Implementing Audit and Feedback to Improve Coordination in Primary Care Teams

Sylvia J. Hysong, PhD

HSR&D Cyberseminar Series

June 19, 2019

IQuEST

Baylor College of Medicine

VA HEALTH CARE Defining EXCELLENCE in the 21st Century

Acknowledgements

- This research was funded by the U.S. Department of Veterans Affairs Health Services Research and Development Service, grant nos. CRE 12-035 and CIN 13-413.

- **Research Team:**
  - Sylvia J. Hysong, PhD, PI
  - Laura A. Petersen, MD, MPH,* Co-PI
  - Sallie J. Weaver, PhD, Co-I
  - Xinxuan (Alice) Che, PhD, Co-I
  - Amber Amspoker, PhD, statistician
  - Mark Kuebeler, MS, Programmer
  - Varsha Modi, research coordinator
  - Melissa Knox, RD, CREATE coordinator
  - Erica Svojse, MS, research staff
  - Charnetta Brown, MS, research staff

IQUEST

** Also PI of CIN 13-413, the IQuESt center grant.*

Overview

- Effective team coordination and its drivers
- Audit and feedback to improve coordination in primary care teams (*Hysong et al., 2015*)
- Methodological challenges in coordination and teams research

Poll Question #1

- What brought you to today's Cyberseminar?
  - Implementing PACT interventions
  - Learning about coordination
  - Doing research with healthcare teams
  - Are you kidding? I never miss a Cyberseminar!
  - Something else

Effective Team Coordination and its Drivers

IQUEST

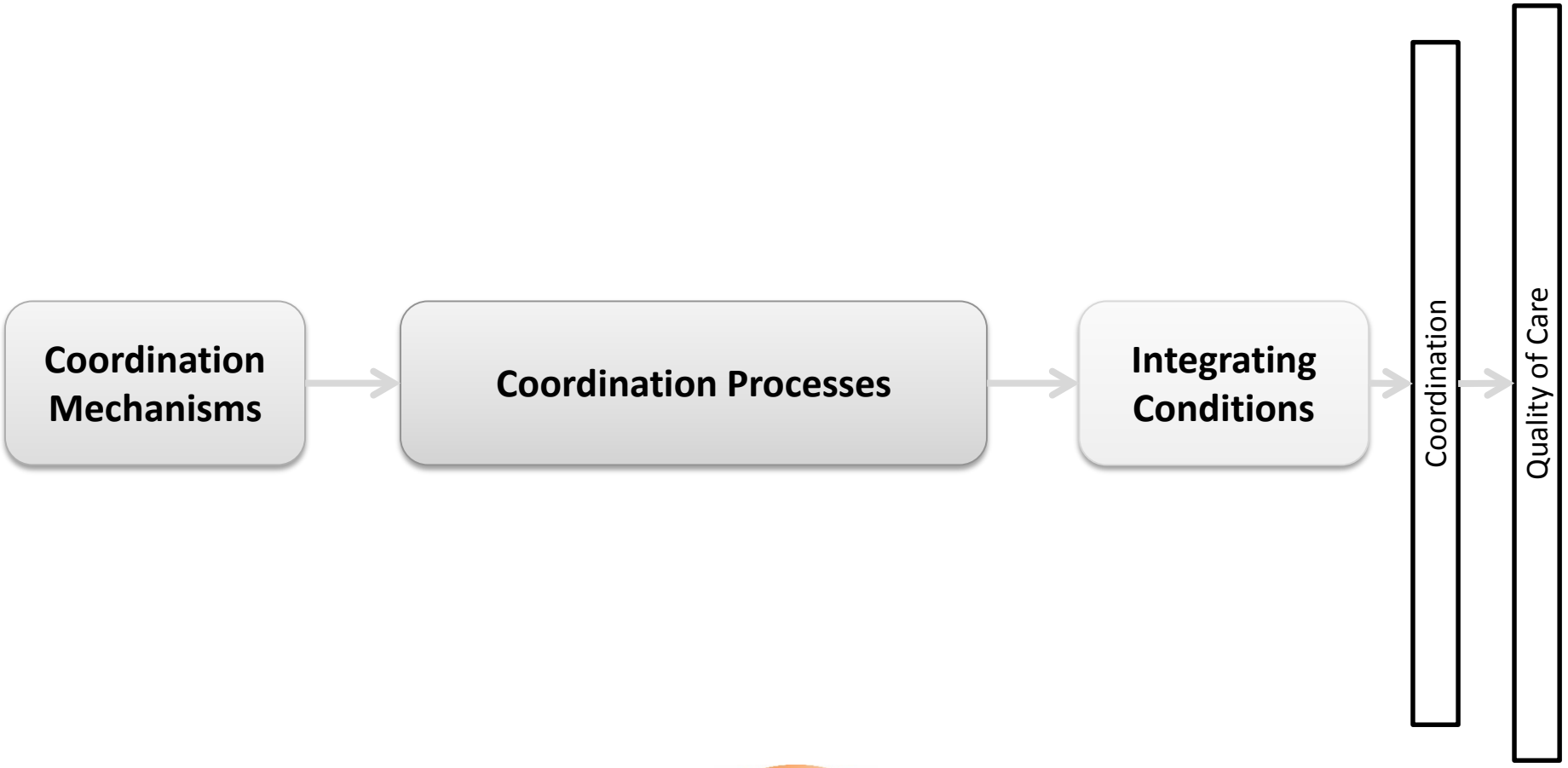
Team Coordination is Critical to Care Coordination

