

CFM Grand Rounds Continuing Education

**In order to receive credit for
participating today,
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A short evaluation will be emailed to you within 48 hours. Please take a moment to give us your feedback.

Our next Grand Rounds will be January 10, 2017 in Hanes 131.

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Incorporating Physician Assistants and Nurse Practitioners on Primary Care Teams

Christine M. Everett, PhD, MPH, PA-C

November 8, 2016

CFM Grand Rounds

Objectives

- Define key concepts including team and PA and NP role
- Describe the results of the first comparative effectiveness study comparing different PA and NP roles on primary care teams
- Describe current research project evaluating PA and NP team roles, interdependence, and coordination

Demand for Primary Care Exceeds Supply

- Increased demand for primary care
 - Affordable Care Act: 32 million Americans will gain insurance coverage by 2019 ^{1,2}
 - Additional 15-24 million primary care visits annually ³
- Limited supply of primary care physicians ₃₋₅
- Demand-supply mismatch could reduce access and quality of care ^{6,7}
- Increased reliance on PAs and NPs is one strategy for bridging the gap

Expectations of Healthcare Teams

- Improve Access
 - Health Professional Shortages
- Improve Processes
 - Overcome Fragmentation
- Improve Patient Outcomes
 - Benefit from a range of clinical expertise and skills
- Lower Cost
 - Improve efficiency

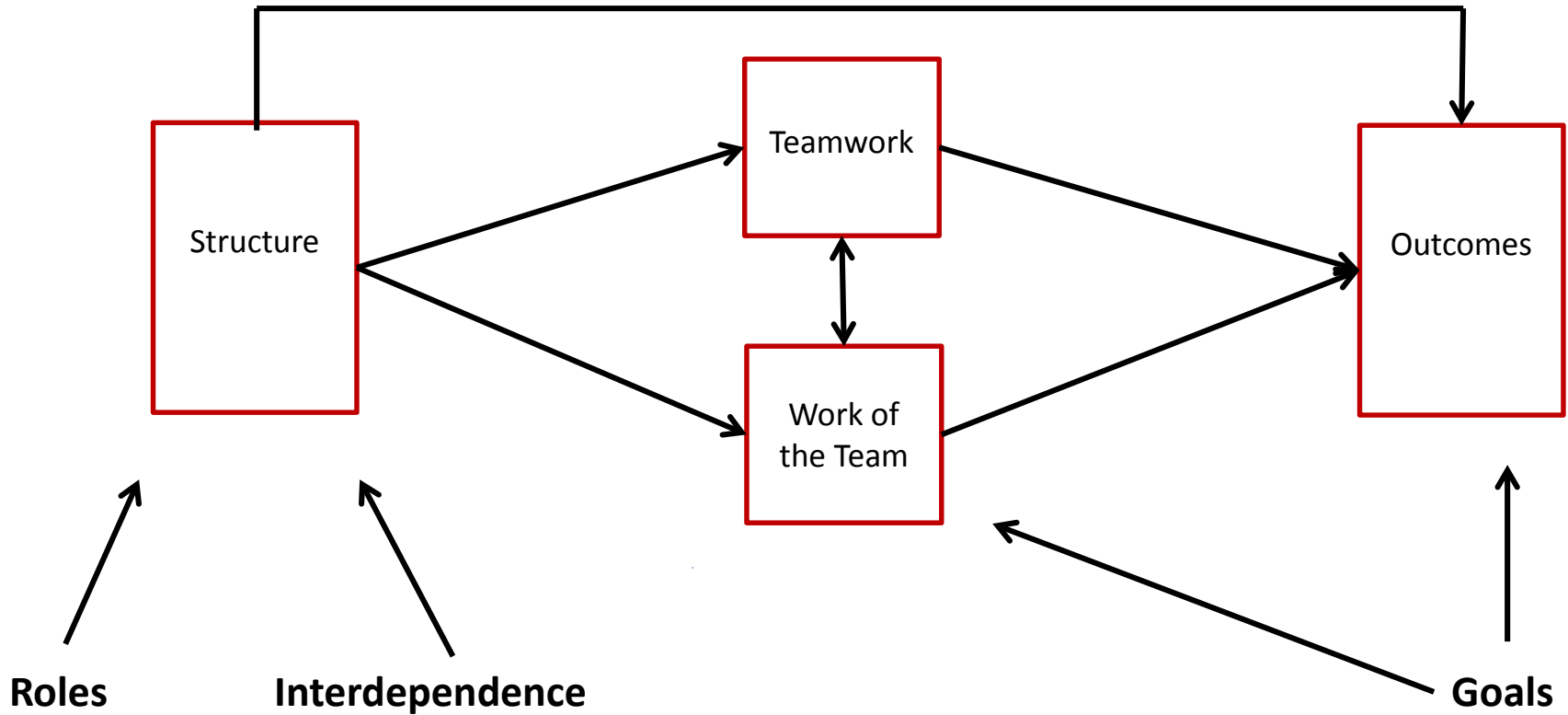
Definitions

Defining Team

“A group of two or more individuals, who have specific **roles**, perform **interdependent** tasks, are adaptable, and share a common **goal**”

(Bosch et al,2009, Salas et al 1992, Xyrichis &Ream 2008)

Teams



Group-Team Continuum



Group

Team

Pseudoteam

PAs (and NPs) Work in Teams

???

