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ACCORDS is a ‘one-stop shop’ for pragmatic research:

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ACCORDS Upcoming Events

May 15, 2023 *virtual	**<u>Methods and Challenges in Conducting Health Equity Research</u>** **Advancing Health Equity in Cancer Prevention and Control through Implementation Science** *Presented by:* April Oh, PhD, MPH (National Cancer Institute)
June 5-6, 2023 10:00 -3:30 PM MT AHSB Conference Center	**COPRH Con 2023** **Reassessing the Evidence:** What is Needed for Real World Research and Practice **Featured Speakers:** Ross Brownson, PhD | Washington University in St. Louis Faith Kares, PhD | Beloved Community Maria Fernandez, PhD | University of Texas Health Sciences Center at Houston Ned Calonge, MD | Colorado School of Public Health

*all times 12-1pm MT unless otherwise noted

Hot Topics in Mixed Methods and Qualitative Research

2022-2023 Seminar Series

And Then a Miracle Happens:

Getting Into the Complexity of Mixed Methods Designs and Approaches

Presented by:
Jodi Summers Holtrop, PhD, MCHES

And Then A Miracle Happens: Getting Into The Complexity Of Mixed Methods Designs And Approaches

Jodi Summers Holtrop, PhD

Objectives

By the end of the session, participants will learn about:

- Complex mixed methods designs
- Key mixed methods integration strategies
- Advanced mixed methods approaches

Mixed Methods Research

Research in which the investigator:

- collects and analyzes data,
- integrates the findings, and
- draws inferences using both qualitative and quantitative approaches or methods in a single study or a program of inquiry.

Source: Tashakkori & Creswell (2007)

Mixed versus Multi Methods

Multi Methods

- Uses more than one method
- Can be two qualitative or two quantitative or some quantitative and some qualitative

Mixed Methods

- Uses both qualitative and quantitative
- Involves mixing and integration of the data so that one type of data informs another

Why Do Mixed Methods?

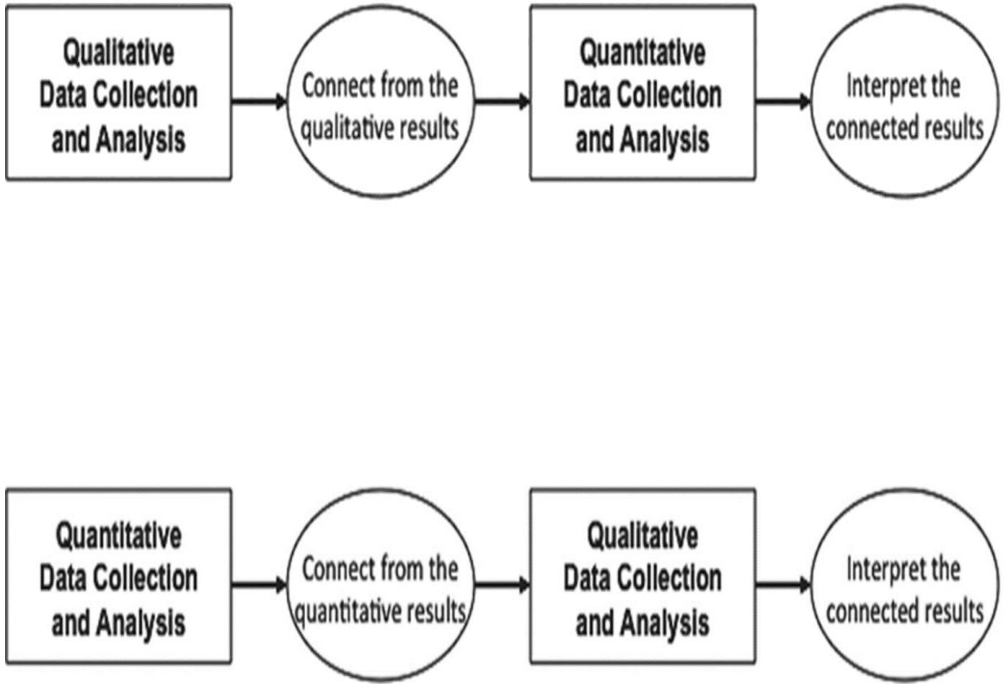
- Gain multiple perspectives to enhance the meaning of the results
- Need contextual information
- Gain a more complex understanding of a problem
- Compare, validate or triangulate results
- Examine processes and experiences with the outcome of the study

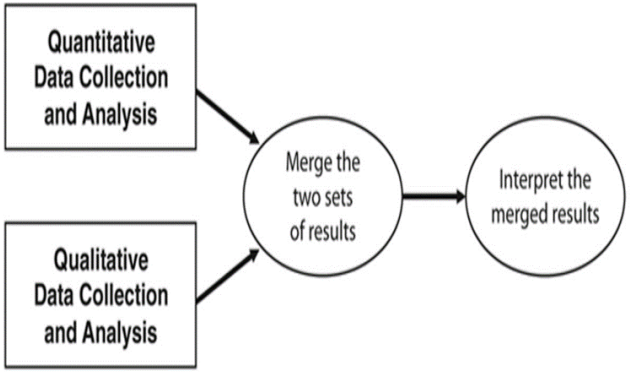
- Consider mixed methods for any study in which you are studying people in their own settings (not a controlled “lab” setting)

Choosing a mixed methods design: considerations in choosing

- What is your research question?
- How much time do you have?
- What types of resources do you have?
- Who/what expertise do you have on your team?
- Where are you in your exploration of the study topic? (what is the logical next step for your program of research)