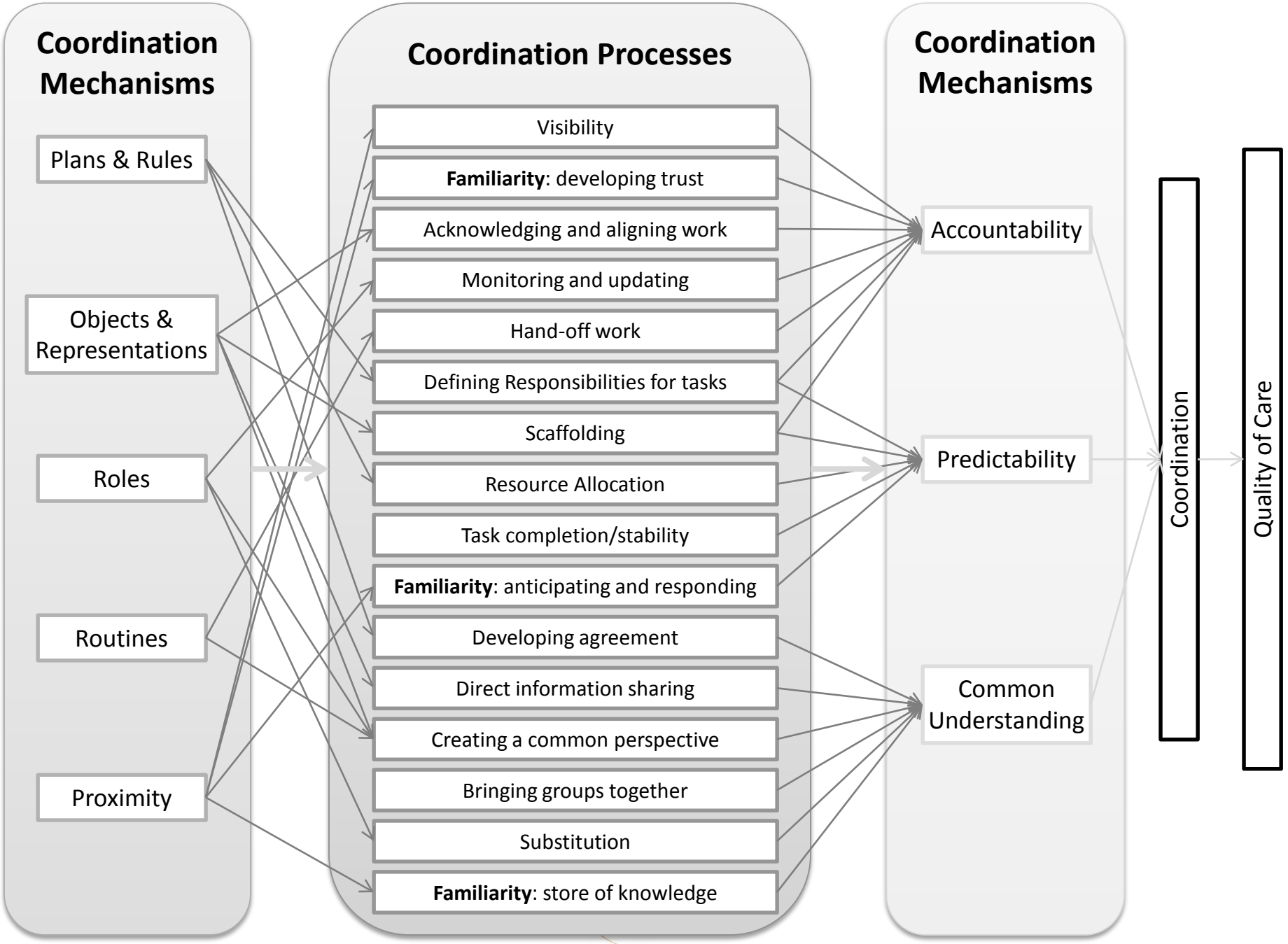
- Care coordination is *essential* for higher quality, more effective care
- In order to *coordinate care* well, teams must be able to *coordinate well as a team*.
- Effective team coordination has been shown to…
  - Reduce accident rates (Harris, Treanor & Salisbury, 2006)
  - Increase satisfaction (Pearsall & Ellis, 2006)
  - Save patient lives (Neily et al., 2010)

- **Problem:**
  - Confusion in PACTs over what it means to coordinate
  - Few available forward-looking measures of communication and coordination at point of care

IQUEST

Okhuysen & Bechky's (2009) Coordination Framework




Coordination Mechanisms
Plans & Rules
Objects & Representations
Roles
Routines
Proximity
Coordination Processes
Visibility
Familiarity: developing trust
Acknowledging and aligning work
Monitoring and updating
Hand-off work
Defining Responsibilities for tasks
Scaffolding
Resource Allocation
Task completion/stability
Familiarity: anticipating and responding
Developing agreement
Direct information sharing
Creating a common perspective
Bringing groups together
Substitution
Familiarity: store of knowledge
Coordination Mechanisms
Accountability
Predictability
Common Understanding
Coordination
Quality of Care

Coordination in Multi-Team Systems

	Context and Setting	Coordination Mechanisms (Inputs)	Emergent Integrating Conditions (Mediators)	Coordinating Actions	Outcomes
Within Teams	•Team Composition •Experience and History •Power Distribution •Resources	•Plans, rules, tools •Objects, representations, artifacts, and IS •Roles •Routines •Proximity	•Accountability •Predictability •Common Understanding •Trust	•Situation monitoring •Communication •Backup behavior	•Proximal Health Outcomes •Proximal Care costs •Satisfaction
Between Teams	•Multiteam system composition •Linkages between teams •Alignment of Organizational cultures / climates •Governance and payment structure	•Plans, rules, tools •Objects, representations, artifacts, and IS •Roles •Routines •Proximity	•Accountability •Predictability •Common Understanding •Trust	•Boundary spanning •Information exchange •Collective problem-solving and decision-making •Negotiation •Mutual adjustment	•Distal health outcomes for individual patients •Public health outcomes •Lifetime care costs and value •Satisfaction •Timeliness of care

IQUEST

Source: Weaver, Che, Petersen, & Hysong, 2018

Studying Care Coordination

Improving Coordination in Primary Care Teams: The PACT CREATE Project

Hysong *et al. Implementation Science* (2015) 10:145
DOI 10.1186/s13012-015-0335-9

IMPLEMENTATION SCIENCE

STUDY PROTOCOL Open Access

Study protocol: identifying and delivering point-of-care information to improve care coordination

Sylvia J. Hysong[1,2*], Xinxuan Che[4], Sallie J. Weaver[3] and Laura A. Petersen[1,2]

Abstract

Background: The need for deliberately coordinated care is noted by many national-level organizations. The Department of Veterans Affairs (VA) recently transitioned primary care clinics nationwide into Patient Aligned Care Teams (PACTs) to provide more accessible, coordinated, comprehensive, and patient-centered care. To better serve this purpose, PACTs must be able to successfully sequence and route interdependent tasks to appropriate team members while also maintaining collective situational awareness (coordination).

Although conceptual frameworks of care coordination exist, few explicitly articulate core behavioral markers of coordination or the related information needs of team members attempting to synchronize complex care processes across time for a shared patient population. Given this gap, we partnered with a group of frontline primary care personnel at ambulatory care sites to identify the specific information needs of PACT members that will enable them to coordinate their efforts to provide effective, coordinated care. The study has three objectives: (1) development of measurable, prioritized point-of-care criteria for effective PACT coordination; (2) identifying the specific information needed at the point of care to optimize coordination; and (3) assessing the effect of adopting the aforementioned coordination standards on PACT clinicians' coordination behaviors.

IQuEST

Current Challenges in Audit and Feedback

- Performance measure proliferation
- Feedback systems not grounded in theory
- Little time for reflection and self-correction
- Despite shift toward team-based care, most performance measures not designed with teams in mind.

Project Aims

1. Develop measurable criteria for effective coordination in PACTs, prioritized and weighted by contribution to overall quality of care.
2. Assess the effect of adopting the aforementioned coordination criteria and feedback on PACT clinicians' coordination behaviors.

