



# Veterans Health Administration

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**Durham VA Medical Center**

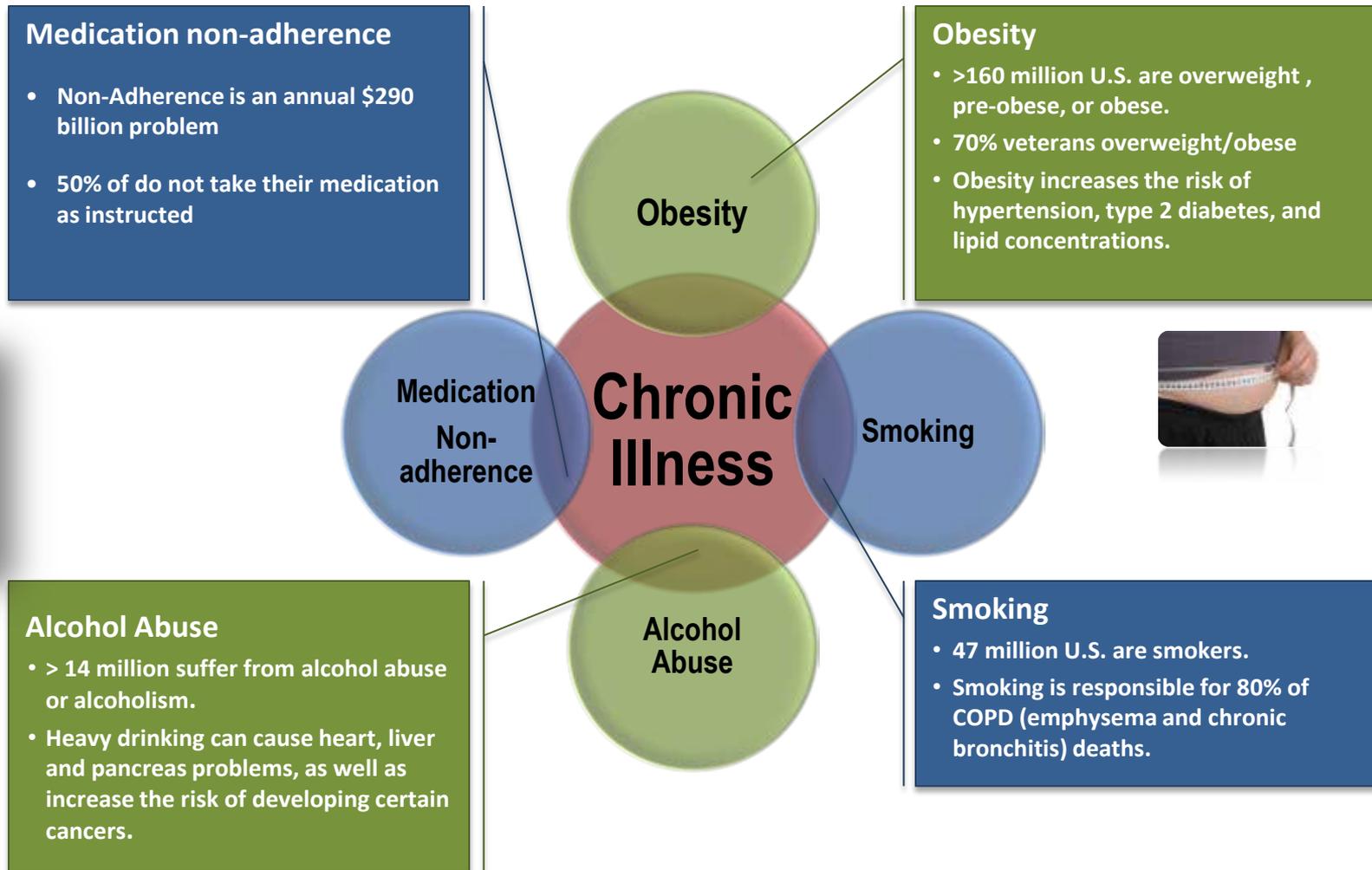
## A Research Journey: Moving to Implementation and Improving Outcomes for Veterans