Defining Role

- A cluster of related and goal-directed behaviors characteristic of a person within a specific situation
- Defining feature of organizations
- Relational concept
 - Defined in relation to other positions
 - Task oriented
 - Hierarchical

**NO USABLE DEFINITION FOR
PRIMARY CARE PAs & NPs**

What is the Role of PAs & NPs on Primary Care Teams

In My Humble Opinion:

A primary care physician's thoughts on medicine and life.

Jordan Grumet, a primary care Internal Medicine physician in Highland Park, Illinois

Monday, May 12, 2008

On Nurse Practitioners and Physician Assistants

“There is a nurse practitioner that works at my hospital.

She is employed by the pulmonology group and helps run the intensive care.

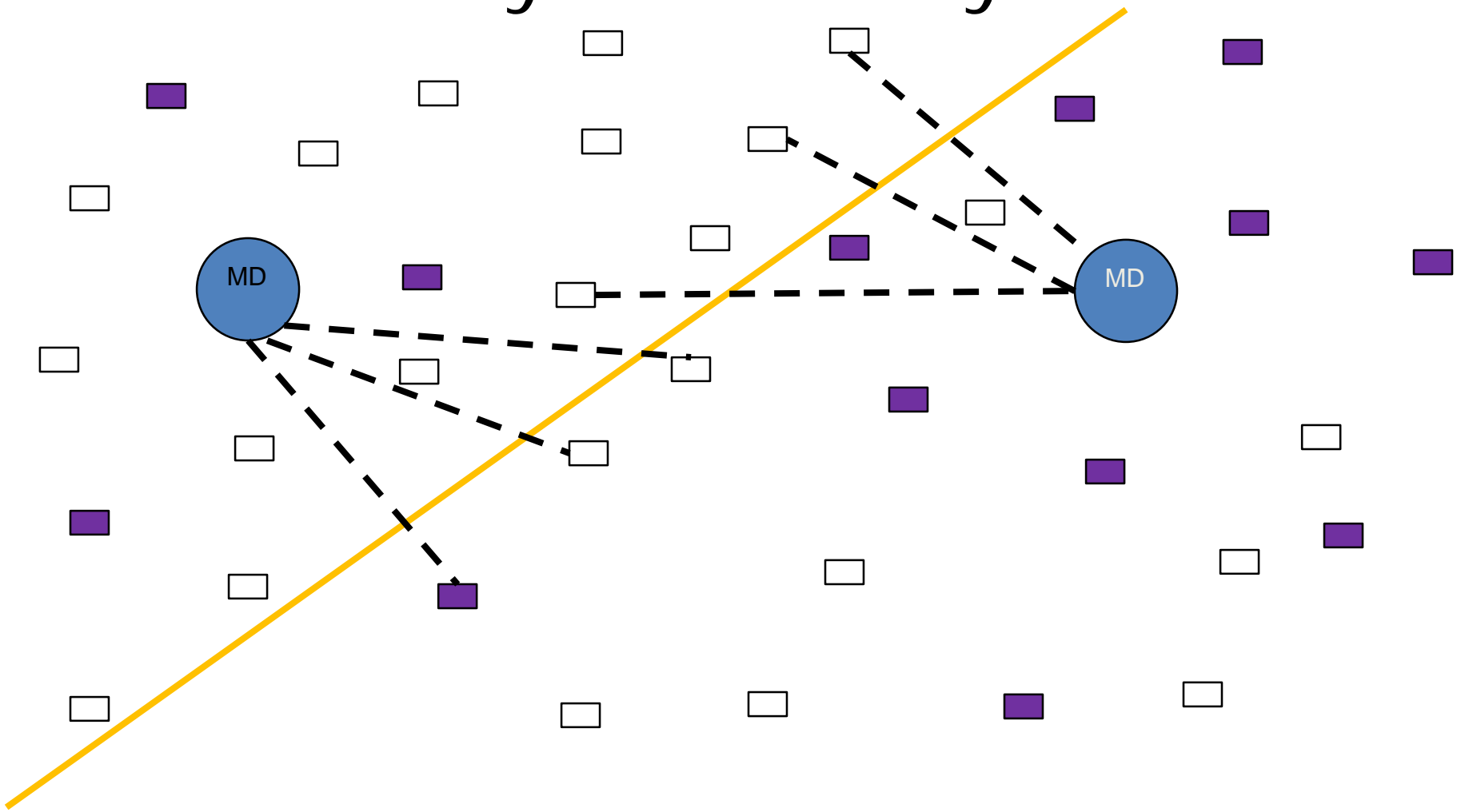
.... She probably knows more than seventy five percent of the

