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Collaborative Clinical Culture at UCI: Exploring Teamwork in the Department of Anesthesiology and Perioperative Care

THESIS

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for the degree of

MASTER OF SCIENCE

in Biomedical and Translation Science

by

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ABSTRACT OF THE THESIS

Collaborative Clinical Culture at UCI: Exploring Teamwork in the Department of Anesthesiology and Perioperative Care

By

Austin Tinsley Griggs

Master of Science in Biomedical and Translational Science

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Professor Sheldon Greenfield, Chair

The attitudes and behaviors of healthcare service providers can influence both provider and patient satisfaction. Groups of individuals that communicate effectively, delegate tasks, share responsibility, and work towards a common goal are indicative of a collaborative clinical culture. Using a new survey instrument, we were able to assess the level of collaborative clinical culture in the Department of Anesthesiology and Perioperative Care at the University of California, Irvine. Positive team function was found to be associated with high levels of morale, and team problems were associated with increased job stress. The survey instrument was shown to have excellent internal consistency, and is suitable for measuring collaborative clinical culture in this type of hospital setting. This exploratory analysis with a new instrument provides a baseline from which additional research in multiple departments and with multiple patient outcomes can be performed.

INTRODUCTION

The passage and continued implementation of the Patient Protection and Affordable Care Act has made hospitals pay close attention to patient satisfaction and other quality measures. In fact, because some reimbursement and hospital funding is now modified by these performance measures, hospitals are looking for low cost solutions to improve their current performance. Effective teamwork has been shown to improve both patient satisfaction and outcomes in primary healthcare settings, and many hospitals are now looking for ways to obtain similar benefits. Academic medical centers in particular generally receive lower scores in many quality measures, and are interested in ways to make improvements. Enhancing the clinical culture in these institutions to encourage cooperation, shared responsibility, common goals, and increased autonomy, is seen as a promising way to enhance performance in these quality measures. In this hypothesis generating study, we developed and tested a new instrument to evaluate collaborative clinical culture in the Department of Anesthesiology and Perioperative Care at the University of California, Irvine. Collaborative clinical culture in this study reflects findings from managed care organizations and applies them to an inpatient hospital setting with the use of a new instrument.

In a favorable primary care practice climate where physicians and staff know what is expected of them and can rely on their coworkers, more time and energy can be focused on fulfilling the needs of patients.[7] This idea is critically important in hospitals as well, where successful interactions between physicians, staff, and patients may be even more important than in primary care due to the severity of illness of most hospital patients. Team problems, job stress, morale, and overall team function, therefore, are important

elements to measure in order to assess collaborative clinical culture and ensure that teams are working well together in order to provide the best possible experience for the patient. The level of collaboration within a clinical environment should have an impact on physicians, staff, and patients. Teams that function well together have higher morale and job satisfaction, as well as lower job stress. This satisfaction allows for more time to be spent focusing on fulfilling a patient's needs, leading to increased patient visit satisfaction.[12] In this exploratory study we sought to evaluate the psychometric properties of a new instrument in a hospital environment and determine if teams that function well together are associated with higher morale, less stress, and are associated with higher patient satisfaction.

BACKGROUND

Health care services are, by nature, provided for by groups of people. Long gone are the days of house calls by primary care physicians. Primary care services are now provided by diverse groups in which individuals have defined roles that facilitate a patient's visit; office assistants may be the first to greet patients, while nurses and nursing assistants take medical histories and prepare the patient to be seen by the physician. Cost pressures in recent years have even expanded the roles and responsibilities of physician's assistants and nurse practitioners in primary care settings to supplement work traditionally performed by a physician. As such, it is not unreasonable for patient visits in a routine primary care practice to involve five or more individuals interacting with the patient. With so many people contributing to care, more opportunities exist for not providing a satisfactory experience for the patient. However, when these groups of individuals function as a cohesive team, they tend to perform better than a group of individuals that lack teamwork. Research suggests this has an impact on not only the attitude and behaviors of the team members, but may actually influence patient satisfaction and clinical outcomes.[1] [2]