IQUEST

Methods Overview

57 Team Members

34 Teams

4 Health Care Facilities

- **Design**: 7-month case-control trial comparing 34 primary care teams selected from four VA healthcare facilities to 34 matched administrative control teams.
- **Intervention:** Monthly audit and feedback reports about key coordination behaviors combined with structured, facilitated team debriefings

- **Outcome Measures:** appointments starting on time, timely recall scheduling, ER utilization, electronic patient portal utilization, patient education, clinical reminders, patient satisfaction and overall coordination.
- **Predictors:** time, study condition (control vs. experimental), amount of exposure to intervention, and extent of assignment to multiple teams

IQUEST

Aim 1

DEVELOPING MEASURABLE COORDINATION CRITERIA

The Productivity Measurement and Enhancement System (ProMES)

- Methodology from industrial/organizational psychology (Pritchard, Weaver & Ashwood, 2011)
  - Structured focus group approach to develop focused performance metrics
  - Periodic and adaptive feedback of current and historical performance on developed metrics
- Based on motivational theory (Naylord, Pritchard, & Ilgen, 1980)
- Addresses integrating conditions of team-based coordination: common understanding, predictability, and accountability
- Has been shown to successfully improve performance in health care settings (*d* =.78) (Pritchard et al. 2009)

IQUEST

Overview of the ProMES Process

1. Design and Advisory Teams
2. Objectives
3. Indicators
4. Contingencies
5. Feedback Reports
6. Feedback Meetings
7. Periodically Review Systems

IQUEST

Coordination Objectives and Indicators

Obj. 1 - Support and foster veteran engagement in their wellness by being patient-centered

- Rate at which recall reminders are completed within 7-day window of the desired date
- Percent of current PACT patients using ER for primary care issues
- Percent of patients enrolled in secure messaging
- Utilization rate for patient education offerings

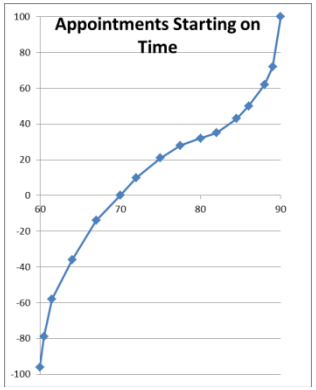
Obj. 2 - Ensure Quality and Efficient Care is Provided to the Veteran

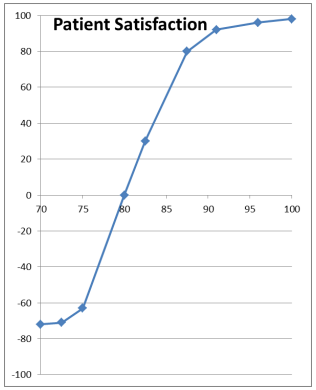
- Percent of appointments starting on time
- Average overall patient satisfaction score
- Percent of “Due Now“ clinical reminders completed on time

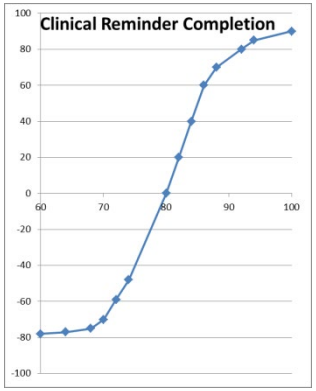
IQUEST

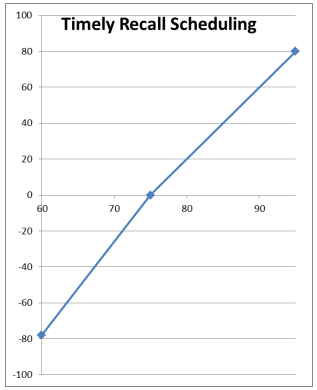
Focusing on the right priorities

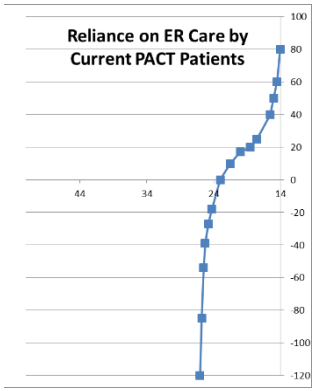
Steeper slope and higher maximum effectiveness score indicate the top priorities

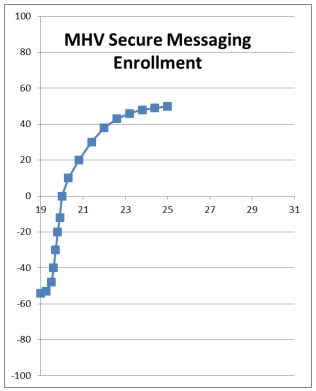


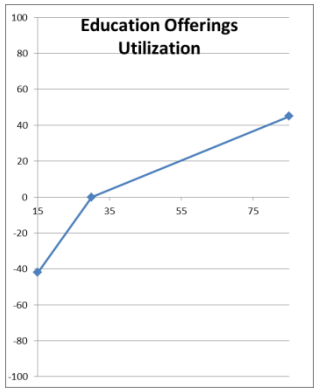












Aim 2

AUDIT AND FEEDBACK TO IMPROVE COORDINATION

Methods

- **Participants**: 68 primary care teams at four VA outpatient healthcare facilities (34 in experimental group, 34 administrative controls)
- **Primary outcome measure**: Performance on coordination indicators created by design team
- **Procedure**: experimental group teams received monthly feedback reports of coordination indicators, followed by monthly 15-20 minute structured debriefs; control groups followed passively.
- **Data analysis**: Growth curve modeling

IQUEST

Theory and Evidence-Based Design of Audit and Feedback Interventions

- Followed best practices on audit and feedback intervention design based on Feedback Intervention Theory (Kluger & DeNisi, 1996)
- Consistent with current advances in theory and evidence of feedback design

Goal Setting

Nature of Task & Available Data

Feedback Display

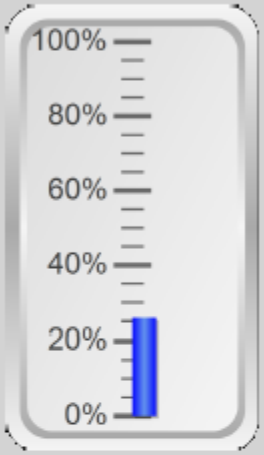
Feedback Delivery

IQUEST

PACT Coordination Console

PACT UG 01*WH*
September, 2015

Bird's Eye View



Coordination overall this period: 26%

Help Me Improve

- Ideas from last Meeting
- Ideas for Next Period
- Coordination Resources

Show Me More

- Overview for this Period
- Indicator Detail
- History
- Priorities for Next Period

How Are We Doing?