Basic Designs

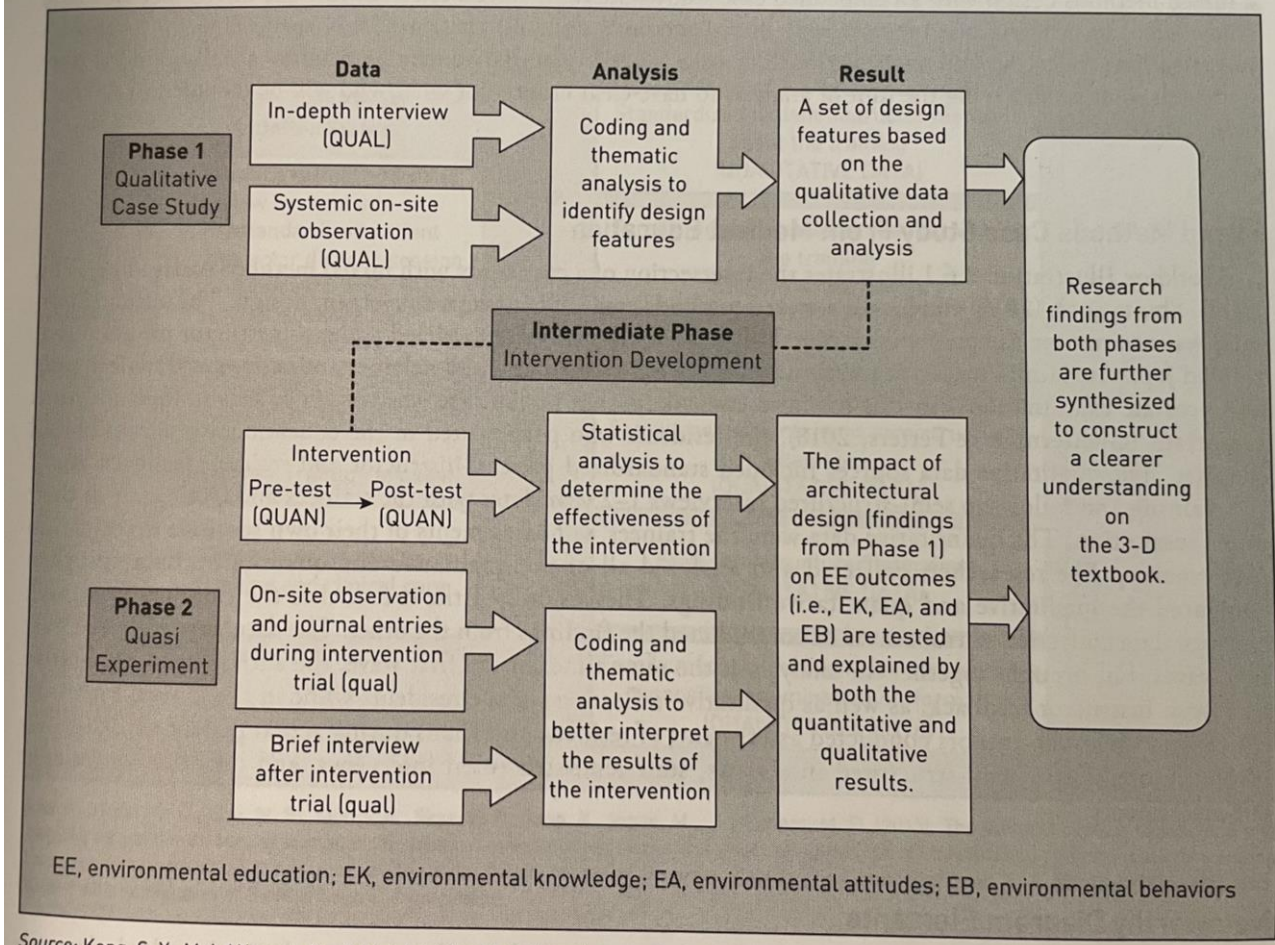




Complex Designs

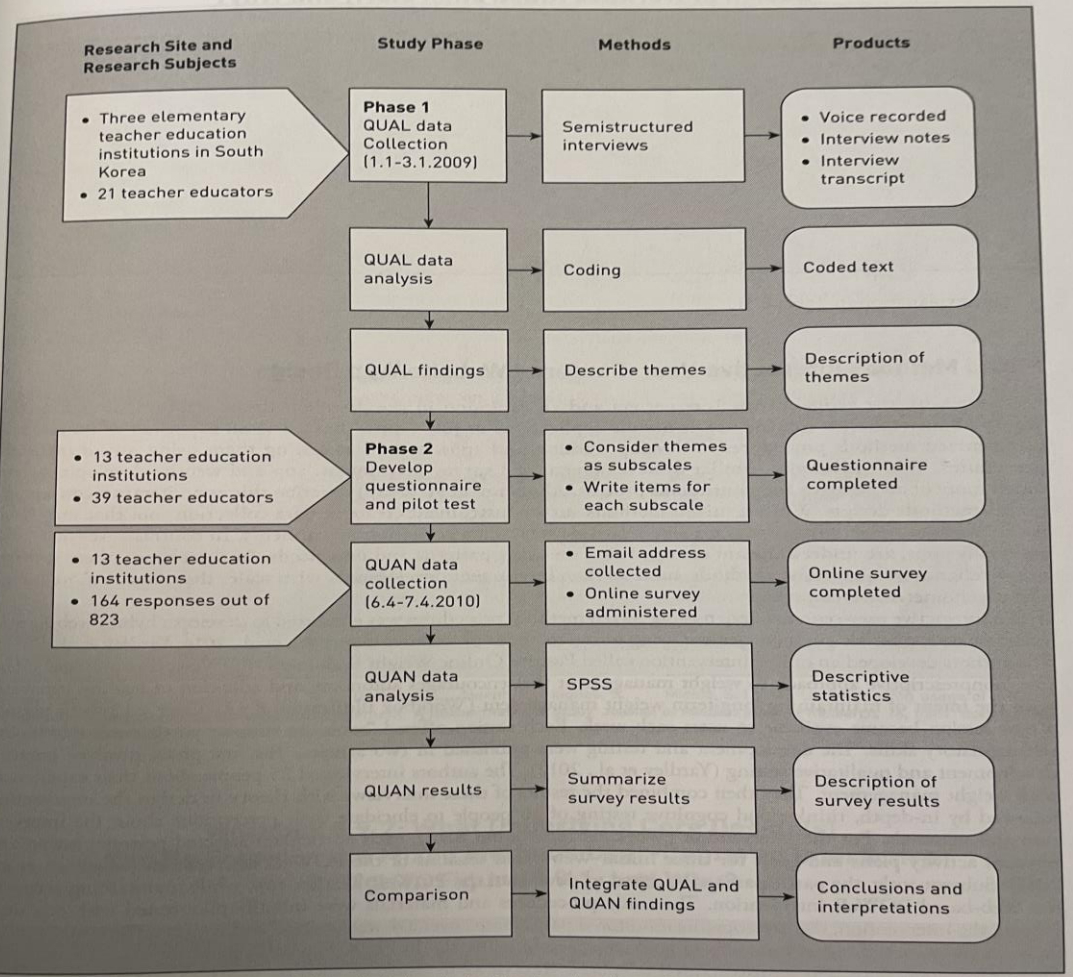
- Scaffolding
  - May incorporate theory, model or framework
  - Often includes phases and time elements

Quasi-experimental Mixed Methods Study Design



Source: Kong, S. Y., Mohd Yaacob, N., & Mohd Ariffin, A. R. (2016). Constructing a mixed methods research design: Exploration of an architectural intervention. *Journal of Mixed Methods Research*, 1–18. doi:10.1177/1558689816651807 with permission of SAGE Publications.

Survey Development Design



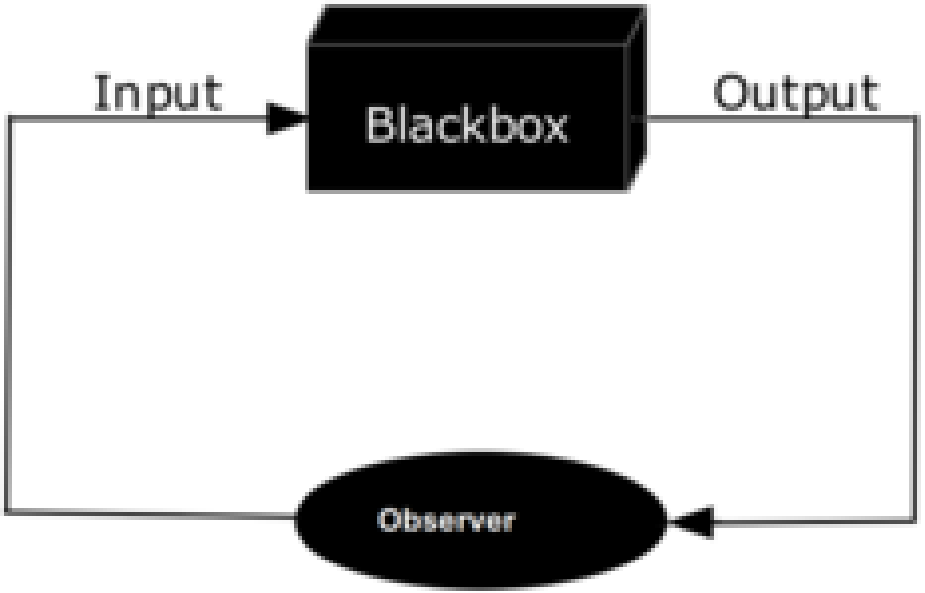
Source: Hwang, H. (2014). The influence of the ecological contexts of teacher education on South Korean teacher educators' professional development. *Teaching and Teacher Education, 43*, 1–14. doi:10.1016/j.tate.2014.05.003 with permission of SAGE Publications.