docs in the hospital.she is closely monitored by the attending staff and each

patient is seen by the covering physician daily. ***Sometimes it makes me***

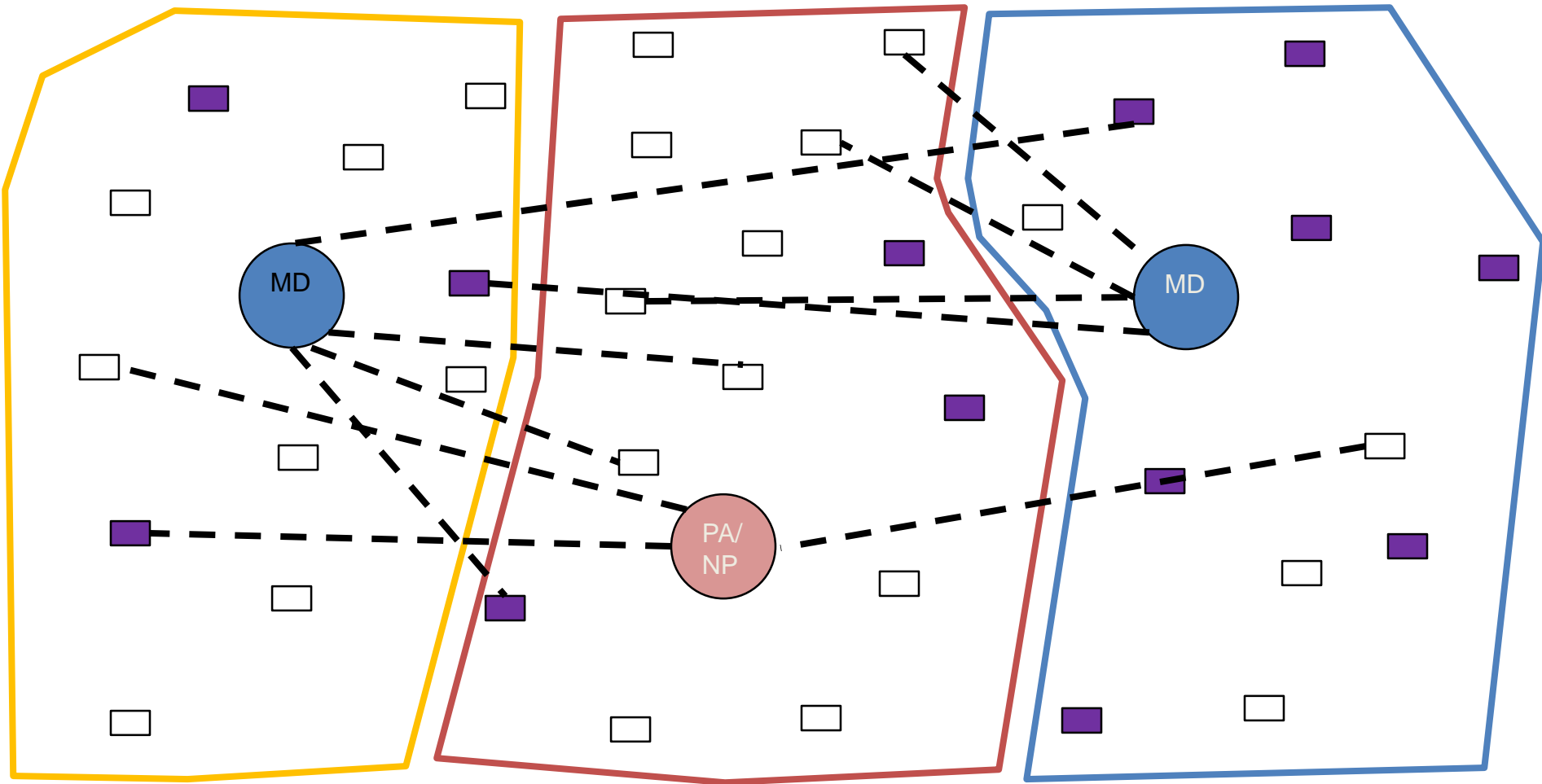
wonder...It works for them...could it work for us?”

