ELECTRONIC HEALTH RECORDS IN SOCIAL WORK PRACTICE:

THE IMPACT OF COLLABORATIVE DOCUMENTATION ON PERSON-CENTERED CARE

By

ELIZABETH B. MATTHEWS

A dissertation submitted to the

School of Graduate Studies

Rutgers, The State University of New Jersey

In partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Graduate Program in Social Work

Written under the direction of

Beth Angell, PhD

and approved by

________________________________________

________________________________________

________________________________________

New Brunswick, NJ

October, 2018
ABSTRACT OF THE DISSERTATION

Electronic Health Records In Social Work Practice:

The Impact Of Collaborative Documentation On Person-Centered Care

by ELIZABETH B. MATTHEWS

Dissertation Director:

Beth Angell, PhD

The use of electronic health records (EHRs) is becoming normative in behavioral health treatment. Despite this, little is known about how to use these systems in a way that supports best practices, including the provision of person-centered care (PCC). PCC refers to a clinical approach that emphasizes individualized, collaborative care and a strong working alliance (WA) between clients and providers. Collaborative documentation (CD), the process of completing progress notes jointly with clients, has been promoted as a model of in-session computer use that can support this practice, but has been controversial among behavioral health providers. Advancement of CD has been hindered by the lack of empirical studies examining its effectiveness. This quantitative study examines how behavioral health providers use EHRs within a therapeutic context, and tests the impact CD has on PCC.

This exploratory study drew from a sample of 53 therapy sessions where EHRs were used. Data sources included a video recording of each session, and post-visit
surveys completed by both clients and providers. Video data was coded for computing frequency, and the use of CD with clients. Surveys measured client and provider ratings of person-centered care and collaborative documentation. Univariate statistics describe the extent of computer use during sessions. Paired sample t-tests explored differences in client and provider perceptions of PCC and CD. Finally, the association between the amount of computer use, CD and PCC was tested using OLS regression, adjusting for nesting with a random effect at the provider level. The first model examined the direct effects of CD on PCC, and a second model explored the moderating effects of CD on the relationship between total computing and PCC.

Results indicate that behavioral health providers spend about 33% of visit time using the computer, but clients and providers view the impact of these behaviors on PCC differently. Among providers, total computing had a direct, negative association with working alliance (WA), an essential component of PCC. Conversely, clients generally had more favorable attitudes towards the quality of their WA with their providers and the ways in which they used computers in sessions. Furthermore, among clients, CD predicted higher ratings of PCC and WA, regardless of how often computers were used.

These findings suggest that, while providers felt pessimistically about the impact of EHRs on PCC, clients did not share this experience, particularly when CD was deployed. To this end, results indicate that requisite skills surrounding collaborative use of technology are critical to harnessing the benefits of this technology. This underscores the need to continue developing and disseminating effective strategies for EHR use.
ACKNOWLEDGMENTS

I am deeply grateful for the ongoing support and encouragement of my chair, Beth Angell, whose gentle leadership and thoughtful feedback have guided me through the many, many iterations of this project. Through her commitment to helping me develop and refine my own scholarly point of view, she has demonstrated a model of mentorship I hope to emulate. I would also like to extend my sincerest thanks to the members of my dissertation committee, Ayse Akincigil, Emily Greenfield, and Victoria Stanhope, who have each been endlessly generous with their time and wisdom both in this project and throughout my doctoral studies. In particular, I would like to acknowledge Victoria Stanhope, who enthusiastically took me under her wing as a mentee. Her unwavering belief in my work helped me sustain motivation throughout the trials and tribulations of primary data collection, and allowed me to gain confidence in my own abilities as a scholar.

I could not have completed this project without the help of the Institute for Family Health and their providers and clients, who graciously allowed me into their world, and took extra time out of their busy day to participate in this study. Bearing witness to the strength and resilience of the individuals being served, and the power of the healing relationship has been a reward in itself, and served as an invaluable reminder of why I am engaged in this work.

I remain incredibly lucky to have the love and support of my husband, Greg, and parents, Whit and Betty. They have celebrated my successes, encouraged me through the many setbacks and disappointments inherent in doctoral studies, and, most
importantly, always believed in the importance of my work. Thank you to my magnificent daughters, Clara and Elsie. My desire to instill in them the true power of women serves as constant motivation to be the best version of myself. I cannot wait to see what these brilliant girls become. Finally, thank you to the many coffee shops in Jersey City that provided me with a safe haven for writing and much caffeine, both of which enabled this final product to materialize.
TABLES & FIGURES

Table 1.  *Computing Behaviors in Primary Care* .................................................. 27
Table 2.  *Typologies of Computing Behaviors* ....................................................... 32
Table 3.  *Framework for Collaborative Documentation* ........................................... 39
Table 4.  *Summary of Collaborative Documentation Models* ..................................... 46
Table 5.  *Summary of Conceptual Frameworks for PCC* .......................................... 51
Figure 1.  *Evidence-Based Practice Model Framework* ............................................. 58
Figure 2.  *The 'DCP' Framework* ........................................................................... 61
Figure 3.  *Guiding Conceptual Model* ..................................................................... 63
Figure 4.  *Conceptual Model Informing Analysis* ..................................................... 68
Table 6.  *Staffing Mix of Psychosocial Services Department* ...................................... 72
Table 7.  *Collaborative Documentation Frequency* .................................................. 74
Table 8.  *Primary Variables Included in Final Model* ............................................... 77
Table 9.  *Framework for Collaborative Documentation* ............................................ 81
Table 10.  *Provider Demographics* .......................................................................... 95
Table 11.  *Client Demographics* ............................................................................ 96
Table 12.  *Session Computing Characteristics* ....................................................... 97
Table 13.  *Computing Characteristics* ..................................................................... 98
Table 14.  *Mean Differences in Client and Provider Perceptions* ............................... 101
Table 15.  *Correlations of Client and Provider Perceptions of Computing* ............... 101
Table 16.  *Characteristics of Sessions With and Without CD* .................................... 104
Table 17.  *Dimensions of CD Deployed in 'High CD' Sessions* ................................. 106
Table 18.  *Impact of Computing Characteristics on Client Perceptions of Person-Centered Care* ........................................................................................................... 108
Table 19.  *Impact of Computing Characteristics on Therapeutic Alliance* ............... 110
Chapter 1. Introduction

**Problem Statement**

Mental health conditions can be highly debilitating, yet are quite common among the general population. Recent estimates from the 2013 National Survey on Drug Use and Health indicate that 18.5% of all adults in the United States were diagnosed with some form of mental illness in the previous year, while 4.2% of adults were diagnosed with a serious mental illness (Substance Abuse and Mental Health Services Administration, 2014). In addition, depression has ranked among the top ten most common chronic conditions, across both mental and physical health ailments. When left untreated, mental health conditions have been associated with premature mortality (Parks, Svendsen, Singer, & Foti, 2006) poor health rated quality of life (Gerhards, Evers, Silvia, Sabel, & Huibers, 2011) and disability (Vos et al., 2013).

Adding complexity to this issue, individuals with mental health diagnoses are also more likely to suffer from co-morbid medical illnesses (Parks et al., 2006). One survey found that 74% of individuals diagnosed with a mental health condition also had one co-occurring chronic medical illness, while 50% had two or more (Jones et al., 2014). As individuals are increasingly presenting with comorbid health and mental health conditions, there has been widespread acknowledgement that our national system is ill equipped to meet the multiple, complex needs of those seeking services, and must adapt in order to ensure patients receive the care they require (Institute of Medicine, 2001; Schuster, McGlynn & Brook, 1998; Stange, 2009).
In response to this pressing shortcoming, the Institute of Medicine (IOM) released a landmark 2001 report in which they detailed a vision for healthcare in the 21st Century. In this report, A New Health System of the 21st Century, the IOM argues that our current health and mental health system must undergo both structural and philosophical changes to the way care is delivered. First, health and mental health care must be reorganized in a way that reduces system fragmentation. Historically, medical and mental health treatment have been decentralized, with providers operating in separate, discipline specific ‘silos’ with little to no communication. This lack of coordination has been identified as a primary barrier towards the delivery of comprehensive treatment (Stange, 2009), with recent research suggesting that fragmented care reduces the quality of care, while simultaneously increasing healthcare costs (Frandson, Joynt, and Jha, 2015). The solution, IOM asserts, is to focus efforts on integrating health and mental health care in a way that promotes the systematic coordination of treatment between providers (Hogg Foundation for Mental Health, n.d.). As such, health and mental health reform has particularly focused on bringing medical and mental health service together by supporting comprehensive, transdisciplinary models of care and promoting the physical colocation and coordination of medical and behavioral health services (Davis et al, 2013).

