Intervening on Barriers to Effective Post-Stroke Blood Pressure Management

HSR&D CDA Cyberseminar

June 13, 2017

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@Jsico_MD

Outline for our Discussion

- Briefly review ischemic stroke and the current state of hypertension management
- Discuss my background and interest in delivering effective vascular risk factor control
- Provide and overview of a bundled, complex post-stroke hypertension improvement intervention addressing such barriers as ‘the watershed effect.’

Poll question #1:

What hat(s) to you wear as a VHA employee?

1. Researcher
2. Administrator
3. Healthcare provider
4. Educator
5. Yankees fan

Outline for our Discussion

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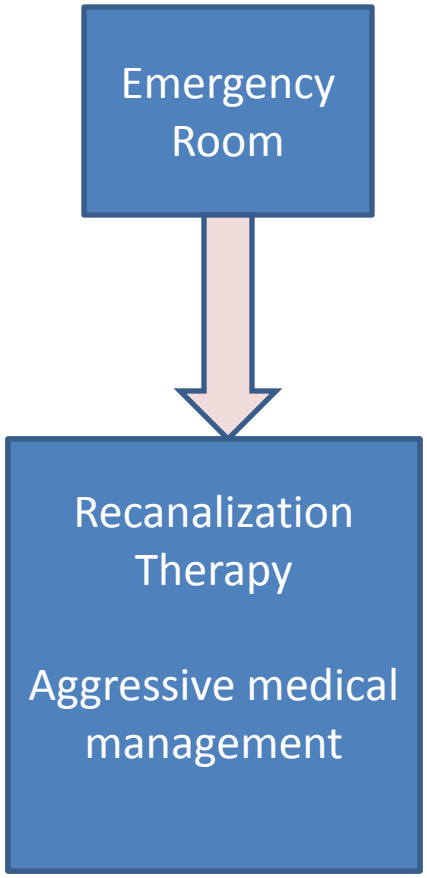
Spectrum of Ischemic Stroke Care

Emergency Room

Spectrum of Ischemic Stroke Care



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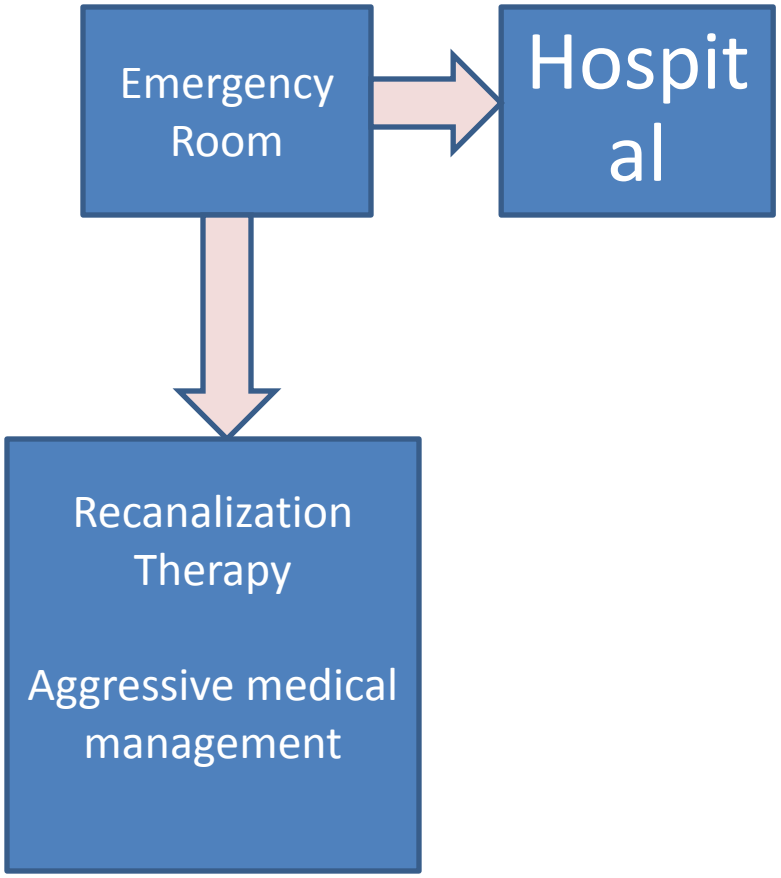

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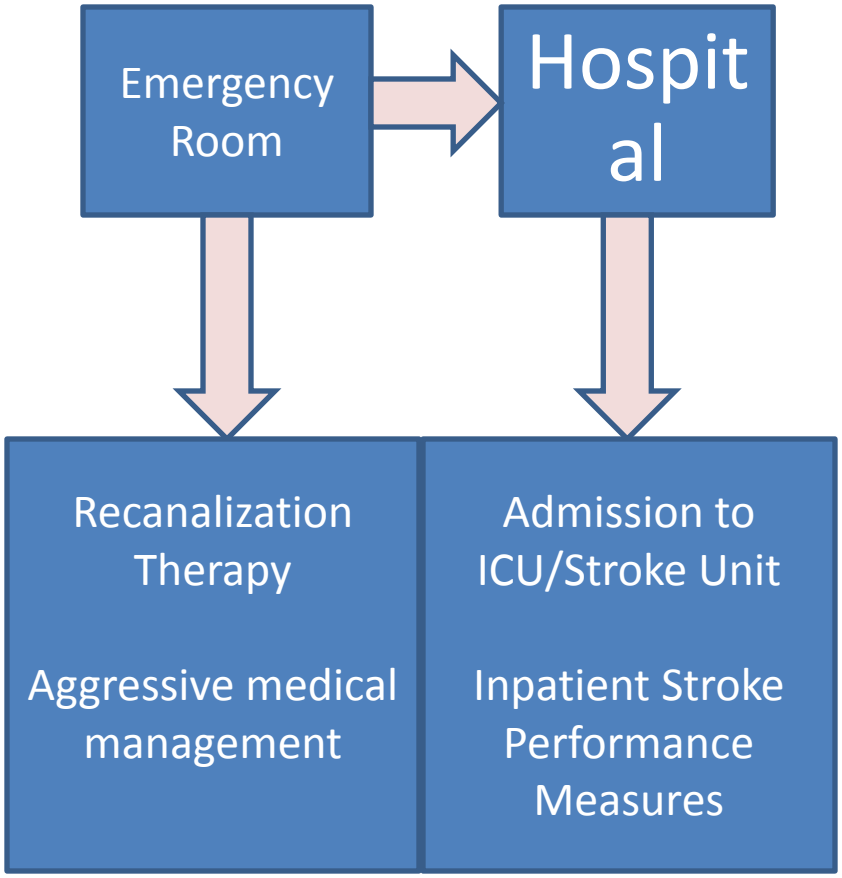

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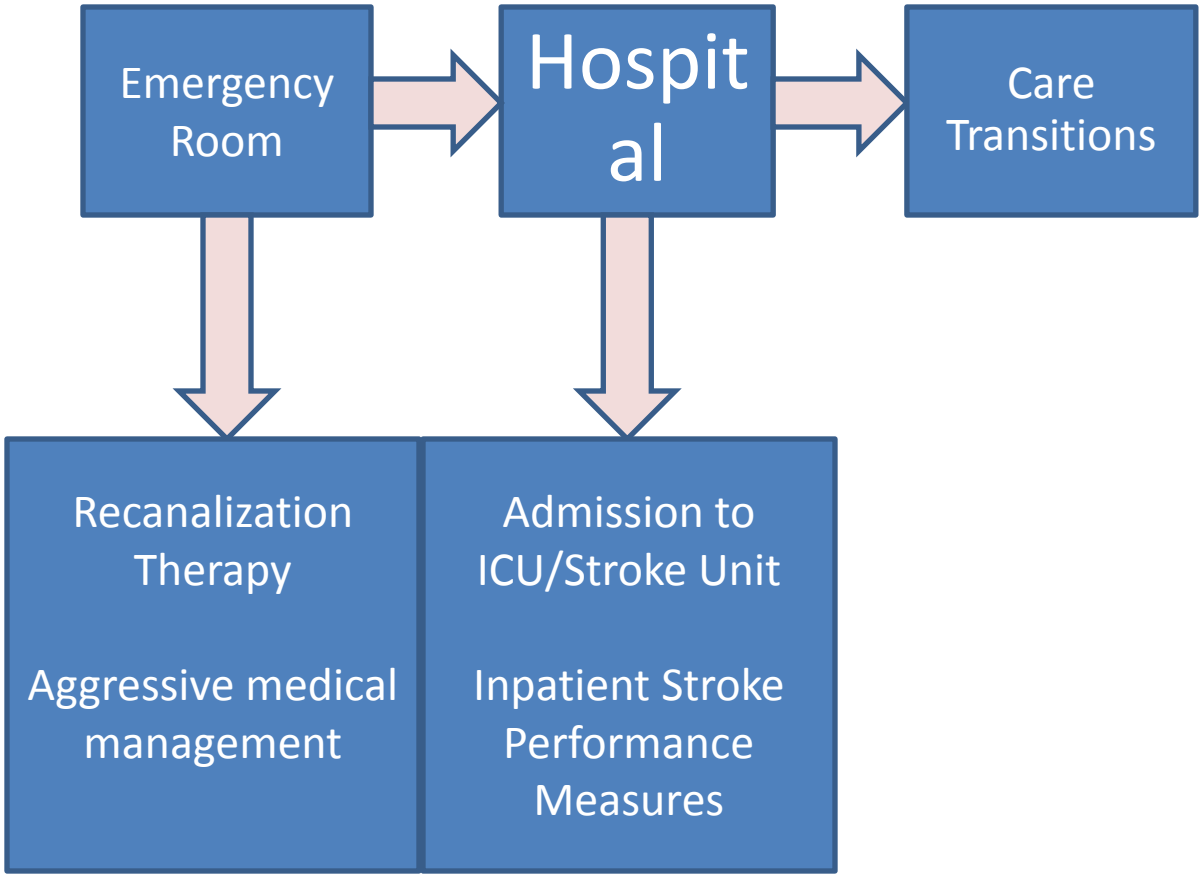

