

# Defining a Supportive Organizational Context for IPC in Primary Care: A Mixed Methods Study

Jessica Cataldo PhD, MPH *School of Health Sciences, Southern Illinois University*

## Abstract

**INTRODUCTION** The purpose of this exploratory sequential mixed methods study was to explore organizational contextual factors important to successful interprofessional collaboration (IPC) among primary care teams.

**METHODS** In Phase 1, a single embedded case study design was utilized to identify the organizational contextual factors most important to successful IPC. In Phase 2, a quantitative survey was administered to primary care team members in 10 organizations to objectively measure the relationship between contextual factors identified in Phase 1 and IPC.

**RESULTS** In Phase 1, organizational contextual factors deemed most important included team structure and resources, including staff, time, and communication tools; supportive, patient-centered culture, including team member support and expectations for IPC as the way to provide the best care to patients; leadership, including organizational leadership support and provider leadership; and organizational structure and resources, including status as a federally qualified health center (FQHC) and academic facility. In Phase 2, statistically significant, positive relationships were found between IPC and team member support, provider leadership, team resources, clan culture, perceived organizational support, and patient-centered values.

**CONCLUSIONS** The findings support the importance of organizational context for IPC and suggest that organizational culture and leadership hold particular importance for IPC success.

---

*Received: 06/09/2021 Accepted: 10/22/2021*

© 2022 Cataldo. This open access article is distributed under a Creative Commons Attribution License, which allows unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## Implications for Interprofessional Practice

- Health care managers must recognize the impact that organizational contextual factors have on IPC within primary care.
- Assessing organizational culture is a good starting point, as organizational culture influences the behavioral norms and expectations of team members. This study suggests that elements of supportive, patient-centered culture are positively related to IPC.
- All teams require resources, including staff, time, and communication tools. Colocation is recommended to enhance ad hoc communication that enhances IPC; however, colocation alone is not sufficient. Expectations for IPC and modeling of IPC by leadership are critical.

## Introduction

Interprofessional collaboration (IPC) occurs “when multiple health workers from different professional backgrounds work together with patients, families, caregivers, and communities to deliver the highest quality of care” (World Health Organization [WHO], 2010, p. 13). IPC has been identified as a critical component to improve patient care, safety, and outcomes, and as healthcare shifts toward a value-based design, the emphasis on IPC is growing and becoming more important for adaptation to a changing health care landscape. However, IPC does not “just happen.” Professional structures and hierarchies in health care tend to oppose IPC, including regulatory and institutional factors (Bourgeault & Mulvale, 2006). Thus, health care organizations must make a dedicated and conscious effort to increase IPC through its culture, structures, resources, and leadership.

Interprofessional teams are embedded within the larger organization. McGrath, Arrow, and Berdahl (2000) described teams as complex, adaptive systems that are shaped by the members of the team and the larger organization. Goodman, Ravlin, and Schminke (1987) noted “...that different organizations create different contexts in which teams operate. The different contexts can be represented by the different management philosophies, reward systems, and so on” (p. 132). Guzzo and Dickson (1996) echoed this view, stating that team effectiveness can be improved by changing the conditions in which teams are expected to perform. Costanzo (2017) found that while IPC was consistently identified as the best practice, contextual barriers, such as rotation schedules, competing demands, and geographic location, led to inconsistent interprofessional practice.

Implementation of IPC initiatives undertaken without consideration of the latent but powerful influence of the organizational context may fall short due to the shared values, beliefs, and eventual behavior of the organization. If the context is not supportive of IPC, then the assumption is that most efforts to implement interprofessional care models will be unsuccessful. Salas and colleagues (2014) noted that the organizational context can influence the nature in which teams interact and what behaviors are viewed as important and valued by the team. Research on what constitutes a “supportive context” can help identify best practices in implementing IPC. This is particularly important for health care administrators who are deciding how to best utilize scarce resources.

## Literature Review

Team-based health care delivery is at the core of IPC. However, not all health care teams are interprofessional nor collaborative. To muddy the waters further, several terms exist to describe health care teams: interprofessional, multiprofessional, multidisciplinary, and interdisciplinary. Chamberlin-Salaun, Mills, and Usher (2013) argued that while the terms seem to be used interchangeably in the literature, they have different implications. The prefix “multi” implies more than one profession is involved, though there is not necessarily a shared understanding or equal platform for the professions to work together. The prefix “inter” implies an interdependence between team members. Interprofessional teams tend to have agreed-upon policies and structures, such as shared goals and procedures around conflict resolution (Chamberlin-Salaun et al., 2013). Additionally, shared power and shared decision-making have been identified as key requirements for inter-

professional teams (Henneman et al., 1995). This emphasis is echoed in the definition of collaboration: the interdependence of group members to solve problems collectively (Hathorn & Ingram, 2002). Thus, collaboration aims to break down traditional silos by connecting the skills, knowledge, and actions of the individual team members.

The emphasis on teams in primary care has grown with the development of and payment for patient-centered medical homes (Fiscella & McDaniel, 2018). Schottenfeld and colleagues (2016) noted that "...the transition to team-based primary care requires, for most practices, profound changes to the culture and organization of care, in the nature of interactions among colleagues and with patients, in education and training, and in the ways in which primary care personnel and patients understand their roles and responsibilities" (p. 2). Furthermore, evaluating primary care teams poses somewhat of a challenge. Primary care teams are less well-defined than other health care teams, such as surgical or emergency care teams, and team members often interact asynchronously (Wohler & Liaw, 2016). Additionally, there is less literature around effective teamwork in primary care compared to hospital settings, which differ greatly in their functioning (O'Malley, Gourevitch, et al., 2015). Despite this, research on IPC in primary care is present. Mulvalve, Embertt, and Razavi (2016) proposed a conceptual framework to improve collaboration among primary care teams. The input-process-outcome model emphasized contextual changes, including changes to governance, organizational culture, information systems, team structures, social processes, and formal processes. Colocation, defined as the "logistic integration of professionals working together in the same facility" (Bonciani et al., 2018, p. 1), was a common contextual factor identified across studies (e.g. Brown et al., 2015; Dean, Gill, and Barbour, 2016; Pullon et al. 2016). Pullon and colleagues (2016) found five key elements that enhance IPC: built environment that supported informal communication, geographic location close to other services and stable practice demographics, business models that addressed resource allocation and fiscal viability, shared mission and team goals, and formalized team structure and work processes. Brown and colleagues (2015) found that practices who scored highest on teamwork measures expressed a common philosophy on the importance of teamwork, had strong physician leadership who recognized and

utilized all team members' scopes of practice, and had time and space allocated for team activities. Perreault et al. (2017) found that family practitioners who worked in a clinic associated with a hospital and that had a large number of specialists who worked in the clinic reported higher levels of collaboration. These studies highlight the importance of organizational context in IPC among primary care teams.

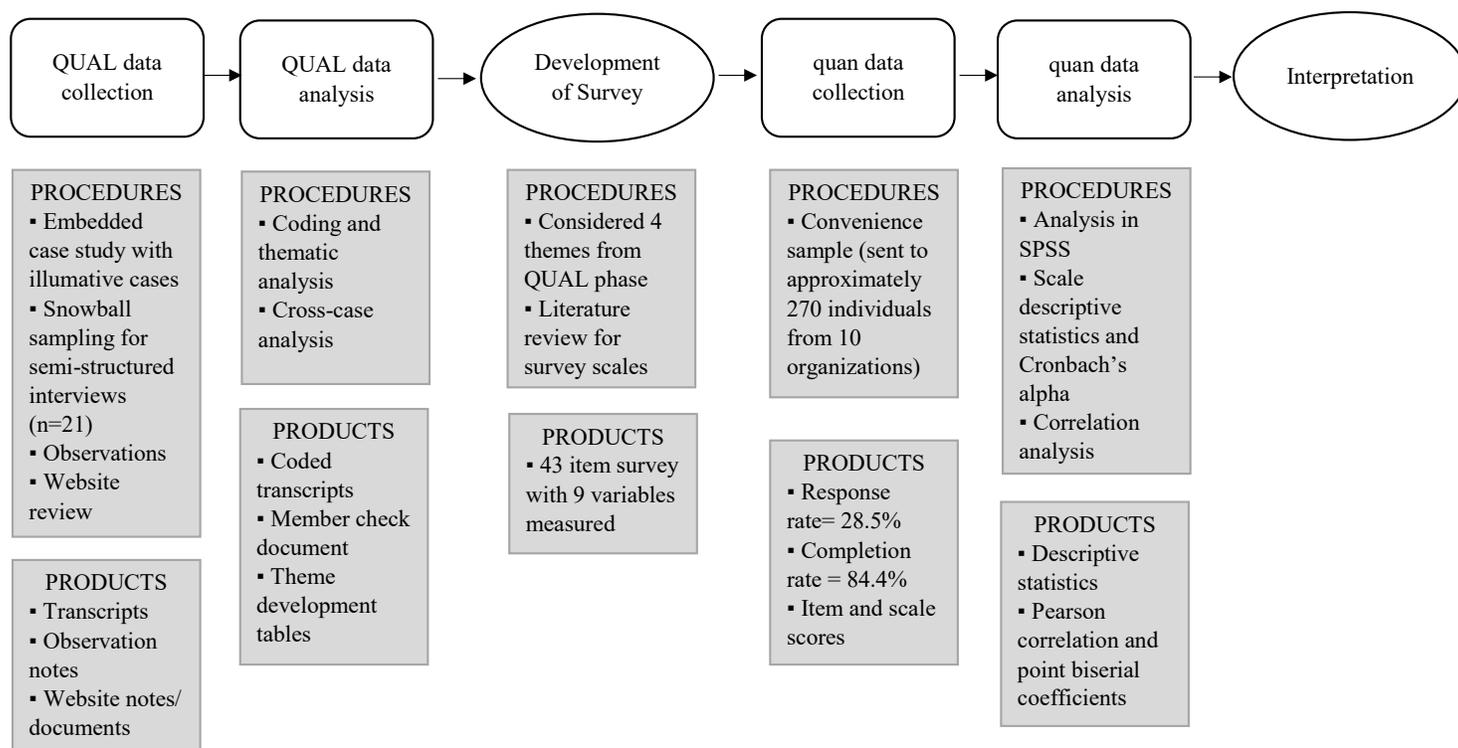
Organizational context refers to the broad setting in which IPC occurs and captures all organizational factors that are directly related to collaborative practice (Evans et al, 2017). Cappelli and Sherer (1991) described organizational context as "the surroundings associated with phenomena which help to illuminate that phenomenon, typically factors associated with units of analysis above these expressly under investigation" (p. 56). Johns (2006) further described organizational context as the situational constraints and opportunities that impact organizational behavior. Based on these definitions, we can view context as both a boundary and a driver of behavior. While undoubtedly important, one of the challenges to studying the organizational context is the vast number of factors that could be included, both internal to the organization and within the external environment. Furthermore, Hald, Bech, and Burau (2021) highlighted that context has been viewed as unchangeable, thus has not received the necessary attention in health care research.