In order to yield effective outcomes, this structural shift towards integrated systems must also be buttressed by philosophical changes to the way care is delivered. Person-centered care (PCC), defined by IOM (2001) as ‘care that prioritizes patients’ preferences, values, and role in decision-making processes’ is characterized by the
adoption of a “whole person” approach to treatment. In practice, person-centered care compels providers to engage in collaborative decision-making with clients, where the preferences of clients are weighted equally with that of the provider, include natural supports in treatment, and generate plans of care that both acknowledge and address the complex interplay between physical, mental, and environmental factors that impact wellbeing (Mead and Bower, 2000). Conversations around integration and PCC go hand in hand, with person-centered care (PCC) initiatives considered a critical ingredient of effective integrated care (Davis, Stremikis, & Abrams, 2011). Within the context of behavioral health, PCC has been linked to a number of positive outcomes, including improved compliance with psychiatric medication (Wilder, Elbogen, Moser, Swanson, & Swartz, 2010) and symptom improvement among individuals with mental illness (Cooper et al., 2013).

Prominent person-centered care initiatives consider health information technology (HIT), specifically EHR systems, an integral element of their program model (Kern, Edwards, & Kaushal, 2014), and use these systems both to facilitate care coordination and monitor quality of care (Stange et al., 2010). Efforts to integrate EHR systems into models of PCC is partially driven by evidence suggesting that such technology can support aspects of these models, such as increasing access to health care services (Buntin, Burke, Hoaglin, & Blumenthal, 2011), helping providers adhere to clinical guidelines, and identify medical errors (King, Patel, Jamoom, & Furukawa, 2014) and improving patient satisfaction (Finkelstein et al., 2012).
Because EHR systems function as a critical component of person-centered care models, as these delivery systems gain momentum health and mental health care providers will increasingly work in environments where health information technology is a part of routine care. Most recent reports estimate that approximately 92% of outpatient health care providers have adopted some form of computerized system (Heath, 2016). Statistics that reflect current rates of adoption within behavioral health organizations are unavailable, however, a 2012 report published by the National Council for Behavioral Health indicate that, while behavioral health adoption rates lag those of the medical profession, 56% of organizations indicated that some form for EHR system was used, and an additional 26% of agencies stated that they planned to implement an electronic system in the near future.

As EHR adoption rates continue to increase within the behavioral health community, it will be essential to understand how these systems can be best leveraged within this care setting to support patient-centered initiatives. Much of the research exploring the impact of EHR technology on quality of care focuses on objective measures, such as errors in lab or prescriptions orders, or the number of patients receiving recommended immunizations. The relationship between EHR use and interpersonal elements of person-centered care, such as client-provider communication and rapport building, are far less understood (Finkelstein et al., 2012). Furthermore, the vast majority of EHR-related research is conducted within medical settings, leaving particularly little known about the effects of such technology in the behavioral health context.
In order to integrate electronic systems into behavioral health care, many clinicians have adopted the practice of collaborative documentation (CD), where progress notes are completed jointly with patient during clinical encounters (Stanhope, Ingoglia, Schmelter, & Marcus, 2013). The practice of CD has largely been pioneered by the National Council of Behavioral Health, a non-profit professional organization representing 2,900 community mental health and substance abuse organizations across the nation (National Council for Behavioral Health, 2018). The National Council engages in public policy advocacy work and professional training, particularly around advancing the delivery of comprehensive, integrated health and behavioral health care. In partnership with an external consulting firm, MTM Consultants, the National Council has created the most widely disseminated model for CD.

Collaborative documentation is promoted as “a clinical tool that provides clients with the opportunity to provide their input and perspective on services and progress, and allows clients and clinicians to clarify their understanding of important issues” (Schmelter, 2012). By engaging patients in a joint process of note writing, it is purported that CD will enhance person-centered communication by increasing client engagement and participation in treatment (Schmelter, 2012). Problematically, the prevailing model of CD lacks a clear set of guidelines that standardize this practice, has yet to be empirically tested for effectiveness, and has not undergone systematic implementation or fidelity trials that might shed light on how CD is being deployed (DiCarlo & Garcia, 2016). A study conducted by Stanhope and colleagues (2013) found that training clinicians on several person-centered interventions, including CD, was associated with
increased treatment compliance; however, because clinicians were trained in multiple person-centered practices, the unique impact of CD on this outcome remains unknown. Currently, this is the only study explicitly studying the relationship between CD and indicators of quality of care.

Encouraged by the championing of national professional organizations and state divisions of mental health alike, behavioral health clinicians are actively adopting CD (Matthews, 2015), despite the lack of empirical or theoretical basis supporting this practice. While problematic from a quality control perspective, this presents a unique opportunity to adopt a ‘bottom up’ approach to practice development by enabling investigators to explore how practitioners are already deploying CD, and examining what impact these strategies have on known best practices, such as the provision of PCC. Adding urgency to this line of inquiry is the expectation that EHR adoption rates within behavioral health organizations are expected to increase, (National Council for Community Behavioral Healthcare, 2012), making it is essential to explore how these systems are currently utilized in behavioral health treatment, and better understand the relationship between computer use and person-centered care.

Current Study

In order to address this gap in the literature, the objectives of this study are twofold: The first research objective is to describe the nature and extent of computer use, including collaborative documentation, during behavioral health encounters. In order to understand the implications of EHR adoption on the delivery of quality
behavioral health care, it is first important to understand how often and in what ways these systems are being utilized within the context of treatment.

The second research objective is to explore how the deployment of collaborative documentation strategies impact the delivery of person-centered behavioral health care. Within an evolving health care system that is rapidly adopting computerized systems, understanding the implications of EHR use in all care settings is critical.

**Anticipated Contributions to Social Work**

As efforts to reform the health and mental health care system continue, the field of behavioral health, including social work, is undergoing significant change. Social workers have emerged as the primary providers of behavioral health treatment, and are increasingly employed within health care settings (US Department of Labor Statistics, 2018), where EHR systems are nearly universal. In order to respond to this shift, there have been calls from both professional (NASW, 2017) and academic communities (Andrews, Darnell, McBride and Gehlert, 2013; De Saxe Zerden, Lombardi, Fraser, Jones and Rico, 2018; Stanhope, Videka, Thorneing and McKay, 2015) to revise core skills and competencies of social work practice in a way that reflects the interdisciplinary, technologically driven environment within which we now practice. Emerging professionals must be equipped with the skills necessary to deliver quality behavioral health services in settings where HIT is a part of routine care. Following the passage of the Affordable Care Act, federal funding has been allocated to train new and existing behavioral health professionals to promote the delivery of person-centered care within
integrated healthcare settings. These initiatives provide important resources related to both HIT adoption and evidence based clinical interventions, however, there is no empirically supported framework that describes how these elements of integrated care can work together in clinical practice in order to support the provision of person-centered services. For example, The Center for Integrated Health Solutions, a collaborative between the Substance Abuse and Mental Health Services Administration (SAMSHA) has compiled a comprehensive set of resources around HIT in behavioral health care, however, these tools focus primarily on helping behavioral health organizations adopt and implement EHR systems and other forms of HIT (Substance Abuse and Mental Health Services Administration, Human Resources and Services Administration, 2015). Resources include issue briefs summarizing relevant policy initiatives, (Williams, 2013), and guides around billing and reimbursement for technology-assisted services (Center for Connected Health Policy, 2015), but pay scant attention to how clinicians are actually using technology to support and enhance person-centered clinical, such as shared decision-making.

Similarly, the Council for Social Work education is presently in the process of developing an educational curriculum focusing specifically on social work in integrated care settings. While health information technology is identified as a key component of integrated, person-centered social work practice (Stanhope, n.d.), the proposed module educating social work students on integrated care planning and documentation do not include information on the role of EHR systems, or collaborative documentation in this process. Accordingly, it is anticipated that this study will contribute important
knowledge around both CD and computer use in behavioral health practice in general that can be useful in further refining these important training efforts.