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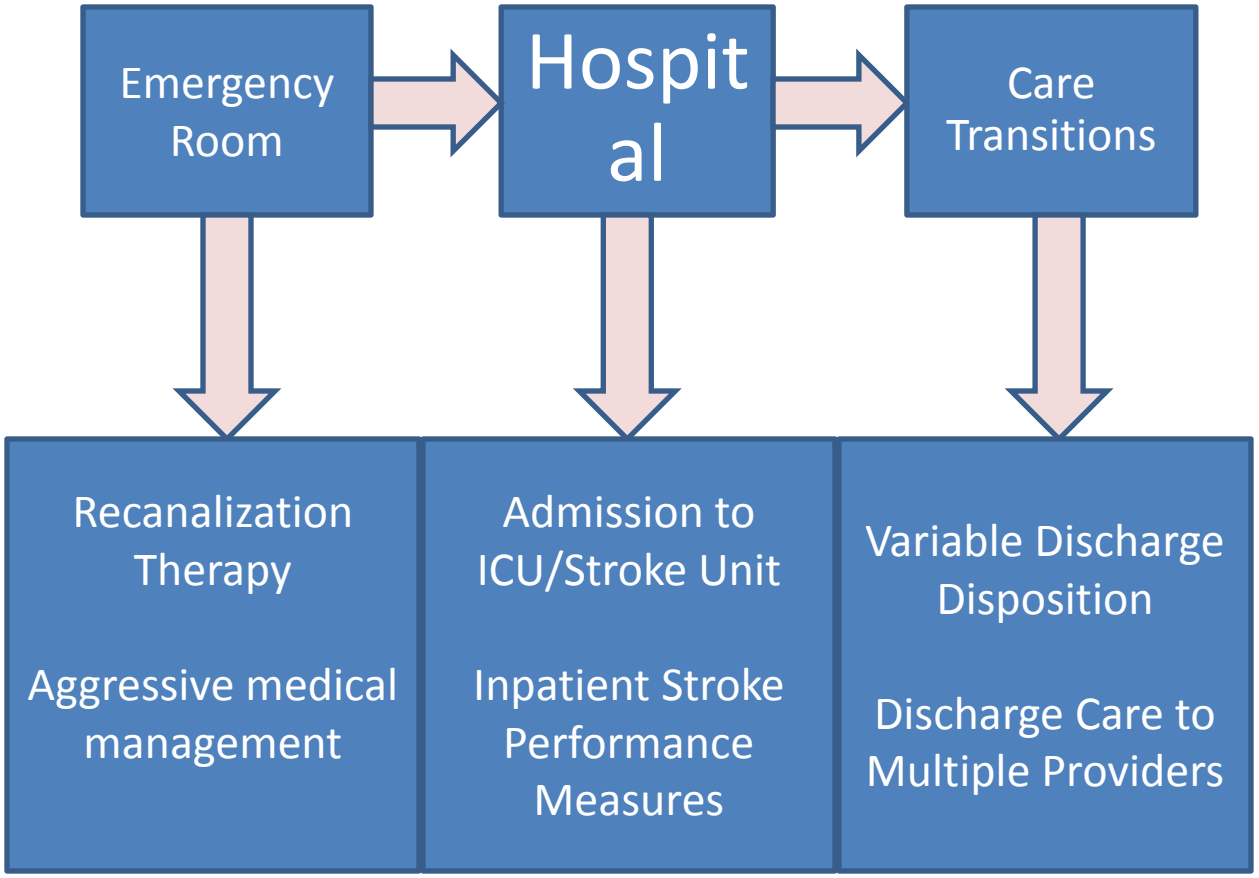

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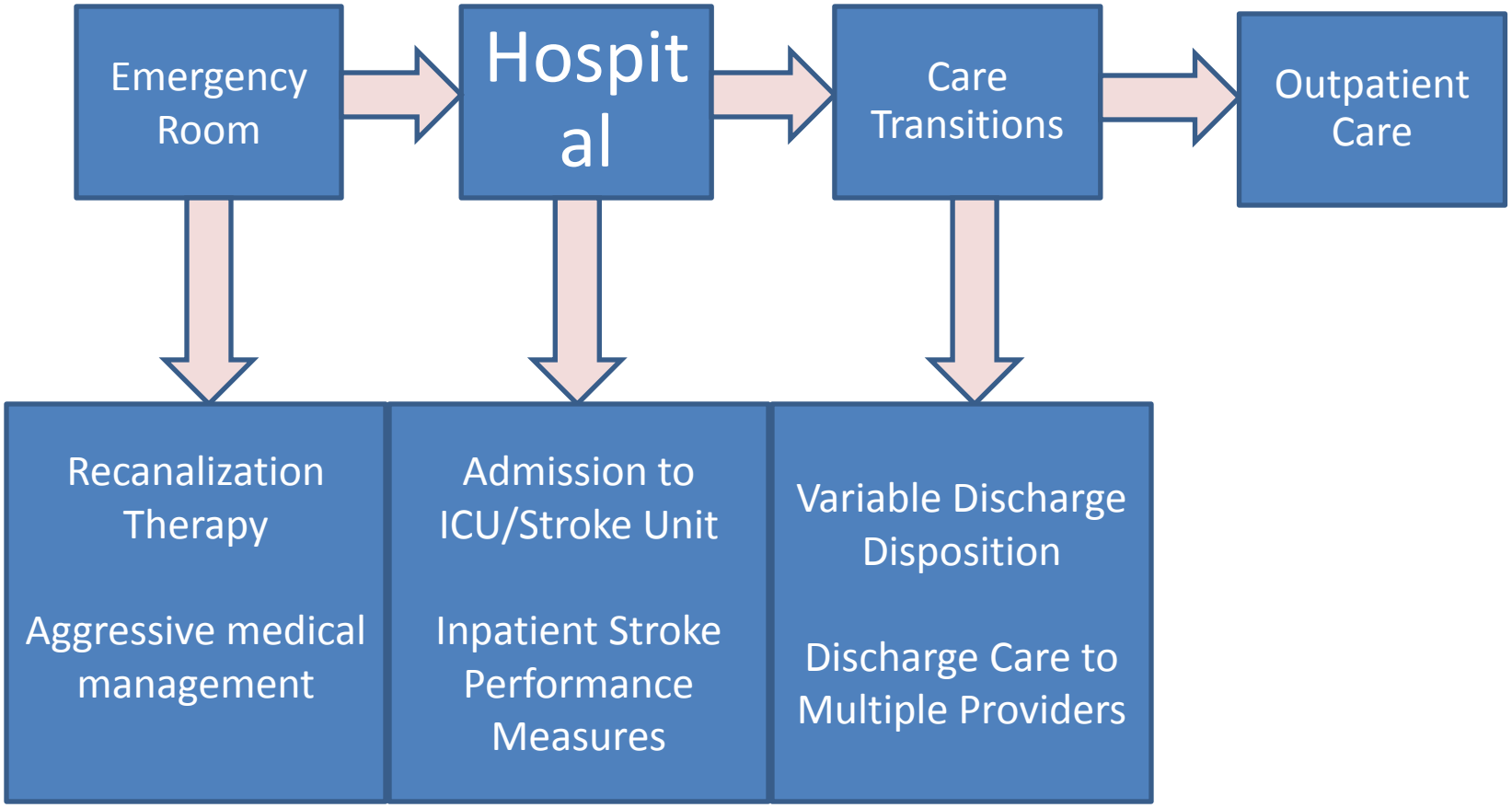

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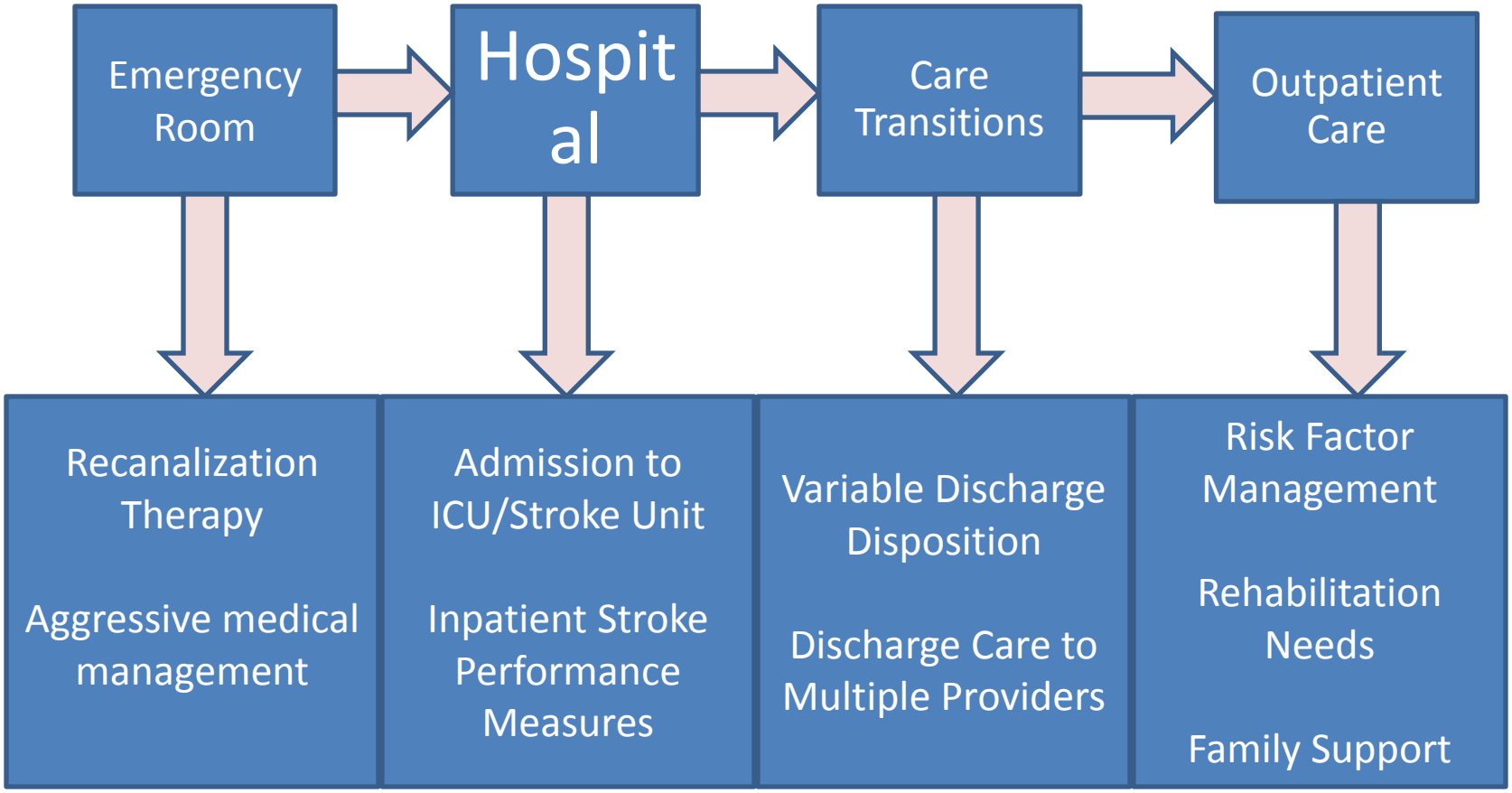