Johns (2006) noted that organizational context is a likely explanation for study-to-study differences in research findings and may help explain how team activity translates, or fails to translate, into larger organizational results. The importance of organizational context is magnified when we consider teams as complex adaptive systems that interact with their environments and simultaneously shape and are shaped by the contextual factors of the larger organization (Pype et al., 2018). The organizational context itself can enhance or inhibit team behavior, change team behavior altogether, or shape the meaning of team behavior as understood by team members. Furthermore, context has the ability to change the nature of causal relationships, prompt curvilinear effects, and restrict the range of measured variables (Johns, 2006). Thus, understanding the organizational context in which interprofessional teams operate can provide key insights into why some teams engage in successful IPC and why other teams struggle to do so.

## Methods

The aim of this study was to explore organizational contextual factors important to successful IPC among primary care teams. An exploratory sequential mixed methods design was used to determine whether important organizational factors found in the first, qualitative phase were generalizable to a larger sample of primary care team members in a second, quantitative phase

(see Figure 1). Emphasis was placed on the qualitative phase, which utilized a single embedded case study design. The findings from the qualitative phase were used to develop the survey instrument for the quantitative phase, which employed descriptive, correlational research. The study was approved by the Southern Illinois University Carbondale Institutional Review Board (IRB #20225).



**Figure 1.** Exploratory sequential mixed methods design

### Qualitative Phase

#### Participants

The organization was an academic multispecialty group practice located in a Midwestern state. The organization contained seven clinical specialties, including family medicine, and had eight family medicine practices, six of which were patient-centered medical homes. The family medicine practices served a 59-county region. The organization operated five family medicine residency programs and graduated 27 family physicians annually. Additionally, the organization trained 40 physician assistants in family medicine annually.

To select practices, the author met with organizational leadership to identify what Patton (2002) referred to as illuminative cases, or practices where interprofessional collaboration was viewed as highly successful by the leadership. The idea behind this sampling approach was to identify exemplars that could be analyzed to better understand the organizational contextual factors that supported their successful IPC. To select participants for interviews, snowball sampling was utilized. Initial informants were identified during the observation period, then informants were asked to identify other individuals within their practice to interview, both team members from other professional backgrounds that they worked with and coworkers from the same professional background that provided

care on other teams. This approach generated a diverse sample that included a cross-section of professionals.

Individuals were invited to participate in the study by email. The email invitation included the purpose of the study, the research procedures, and an informed consent. Participants were asked to complete and return the informed consent prior to scheduling each interview. Interviews were requested until data analysis indicated that a saturation point had been reached. Coenen et al.'s (2012) operationalization of saturation was adopted for this study, where saturation is "the point during data collection and analysis at which the linking of the concepts of two consecutive interviews revealed no additional categories" (p. 362). Thus, data collection and data analysis were an iterative process, with interviews transcribed and analyzed as soon as possible after completion. Saturation was considered met when no new deductive or inductive codes were identified for two consecutive interviews.

### *Data Collection Methods*

Based on the aim of this phase of the study, interviews were the primary data collection method. Interviewing was critical to understand how primary care team members described the influence of organizational context on IPC and to identify what organizational contextual factors primary care team members identified as most important to IPC. Observations and website review were conducted to thicken the data and to fully describe the organizational context and practice-to-practice variations of this context.

Twenty-one participants were interviewed in this study: 10 from practice A, nine from practice B, and two organizational leaders. Interviews were conducted between October 29, 2020 and January 19, 2021, either over the phone or via Zoom. Interviews lasted from 8 minutes to 30 minutes. With approval, each interview was recorded to ensure accurate transcription. A semi-structured interview guide was utilized, with questions focusing on the individual's role in the practice, perceptions of IPC within the individual's team(s), organizational factors that supported IPC, and organizational factors that inhibited IPC. Synthesized member checking was utilized, as described by Birt and colleagues (2016).

Naturalistic observations were conducted at each practice, taking the stance of observer as participant (Creswell, 2014). Observations with specific inter-

professional teams were arranged with organizational leadership. Observations included team huddles/meetings and team workflow outside of patient visits. Observations were conducted prior to starting interviews. An observation protocol was used, as recommended by Creswell (2014). Observations focused on describing organizational context and team activities. Lastly, the organization's website was reviewed in detail to incorporate the formalized presentation of the organization. The review included the organization's mission, vision, guiding principles, and values, as well as other webpages that described the organization's purpose.

### *Data Analysis*

Data from interviews, observations, and website review were analyzed using thematic analysis. Each practice was first analyzed separately utilizing Braun and Clarke's (2006) thematic analysis process. Transcripts were read several times to familiarize with the data, with early, rough notes made for each interview. Initial codes were then made using Comments in each Word document. An example initial code was "diversity of professionals on the team." A list of initial codes was maintained in Excel with the interview number(s) that the code was identified in. Using the Excel document, codes were refined into categories, or groupings of initial codes. An example category was "staffing & team consistency." After reexamining the initial codes and refining the categories, themes were identified. An example theme was "team structure and themes." Once the themes were identified, the synthesized member-checking document was sent to participants. Feedback as used to modified the themes. After each practice was analyzed, a comparative analysis was conducted utilizing Yin's (2014) cross-case synthesis techniques.

### *Trustworthiness*

Guba and Lincoln's (1994) five criteria for trustworthiness were used to maintain rigor of the study. To enhance the credibility, data was triangulated from multiple sources and member checks were employed. To enhance the dependability, data collection and analysis processes were described in detail. To enhance transferability, rich descriptions were included to allow readers to make decisions about applicability in other settings. To enhance confirmability, reflexive bracketing was conducted and ample quotes to reflect the participants' experiences were included. Lastly, to enhance

authenticity, data was collected from a cross-section of the professional backgrounds represented in the organization to reflect differences in experiences among team members.

### *Quantitative Phase*

#### **Survey Development**

The qualitative findings were used to develop the survey instrument in the quantitative phase. The survey measured the following constructs: IPC, perceived team support, team resources, provider leadership, clan culture, patient-centered values, perceived organizational support, FQHC status, and presence of physician residency program. To measure IPC, the Interprofessional Collaboration Scale (Kenazschuk et al., 2010) was utilized. The original survey assessed “rater-target” dyads, such as nurses rating their collaboration with physicians and vice versa. For this study, the instrument used the terms “team” and “they/their,” as used by Sun Country Health Region (n.d.), broadly to assess teams rather than dyads and to capture the varying compositions of professional backgrounds that comprise primary care teams. To assess perceived organizational support and perceived team support, an adapted three-item version of the Survey of Perceived Organizational Support (SPOS; Eisenberger et al., 1986; Eisenberger et al., 2002) was utilized. For organizational support, the original survey items were used. To measure perceived team support, the word “organization” was replaced with the words “team members” (i.e., My team members really care about my well-being). To assess provider leadership, an adapted version of the leadership scale from the Partnership Self-Assessment Tool (Weiss et al., 2002) was utilized. The original scale included 10 items; four items were selected that reflected the important leadership characteristics highlighted in the qualitative phase. The four selected items had factor loadings greater than 0.85. To assess resources, the non-financial resources scale and the financial and other capital resources scale from the Partnership Self-Assessment Tool (Weiss et al., 2002) was utilized. The non-financial resources scale included six items, of which four were included in the study: skills and expertise, modified to staff/skills/expertise; data and information; legitimacy and credibility; and influence and ability to bring people together for meetings. The four selected items had factor loadings greater than 0.65. The financial and other capital resources scale included

three items, of which all were used: money; space, modified to space/colocation; and equipment and goods. To assess clan culture, an adapted version of the Organizational Culture Assessment Instrument (OCAI; Cameron & Quinn, 2006) was utilized. OCAI assess organizational culture across six dimensions. Four dimensions were included in the study: dominant characteristics, management of employees, organizational glue, and criteria for success. Participants were asked to rate the items for clan culture for these four domains. To assess patient-centered organizational values, two questions from Nelson, Forcino, and Elwyn (2017) were used: (1) to what extent would you agree or disagree that patient-centered care values are important to the overall mission of the organization; and (2) to what extent would you agree or disagree that a gap exists between patient-centered organizational values and day-to-day patient care. The last two constructs were measured with Yes/No questions: (1) is your practice a federally qualified health center (FQHC); and (2) does your practice have a residency program.