Key mixed methods integration strategies

What is Integration?

- Where qualitative and quantitative data come together
- **Synergy - inferences beyond what either alone could generate**
  - Ex. Intervention benefits + participant experiences
  - Ex. Program outcomes + process
- Distinguishes mixed methods - “cornerstone”
- Consider based on your design

The “Black Box”: Integration



Types of Integration

Data Collection Integration Procedures in Mixed Methods Designs

Integration Type	Purpose
Building	One form of data collection to inform another form of data collection
Connecting	Results from one type of data collection to inform selection of subjects for another type of data collection
Exploring	Using initial qual for conducting subsequent quant
Comparing	Collecting both qual and quant with the intent to compare them
>>Matching	Collecting both qual and quant with specific intention to study how they relate to one another (specific constructs)
>>Expanding	Using qual and quant data collection to elucidate a broader yet overlapping view of a phenomenon
>>Diffracting	Collecting qual and quant to examine different facets of a phenomenon (or “slices”)
Constructing a case	Collecting qual and quant to develop a robust understanding of a case/example

Source: Fetters M. Mixed Methods Workbook, 2020

Data Analysis Integration Procedures in Mixed Methods Designs

Integration Type	Purpose
Explaining	Qual data to explain previous quant findings
Corroborating	Finding results from one data form to support the other
Enhancing	Using data from two types of data for increasing interpretability and meaningfulness
Initiating	Looking for contradiction or discovery by recasting questions or findings from one method of data with another
Transferring	Considering the relevance of qual findings from study participants to a larger population or phenomenon
Generalizing	Extrapolating quant findings from the study population to a larger population
Transforming	Converting one form of data into another

Source: Fetters M. Mixed Methods Workbook, 2020

Steps to Doing a Mixed Methods Analysis

1. Enter, clean and organize your data
2. Frame analysis with study purpose
3. Discern patterns
4. Use an organizational structure to summarize initial findings (joint display)
5. Check for inconsistencies, anomalies or conflicting findings
6. Organize the findings for dissemination (joint display)
7. Interpret the findings in writing up the results

Most Common – Explanatory Sequential Design using Explaining Integration

1. Do quant data collection and analysis, Example: survey
2. INTEGRATION: What do you need to know qualitatively to “explain” the quant results? Select method and sample for qual
3. Do qual data collection and analysis, Example: interviews
4. INTEGRATION: What do the qual results say to “explain” the quant results?

Construct	Quantitative Result	Integration	Qualitative Result	Integration
Construct 1				
Construct 2				

Hypothetical Example

1. Survey practice members about their overall perception of integrated behavioral health in primary care (IBH) ⟹ Across practices scores range from mean of 3.3 - 5 (1-5 scale)
2. INTEGRATION: Select practices with higher and lower scores and construct an interview guide to explore reasons for perceptions such as improvement in patient outcomes, accessibility, etc.
3. Conduct interviews ⟹ themes: accessibility key feature, reducing stigma, team coordination
4. INTEGRATION: Practices with higher scores on perceptions also describe more positive experiences with onsite care team functioning including psychologist and psychiatrist availability

Explanatory Sequential Design

- Intent of integration – to connect the quant and qual phases of the study so that the follow-up qual phase provides a strong explanation of specific results form the initial quant phase
- Answers the question – What mechanism explain the quant results? How do follow-up qual results illuminate the stats results?

Do you do a second step analysis?

If the same sample, how does that work? (sample influences both results)

- Likely to be complimentary or convergent, however not always (like why does your patient answer the PHQ-9 one way on the form and then answer another way when asked to tell their story of what is happening in their life - some things are missing, interpreted differently, etc.)
- Worthwhile when you can drill down into the results – use the qual to better understand the quant – how does it provide additional insight?

Most Common – Convergent Design using Comparing Integration

1. Do quant data collection and analysis, Example: medical records abstraction
2. Do qual data collection and analysis, Example: observation and interviews
3. INTEGRATION: What do the results say about each other? Do they agree or disagree? (convergence or divergence)

Construct	Quantitative Result	Qualitative Result	Integration
Construct 1			
Construct 2			

Hypothetical Example

1. Identify medical records of patients who are receiving integrated behavioral health in primary care (IBH) Categorize the billing diagnoses, intervention received, time noted for the visit ⟹ Range of responses
2. Observe patients and do mini follow-up interview with them, ask about reason for visit, services received, time of visit ⟹ Range of responses
3. INTEGRATION: Match up medical record results to observation and interview results by patient. Patients with insurance and English language skills had better concordance of experiences.

Hypothetical Example

Qualitative Theme	Quote	Survey Result	Survey Question	Interpretation
Accessibility	“I would not have gotten help from a psychiatrist. The wait to have help is so long and I would not have even known where to start.” Patient X	Mean = 4.76 (scale 1-5)	“Having behavioral health care as part of a primary care doctors office makes it easier for people to get access to this type of care.”	Strong concordance, patients interview stories described consistent results with survey findings about access

Convergent Design

- Intent of integration – to develop results and interpretations that expand understanding, are comprehensive, and are validated and confirmed.
- Answers the question – To what extent do the qual and quant data converge or diverge?

Types of Fit with Mixed Methods Results

- Concordance – qual and quant results confirm each other
- Expansion – qual and quant expand and have overlap (some the same, some have more info on either “side”)
- Complementarity – findings compliment each other but are also different
- Discordance – findings conflict or contradict

What do you do if your results are disconfirming?

May be because of methodological problems in the quant or qual aspects of the study (ex. Quant sampling problems)

You can:

- Cite trust in one method more than the other and state limitations (identify source of bias)
- Collect additional data to help resolve the discrepancy
- Re-examine the existing databases to try to resolve the discrepancy
- Turn to theory for an explanation
- Do another study

Keep Organized while Doing Mixed Methods - Create an Integration Matrix

Steps	Procedures	Products
Each step of what you will do	How you will do each step	What you will get out of doing the procedures

Key Tips on How to Do Integration

- Like qualitative analysis – your brain is the analysis machine
- Name a method and what you are seeking (complement, agree, expand, etc.)
- Have a team to do this – all do it separately and then compare, repeat
- Use organizational diagrams and figures to keep it clear, both at the organizational and analysis stages and for presentation (joint displays)
- Start by comparing constructs one by one then build the cases for overall themes across all the results (like qualitative)
- Look in the literature and talk with informants to keep yourself and your team “real” about what are true differences and what are variations on the same
- Be creative!