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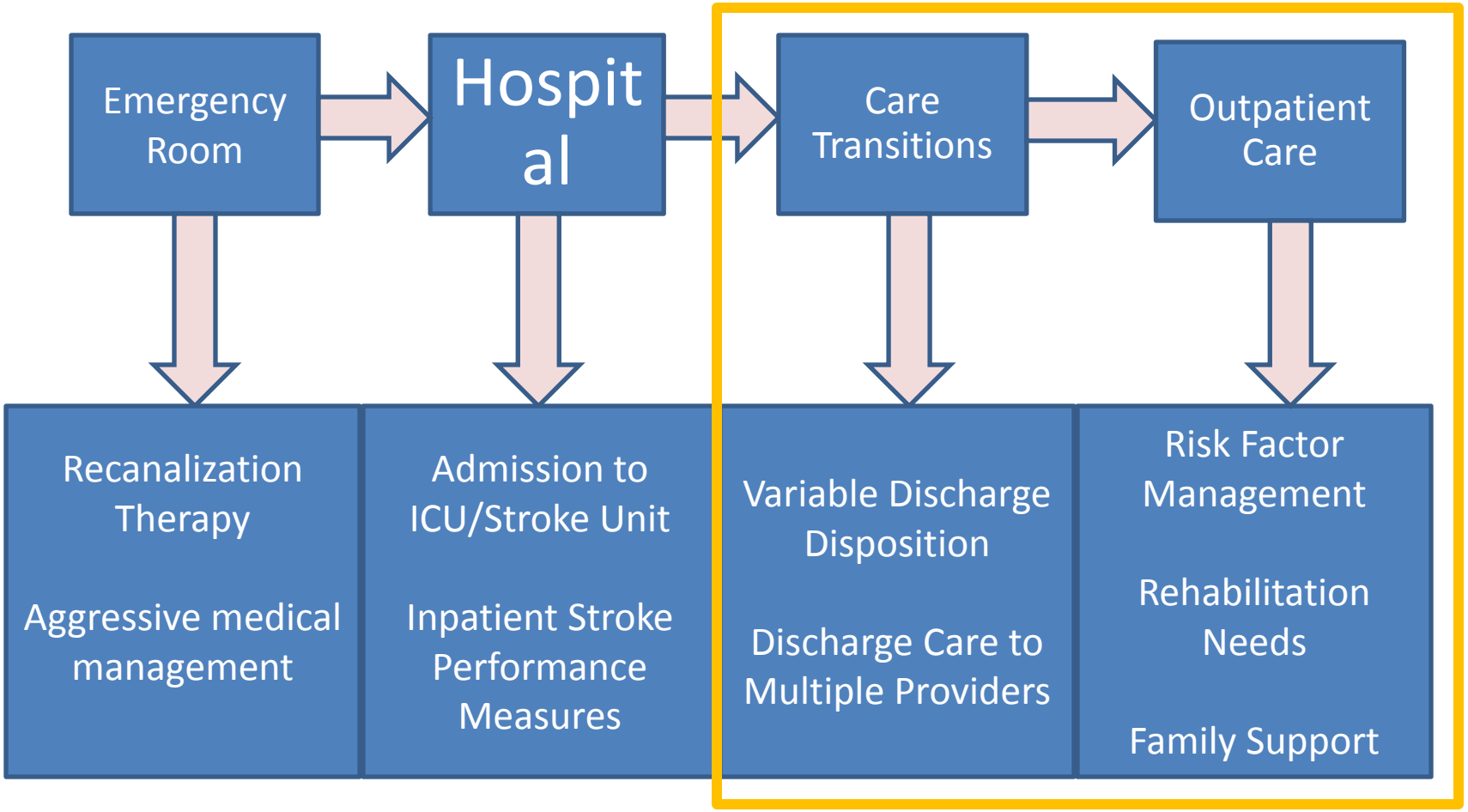

Prevalence of Cerebrovascular Disease within the US and VHA

Prevalence:

- Within general US population:

  7.2 million US citizens ≥ age 20 has had a stroke

  ~ 5 million US citizens have had a TIA

- Within the VA:

  ~ 11,000 Veterans with TIA or any stroke are cared for in a VA Emergency Department or ward annually

  ~ 6,000 with stroke of any severity

Benjamin et al. Stroke, 2017.

Overview of Hypertension and its Relationship to Ischemic Stroke

Prevalence:

- 30% of the adult US population (~72 million)
- 40% of the general Veteran population
- 75% of Veterans with ischemic stroke

Importance to stroke:

- Elevation in systolic and diastolic blood pressure are associated with increased stroke risk
- Blood pressure lowering associated with a 30 to 40% reduction in stroke risk
- Accounts for 50% of all ischemic stroke

Benjamin et al. Stroke, 2017.
Kernan et al. Stroke, 2014.

AHA/ASA Guideline

Guidelines for the Prevention of Stroke in Patients With Stroke and Transient Ischemic Attack

A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association

The American Academy of Neurology affirms the value of this guideline as an educational tool for neurologists.

Endorsed by the American Association of Neurological Surgeons and Congress of Neurological Surgeons

Walter N. Kernan, MD, Chair; Bruce Ovbiagele, MD, MSc, MAS, Vice Chair; Henry R. Black, MD; Dawn M. Bravata, MD; Marc I. Chimowitz, MBChB, FAHA; Michael D. Ezekowitz, MBChB, PhD; Margaret C. Fang, MD, MPH; Marc Fisher, MD, FAHA; Karen L. Furie, MD, MPH, FAHA; Donald V. Heck, MD; S. Claiborne (Clay) Johnston, MD, PhD; Scott E. Kasner, MD, FAHA; Steven J. Kittner, MD, MPH, FAHA; Pamela H. Mitchell, PhD, RN, FAHA; Michael W. Rich, MD; DeJuran Richardson, PhD; Lee H. Schwamm, MD, FAHA; John A. Wilson, MD; on behalf of the American Heart Association Stroke Council, Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, and Council on Peripheral Vascular Disease

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Kernan et al. Stroke, 2014.

AHA/ASA Post-Ischemic Stroke Blood Pressure Control Recommendations

"Treatment of hypertension is possibly the most important intervention for secondary prevention of ischemic stroke."

"Hypertension remains undertreated in the community, and additional programs to improve treatment compliance need to be developed, tested, and implemented."

"Guideline dissemination for blood pressure guidelines must be coupled with effective implementation strategies to change healthcare provider practice."

Kernan et al. Stroke, 2014.

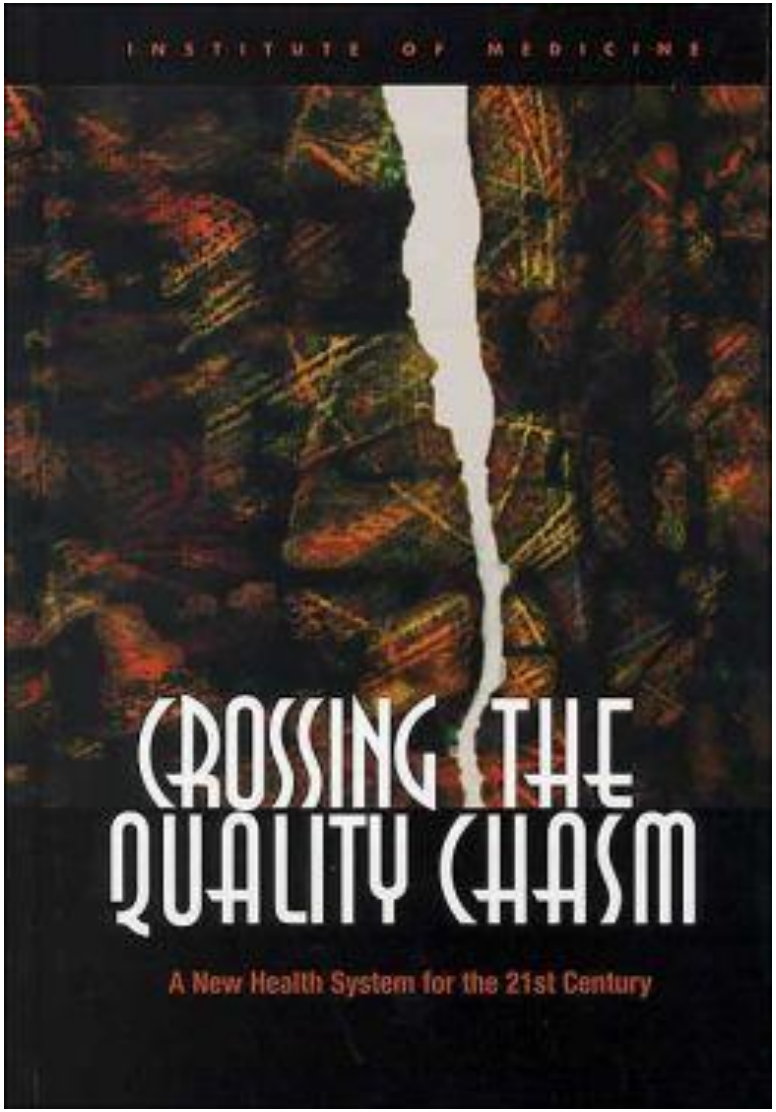
AHA/ASA Post-Ischemic Stroke Blood Pressure Control Recommendations

"Monitoring achievement of nationally accepted, evidence-based guidelines on a population-based level is recommended as a basis for improving health-promotion behaviors and reducing stroke healthcare disparities among high risk groups" (Class I; Level of Evidence C).

"Voluntary hospital-based programs for quality monitoring and improvement are recommended to improve adherence to nationally accepted, evidence-based guidelines for secondary prevention" (Class I; Level of Evidence C).

Kernan et al. AHA/ASA Stroke Prevention Guidelines. 2014.

Implementation of Stroke Recommendations



Redesigning Care Processes … Making Change Possible

- Coordination of care across patient conditions, services, and settings over time
- Use of performance and outcome measurement for continuous quality improvement and accountability
- Integrate preventive and treatment services

IOM, Crossing the Quality Chasm, 2001.