Similarly, findings from this study may be useful for informing existing policy initiatives related to implementing collaborative documentation. Though the practice of collaborative documentation lacks an evidence base framework, several states, including New York (New York State Office of Mental Health, 2012), Pennsylvania (Pennsylvania Department of Human Services, 2015), and Missouri (Missouri Department of Mental Health, Division of Psychiatric Services, 2011) actively endorse the use of collaborative documentation, and have set up mechanisms to reimburse for its implementation in practice. The clear risk of premature adoption of this practice is that clinicians may implement practice strategies that will ultimately detract from the delivery of quality, person-centered care. Before collaborative documentation and other forms of in-session computer use is embedded within training efforts and policy reform related to implementing integrated care, it is essential to understand the potential implications of this practice. This study can begin building a basis upon which best practices around collaborative documentation and general EHR use in behavioral health can be developed. In turn, this knowledge can be used to optimize efforts to integrate EHR systems into care.

In addition, this study will be an important contribution to a field of research in which behavioral health has been underrepresented. The vast majority of research related to EHR implementation is occurring within medical settings. It is therefore unsurprising that many important policy discussions related to the implementation of
EHRs and various forms of health information technology have occurred without representation from the behavioral health community (Institute of Medicine, 2006). This study will therefore also serve to increase the salience of behavioral health professionals in an important, emerging field of study that has largely been situated within physical health contexts.
Chapter 2. Literature Review

Introduction
The following chapter will provide a review of extant literature related to person-centered care, and the impact of computer use on important components of this construct in both medical and behavioral health settings. Several theoretical frameworks identifying dimensions of person-centered, as well the development and implementation of health information system technology (HIT) within this context have been utilized within this body of literature. An overview of these frameworks will be provided, concluding with the conceptual model used to shape the design of this study.

Effectiveness of Person-Centered Care
Most broadly, person-centered care, or patient-centered care, can be understood as care that is “respectful of and responsive to individual patient preferences, needs, and values, and ensur[es] that patient values guide all clinical decisions” (Institute of Medicine, 2001). This definition was created by the Institute of Medicine (IOM) in their landmark 2001 report, Crossing the Quality Chasm, which identified patient-centered care as an integral part of increasing health and mental health care quality.

IOM’s commitment to recognizing and respecting patients’ autonomy marked a dramatic shift away from traditional paradigms that previously dominated health and mental health services. Particularly within medicine, paternalistic approaches that awarded providers decisional authority over the course of treatment have historically
been normative (Charles, Gafi & Whelan, 1999). Prompted by a number of converging factors, most notably the 1980s consumer rights movement that was founded on principles of client empowerment, skepticism towards these authoritarian approaches to care delivery slowly took root in both medical and mental health communities. The pivot towards person-centered care is best understood as a culmination of these feelings, resulting in a large-scale response to and rejection of these traditional values (Charles, Gafi & Whelan, 1997).

Though both medical and behavioral health providers frequently utilize IOM’s definition of patient-centered care, variants of this term, including client-centered care, or person-centered care, are often employed by behavioral health professionals in order to emphasize an approach to treatment in which clients are viewed as an equal, active partner in treatment, rather than passive recipients of an intervention (Davidson, Tondora, Miller & o’Connell, 2015). When explicitly related to medical literature, the term “patient-centered care” may be utilized, however, the term “person-centered care” will generally be favored throughout this text, as the proposed study is situated within a behavioral health context and is most directly applicable to therapeutic practice.

Importantly, while there is a general agreement about the overall principles of person-centered care, the study of this construct is complicated by the fact that it is often used interchangeably to reflect both a philosophy or approach to care (ie, are you providing person-centered care?) as well as specific qualities or content of treatment (ie, are you engaging in person-centered communication?; Epstein et al, 2005, Kitson,
Marshall, Bassett & Zeitz, 2012). Because of this, understanding the evidence based related to this nuanced construct requires an introduction to several practice strategies commonly thought to comprise, or embody the provision of person-centered services.

First, the process of shared decision-making (SDM), where providers and clients work collaboratively to make treatment decisions (Towle & Godolphin, 1999), has been described as an integral part of providing person-centered care in both medical (Matthias, Salyers, Rollins, & Frankel, 2012) and behavioral health contexts (Deegan & Drake, 2006). SDM occurs when both clients and providers share information, participate in the process of making a treatment decision, and arrive at a mutually agreed upon plan of action (Charles, Gafni, & Whelan, 1997; Charles, Gafni, & Whelan, 1999). Leaders in the behavioral health community have gone so far as to argue that practicing shared decision-making is an ethical imperative of practitioners, as it inherently requires providers to respect and acknowledge clients’ values and preferences (Drake & Deegan, 2009), an approach consistent with those enumerated by IOM’s vision of patient-centered services.

Second, the practice of person-centered planning, has been described as “key to transforming the current behavioral health system to a person-centered, recovery orientation” (Tondora et al., 2010 pg. 369). Similar to the process of shared decision making, person-centered planning occurs when providers and patients jointly establish a plan of action designed to address individualized treatment goals. Such plans are strengths-based, collaborative, and, consistent with the whole-person approach embodied by PCC, include goals that extend beyond symptom reduction or illness
management to reflect life changes that are meaningful to the individual client (Davidson, Tondora, Miller, & O'Connell, 2015). This practice provides a structured mechanism through which person-centered care can be reflected in the treatment planning process.

Lastly, another fundamentally related concept is that of the therapeutic alliance, broadly described as the ‘collaborative and affective bond’ between providers and clients (Martin, Garske & Davis, 2000). The construct of therapeutic alliance, sometimes referred to as ‘working alliance’, predates that of PCC, with origins in the psychodynamic literature as far back as early work by Sigmund Freud (Horvath & Greenberg, 1989). More contemporary notions of alliance have grown out of Carl Rogers’ client-centered therapy, which sought to identify essential components of the therapeutic relationship, including empathy and unconditional positive regard, necessary for successful treatment (Horvath & Greenberg, 1989). Evolving from Rogerian theory, one of the most widely utilized contemporary models of alliance was developed by Edward Bordin (1979). Bordin’s (1979) pantheoretical construct of alliance argues that a working relationship is developed through mutual agreement on treatment goals, the development of tasks designed to advance treatment and promote recovery, and the development of an emotional bond between the patient and provider (Bordin, 1979). Providers support these three processes by demonstrating warmth and empathy, and making proactive attempts to build rapport (Horvath & Greenberg, 1994).

Though rooted in psychotherapy, the concept of the therapeutic alliance has given way to the recognition that the provider-client relationship plays a role in all
treatment contexts, including primary and specialty medical care. As such, the

cultivation of cooperative and collaborative relationship between clients and providers

is considered a necessary precondition for patient-centered care to occur (Mead &
Bower, 2000). Though conceptualizations of this relationship building process may vary

slightly across disciplines and treatment settings, this relationship is best understood

through the lens of the therapeutic alliance within the context of person-centered care

and behavioral health treatment.

    Programs adopting the person-centered approaches described above have been

found to improve a wide range of outcomes in both physical and behavioral health

settings. Systematic reviews of shared-decision making interventions found strong

evidence that clients were more satisfied with their care (Joosten et al., 2008, Klingaman

et al, 2015), demonstrated improved health literacy (Durand et al., 2014) and were

more likely to actively participate in making treatment decisions (Durand et al., 2014)

compared to those in usual care. A review by Davidson and colleagues (2012) focusing

primarily on shared-decision making for individuals with mental illnesses yielded similar

findings, suggesting that involving clients in important treatment decisions was

consistently found to increase the likelihood that clients remained behavioral health

treatment and complied with mutually agreed upon treatment interventions.