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# Acknowledgements

- Our veterans and the Veterans Health Administration
- VA HSR&D for funding this work
  - Research Career Scientist Award VA 3/1/08-2/28/13
  - Senior Research Career Scientist Award 3/1/13-2/28/20

# Poor Lifestyle & Chronic Disease Epidemic



# Chronic Disease Management

- Chronic illness contributes to the majority of U.S. health expenditures (>\$1.25 trillion a year)
  - the life expectancy in the U.S. is actually declining
- Among VA patients, 72% have one or more chronic health conditions
  - compared with 40–50% of other U.S. adults

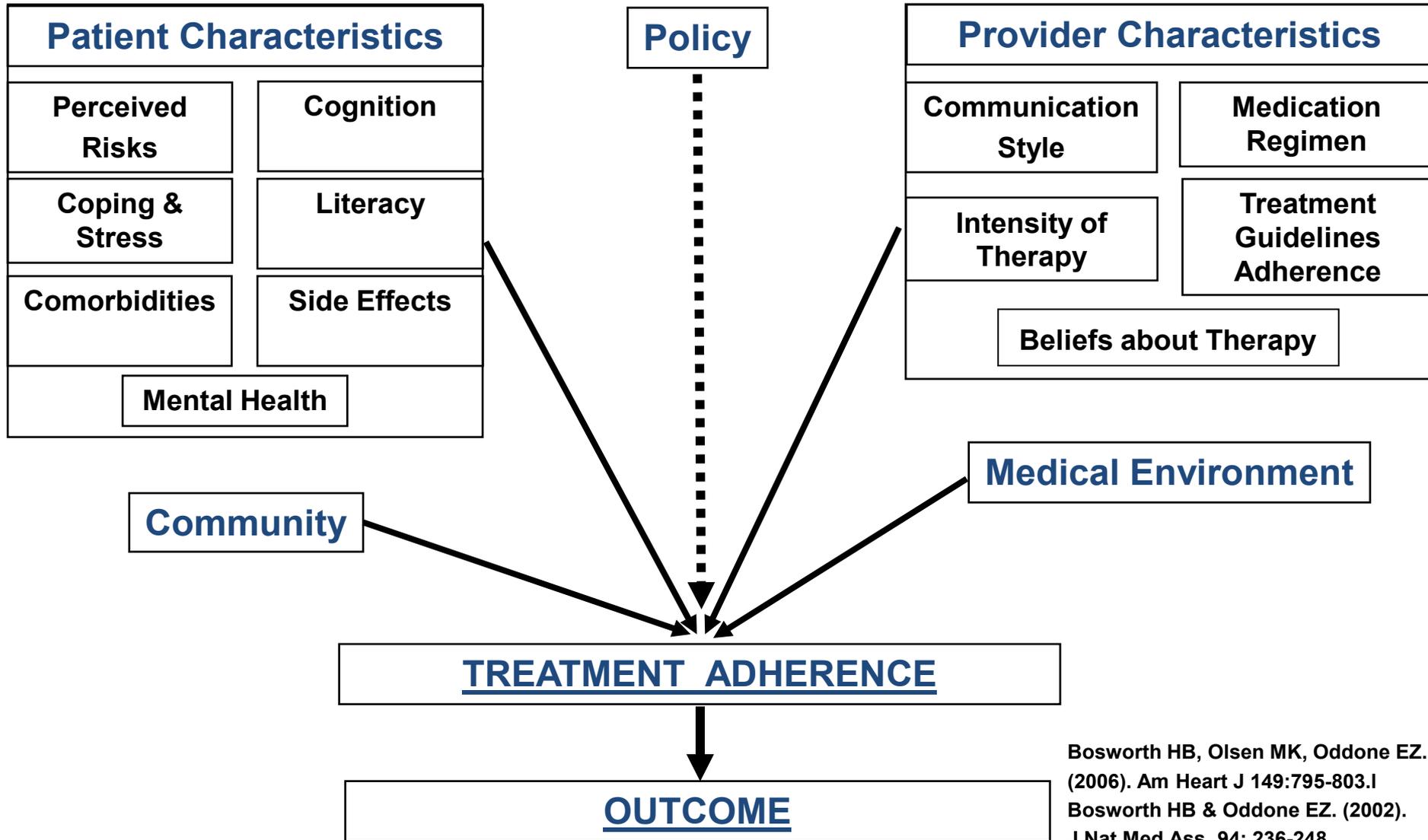
# Chronic Disease Management

- Improving chronic disease is important as VA strives to meet the demands of the aging Veteran cohort and care for younger Veterans.