Example Clinic #1 Physicians Only



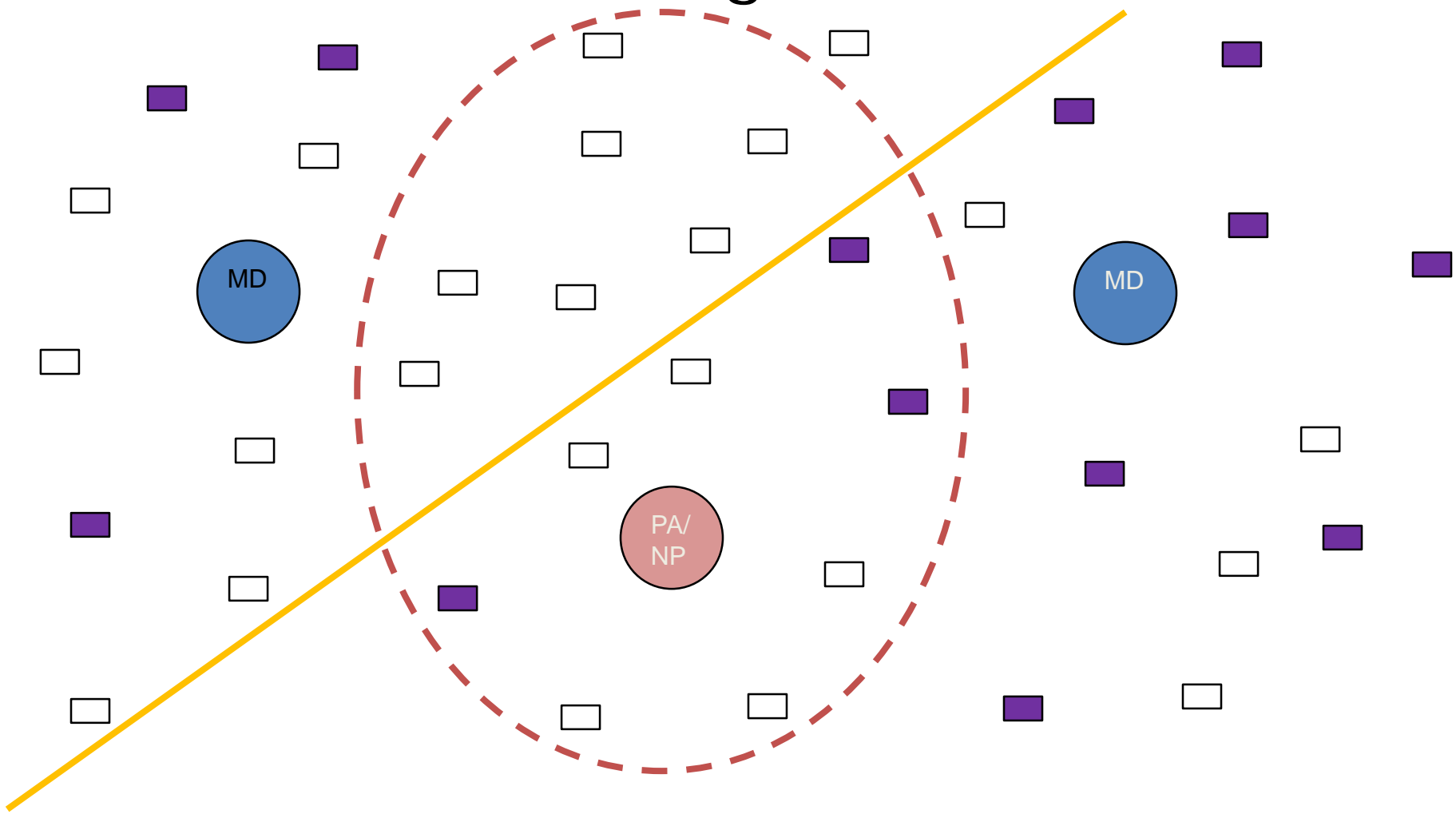
Example Clinic #2

PA/NP as Usual Provider



Example Clinic #3

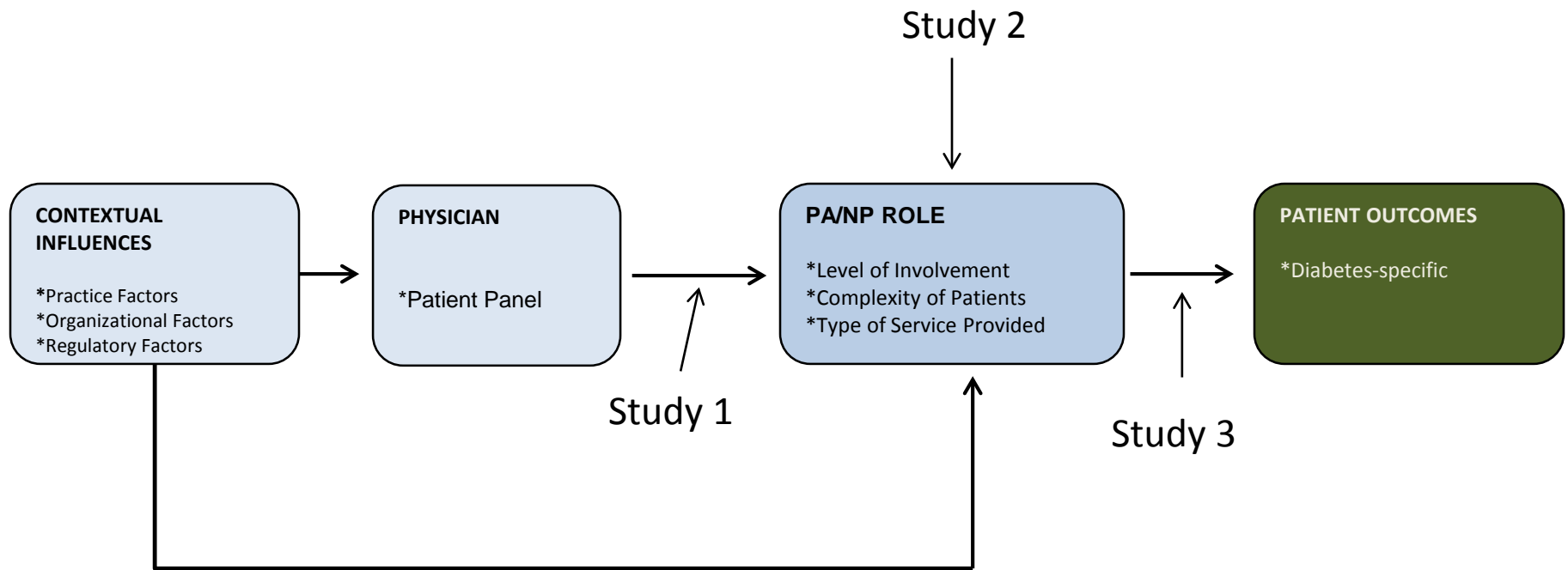
PA/NP Providing Chronic Care



PAs (and NPs) Work in Teams


- Interdependence
 - Legally mandated
 - Caring for same patients
- Defined (Heterogenous) Roles
 - Scope of practice varies by state
 - “Negotiated Autonomy”
- Adaptable Due to Overlap in Capacities
- Shared Goal = Quality and Patient goals

Primary Care PA/NP Role Conceptual Model



PA/NP Role on Study Panel

PA/NP Role	Level of Involvement	High Complexity Patient	At Least Some Chronic Care
No Role			
Usual Provider/Non-Complex	Majority	No	N/A
Usual Provider/At Least One Complex	Majority	Yes	N/A
Supplemental/ Non-Complex/ No Chronic	Not Majority	No	No
Supplemental/ Non-Complex/ Some Chronic	Not Majority	No	Yes
Supplemental/ At Least One Complex/No Chronic	Not Majority	Yes	No
Supplemental/At Least One Complex/Some Chronic	Not Majority	Yes	Yes



