Multiple Team Membership and Primary Care Unit Performance

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VA HEALTH CARE Defining EXCELLENCE in the 21st Century

POLL QUESTION

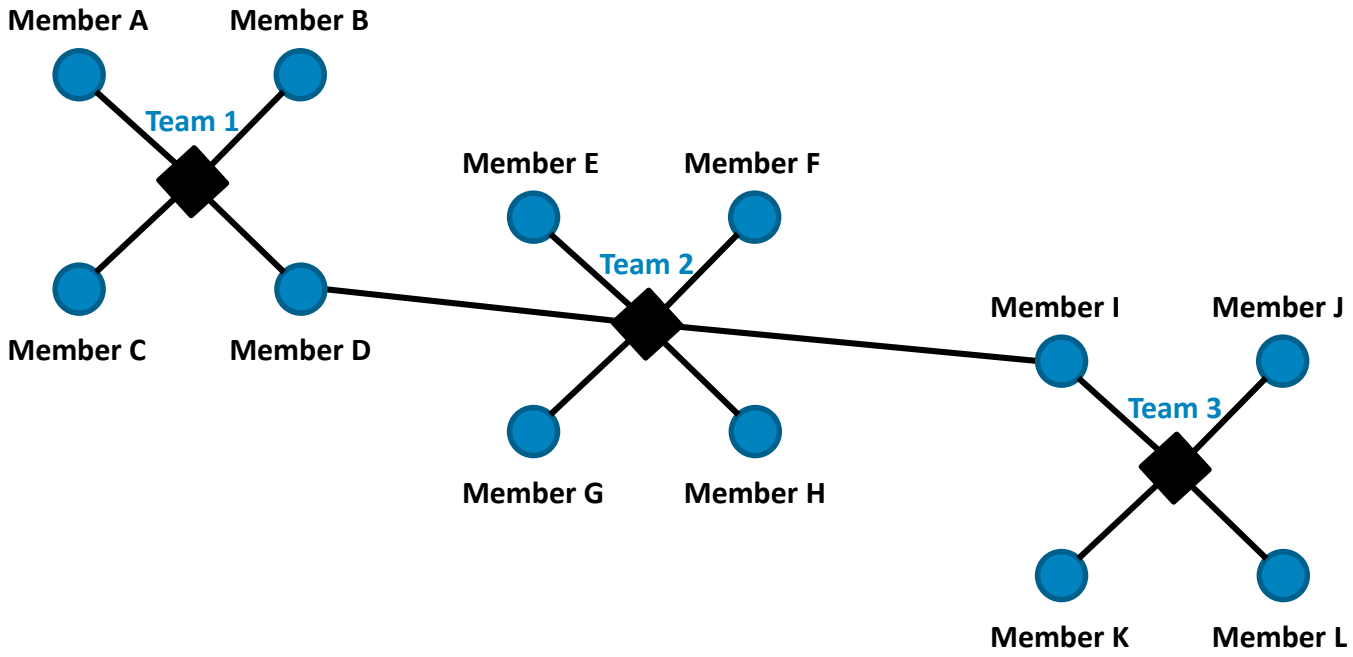
- What is your role in PACT?

Who is on what team?