    Research exploring the impact of person-centered care planning (PCCP) is more

limited, though uptake of this practice is steadily increasing due to its compatibility with

overall efforts to make behavioral health treatment more consistent with person-

centered approaches (Stanhope, Tondora, Davidson, Choy-Brown and Marcus, 2015).
Thus far, the evidence-base supporting this practice has been positive; one randomized controlled trial that PCCP can increase clients’ sense of self-efficacy, increase involvement in the treatment planning process, and reduce symptom severity (Stanhope, Tondora, Davidson, Choy-Brown and Marcus 2015; Tondora et al, 2010). In addition, Stanhope and colleagues (2013) found that training community mental health center providers in the practice of PCCP decreased rates of missed appointments or discontinuity of services, and increased medication adherence. Finally, self-directed interventions, defined as those that include person-centered care planning as a component, predicted longer engagement in mental health treatment longer and reduced use of emergency services among individuals with severe mental illness (Alakeson, 2007). Importantly, training and implementation of PCCP was combined with other related interventions in both of these studies, making the precise impact of PCCP difficult. Despite this limitation, this practice is considered a promising mechanism for incorporating person-centered care into treatment.

Lastly, literature on the therapeutic alliance demonstrates a strong relationship between a positive, working client-provider relationship and a range of therapeutic outcomes. Importantly, while this literature does not focus on the therapeutic alliance explicitly within the context of person-centered care, it remains relevant construct to review, as the development of an alliance is necessary before this treatment approach can be adopted. A meta-analysis conducted by Sharf, Primavera and Diener (2010) found a consistent, positive relationship between alliance and continuity on mental health treatment, a finding echoed in a literature review of disengagement among
individuals with serious mental illness completed by O’Brien, Fahmy, and Singh (2009)
and in a recent randomized controlled trial studying cognitive therapy for depression
treatment (Cooper et al, 2016). Alliance has also been shown to affect adherence to
psychotropic medication (Misrahi, Petit, Blanc, Bayle & Llorca, 2012; Thompson &
McCabe, 2012), and predict overall improvement throughout the course of
psychopharmacological treatment (Totura, Fields & Karver, 2018). Finally, a positive
therapeutic alliance has been shown to improve client satisfaction with services in a
range of settings and contexts, including psychiatric treatment (Sylvia et al, 2013),
inpatient (Sweeney et al, 2014) and outpatient (Kim, Kim, & Boren, 2008) settings.

Within psychotherapy literature, the strength and quality of the therapeutic
alliance is considered one of the most robust predictors of positive treatment outcomes
(Martin, Garske & Davis, 2000). While research has consistently pointed to the benefits
of developing a strong working relationship, the personal and inherently subjective
experience of this process adds complexity to understanding this construct. To this
point, several studies have explored alignment in client and provider ratings of
therapeutic alliance, finding significant discordance between the two parties (Fenton,
Cecero, Nick, Frankforter & Carroll, 2001; Meier & Donmall, 2006; Tryon, Blackell &
Hammel, 2007). Overall, clients rate alliance more favorably than providers, and appear
to be motivated by provider characteristics such as perceived empathy, warmth and
expertise (Ackerman & Hilsenroth, 2003; Duff & Bedi, 2010), while provider ratings of
relationship quality were often influenced by clinical features, such as symptom severity
(McCabe & Priebe, 2003). As research in this area commonly employs measures of
alliance from both the client and provider perspectives, findings from these studies highlight the need to acknowledge the implications of these methodological differences, particularly when making comparisons across multiple studies or making broader, summative remarks about the therapeutic alliance construct.

While much of the literature in this area focuses on one of the particular components of PCC reviewed above, some studies examine the impact of person-centered care more generally. Findings suggest that a person-centered approach to medical (Stewart et al., 2000) and psychiatric (Greenwood, Schaefer-McDaniel, Winkel, & Tsemberis, 2005) care is associated with reduced symptom severity and overall increases in client reported wellbeing scores (Joosten et al., 2008). Person-centered practices have also found to improve adherence to psychiatric medication (Wilder et al., 2010), though in some instances this positive impact persisted only through the 6 month follow up (Pyne, Fischer, Mittal & Owen, 2018). Some positive impacts of PCC have been found to be sustained over time; Bertakis and Azari (2011) studied the impact of person-centered communication over a one year period, finding that more frequent instances of person-centered communication were associated with less frequent hospitalizations, fewer specialty care visits, and had overall less annual medical charges. In sum, although PCC is represented in the literature in various ways, research examining specific person-centered practices, or the impact of person-centered approached as a whole have demonstrated consistent, positive impacts on both objective and subjective measures of success in medical and behavioral health treatment.
Electronic Health Records and Person-Centered Care

Increasingly, health information technology (HIT), namely electronic health records, is a core component of models of person-centered care (Kern, Edwards, & Kaushal, 2014). For example, in order to become a designated Patient Centered Medical Home (PCMH), one of the most widely implemented models of person-centered care, centers are required to adopt an EHR system or utilize HIT in some form. In addition, one of the defining pillars of the PCMH model states that “care is facilitated by registries, information technology, health information exchange and other means” (Stange et al., 2010 pg. 603).

Proponents of EHR and HIT adoption anticipate that EHR functionalities have the potential to improve process (e.g., access to care), clinical (e.g., Disease-related outcomes), and intermediate outcomes (e.g., health literacy and patient satisfaction) (Finkelstein et al., 2012). Research has demonstrated some evidence to this end; in their systematic review, Buntin and colleagues (2011) found that HIT adoption was associated with improved access to care, increased adherence to preventative care guidelines, and improved patient satisfaction, though the majority of studies (86%) included in this synthesis reported a “mixed positive” finding, with at least one negative consequence of EHRs identified.

Importantly, however, studies exploring the impact of EHR adoption on interpersonal elements of care, such as shared decision-making and client empowerment, is considerably underrepresented in the literature (Finkelstein et al., 2012), despite the fact that client-provider communication is a core feature of person-centered care (Finney Rutten et al., 2014). The following section will provide a review of
such work in both the medical and behavioral health settings. As the majority of research in this area has thus far been primarily situated within the primary care setting, studies exploring EHR use in this care environment will be presented first.

**Computer Use in Primary Care.** Literature in primary care suggests that integrating computers into practice necessarily requires providers to change existing patterns of work in order to accommodate these systems (Booth, Robinson & Kohannejad, 2004). To understand the nature and extent of this change, a growing body of literature, which began emerging as early as the 1980s (Fitter & Cruickshank, 1982), have explored both how often and in what ways doctors use EHR systems within the context of patient care. Research in this area has primarily been conducted by video recording medical encounters in order to quantitatively (Dowel et al, 2013; Kumarapeli & de Lusignan, 2013; Makoul, Curry & Tang, 2001; Margalit, Roter, Dunevant, Larson & Reis, 2006; Noordman et al, 2010; Street et al, 2014) or qualitatively (Als, 1997; Asan, Young, Chewning & Montague, 2015; Booth, Robinson & Kohannejad, 2004; Frankel et al, 2007; McGrath, Arur and Pugh, 2007; Ventres et al., 2006) analyze providers’ use of computers. Less frequently, observational methods (Fitter & Cruikshank, 1983; Saleem, Adams, Frankel, Doebbeling & Patterson, 2013; Saleem et al, 2013; Shachak & Reis, 2009) or interviews (Zhang et al, 2016) have also been employed.

Studies indicate that primary care providers frequently use computers during appointments (Dowell et al, 2013; McGrath, Arur & Pugh, 2007; Shachak, Hadas-Dayagi, Ziv, & Reis, 2008). When timed as a total proportion of visit, studies found that
providers may spend as much as 50% (McGrath, Arur and Pugh, 2007) to 55% (Shachak, Hadas-Dayagi, Ziv, & Reis, 2008) of the appointment gazing at the computer screen. Similarly, Dowell and colleagues (2013) used video recorded appointments to calculate the number of seconds providers were physically oriented towards the computer and/or gazing at the screen. Discounting time doctors spent physically examining the patient, these authors found that providers were engaged with the computer for more than 20% of the primary care appointment. Using a similar video-based methodology, Kumarapeli and de Lusignan (2013) timed the total seconds dedicated to specific computing behaviors, including time spent using the computer with and without patient involvement. Findings indicated that that computing accounted for 39% of the medical visit time. Of this, 25% of computing occurred without patient input, while 14% involved client-provider-computer interplay.