Comparative Effectiveness of Primary Care PA & NP Roles

Population, Sampling and Data Sources

- Study Setting
 - Large academic multi-specialty physician group
 - 210 physicians, 24 PAs, 28 NPs, 51 residents
 - 32 primary care clinics
- Patient Sample (CY 2008)
 - Adult Medicare patients with diabetes
 - Received at least one primary care visit in 2008
 - N=2603
- Panel Sample
 - N= 263
- Data Sources: Medicare Claims and EHR

Defining Primary Care Panels of Patients with Diabetes

- Determine patient membership on panel based on primary care visits received each year:
 - To primary care clinic where majority of care was provided (usual clinic)
 - To provider within the usual clinic that provided the majority of care (usual primary care provider)
- Panels defined by usual provider of care: constitute all patients that received the majority of their care from the same provider in the same clinic

PA/NP Role

Operational Definitions

- Level of Involvement
 - Usual Provider-majority of primary care
 - Supplemental Provider-1+ visits to patients on the panel
- Complexity of Patients
 - Adjusted Clinical Groups (ACG)
 - 1.0= mean utilization for elderly
 - Non-Complex Only= PA/NP primary care visits with patients with ACG of <2.0
 - At Least One Complex= PA/NP provided at least one visit to a patient on the panel with ACG of ≥ 2.0
- Services Provided
 - No Chronic
 - At Least Some Chronic

Study 2: Characterize and Describe Primary Care PA/NP Roles for Patients with Diabetes

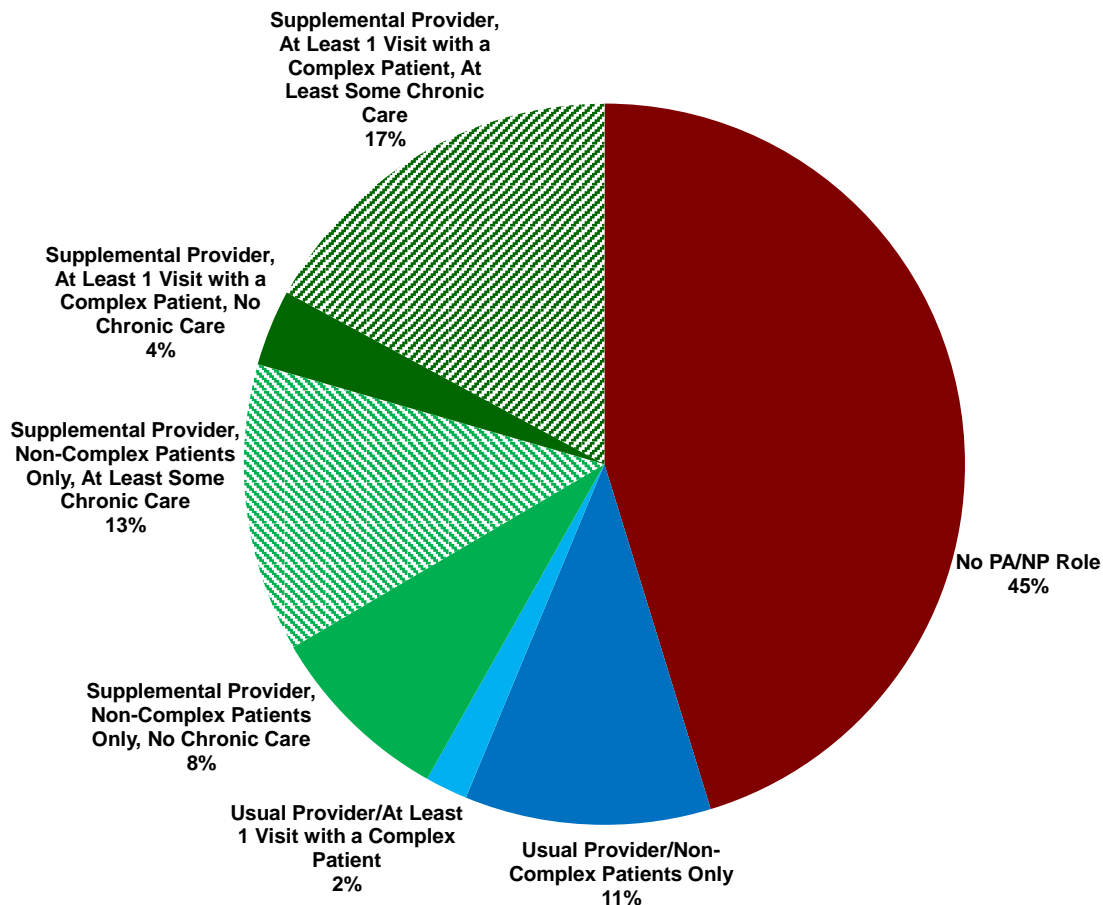
Objective:

Propose a multi-dimensional characterization of the
roles of primary care PA/NPs on panels of patients
with diabetes

Results

Characterizing PA/NP Roles

Exhibit 2: PA/NP Roles on Panels with Medicare Patients with Diabetes
(N=263)



AND PA/NPs performed a mean of 3 roles within a clinic (SD=1.8; range 1-6)

Study 3: PA/NP roles on primary care panels and the quality of diabetes care provided to older patients