A bipolar, six-point Likert scale was used to assess IPC, perceived organizational support, perceived team support, clan culture, and patient-centered values, with response options of “Strongly Agree,” “Agree,” “Slightly Agree,” “Slightly Disagree,” “Disagree,” and “Strongly Disagree.” A bipolar, five-point scale was used to measure provider leadership, with response options of “Excellent,” “Very good,” “Good,” “Fair,” and “Poor.” A bipolar, five-point scale was used to assess team resources, with response options of “All of what it needs,” “Most of what it needs,” “Some of what it needs,” “Almost none of what it needs,” and “None of what it needs.”

#### *Participants and Data Collection*

A convenience sample of primary care practices were recruited through two approaches. First, organizations in which the researcher had an established relationship were contacted to request participation in the study. Second, organizations who had achieved PCMH recognition through the National Committee for Quality Assurance (NCQA) were identified using NCQA’s website. Efforts were made to contact organizational leadership via email to request participation in the study. These approaches yielded a total of 18 primary care practices from 10 organizations who agreed to participate in the study. The survey invitation was sent to a contact person at each organization who then shared

the survey with care team members in their organizations. The survey was administered via Survey Monkey and a link to the survey was included in the invitation email. The sample consisted of approximately 270 individuals. Seventy-seven primary care team members

responded to the survey request, with 65 team members completing the survey in its entirety (28.5% response rate, 84.4% completion rate). Table 1 describes the characteristics of the survey respondents.

Demographic Characteristics	No. (%)
<b>Professional Background</b>	
Physician	23 (35.4%)
Nurse Practitioner	12 (18.5%)
Physician Assistant	5 (7.7%)
Registered Nurse	3 (4.6%)
Licensed Practical Nurse	2 (3.1%)
Medical Assistant	3 (4.6%)
Behavioral Health Provider	3 (4.6%)
Other	14 (21.5%)
Years since License <sup>1</sup>	$\bar{x}=14.6, s=13.5$
0-9	31 (50%)
10-19	12 (19.4%)
20-29	7 (11.2%)
30-39	7 (11.2%)
40-49	5 (8.1%)
Years at Practice	$\bar{x}=7.1, s=8.0$
0-9	49 (75.4%)
10-19	11 (16.9%)
20-29	3 (4.6%)
30-39	2 (3.1%)
<b>Employment Type</b>	
Full-time	63 (96.9%)
Part-time	2 (3.1%)
<b>Gender</b>	
Male	24 (36.9%)
Female	41 (63.1%)
Age in Years	$\bar{x}=45.9, s=12.3$
20-29	7 (10.8%)
30-39	14 (21.5%)
40-49	19 (29.2%)
50-59	15 (23.1%)
60-69	10 (15.4%)

**Table 1.** *Characteristics of Survey Respondents*

<sup>1</sup>Three respondents did not answer question.

### *Data Analysis*

Data were exported from Survey Monkey to SPSS v27 for analysis. To check the psychometric properties of the survey, internal consistency reliability was calculated using Cronbach's alpha coefficient for each scale. Frequencies and descriptive statistics for each item in the scales were calculated, and Pearson correlation coefficient ( $r$ ) was used to measure the association between the scale scores. Norman (2010) noted that Pearson correlation analysis is robust in terms of skewness, nonnormality, and sample size, and can be used with Likert or Likert-like scales. The questions regarding FQHC status and the presence of a physician residency program were dichotomous (yes/no), so point biserial correlation was used to measure the association between these factors and IPC scores (Kornbrot, 2005).

## **Results**

### *Qualitative Phase*

#### **Background of Organization**

As federally qualified health centers (FQHCs), the practices did not solely provide traditional primary care services; they also provided services to meet the needs of certain patient populations (such as medication-assisted treatment and weight loss) and had specialists from outside organizations provide services within their building (such as cardiology). Team members used the term 'clinic' to denote a half-day patient schedule for a particular team. To quote a faculty physician, there was a "half day consistency" within the practices. Teams were structured so they included providers and team members to not only provide care during the various types of clinics but also to provide back up for each other and continuity for patients. For example, a team might include faculty physicians, resident physicians, cardiologists, a pharmacist, a behavioral health specialist, a care coordinator, a dietician, and nursing staff. For this team, the morning may consist of providers providing traditional primary care and the afternoon may consist of specialists providing cardiology care. In the morning clinic, if a faculty physician is not in that day but one of his/her patients needs to be seen, the goal was to have another provider on the team see that patient. The goal was to prevent the patient from bouncing from provider to provider throughout the clinic. In most cases, providers and nursing staff were assigned to a single team, unless they were covering a staffing

shortage on another team. Other team members, such as pharmacists, behavioral health specialists, and dieticians, may be part of a team for one clinic then move to another team for another clinic. In this sense, teams were structured but fluid with staff shared across teams.

An organizational leader noted that several team models used in the organization. The author observed three different models: scribe teams, specialty teams, and nursing teams (see Figure 2). The scribe team model was comprised of a physician provider and three nursing support staff, two medical assistants (MAs) and one licensed practical nurse (LPN). In the scribe model, the physician and MA conducted patient visits together. The two MAs concurrently room patients. The MA began the visit, taking the history and setting the agenda with the patient. The MA then left the room to discuss the agenda with the physician and any issues that were identified during the history. The MA and physician returned to the room together, with the physician sitting face-to-face with the patient and the MA documenting in real-time, accessing information from the EHR as requested by the physician, and entering orders. As the physician leaves to start the next patient visit with the second MA, the first MA wraps up by reviewing the care plan with the patient and coordinating any referrals or follow-up visits needed. On the day observed, the LPN was working on multiple teams but was handling phone responsibilities for the scribe team, including insurance verification and patient triage.

The specialty team model was used within clinics that addressed a specific patient population, such as medication-assisted treatment clinic, weight loss clinic, cystic fibrosis clinic, and complex care clinic. This model included a physician provider, MA or LPN, and behavioral health specialist (i.e., licensed social worker) who were dedicated to that clinic. Additional care team members were also dedicated to the clinic depending on the patient needs (i.e., registered dietician, pharmacist, peer support specialist, lawyer).

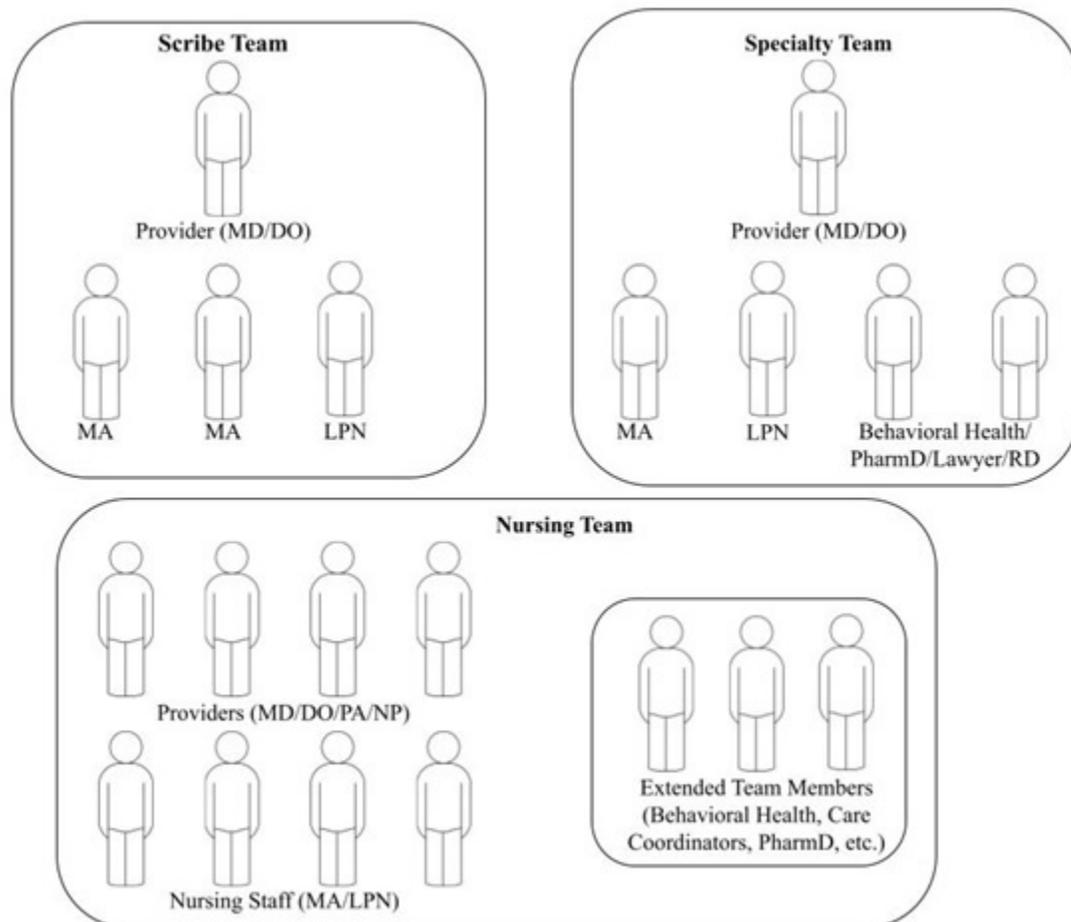
The nursing team model, also referred to as "regular clinic," "continuity care clinics," and "pod-based teams," included several providers (physicians, physician assistants, and nurse practitioners) who were each caring for their own panel of patients. The providers were supported by nursing staff (MAs and/or LPNs) who worked with all providers on that team. The providers and nursing staff comprised the core team with addi-