Reliance on ER Care by Current PACT Patients

Appointments Starting on Time

Education Offerings Utilization

New Patient Orientation Utilization

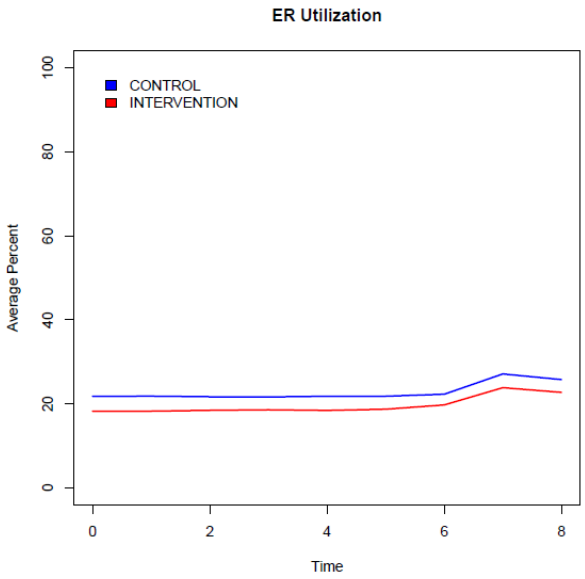
PACT Coordination Debriefs

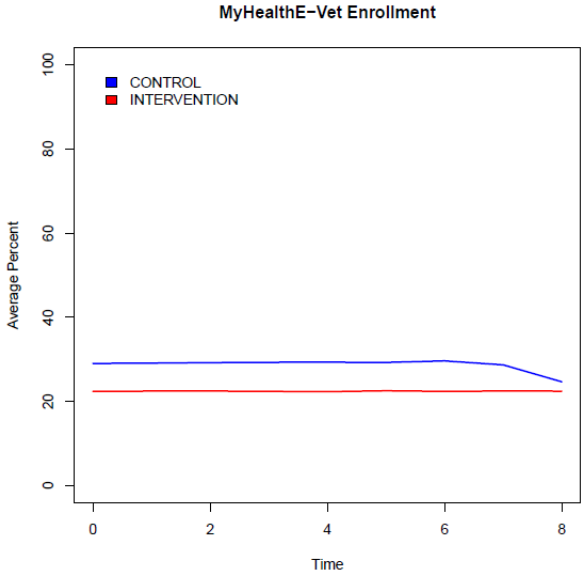
1. What 1-2 things can we commit to START doing over the next month?	Responsible Party	Responsible Party:
2. What 2 things can we commit to STOP doing over the next month?	Responsible Party:	Responsible Party:
3. What 2 things can we commit to CONTINUE doing over the next month?	Responsible Party:	Responsible Party:

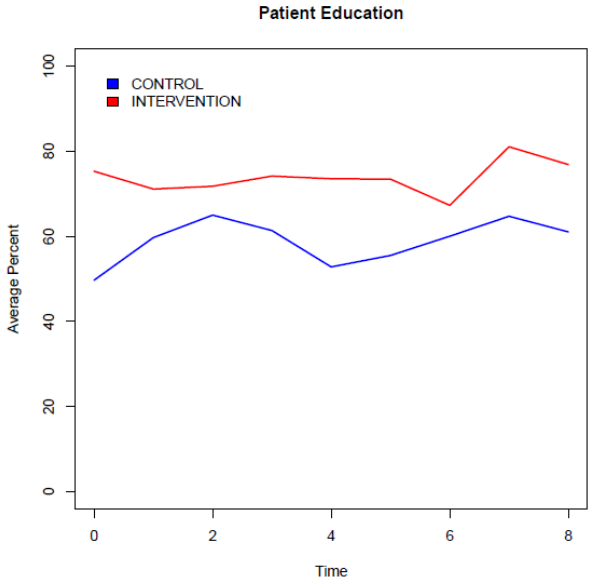
Huddle Date & Time:_____ Team ID:_____ Facilitator name:_____