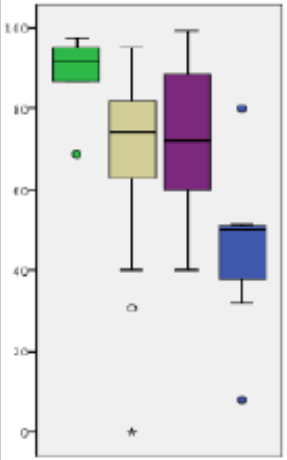
Joint Displays – A Method of Analysis AND a Way to Display Results

Most Basic Example

Construct	Quantitative Result	Qualitative Result	Interpretation
Construct 1			
Construct 2			

Figure 1. Clinical trial expert opinions on ethical advantages to adaptive clinical trials

Opinions on potential ethical advantages of adaptive trials from patient perspectives



Consultant Biostatistician:

- When done well they [ACTs] treat patients in and out of the trial better (Survey)
- [The complexity of understanding an ACT informed consent] I think it's a false concern. When you do studies that people have consented for traditional clinical trials, [people feel] the purpose of the trial is to improve their individual outcome, and the number who in any kind of quantitative way understand the randomization is very low. (MFG)

Clinician:

- I think it only makes sense that if you are going to avoid exposing subjects to ineffective therapies that that's the ethically obligatory thing to do. (MFG)
- There is no problem explaining to patient that if we find one arm to be clearly inferior we drop it, and one to be clearly superior we'll stop [the trial] early. (MFG)

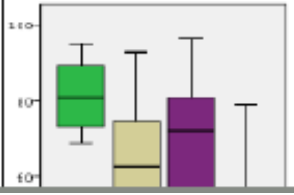
Other Stakeholder:

- Whether or not an adaptive trial really offers ethical advantages (random) patients will perceive "a new and different" approach aimed at time issues and increased communication as progressive (Survey)

Academic Biostatistician:

- It depends on the design, but it may be more advantageous to have a higher probability of being randomized to the active arm. (Survey)

Opinions on potential ethical advantages of adaptive trials from the researchers' perspective



Consultant Biostatistician:

- [Researchers] can create [trial] designs that learn more and treat better with less burden and sacrificing of patients for research. (Survey)
- [When a trial is a loser, there can be a] redistribution of intellectual capital. (MFG)

Clinician:

- [ACT designs] improve our ability to talk to patients about how ethical and beneficial it is to be in a clinical trail. (MFG)

Fetters MD, Curry LA, Creswell JW. Achieving integration in mixed methods designs – principles and practices. Health Serv Res, 48(6 Pt 2): 2134-56, 2013

Figure 2. A joint display from an explanatory sequential design that is organized by a theoretical framework and relates categorical scores to quotes.

Table 4. Quotes Related to Lanham et al's Relationship Characteristics in Clinics with High and Low WRS Scores

Rich communication	
Communication through face-to-face conversation; most effective when messages are unclear or ambiguous	
Low WRS score clinics	"I think that some days we should just sit down and say, 'Okay, this is what's going on. What do you know—how do you perceive this is supposed to be done?' ...[S]ometimes the hurdles that we run into are just, they could have been easily avoided if there had been a little bit better communication."
High WRS score clinics	"Well, you know we have what's called huddle every morning and any problems from the day before are discussed in huddle with all the team members and the clerical staff, social workers, the pharmacist. So we all get to know anything that's going on at that time."
Heedful interrelating	
Individuals are attentive to their work tasks and sensitive to how their roles and actions affect and intersect with those around them	
Low WRS score clinics	"...[T]here's a whole lot of tension and a lot of it has to do with, 'That ain't my job and you're messing in my area and you don't belong in my area and you need to back out and just stay in your own business.'"
High WRS score clinics	"I think the teamwork here is just excellent. You know we really pitch in and try and help. Everyone's attitude basically is that if one person's working hard, we're all working hard."
Trust	

Holtrop *et al. Implementation Science* (2015) 10:122
DOI 10.1186/s13012-015-0316-z

IMPLEMENTATION SCIENCE

RESEARCH Open Access

Understanding effective care management implementation in primary care: a macrocognition perspective analysis

Jodi Summers Holtrop[1*], Georges Potworowski[2], Laurie Fitzpatrick[3], Amy Kowalk[4] and Lee A. Green[5]

Abstract

Background: Care management in primary care can be effective in helping patients with chronic disease improve their health status. Primary care practices, however, are often challenged with its implementation. Incorporating care management involves more than a simple physical process redesign to existing clinical care routines. It

Table 5 Practice RE-AIM success outcomes

Practice	Reach[a]	Effectiveness[b]	Adoption[c]	Implementation[d]	Maintenance[e]	Overall outcome rank-order
A	290 FTE	Good	3/3	Good	70.3 %	1
B	241 FTE	Good	6/6	Good	52.1 %	2
C	189 FTE	Good	7/8	Fair	40 %	3
D	125 FTE	Good	2/4	Fair	48 %	4
E	94 FTE	Good	6/8	Poor	38 %	5

[a]Reach refers to the number of patients who received care management per FTE care manager
[b]Effectiveness refers to the behavior change and clinical improvements made by patients participating in care management
[c]Adoption refers to the proportion of providers referring 5 or more patients to the care manager
[d]Implementation refers to a qualitatively derived rating for the implementation of care management
[e]Maintenance refers to the 6-month follow-up rate of patients with the care manager for that scheduled assessment

Table 6 Use of macrocognitive functions and process by practices

Practice	Coordinating	Planning	Decision making	Monitoring and detecting	Managing the unknown	Sense making learning
A	++	++	+	++	++	+
B	++	++	++	++	+	++
C	±	+	±	+	+	±
D	++	+	+	+	+	++
E	–	–	±	–	±	–

++ used well and often, + used well, but not often, ± used well and not well, – not used or not used well

ORIGINAL RESEARCH

Points of Concordance, Points of Discordance: A Qualitative Examination of Telemedicine Implementation

Tristen L. Hall, MPH, Lauri Connelly, MS, Elizabeth W. Staton, MSTC, Jodi Summers Holtrop, PhD, MCHES, Amber Sieja, MD, Kyle Knierim, MD, and Heather Holmstrom, MD, FAAFP

Introduction: **Health systems undertook a rapid transition to increase the use of telemedicine in the wake of the COVID-19 pandemic. A continued need for telemedicine services in the coming years is likely. This article examines telemedicine from multiple stakeholders' perspectives considering reach, effectiveness, adoption, implementation, and maintenance (RE-AIM) outcomes.**

Methods: **Semistructured interviews were conducted with primary care practice team members and patients. Rapid qualitative analysis was used to identify themes in experiences and perceptions related to telemedicine implementation. The RE-AIM implementation framework was applied to thematic findings to understand influences on implementation outcomes.**

Results: **Twenty-four practice members and 17 patients across 5 clinics participated. All stakeholder**

Table 2. Factors by RE-AIM Dimension That Affected Telemedicine Use and Usefulness: Concordance and Discordance by Participant Role

Reach: Number, Proportion, and Representativeness of Patient's Participating in Telemedicine
Concordance/discordance: • Technology: All groups reported about technology accessible for most patients, but for some patients not at all; patients noted little challenges with technology contrary to clinician/staff perceptions (likely a sampling issue). • Convenience: Some groups mentioned this while others did not. • Safety: Safety as a motivator was predominantly mentioned by the patients and not practice groups. • Mindset: Clinicians, staff, and patients acknowledged similar limitations in mindset/willingness to engage in virtual care. • Missed opportunities: Patients and clinicians both recognize not all patients are appropriate for telemedicine. • Summary: Overall patients and clinicians had more comments about reach aspects than other stakeholders.
Effectiveness: The Ability of Telemedicine to Impact on Patient Outcomes and Quality of Care
Concordance/discordance: • Communication: Across groups, the relational aspect was not as effective at times with telemedicine as compared to in person, feels different. • Visit appropriateness: Patients and practice members alike noted the importance of the health concern and the appropriateness for telemedicine. For the right visit type, telemedicine was deemed as equivalent to in person. • Quality: Patients noted that telemedicine and in-person visits were of similar quality level more so than practice member groups. • Visit appropriateness: Most similar across groups on visits requiring physical exam being inappropriate for telemedicine. • Summary: Many similarities across groups. Lack of comments from administrative staff about effectiveness specifically.