Active use of the computer has been shown to impact physicians’ verbal and non-verbal behaviors, though the nature of this effect presents a complex picture. An association between EHR use and reduced eye contact with patients has been observed in multiple studies (Asan, Young, Chewning & Montague, 2015; Margalit, Roter, Dunevant, Larson & Reis, 2006), while several others indicated that more frequent EHR was associated with more time spent turned away from patients (McGrath, Arur & Pugh, 2007; Noordman et al., 2010). Furthermore, EHR use has been associated with an overall decrease in dialogue during appointments (Margalit, Roter, Dunevant, Larson, & Reis, 2006; Noordman, Verhaak, van Beljouw, & van Dulmen, 2010; Street et al, 2014) and an increase in periods of silence due to computing (as opposed to ‘therapeutic
silences’; Bartels, 2017). Interestingly, in addition to affecting the amount of communication, increases in EHR use has been associated with changes in the nature of dialogue as well. These changes have complex implications for the delivery of person-centered care specifically. Margalit and colleagues (2006) analyzed video recorded primary care visits using the Roter interaction analysis system (RIAS). RIAS is validated tool that codes medical dialogue into mutually exclusive and exhaustive categories, including relationship building, partnering, and patient-centered talk (Roter & Larson, 2002). Findings from Margalit’s (2006) study indicated that increased EHR use was associated with a decrease in providers’ psychosocial questioning and emotional responsiveness to patients. Using the Active Patient Participation Coding System (APPC), a similar method of coding and categorizing dialogue, Street and colleagues (2017) found that as physicians used computers more, patients engaged in less “active communication”, which includes asking questions, making requests, stating preferences or expressing concerns. Finally, a video ethnography of medical visits led by William Ventres (2005) yielded similar findings; an in iterative, inductive analysis of data suggested that providers who used computers more frequently throughout appointments focused more heavily on medical information gathering, thus detracting from a patient-centered approach in which the agenda is shaped by patient identified questions or concerns. Collectively, these studies suggest that computer use leads to a departure from the ‘whole person’, client led approach embodied by patient-centered care. To this point, using a validated observational measure of patient centered communication to code video recorded appointments, Street and colleagues (2014)
found that increases in screen gaze were indeed associated with lower rating of overall
PCC among primary care physicians.

Conversely, several studies have indicated that providers using EHR systems
provide clients with more information about their health status, such as medication
adherence (Makoul, Curry and Tang, 2001; Margalit et al., 2006). In another study
adopting the RIAS coding system, Noordman and colleagues (2010) found no significant
differences in the number of questions asked by either providers or clients in visits with
and without computers. Makoul and co-authors (2001) also examined communication
among physicians using EHRs versus paper records. Using the SEGUE framework, which
codes visits on the presence or absence of 25 critical communication tasks, such as
encouraging questions, ensuring completeness of information, and exploring
psychosocial and emotional issues, this study found that, compared to paper charting,
EHR use actually increased the number of questions asked by providers during
appointments with EHR systems, including requests to confirm or clarify information
entered into the chart. Similarly, McGrath, Arur and Pugh (2007) found that frequent
EHR use increased the number of questions patients asked as well. Finally, a study of
first year medical school residents found that more frequent EHR use led to more
effective exploration of the client’s perspective, including treatment goals, and
explanations of treatment that were in plain, accessible language (Taft, Lenert,
Sakaguchi, Stoddard and Milne, 2014). In contrast to the opposing studies, these
findings suggest EHR use may actually enable PCC by facilitating collaborative discussion
between patients and providers. Several recent literature reviews focusing on the
impact of computer use on doctor-patient communication have been conducted (Alkureishi al, 2016; Kazmi, 2013; Rathert, Mittler, Banerjee and McDaniel, 2016). Collectively, these syntheses of evidence highlight the differential outcomes EHR may have on communication, and provide a common, summative conclusion that while EHRs may increase both the collection and sharing of certain information and encourage active questioning from both the provider and patient, systems may also interfere with psychosocial and emotional aspects of care, including broaching complex psychosocial topics and demonstrating verbal and nonverbal indicators of attentiveness and engagement.

Outside of research examining communication specifically, multiple studies suggest that EHR use during encounters may reduce the likelihood that appointments are structured around clients’ agenda items, a core component of PCC. While paper charting often adopts a more open-ended format, EHR systems are structured around discrete items, such as check boxes and pull-down menus that are often embedded in a uniform electronic template. Particularly among novice or less proficient users, providers have been found to structure conversations to match the order and content of information requested by the system, as opposed to the individual narrative of the presenting patient (Patel, Arocha, & Kushniruk, 2002; Patel, Kushniruk, Yang, & Yale, 2000). Similarly, Pearce, Kumarpeli, & De Lusignan (2010) used a qualitative approach to analyze 308 video recorded medical consultations across 36 physicians, finding that EHR systems tended to shape the trajectory of visits when providers were prompted with information or alerts at the beginning of visits. For example, if automated prompts
alerted providers to an overdue procedure or missing information, efforts to address these issues preceded the identification of the patient’s agenda.

As described through this session, literature exploring computer use in primary care has employed a diverse set of methods for analyzing data. Numerous quantitative coding systems, including the RIAS system (Margalit, Roter, Dunevant, Larson & Reis, 2006; Noordman et al, 2010), the Active Patient Participation Coding System (APPCS; Street et al, 2017) SEGUE Framework (Makoul, Curry & Tang, 2001), have been used to provide important insight into how the frequency of computing behaviors impacts specific, core dimensions of person-centered dialogue. While individually validated and rigorous, the ability to draw summative conclusions from this body of work is somewhat limited by the diversity in coding categories and measurement scales across coding systems. For example, while RIAS and APPCS are common in their ability to create exhaustive codes for each individual utterance within a visit, the resulting categories into which dialogue is sorted is unique. Furthermore, in contrast with these systems’ granular approach to analysis, the SEGUE framework rates an appointment globally on the presence or absence of a specified category of communication using a simple yes/no response scale. Future work in this area would benefit from additional studies seeking to replicate these studies using the same coding systems in order to compare findings across different settings and contexts.

Alternatively, several studies used an inductive, grounded theory approach to analyze video data (Als, 1997; Asan, Young, Chewning & Montague, 2015; Booth, Robinson & Kohannejad, 2004; Frankel et al, 2007; McGrath, Arur and Pugh, 2007;
ventres et al., 2006). relative to the uniform coding systems described above, qualitative approaches allow researchers to identify and explore importance contextual nuances that play an important role in shaping the phenomenon of interest. because communication is a complex process shaped by verbal, nonverbal and environmental cues, a more inductive and reflexive method of analysis may be particularly well suited for research questions examining the unique function of EHRs within this context. while rigorous in their analytic approach, due to the iterative, inductive and deeply contextual nature of this work, the generalizability and replicability of these qualitative studies may be more limited than their quantitative counterparts.

Despite these limitations, the use of diverse methodological approaches provides a robust body of literature that highlights several differential impacts of computer use on communication generally and the delivery person-centered care specifically. One reason for these differential and contradictory outcomes is that providers use computers very differently within the context of care (Ancker et al., 2014). To this point, a recent scoping review completed by Crampton, Reis and Shachak, (2016) suggested that the positive or negative impacts of computer use may be a function of several factors, including provider style and exam room layout. Acknowledging the diversity in contexts within use computers are used, a growing body of research situated in medical settings has identified a number of interpersonal and environmental strategies employed by physicians using computers during clinical encounters. These interpersonal strategies identified in these studies can be grouped into PCC-enhancing or PCC-detracting behaviors, and are summarized as such in Table 1.
With the exception of Noordman and colleagues (2010) work, which examined patterns of computer usage quantitatively, these studies utilized inductive, qualitative approaches to identifying and describing provider behaviors. The process of iterative analysis and group consensus building were a common methodological strategy.