Post-Ischemic Stroke Blood Pressure Control – Intervention Work

Interventions for improving modifiable risk factor control in the secondary prevention of stroke (Review)

Lager KE, Mistri AK, Khunti K, Haunton VJ, Sett AK, Wilson AD

THE COCHRANE COLLABORATION®

How good is the VA at managing blood pressure after a cerebrovascular event?

Poll Question #2:

What percentage of Veterans after a cerebrovascular event obtain goal blood pressure by 6-months post-hospitalization?

1. 10%
2. 25%
3. 50%
4. 75%
5. > 75%

Prevalence of Inadequate Blood Pressure Control Among Veterans After Acute Ischemic Stroke Hospitalization

A Retrospective Cohort

Christianne L. Roumie, MD, MPH; Susan Ofner, MS; Joseph S. Ross, MD, MHS; Greg Arling, PhD; Linda S. Williams, MD; Diana L. Ordin, MD, MPH; Dawn M. Bravata, MD

Background—Reducing blood pressure (BP) after stroke reduces risk for recurrent events. Our aim was to describe hypertension care among veterans with ischemic stroke including BP control by discharge and over the 6 months after the stroke event.

Methods and Results—The Office of Quality and Performance Stroke Special Study included a systematic sample of veterans hospitalized for ischemic stroke in 2007. We examined BP control (<140/90 mm Hg) at discharge excluding those who died, enrolled in hospice, or had unknown discharge disposition (n=3640, n=3382 adjusted analysis). The second outcome was BP control (<140/90 mm Hg) within 6-months after stroke, excluding patients who died/readmitted within 30 days, were lost to follow-up, or did not have a BP recorded (n=2054, n=1915 adjusted analysis). The population was 62.7% white and 97.7% men; 46.9% were <65 years of age; and 29% and 37% had a history of cerebrovascular or cardiovascular disease, respectively. Among the 3640 stroke patients, 1573 (43%) had their last documented BP before discharge as >140/90 mm Hg. Black race (adjusted odds ratio, 0.77; 95% confidence interval, 0.65 to 0.91), diabetes (odds ratio, 0.73; 95% confidence interval, 0.62 to 0.86), and hypertension history (odds ratio, 0.51; 95% confidence interval, 0.42 to 0.63) were associated with lower odds for controlled BP at discharge. Of the 2054 stroke patients seen within 6 months from their index event, 673 (32.8%) remained uncontrolled. By 6 months after the event, neither race nor diabetes was associated with BP control, whereas history of hypertension continued to have lower odds of BP control. For each 10-point increase in systolic BP >140 mm Hg at discharge, odds of BP control within 6 months after discharge decreased by 12% (95% confidence interval [8%, 18%]).

Conclusions—BP values in excess of national guidelines are common after stroke. Forty-three percent of patients were discharged with an elevated BP, and 33% remained uncontrolled by 6 months. (***Circ Cardiovasc Qual Outcomes*. 2011;4:399-407.**)

Roumie et al. Circ Cardiovasc Qual Outcomes, 2011.

Current State of Post-Stroke HTN Control

Description of hypertension care among Veterans with ischemic stroke over the 6-months after an event:

- Among the 3640 stroke patients, 1573 (43%) had their last documented BP as > 140/90 mmHg
- Only 15% of patients received recommended ACE-inhibitor/ARB and thiazide at time of discharge
- At discharge, for each 10 point increase in systolic BP > 140 mmHg, odds of BP control within 6-months after discharge decreased by 12% (95% CI: 8%, 18%)
- Of 2054 patients seen 6-months after the event, 673 (32.8%) remained uncontrolled

Roumie et al. Circ Cardiovasc Qual Outcomes, 2011.

Current State of Post-Stroke HTN Control

Recommendations:

- Quality of care for patients with cerebrovascular events could be beneficially affected through systematic in-hospital initiation of secondary prevention strategies, noting that secondary prevention delivered during the hospitalization period is standard of care for patients with cardiovascular disease
- Interventions should target those at highest risk for poorly controlled blood pressure

Roumie et al. Circ Cardiovasc Qual Outcomes, 2011.

Original Article

Hypertension Treatment Intensification Among Stroke Survivors With Uncontrolled Blood Pressure

Christianne L. Roumie, MD, MPH; Alan J. Zillich, PharmD; Dawn M. Bravata, MD; Heather A. Jaynes, RN, MSN; Laura J. Myers, PhD; Joseph Yoder, MS; Eric M. Cheng, MD, MS

Background and Purpose—We examined blood pressure 1 year after stroke discharge and its association with treatment intensification.

Methods—We examined the systolic blood pressure (SBP) stratified by discharge SBP (≤140, 141–160, or >160 mm Hg) among a national cohort of Veterans discharged after acute ischemic stroke. Hypertension treatment opportunities were defined as outpatient SBP >160 mm Hg or repeated SBPs >140 mm Hg. Treatment intensification was defined as the proportion of treatment opportunities with antihypertensive changes (range, 0%–100%, where 100% indicates that each elevated SBP always resulted in medication change).

Results—Among 3153 patients with ischemic stroke, 38% had ≥1 elevated outpatient SBP eligible for treatment intensification in the 1 year after stroke. Thirty percent of patients had a discharge SBP ≤140 mm Hg, and an average 1.93 treatment opportunities and treatment intensification occurred in 58% of eligible visits. Forty-seven percent of patients discharged with SBP 141 to160 mm Hg had an average of 2.1 opportunities for intensification and treatment intensification occurred in 60% of visits. Sixty-three percent of the patients discharged with an SBP >160 mm Hg had an average of 2.4 intensification opportunities, and treatment intensification occurred in 65% of visits.

Conclusions—Patients with discharge SBP >160 mm Hg had numerous opportunities to improve hypertension control. Secondary stroke prevention efforts should focus on initiation and review of antihypertensives before acute stroke discharge; management of antihypertensives and titration; and patient medication adherence counseling.
(*Stroke*. 2015;46:00-00. DOI: 10.1161/STROKEAHA.114.007566.)

Key Words: health services research ■ hypertension ■ medication adherence ■ secondary prevention

Roumie et al. Stroke, 2015.

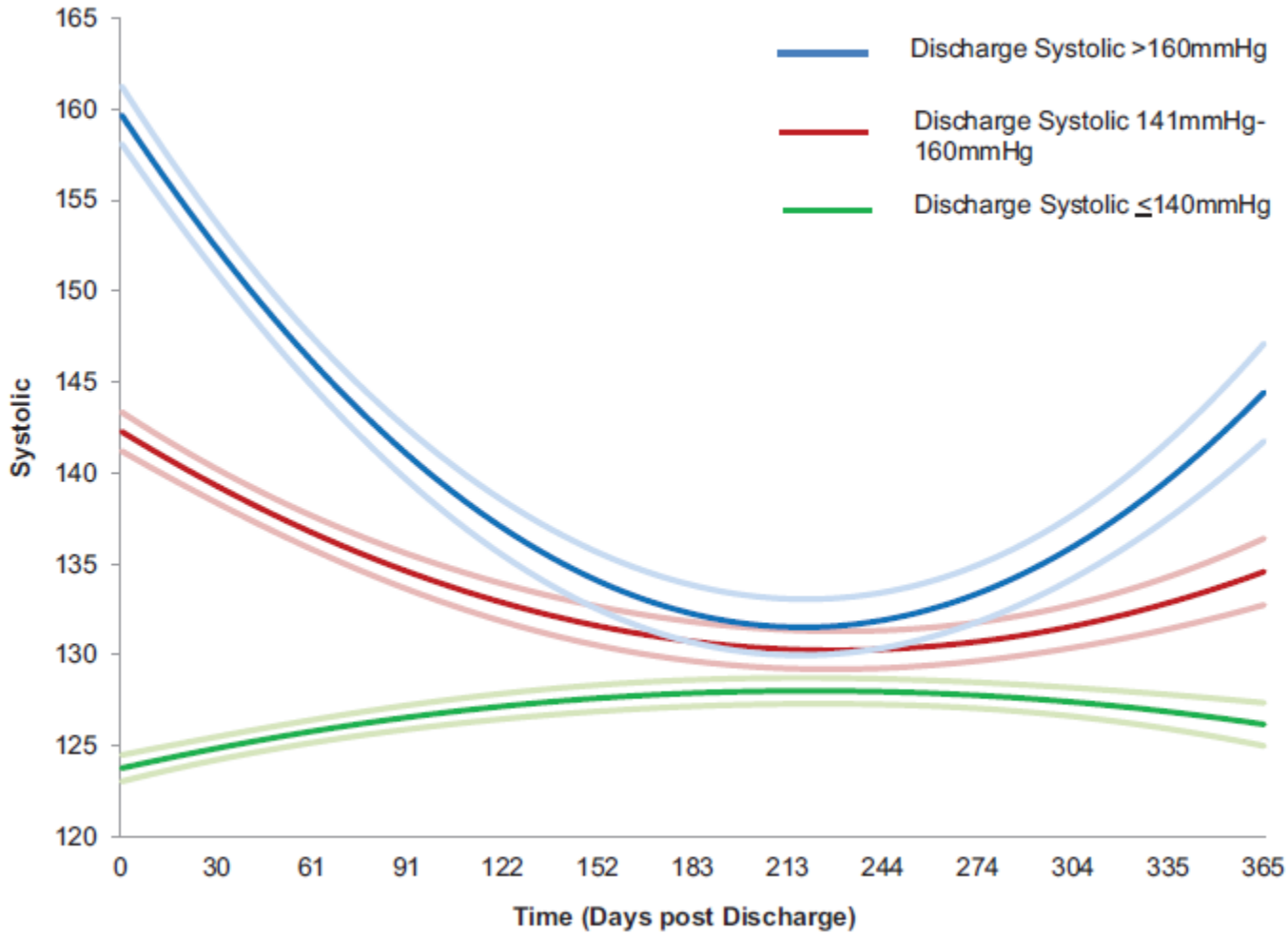
Current State of Post-Stroke HTN Control

Description of hypertension care among Veterans with ischemic stroke over the 12-months after an event and its association with treatment intensification:

- Among 3153 patients with ischemic stroke, 38% had ≥ 1 elevated systolic blood pressure (SBP) eligible for treatment intensification in the 12-months after a stroke
- 47% of patients discharged with SBP 141 to 160 mmHg had an average of 2.1 opportunities for intensification; treatment intensification occurred in 60% of visits
- 63% of patients discharged with SBP > 160 mmHg had an average of 2.4 intensification opportunities; treatment intensification occurred in 65% of visits

Roumie et al. Stroke, 2015.

