric
  - All clinic visits had paper coding form
  - Physicians marked bubbles for diagnosis codes
  - Collected locally
  - Sent to central processing center

- 2001-2005: semi-automated metric
  - Form modified to include two new rows
  - 6 SBP ranges and 6 DBP ranges
  - In 1 year BP rates for most people with HTN

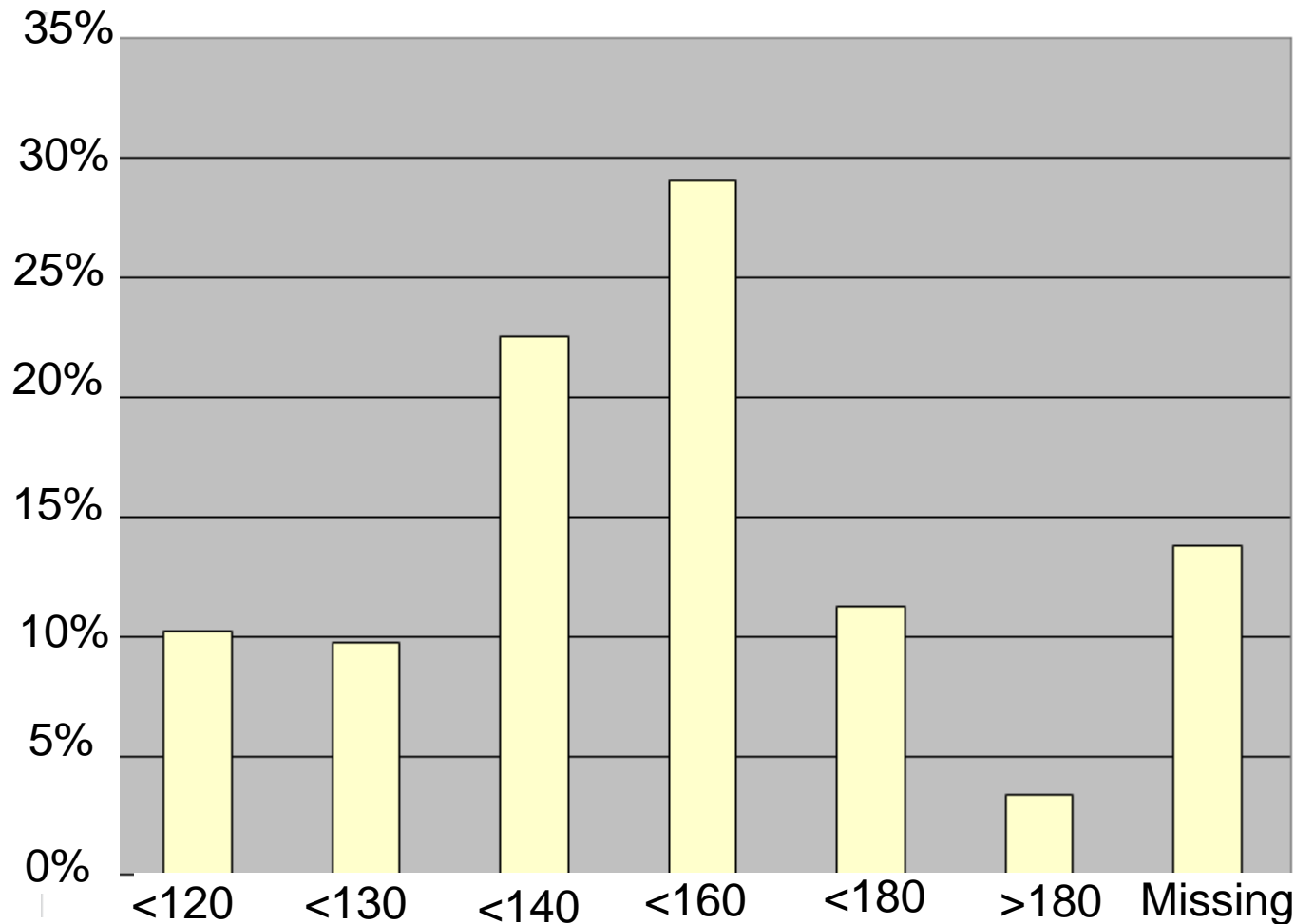# Development of the KPNC Hypertension Metric

- 2005-2008: Electronic Health Record (EHR)
  - 3 year implementation for large system
  - BP automatically sent to processing center
  - Rates calculated using hybrid method
    - Paper form ranges for sites not using EHR
    - Electronic ranges for sites using EHR
    - Rates reported in 6 ranges

- Post 2008: Automated metric
  - BP automatically sent to processing center
  - Rates using continuous variables (not ranges)