Objective:

Compare the effectiveness of different primary care PA/NP roles

Analytic Approach

- Patient-level analyses (N=2603)
- PA/NP Role \longrightarrow ≥ 2 HbA1c Tests
 - Logistic Regression (clustering on clinic)
- PA/NP Role \longrightarrow Mean HbA1c
 - Multinomial Logistic Regression (clustering on clinic)
 - <7 (Reference), $7-9$ and >9
 - Complete case analysis with reweighting
- PA/NP Role \longrightarrow # ED Visits/# Hospitalizations
 - Negative Binomial Model (clustering on clinic)
- Control Variables
 - Panel
 - Usual Provider Specialty
 - # Patients on Panel
 - % Female
 - Patient
 - Sociodemographic
 - Clinical
 - Utilization

Results

PA/NP roles are associated with different quality of diabetes care and health service utilization patterns and no single role was best for all outcomes

Primary Care PA/NP Role			Outcome Measure			
PA/NP Level of Involvement	Complex Patients	Chronic Care	≥2 A1c Tests	Glycemic Control	# ED Visits	# Hospital Visits
Supplemental	No	Yes	+			
Supplemental	No	No		+	+	
Supplemental	Yes	Yes		+		-
Supplemental	Yes	No		-		
Usual Provider	Yes/No	NA			-	

+ = Better outcome than physician-only care

- = Worse outcome than physician-only care

Finding reflect $p \leq 0.05$

Summary

- Patient care is distributed between primary care providers- i.e, we work in teams
- Primary care PA/NP perform multiple roles (simultaneously)
- “Best” PA/NP role depends on patient population and goals
 - Supplemental PA/NPs providing care to less complex patients = better diabetes outcomes and ED utilization
 - Supplemental PA/NPs providing care to most complex patients = mixed outcomes (caution warranted)
 - PA/NP usual providers = equivalent diabetes outcomes but increased ED utilization

Study Limitations

- Patient population from a single institution that lacked diversity of race/ethnicity and SES
- Small number of patients on each panel
- Relatively small sample of patients that experienced PA/NPs in some roles
- PA/NP role was determined using outpatient visit data and may not reflect full range of care
- Misspecified variables and/or unobserved confounding

Strengths

- Theory based conceptualization of PA/NP roles
- Patients were attributed to providers rather than clinic
- First study to compare multiple roles
- Relatively large number of clinics and providers
- Linkage of Medicare and EHR data

Implications

- Primary Care Redesign
 - Teams work!
 - Multiple possibilities exist for PA/NP roles on primary care teams
 - Potential for greater improvements in outcomes if PA/NP roles are designed with larger organizational goals in mind including needs of patient population being served
- Workforce Policy
 - Estimating number of providers needed

Current Study

Impact of Primary Care Clinician
Interdependence and Coordination on
Quality of care Delivered to Complex
Older Patients

NIA-Funded K01

Background

- Previous comparative effectiveness study suggests a variety of primary care PA&NP roles are effective, *however*
- PAs&NPs performing supplemental roles for older patients with multiple chronic illnesses resulted in the least optimal patient outcomes
- Suboptimal outcomes may be due to how PAs, NPs and physicians interact
- Key features of interaction are
 - Interdependence- providing care to common patients
 - Coordination- managing interdependence

Objective

Determine if PA, NP and physician interaction on teams impacts outcomes for complex older patients with diabetes