# Importance of Chronic Disease Management

- Off-load primary care visits
- Create new models of care – increase access
- Support for performance incentive goals
- Improves quality measures

# Health Decision Model



Bosworth HB, Olsen MK, Oddone EZ. (2006). Am Heart J 149:795-803.  
Bosworth HB & Oddone EZ. (2002). J Nat Med Ass. 94; 236-248

# Key tools to personalize and tailor intervention programs

- Tailoring  $\neq$  targeted communication strategies
  - Targeted communications are developed to appeal to subgroups, based on characteristics such as race or gender
  - Tailored communications involves collected data so that unique messages can be created or “tailored” for that individual
  - Can tailor on multiple variables such as level of motivation, cultural preferences, and past behaviors

# Patient Interventions & Content

• ***Over 80 tested diseases states & conditions as well as 33 behavioral, educational and assessment topics.***

Disease State & Condition		Assessment, Behavior & Education	
Anxiety	Hypertension	Aging and Falls	Opiate Use/Misuse
Apnea	Hyperthermia	Alcohol Use/Misuse	Pain Assessment
Asthma (Adult)	Hypoglycemia	Behavioral Economics	Patient-Initiated Interaction
Asthma (Pediatric)	Insomnia	Breast Cancer (Screening)	Patient-Physician Interaction
Breast Cancer	Irritable Bowel Syndrome (IBS)	Cancer (Screening)	Pharmacist Medication Evaluation
Cholesterol	Menopause	Caregivers	Post Hospitalization Transition
Chronic Kidney Disease (CKD)	Mental Well-being	Complementary Health	Risk Communication
COPD	Migraines	Diet	Risky Behaviors
CVD (General)	Multiple Sclerosis (MS)	Drug/Substance Abuse	Safety
CVD (Women)	Osteoporosis	Environmental Triggers	Self monitoring
Dementia	Oxygen Therapy/Respiratory	Exercise	Sickle Cell Knowledge
Depression	Pain Management	Genetic Testing	Side Effects
Diabetes	PTSD	Health Wellness Assessment	Smoking & Tobacco Cessation
Glaucoma/Vision	Sickle Cell	Hydroxurea Use (HU)	Social Support
Heart Failure	Stress	Medication Adherence	Weight loss
Hepatitis B & C	Stroke	Memory	Wellness
HIV		Mental Well-being	