Empirical Research

Analysis of Novel Care Management Programs in Primary Care: An Example of Mixed Methods in Health Services Research

Journal of Mixed Methods Research
1–28

DOI: 10.1177/1558689816668689
mmr.sagepub.com
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Jodi Summers Holtrop[1], Georges Potworowski[2], Lee A. Green[3], and Michael Fetters[4]

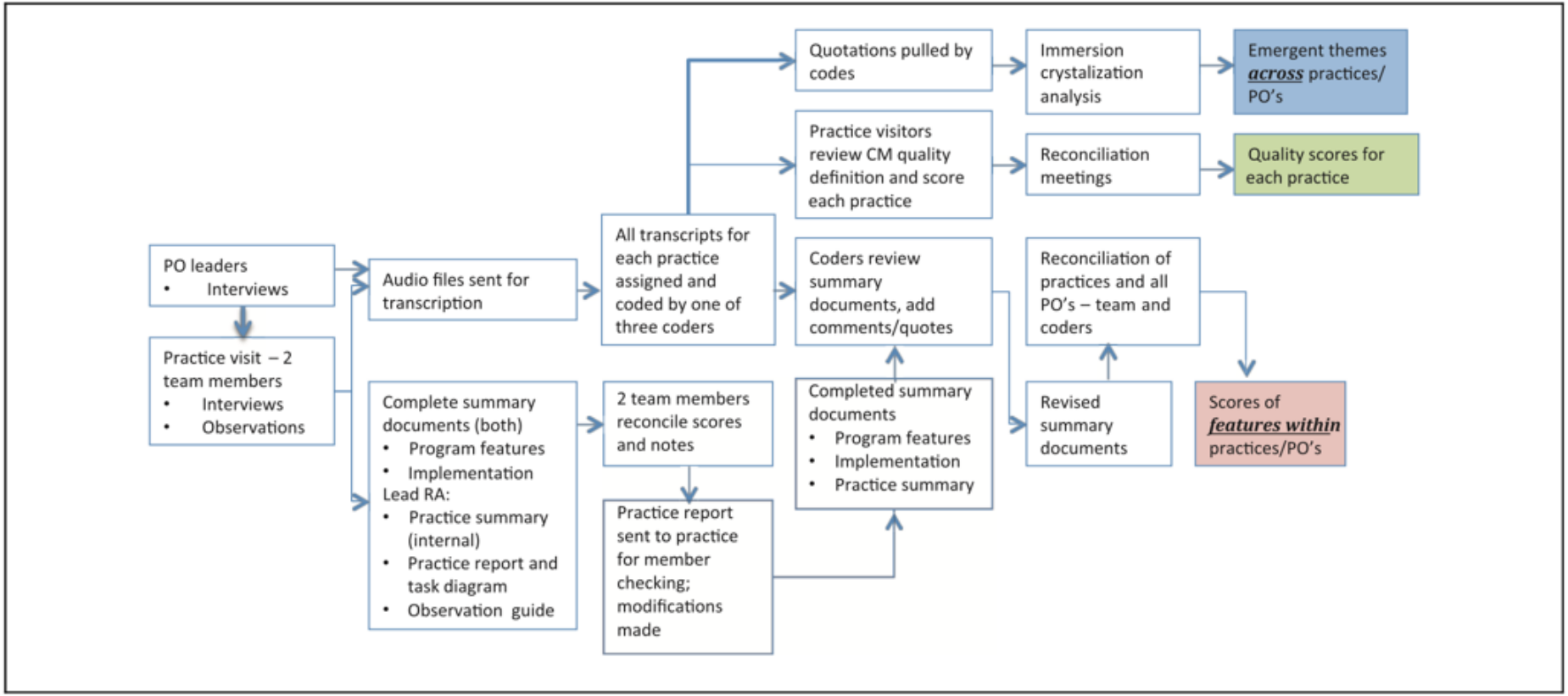

Figure 2. Qualitative data collection and analysis.

Note. PO = physician organization; RA = research assistant; CM = care management.