A group of individuals with similar qualifications and responsibilities rarely make an effective team. In football, a team full of quarterbacks would not do very well if they all tried to call the plays and throw the ball. Likewise, in healthcare service delivery, the group needs a variety of skill sets and a common goal or "play" in order to be successful. This simple definition helps to clarify the difference between unstructured groups and a 'team:' "A team is a group with a specific task or tasks, the accomplishment of which requires the interdependent and collaborative efforts of its members." [3] The service industry understands that the service delivery climate is linked to customer satisfaction. Teams that

are supportive, collegial, and collaborative have high levels of consumer satisfaction and work unit productivity.[4] But calling a group of individuals a team does not lead to the typical benefits that can be obtained from high functioning teams. Structural support at the organizational level provides a necessary foundational support for, and is a necessary prerequisite to, establishing a "climate for service" attitude among management and staff that facilitates collaboration, delegation, and common goals.[4] This foundational support includes everything from IT infrastructure to facilitate business processes to human resources to attract and retain talent. The sum of these elements help to form the broader organizational culture--driven by organizational leaders, reinforced by policies and procedures, and propagated among employees through shared attitudes and behaviors.[4] When this organizational structure is in place, smaller groups or work units are formed to that allow for a given service to be produced and consumed. In service industries, these small teams are typically in close proximity to the end customer, requiring interactions within the work unit (and sometimes visible to the customer) to maintain a customer oriented focus. A clearly defined goal is an important characteristic of a productive team—in healthcare, that goal is often delivering high quality care to patients.

At a high level, there are five key elements to building a successful team: 1) Defined goals 2) Systems 3) Division of labor 4) Training 5) Communication.[1] Defined goals ensure that from a broad perspective the team has some sort of mission statement. This mission statement helps to set the tone of the group, but is typically not actionable without specific and measurable objectives. Systems provide structure around how service is delivered, often including standard operating procedures and other administrative systems (e.g. electronic medical record software). Division of labor is critically important, as it defines

roles and responsibilities so that the correct tasks are matched to the correct skill sets of the individuals. Training ensures that individuals are qualified to perform their tasks. In a team setting, cross-training is equally important, as it ensures that multiple individuals can perform the tasks of others in the case of vacations, sick time, etc. Cross training allows for consistent service to be provided to the customer. Lastly, communication is vitally important to building a successful team. Teams are dynamic groups in which individuals must adapt and flex in response to actions and feedback from other team members. Successful communication is grounded in structure, with regular meetings that provide the opportunity to give feedback and resolve conflicts rapidly.

In the mid to late 1990s, three Kaiser Permanente regions (Hawaii, Northern California, and Georgia) began to restructure their primary health care delivery processes in response to cost pressures. This restructuring sought to increase the usage of nurse practitioners and physician assistants, redistribute tasks from physicians to mid-level practitioners, and create a collaborative environment that provided the patient with an enhanced experience. One fundamental idea behind this restructuring was the premise that effective teamwork can enhance the patient-provider (physician) relationship, even if the patient sees a team member that is not their traditional primary care physician; other members of the team would be seen as integral to, not replacements for, the primary care physician.[5] At the beginning of the restructure, team staff members were given training by consultants from Kaiser Administration. One physician and one lead nurse were charged with leading their teams, and were afforded autonomy in deciding how to use their fixed budget. Teams were intermittently supported by consultants, and bonuses for staff were linked to patient satisfaction. Over time, management hypothesized that these structural

and functional changes would be associated with one or more of the following--productivity, patient satisfaction, clinical quality, and staff job satisfaction.[5] The results of this longitudinal study showed increases in patient satisfaction, staff morale, and improved physical function in patients empanelled to high performing health care teams.[5 6 7]

Similar team restructuring studies at the VA showed increases in job satisfaction among team members ($p<0.001$) (physicians, nurses, administrative staff), lower 10 day readmissions ($p<0.01$), and reduced visit length ($p<0.001$).[4] Improved job satisfaction is correlated with lower physician turnover,[8] and successful teams with happy employees are at a lower risk of losing providers and their patients. Staff turnover is particularly problematic, with new employees having the potential to disrupt the trust and collaboration seen among the team previously, and ultimately lowering productivity of that team. In areas other than primary care, successful teamwork has also been studied for its impact on patient outcomes. Additionally, a national study of ICUs in 1994 found that successful provider interactions in the ICU were associated with lower provider turnover and reduced length of stay.[9] Together, current healthcare literature suggests that improving team performance, in both primary care settings and in hospitals, has the potential to positively impact both patients and providers.

In order for hospitals to respond to growing pressures to improve quality and patient satisfaction measures, measuring teamwork and identifying areas for improvement is important. In this study we developed a new measure to study collaborative clinical culture. Collaborative clinical culture is a multi-dimensional construct involving perceived team problems, job stress, morale, and ultimately overall perceived team function. This

conceptual model (Figure 1) is consistent with recent work in primary care,[4, 7] which suggests that physicians and staff in well functioning healthcare teams not only have higher morale, job satisfaction, and less stress, but have more satisfied patients. Likewise, in hospitals, individuals that feel supported by their team can share tasks and responsibilities, can resolve issues effectively, and are likely to be happier with their jobs and have less stress. This results in fewer interpersonal distractions or personality clashes, and allows for increased focus on patient care. Our study explored these links between team function, job stress, and morale among providers, using a new survey instrument in the Department of Anesthesiology and Perioperative Care at UCI.