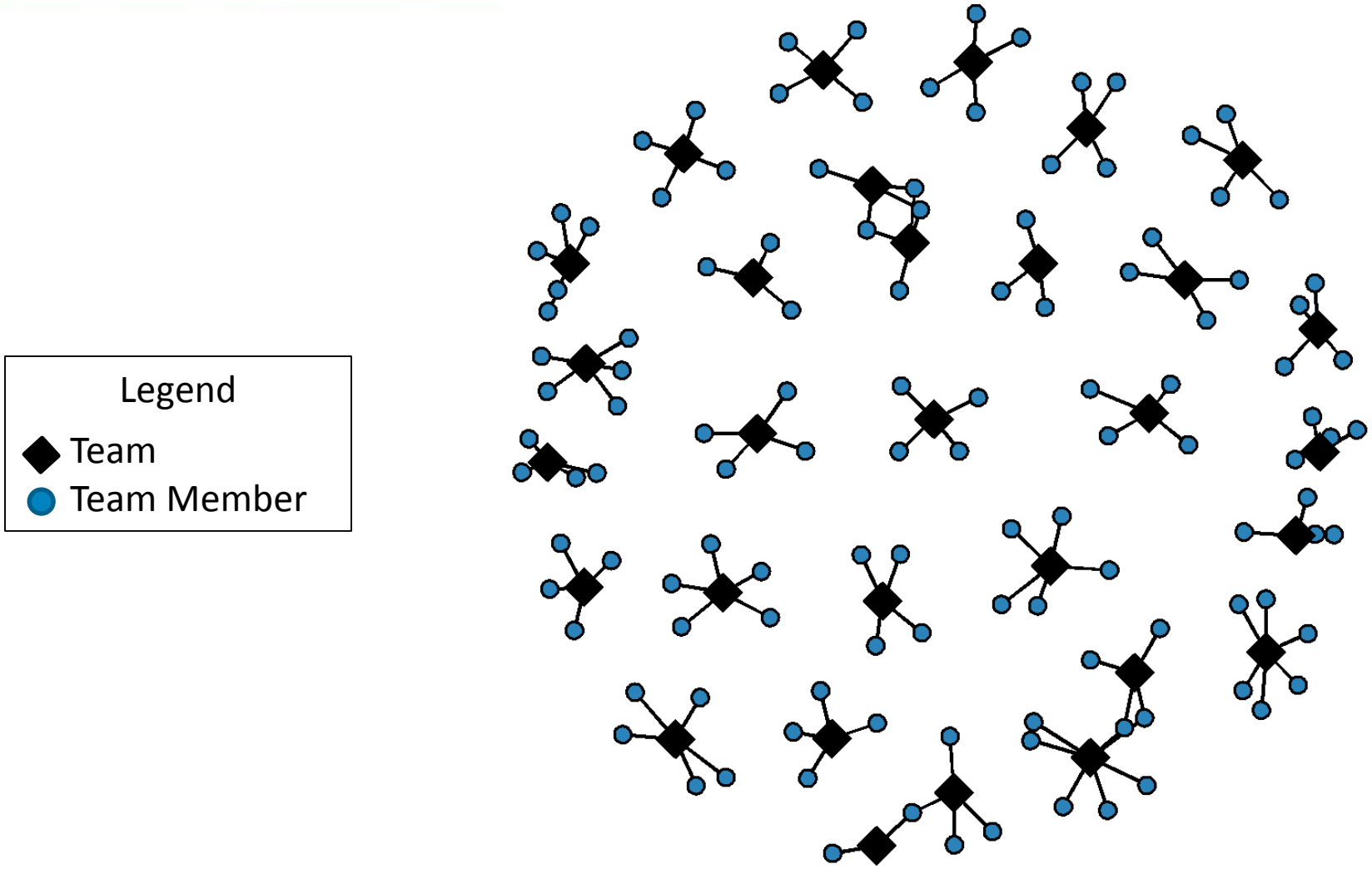
	A	B	C	D	E	F
1	Sta3n	Sta6a	Team	StaffName	StandardPosition	
2	555	555AF	STC 555 Team #1 NP2	WALTERS, BARBARA J	NURSE (RN)	
3	555	555AF	STC 555 Team #1 NP2	RICHARDS, KEITH L	MAS CLERK	
4	555	555AF	STC 555 Team #1 NP2	LOPEZ, JENNIFER B	NURSE (LPN)	
5	555	555AF	STC 555 Team #1 NP2	CRAWFORD, EEAN R	NURSE PRACTITIONER	
6	555	555AF	STC 555 Team #1 *WH* NP2	WALTERS, BARBARA J	NURSE (RN)	
7	555	555AF	STC 555 Team #1 *WH* NP2	STEWART, MARTHA M	MAS CLERK	
8	555	555AF	STC 555 Team #1 *WH* NP2	LOPEZ, JENNIFER B	NURSE (LPN)	
9	555	555AF	STC 555 Team #1 *WH* NP2	CRAWFORD, EEAN R	NURSE PRACTITIONER	
10	555	555AF	STC 555 Team #2 PA1	STEWART, GREG L	PHYSICIAN ASSISTANT	
11	555	555AF	STC 555 Team #2 PA1	REEVES, CODY J	MAS CLERK	
12	555	555AF	STC 555 Team #2 PA1	ASTROVE, STACY L	NURSE (LPN)	
13	555	555AF	STC 555 Team #2 PA1	QUIJOTE, DON J	MAS CLERK	
14	555	555AF	STC 555 Team #2 PA1	DAVIDSON, HARLEY F	NURSE (RN)	
15	555	555AF	STC 555 Team #2 PA1	CRONKITE, WALTER V	NURSE (RN)	
16	555	555AF	STC 555 Team #3 MD1	ACOSTA, JIM B	PHYSICIAN PROVIDER	
17	555	555AF	STC 555 Team #3 MD1	LOPEZ, JENNIFER B	NURSE (LPN)	
18	555	555AF	STC 555 Team #3 MD1	CRICKETT, JIMINY E	MAS CLERK	
19	555	555AF	STC 555 Team #3 MD1	GOPHUR, STEPHANIE P	NURSE (RN)	
20	555	555AF	STC 555 Team #3 MD1	FREDSBURG, CATHERINE T	NURSE (LPN)	
21	555	555AF	STC 555 Team #3 MD1	MATTHEWS, HARLAN C	MAS CLERK	