tional care team members (i.e. behavioral health specialist, pharmacist, care coordination staff) supporting patient care as needed. These team members were not dedicated to that team; instead, they were called in “as needed.”

### Organizational Context Themes

Based on the conducted interviews, observation, and

website review, four themes were identified around the most important organizational contextual factors for IPC, discussed in detail in the subsequent sections. Table 2 presents these themes with their associated initial codes and categories. Table 3 presents quotes that illustrate each theme.



**Figure 2.** Visual Diagrams of Team Models Observed

Note. MD= Medical Doctor; DO= Doctor of Osteopathic Medicine; MA= Medical Assistant; LPN= Licensed Practice Nurse; RD= Registered Dietician; PA= Physician Assistant; NP= Nurse Practitioner

Theme	Categories	Initial Codes
Team structure & resources	Staffing & team consistency	Stable team members Staff turnover Diversity of professionals on team <sup>a</sup> Frequency of working together Physical presence of team members* Mismatched schedules <sup>b</sup> “Half day consistency” Turnover created by residency program <sup>b</sup>
	Time for IPC	Appointment length Team huddles/meetings* <sup>a</sup> Feeling of “just getting by”
	Communication tools	IT communication systems Team huddles/meetings* <sup>a</sup> Colocation Physical presence of team members*
	Perceived fairness <sup>b</sup>	Allocation of staff/space among teams
Supportive, patient-centered culture	“Feel” of the organization	Supportive “We’re in this together” <sup>a</sup> Family-like feel <sup>a</sup> Finding people who are ‘the right fit’ <sup>b</sup>
	Team member support	Value each team member Help each other Relationship development Non-territorial <sup>a</sup>
	IPC expectations	Non-collaborators “don’t fit” “What we want our learners to see” “What’s best for patients” <sup>*</sup> Interprofessional education <sup>*</sup>
Leadership	Organizational leadership support	Available and listens Financial support <sup>a</sup> “What’s best for patients” <sup>*</sup>
	Provider leadership and engagement	Champion IPC Value input from other professionals Model respect
Organizational structure & resources	Size of practice <sup>a</sup>	Number of providers “Knowing who to collaborate with” “Half day consistency” <sup>*</sup>
	Organizational hierarchy <sup>b</sup>	Satellite clinic Us versus them
	Business structure	FQHC Academic facility
	Training	Interprofessional education <sup>*</sup>
	Space	Colocation <sup>*</sup>

**Table 2. Codes, Categories, and Themes**

Note. Initial codes that related to more than one theme are denoted with an asterisk (\*).

<sup>a</sup> code/category was only identified in Practice A.

<sup>b</sup> code/category was only identified in Practice B

## Team Structure and Resources

This theme captured the team-level supports in place for IPC, falling into three categories: staffing and team consistency, time for IPC, and communication tools. The first category, staffing and team consistency, encompassed the composition of professionals on the team, the stability of these team members, the frequency that team members worked together, and whether team members were physical present at the same time. A behavioral health specialist on team 1 (“specialty team”) in Practice A stated that when team members are not physically present, it creates an extra step in IPC by requiring a separate follow-up versus having a conversation in the moment. This was noted during observation of team 1. Due to illness and COVID protocols, three team members were not present. During the clinic, patient needs arose that warranted IPC with those individuals, and the team members who were present had to utilize asynchronous communication tools, such as the secure messaging system, to initiate the process. The behavioral health specialist explained that normally they would have these conversations in the moment, but in their absence, it may take a couple of days to coordinate these efforts.

A physician assistant on team 3 (“nursing team”) in Practice B noted that mismatched schedules created challenges with team members to be physically present at the same time. A resident physician on team 2 (“nursing team”) in Practice B noted that one of the teams was dissolved because of nursing turnover. A behavioral health specialist also noted shortages within the behavioral health team. A physician assistant on team 2 (“nursing team”) noted that these shortages create barriers in IPC, simply because team members are maxed out in terms of capacity.

The second category, time for IPC, captured dedicated time for IPC among team members, including appointment times and team huddles/meetings. During observation, I noted that the specialty teams observed had longer appointments with patients to allow patients to see multiple professionals in a single visit. This longer appointment time also allowed the time for the team to collaborate within the visit. When time was limited, it did not necessarily mean that IPC did not occur, but rather that IPC became a follow-up to the appointment rather than occurring in the moment. Several team

members noted that longer appointment slots would improve IPC, as it would provide dedicated time for collaboration both between team members and with the patient; however, the ability to do so was tied to limitations in reimbursement. Team members also described the general busyness of the clinic. As explained by a physician assistant on team 2 (“nursing team”), she felt her team often found themselves “behind the eight ball” and thus were unable to collaborate as closely as she would like.

Team huddles and meetings were another time resource for IPC. Team huddles refer to short meetings (i.e. 15 minutes or less) before or after the start of a clinic to discuss patient needs, while team meetings refer to longer meetings (i.e. 1 hour) that did not necessarily coincide with a clinic but still focused on patient needs. Team huddles were observed across teams, though the format varied. Some huddles occurred with all team members, others happened with just the provider and nurse. Some huddles occurred face-to-face, while others occurred asynchronously via paper with face-to-face follow-up. Despite the format, team huddles and meetings were identified as a supporting factor for IPC.

The third category was communication tools, which described the resources in place to facilitate interprofessional communication. Team huddles/meetings were one such resource, as well as information technology (IT) systems and colocation. There were two IT systems identified by team members: the task lists within the EHR system and the secure messaging system. The task lists were used for patient needs that did not necessarily need to be addressed immediately, whereas the secure messaging system was used for more immediate needs. A faculty physician in Practice A explained that the messages go to team members’ computers and phones, and help teams communicate “in the moment,” like if a physician identifies a behavioral health need and wants a behavioral health specialist to come meet with the patient. Rather than having to leave the room, the physician can send a secure message to the behavioral health specialist and ask them to come to the exam room. However, there was a general consensus that colocation and physical presence was the most beneficial for facilitating communication. A behavioral health specialist on team 1 (“specialty team”) in Practice B noted this difference but also cautioned that colocation alone does not guarantee IPC.

The fourth category, perceived fairness, was only discussed in Practice B. This category referred to allocation of staff and space among teams within the practice. During observation, I noted that three teams shared a clinic space, while two teams had their own space. Additionally, some teams shared nursing staff while other teams had their own dedicated staff. There were feelings

that this allocation was disproportionate to the busyness of the clinic and number of patients seen by each team. A resident physician on team 1 (“nursing team”) noted that he felt the specialty and scribe teams were allocated more resources, namely staff, compared to the nursing teams, despite that the nursing teams generally cared for more patients.