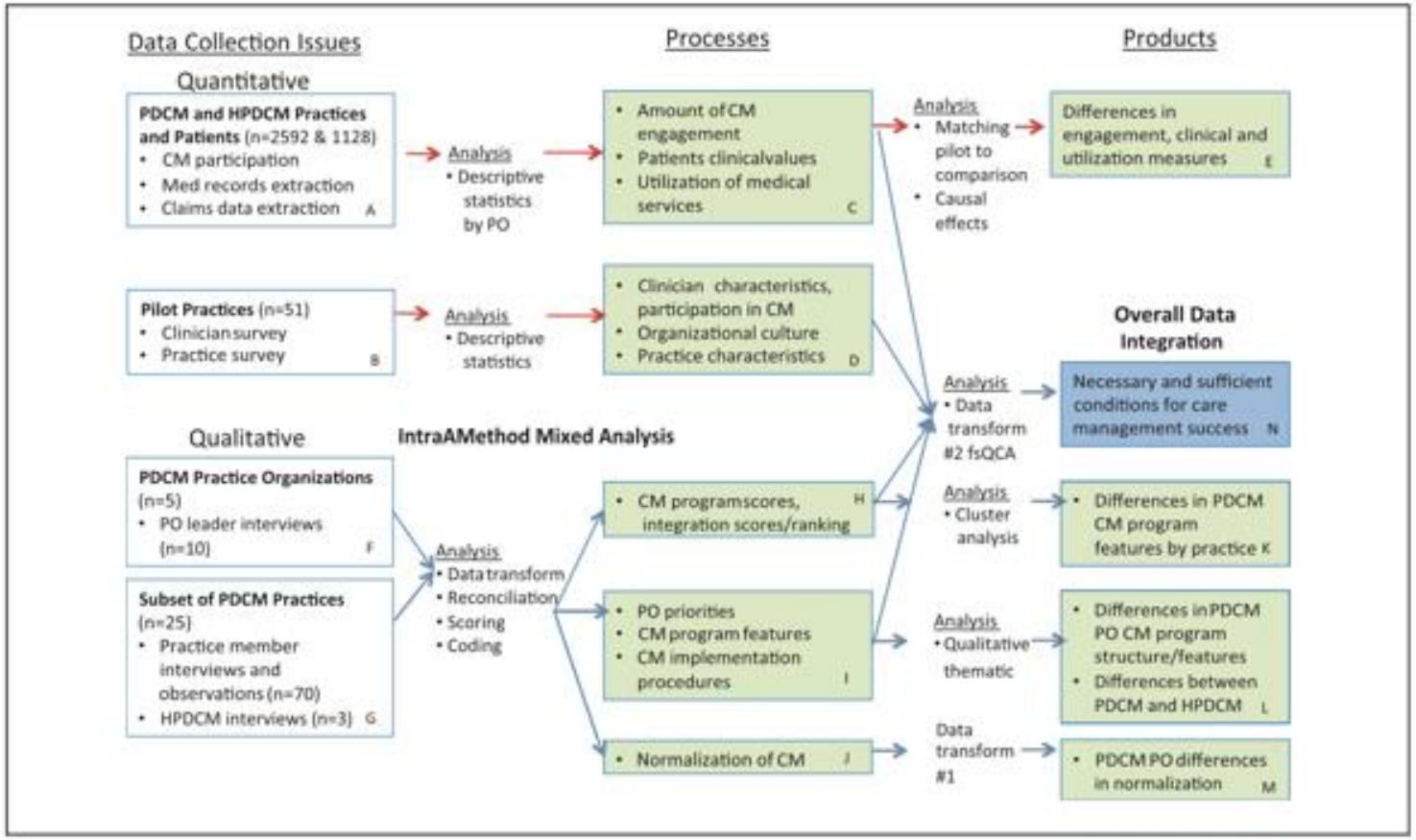

Figure 1. Mixed methods processes and products.

Note. PDCM = provider-delivered care management; HPDCM = health plan–delivered care management; PO = physician organizations; CM = care management; QCA = qualitative comparative analysis.

Table 4. Data Transformation Illustration 1: From Qualitative Data to a Quantitative Scoring Configuration to Examine the Relationship Between Degree of Normalization and Normalization Process Theory Collective Action Components by Care Management Structure Within Physician Organization.

Physician organization	A		B	C		D		E	
Care management structure	1: Centralized	2: Full-time practice-based	Centralized	1: Full-time practice-based	2: Part-time practice-based	1: Centralized	2: Full-time practice-based	Full-time practice-based	Interpretation
Degree of normalization[a]	+	++	+	++	++	++	++	+++	Varies by PO and care management structure type
Collective action components									
Contextual integration	+/−	++	+	++	+	+	+	+++	Organizational support and resources varied widely by PO and care management structure
Skill set workability	++	++	++	++	++	++	+/−	+++	Most PO's had qualified care managers and adequately trained practice staffs
Interactional workability	+/−	+++	+/−	+++	+	++	+++	+++	Ability for working communication varied by care management structure type
Relational integration	+/−	++	+/−	+++	+	+	+++	+++	Working relationships were fostered by full-time practice-based care management
	Interpretation: The centralized care management structure type generally produced lower normalization of care management than practice-based care management, especially when it was full-time. Collective action components tended to align with degree of normalization within care management structure type such that there was support for these components being important to normalization of care management in practice.								

Note. PO = physician organization; + = low; ++ = medium; +++ = high; +/− = both not evident and evident depending on the practice within that PO structure type.

[a]Degree of normalization is the degree to which care management was routinely implemented by all practice members in practices in each PO care management structure type.

Advanced Mixed Methods Approaches

- Qualitizing and Quantitizing
- Configurational Comparative Methods
- Social Network Analysis

Data Transformation: Quantitizing

Quantitizing – converting qualitative data into quantitative data

Why would you want to do this?

- Represent your data in numbers to establish patterns or analyze for relationships through statistical analysis
- Opportunity to enhance the quantitative data

How do you do this?

1. Conversion of analyzed qualitative data into numbers or groups (nominal, ordinal, interval, ratio)
2. Analyze with other quantitative data

What do you need to be careful about?

- Small sample sizes can be a problem
- Volunteered information can not be representative
- “Squish” down the data in such a way that you lose the meaning
- Classic putting qual into a quant paradigm

Qualitative Data Transformation into Quantitative Representation

- Frequency of a theme within a sample by converting it to percentages
- Number of units for each theme by converting it to a percentage
- Percentage of total themes associated with a phenomenon
- Percentage of people selecting or endorsing multiple themes
- Count of time, length and number of behaviors per hour during observations and interviews
- Number of times a significant statement appears per page
- Amount of time that elapses before a unit of analysis is observed

Data Transformation: Qualitizing

Qualitizing – converting quantitative data into qualitative data

Why would you want to do this?

- Represent complex statistical data in more thematic ways to enhance understanding
- Opportunity to enhance the qualitative data

How do you do this?

1. Conversion of analyzed quantitative data into qualitative text data (codes, themes, descriptions)
2. Analyze with other qualitative data

What do you need to be careful about?

- Quantitative data can only give you so much, not much of ”thick” or “rich” description
- Can be hard to do and requires experience, doesn’t play to the talents of either kind of researcher

Quantitative Data Transformation into Qualitative Representation

- Summarizing trends as increasing or decreasing
- Percentages of answers around core constructs into an overall “theme”
- Groupings of categories clustered into descriptive typologies

Configurational Comparative Methods

CCM is a family of methods that allows considering program features and contextual conditions to examine relationships in groups or sets with outcomes.
**NOT statistics

Linear Additive Model	CCMs
Assumes normality and linear relationships	Applicable to non-normal, non-linear data
Assumes a single explanatory model	Allows for multiple explanatory models
Assumes factor independence	Allows for factor independence
Mid-large number subjects needed	Sample size independent-all sizes

CCM

- Involves quantitizing
- Moving from variables to conditions
- Groups of cases with an outcome condition
- Another group of cases without the outcome condition
- Additional information about each case is expressed in the form of conditions
- What uniquely distinguishes group A from group B
- Allows for equifinality – multiple paths to outcome

What CCM does

- Helps to identify conditions that produce an outcome – either singly or in combination
- Necessary
  - Must be present to produce a good outcome, but does not guarantee a good outcome (i.e. water must be present to have the ground wet)
  - High consistency score indicates strong relationship between the condition and outcome
- Sufficient
  - Sufficient conditions alone or in combination will always result in a good outcome although they are not necessary to produce a good outcome (meaning there are other paths to a good outcome) (the ground could be wet because it rained or because someone watered it)
  - Coverage score is high demonstrating high relevance to the outcome; or importance of each configuration to the solution
- Casual conditions can be necessary or sufficient, both or neither

CCM includes CNA and QCA

CNA = coincidence analysis
QCA = qualitative comparative analysis

- Both use Boolean algebra and set theory to develop solutions of “difference making” configurations
- CNA first uses “bottom-up” (puts 1 in and then another in, then another in)
- QCA uses “all in” then you eliminate conditions

- Lots of debate about how to use each one and why one is better!