# Recent Randomized Trials of Chronic Disease Management

<b>Study Name</b> (sample size)	<b>Veterans Study to Improve Control of Hypertension – V-STITCH</b> (n = 588)	<b>Take Control of Your Blood Pressure Study – TCYB</b> (n = 636)	<b>Hypertension Intervention Nurse Telemedicine Study – HINTS</b> (n = 593)	
<b>Study Sample</b>	<ul style="list-style-type: none"> <li>Hypertensive veterans</li> <li>Enrolled from primary care</li> </ul>	<ul style="list-style-type: none"> <li>Hypertensive community patients</li> <li>Enrolled from university and community clinic</li> </ul>	<ul style="list-style-type: none"> <li>Hypertensive veterans with inadequate BP control</li> <li>Enrolled from primary care</li> </ul>	
<b>Retention Rate</b>	<ul style="list-style-type: none"> <li>84% (24 months)</li> </ul>	<ul style="list-style-type: none"> <li>75% (24 months)</li> </ul>	<ul style="list-style-type: none"> <li>85% (18 months)</li> </ul>	
<b>% Minority</b>	<ul style="list-style-type: none"> <li>40% African American</li> </ul>	<ul style="list-style-type: none"> <li>50 African American</li> </ul>	<ul style="list-style-type: none"> <li>49% African American</li> </ul>	
<b>Study Name</b> (sample size)	<b>Hypertension Telemedicine Nurse Implementation Project for Veterans</b> <b>HTN – IMPROVE</b> (target n = 1,500)	<b>CITIES</b> (target n = 500)	<b>Telephone-Based Self-Management for OsteoArthritis in Veterans</b> <b>SeMOA</b> (n = 515)	<b>Couples Partnering for Lipid Enhancement Strategies (CouPLES)</b> (n = 255)
<b>Study Sample</b>	HTN-IMPROVE is a 3 part study <ul style="list-style-type: none"> <li>Veterans at 3 sites with hypertension</li> </ul>	<ul style="list-style-type: none"> <li>Veterans with &gt;20% CVD risk</li> </ul>	<ul style="list-style-type: none"> <li>Veterans with physician diagnosed, symptomatic knee or hip osteoarthritis</li> <li>Enrolled from primary care</li> </ul>	<ul style="list-style-type: none"> <li>Veterans with elevated LDL-C and their spouses</li> <li>Enrolled from primary care</li> </ul>
<b>% Minority</b>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>53% African American</li> </ul>	<ul style="list-style-type: none"> <li>46% African American</li> </ul>	<ul style="list-style-type: none"> <li>35% African American</li> </ul>