Visualization of Team Memberships

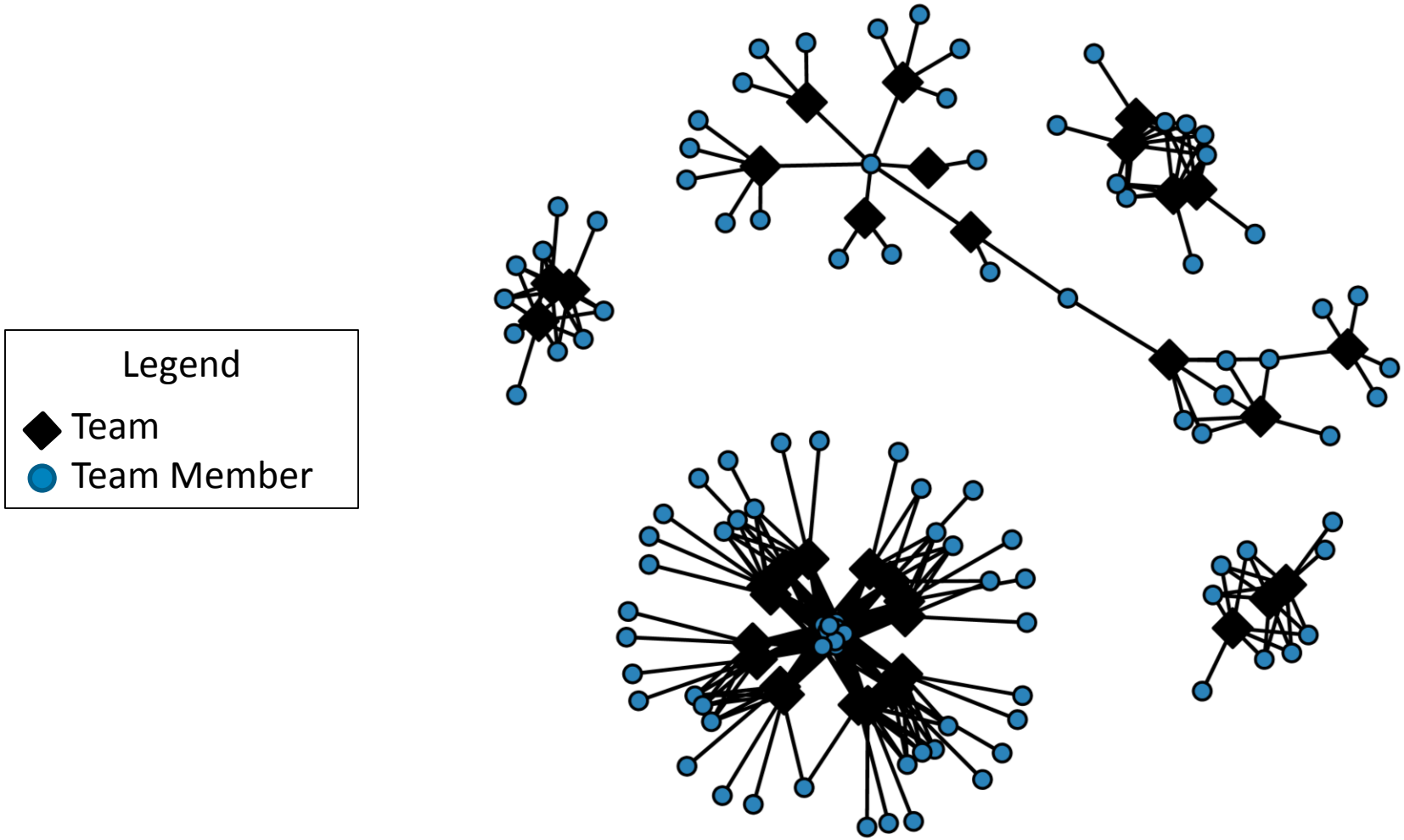
- Bi-partite member-team networks



Visualization of Team Memberships



Visualization of Team Memberships



Setting

- 849 VHA primary care facilities (divisions - Sta6a)
  - 5,000+ teams
  - 26,000+ team members
  - 4.2 million patients

Measures

- Primary Care Unit Performance (Compass, Sep 2013)
  - Emergency department visits in last 12 months (*M* = 1,749, *SD* = 3,217.52)
  - Higher is worse
- Team memberships (PCMM, Sep 2013)
  - Average number of team memberships per person (*M* = 1.44, *SD* = .74)