METHODS

Study Setting:

This new survey instrument to measure collaborative clinical culture was administered to the Department of Anesthesiology and Perioperative Care at the University of California, Irvine. Anesthesiologists routinely work with staff from a variety of groups, and play a unique leadership role in perioperative care at UCI. In particular, the Perioperative Surgical Home (PSH) is a model of perioperative care lead by an anesthesiologist that seeks to improve patient experiences through collaboration, in addition to reducing overall healthcare costs. This made the groups within the Department ideal candidates for a new survey instrument that assesses the collaborative clinical culture expected of these groups from the roles they play in facilitating patient care.

Sample and Sampling Methods:

The study sample consisted of 31 individuals from four groups within the Department of Anesthesiology and Perioperative Care at UCI: Acute Pain, Chronic Pain / Palliative Care, Outpatient Pain, and General OR anesthesiology. Physicians and support staff were asked to complete the survey for all groups except the general OR group, from which only faculty were surveyed. Survey and instructions (Appendix I) were distributed to survey groups electronically using Qualitrics (copyright Qualitrics LLC, 2014) between October 1st to November 6, 2014. Completion of the survey took approximately five to seven minutes.

Study Design and Survey Details:

This was a cross-sectional study focusing on a single department at the University of California, Irvine. This hypothesis generating study using a new instrument to measure collaborative clinical culture in an inpatient setting was part of a quality improvement initiative to improve quality and patient experience scores. As this initial study is part of a quality improvement initiative, it is not governed by the University's Institutional Review Board (IRB).

Two versions of the survey instrument were created, differing only by an additional question requesting the respondent to identify which group (within anesthesiology) they most closely identified with. The alternate version of the survey was distributed only to the general OR group, which contained specific subgroups (cardiovascular, neonatal, surgical home, and general non-specific). The survey contained two sections and 19 total items. Section one contained the team problems and team function scales in addition to six single item questions about general communication, teamwork, leadership encouragement, and individual contribution to team-based patient care. Section two contained demographic questions pertaining to age, gender, ethnicity, and occupation, as well as job stress and morale measures.

Study Measures:

Team Problems and Team Function

Team problems were measured using eight items asking about confusion around task delegation, reporting structure, pressure, personality clashes, and fair treatment of

employees for reporting mistakes. These items were scored on a 5 item Likert scale, with possible responses ranging from “A Very Serious Problem” to “No Problem At All.” Answers were reverse scored to maintain directional meaning and were recoded from 0 (less team problems) to 100 (more team problems).

Team function was measured using 5 items asking about delegation of tasks among team members, collaboration during patient care, sharing duties when necessary, team decision making, and helping each other do the best possible job for patients. These items were scored on a 5 item Likert scale, with possible responses ranging from “Excellent” to “Poor.” Scores were reverse scored to maintain directional meaning and were recoded from 0 (low team function) to 100 (high team function).

Job Stress and Morale

Job stress was measured using four items asking about being hurried or rushed, stressed or overworked, having enough time with patients, and having enough time between patients during the last 12 months. These items were scored on a 5 item Likert scale, with possible responses ranging from “Never” to “Always.” The two questions about being hurried or rushed and stressed or overworked were reverse scored in order to maintain directional meaning with the other two items in the scale. Scores were recoded from 0 (low job stress) to 100 (high job stress).

Analytic Plan:

Following completion of the survey period, data were transferred from comma separated value (CSV) files to IBMs SPSS version 22 in order to perform statistical analyses.

Scales showed adequate internal consistency reliability, with Cronbach's alpha scores ranging from 0.82 to 0.97. Composite variables were created by averaging the responses to each of the items in the three scales. Each of these scales, with the addition of a question about morale, was assessed for significant correlations using Pearson's correlation coefficient in total and by group. Team function scores were dichotomized to high and low functioning teams using the median value and plotted against job stress and morale to visualize associations.

Respondent groups (Acute pain, chronic pain/palliative pain, outpatient pain, and general OR) were compared using one way ANOVA, despite the known limitation of sample sizes less than six individuals. Independent samples t-tests were used to compare responses by gender and by race/ethnicity, with the dichotomy of non-Hispanic white vs. non-white used to maintain sufficient sample size for the comparison. 2013 HCAPS outcomes data were summarized and provided for the chronic/palliative pain group and the acute pain group. Associations between collaborative clinical culture scale scores and HCAPS were charted in scatter plots to visualize any potential associations. Sample size limitations and group vs. respondent level data differences prevented these outcome data from being part of formal hypothesis testing using statistical analysis, but provided some visualization of potential associations for this hypothesis generating project. In order to detect a one standard deviation difference in patient satisfaction scores (HCAPS) at an alpha equal to 0.05 and a power of 0.80, we would need a minimum sample of 32 groups. This study contained far fewer than the 32 groups required to formally detect this difference, but next steps for this project will include surveying more broadly in the UCI hospital.