• **More than 3500 individuals enrolled**

# **Veterans Study to Improve the Control of Hypertension**

## **The V-STITCH Study**

**VA Health Services Research  
Investigator Initiated Award, 2001-06**

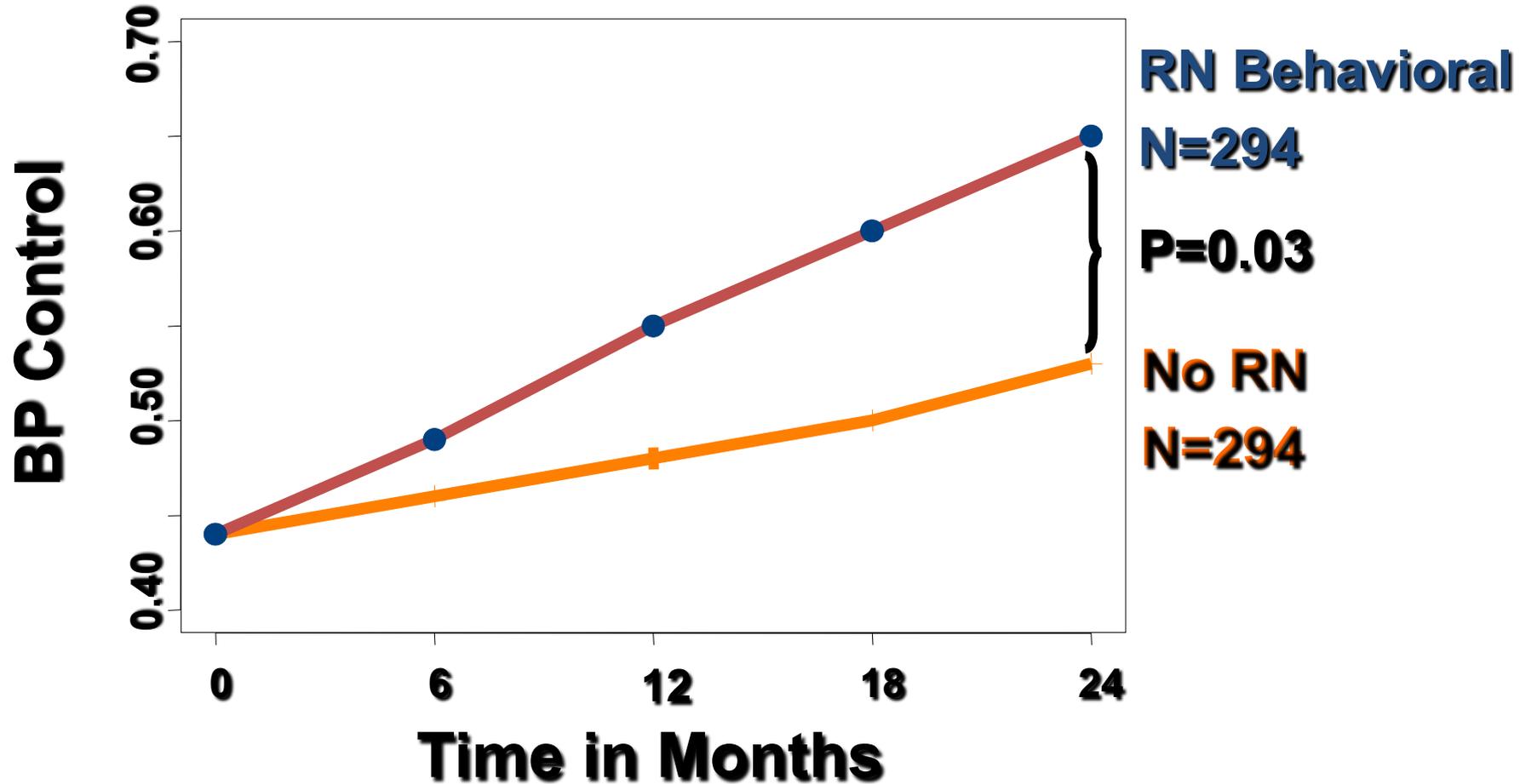
# **The V-STITCH Study**

- **A randomized controlled trial testing a nurse administered, telephone interventions designed to improve BP control**
- **Durham VAMC General Medicine Clinics**
- **Patients with hypertension on medications**
- **24-month intervention and follow-up**

# Patient Characteristics (N=588)

Male	98%
Mean age	63 years (21-87)
White	57%
African American	40%
High school or less	51%
Inadequate income	23%

# Nurse Behavioral Intervention vs. None Secondary Analysis



# Compliance with Nurse Telephone Intervention

- Patients completing all 12 scheduled study calls: 85%
- Average length of call: 3 minutes  
(SD 2.5 min)

# Average Behavioral Intervention Costs Per Patient over 24 months

<b>Cost Category</b>	<b>Patients Overseen by Nurse</b>		
<b>Number of Patients</b>	<b>1120</b>	<b>840</b>	<b>560</b>
<b>Direct Costs/per patient</b>	<b>\$70</b> <b>(\$61-\$81)</b>	<b>\$94</b> <b>(\$82-\$109)</b>	<b>\$141</b> <b>(\$123-\$163)</b>

# Summary

- **Brief telephone intervention improved BP control by 21% at 24 months**
  - **12.6% improvement compared to the non-behavioral group**
- **No increase in clinic utilization**
- **Cost effective**

# **Hypertension Intervention Telemedicine Study (HINTS)**

**Department of Veterans Affairs,  
Grant IIR 04-426 (2005-2008)**

**Career Scientist Award 08-027 (2008-2013)**

# **Hypertension Intervention Nurse Telemedicine Study (HINTS)**

## **Design**

- **An 18-month randomized controlled trial**
- **593 veterans enrolled; 49% African Americans**
- **Focus on patient self-management**
  - **The nurse administered patient intervention**
  - **Home BP monitoring**
  - **Medication management by MDs**