- Patient case complexity (Compass, 2013)
  - Diagnostic cost group average for facility (*M* = 0.58, *SD* = .21)
- Covariates
  - Number of patients (*M* = 4,890.23, *SD* = 5,208.45)
  - Staff-to-provider ratio (*M* = 3.17, *SD* = 1.04)
  - Average team size (*M* = 4.02, *SD* = 1.27)
  - Urban/rural location (if Urban = 1, else = 0; *M* = 0.56, *SD* = .50)

Analysis

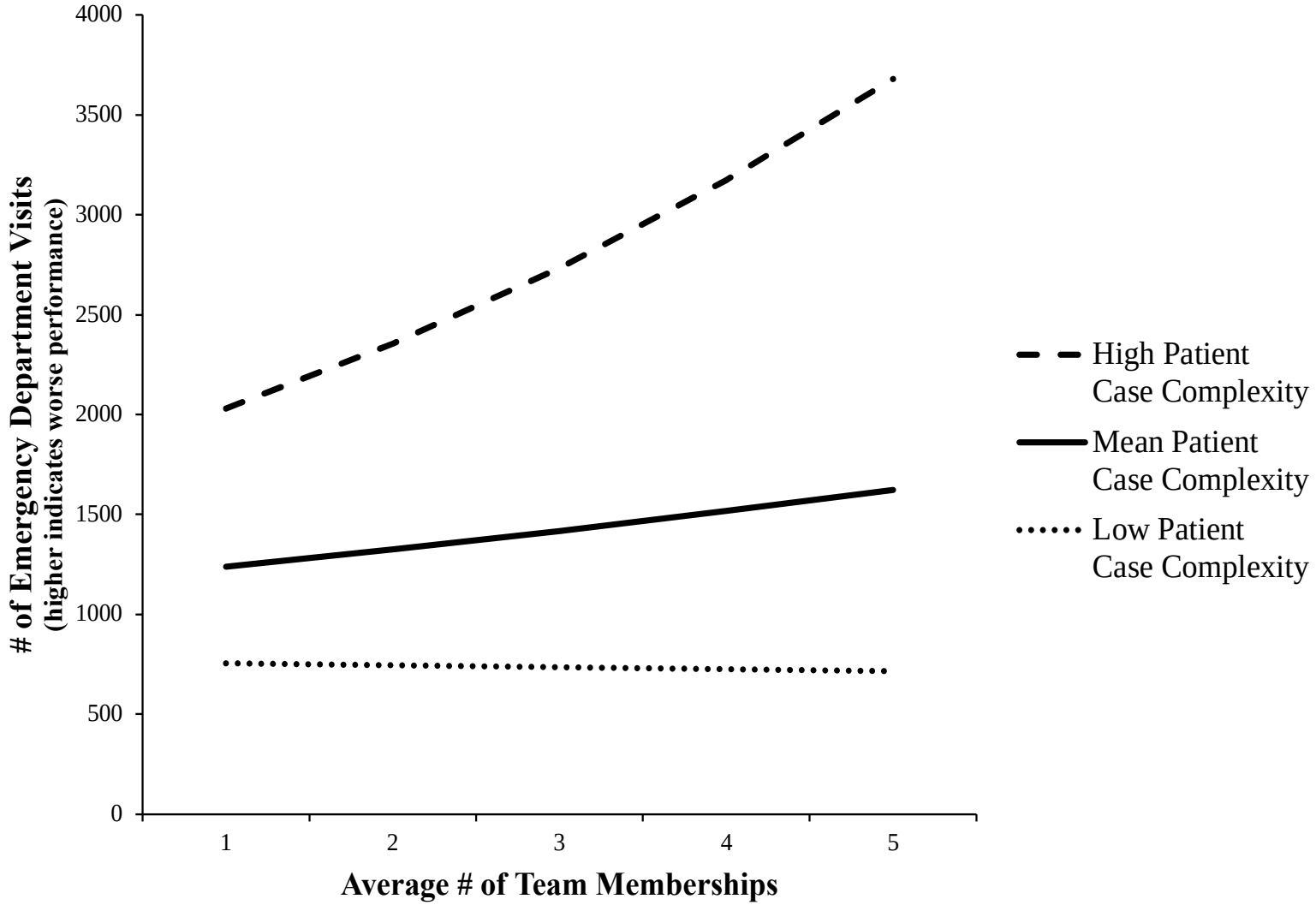
- Negative binomial regression
  - Account for overdisperson in emergency department visit count data
- Exposure offset
  - Adjust for differing sizes of patient populations per primary care unit