# Development of the KPNC Hypertension Metric



2002

Forms indicating
12 BP ranges

Rates calculated using 6 Systolic BP ranges

% HTN pts < 140/90

Each bar represents a clinician at medical center
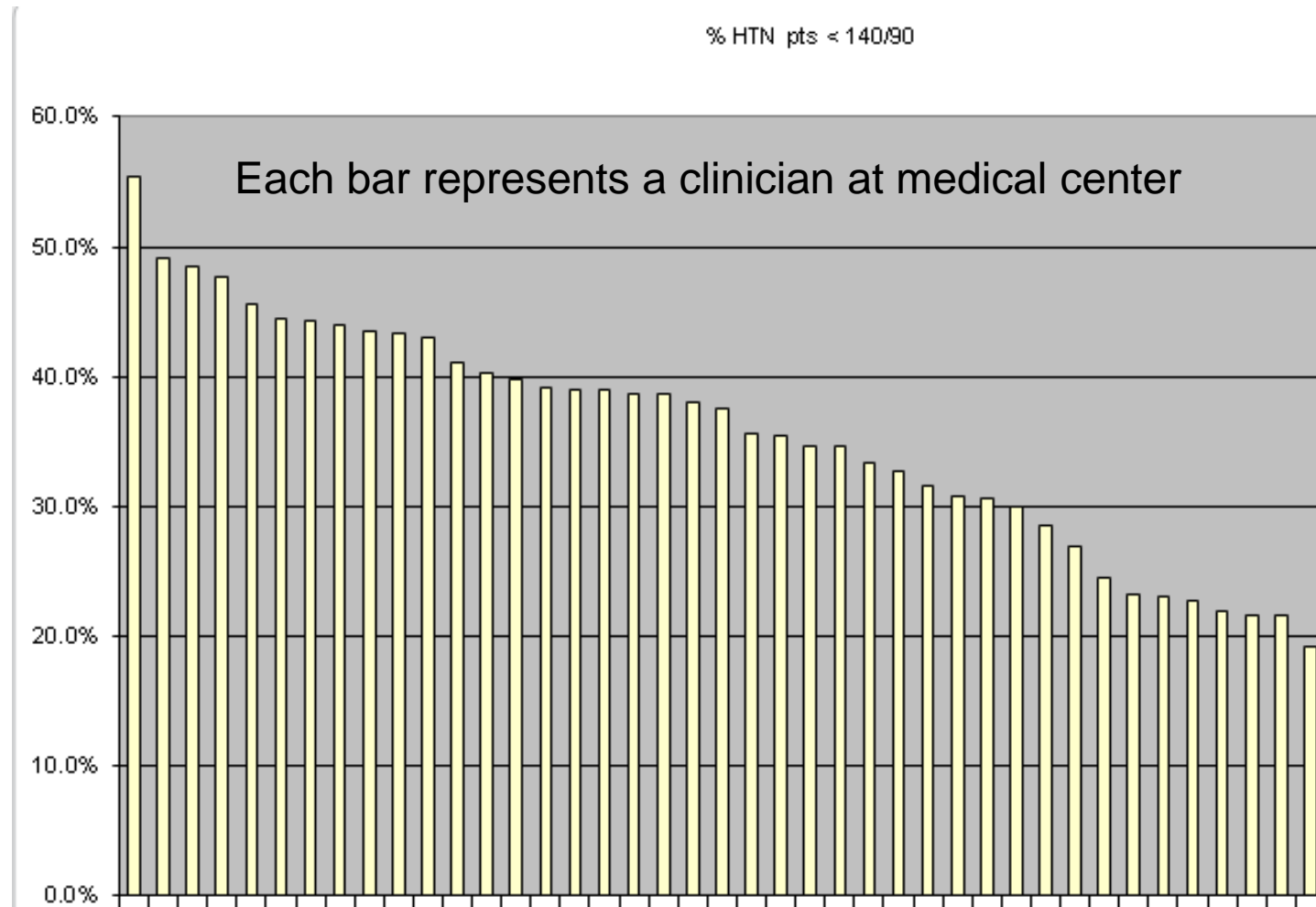
Individual performance reports unblinded

# KPNC Hypertension Performance Feedback

- Un-blinded medical center performance reports
  - Started quarterly, manually created centrally
  - Later changed to monthly, automated centrally
  - Now available on request at medical center

- Central management team identified best practices

- Medical center teams to support clinicians

- Best practices spread by regional peer meetings

- Clinic-level feedback to facilitate operational and system-level change.

- Creation of a comprehensive hypertension registry
  - facilitated customizable queries
  - Allowed access to clinically important data
  - prioritization of patient subgroups
  - evaluated for treatment intensification.
    - For example…
    - Overdue for clinic visits
    - People not on diuretics
    - Those with CKD or DM

"The most effective intervention to improve blood pressure control in primary care settings is an organized system of regular population review rather than primarily patient- or clinician-focused interventions."

Glynn LG, Murphy AW, Smith SM, Schroeder K, Fahey T. Interventions used to improve control of blood pressure in patients with hypertension. Cochrane Database Syst Rev. 2010;(3):CD005182

# Learnings From the HTN Project Sites

Barbados Program- Dr. Kenneth Connell
>    Clerical staff involved in registry – metric data capture


Colombia Program- Dr. Wilmer Marquino
>    Monthly then weekly team management meetings


Cuba Program- Dr. Edelys Pons Barrera
>    Added treatment and follow up plans to core data reports


Chile Program- Dr. Natali Alban
>    Data is available for export to local worksheets

Question: What's the best performance metric?

Answer: The very simple one that you can implement quickly, share widely, and distribute regularly.

Opinion of Marc Jaffe, MD, May 18, 2017