CCM Process

1. Determine outcome
2. Consider conditions impacting the outcome (consider a logic model)
3. Collect data on conditions and consider which are variant; greatest impact on the outcome
4. Create a raw data table
5. Calibrate the conditions and outcome
6. Conduct the analysis

ORIGINAL RESEARCH

What Makes for Successful Registry Implementation: A Qualitative Comparative Analysis

Jodi Summers Holtrop, PhD, MCHES, Tristen L. Hall, MPH, Claude Rubinson, PhD, L. Miriam Dickinson, PhD, and Russell E. Glasgow, PhD

Purpose: **Registry implementation is an important component of successfully achieving patient-centered medical home designation and an important part of population-based health. The purpose of this study was to examine what factors are evident in the successful implementation of a registry in a selection of Colorado practices involved in quality-improvement activities.**

Methods: **In-depth, small-group interviews occurred at 13 practices. The data were recorded, transcribed, and qualitatively analyzed to identify key themes regarding elements of successful registry implementation. Key elements were described as conditions, then calibrated and analyzed using qualitative comparative analysis (QCA).**

Results: **The QCA revealed several formulas to successful registry implementation. Key conditions included the importance of Resources and Leadership along with either a Quality Improvement Mindset or a Key Person driving efforts (or both). Health System membership affected the specific formula.**

Discussion: **This study is innovative in that it examines which factors and in what combination are necessary for successful implementation of a registry. The findings have implications for primary care quality-improvement efforts. (J Am Board Fam Med 2017;30:657–665.)**

Keywords: **Adaptations, Implementation, Primary Health Care, Process, Registry**

Table 1. Factors (Conditions), Condition Descriptors, and Qualitative Comparative Analysis Scoring (Calibration) Used to Identify Key Ingredients in Successful Registry Implementation

Condition	Description of Condition	Calibration
Health system	The degree to which the practice was part of a large, multi-practice, hospital-owned health system	1 = practice is owned by health system, complete control 0 = practice is owned by the physicians or others in the practice
Key person	The degree to which there was a key person who "made things happen" for the registry implementation	1 = very clear evidence of a key person; there, willing, and capable to do what was needed 0 = no evidence of a key person or key persons; no one willing to step in and make things happen
QI mindset	The degree to which the practice displayed a mindset of interest in continually improving quality, looking for opportunity to change and get better	1 = Past and ongoing QI mindset evident in multiple practice members; institutionalized or embedded in practice culture 0 = No evidence of QI mindset, often evidence of contrary attitude (resisting change)
EHR capability	The extent to which the EHR had the capability to be changed to accommodate development of a registry; includes the extent to which the practice members or others in the system had the skills and knowledge to make these changes	1 = EHR with registry features already included or completely able to make any changes needed; including consideration of the system capability and the organization allowing these changes 0 = EHR not modifiable; cannot manipulate at all to meet reporting needs
Resources	The tangible items such as funding (to support people or EHR modifications), space, and time to complete necessary actions to get the registry to work	1 = sufficient resources to "get the job done," for example, training or dedicated time provided for on the ground key person to implement or maintain registry 0 = lacking in resources such that a barrier or barriers were created, for example, no training provided when needed, or no time dedicated in already full workload for added tasks

Source: **Holtrop J Summers**, Hall T, Dickinson M, Glasgow R. What makes for successful registry implementation: A qualitative comparative analysis. *Journal of the American Board of Family Medicine.*

Table 3. Calibrated Data Table for the Qualitative Comparative Analysis

Practice Numbers (or Observation)	Health System	Key Person	QI Mindset	EHR Capability	Resources	Leadership	Incentives	Outcome: Registry Success
P1	0.6	1.00	0.90	0.90	0.75	0.65	0.35	1.00
P2	0.8	0.70	0.75	0.30	0.90	0.90	0.80	0.65
P3	1	0.60	0.35	0.65	0.80	0.65	0.28	0.70
P4	1	0.10	0.85	0.90	0.75	0.90	0.30	0.90
P5	1	0.85	0.85	0.90	0.70	0.75	0.70	0.90
P6	1	0.85	0.80	0.90	0.80	0.80	0.40	0.90
P7	1	0.25	0.80	0.85	0.65	0.70	0.65	0.80
P8	0.6	0.85	0.90	0.90	0.85	0.85	0.20	0.95
P9	0.8	0.95	1.00	0.70	1.00	0.95	0.90	0.80
P10	0	1.00	0.85	0.75	0.80	0.80	0.80	0.85
P11	0.8	0.70	0.85	0.10	0.00	0.90	0.80	0.20
P12	0	0.95	0.85	0.75	0.75	0.75	0.75	0.70
P13	0	0.80	0.90	0.70	0.75	0.80	0.00	0.75

Data are originally qualitative in nature and through a group consensus process, researchers assign a score from 0 to 1.0 to calibrate the results for each cell to indicate the extent to which this condition is present for each practice with 1 = condition fully present and 0 = condition fully not present. This table summarizes the calibrated scores for all the conditions and outcome for each practice.

Source: **Holtrop J Summers**, Hall T, Dickinson M, Glasgow R. What makes for successful registry implementation: A qualitative comparative analysis. *Journal of the American Board of Family Medicine.* 2017;30(5).

Table 4. Sufficiency Consistency and Coverage, including the Condition of QI Mindset

Configurations Leading to Successful Registry Implementation	Consistency	Raw Coverage	Unique Coverage	Observations with Strong Membership in this Configuration
HEALTHSYSTEM*KEYPERSON* RESOURCE*LEADERSHIP	0.99	0.50	0.02	P:1,2,3,5,6,8,9
HEALTHSYSTEM*QIMINDSET* RESOURCES*LEADERSHIP	0.98	0.58	0.10	P:1,2,4,5,6,7,8,9
KEYPERSON*QIMINDSET* RESOURCES*LEADERSHIP	0.97	0.73	0.25	P:1,2,5,6,8,9,10,12,13
Solution	0.97	0.86	NA	NA

This sufficiency analysis identifies three overlapping combinations of conditions that produced successful registry implementations. These solutions indicate that sufficient resources and strong leadership always accompanied successful registry implementations. Within large health care systems, success resulted when these conditions were combined with *either* a keyperson *or* a strong QI mindset. Alternatively, the combination of sufficient resources and strong leadership with *both* a key person *and* a strong QI mindset was sufficient for a successful outcome, regardless of the size of the healthcare system. The high consistency and coverage scores reported in the final row indicate that practices exhibiting one of these three combinations of conditions were almost always successful in implementing a healthcare registry and, furthermore, that almost all instances of successful registry implementation exhibited one of these three combinations of conditions.

Source: **Holtrop J Summers**, Hall T, Dickinson M, Glasgow R. What makes for successful registry implementation: A qualitative comparative analysis. *Journal of the American Board of Family Medicine.* 2017;30(5).

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Social Network Analysis

Social network analysis (SNA) is an analytic method to examine networks and their communication and workflow patterns

Why would you want to do this?

- Social relationships can be a key factor driving implementation, this method highlights that – a way to “see” your data in a different way

How do you do this?