Table 1. *Computing Behaviors in Primary Care*

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PCC Enhancing</strong></td>
<td></td>
</tr>
<tr>
<td>Alerting prior to computing</td>
<td>• Booth, Robinson &amp; Kohannejad, 2004</td>
</tr>
<tr>
<td></td>
<td>• Dowell et al, 2013</td>
</tr>
<tr>
<td></td>
<td>• Fitter &amp; Cruikshank, 1983</td>
</tr>
<tr>
<td></td>
<td>• Zhang et al, 2016</td>
</tr>
<tr>
<td>Conversing while computing</td>
<td>• Booth, Robinson &amp; Kohannejad, 2004</td>
</tr>
<tr>
<td></td>
<td>• Brownbridge, Fitter &amp; Sime 1984</td>
</tr>
<tr>
<td></td>
<td>• Dowell et al, 2013</td>
</tr>
<tr>
<td></td>
<td>• Frankel et al, 2007</td>
</tr>
<tr>
<td></td>
<td>• Als, 1997</td>
</tr>
<tr>
<td>Explaining computer use</td>
<td>• Dowell et al, 2013</td>
</tr>
<tr>
<td></td>
<td>• Zhang et al, 2016</td>
</tr>
<tr>
<td>Confirming information from patient</td>
<td>• Fitter &amp; Cruikshank, 1983</td>
</tr>
<tr>
<td></td>
<td>• Makoul, Curry &amp; Tang, 2001</td>
</tr>
<tr>
<td></td>
<td>• Saleem et al, 2013</td>
</tr>
<tr>
<td></td>
<td>• Als, 1997</td>
</tr>
<tr>
<td></td>
<td>• Asan, Young, Chewning &amp; Montague, 2015</td>
</tr>
<tr>
<td></td>
<td>• Dowell et al, 2013</td>
</tr>
<tr>
<td>Sharing screen</td>
<td>• Milne et al, 2014</td>
</tr>
<tr>
<td></td>
<td>• Saleem et al, 2013</td>
</tr>
<tr>
<td></td>
<td>• Zhang et al, 2016</td>
</tr>
</tbody>
</table>
Strategic timing of computer use
• Booth, Robinson & Kohannejad, 2004
• McGrath, Arur and Pugh, 2007
• Noordman et al, 2010
• Shachak, Hadas-Dayagi, Ziv & Reis, 2009
• Ventres et al, 2006
• Zhang et al, 2016

Sustaining eye contact while computing
• Brownbridge, Fitter & Sime 1984
• Frankel et al, 2007

Maintaining client-oriented body posture
• Frankel et al, 2007

Shift computing outside encounter
• Fitter & Cruikshank, 1983
• Saleem, Adams, Frankel, Doebbeling & Patterson, 2013
• Zhang et al, 2016

PCC Detracting

Using computer to change or stop interactions
• Als, 1997
• Fitter & Cruikshank, 1983

Giving providers a break
• Als, 1997
• Fitter & Cruikshank, 1983

Using system to legitimize decisions
• Als, 1997
• Dowell et al, 2013

First, in order to prevent adverse patient reactions, physicians provided an indication that computer use would occur prior to initiating with the EHR system, a strategy that Booth, Robinson and Kohannejad (2004) referred to as ‘signposting’. In in-depth provider interviews conducted by Zhang and colleagues (2016) providers described used signposting both at the beginning of visits, by stating, for example,
“remember we are computerized based now so we are looking at the computer pretty much but that doesn’t mean I’m ignoring you”, or “I need to type and look at the computer while I talk to you because that’s how I can make sure that the information here is the most accurate and how I can provide you with the best care possible” (p 140), and throughout the session as computing episodes occurred. While these behaviors were often verbal acknowledgements, providers used non-verbal signals to manage this transition as well, such as slowly swiveling their chair, or reaching for a mouse (Dowell et al, 2013).

Throughout the session, providers maintained engagement with patients during periods of computing by continuing to converse, even while using the EHR system (Booth, Robinson & Kohannejad, 2004; Brownbridge, Fitter & Sime 1984; Frankel et al, 2007). In contrast with communication focused on sharing health information, this particular type of dialogue was not medically related, and functioned instead as a ‘space filler’ to avoid periods of silence while the physician attended to tasks on the computer. In a similar strategy, providers also included patients in episodes of computer use by providing a narrative of what they were doing within the system. At times this process was described as a passive sharing of information, or ‘thinking out loud’ (Dowell et al, 2013), while in other instances doctors would deliberately and purposefully explain what tasks they were completing as they did so, for example “I’m looking at your blood tests” (Als, 1997 p. 20). As they were charting, 3 studies found that doctors sustained conversation by using this opportunity to confirm or clarify information collected from patients (Fitter & Cruikshank, 1983; Makoul, Curry & Tang, 2001; Saleem et al, 2013).
Another way to share the computer with patients was to turn the monitor towards the patient in a way that allows joint viewing of the chart. Importantly, while this strategy has garnered significant attention as a critical strategy for effective computer use, it does not appear to be one that is utilized frequently by providers (Als, 1997; Milne et al, 2014). In order to refine this practice, Asan and Montague (2013) created a typology of screen sharing that will be described in the next section.

Physicians in 6 of the reviewed articles timed their periods of computer use strategically. In some instances (McGrath, Arur and Pugh, 2007; Ventres et al, 2016), providers would demonstrate attentiveness by turning away from the computer as more sensitive issues were broached, while in other contexts (Shachak, Hadas-Dayagi, Ziv & Reis, 2009; Noordman et al, 2010) this meant leveraging natural opportunities to compute, such as when patients were undressing for an exam. Other significant nonverbal strategies employed by medical providers included sustaining periods of intermittent eye contact when typing or navigating the EHR (Brownbridge, Fitter & Sime 1984; Frankel et al, 2007), and less commonly, maintaining a client-oriented body posture, even when typing (Frankel et al, 2007).

Notably, several physicians managed EHR use through avoidance, and moved as much charting outside of the clinical encounter as possible (Fitter & Cruikshank, 1983; Saleem, Adams, Frankel, Doebbeling & Patterson, 2013; Zhang et al, 2016). While clearly not a strategy for in-session computer use, the frequency of this approach suggests that the act of integrating computers into visits may not be seamless or preferable to providers. In a recent systematic review, Patel, Vichich, Lang, Lin and Zheng (2016)
reinforced these key behaviors as those receiving the most empirical support as commonly employed, and potentially effective strategies for computer use in medical settings.

Importantly, while a number of strategies that appear in-line with PCC approaches were observed, doctors also engaged in a number of behaviors that may intuitively disrupt or undermine the provision or patient-centered medical care. First, doctors used computing episodes as a way to either stop or change the topic of dialogue with the patient (Als, 1997, Fitter & Cruikshank, 1983). Typically, this occurred during unnatural breaks in the conversation as a way to disrupt the flow of the visit when it was undesirable to the provider. Similarly, computers were often leveraged as a strategy to ‘give providers a break’ (Als, 1997, Fitter & Cruikshank, 1983) when they needed time to solve a problem or make a diagnosis. This inherently led to periods of silence as providers worked on the computer without the input or participation of patients. Finally, computers were used as a tool to legitimize decisions (Als, 1997, Dowel et al, 2013). Als (1997) referred to this phenomenon as as the 'magic box', where gesturing to the computer screen when providing a professional opinion appeared to provide an authoritative but imaginary corroboration of the doctor’s recommendation. A similar phenomenon was observed by Dowell and colleagues (2013), who noted "the act of entering information onto the computer [invested] it with new authority". Such a process reinforces unilateral, rather than collaborative decision-making.
In an effort to organize the behaviors, several authors have presented typologies that represent common patterns of computing behaviors. These are summarized in Table 2.

Table 2. Typologies of Computing Behaviors

<table>
<thead>
<tr>
<th>Citation</th>
<th>Typology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitter and Cruikshank, 1982</td>
<td>• <strong>Minimal</strong>: Input information before session to minimize computer interface</td>
</tr>
<tr>
<td></td>
<td>• <strong>Conversational</strong>: Interact and ask questions, then enter into the computer</td>
</tr>
<tr>
<td></td>
<td>• <strong>Block/Burst</strong>: Gather lot of information, then spend more time typing this into the system</td>
</tr>
<tr>
<td></td>
<td>• <strong>Controlling</strong>: Directs (verbally or nonverbally) patient not to talk while computing, to protect rapport and not divide attention</td>
</tr>
<tr>
<td>Booth, Robinson &amp; Kohannejad, 2004</td>
<td>• <strong>Responsive/Oppportunistic</strong>: Makes use of natural gaps in conversation to use computer. If no natural point occurs, computer might be ignored</td>
</tr>
<tr>
<td></td>
<td>• <strong>Ignoring</strong>: Providers lost rapport when engaging in computer</td>
</tr>
<tr>
<td>Ventres, Kooienga, Marlin, Vockovich &amp; Stewart, 2005</td>
<td>• <strong>Informational</strong>: Computer use focused on gathering information as prompted by EHR</td>
</tr>
<tr>
<td></td>
<td>• <strong>Interpersonal</strong>: Patient was primary focus of visit, with minimal computer use</td>
</tr>
<tr>
<td></td>
<td>• <strong>Managerial</strong>: Alternated attention between computer and patients to balance needs of information input and rapport building</td>
</tr>
</tbody>
</table>
Asan & Montague, 2013