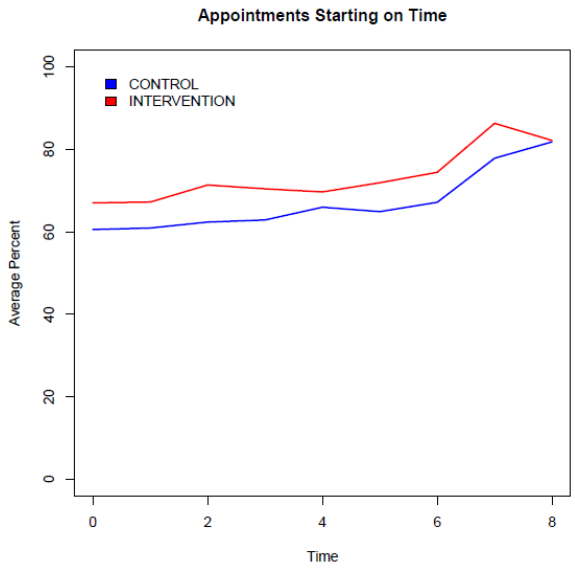
IQUEST

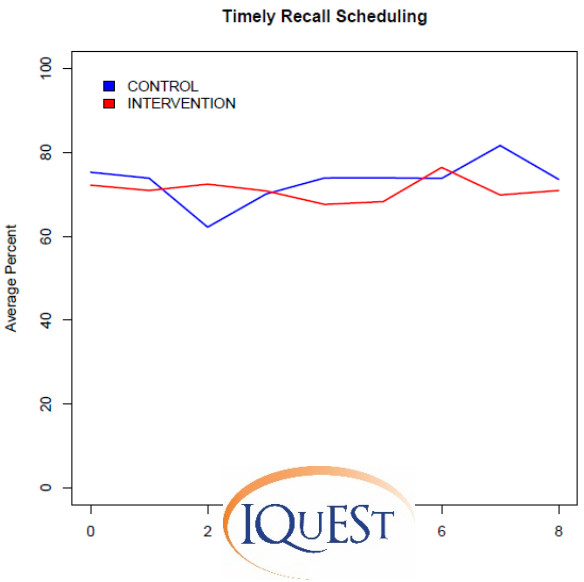
Results…

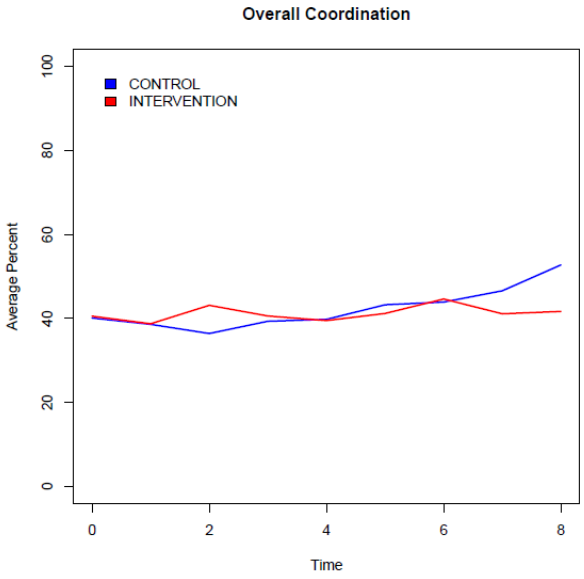

ER Utilization
CONTROL
INTERVENTION
Average Percent
Time


MyHealthE-Vet Enrollment
CONTROL
INTERVENTION
Average Percent
Time


Patient Education
CONTROL
INTERVENTION
Average Percent
Time


Appointments Starting on Time
CONTROL
INTERVENTION
Average Percent
Time


Timely Recall Scheduling
CONTROL
INTERVENTION
Average Percent


Overall Coordination
CONTROL
INTERVENTION
Average Percent
Time

A Matter of Degree

- **"Degree" of Intervention**
  - Great variability across PACTs in number of facilitations attended (i.e. 1-7)
  - 50% of PACTs in intervention group attended 3 or fewer facilitations
  - ProMES recommends a minimum of 12 "doses" before improvement is observed
- **Degree as a configural property of PACTs**
  - Degree: the number of PACTs to which a member of a given PACT is assigned
  - Average PACT degree:
    - Intervention: 5.20 (1.24)
    - Control: 4.16 (0.58)
  - Yet some PACTs did not perform as their degree might predict… why?

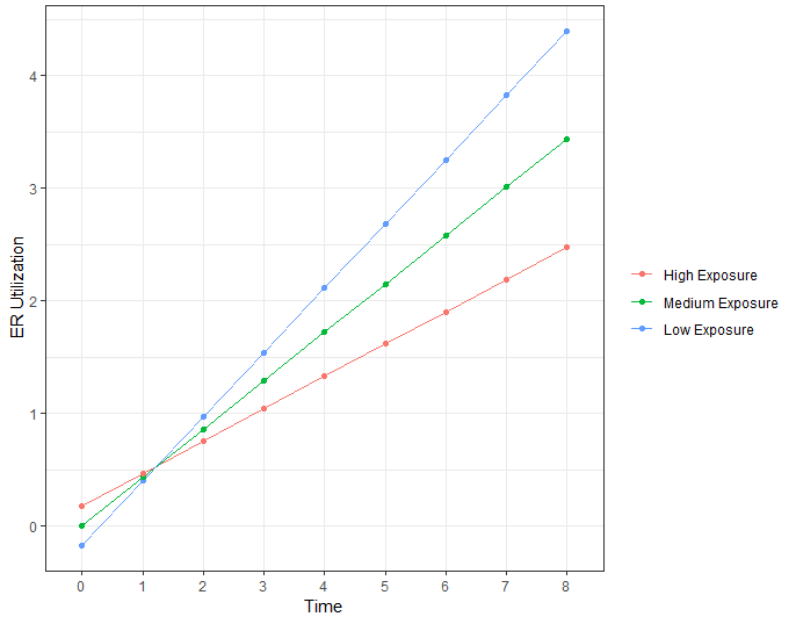
Subgroup analyses of intervention sites

Predictor/Moderator	Outcome	b (SE)	p
Predictor #1: Total Exposure			
Total Exposure	ER Utilization	0.11 (0.06)	0.09
Time	ER Utilization	0.43 (0.10)	<0.0001
Total Exposure x Time	ER Utilization	-.09(0.03)	0.002
Total Exposure	Clinical Reminders	-0.16 (0.10)	0.11
Time	Clinical Reminders	-0.14 (0.18)	0.46
Total Exposure x Time	Clinical Reminders	.14(.0.06)	0.01
Predictor #2: Rate of Exposure			
Exposure Rate	Coordination Composite	0.00 (0.00)	0.8
Time	Coordination Composite	-0.01 (0.01)	0.17
Exposure Rate x Time	Coordination Composite	0.01 (0.00)	0.016
Predictor #4: Multiple team membership			
Multiple Team Membership	My Health E Vet	-0.05 (0.05)	0.39
Time	My Health E Vet	-0.64 (0.12)	<0.0001
Multiple team membership x Time	My Health E Vet	0.13 (0.02)	<0.0001