Current State of Post-Stroke HTN Control



Roumie et al. Stroke, 2015.

Current State of Post-Stroke HTN Control

Recommendations:

- Many patients discharged with elevated blood pressure continued to persistently elevated blood pressure throughout the year after discharge
- Interventions to systematically improve hypertension management should span inpatient and outpatient spectrum to deliver optimal patient care

Roumie et al. Stroke, 2015.

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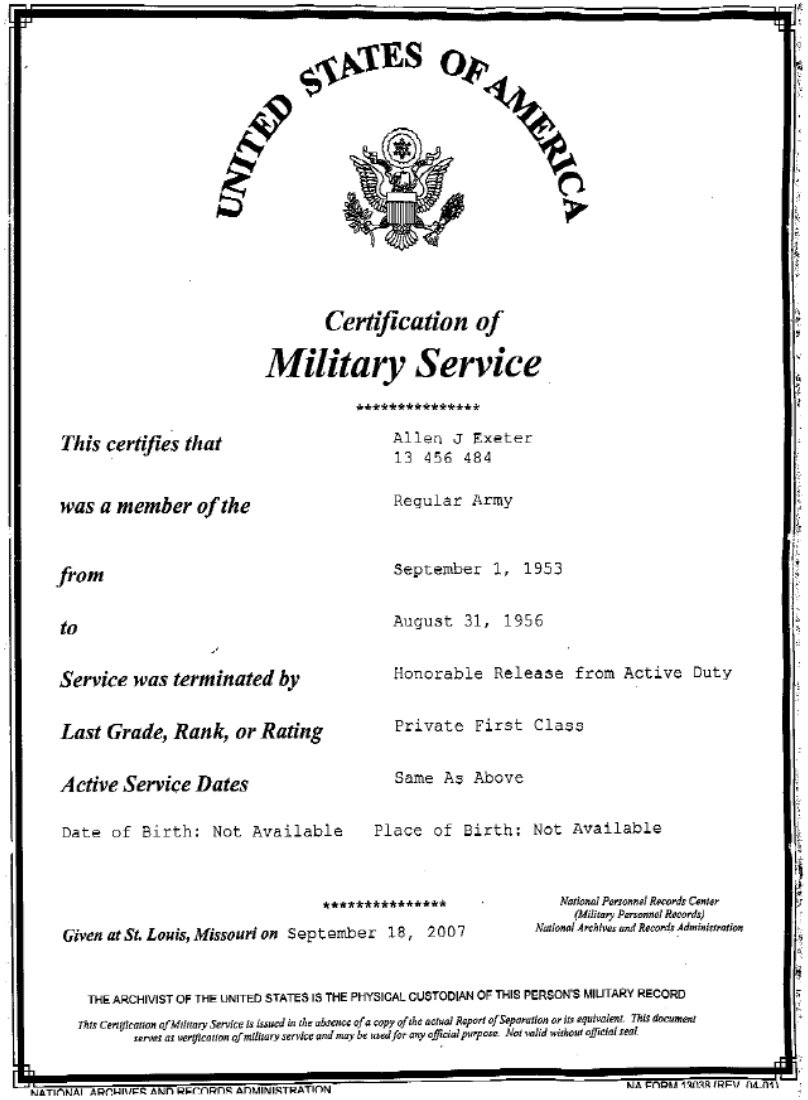
Why Post-stroke risk factor management?



UNITED STATES OF AMERICA

Certification of
Military Service

****

This certifies that	Allen J Exeter 13 456 484
was a member of the	Regular Army
from	September 1, 1953
to	August 31, 1956
Service was terminated by	Honorable Release from Active Duty
Last Grade, Rank, or Rating	Private First Class
Active Service Dates	Same As Above

Date of Birth: Not Available Place of Birth: Not Available

****

Given at St. Louis, Missouri on September 18, 2007

National Personnel Records Center
(Military Personnel Records)
National Archives and Records Administration

THE ARCHIVIST OF THE UNITED STATES IS THE PHYSICAL CUSTODIAN OF THIS PERSON'S MILITARY RECORD

This Certification of Military Service is issued in the absence of a copy of the actual Report of Separation or its equivalent. This document serves as verification of military service and may be used for any official purpose. Not valid without official seal.

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Why Post-stroke risk factor management?

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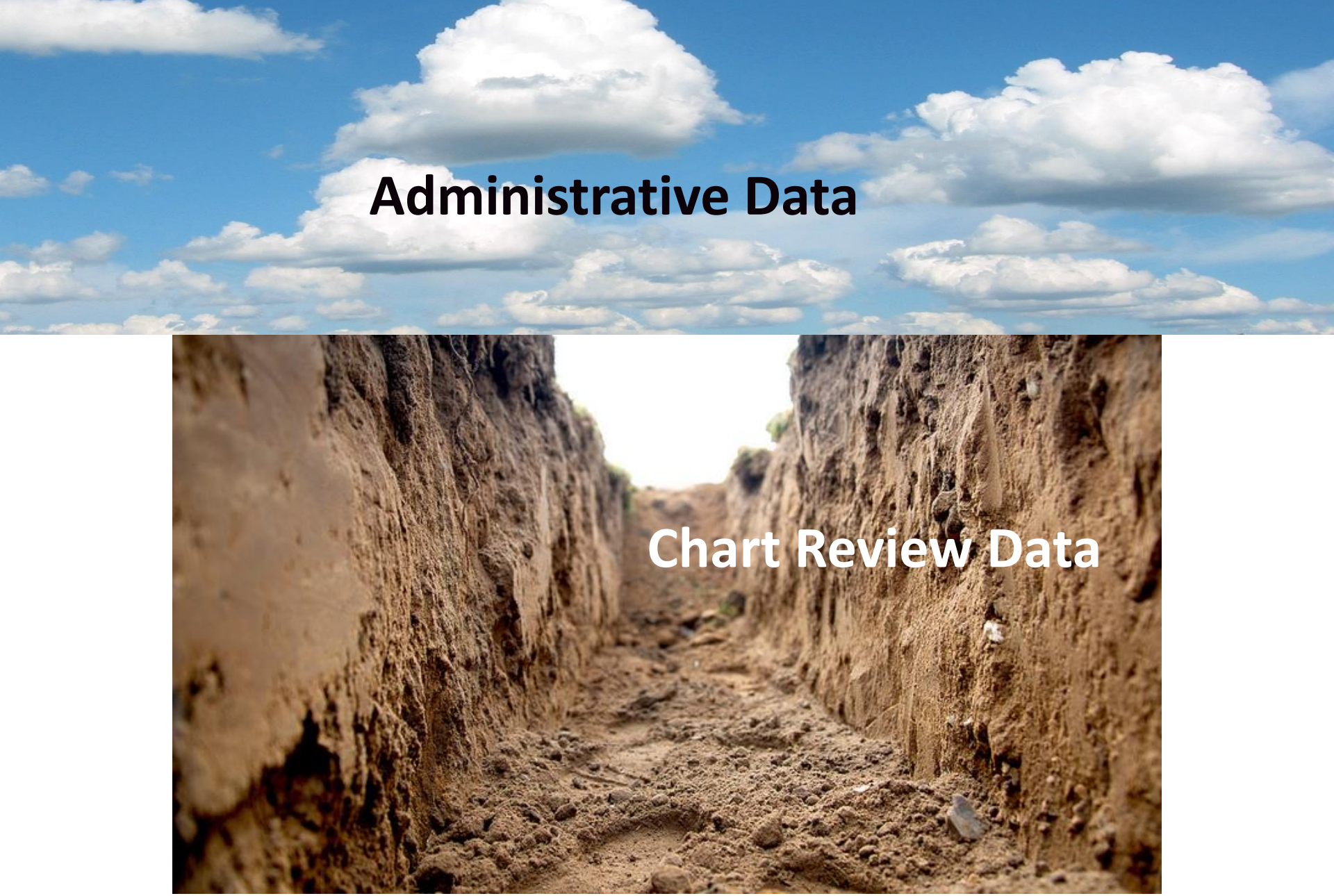
Administrative Data