RESULTS

Table 1 displays the survey respondent characteristics by each of the four survey groups and in total. Total survey response rate was (48%), with a better response rate from the general OR group (56%) when compared to the Acute Pain group (50%), Chronic/Palliative Pain group (29%), and Outpatient Pain group (45%). A majority of the respondents were male (54%), with non-Hispanic whites being the most commonly reported race/ethnicity (35%). 19% of respondents did not disclose race. The average age of all respondents was 41 years, with the highest proportion of individuals in the 30-40 year age range (48%). Physicians were by far the most common respondents (83%), with nurses (7%), nurse practitioners (3%), and other (7%) roles also responding to the survey. All of the survey groups had similar response distributions by gender, age, and race/ethnicity (Table 2). However, in the general OR group, physicians were the only respondents, with no responses received from nurses, nurse practitioners, or other hospital staff.

Respondent scores from the scales measuring team problems, team functioning, and job stress were averaged to produce summary scores for each scale (Table 2). Summary scores approximated the normal distribution and all had means indicating better than average (mean) performance. The team problems scale had a summary score of 2.25 (±0.96). The team function five item scale had a mean summary score of 3.64 (±1.11). The job stress four item scale had a mean summary score of 3.37 (±0.83). These multi-item scales were each shown to have adequate internal consistency, with Cronbach's alpha's ranging from 0.82 (job stress) to 0.97 (team function). The team problems multi-item scale had a Cronbach's alpha of 0.93 (Table 3, Table 5).

At the respondent level for all groups, positive, statistically significant correlations ($p<0.01$) were found between job stress and team problems (0.641), and team function and morale (0.678). Negative, statistically significant correlations ($p<0.01$) were found between team function and team problems (-0.796), team function and job stress (-0.481), and team problems and morale (-0.758). Despite the three pain groups having small sample sizes, and having a more traditional team structure, when dichotomized into "formal" teams and "informal" teams (general OR group), the significant correlations between variables remained comparable to the total survey correlation analyses, albeit with slight changes in magnitude (Table 5).

Table 4a displays the results of an independent samples T-test grouped by gender, showing no significant differences ($p>0.05$) among respondents for the three summary scale outcomes, including the overall morale item. However, the variability in response answers for team problems was highest among women. The same analysis was performed by ethnicity, comparing non-Hispanic whites to all other groups (Table 4b). No significant differences were observed between these two groups on the scales of team problems, team function, and job stress. However, the non-Hispanic white (5.55, 0.82) group had a significantly ($p<0.05$) higher morale score than the "other" (3.90, 1.55) group ($t=3.26$, 95% CI 0.61-2.68). No statistically significant differences were found between any of the four survey groups (Acute Pain, Chronic/Palliative Pain, Outpatient Pain, and General OR) for the scales of team problems, team function, job stress, and also for morale.

When team function scores were dichotomized at the median value (75.00), individuals with higher team function scores had significantly ($p<0.05$) less job stress (52.33 vs. 68.86) and significantly ($p<0.05$) higher morale (69.61 vs. 44.04) scores (Table 4c).

DISCUSSION

This hypothesis generating study found a strong association between perceived team function and morale in the Department of Anesthesiology and Perioperative Care at UCI. Cooperation, task delegation, clear goals, and shared responsibility were common among all four survey groups. These findings are consistent with the existing literature on primary care practice climate, which has found strong relationships between morale, career commitment, and a favorable practice climate.[7] When individuals view their work as an essential part of common goal, and they are autonomous enough to make sure their specific tasks are accomplished or delegated as necessary, and that communication is sufficient to overcome any obstacles preventing tasks being performed or goals being met, individuals are more likely to have high morale and job satisfaction.[7]

This study suggests that measures of primary care practice climate can be modified and applied to use in hospital settings to assess collaborative clinical culture. The positive correlations between team function and morale, together with the negative correlations between team function and job stress and team problems, provide internal validity for this study. No significant differences were observed between any of the four groups, despite the presumption that the smaller, more specialized “pain” groups would display better teamwork scores. Interestingly, non-Hispanic whites appeared to have significantly higher morale when compared to all of the other groups. However, this is likely a function of occupation rather than race/ethnicity, consistent with the literature, where physicians in general having higher morale scores. This was not formally tested due to the limited number of non physician respondents (N=5). Within the pain groups, local management was particularly interested in the differences between the acute pain and chronic /

palliative care groups, as preliminary data and experience had suggested better cooperation and morale among the acute pain group. Sample size issues, along with response rates below 50% make it difficult to assess differences adequately, but the limited data from this study suggest that all of the groups were similar. One limitation of this exploratory study is that we were unable to externally validate this new instrument using patient satisfaction data or different, valid measure of provider morale. The small number of groups (4) and respondents within each group (4-18), along with limited sample size for outcomes data within individual groups, made formal hypothesis testing difficult. However, study data suggest that these relationships warrant further testing in this type of setting.