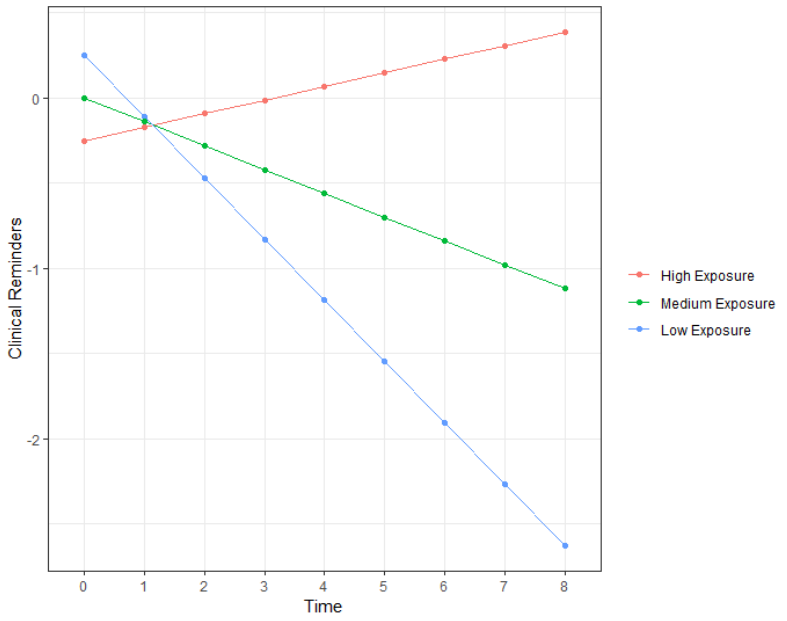
IQUEST

Groups improved on key outcomes, given sufficient exposure to the intervention

ER Utilization



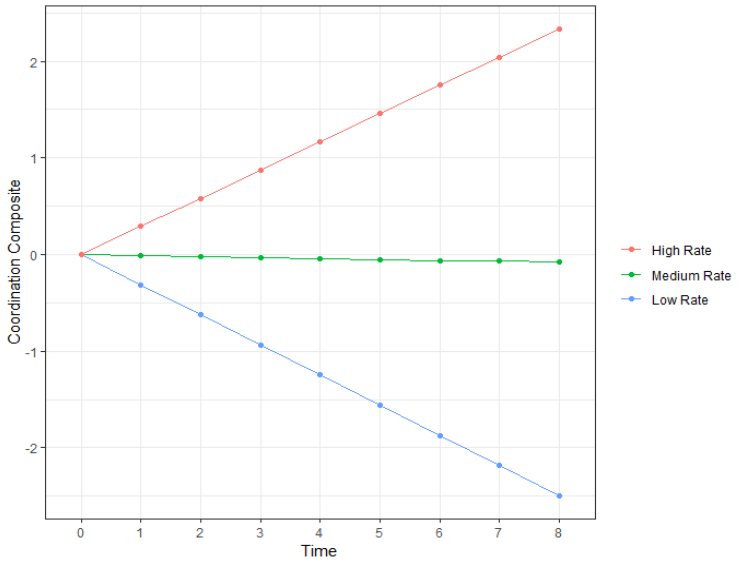
Clinical Reminders



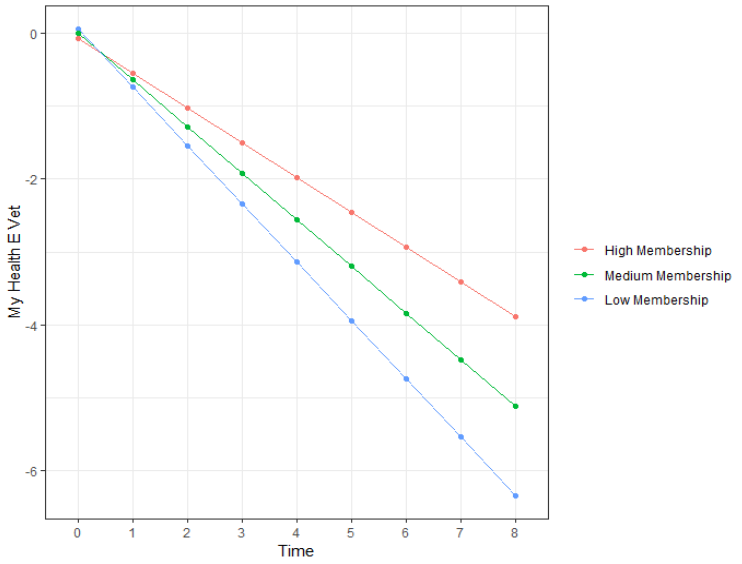
IQUEST

Multiple team membership was detrimental to improvement

Coordination Composite



My Health-E Vet Utilization



Poll Question #2

- When researching or implementing interventions in teams, what is your biggest barrier?
  - Onboarding enough participants
  - Keeping participants engaged
  - Losing people along the way
  - Maintaining the intervention (sustainability)
  - Something else

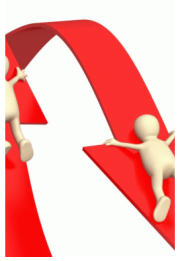
Methodological Challenges in Coordination and Teams Research

Team Recruitment

- Recruiting enough of the team
- Recruiting the right subset of the team

Team Attrition

- Losing the entire team
- How much of the team do you need to lose?



Team Member Turnover

- Losing members altogether
- Replacing members
- Members moving to another team

Intervention Dose Strength

- Dosing enough of the team
- Dosing consistency over time

Measurement of Coordination Constructs

- Gaps in measure availability
- Quality of available measures

Other Challenges

- Coercion potential
- Confounding potential

IQUEST

Challenges and Solutions

Challenge	Solution
Recruitment	• Inclusion criteria: at least 2 members, each from a different role
Attrition	• Adapted delivery of intervention to fit into clinic workflow • Continued contact with participants • Attendance tracking
Dosing	• Adapted delivery of intervention to fit into clinic workflow • Included attendance as covariate in analyses
Multi-team Membership	• Delivered intervention at the clinic, rather than team level • Included average degree as covariate in analyses

IQUEST

Lessons from the Field

Disconnect between design team and debriefing PACTs

- DT concerned with time commitment of debriefing phase, thus did not participate
- Debriefing PACTs not involved in development, thus:
  - Difficult to understand indicator relationships to coordination
  - Desire for PACTs to select their own indicators

Lack of expertise and/ or time to generate feedback reports

- 5 of 7 indicators not available in current VSSC or similar reports
- Generating the CREATE to Coordinate feedback report requires SAS and SQL-level programming skill
- Sites lacked the personnel with the requisite skill set and time availability for generating feedback report

Portions of the report were confusing

- Contingency curves were hard to understand and therefore time-consuming to use
- Relationships between individual indicators and overall composite not clear

IQUEST

So What Have We Learned… Overall?

- Many of O&B's constructs are present in health care settings, and all are necessary for good coordination to happen
- Feedback to teams must be designed with teams in mind: PACTs need time and space in their work to process and reflect on the feedback
- Coordination interventions need to be adapted to the individual contest, and reach their intended recipients consistently.
- More research is needed to solve the methodological challenges of team-based and coordination research.

IQUEST

Implementing ProMES in PACT Settings:

THE REFLECT PROJECT

Implementation Supplement

- 2-years, competitively awarded by HSR&D
- Aims:
  - Conduct handoff activities to VISN 12 and 16 partners for generating feedback reports.
  - Provide “train-the-trainer” training to sites interested in implementing CRE 12-035’s audit-and-feedback intervention past the end of the research study
  - Conduct a formative and summative evaluation of the implementation of this intervention at each site

Contact Information

Sylvia J. Hysong, PhD
hysong@bcm.edu
Sylvia.Hysong@va.gov

IQUEST

For Further Reading (Coordination)

- Hysong SJ, Che X, Weaver SJ, Petersen LA. Study protocol: identifying and delivering point-of-care information to improve care coordination. Implementation Science. 2015 Oct 19; 10:145. DOI 10.1186/s13012-015-0335-9
- Hysong, S.J., Esquivel, A., Sittig, D.F., Paul, L., Espadas, D., Singh, S., & Singh, H. (2011). Towards successful coordination of electronic health record based-referrals: A qualitative analysis. Implementation Science, 6(84). 2011. DOI:10.1186/1748-5908-6-84. PMID: PMC3199858.
- Hysong SJ, Petersen LA. Identifying and Delivering Point-of-care Information to Improve Care Coordination. [Final Report, U.S. Department of Veterans Affairs Health Services Research & Development Service grant no. CRE 12-035]. 2017; https://www.hsrd.research.va.gov/research/abstracts.cfm?Project_ID=2141701790. Accessed December 20, 2018.
- Hysong, S.J., Thomas, C.L., Spitzmüller, C., Amspoker, A.B., Woodard, L., Modi, V., & Naik, A. (2016). Study Protocol: Linking Clinician Interaction and Coordination to Clinical Performance in Patient Aligned Care Teams. *Implementation Science.* 11:7 doi:10.1186/s13012-015-0368-0. URL: http://www.implementationscience.com/content/11/1/7
- Hysong SJ. Linking Clinician Interaction and Coordination to Clinical Performance in VA PACT [Final Report, U.S. Department of Veterans Affairs Health Services Research & Development Service grant no. IIR 12-383].; https://www.hsrd.research.va.gov/research/abstracts.cfm?Project_ID=2141703268. Accessed May 13, 2019.
- McDonald KM, Schultz E, Albin L, et al. Care Coordination Atlas: Update. Rockville, MD: Agency for Healthcare Research and Quality (AHRQ Publication. No. 14-0037-EF); 2014.
- Thomas CL, Spitzmuller C, Amspoker AB, et al. A Systematic Literature Review of Instruments to Measure Coordination. *J Healthc Manag.* 2018;63(3):e1-e1
- Weaver SJ, Feitosa J, Salas E. The science of teams: the theoretical drivers, models, and competencies of team performance for patient safety. In: Salas E, Frush K, eds. Improving Patient Safety Through Teamwork and Team Training. New York, NY: Oxford University Press; 2013:3–26.
- Weaver, S.J., Che, X. Petersen, L.A. & Hysong, S.J. Coordination in Chronic and Complex Disease Management in the U.S.: A Review and Conceptual Framework. Medical Care. Epub ahead of print. PMID: 29356720. 2018.

