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BACKGROUND & OBJECTIVE

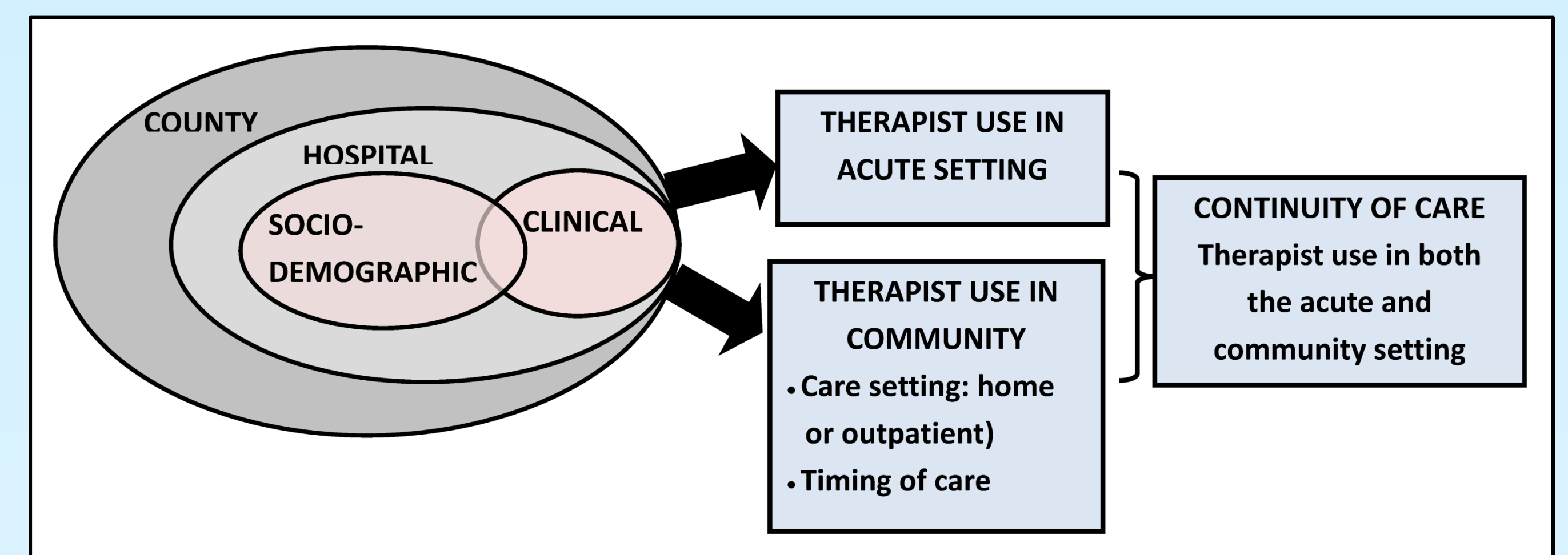
- 80-90% of stroke survivors have some degree of movement impairment following stroke and evidence suggests that early contact with a physical and/or occupational therapist (PT/OT) and more intense therapy promotes better movement recovery.
- The majority of stroke survivors are discharged home following hospitalization.
- Understanding the care pathway from the acute to community setting and the continuity of therapist care across settings has implications for
 - determining whether patients are receiving appropriate & timely care;
 - care delivery models that promote care coordination and team-based care; and
 - payment models that are capitated, episode-based, and/or bundled.

OBJECTIVES:

- Describe the use of PTs & OTs from the acute to community setting following stroke.
- Identify predictors of therapist use, continuity of care, and early care particularly in regard to:
 - contextual factors that are potentially modifiable.
 - sociodemographic factors indicative of disparities.