- **Active Information Sharing**: Physician turned the screen so that patient and provider could view together
- **Passive Information Sharing**: Physician neither turned or blocked screen; patient could see monitor by learning if they chose to
- **Technology Withdrawal**: physician kept the computer out of the patient’s view

Fitter and Cruikshank (1982) authored one of the earliest and most seminal pieces exploring in-session computer use. Though their observation of video recorded gastroenterology visits occurring before and after the implementation of a computerized system, they were able to observe ways in which provider behaviors changed and adapted to the use of technology during medical encounters. As part of this work, the authors described three mutually exclusive patterns of computer use. The *minimal approach* describes providers to exercise avoidance of computing, moving charting outside of patient encounters as much as possible. Other providers adopted a *conversational approach*, where computer use was interwoven into the encounter as information was naturally offered or collected. Finally, the *burst approach* characterized providers who “blocked” appointment time by listening and responding to the patient exclusively, and, once complete information had been gathered, attending primarily to the computer for an extended period.

Booth, Robinson and Kohannejad (2004) purposively sampled primary care physicians who were well practiced in the area of in-session computer use in order to identify high quality consultation practices within a technologically inclusive setting. In
particular, the authors were interested in examining ways in which physicians protected rapport while negotiating the demands of the EHR, identifying controlling users, who overtly discouraged multitasking as a strategy to avoid unintentional loss of engagement, responsive users, who leveraged natural gaps in conversation to use the computer, and ignoring users, who became lost in the computer at the expense of patient engagement.

Using an ethnographic approach, Ventres, Kooienga, Marlin, Vockovick and Stewart (2005) followed a small group of general practitioners over a six week period in order to gain an in-depth understanding of their patterns of computer usage. Through this work, these authors outlined a similar typology to that of Booth and colleagues (2004), noting that providers in a video recorded sample adopted an informational approach, where data input into the EHR was prioritized over patient interaction. Providers adopting this approach structured appointments around the informational needs of the EHR, rather than a client led agenda, and rarely shared the screen with patients. On the other end of the spectrum, providers using an interpersonal approach attended primarily to the patient, rather than the electronic system. These providers tended to position themselves away from the computer, and sustained longer periods of eye contact and open (towards the patient) body posture. If no obvious or clear opportunity for computer presented naturally during the session, the EHR would not be used at all, and, when used, was primarily for the purpose of retrieving or sharing information, rather than documenting the current visit. A managerial approach represented a middle ground, where providers would balance the needs of both the
patient and the EHR system by alternating attention between the two throughout the session. In order to support this dual focus, providers would structure the visit around distinct intervals or computing or direct patient interaction. Visits consisted of a brief personal greeting, followed by computerized documentation of presenting concerns and history, a patient-centered examination and discussion of care, concluding with the documentation of a visit summary. The authors noted that while this more rigid approach to structuring the visit allowed providers to attend fully to both the patient and the computer, it appeared to disrupt the natural flow of visits.

Finally, also using an vide-based ethnographic approach, Asan and Montague (2013) differentiated approaches to screen sharing specifically, describing active information sharing, where providers purposefully turn computer monitors towards patients, passive information sharing, where screens cab be viewed if patients proactively lean in or adjust their posture to do so, and technology withdrawal, where physicians actively blocked patients’ view of the screen.

In additional to interpersonal approaches to computer use, several authors suggest that the physical organization of the exam room may either facilitate or discourage collaborative communication between clients and providers (Frankel et al., 2005; McGrath, Arur and Pugh, 2007; Pearce, Walker, & O'Shea, 2008; Shachak, Hadas-Dayagi, Ziv, & Reis, 2009). Pearce and colleagues (2008) distinguish between “inclusive” and “exclusive” office settings. While the former scenario places computer monitors such that patients can view the screen, “exclusive” office environments create a physical barrier between the patient and computer, for example, by placing the computer across
a desk facing the provider. Behaviors that may promote collaboration, such as screen sharing, were more likely in “inclusive” environments, because the physical space facilitated triangulation between the computer, client, and provider.

While there is a substantial body of literature exploring the connection between in-session computer use and patient-centered care, the diversity in study settings, EHR programs, and patient populations (Kazmi, 2013), make it difficult to draw general conclusions about these findings. More problematically, the bulk of research has focused either on provider behaviors (eg, frequency of computing) or outcomes (eg, the quality or content of dialogue and communication), leaving the precise relationship between the two largely unstudied (Bartels, 2017). That is to say, which provider behaviors yield which PCC related outcomes remain unclear.

**Computer use in Behavioral Health.** Comparable research exploring the impact of technology on behavioral health has been slower to emerge, despite the fact that the use of computers in behavioral health settings is increasing (National Council for Community Behavioral Healthcare, 2012), as is the employment of behavioral health staff in health settings (Bureau of Labor Statistics, 2017) where EHRs are likely present. A limited number of studies have explored the impact of EHRs on psychiatric care (Krishna, 2017). Stewart, Krotch, Bailey, & Schuyler (2010) found that client satisfaction did not change after EHR implementation in a psychiatric setting, while both Triplett (2013) and Rasminsky, Berman and Burt (2015) adopt a more critical approach, arguing that the demands of the EHR distracted psychiatrists from the nuanced and complex task of psychiatric interviewing, in some instances resulting in diagnostic errors.
(Rasminsky, Berman & Burt, 2015). A survey of psychiatrists conducted by Duffy and colleagues (2016) found that, while nearly all providers were comfortable using a computer for personal use, more than a quarter of all providers and 63% of those aged 65 years and older were not comfortable using computers within the context of clinical care. This discomfort, perhaps due to lack of training and skill development in this area, may contribute to some of the adverse outcomes found in the studies above.

Research examining computer use in therapeutic treatment is equally lacking. Chan and colleagues (2008) found that doctors’ computer use reduced by nearly 50% during visits with a psychological component, which suggests that EHR systems may simply be used less in behavioral health contexts. Only two studies have quantitatively explored the relationship between computer use during mental health intakes and therapeutic alliance. Wairda and colleagues (2014) examined whether alliance differed in therapeutic intake sessions where providers were randomly assigned to document using computers, tablets, or pen and paper to during the visit. The study found no significant difference in alliance scores as reported by clients. Similarly, Rosen, Nakash and Alegría (2015) compared observer related alliance scores of visits in which computers were used during intake appointments. While computers were present in all offices, the use of technology was optional. Authors found that they were utilized in less than a quarter (22.15%) of sessions. Contrary to Wairda and colleagues’ (2014) findings, this study found that any level computer use predicted lower therapeutic alliance as measured by independent observation, and higher likelihood of discontinuation of treatment.
Because computer use was measured dichotomously, a significant limitation of these studies is the failure to address how or to what extent behavioral health providers are actually using electronic systems in these sessions. Driven by the paucity of research in this area, qualitative, pilot research was conducted (Matthews, 2015) in order to gain additional insight into what computer use might look like within the context of behavioral health care, and what impact EHRs may have on the person-centeredness of therapeutic treatment. Because these findings provide the basis for the conceptual model and guiding hypothesis of this study (described in the conclusion of this chapter), the following section will summarize the findings from this work in detail.

This pilot research consisted of semi-structured interviews with 48 behavioral health professionals employed within the same community health center from which the current study sampled. The focus of these interviews did not focus specifically on collaborative documentation, but explored more generally how behavioral health professionals used the EHR systems during in-person encounters and within the context of behavioral health care. Within these interviews, the practice of collaborative documentation emerged as a central theme related to effective uses of computers in practice, leading to the current study’s focus on how this practice is presently being implemented and what impact it may have on the delivery of PCC.

Table 3 provides a summary of how providers described implementing collaborative documentation in practice. Together, these behavioral strategies were used to develop a conceptual framework of collaborative documentation. The process of this framework development is described in greater detail in the following
chapter. Notably, these included several of the key behaviors commonly employed by medical providers, reflecting some generalizability of these findings to the field of behavioral health.