Theme	Quotes
Team structure & resources	<p>“When it comes to the right people being in the right place simultaneously, some of us are ships passing in the harbor. If our schedules don’t line up in a way that I get to do a real handoff if I had seen a patient and it’s left to a task, that is a lot different. It’s like the text message versus the phone call. You know, its one-way communication. It isn’t always perceived the way it should be. It’s left to interpretation. There isn’t the ability to clarify or to have a follow-up, you know, without getting even more cumbersome” (Physician Assistant, Nursing Team, Practice B).</p> <p>“We had four [behavioral health specialists], now we’re down to two because of retirement. They’re scrambling. When we first incorporated behavioral health into primary care... one of the ideas was that, let’s say I was seeing someone for a school physical. You know, relatively straightforward. But in talking with the patient and the parents, I find out there’s some school anxiety and the patient would really benefit from some expertise from a behaviorist. Ideally, what we had hoped for, was that we could call somebody and they can come see the patient while they are in the room. And that can still happen but it doesn’t happen very often because they’re so busy. They just don’t have the availability” (Physician Assistant, Nursing Team, Practice B).</p> <p>“I think if we had more time in any clinic, it would give us more time to collaborate. If I had a women’s health question, I know that on the other side of the practice, the midwives have their clinic. So if I was over on the other side and I had a patient who was trying to decide on contraception, and I’ve offered them all the different options and they’re concerned about, you know, A and B, I could pop over and ask the midwives who are constantly prescribing contraception. But because I’m time-limited, I don’t have the luxury to do that as much” (Resident Physician, Nursing Team, Practice A).</p> <p>“I know I can task [in the EHR]. You know, I can write my notes and ask them to review my notes and those things. But I feel you get a lot out of it when you’re able to talk directly with someone. We might also have a different take, same patient same day. But when one of us leaves that interaction, we may feel very differently about that patient. So again, it’s everybody’s different approach. But being able to talk with them directly I think is really important” (Behavioral Health Specialist, Specialty Team, Practice B).</p>
Supportive, patient-centered culture	<p>“I had done a visiting rotation here [in medical school]. The people felt very warm and welcoming and I just loved how busy it was... What I love about this place that has kept me so long is they have always listened to me and I feel like anytime I said anything of constructive criticism or a struggle I was having with my job, my supervisors have always listened. They’ve always identified, understood, and said how can we make it better. It’s the attitude of ‘we’re all in this together’ and we all can struggle, but we identify with each other and then we can work to try and get better” (Faculty Physician, Specialty Team, Practice A).</p> <p>“Doctor has been phenomenal as far as also being able to look at things from my perspective and being, you know, allowing me to advocate for the patient and kind of respecting my point of view or my opinion on things. You know, I think that it does take a certain kind of provider, position-wise, to be willing to allow everyone to be on the same level, you know, authority-wise or power-wise. So I think having that dynamic, like you said, where you’re mutually respecting each other. And, you know, respecting each other’s opinions and input and feedback. That’s really helpful” (Behavioral Health Specialist, Specialty Team, Practice A).</p> <p>“We had received a grant that allowed us to start doing some training together, and allowed us to sit down together as faculty first, do some faculty development and teaching and build some trust... You have to start with the leadership doing it in a training program if you are going to teach the learners how to do it. You have to model it. As we built that culture, I think it comes from, well they tell me it comes from leadership. And it permeates. You believe it in and if you have the vision for it, they see that. And you show them that trust and interaction and mutual respect and all of those things you have to have to work as a team, then that’s an expectation I guess” (Organization Administrator).</p> <p>“I believe they [organizational leadership] generally care about population health because I know from the very top, everyone is very supportive [of what we are doing]. We are working with high risk, difficult to manage patients. So with the team that the organization has assembled, there is a difference that’s being made” (Specialty Team, Practice A).</p>

**Table 3.** Quotes from Interviewed Team Members Supporting Qualitative Themes, continued on next page

Leadership	<p>“I always say we specialize in the patient within the context of their family, whatever form that might take, and their community. I think that has made us want to do this thing called patient-centered medical home and to partner with teams to be able to do it” (Organization Administrator).</p> <p>“I think it’s the structure that the leadership set up and having that foresight. I think that’s what has really promoted the success [of IPC] here” (Physician Assistant, Nursing Team, Practice B).</p> <p>“I think it’s a little bit the way family docs think anyway. There’s not as much of a hierarchy, I mean. And I think it’s always been a little bit more collaborative and team-based. I think that’s been true for years, even when you just had your nurse and your front desk person, you know, in a small practice rurally. You had to really be cohesive in a medical home type setting, which we call it that now. We didn’t really call it that then. Having everything one-stop shop in a place that focuses on the patient. Patient-centered and trying to gain their trust. I think as we started teaching those things as part of [the grant], but also before that. Just saying this is the way we do the best care for our patients” (Organization Administrator).</p> <p>“We kind of believe that everyone should work at the top of their license. And I hope it’s not just me saying that. I hope that is the vibe or feeling across the team... I think you need a willingness to understand that there are many more components than the physician, PA, provider. Him or herself. Providing excellent care... you have to take, you know, surprisingly, take themselves down a notch and say I’m not the only important piece here. I think you need a willingness for people to provide their input. For example, if there’s something that’s not going right with how we’re doing things, I ask the staff. So we can look at what we need to do differently, but if it’s something that I personally need to do differently, I say okay. Or am I making this too hard on you, how can I make it easier for you to document this or do these things? Or what can we do with the system to make it better?” (Faculty Physician, Practice B).</p>
Organizational structure & resources	<p>“The second [barrier] would be just knowing what’s available to you and who’s available to collaborate with. As much as it’s great that we have all these specialists, there’s just so much going on all the time... And I think sometimes that’s hard because how do you [the organization] present that in a way that’s easy and accessible for us to know” (Resident Physician, Nursing Team, Practice A).</p> <p>“Our [practice] culture is definitely ready for change, but I think that also frustrates us because we’re under the auspices of the mothership. So there’s a lot of things that would benefit us change-wise that either can’t be done financially or go against policies which none of us understand why they’re in place nor can anyone answer those questions centrally, you know. And I’m thinking of several different initiatives that we’ve looked at doing that we’ve been told no, not now. So I think that definitely affects the culture where we don’t feel as autonomous, as I think more autonomy would allow us to progress further” (Faculty Physician, Specialty Team, Practice B).</p> <p>“On a bigger level, the mothership, so to speak, put a hiring freeze for everybody in the whole organization. And, you know, that was kind of when we were already short like maybe two or three nurses and then everyone started dropping like flies. So we lost like another few nurses and we were having, or the director of our clinic was having to file for, um whatever you want to say, exemptions from the policy. And that in itself seemed like it was taking a month for a nurse position that he was wanting to hire for. So I think that’s been done away with now for our clinic and we’re allowed to hire again... I think, the mothership, so to speak, did not see what was going on here” (Resident Physician, Nursing Team, Practice B).</p> <p>“[Becoming a FQHC] gave us in-house resources that we never had before. Well, very remotely we did have a counselor that was part of the faculty, and she was doing some counseling with our patients as well as outside patients. But to have some people that are dedicated to, one, improving the provider’s level of education on, you know, trauma-informed care and on just the myriad of interviewing skills. And sort of just giving you resources for patients in crisis... that has been a huge asset. I think we look at each patient a little different because we’re getting that ‘don’t forget about the social determinants of health, don’t forget about emotional intelligence...’ So it’s been really nice as a way to streamline and then knowing that the patient’s getting taken care of very well. Sometimes when we make referrals to the outside, especially for mental health, you don’t get notes back. You don’t get anything that even tells you that they went. So being able to have a two-minute conversation with the therapist has given me so much more insight on how to better provide care for that patient. So that’s been great” (Physician Assistant, Nursing Team, Practice B).</p>

**Table 3.** *Quotes from Interviewed Team Members Supporting Qualitative Themes, continued from previous page*

## Supportive, Patient-Centered Culture

The second theme captured the organizational culture. Several words were used to describe the organization, including warm, supportive, welcoming, and family-like. Several individuals noted activities at either the team or practice-level that create a family-like atmosphere. For one faculty physician, this “feel” was the reason she continued to work at the practice.

Team member support, or the perception that one’s team members value his/her contributions and well-being, was frequently highlighted when discussing the supportive culture. Team members who felt their teams collaborated well together noted that they felt their team members valued what they brought to the team and that their input was considered by other team members. Team members also voiced appreciation for other team members, recognizing the role they had within the team. A physician assistant on team 2 (“nursing team”) in Practice B emphasized the value of behavioral health and their scheduler in caring for patients. A resident physician on team 2 (“nursing team”) in Practice B discussed the role the nurses played in caring for patients, particularly in providing routine care to patients.

The last component of the organizational culture was patient-centeredness. There was a general sense that team members were expected to collaborate with each other as a means to provide the best care to patients. This expectation for IPC was noted during the website review. Collaboration and participation were listed as values of the organization, espousing a commitment teamwork and leveraging the unique skills and knowledge of all individuals. Interprofessional teams were mentioned as a way to improve care for vulnerable and underserved populations.

## Leadership

The third theme was leadership, encompassing two categories: organizational leadership support and provider leadership and engagement. Organizational leadership support referred to support from upper-level administrators, such as the department chair. There was a sense that organizational leaders listened to the needs of the teams and would support teams financially to implement IPC. The idea that IPC was important because it was best for the patient was eminent at the top level and was felt by the teams directly. A faculty physician on team 1 (“scribe team”) in Practice B stated that he believed interprofes-

sional models were implemented in the practice because “we think that is the best for patients.” A physician assistant on team 3 (“nursing team”) in Practice B stated that the support can be seen in the structure of the teams within the practice. An administrative leader noted that the implementation of IPC in the organization has developed over time, starting small with one discipline and growing with the assistance of grant funding. Receiving a training grant acted as a key turning point in developing IPC models within the organization. The training included faculty development, which “builds trust and that relationship” that is necessary for IPC.

Provider leadership and engagement referred to the extent that the provider leader of the team served as a role model for IPC and engaged team members in collaborative care. Team members noted that a level of openness was necessary for IPC, and that openness started from the provider leader of the team. A behavioral health specialist on team 1 (“specialty team”) in Practice A noted that the provider leader on her team allowed everyone to “be on the same level” to care for patients. A faculty physician in Practice B stated that the physician’s openness to and valuing of input from other professionals was a key determinant of successful IPC.