Results

	Number of Emergency Department Visits		
Intercept	-1.45*	-1.45*	-1.45*
Staff-to-Provider Ratio	.06*	.07*	.07*
Average Team Size	-.03	-.05*	-.05*
Urban/Rural Location (if Urban = 1, else = 0)	.19*	.19*	.19*
Patient Case Complexity	.54*	.54*	.53*
Avg. No. Team Memberships		.04*	.05*
Memberships X Complexity			.06*
Model Fit			
2 x log-likelihood	-12,432.77	-12,428.45	-12,422.61
AIC	12,445.00	12,442.00	12,439.00

N = 849 organizations; *$p < .05$; all independent variables standardized.

Results


# of Emergency Department Visits
(higher indicates worse performance)
4000
3500
3000
2500
2000
1500
1000
500
0
1
2
3
4
5
Average # of Team Memberships
High Patient Case Complexity
Mean Patient Case Complexity
Low Patient Case Complexity

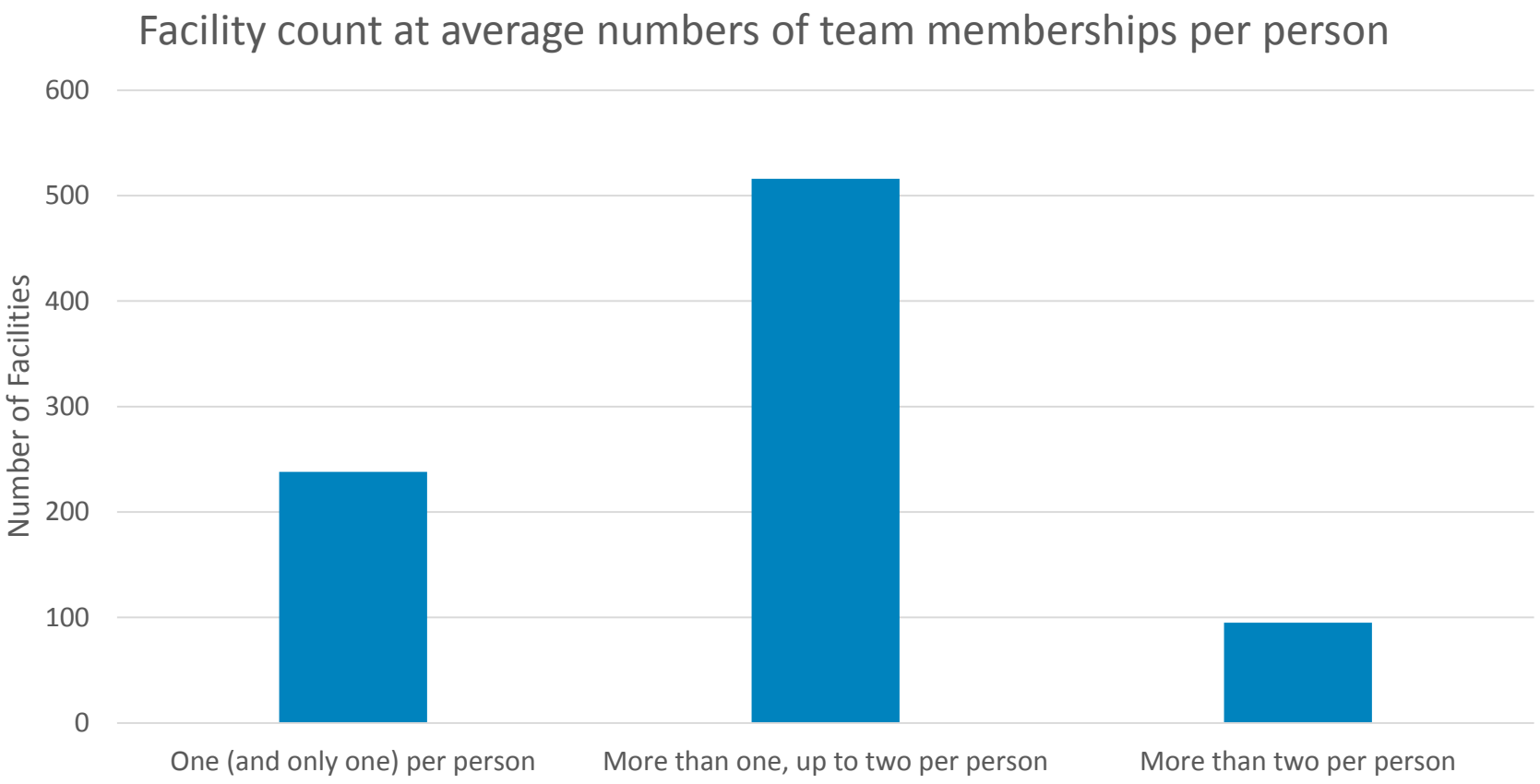
More care team memberships per person? Generally more ED visits per patient.

- High complexity facilities
  - Increase of 1 team membership per person ~ **16%** increase in patient ED visits
  - Increase of 2 team membership per person ~ **35%** increase in patient ED visits
  - Increase of 5 team membership per person ~ **81%** increase in patient ED visits
- Average complexity facilities
  - Increase of 1 team membership per person ~ **7%** increase in patient ED visits
  - Increase of 2 team membership per person ~ **14%** increase in patient ED visits
  - Increase of 5 team membership per person ~ **31%** increase in patient ED visits
- Low complexity facilities
  - Increase of 1 team membership per person ~ **1%** *decrease* in patient ED visits