One important difference in the evaluation of primary care practice climate and collaborative clinical culture, as described in this study, is the nature of the groups or "teams." Most of the literature describes a notion of "team" in primary care that is presumably comprised of mostly the same individuals during the course of a study. In fact, even in surgical settings, the level of familiarity between individuals on the team leads to reduced surgical complications.[10] In an academic medical center and teaching hospital, the concept of team or group seems to not rely on individuals, but on that individual's role in a given setting. However, the key elements of "team building" described by Grumbach and Bodenheimer (2004), can still be applied to these larger groups with individuals rotating in and out of the group with some regular frequency. These groups are sometimes referred to as "ad-hoc" or "action" teams in the literature, sometimes having limited experience working together with the particular individuals, and sometimes for an abbreviated time frame. This may be more challenging to maintain, and requires greater leadership, training, and overall direction from the institution, department management, and policies and

procedures. Formal team training has been shown to improve the level of cooperation and collaboration across different settings and teams, and in is even more effective in improving the performance of ad-hoc teams; this training should be a priority for healthcare providers seeking to reap the benefits of a collaborative clinical culture.[2]

This study provides suggestive evidence that administering this survey instrument more broadly in hospital settings to assess collaborative culture and pinpoint areas for improvement may target areas for quality assessment and improvement. Favorable practice climate has been shown to be associated with the ability to implement quality improvement initiatives related to compliance in primary care settings.[13] If this can be applied to hospital settings as well, it is particularly timely, as increased scrutiny and measurement around hospital quality and performance is driving many hospitals to adopt lean and six sigma studies.[11] The goal of many of these programs is to cut costs, reduce variability processes, and improve quality and performance. Many of these initiatives, though promising in the short term, rarely lead to sustained improvements.[11] Assessing the collaborative nature of groups within hospitals, and providing formal team training when indicated prior to implementation of these expensive quality improvement projects, may have the ability to improve the success of the project. This can help to reduce the burden of lengthy change management initiatives, and ultimately lead to improved quality, reduced costs, and a more collaborative clinical culture.

In conclusion, despite the limitations noted above, this hypothesis generating project provided unique insight into current state of the clinical culture in a single department at UCI. The findings suggest that the reliability and internal validity of a new

survey instrument warrants further testing and sets the stage for broader use of this survey in other clinical departments. This survey can be used effectively in a pre/post type longitudinal study in which there is a broad policy or structural change in the hospital. It may also provide specific information about team functioning that will allow for strategic, targeted improvement projects to enhance the collaborative clinical culture and improve patient outcomes.

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TABLES

Table 1. Survey Respondent Demographics (N=31)

	General OR	Acute Pain	Chronic/Palliative Pain	Outpatient Pain	Total
Gender					
Male (%)	65	50	25	33	54
Female (%)	35	50	75	67	47
Age					
Mean (years)	42.8	35	47.3	28.5	41
<30	-	-	-	20	3
30-40	44	75	25	40	45
41-50	11	-	25	-	10
>50	22	-	25	-	16
Unspecified	22	25	25	40	26
Race					
White, Non Hispanic (%)	53	25	25	-	38
Asian (%)	29	25	25	25	28
African American (%)	-	-	-	25	3
Other (%)	6	25	25	-	10
Not Disclosed (%)	11	25	25	50	21
Occupation					
Physician (%)	100	50	75	50	83
Nurse Practicioner (%)	-	25	-	-	3
Nurse (%)	-	25	-	25	7
Other (%)	-	-	25	25	7
Total (N)	18	4	4	5	31

*Three respondents did not report gender
*Nine respondents did not report specific numerical values for age, and were excluded from the mean calculation
*Six respondents did not disclose race
*One respondent did not report occupation

Table 2. Collaborative Clinical Culture Scale Score Distribution

Scale	Score Distribution							
	Mean	Standard Deviation	Meaning of High Score	Maximum	75th Percentile	50th Percentile	25th Percentile	Minimum
Team Problems	31.25	24.07	Very Serious Problems	100	37.50	25.00	15.62	0.00
Team Function	66.01	27.75	Excellent Performance	100	85.00	75.00	45.00	0.00
Job Stress	59.34	20.69	Always Stressed	100	75.00	56.25	37.50	25.00
Morale	58.06	25.77	Extremely High, Couldn't be better	100	83.33	66.66	50.00	0.00