IQUEST

For Further Reading (Feedback)

- Anseel, F., & Lievens, F. (2007). The long-term impact of the feedback environment on job satisfaction: A field study in a Belgian context. *Applied Psychology*, *56*(2), 254-266.
- Anseel, F., Beatty, A. S., Shen, W., Lievens, F., & Sackett, P. R. (2015). How are we doing after 30 years? A meta-analytic review of the antecedents and outcomes of feedback-seeking behavior. *Journal of Management*, *41*(1), 318-348.
- Anseel, F., Van Yperen, N. W., Janssen, O., & Duyck, W. (2011). Feedback type as a moderator of the relationship between achievement goals and feedback reactions. *Journal of Occupational and Organizational Psychology*, *84*(4), 703-722.
- Chen, G., & Mathieu, J. E. (2008). Goal orientation dispositions and performance trajectories: The roles of supplementary and complementary situational inducements. *Organizational behavior and human decision processes*, *106*(1), 21-38.
- Crown, D. F., & Rosse, J. G. (1995). Yours, mine, and ours: Facilitating group productivity through the integration of individual and group goals. *Organizational behavior and human decision processes*, *64*(2), 138-150.
- DeShon, R. P., Kozlowski, S. W., Schmidt, A. M., Milner, K. R., & Wiechmann, D. (2004). A multiple-goal, multilevel model of feedback effects on the regulation of individual and team performance. *Journal of applied psychology*, *89*(6), 1035.
- Hysong, S. J. (2009). Meta-analysis: audit & feedback features impact effectiveness on care quality. *Medical care*, *47*(3), 356.
- Hysong, S. J., Best, R. G., & Pugh, J. A. (2006). Audit and feedback and clinical practice guideline adherence: making feedback actionable. *Implementation Science*, *1*(1), 9.
- Hysong, S. J., Kell, H. J., Petersen, L. A., Campbell, B. A., & Trautner, B. W. (2016). Theory-based and evidence-based design of audit and feedback programmes: examples from two clinical intervention studies. *BMJ Qual Saf*, bmjqs-2015.
- Hysong, S. J., Knox, M. K., & Haidet, P. (2014). Examining clinical performance feedback in patient-aligned care teams. *Journal of general internal medicine*, *29*(2), 667-674.

IQUEST

For Further Reading (Feedback, cont.)

- Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological bulletin*, *119*(2), 254.
- Lam, C. F., DeRue, D. S., Karam, E. P., & Hollenbeck, J. R. (2011). The impact of feedback frequency on learning and task performance: Challenging the "more is better" assumption. *Organizational Behavior and Human Decision Processes*, *116*(2), 217-228.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American psychologist*, *57*(9), 705.
- Lurie, N. H., & Swaminathan, J. M. (2009). Is timely information always better? The effect of feedback frequency on decision making. *Organizational Behavior and Human Decision Processes*, *108*(2), 315-329.
- Mitchell, T. R., & Silver, W. S. (1990). Individual and group goals when workers are interdependent: Effects on task strategies and performance. *Journal of Applied Psychology*, *75*(2), 185.
- Payne, V. L., & Hysong, S. J. (2016). Model depicting aspects of audit and feedback that impact physicians' acceptance of clinical performance feedback. *BMC health services research*, *16*(1), 260.
- Rosen, C. C., Levy, P. E., & Hall, R. J. (2006). Placing perceptions of politics in the context of the feedback environment, employee attitudes, and job performance. *Journal of Applied Psychology*, *91*(1), 211.
- Sheldon, O. J., Dunning, D., & Ames, D. R. (2014). Emotionally unskilled, unaware, and uninterested in learning more: Reactions to feedback about deficits in emotional intelligence. *Journal of Applied Psychology*, *99*(1), 125.