  - Increase of 2 team membership per person ~ **3%** *decrease* in patient ED visits
  - Increase of 5 team membership per person ~ **5%** *decrease* in patient ED visits

Financial Impact

- Estimated Cost of an ED visit
  - $1,122 on average (CBO, 2014; Caldwell et al., 2013; Nugent et al., 2004)
- If all primary care units move to 1 team membership (from mean of 1.44)
  - 31,730 fewer ED visits
  - $35.6 million in savings
- If all primary care units move to 2 team memberships (from mean of 1.44)
  - 41,772 more ED visits
  - $46.9 million in costs

The majority of VHA facilities have core PACT members on more than one team.



How does multiple team membership affect unit performance?

Research from individual and team levels suggests:

BENEFITS

- Efficient work practices
- Greater time utilization
- Load balancing
- Access to more information
- Access to more resources

(Cummings & Haas, 2012; de Vries et al., 2014; Hansen, 1999; Kc & Terwiesch, 2009; O'Leary et al., 2011)

DRAWBACKS

- Fragmented attention
- Switching costs
- Lags and delays
- Reduced cohesion
- Ill-formed mental models

(Argote & Todorova, 2007; de Vries et al., 2004; Hansen, 1999; Lewis et al., 2005; Mortensen, 2014; O'Leary et al., 2011; Pluut et al., 2014; Staats et al., 2010; Wilson et al., 2007; Zika-Viktorsson et al., 2006)

Limitations

- Association, not causation
- That was then, what about now?
- Can’t examine mechanisms
- Other factors we haven’t accounted for
- Unit performance beyond ED use

Thank You!

- Questions/Comments?

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