# Baseline Characteristics (N=593)

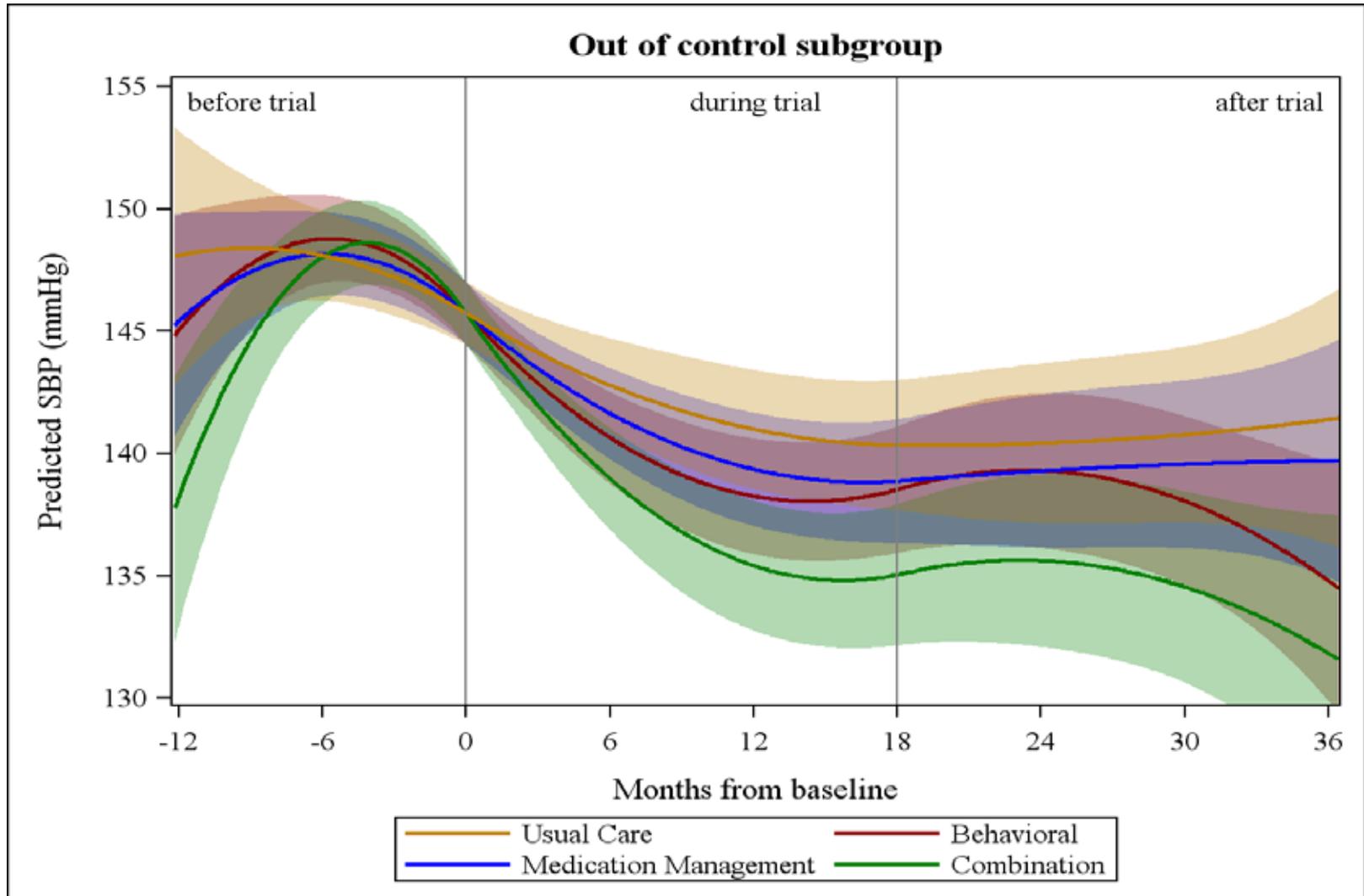
Mean age (range)	64 (30-89)
Male	92%
White	49%
African American	48%
Not high school graduate	13%
Low literacy level (< 9 <sup>th</sup> grade)	38%
Inadequate income	18%

# Hypertension Intervention Nurse Telemedicine Study (HINTS)

## Summary Results

- **Among veterans with poor baseline BP control**
  - Systolic BP decreased in the combined group by 14.8 mm Hg (95% CI: -21.8, -7.8) at 12 months
  - Systolic BP decreased 8.0 mm Hg (95% CI: -15.5, -0.5) at 18 months.

# Estimated SBP with 95% Confidence Regions among the Subgroup with Inadequate BP Control at Baseline (n=243)



# Patient Perspective

59	Male	White	Non-DM	Baseline 136/101	Final 116/85	Chg in BP ↓ 20/16	
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48	Female	Black	Non-Dm	Baseline 140/104	Final 117/79	Chg in BP ↓ 23/25	
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## Do you think you BP changed:

•Yes it has changed, I was having BP readings in the >200/100 sometimes > at the hospital before, now they are much lower around 120/90s.