Teams

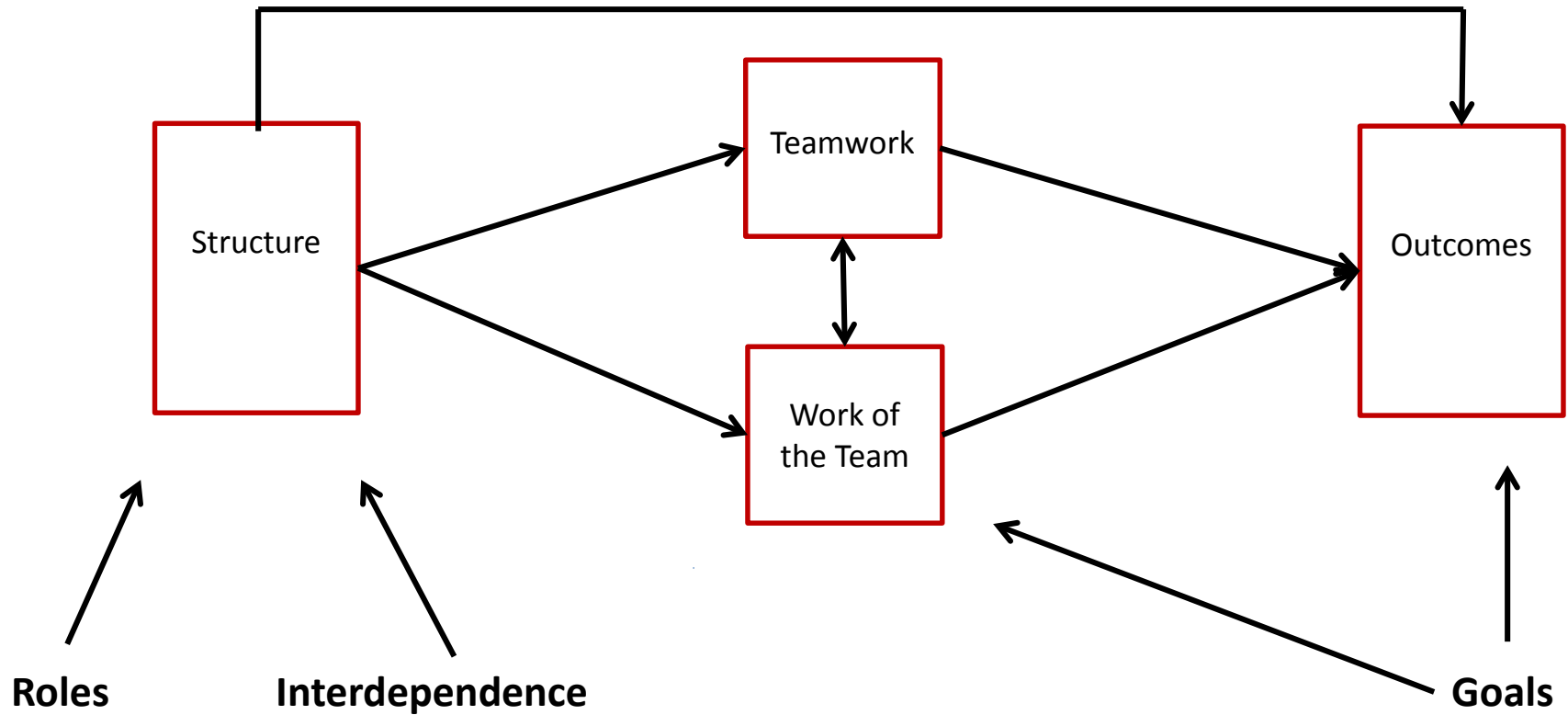
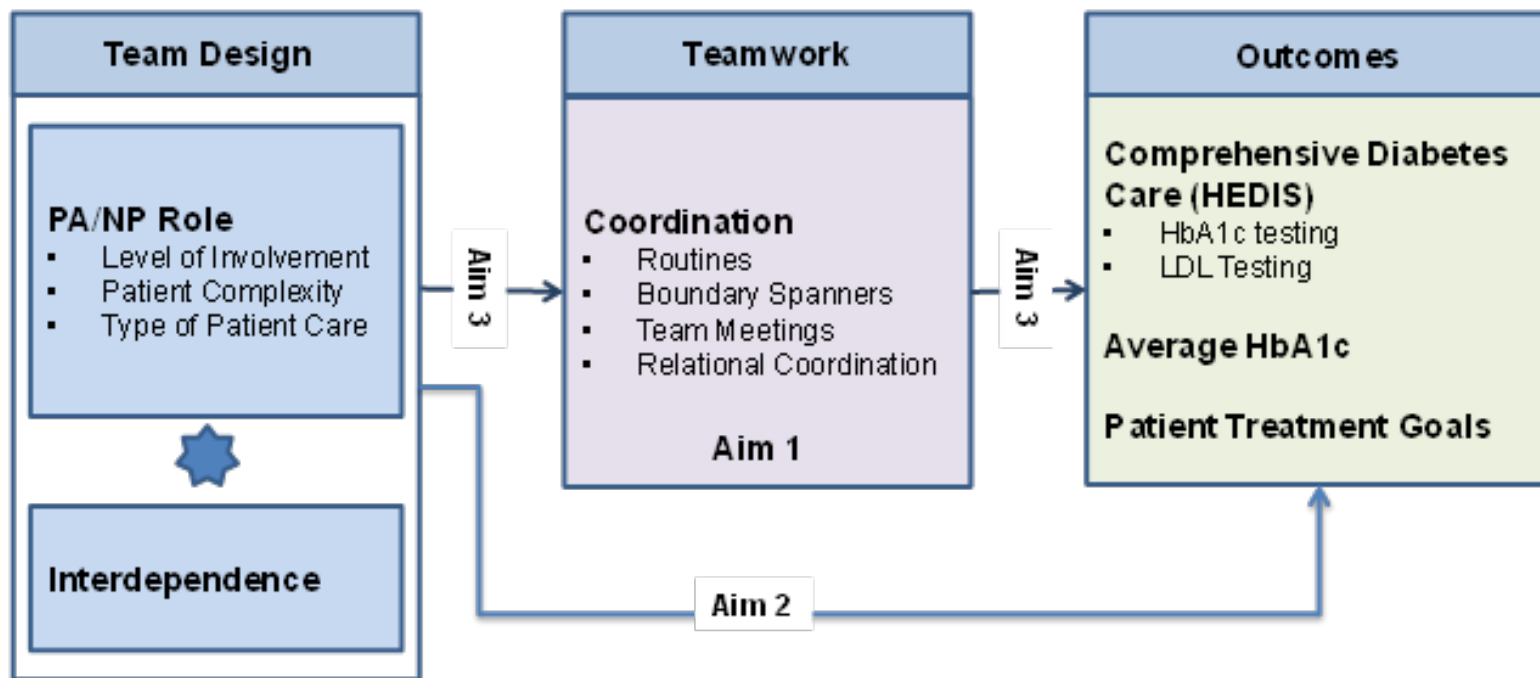