METHODS

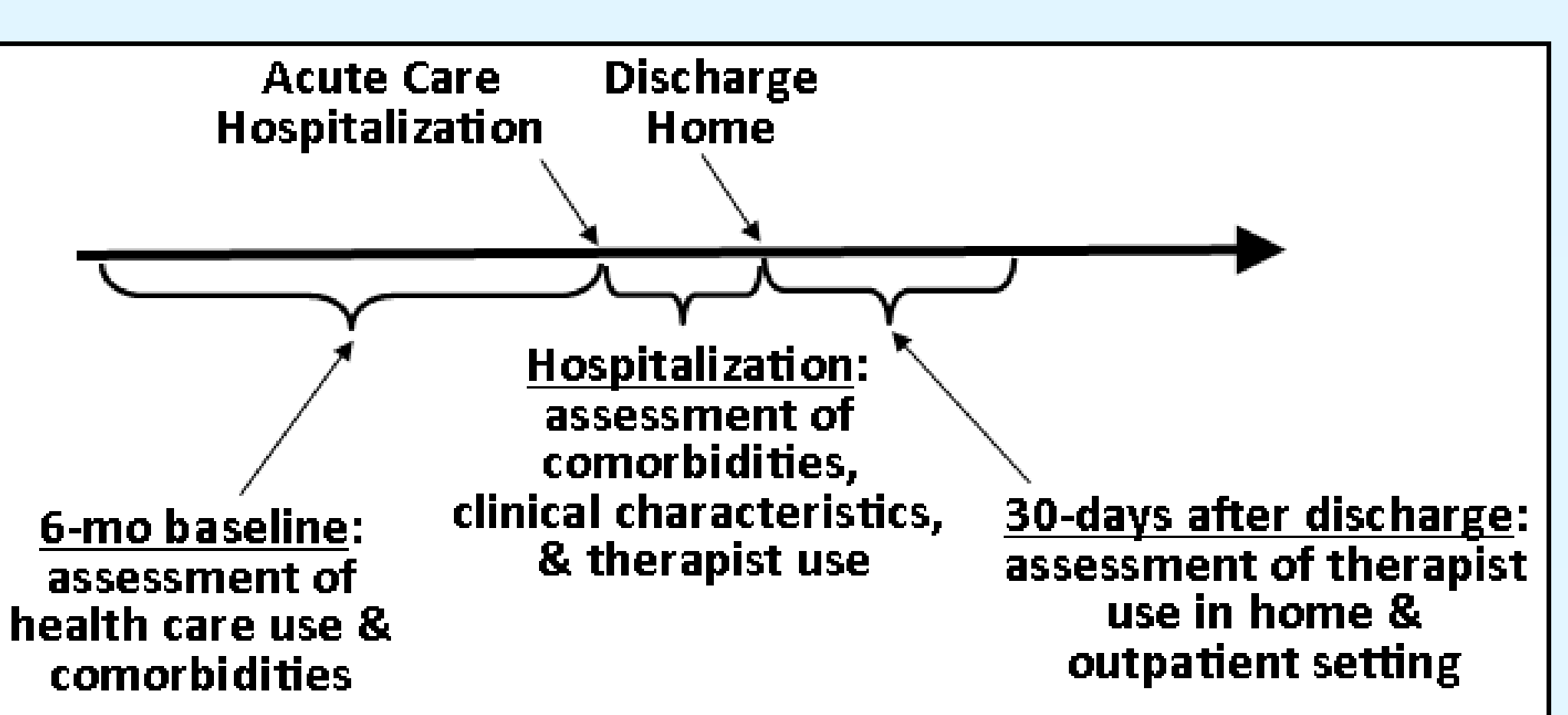
CONCEPTUAL MODEL



DATA SOURCES

- Medicare Claims Data 2010-2013 (20% sample)*: Enrollment, MedPAR, Outpatient, Carrier, Home Health, Durable Medical Equipment files
- American Hospital Association Data*: hospital structural & organizational characteristics
- Area Health Resource File*: supply of providers, socioeconomic status at the county level

STUDY DESIGN



COHORT

- 66 years & older
- Admitted for stroke
- Survived inpatient stay
- Discharged home
- Survived first 30 days after discharge

METHODS (cont.)

Table 1 – Outcome Variables (Therapist Use)*

THERAPIST USE	VARIABLE TYPE	DEFINITION
Inpatient Therapist Use	Dichotomous	Yes or No
Post-Acute Therapist Use	Categorical	Use: in home, outpatient setting, no use
Continuity of Therapist Care	Categorical	Use: inpatient & home setting; inpatient & outpatient setting; no continuity
Early Therapist Care (based on median days to first visit)	Categorical	Early care: in home, in outpatient setting, care not early.