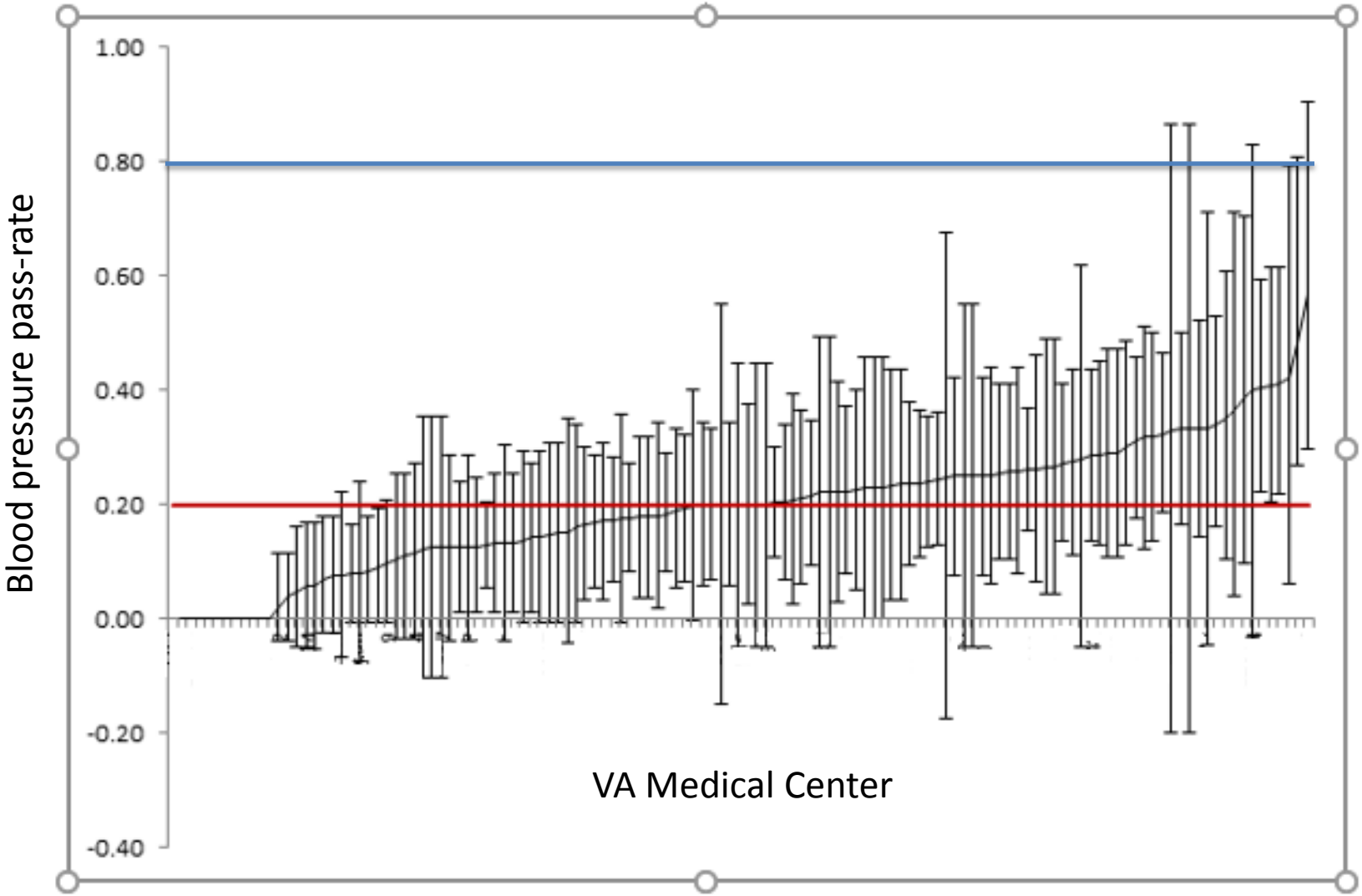

Administrative Data
Chart Review Data


Administrative Data
Chart Review Data
Interview Data

VA | U.S. Department of Veterans Affairs

Administrative Data

Facility-level blood pressure control




Administrative Data
Chart Review Data

Patient-level Predictors of Achieving Goal Blood Pressure

Cohort Characteristics (N=2541)			
Characteristic	**Optimal BP Control (n=1689)**	**Suboptimal BP Control (n=852)**	**P-value**
Sociodemographics			
Age (years), Mean (SD)	67.5 (11.0)	66.8 (11.0)	<0.0001
n (%)			
Race, White/non-black	1129 (66.8)	535 (62.7)	0.074
Discharge plan of care			
BP Plan of Care Documented	483 (28.6)	324 (38.0)	<0.0001

Sico et al. Stroke, 2015.

Patient-level Predictors of Achieving Goal Blood Pressure

Cohort Characteristics (N=2541)			
Characteristic	**Optimal BP Control (n=1689)**	**Suboptimal BP Control (n=852)**	**P-value**
Prior Stroke	443 (26.2)	204 (23.9)	0.212
Optimal BP Control within year prior	1028 (60.9)	327 (38.4)	<0.0001
Atrial fibrillation	179 (10.6)	65 (7.6)	0.017
Ischemic Heart Disease	529 (31.3)	221 (25.9)	0.005
Congestive heart failure	239 (14.2)	64 (7.5)	<0.0001
Depression	316 (18.7)	124 (14.6)	0.009
Ambulatory at Discharge	1386 (82.1)	752 (88.3)	<0.0001

Sico et al. Stroke, 2015.

Patient-level Predictors of Achieving Goal Blood Pressure

Characteristic	Adjusted Odds Ratio*	95% Confidence Interval
White/non-black	1.20	1.10, 1.48
Prior Ischemic stroke	1.06	0.83, 1.35
Congestive heart failure	1.71	1.20, 2.40
Current cigarette smoker	0.58	0.35, 0.96
BP Uncontrolled Year Prior to Event	0.39	0.32, 0.48
BP Plan of Care Documented	0.67	0.52, 0.83

* Full Model adjusted for: age in 10 years increments, atrial fibrillation, stroke severity (mild versus moderate/severe), coronary artery disease, myocardial infarction, ambulatory status, and above characteristics (C-statistic: 0.662).

Sico et al. Stroke, 2015.

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Sico et al. Stroke, 2015.


Administrative Data
Chart Review Data
Interview Data


Interview Data

Qualitative/Mixed methods analyses regarding Post-Stroke Vascular Risk Factor Management

- Site Visits:
  - 14 VAMCs in FY2014-15
  - Clinical Providers (e.g., neurologists, primary care providers), quality management personnel, hospital/clinic administrators
  - Conducted more than 70 semi-structured interviews
    - Identification of their role in the care of patients with cerebrovascular disease
    - Barriers/facilitators to delivering risk factor control
    - Thoughts about potential interventions

Qualitative/Mixed methods analyses regarding Post-Stroke Vascular Risk Factor Management

– Data Analysis:
  - Interviews were audio-recorded, transcribed, and entered into an NVivo 10 project file
  - Team members systematically applied codes using qualitative, categorical, and Consolidated
  - Thematic Content Analysis and mixed-methods displays were used to analyze coded data, generate, and validate findings
  - Quantitative data regarding facility-level characteristics was merged into the project file

Qualitative/Mixed methods analyses regarding Post-Stroke Vascular Risk Factor Management

Perceptions from Site Visit interviews	Facility Characteristics					
	Hypertension Clinic_No	Hypertension Clinic_Yes	Neurology Housestaff_No	Neurology Housestaff_Yes	Stroke Clinic_No	Stroke Clinic_Yes
Perceived Barriers to Hypertension Management	14	9	9	7	12	11
Perceived Degree of Change Required To Improve Hypertension Management at six months_Minor	5	0	0	0	0	0
Perceived Degree of Change Required To Improve Hypertension Management at six months _Major	10	10	8	7	9	10
Perceived Degree of Change Required To Improve Hypertension Management at six months _Other	9	0	6	0	9	0
Perceived Facilitators to Hypertension Management	0	4	0	8	0	4

Qualitative/Mixed methods analyses regarding Post-Stroke Vascular Risk Factor Management

Theme	Description and Illustrative Quotations
"Not My Job"	No Clinical Ownership; Neurologists reported little direct responsibility in HTN management *"[Hypertension is] the responsibility of primary care … I won't change their anti-hypertensives."*
Unaware That Nobody Else Is Doing it	Coordination of HTN management across specialties *Neurologist: "I don't follow that, but I have faith that their primary care provider, who's supposed to be in the front line treating hypertension, is managing it."* *Primary Care: "I think that the neurologist manages the BP, just like the cardiologists do for the MIs."*
Guideline Uncertainty	PCPs expressed hesitancy to titrate BP medications post-event, citing concerns about cerebral autoregulation *"I don't know the evidence on this but it's probably is worthwhile to have them auto regulate off of medication."*

Qualitative/Mixed methods analyses regarding Post-Stroke Vascular Risk Factor Management

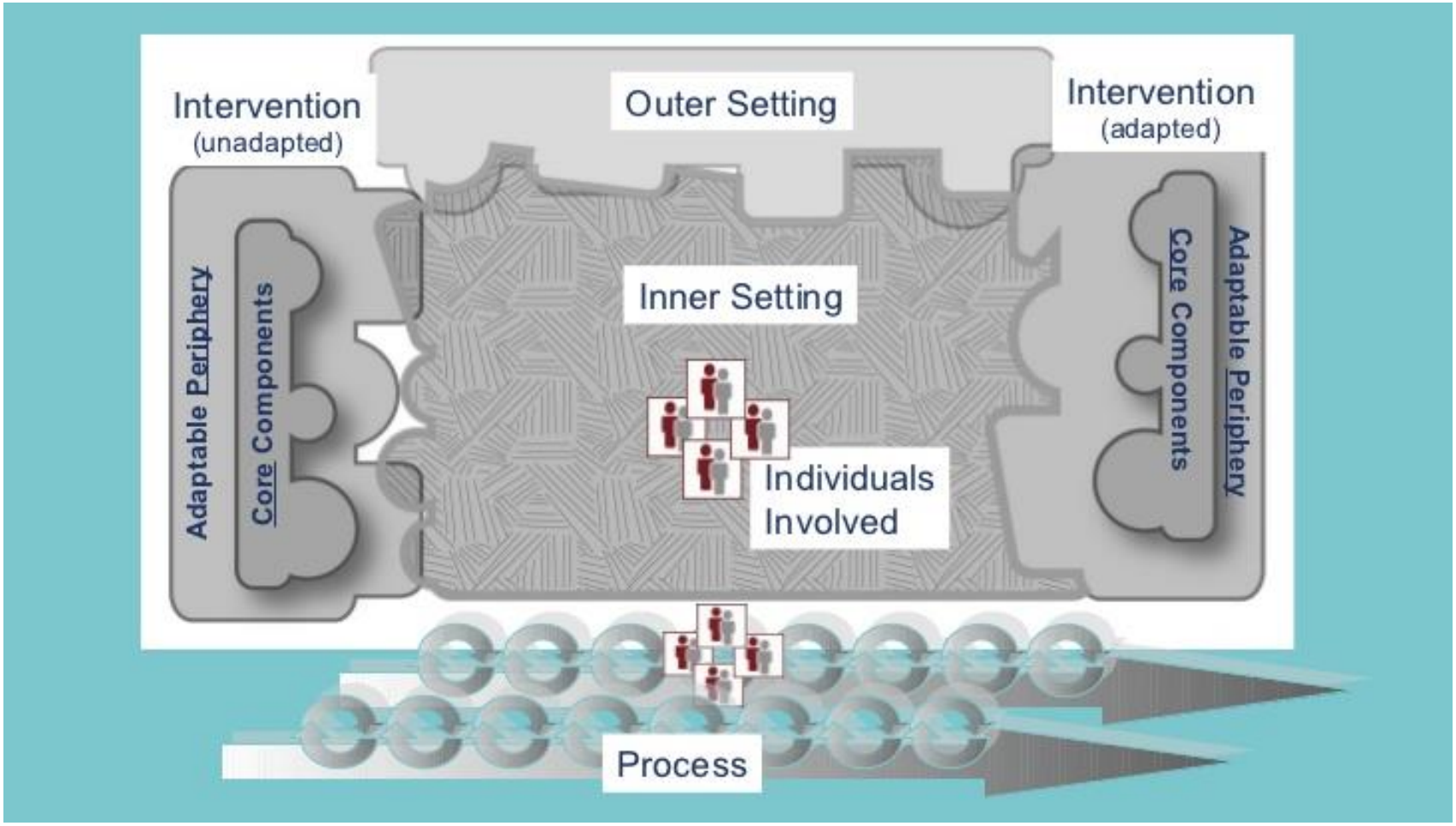
Theme	Description and Illustrative Quotations
Facility-level Processes and Structures	No protocols and processes to guide treating providers related to care coordination *"I don't have any idea how that [handoff to primary care after hospitalization]works."*
No Sense of Urgency	Providers reported that the symptoms of poor BP control did not feel especially salient to patients *"To them, their backpain is more important than their high blood pressure."*