Figure 3: Conceptual Model

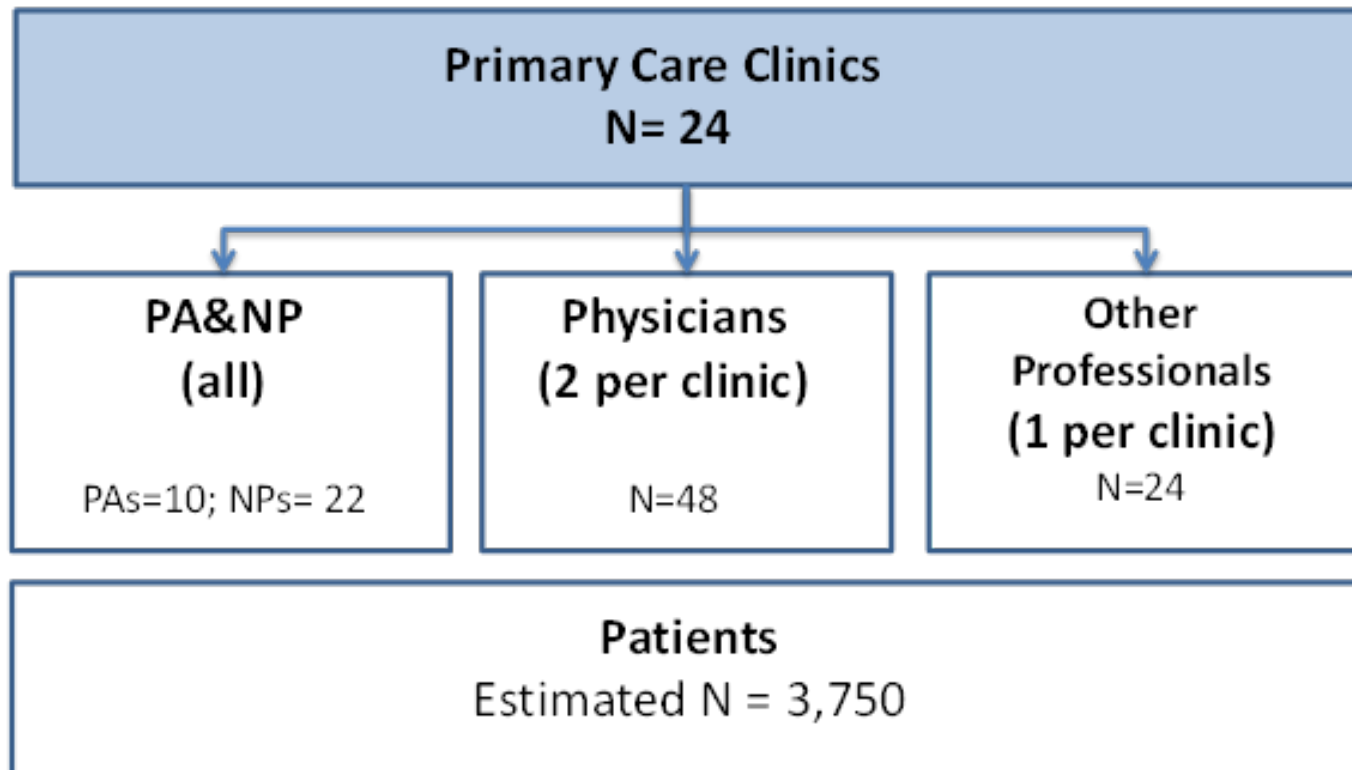


Mixed Methods Study

- **Aim 1: Describe the methods of coordination utilized between PA&NPs and physicians on primary care teams.** To achieve this aim, we will survey and interview professionals at each of the 24 primary care clinics. Qualitative content analysis will be used to analyze interview data.
- **Aim 2: Evaluate the relationship between the PA&NP role, interdependence of PA&NPs and physicians on primary care teams and outcomes (glycemic and lipid control as well as patient treatment goals) for older patients with diabetes.** Building on previous work, we will utilize data from the electronic health record of 24 primary care clinics to measure PA&NP role, level of clinician interdependence and patient outcomes. Patient-level multivariable regression analysis will be performed.
- **Aim 3: Determine if methods of coordination mediate the relationship between PA&NP role, interdependence and outcomes for older patients with diabetes.** Qualitative data from Aim 1 will be combined with quantitative data from Aim 2 and patient-level mediation analysis will be performed.

Sampling Design

Figure 5: Sampling Design



Data Sources and Measures

Table 4: Data Collection and Measures

Construct	Data Source	Measurement Level	Measures	Aim
<i>PANP Role</i>	EHR	Patient Panel	Level of involvement ^{3,4} Complexity of patients ^{3,4} Clinical services provided ^{3,4}	2,3
<i>Interdependence</i>	EHR	Patient Panel	Patient sharing between primary care clinicians in the same clinic ³	2,3
<i>Coordination</i>				
Routines	Interview	Clinic	Intensity of use of routines	1,3
Boundry spanners	Interview	Clinic	Utilization of boundry spanners	
Team meetings	Survey	Clinic	Participation and intensity of team meetings	
Relational Coordination	Interview/Survey	Clinic	Weighted relational coordination measure ⁴⁴	1,3
<i>Quality outcomes</i>	EHR	Patient	Receipt of HbA1c tests Receipt of LDL testing/screening Mean HbA1c (categorical and binary) Composit: # of quality services received Patient treatment goals	2,3
<i>Control variables</i>	EHR	Patient	Sociodemographics, insurance status, comorbidities, and healthcare utilization ³	2,3
	Interview	Provider	Team design variables (membership, roles, etc)	1,2,3
	Administrative Summary Data	Clinic	Number of clinicians and staff, geographic location	1,2,3

Implications/Next Steps

- Results will inform primary care team design and processes
- Development of team intervention to be tested in an implementation study

Thoughts/Questions?

References

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Evaluation

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