1. Identify who you want to collect data on and what the relationships that are important to capture (how much, how important, about what, roles, where located, etc.)
2. Determine the way you wish to collect this information (interviews, observations, survey, other data sources, etc.)
3. Use program to calculate the “statistics”
4. Interpret the results

JGIM

ORIGINAL RESEARCH

Using Social Network Analysis to Examine the Effect of Care Management Structure on Chronic Disease Management Communication Within Primary Care

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BACKGROUND: Care management and care managers are becoming increasingly prevalent in primary care medical practice as a means of improving population health and reducing unnecessary care. Care managers are often involved in chronic disease management and associated transitional care. In this study, we examined the communication regarding chronic disease care within 24 primary

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INTRODUCTION

SNA Example: Care management

- We used a written survey format to collect SNA data
- Our SNA questions: As a busy practitioner, you cross paths with and talk to a variety of people on any given day. Below, please write in the names of the **three most important people from whom you talk with, seek advice from, or refer to *regarding the management of patients with all types of chronic disease*** and complete the questions that follow.
  - Role
  - Physical location
  - Frequency of interaction
  - Topics of discussion
  - How important conversation(s) are to your role

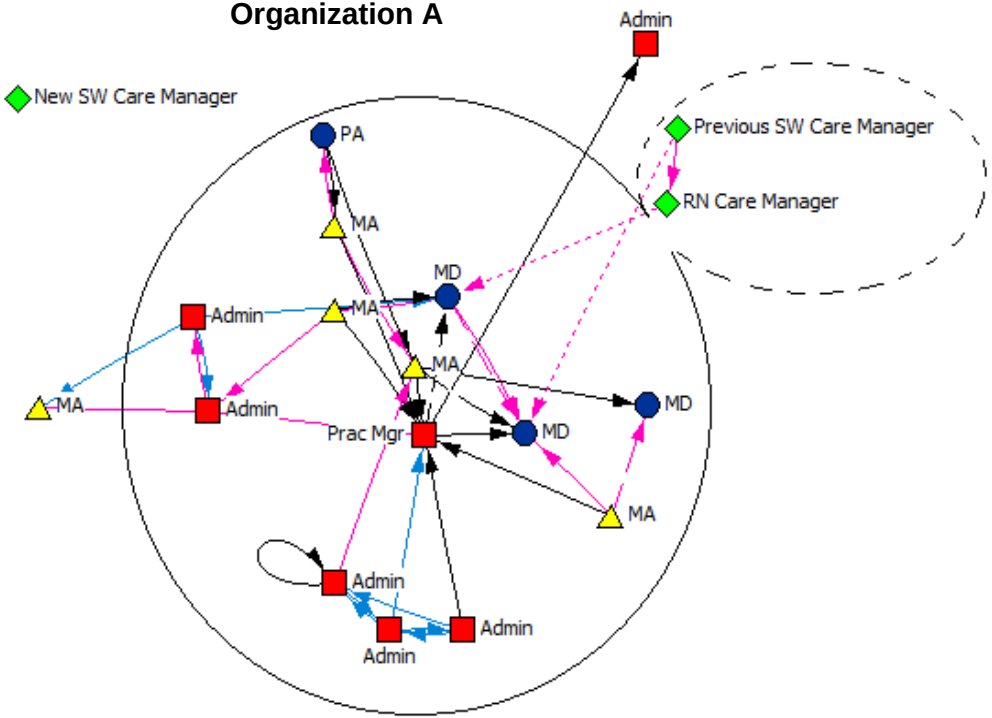
Three Care Manager Structures Emerged

Off-site: The care manager does not usually work in the practice - work location is from home and visiting patients in their homes, the care manager is employed by another organization than the practice (usually the practice association).

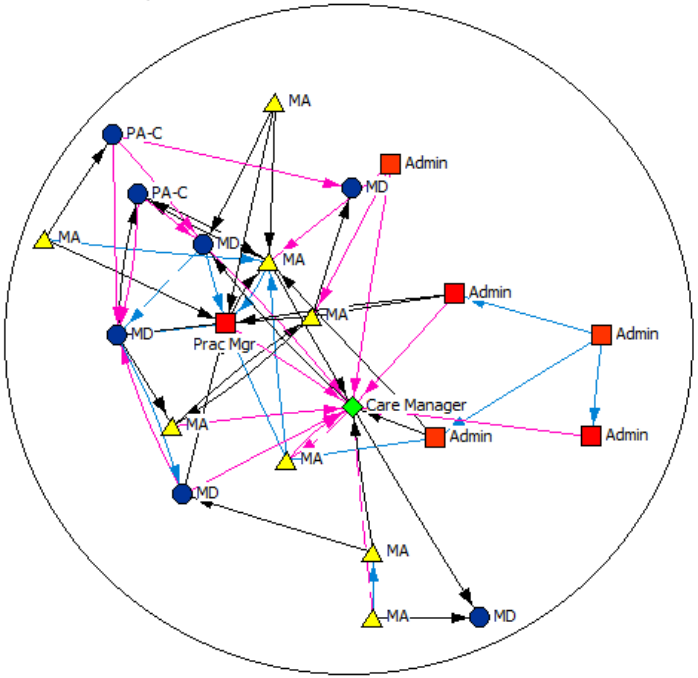
Co-located: The care manager works a minimum of half-day a week and up to four days in the practice, but is employed by another organization than the practice.

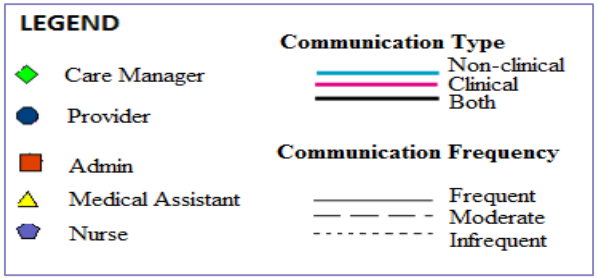
Embedded: The care manager works his or her full working hours (even if part-time) in the practice, although s/he may complete other duties as well. The care manager is employed by the practice.

Example Practice in Organization A



Example Practice in Organization C





Network Properties Across Organizations				
Mean (std)	**All Practices (n=24)**	**Organization A (n=8) Off-site and co-located**	**Organization B (n=5) Embedded and co-located**	**Organization C (n=11) Embedded**
Total Nodes	21.6 (11.5)	23.3 (8.6)	26.2 (23.3)	18.3 (3.4)
Core/Periphery Ratio	0.23 (0.16)	0.21 (0.04)	0.36 (0.28)	0.18 (0.11)
Density*	0.015 (0.012)	0.012(0.01)	0.024 (0.022)	0.012 (0.004)
Degree Centralization (nodes number of edges; higher = more central)	84.5 (10.1)	84.6 (6.2)	76.6 (19.0)	88.0 (4.5)
Between Centralization (measure based on shortest path)	34.7 (14.1)	30.6 (13.0)	29.4 (9.7)	40.2 (15.7)
Care Manager is within core - N(%) of practices	13 (54%)	0 (0%)	5 (100%)	8 (73%)

How do these methods work with Mixed Methods?

- Can gather the data by qualitative or quantitative means or both and triangulate
- Can convert the qual information into quant (numbers and types)
- Can analyze with other quant data
- Can use as quant info to compare to qual information in a mixed methods analysis
- Helps to see your data in a different way – spatially and relationally

Summary

- Mixed Methods involves qualitative and quantitative data collection and analysis and the integration of the two
- Mixed Methods gives you more than just qual + quant (1+1=3) by allowing the researchers to “see” the data in a more complete or different way
- Using diagrams, figures, tables and organizational structures will facilitate use of Mixed Methods
- There are many designs and approaches that can be utilized, choose what is appropriate for the study question or project

Resources for more training

- CLSC 6580: Qualitative and Mixed Methods in Health Research
- CLSC 6560: Designs and Mixed Methods in Implementation Research (part of the D&I certificate program)

Questions?