Background: Consolidated Framework for Implementation Research (CFIR)

Domains	Sample Constructs
Intervention Characteristics	Adaptability, complexity, design and packaging, cost
Outer setting	Patient needs and resources, peer pressure, external policy and incentives
Inner setting	Structural characteristics, Culture, Networks and Communications
Characteristics of Individuals	Knowledge and Beliefs about the Intervention, Identification with Organization
Process	Engaging (with champions, external change agents, formally appointed leaders), reflecting and evaluating

Consolidated Framework for Implementation Research: http://cfirguide.org

Implementation Science: CFIR



Consolidated Framework for Implementation Research: http://cfirguide.org

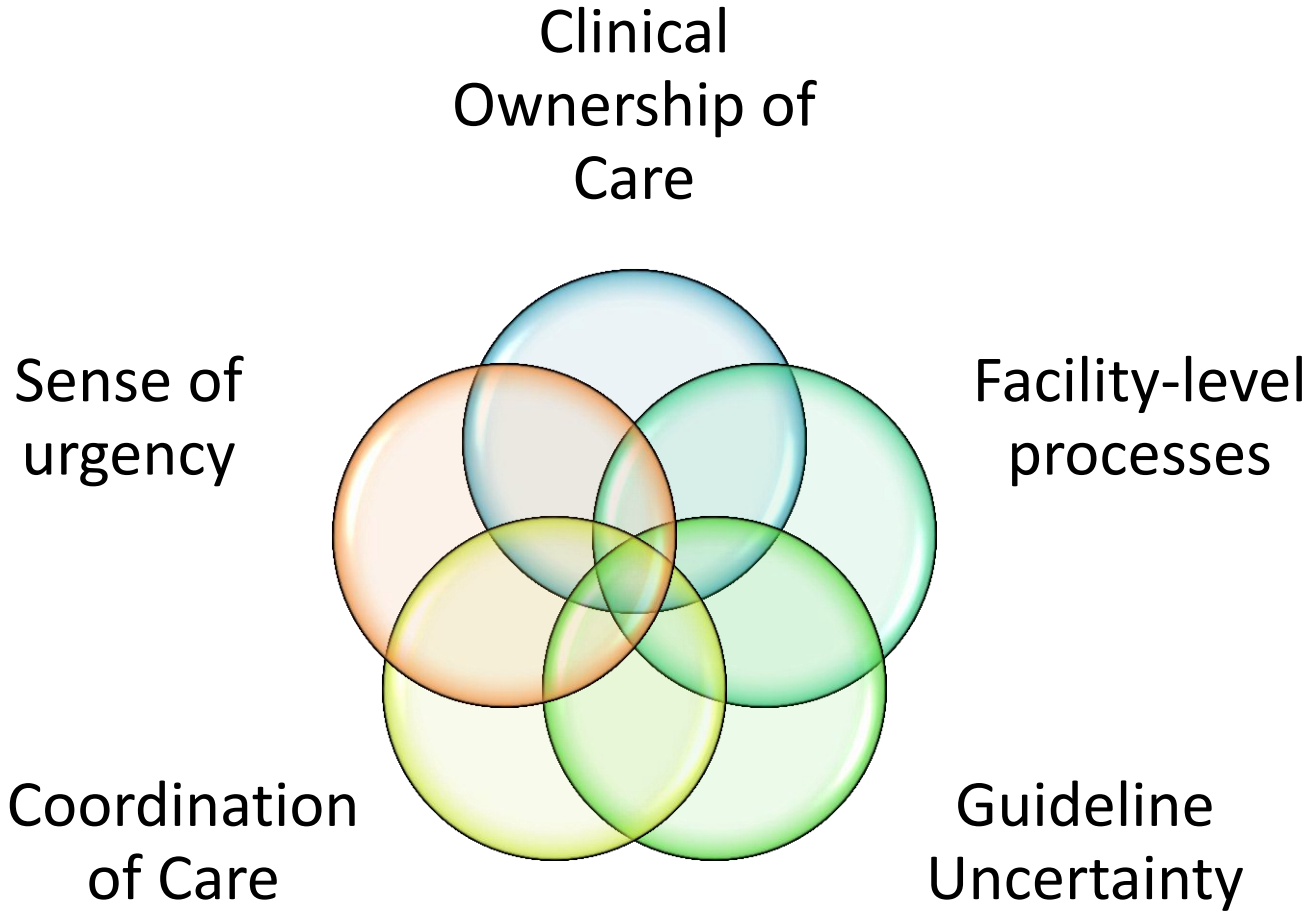
Qualitative/Mixed methods analyses regarding Post-Stroke Vascular Risk Factor Management

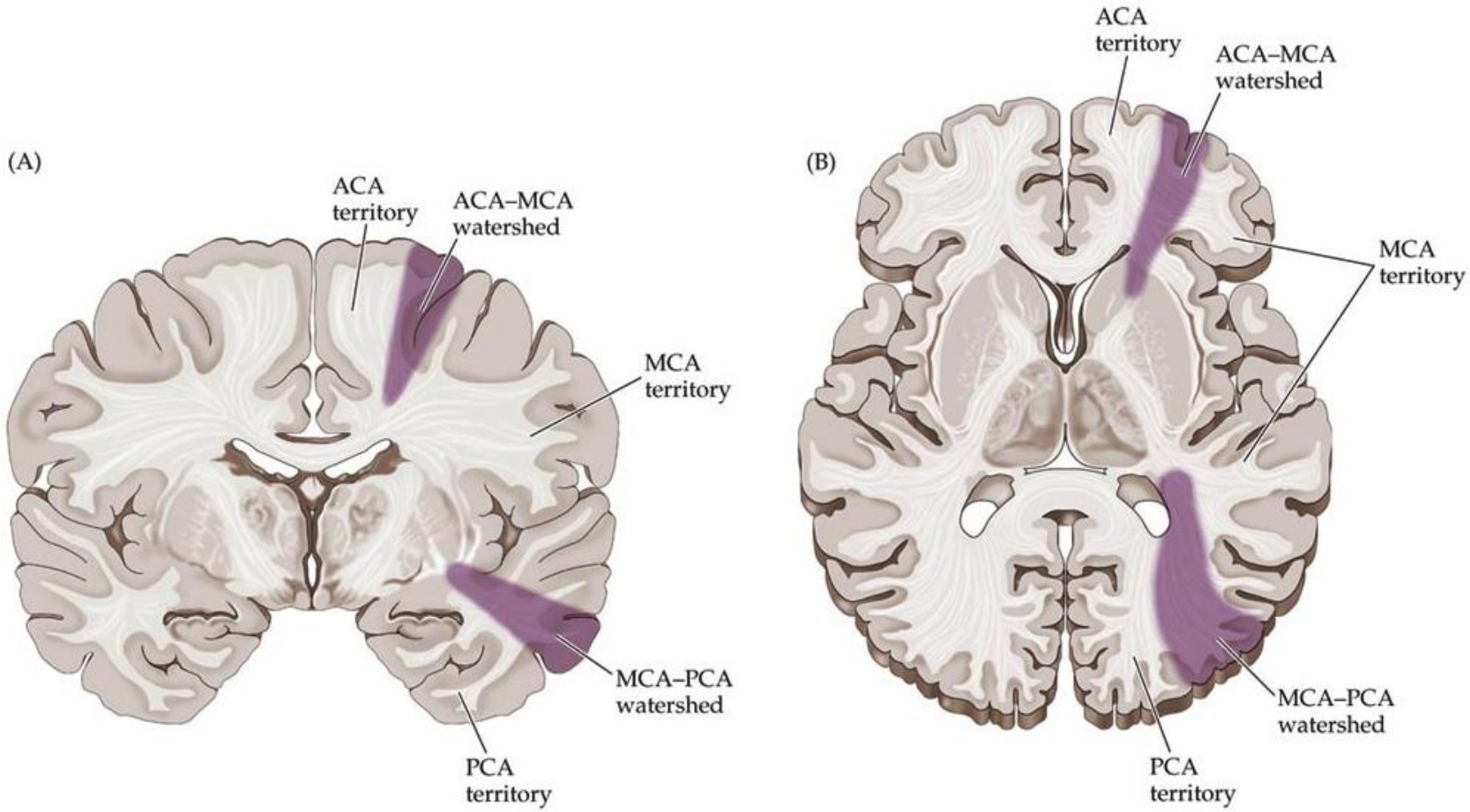
Theme	CFIR Construct	Description and Illustrative Quotations
"Not My Job"	**Culture**	No Clinical Ownership; Neurologists reported little direct responsibility in HTN management *"[Hypertension is] the responsibility of primary care … I won't change their anti-hypertensives."*
Unaware That Nobody Else Is Doing it	**Networks and Communication**	Coordination of HTN management across specialties *Neurologist: "I don't follow that, but I have faith that their primary care provider, who's supposed to be in the front line treating hypertension, is managing it."* *Primary Care: "I think that the neurologist manages the BP, just like the cardiologists do for the MIs."*
Guideline Uncertainty	**Knowledge and Beliefs**	PCPs expressed hesitancy to titrate BP medications post-event, citing concerns about cerebral autoregulation *"I don't know the evidence on this but it's probably is worthwhile to have them auto regulate off of medication."*

Qualitative/Mixed methods analyses regarding Post-Stroke Vascular Risk Factor Management

Theme	CFIR Construct	Description and Illustrative Quotations
Facility-level Processes and Structures	**Networks and Communication**	No protocols and processes to guide treating providers related to care coordination *"I don't have any idea how that [handoff to primary care after hospitalization]works."*
No Sense of Urgency	**Knowledge and Beliefs**	Providers reported that the symptoms of poor BP control did not feel especially salient to patients *"To them, their backpain is more important than their high blood pressure."*

Qualitative/Mixed methods analyses regarding Post-Stroke Vascular Risk Factor Management

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PCA
territory

What does the literature tell us about barriers to hypertension management?

Barrier	CFIR Construct
Clinical Inertia	Implementation Climate
Treatment Refractory BP	Needs & Resources of Those Served by the Organization
Medication Adherence	Characteristics of individuals, Knowledge and beliefs about the intervention

Other Barriers we haven't Considered – enter Lean Six Sigma

- Lean: Process improvement approach focusing on increasing value by eliminating waste and increasing throughput of customer-driven value streams

- Six Sigma: Rigorous and systematic methodology which measures operational performance, identifies and removes 'defects,' and decreases variability in a process

Dean, Lean Healthcare Deployment and Sustainability, 2013.