Table 3. Collaborative Clinical Culture Scale Reliability

Scale	Item	Meaning of Response		Mean (SD)	Cronbach's Alpha
		Maximum	Minimum		
Team Problems Thinking about the work done on your unit, how much of a problem is each of the following?	No clear definition of who is supposed to do which tasks?	A Very Serious Problem (5)	Not problem at all (1)	31.25 (25.00)	0.93
	Unwillingness of others to help out when there is too much to do?				
	No clear understanding of who reports to whom?				
	Being made to feel uncomfortable about reporting mistakes when they happen?				
	Not having a say in decisions about how things are done on the unit?				
	Feeling pressured to do more than you feel you are able to?				
	Personality clashes that get in the way of working well together?				
	Problems communicating well?				
Team Function How would you rate the performance of people you work with, as a team, in the following areas?	Delegation of tasks among team members?	Excellent (5)	Poor (1)	66.01 (27.75)	0.97
	Collaboration among team members in coordinating patient care?				
	Handing off tasks to others in a team when necessary?				
	Making patient care decisions as a team?				
	Helping each other to do the best job possible for patients?				
Job Stress Over the past 12 months, how often have you felt:	Hurried or rushed at work?	Always (5)	Never (1)	59.34 (20.70)	0.82
	Like you had all the time you needed to spend with your patients?				
	Stressed or over worked?				
	Like you had a long enough break between patients?				

Table 4a. Collaborative Clinical Culture Scores by Gender

Scale	Gender				*p*	t	df	95% CI
	Male		Female					
	Mean	SD	Mean	SD				
Team Problems	26.67	12.32	28.37	25.53	0.82	-0.23	26	-16.93, 13.54
Team Function	73.67	20.74	65.87	29.75	0.42	0.81	26	-11.91, 27.51
Job Stress	58.75	16.84	57.85	22.65	0.91	0.12	26	-14.47, 16.27
Morale	66.66	20.89	57.69	24.17	0.30	1.05	26	-8.52, 26.47

*p < .05.

Table 4b. Collaborative Clinical Culture Scores by Race/Ethnicity

Scale	Ethnicity				*p*	t	df	95% CI
	Non-Hispanic White		Other					
	Mean	SD	Mean	SD				
Team Problems	23.86	10.85	35.31	28.35	0.21	-1.28	29	-29.74, 6.84
Team Function	75.80	23.49	60.63	28.97	0.15	1.49	29	-5.72, 36.06
Job Stress	51.70	15.33	63.54	22.36	0.13	-1.56	29	-27.36, 3.68
Morale	75.75	13.67	25.87	25.88	0.003	3.26*	29	10.20, 44.64

*p < .05.

Table 4c. Collaborative Clinical Culture Scores by High Functioning Teams Dichotomized at the Median

Scale	Team Function				*p*	t	df	95% CI
	High (above 75)		Low (Below 75)					
	Mean	SD	Mean	SD				
Team Problems	20.40	12.26	44.42	28.49	0.004*	3.15	29	8.41, 39.62
Job Stress	52.33	16.81	67.86	22.31	0.035*	2.21	29	-57.05, -33.57
Morale	69.61	19.75	44.04	25.82	0.004*	-3.12	29	-42.30, -8.82

*$p < .05$.

Table 5. Collaborative Clinical Culture Scale and Correlations

Respondent Group	Scale	Team Problems	Team Function	Job Stress	Morale
Total (N=31)	Team Problems	1			
	Team Function	-0.796**	1		
	Job Stress	0.641**	-0.481**	1	
	Morale	-0.758**	0.678**	-0.634**	1
Defined "team" (N=13)	Team Problems	1			
	Team Function	-0.811**	1		
	Job Stress	0.745**	-0.469	1	
	Morale	-0.715**	0.730**	-0.602*	1
Undefined "team" (N=18)	Team Problems	1			
	Team Function	-0.786**	1		
	Job Stress	0.552*	-0.507*	1	
	Morale	-0.796**	0.664**	-0.699**	1

**indicates correlation is significant at the 0.01 level (2-tailed)
*indicates correlation is significant at the 0.05 level (2-tailed)