## Organizational Structure and Resources

The final theme captured the supports in place at the organization level, encompassing five categories: size, hierarchy, business structure, training, and space. The size of the practice was only mentioned by individuals in Practice A and referred to the number of providers and types of clinics offered within the practice. Two resident physicians noted that this was both a support for and a barrier to IPC, sometimes creating challenges in knowing who to collaborate with. The size of the clinic created what one faculty physician referred to as a “half day consistency.” The size of the clinic, thus, influenced the staffing and team consistency, where no two days at the practice looked exactly the same. One medical assistant noted she worked with 14 doctors depending on the day and the clinic.

Organizational hierarchy was only mentioned by individuals in Practice B and was distinctly identified as a barrier rather than a support. Organizational hierarchy referred to the “hub-and-spoke” model of the organization. Practice B was considered a spoke or satellite practice in the organization. As described by one faculty

physician, this structure limits the ability for the practice to implement certain changes that could benefit IPC. A resident physician also noted these limitations, particularly around hiring. This feedback created a sense of “us versus them” mentality. While there was a sense that IPC was supported generally within the organization, some team members felt that there was a disconnect between the organization as a whole and the practice specifically.

Business structure, namely status as a FQHC and academic facility, were noted by both practices. FQHC status enabled team-level resources, namely by providing resources. The organization's structure as an academic facility was also identified as an important supporting factor for IPC, mainly because it provided a means for training and IPE, which was the final category. Practice B's website highlights how staff at all levels are trained

on counseling, interviewing, and communication skills to enhance patient care, and that residents learn a team approach to family care. A physician assistant on team 3 (“nursing team”) described that IPE helped “change the mindset of residents” by increasing understanding of a physician assistant's role and training.

### Quantitative Phase

Table 3 presents the correlation coefficients between study variables, as well as the internal reliability, scale mean, scale standard deviation, number of questions in scale, and possible scale score range. All but one scale, patient-centered values scale, had acceptable levels of reliability. The internal consistency reliability for the patient-centered values scale was low (0.41), likely due to the scale including only 2 items. Correlations were interpreted using Evans' (1996) classification.

	IPC	TMS	TRS	PLS	CCS	PCVS	POS	FQHC	PRP
IPC	1								
TMS	0.749** (0.61-0.84)	1							
TRS	0.482** (0.27-0.65)	0.598** (0.41-0.73)	1						
PLS	0.657** (0.49-0.78)	0.781** (0.66-0.86)	0.610** (0.43-0.74)	1					
CCS	0.467** (0.29-0.64)	0.516** (0.31-0.67)	0.350** (0.13-0.55)	0.512** (0.30-0.67)	1				
PCVS	0.359** (0.12-0.55)	0.413** (0.19-0.56)	0.368** (0.13-0.56)	0.321** (0.08-0.52)	0.526** (0.32-0.68)	1			
POS	0.424** (0.20-0.60)	0.608** (0.42-0.74)	0.482** (0.27-0.65)	0.545** (0.34-0.69)	0.806** (0.67-0.88)	0.568** (0.37-0.71)	1		
FQHC	0.171 (-0.08 – 0.4)	0.222 (-0.02-0.44)	0.107 (-0.14-0.34)	0.051 (-0.20-0.29)	0.120 (-0.13-0.35)	0.292* (0.05-0.50)	0.117 (-0.13-0.35)	1	
PRP	0.191 (0.05-0.50)	0.209 (-0.04-0.43)	0.089 (-0.16-0.33)	0.054 (-0.19-0.29)	0.182 (-0.07-0.41)	0.308* (0.07-0.51)	0.261* (0.02-0.48)	0.471** (0.26-0.64)	1
Cronbach's alpha	0.83	0.89	0.79	0.97	0.94	0.41	0.94	-----	-----
Scale mean (s)	55.63 (8.54)	19.72 (4.11)	20.11 (2.98)	15.46 (4.37)	17.48 (5.44)	8.62 (2.13)	13.09 (4.36)	Yes- 53.8%	Yes- 61.5%
No. of questions (possible range)	12 (0-72)	4 (0-24)	5 (0-25)	4 (0-20)	4 (0-24)	2 (0-12)	3 (0-18)	1 (NA)	1 (NA)

**Table 4.** Correlation Coefficients among Study Variables and Scale Summaries

Notes. PRP= physician residency program. 95% confidence interval for correlation coefficients presented in parentheses. \* $p < 0.05$ ; \*\* $p < 0.01$

There was a strong, positive relationship between IPC and team member support and provider leadership, and a moderate, positive relationship between IPC and team resources, clan culture, and perceived organizational support. There was a weak, positive relationship between IPC and patient-centered values, and no significant relationship between IPC and FQHC status and presence of a physician residency program.

## Discussion

This study builds upon Petri (2010) and Bookey-Bassett et al. (2016) to identify organizational factors that comprise a supportive context for IPC. Most interviewed team members could provide an example of IPC within their teams; however, all team members noted challenges that made it difficult to engage in meaningful IPC consistently. Individuals noted that they felt not all teams had the same expectations around IPC. It also seemed that the difference in expectations, at least in part, were because the teams were designed with different purposes in mind. Nursing teams served a cross-coverage function, extending access and providing continuity for patients. Because of this design, teams were larger and team members were often not present at the same time. Nursing teams also cared for all patient needs rather than a targeted population, which created challenges in anticipating patient needs that may require IPC. Nursing teams seemed to align more with multiprofessional teams than interprofessional teams (Hathorn & Ingram, 2002), where emphasis is placed on cooperation and coordination than collaboration. Specialty teams, on the other hand, were developed to provide interprofessional collaborative care to a defined patient population for a specific health need. This design led to smaller, well-defined teams that were usually present at the same time. The team could also better anticipate patient needs, which may contribute to IPC. Furthermore, the difference in team type and structure seemed to relate to the availability of team resources, namely time and staff. Team members in the present study identified time and staff as two key team resources, aligning with previous studies on IPC (e.g. Martin-Rodriguez et al., 2005; Xyrichis & Lowton, 2008; Kadu & Stolee, 2015; Pullon et al., 2016).

Organizational factors were identified across four themes: team structure and resources; supportive, patient-centered culture; leadership; and organizational structure and resources. Staffing challenges, stable team

members, and the physical presence of team members were frequently noted regarding staffing and team consistency. Andreatta's (2010) typology for health care teams may illuminate the challenges of team stability for IPC. The findings of this study suggest that type 2 teams (stable role, variable personnel) may require different contextual factors to support successful IPC. For example, nursing teams may require additional communication tools to support asynchronous IPC or dedicated time to engage in IPC related to care plan development with extended team members.

Interviewed team members also identified that IPC takes time, which may not be available in the busy schedule of the practices. Time constraints are frequently highlighted as a challenge to IPC (e.g. Kadu & Stolee, 2015; Martin-Rodriguez et al., 2005; Pullon et al., 2016; Rice et al., 2010; Xyrichis & Lowton, 2008). Similar to Oandasan and colleagues (2009), primary care teams observed in this study mostly interacted on an ad hoc basis between patient appointments. For teams that were colocated, shared space created shared time. IPC could happen naturally within the flow of the visit without requiring significant steps that encroached upon already limited time. Even for teams that had team huddles or meetings to discuss patient care, interviewed team members discussed the importance of informal communication afforded through colocation. For teams that are not colocated, communication needs to be more intentional with additional tools to facilitate IPC, such as Papermaster and Champion's (2021) concept of curbside consultation or leveraging asynchronous communication tools, such as the EHR. Health care managers need to consider the time requirements for asynchronous communication, described by individuals in this study as "an extra step" in the process.

Rosen et al. (2018) stated that "organizational culture provides the operating conditions that promote effective teamwork" (p. 438). In this study, team members identified a supportive, patient-centered culture as the operating conditions for IPC. This can be viewed as a clan culture (Cameron & Quinn, 2006), characterized by "shared values and goals, cohesion, participativeness, individuality, and a sense of 'we-ness'" (p. 46). When considered in light of the seven key elements of IPC (Way et al., 2000), an organizational culture that promotes cohesion, participation, and shared goals aligns with IPC. However, it also appeared that the

strength of the organizational culture played an important role. Individuals from different teams across both practices described the organizational culture and values similarly. This suggests that the norms and values are deeply embedded in the organization. Interviewed team members noted that team member support was an important part of creating the organizational culture. Furthermore, individuals noted that a key to successful IPC was relationship development and building the mutual trust and respect that is central to IPC, aligning with Wei et al. (2020).

Leadership approach and clinician engagement were two of the three most important factors of the CCIC framework (Evans et al., 2016), suggesting that this theme has important implications for successful IPC. Interviewed team members shared that the interprofessional models implemented within the organization were not always the most financially effective models, but organizational leaders supported these models because they believed they were best for patients. It seemed that supportive, patient-centered culture bred supportive, patient-centered leadership (or perhaps the other way around). Valaitis and colleagues (2018) noted that without a strong vision for IPC from leadership, the necessary culture would likely fail to support interprofessional initiatives, a finding seen in the present study.