* based on revenue center codes, HCPCS/CPT; focused on first 30 days after discharge

Table 2 – Explanatory Variables

CLINICAL (Control)	
Baseline healthcare use & frailty variables	Hospitalizations, SNF/LTCH/IRF use, PT/OT use, diagnosis & procedure codes.
Hospitalization characteristics	Type of admission, type of stroke, ICU/CCU use, LOS, etc.
Stroke-related comorbidities	Diagnosis codes (e.g., aphasia; dysphagia; hemiparesis; fall) & procedure codes for vascular procedures.
Other comorbidities	Elixhauser comorbidity index (baseline & hospitalization).
SOCIODEMOGRAPHIC	
	Age; sex; race; dual eligibility; median income of county.
NON-CLINICAL FACTORS (Contextual)	
Hospital structure & organization	Ownership; Accreditation; Medical school affiliation; Bed size; Metropolitan location; Medicare discharges; Medicaid discharges; RN staffing.
County-level characteristics	PCPs/population; specialist physicians/population (PMR, neurologist); PTs/population; metropolitan status.

DATA ANALYSES

- Descriptive, multivariate logistic and multinomial logistic regression analyses
- Robust standard errors to account for clustering within hospital
- Sensitivity analyses

RESULTS

Table 3 – Sample Characteristics (N= 42,955)

DEMOGRAPHIC VARIABLES (% or mean)	
Male	38.3
Mean (SD) age, y	78.1 (7.6)
Race	
White	82.0
Black	11.0
Hispanic	2.9
Other	4.0
Dual Eligibility	27.1
HOSPITALIZATION VARIABLES (% or mean)	
Stroke: Hemorrhagic	6.5
Ischemic	48.0
Transient	45.5
Mean (SD) LOS	3.2 (2.9)

THERAPIST USE

- 69% saw a therapist in the acute setting
- 33% saw a therapist in first 30 days after discharge

Table 4 – Therapist Use (mutually exclusive categories)

CARE RECEIVED	Percentage
Inpatient & Post-Acute Care	28.4
Inpatient Care Only	41.0
Post-Acute Care Only	4.1
No Therapist Care Received	26.5
TOTAL	100

RESULTS (cont.)

Table 5 – Hospital & County-Level Characteristics Associated with Therapist Use, Continuity of Care, and Early Care

	THERAPIST USE			CONTINUITY OF CARE		EARLY CARE	
	Inpatient	Home	Out-patient	Inpatient & Home	Inpatient & Outpatient	Home	Out-patient
HOSPITAL							
Not-For-Profit Hospital	+				+	+	+
Joint Commission Accredited		+		+			-
Med School Affiliation							
Bed Size		-		-			
% Medicare Discharges	+						
% Medicaid Discharges	-		-		-		-
RN Staffing	+		+		+		+
Metro Location	+						
COUNTY							
Primary Care Supply	+		+		+	+	+
PMR Supply						+	
PT Supply			+		+	+	+
Neurologist Supply		-		-			+
Metro Location							

* Controlling for clinical characteristics; + is a significant (p<.05) positive association; - is a significant (p<.05) inverse association.

Table 6 – Sociodemographic Characteristics Associated with Therapist Use, Continuity of Care, and Early Care

	THERAPIST USE			CONTINUITY OF CARE		EARLY CARE	
	Inpatient	Home	Out-patient	Inpatient & Home	Inpatient & Outpatient	Home	Out-patient
SOCIODEMOGRAPHIC							
Black	+	+	-	+	-	-	-
Hispanic	-			-		-	
Dual Eligible		+	-	+	-		-
Household Income	+		+		+		+

* Controlling for clinical characteristics; + is a significant (p<.05) positive association; - is a significant (p<.05) inverse association.

DISCUSSION & CONCLUSIONS

- Underuse of therapists in first 30 days after discharge home following stroke.
- Continuity of care from the acute to community setting also low.
- Patients seen at hospitals with higher RN staffing levels and living in counties with greater PCP supply were more likely to: a) receive therapist care in the inpatient and outpatient settings; b) have continuity of care across the inpatient and outpatient setting; and c) receive early therapist care.
- Physician specialist and PT supply associated with use in some models.
- Socioeconomic and racial disparities in use present particularly in regard to outpatient therapist use and early use.
- Evidence of not-for-profit and accreditation status being associated with use.
- Findings have implications for policies to improve PCP supply, modify Medicare payment for outpatient therapy, and improve access for underserved.

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