Lean Six Sigma: Identification of Waste

D	Defects
O	Overproduction
W	Waiting
N	Non-Utilized Talent
T	Transportation
I	Inventory
M	Motion
E	Extra-Processing

	INPATIENT				OUTPATIENT				
Neurology Resident A	> Evaluates patient in Emergency Room (PT: 4h) > Admits patient ordering inpatient testing and manages blood pressure medication (PT: 2h)								
Neurology Resident B		Manages patient during hospitalization, including blood pressure medication (PT: 96h)		> Discharges patient and completes discharge summary (PT: 2h) > Arranges outpatient follow-up (PT: 0.5h)					
Neurology Attending A		> Sees patient and makes additional changes to inpatient management (PT: 1h) > May review inpatient orders (PT: 0.5h) > Reviews and signs off on discharge summary (PT: 0.5h)					Long wait time		
Stroke APRN/Stroke Attending				Provides Stroke Education to patient (PT: 0.5h)			> Receives discharge summary (LT: 24h) > Sees patient in follow-up as outpatient (PT: 0.5h) > Blood pressure management: discontinuation, initiation, continuation with or without intensification (PT: 0.25h)		
Primary Care Physician					> Receives discharge summary (LT: 24h) > Sees patient in follow-up as outpatient (PT: 0.5h) > Blood pressure management: discontinuation, initiation, continuation with or without intensification (PT: 0.25h)				
Value Steps:	VA = 7	NVAN = 6	NVA = 1						
Time (h):	PT= 113	LT = 48	CT = 161						

Redundant

Poor Communication

Redundant

VA Recommendations regarding Intervention Work

QUERI

Transitions of Care from Hospital to Home: An Overview of Systematic Reviews and Recommendations for Improving Transitional Care in the Veterans Health Administration

January 2015

Prepared for:
Department of Veterans Affairs
Veterans Health Administration
Quality Enhancement Research Initiative
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VA HEALTH CARE Defining EXCELLENCE in the 21st Century

Most interventions were solely hospital-based

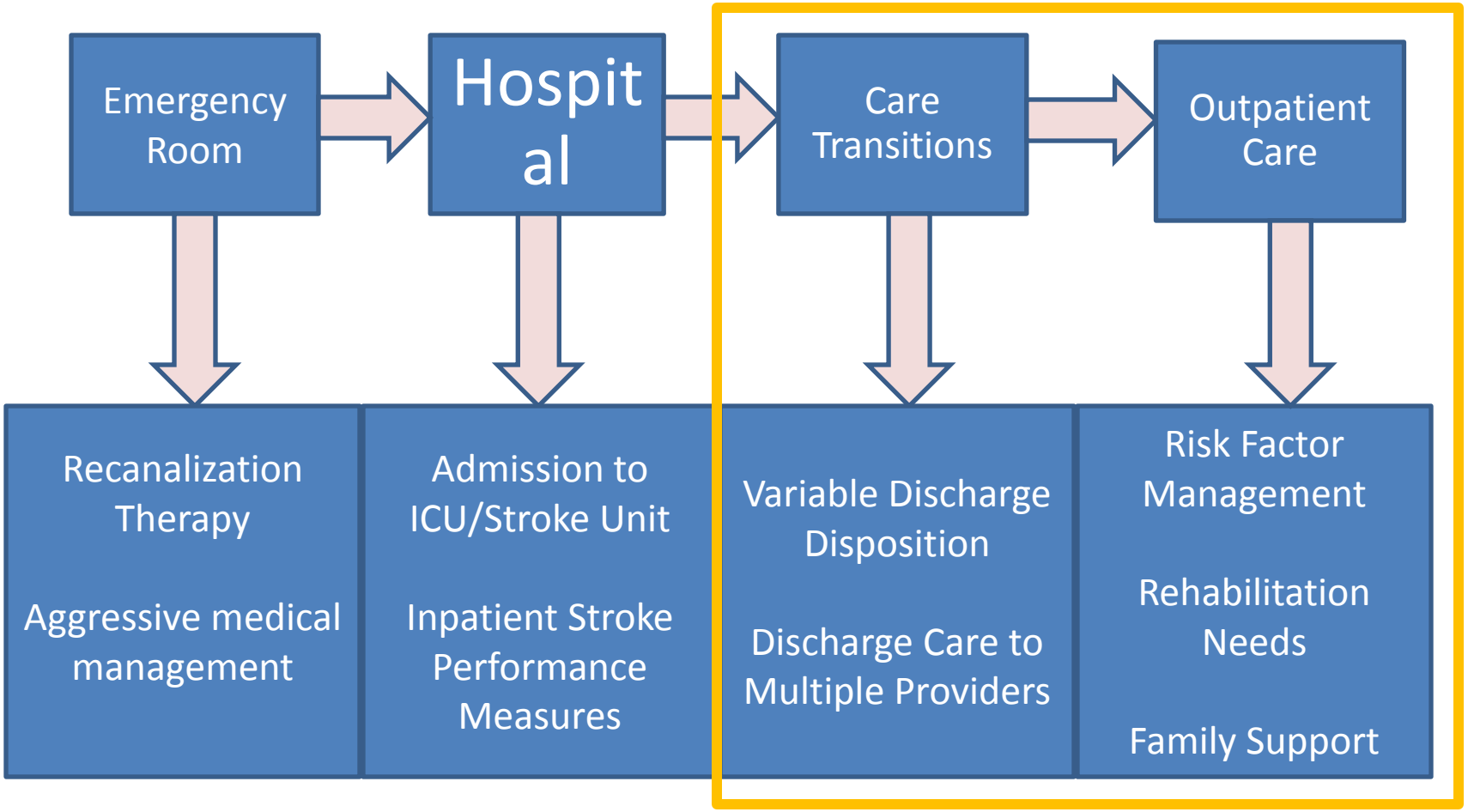
Little examination of the role of outpatient providers

Successful interventions included multiple components and bridged the inpatient and outpatient settings

What should an intervention look like?

- Multi-faceted (there is no one lesion site)
- Bundled
- Starts during hospitalization
- Continues during as an outpatient
- Improves communication, education, and recognizes that a systems-based approach may be able to accommodate for cultural barriers (e.g., “Neurologists don’t do X”)
- Makes use of existing VHA infrastructure and expertise (thereby enhancing sustainability and spread)

Components of an Intervention



Components of an Intervention

Component	Description
Transition in Care Note	Inpatient provider clearly articulates changes in BP medications made during hospitalization; outpatient provider alerted to changes by co-signing the note
	Inpatient provider schedules a 2-week post-discharge follow-up appointment; patient no longer makes their own first appointment
	Patient enrolled in tele-health for BP control; PCP uses BP data to titrate BP meds between face-to-face office visits
Stroke Risk Factor Provider Educational Program	Provider educated regarding reason(s) for non-adherence, including medication side-effects, post-stroke cognitive impairment, post-stroke depression
	BP treatment algorithm, means of assessing for medication non-adherence are reviewed
Virtual Care Consultation	PCP presents patient at a monthly SCAN-ECHO session; evaluation and management of treatment refractory BP are reviewed
	Increased use of Virtual Care specialty care (e.g., SCAN-ECHO) by Neurologists/PCPs; BP guidelines reviewed

Components of an Intervention

Barrier	Component	Mechanism of Addressing Barrier
Suboptimal communication between providers during hospitalization	Transition in Care Note	Inpatient provider clearly articulates changes in BP medications made during hospitalization; outpatient provider alerted to changes by co-signing the note
Lack of content knowledge regarding current BP guidelines	Stroke Risk Factor Provider Educational Program	BP treatment algorithm, means of assessing for medication non-adherence are reviewed
	VC Consultation	Increased use of Virtual Care specialty care (e.g., SCAN-ECHO) by Neurologists/PCPs; BP guidelines reviewed
First PCP visit occurred > 30 days after discharge	Transition in Care Note	Inpatient provider schedules a 2-week post-discharge follow-up appointment; patient no longer makes their own first appointment

Components of an Intervention

Barrier	Component	Mechanism of Addressing Barrier
Clinical Inertia	Transition in Care Note	Patient enrolled in tele-health for BP control; PCP uses BP data to titrate BP meds between face-to-face office visits
Treatment Refractory BP	Virtual Care Consultation	PCP presents patient at a monthly SCAN-ECHO session; evaluation and management of treatment refractory BP are reviewed
Medication Adherence	Stroke Risk Factor Provider Educational Program	Provider educated regarding reason(s) for non-adherence, including medication side-effects, post-stroke cognitive impairment, post-stroke depression

Evaluating Components of an Intervention

Component	Outcome
Transition in Care Note	Quantitative: proportion of patients receiving intervention component/total number of patients eligible; number of completed noted; number of noted cosigned by primary care provider; components of Transition in Care Note being utilized; number and type of consultations generated; Likert-scale responses
	Qualitative/Mixed Methods: ORCA/SAFE questionnaires; CFIR construct ratings; NVivo10 analyses
Stroke Risk Factor Provider Educational Program	Quantitative: number of: providers identified, enrolled; charts documenting change in management; Likert-scale responses
	Qualitative/Mixed Methods: ORCA/SAFE questionnaires; CFIR construct ratings; NVivo10 analyses
Virtual Care	Quantitative: number of value added, NVA, and necessary NVA steps in value stream process maps; Pareto chart; PDSA cycle
	Qualitative/Mixed Methods: summative evaluations; NVivo10 analyses
CFIR/Implementation Science Strategy	Quantitative: number of value added, NVA, and necessary NVA steps in value stream process maps; Pareto chart; PDSA cycle
	Qualitative/Mixed Methods: summative evaluations; NVivo10 analyses

Thank you!

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VA PRIS-M QUERI

Discussion Questions

CDA

- You have successfully worked with a geographically separated mentoring team. Words of advice for new CDAs?
- Your HSRD CDA is focused on implementation rather than classic HSRD. What challenges are inherent in that choice?

RESEARCH

- The VHA has made robust and sustained improvements in hypertension control for the general population. Why are Veterans with stroke not achieving the same blood pressure targets?
  - Are Veterans with stroke different from other patient populations (e.g., comorbidities, hypertension severity, adherence)?
  - Are Veterans with a stroke not benefitting from components of existing VHA infrastructure (e.g., telehealth, pharmacy)?
- In the post-JNC 8 and post-SPRINT trial era, what target blood pressure is appropriate for the average patient after a stroke?

QUESTIONS/COMMENTS

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