Provider leadership and engagement mostly focused on team leaders as champions of and for IPC. Interviewed team members who were not providers (physicians, physician assistants, or nurse practitioners) noted that they felt valued by their team provider, particularly behavioral health specialists. There was a strong feeling that behavioral input was sought and considered when providing patient care. Providers mentioned their desire to model IPC for learners within their organization, and that being an academic facility was a key driver for provider engagement in IPC. This study's findings also shed light on the leadership style that supports IPC. Team members reported provider leaders who emphasized relationship development and modeled respect were most effective, blending elements of relational leadership (Weiss et al., 2018) and authentic leadership (Laschinger & Smith, 2013). Additionally, team members described how leadership and power shifted depending on the patient and situation. This suggests that team leadership, too, is fluid rather than

absolute and the team's ability to shift power when necessary is important to IPC. Health care organizations with rigid hierarchy, particularly around professional roles, may have a more difficult time implementing or sustaining IPC.

The funding mechanisms afforded by FQHC status may hold important implications for IPC success in the care setting. Additionally, as an academic organization, there was an emphasis placed on interprofessional education. Interviewed team members felt this enhanced the training and skills of team members necessary for IPC initiatives to succeed. The case organization engaged in faculty development and interprofessional trainings that may not have occurred outside an academic institution. This may mean that non-academic facilities will need to build interprofessional training into their staff development and training programs.

Space, organization size, and organizational hierarchy were primarily discussed as barriers to IPC. In Practice A, where space permitted colocation, team members described IPC more positively. In Practice B, space was more limited and in many cases, colocation did not occur. Teams who sat with individuals of the same professional background rather than other individuals on their team noted the most challenges with IPC. In alignment with Dean, Gill, and Barbour (2016), the physical separation of professional groups seemed to influence the pattern of communication and decrease ad hoc interprofessional communication that is important for IPC. Additionally, because the organization was large and had many specialists who provided care within the practice, some interviewed team members noted that knowing who to collaborate with was challenging. The size of the organization also created an organizational hierarchy, where team members did not always feel they could make decisions that were best for their teams because of organizational policies. As more primary care practices join larger health care systems, this finding may hold important implications for implementing and sustaining IPC in primary care practices that may not have full autonomy over practice-level decisions. More research is needed to understand how organization structure may influence IPC.

The quantitative findings suggest that enhancing team member support and provider leadership are important for IPC. In the present study, there was a very strong, positive relationship between team member

support and provider leadership, supporting a link between team leadership and perceptions of team support as suggested by Drach-Zahavy (2004). Additionally, the study findings suggest that clan culture and perceived organizational support relate to team member support and provider leadership. There was a strong, positive relationship between perceived organizational support and team member support, and moderate positive relationships between clan culture and team member support, provider leadership and clan culture and provider leadership and perceived organizational support. This suggests that these factors are interwoven, supporting Wu, Wang, and Tsai's (2010) findings.

### *Limitations*

This study took place amid COVID restrictions and thus participation in the study may have been influenced by these external circumstances. During the time of the qualitative data collection, data was required to be collected remotely (either via phone or Zoom) by the Institutional Review Board. These arrangements may have influenced the nature and amount of information offered during the interview. In the quantitative phase, small sample size restricted statistical analysis to examining subject-level data only, rather than considering the nested structure of this data through multi-level modeling. Furthermore, the use of convenience sampling limits the generalizability of the findings.

### **Conclusions**

This mixed method study reported organizational contextual factors that support IPC among primary care teams. Considering the qualitative and quantitative findings together, the findings suggest that a supportive or clan culture with high levels of team member support and strong provider leadership are particularly important for IPC. The study also highlights the importance of primary care teams having adequate resources to engage in meaningful IPC, including time and staff. The study also pointed to a need to better understand how organizational context may need to be adapted to support teams based on team type.

## References

- Andreatta, P.B. (2010). A typology for health care teams. *Health Care Management Review*, 35(4), 345-54. <https://doi.org/10.1097/HMR.0b013e3181e9fceb>
- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research*, 26(13), 1802-1811. <https://doi.org/10.1177/1049732316654870>
- Bookey-Bassett, S., Markle-Reid, M., McKey, C.A., & Akhatr-Danesh, N. (2016). Understanding interprofessional collaboration in the context of chronic disease management for older adults living in communities: A concept analysis. *Journal of Advanced Nursing*, 73(1), 71-84. <https://doi.org/10.1111/jan.13162>
- Bonciani, M., Schafer, W., Barsanti, S., Heinemann, S., & Groenewegen, P.P. (2018). The benefits of co-location in primary care practices: the perspectives of general practitioners and patients in 24 countries. *BMC Health Services Research*, 18: 132. <https://doi.org/10.1186/s12913-018-2913-4>
- Bourgeault, I.L. & Mulvale, G. (2006). Collaborative health care teams in Canada and the USA: confronting the structural embeddedness of medical dominance. *Health Sociology Review*, 15, 481-495. <https://doi.org/10.5172/hesr.2006.15.5.481>
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Brown, S.S., Lindell, D.F., Dolansky, M.A., & Garber, J.S. (2015). Nurses' professional values and attitudes toward collaboration with physicians. *Nursing Ethics*, 22(2), 205-216. <https://doi.org/10.1177/0969733014533233>
- Cameron, K.S., & Quinn, R.E. (2006). *Diagnosing and Changing Organizational Culture Based on Competing Values Framework*. San Francisco, CA: Josey Bass.
- Chamberlain-Salaun, J., Mills, J., & Usher, K. (2013). Terminology used to describe health care teams: an integrative review of the literature. *Journal of Multidisciplinary Health care*, 2013(6), 65-74. <https://doi.org/10.2147/JMDH.S40676>
- Coenen, M., Stamm, T.A., Stucki, G., & Cieza, A. (2012). Individual interviews and focus groups in patients with rheumatoid arthritis: A comparison of two qualitative methods. *Quality of Life Research*, 21, 359-370. <https://doi.org/10.1007/s11136-011-9943-2>
- Costanzo, A.J. (2017). *The culture of interprofessional collaborative practice on two adult acute-care medical-surgical units* (Unpublished doctoral dissertation). University of Cincinnati, Cincinnati, OH.
- Creswell, J.W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Thousand Oaks, CA: Sage Publications.
- Dean, M., Gill, R., & Barbour, J.B. (2016). "Let's sit forward": Investigating interprofessional communication, collaboration, professional roles, and physical space at EmergiCare. *Health Communication*, 31(12), 1506-1516. <https://doi.org/10.1080/10410236.2015.1089457>
- Drach-Zahavy, A. (2004). Exploring team support: the role of team's design, values, and leader's support. *Group Dynamics: Theory, Research, and Practice*, 8(4), 235-252. <https://doi.org/10.1037/1089-2699.8.4.235>
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71(3), 500-507. <https://doi.org/10.1037/0021-9010.71.3.500>
- Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I.L., & Rhoades, L. (2002). Perceived supervisor support: Contributions to perceived organizational support and employee retention. *Journal of Applied Psychology*, 87(3), 565-573. <https://doi.org/10.1037/0021-9010.87.3.565>
- Evans, J.M., Grudniewicz, A., Baker, G.R., & Wodchis, W.P. (2016). Organizational context and capabilities for integrating care: a framework for improvement. *International Journal of Integrated Care*, 16(3): 15, 1-14. <https://doi.org/10.5334/ijic.2416>
- Evans, J.M., Grudniewicz, A., Gray, C.S., Wodchis, W.P., Carsell, P., & Baker, G.R. (2017). Organizational context matters: A research toolkit for conducting standardized case studies of integrated care initiatives. *International Journal of Integrated Care*, 17(2): 9, 1-10. <https://doi.org/10.5334/ijic.2502>
- Fiscella, K. & McDaniel, S.H. (2018). The complexity, diversity, and science of primary care teams. *American Psychologist*, 73(4), 451-467. <https://doi.org/10.1037/amp0000244>
- Goodman, P.S., Ravlin, E., & Schminke, M. (1987). Understanding groups in organizations. *Research in Organizational Behavior*, 9, 121-173.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (p. 105-117). Thousand Oaks, CA: Sage Publications, Inc.
- Guzzo, R.A. & Dickson, M.W. (1996). Teams in organizations: recent research on performance and effectiveness. *Annual Review of Psychology*, 47, 307-338. <https://doi.org/10.1146/annurev.psych.47.1.307>
- Hald, A.N., Bech, M. & Burau, V. (2021). Conditions for successful interprofessional collaboration in integrated care: Lessons from a primary care setting in Denmark. *Health Policy*. Advance online publication. <https://doi.org/10.1016/j.healthpol.2021.01.007>.
- Hathorn, L.G. & Ingram, A.L. (2002). Cooperation and collaboration using computer-mediated communication. *Journal of Educational Computing Research*, 26(3), 325-347. <https://doi.org/10.2190/7MKH-QVVN-G4CQ-XRDU>