## What things were particularly helpful about the study?

- That they seemed truly concerned and that made me want to do better.
- More involved in my own care, felt I was part of the process.



## Do you think your health is improved:

•Study made me more aware of BPs, medications (what they do & consequences of not taking them).

## Of all the topics discussed, what was most helpful.

•Basically about BP, how to monitor and keep an eye on it. The emphasis on eating properly, losing weight, exercising and watching cholesterol to prevent MI, or Stroke.



# How to translate trials into implementation?

- Less than 3 site studies
  - Often single site
- Less than 650 patients
- Intermediate outcomes
  - Physiologic (BP control, BP, A1C)
  - Patient reported (HRQOL, Satisfaction, Adherence)
- Underpowered for cost, utilization, and sometimes even primary outcome!

# **Hypertension Telemedicine Nurse Implementation Project for Veterans**

## **HTN IMPROVE**

**Funded by VA HSR&D**

# Summary of HTN-IMPROVE

## Methods

- 3 sites implementing the behavioral telephone program among veterans with poor BP control
- 9 control sites (collecting secondary data only)
- Phase I
  - Evaluating barriers and facilitators for implementing the behavioral program at each of the 3 intervention sites.
- Phase II
  - Examining the impact of the program by comparing 12-month pre/post changes in BP control for veterans who receive the program compared to individuals from the 9 control sites.
- Phase III
  - Examine the implementation costs of disseminating the telephone based behavioral program.

# The NC Medicaid Study

# NC Medicaid Study

- 558 Medicaid patients
- Self management program focused on improving lifestyle and medication adherence
- Improvement of medication possession from:
  - 55% 12 months prior to program enrollment to 77% 12 months post initiation of the program

# Challenges

- Scalability
- ROI/cost
- IT
- Competing needs
- Sustainability
- Evaluation
  - Identifying partners
  - Integrating into regular work of clinic
  - Measuring success

# Where is the future?

- Chronic disease growing in prevalence
- Self management programs require intersection of behavior/social contextual environment
- Need for increasing sophistication of analyses and methodologies
- Ability to work in an inter/multidisciplinary environment
- Ensuring we provide our stakeholders what they need
- Investing in our future



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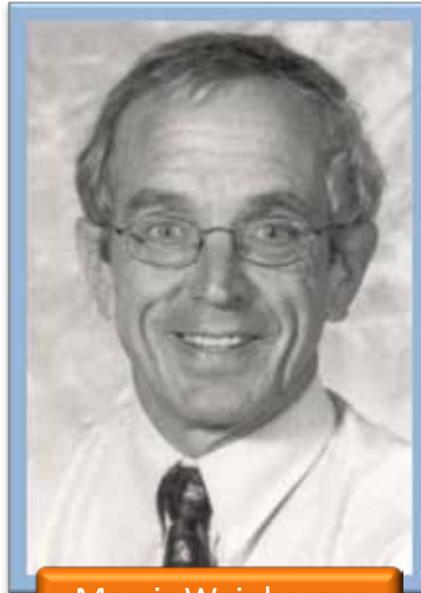
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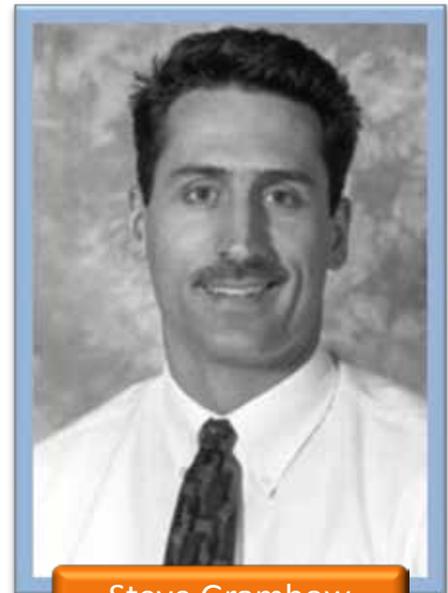
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*"Working together  
for health"*



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