FIGURES

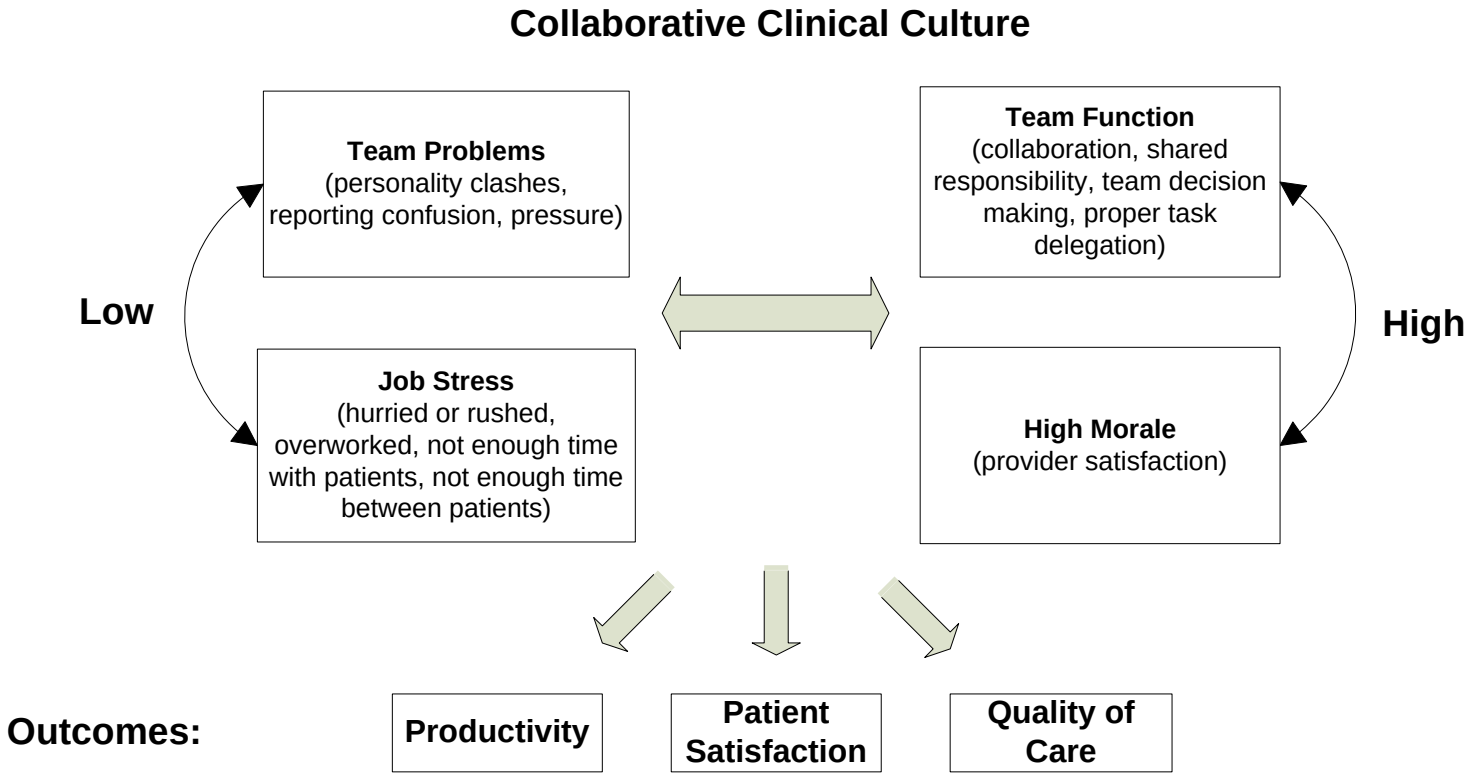

Figure 1. Conceptual Model of Collaborative Clinical Culture's Impact on Outcomes

APPENDIX I

Collaborative Clinical Culture: Survey of Healthcare Providers

UC Irvine Medical Center

2014

OVERVIEW AND INSTRUCTIONS

You have been chosen to help us find out how the providers at our institution view the strengths and weaknesses of our care teams. Your opinions are very valuable to us. This survey has been designed to be as easy to complete as possible. There are no right or wrong answers. If for any reason you do not want to answer a question, leave it blank. It should take less than 5 minutes to complete. Please take the time to give us your feedback. The data you provide will help us to improve the quality of our work environment and our patient care. All answers will be kept confidential. Surveys will be destroyed after data have been entered.

Thank you in advance for your help! If you have any questions, please call: Austin Griggs (408) 425-0841

SECTION 1: TEAM FUNCTION

Questions in this section ask about the partnerships and cooperation among those who work together in your unit to provide patient care. Specifically, these questions relate to the attendings, fellows, residents, nurse practitioners, admins, etc. in your immediate patient care unit. These questions do NOT refer to interactions with other groups, departments, etc.

Overall, how would you rate the communication among those you work with to take care of patients?