IQuEST

BACKUP SLIDES

IQUEST Baylor College of Medicine

Intervention

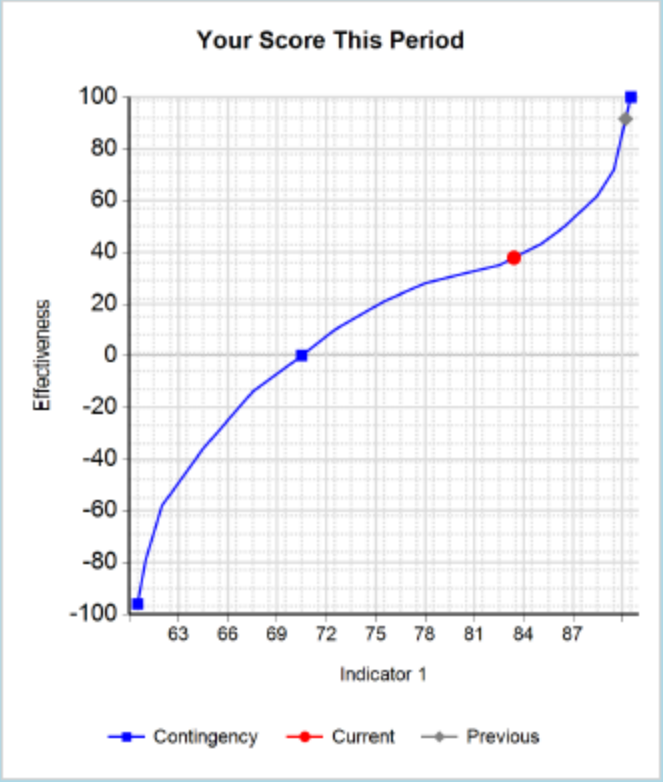
FEEDBACK REPORT SCREENSHOTS

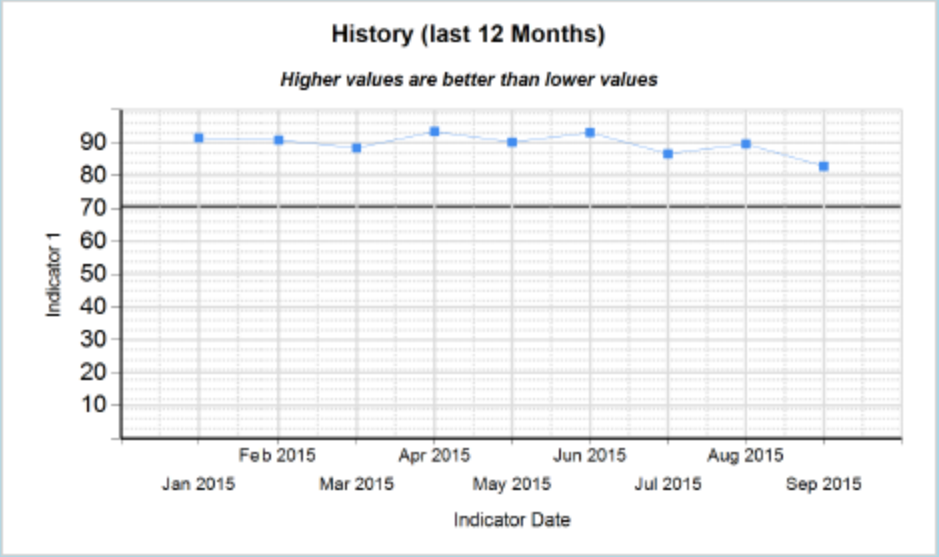
Indicator 1 Detail

Appointments Starting on Time

PACT UG 01*WH*

September, 2015





Previous

Next

Show Me More

Coordination Console

Overview for this Period

History

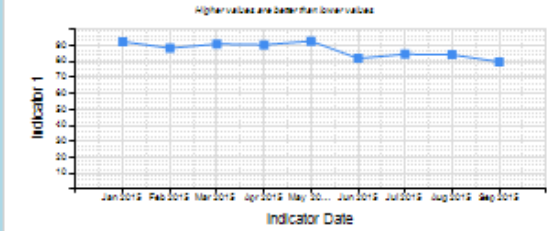
Priorities for Next Period

Coordination Indicator History

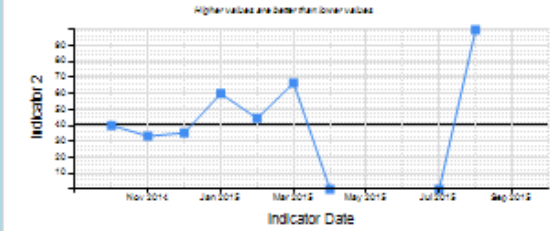
PACT UG 02*WH*

September, 2015

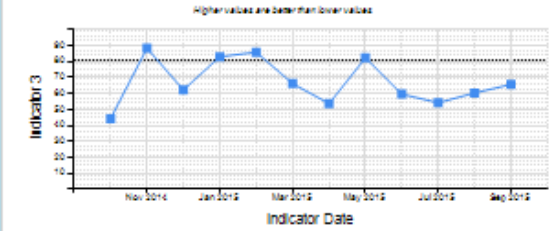
Appointments Starting on Time



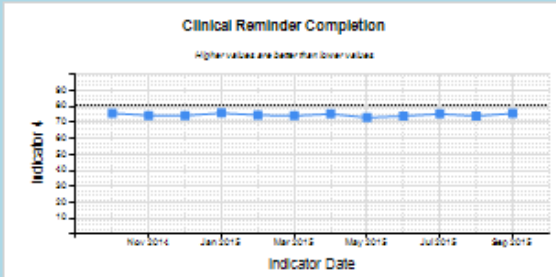
New Patient Orientation Utilization



Patient Satisfaction



Clinical Reminder Completion

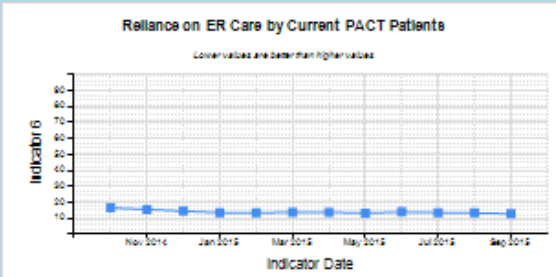


Timely Recall Scheduling

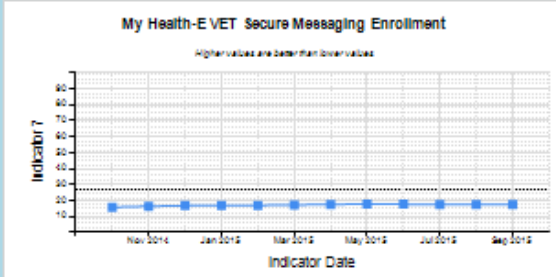
Higher values are better than lower values

No Data Available

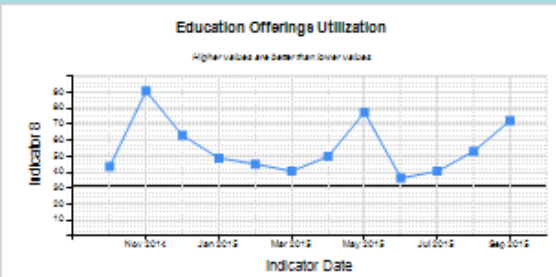
Reliance on ER Care by Current PACT Patients



My Health-E VET Secure Messaging Enrollment



Education Offerings Utilization



Coordination Console | Indicator Overview | Indicator Detail | Priorities for Next Period

IQUEST

Coordination Indicator Overview

PACT UG 01*WH*

September, 2015

	Previous Period		Current Period		Change from Previous Period	
Indicator Name	Indicator Value	Effectiveness	Indicator Value	Effectiveness	Indicator	Effectiveness
Reliance on ER Care by Current PACT Patients	20.3	80.0	20.9	80.0	0.6	0.0
Appointments Starting on Time	89.7	91.6	82.9	37.9	-6.8	-53.7
Education Offerings Utilization	24.0	-16.8	58.3	23.2	34.3	40.0
New Patient Orientation Utilization	10.0	-90.0	42.9	4.7	32.9	94.7
My Health-E VET Secure Messaging Enrollment	19.2	-54.0	18.9	-54.0	-0.3	0.0
Clinical Reminder Completion			72.8	-54.6		
Patient Satisfaction	60.4	-72.0	65.7	-72.0	5.3	0.0

Coordination Console | History Detail | Indicator Detail | Priorities for Next Period