- Henneman, E.A., Lee, J.L., & Cohen, J.I. (1995). Collaboration: a concept analysis. *Journal of Advanced Nursing*, 21(1), 103-109. <https://doi.org/10.1046/j.1365-2648.1995.21010103.x>
- Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review*, 31(2), 386-408. <https://doi.org/10.5465/amr.2006.20208687>
- Kadu, M.K., & Stolee, P. (2015). Facilitators and barriers of implementing the chronic care model in primary care: a systematic review. *BMC Family Practice*, 16(12), 1-14. <https://doi.org/10.1186/s12875-014-0219-0>
- Kenaszchuk, C., Reeves, S., Nicholas, D., & Zwarenstein, M. (2010). Validity and reliability of a multiple-group measurement scale of interprofessional collaboration. *BMC Health Services Research*, 10, 83. <https://doi.org/10.1186/1472-6963-10-83>
- Kornbrot, D. (2005). *Point biserial correlation*. Wiley StatsRef: Statistics Reference Online. <https://doi.org/10.1002/0470013192.bsa485>
- Laschinger, H. & Smith, L.M. (2013). The influence of authentic leadership and empowerment on new-graduate nurses' perceptions of interprofessional collaboration. *Journal of Nursing Administration*, 43(1), 24-29. <https://doi.org/10.1097/NNA.0b013e3182786064>
- Martin-Rodriguez, L., Beaulieu, M.D., D'Amour, D., & Ferrada-Videla, M. (2005). The determinants of successful collaboration: a review of theoretical and empirical studies. *Journal of Interprofessional Care*, 19(S1), 132-147. <https://doi.org/10.1080/13561820500082677>
- McGrath, J.E., Arrow, H., & Berdahl, J.L. (2000). The study of groups: past, present, and future. *Personality and Social Psychology Review*, 4(1), 95-105. [https://doi.org/10.1207/S15327957PSPR0401\\_8](https://doi.org/10.1207/S15327957PSPR0401_8)
- Mulvale, G., Embrett, M. & Razavi, S.D. (2016). 'Gearing up' to improve interprofessional collaboration in primary care: A systematic review and conceptual framework. *BMC Family Practice*, 17, 83. <https://doi.org/10.1186/s12875-016-0492-1>
- Nelson, W.A., Forcino, R.C., & Elwyn, G. (2017). Patient-centered organizational statements: Merely rhetoric? A survey of health care leaders. *Health Care Management*, 36(4), 324-346. <https://doi.org/10.1097/HCM.0000000000000186>
- Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in Health Science Education*, 15, 625-632. <https://doi.org/10.1007/s10459-010-9222-y>
- O'Malley, A.S., Gourevitch, R., Draper, K., Bond, A., & Tirodkar, M.A. (2015). Overcoming challenges to teamwork in patient-centered medical homes: a qualitative study. *Journal of General Internal Medicine*, 30(2), 183-192. <https://doi.org/10.1007/s11606-014-3065-9>
- Oandasan, I.F., Conn, L.G., Lingard, L., Karim, A., Jakubovicz, D., Whitehead, C., Miller, K.-L., Kennie, N., & Reeves, S. (2009). The impact of space and time on interprofessional teamwork in Canadian primary health care settings: implications for health care reform. *Primary Health Care Research & Development*, 10(2), 151-162. <https://doi.org/10.1017/S1463423609001091>
- Papermaster, A.E. & Champion, J.D. (2021). Exploring the use of curbside consultations for interprofessional collaboration and clinical decision-making. *Journal of Interprofessional Care*, 35(3), 368-375. <https://doi.org/10.1080/13561820.2020.1768057>
- Patton, M.Q. (2002). *Qualitative Research and Evaluation Methods* (3rd ed.). Thousand Oaks, CA: Sage.
- Perreault, K., Pineault, R., Da Silva, R.B., Provost, S. & Feldman, D.E. (2017). What can organizations do to improve family physicians' interprofessional collaboration? Results of a survey of primary care in Quebec. *Canadian Family Physician*, 63(9), e381-e388.
- Petri, L. (2010). Concept analysis of interdisciplinary collaboration. *Nursing Forum*, 45(2), 73-82. <https://doi.org/10.1111/j.1744-6198.2010.00167.x>
- Pullon, S., Morgan, S., Macdonald, L., Mckinlay, E., & Gray, B. (2016). Observation of interprofessional collaboration in primary care practice: A multiple case study. *Journal of Interprofessional Care*, 30(6), 787-794. <https://doi.org/10.1080/13561820.2016.1220929>
- Pype, P., Mertens, F., Helewayt, F. & Krystallidou, D. (2018). Health care teams as complex adaptive systems: understanding team behavior through team members' perception of interpersonal interaction. *BMC Health Services Research*, 18(570), 1-13. <https://doi.org/10.1186/s12913-018-3392-3>
- Rice, K., Zwarenstein, M., Conn, L.G., Kenaszchuk, C., Russell, A. & Reeves, S. (2010). An intervention to improve interprofessional collaboration and communications: A comparative qualitative study. *Journal of Interprofessional Care*, 24(4), 350-361. <https://doi.org/10.3109/13561820903550713>
- Rosen, M.A., DiazGranados, D., Dietz, A.S., Benishek, L.E., Provost, P.J., & Weaver, S.J. (2018). Teamwork in healthcare: Key discoveries enabling safer, high-quality care. *American Psychologist*, 73(4), 433-450. <https://doi.org/10.1037/amp0000298>
- Salas, E., Shuffler, M.L., Thayer, A.L., Bedwell, W.L., & Lazzara, E.H. (2014). Understanding and improving teamwork in organizations: a scientifically based practical guide. *Human Resource Management*, 54(4), 599-622. <https://doi.org/10.1002/hrm.21628>
- Schottenfeld, L., Petersen, D., Peikes, D., Ricciardi, R., Burak, H., McNellis, R., & Genevro, J. (2016, March). *Creating Patient-Centered Team-Based Primary Care*. AHRQ Pub. No. 16-0002-EF. Rockville, MD: Agency for Health care Research and Quality.
- Sun Country Health Region. (n.d.). Assessing Team Attitudes & Functions. A Set of Pre & Post Questionnaires. [https://www.suncountry.sk.ca/gsCMSDisplayPluginFile/show/id/394/menu\\_id/88/lang\\_type/en\\_US/page\\_type/service/page\\_id/200](https://www.suncountry.sk.ca/gsCMSDisplayPluginFile/show/id/394/menu_id/88/lang_type/en_US/page_type/service/page_id/200)

Valatis, R., Meagher-Stewart, D., Martin-Misener, R., Wong, S.T., MacDonald, M., O'Mara, L. & The Strengthening Primary Health Care through Primary Care and Public Health Collaboration Team. Organizational factors influencing successful primary care and public health collaboration. *BMC Health Services Research*, 18, Article 420. <https://doi.org/10.1186/s12913-018-3194-7>

Way, D., Jones, L. & Busing, N. (2000). Implementation Strategies: Collaboration in Primary Care- Family Doctors & Nurse Practitioners Delivering Shared Care. Retrieved April 15, 2020 from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.458.383&rep=rep1&type=pdf>.

Wei, H., Corbett, R.W., Ray, J., & Wei, T.L. (2020). A culture of caring: The essence of healthcare interprofessional collaboration. *Journal of Interprofessional Care*, 34(3), 324-331. <https://doi.org/10.1080/13561820.2019.1641476>

Weiss, D., Tilin, F. & Morgan, M.J. (2018). *The Interprofessional Health Care Team: Leadership and Development* (2<sup>nd</sup> ed.). Burlington, MA: Jones & Bartlett.

Weiss, E.R., Anderson, R.N., & Lasker, R.D. (2002). Making the most of collaboration: Exploring the relationship between partnership synergy and partnership functioning. *Health Education & Behavior*, 29(6), 683-698. <https://doi.org/10.1177/109019802237938>

Wohler, D.M. & Liaw, W. (2016). Team-Based Primary Care: Opportunities and Challenges. Starfield Summit. Retrieved from [https://www.graham-center.org/content/dam/rgc/documents/publications-reports/reports/StarfieldSummit\\_Report\\_TeamBasedPrimaryCare.pdf](https://www.graham-center.org/content/dam/rgc/documents/publications-reports/reports/StarfieldSummit_Report_TeamBasedPrimaryCare.pdf).

World Health Organization (2010). Framework for Action and Interprofessional Education & Collaborative Practice. Retrieved from [http://apps.who.int/iris/bitstream/handle/10665/70185/WHO\\_HRH\\_HP\\_N\\_10.3\\_eng.pdf;jsessionid=7E38E7F09AC399EC7E18405E24D328FE?sequence=1](http://apps.who.int/iris/bitstream/handle/10665/70185/WHO_HRH_HP_N_10.3_eng.pdf;jsessionid=7E38E7F09AC399EC7E18405E24D328FE?sequence=1).

Wu, C.-S., Wang, P.-W., & Tsai, L.-F. (2010). The effect of organizational culture on team interaction and team effectiveness: Team leadership as a medium. *Journal of International Management Studies*, 5(2), 190-198.

Xyrichis, A. & Lowton, K. (2008). What fosters or prevents interprofessional teamworking in primary and community care? A literature review. *International Journal of Nursing Studies*, 45, 140-153. <https://doi.org/10.1016/j.ijnurstu.2007.01.015>

Yin, R.K. (2014). *Case Study Research Design and Methods* (5<sup>th</sup> Ed.). Thousand Oaks, CA: Sage Publications.

## Corresponding Author

Jessica Cataldo, PhD, MPH

ASA 126C  
School of Health Sciences  
Applied Sciences and Arts  
Mail Code 6615  
Carbondale IL 62901

[jessica.cataldo@siu.edu](mailto:jessica.cataldo@siu.edu)