	(circle one)
EXCELLENT……	1
VERY GOOD……	2
GOOD……	3
FAIR……	4
POOR……	5

Overall, how well do the providers you work with function as a team (know each others roles, communicate well, solve problems together)?

	(circle one)
EXCELLENT……	1
VERY GOOD……	2
GOOD……	3
FAIR……	4
POOR……	5

How much encouragement do you get from the leadership to perform as a team (know each others roles, communicate well, solve problems together)?

	(circle one)
NONE……	1
VERY LITTLE……	2
SOME……	3
A LOT……	4
A VERY GREAT DEAL……	5

How effective are the providers you work with at solving problems as a team?

(circle one)

VERY EFFECTIVE	1
EFFECTIVE	2
SO-SO	3
NOT VERY EFFECTIVE	4
NOT EFFECTIVE AT ALL	5

How much does how well you do your job influence the care provided by your team?

(circle one)

A VERY GREAT DEAL	1
A LOT	2
SOME	3
VERY LITTLE	4
NOT AT ALL	5

Thinking about the work that is done on your unit, how much of a problem is each of the following:

(circle one number on each line)

		A VERY SERIOUS PROBLEM	A SERIOUS PROBLEM	SOMEWHAT OF A PROBLEM	NOT A SERIOUS PROBLEM	NO PROBLEM AT ALL
a.	No clear definition of who is supposed to do which tasks?……..…….....	1	2	3	4	5
b.	Unwillingness of others to help out when there is too much to do?.....……..	1	2	3	4	5
c.	No clear understanding of who reports to whom?.....……..	1	2	3	4	5
d.	Being made to feel uncomfortable about reporting mistakes when they happen?……	1	2	3	4	5
e.	Not having a say in decisions about how things are done on the unit?.....……...	1	2	3	4	5
f.	Feeling pressured to do more than you feel you are able to?…..……...	1	2	3	4	5
g.	Personality clashes that get in the way of working well together?…….	1	2	3	4	5
h.	Problems communicating well?……..	1	2	3	4	5

How would you rate the performance of people you work with, <u>as a team</u>, in the following areas?

(circle one number on each line)

		EXCELLENT 1	VERY GOOD 2	GOOD 3	FAIR 4	POOR 5
a.	Delegation of task among team members?.....					
b.	Collaboration among team members in coordinating patient care?.....……..	1	2	3	4	5
c.	Handing off tasks to others in the team when necessary?.....……..	1	2	3	4	5
d.	Making patient care decisions as a team?..……	1	2	3	4	5
e.	Helping each other to do the best job possible for patients?.....	1	2	3	4	5

How would you describe the way people work together on your unit?

	(circle one)
As a respected team of equals.....	1
With a “pecking order” but everyone is valued the same.....	2
With a “pecking order” where some are valued more than others.	3
With a “pecking order” where only those at the top are valued…..	4

SECTION 2. ABOUT YOU
Questions in this section ask about your background, training and experience.

What is your age?

(enter number of years)…….. ☐☐

Are you:

	(circle one)
MALE.....	1
FEMALE.....	2

What is your ethnicity?

	(circle one)
WHITE, NON HISPANIC……	1
HISPANIC.....	2
ASIAN.....	3
AFRICAN AMERICAN.....	4
OTHER.....	5

Are you trained as a:

	(circle one)
PHYSICIAN.....	1
NURSE PRACTIONER.....	2
PHYSICIAN ASSISTANT.....	3
NURSE.....	4
NURSING AID.....	5
OTHER.....	6

Over the past 12 months, how often have you felt:

		(circle one number on each line) NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
a.	Hurried or rushed at work?.....	1	2	3	4	5
b.	Like you had all the time you needed to spend with your patients?.....	1	2	3	4	5
c.	Stress or over worked?.....	1	2	3	4	5
d.	Like you had a long enough break between patients?.....	1	2	3	4	5

Thinking about all aspects of your work life, how would you rate your current morale?

(circle one)

EXTREMELY HIGH, COULDN'T BE BETTER.....	1
VERY HIGH.....	2
ON THE HIGH SIDE.....	3
NEITHER HIGH NOR LOW.....	4
ON THE LOW SIDE.....	5
VERY LOW.....	6
EXTREMELY LOW, COULDN'T BE WORSE.....	7

Which unit or team do you identify most closely with?

(circle one)

CARDIOVASCULUR.....	1
NEONATAL.....	2
SURGICAL HOME.....	3
GENERAL (non specific team).....	4

Thank You!

We are greatly appreciative of your help with this survey. Your responses will be kept in strict confidence. We will use your answers to help us improve the way we take care of our patients and those who take of patients at UCIMC.