Table 3. **Framework for Collaborative Documentation**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Behavior</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prompt</td>
<td>Alerting clients that documentation is about to occur by providing verbal alerts or prompts</td>
<td>“I’ll just say, ‘That’s very important. Let me just write that down’ or ‘Let me make a note of this.’”</td>
</tr>
<tr>
<td>Dictation</td>
<td>Sharing the progress note narrative by reading out loud either as it is being written or shortly thereafter</td>
<td>“I’m like, “Okay. Great. And so now I’m just going to type up what we did today.” And so while I’m typing, I’m verbally telling them what I’m typing”</td>
</tr>
<tr>
<td>Screen Sharing</td>
<td>Physically adjusting the screen in order to provide visual access combined with a verbal or nonverbal invitation to jointly view the computer together</td>
<td>“Normally what I do is I try to turn the computer toward them, or ask them to sit near me, so it’s more of a joint exercise”</td>
</tr>
<tr>
<td>Eliciting Feedback</td>
<td>Offering clients the opportunity to confirm, approve, add to, correct, or otherwise contribute to the progress note narrative</td>
<td>“I ask them, ‘Does that sound right,’ and then, “Do you have anything that you wanna change or add?””</td>
</tr>
</tbody>
</table>

First, providers described prompting, or alerting clients prior to turning to the computer. As noted in the primary care literature, this often happened both at the beginning of sessions, as either an introduction to or reminder of the practice of collaborative documentation, as well as throughout the session as a mechanism to
broker the transition between the client and the EHR. During periods of computing, collaborative documentation also required dictation, or a running narrative of what information was being entered into the progress note narrative. This occurred both concurrently, as the provider was typing, or after the episode of documentation occurred. Dictation of the narrative was often bolstered by sharing the screen with the client, which functioned as a mechanism to promote transparency and inclusion in the documentation process. Finally, as a strategy to promote engagement, empowerment and shared-decision making, providers would offer clients the ability to confirm, change, or add to information that had been entered into their record by eliciting their feedback.

Deployment of these strategies, however, seemed dependent on several provider-level and encounter-level factors. Even among providers reporting frequently computer use, these strategies were not always implemented in the same manner or during every encounter. Clinical judgment was used to determine instances where computer use would be disruptive, for example, when clients were in crises or when they were divulging particularly sensitive information. In these instances, any computer use was considered a barrier to effective engagement and was therefore avoided. Other providers indicated that they rarely used the computers during encounters, regardless of the visit’s context or content. Most often, this was because they perceived the system as incompatible with their preferred practice style or clinical modality, or because the technology itself was too burdensome for clinicians to use seamlessly during encounters.
When asked specifically about the practice of collaborative documentation, though many providers reported that it was a successful engagement tool, others indicated that the practice proved distressing or disengaging to their patients. It is possible that these divergent experiences were driven by different implementation practices, as staff offered several, competing definitions of this practice. While some staff defined CD in a manner consistent with the prevailing model established by the National Council (Schmelter, 2012; Schmelter, 2013), others understood that this practice meant steady, consistent typing or computer use throughout the session.

In sum, respondents from this sample suggested that features of the EHR system can promote person-centeredness when used strategically. Importantly, the degree to which computers were integrated into encounters was contingent upon other contextual factors related to the visit, indicating that, at times, computer use is not considered optimal for encouraging patient engagement. Therefore, collaborative documentation is best described in this study as one of many useful tools available to providers seeking to promote engagement. Like many clinical practices aimed at fostering a relationship, these strategies too could be implemented poorly or at inopportune times. Complicating this analysis were the competing definitions of CD offered by staff, indicating that the lack of standardized training may effect the implementation of this practice. Therefore, further exploration of these nuances is warranted to better understand how clinicians are negotiating computer use during clinical encounters, and how patients perceive the impact of this technology on the quality of their care.
**Electronic Documentation & Other Electronic Resources.** Literature exploring the impact of collaborative documentation on the quality of behavioral health services is both limited and preliminary. Stanhope and colleagues (2013) examined the effect of a training program preparing community mental health providers to implement both collaborative documentation and person-centered planning on a variety of outcome measures. Results indicated that training providers in these practices was associated with higher rates of medication adherence and appointment attendance; however, because the training program focused on multiple skills, the unique impact of collaborative documentation training on these outcomes could not be determined. As described in the previous section, findings from pilot data also support the idea that documenting collaboratively with clients in a way that actively encourages and elicits feedback can facilitate engagement and foster a working alliance between providers and patients. Similar findings were reported by Kaufman (2012) in a small scale study completed as part of a MSW program requirement. This author also found a great deal of variation in the way that collaborative documentation was understood by providers, and in overall attitudes towards the impact of this practice on the therapeutic alliance in particular. Importantly, work from Matthews (2015) and Kaufman (2012) depended upon provider reports, and were not validated by practice observations or quantitative measures of alliance or PCC.

More extensive research has been conducted within the area of patient portals, or web portals that facilitate enhanced access and transparency in documentation by
allowing clients to view portions of their medical record, which may include progress notes, medication lists, and selected lab results. Two large patient portal systems have been researched within the medical community: the My HealtheVet Pilot and the OpenNotes program. Unlike many other web portals, the HealtheVet program, piloted within the VA healthcare system, provided veterans with full electronic access to their medical record. Clients could also enter some information into their chart manually, such as blood pressure and weight, and could authorize family members or other social supports access to their record as well. Results from the pilot study found that clients using the portal felt the system allowed them to recall treatment decisions and plans more effectively and feel more prepared for their follow-up visits. These sentiments appeared to facilitate better communication with their providers, and increased clients’ experiences of shared decision-making. Other positive outcomes included improved health literacy, feelings of empowerment, and self-care behaviors (Woods et al., 2013).

The Open Notes program represents the largest scale effort to provide clients with electronic access to medical providers’ progress notes. Approximately 100 providers providing care to 20,000 patients across 3 large health system invited their clients to view their progress notes during the initial phase of this intervention (Walker, Darer, Elmore, & Delbanco, 2014). At the end of year one of this intervention, four out of five clients reported viewing their visit notes (Wright et al., 2015). Studies exploring the impact of OpenNotes on various outcomes found that 20% of clients reported sharing their notes with a natural support involved in their care (Jackson et al., 2014). In addition, patients using OpenNotes indicated that the portal increased medication
adherence and increased feelings of control and empowerment related to treatment, (Delbanco et al., 2012). Interestingly, this same study found that one third of patients felt they should be able to approve the contents of the progress note, indicating that clients’ desire increased input into their medical record. In contrast, 85-96% of providers disagreed with this statement, (Delbanco et al., 2012). Based on these findings, Kahn, Bell, Walker and DelBlanco (2014) argued for the need to begin showing clients mental health progress notes, though the impact of this has not yet been studied.

While no comparable system has been explicitly studied within the behavioral health system, the CommonGround web system provides some evidence that electronic systems can be used to facilitate shared decision-making in psychiatric care. CommonGround was designed specifically as a tool to help consumers of psychiatric services play a more active role within the psychiatric encounter (Deegan, 2010). To accomplish this goal, this web application was designed as a way for clients to document their questions, concerns, and treatment preferences electronically prior to their appointment with the psychiatrist. This information is electronically shared with the provider, and is used to guide conversations during the visit (Deegan, 2010). A study of CommonGround conducted by MacDonald-Wilson and colleagues (2013) suggests that use of the software was associated with decreased psychiatric symptoms, and increase in the utilization of self-management strategies. In addition, evidence suggests that CommonGround software has a positive relationship to client perceptions of person-centeredness and quality of client-provider communication (Campbell, Holter, Manthey, & Rapp, 2014)
While the patient portals and web applications discussed in this section are clearly distinct from in-session, collaborative computer use, they provide some basis for the assertion that CD could have a positive impact on person-centeredness. First, this literature suggests that both patients and providers generally had a positive experience with transparent clinical documentation. In addition, this transparency was positively associated with essential elements of person-centered care, including shared-decision making and client empowerment. The results from Del Blanco and colleagues’ (2012) study of OpenNotes are also particularly germane to the practice of CD, as they indicate that consumers of health care services desire more input into their record, perhaps more so after seeing the content of progress notes written by providers exclusively. Collectively, this literature helps establish a rationale for piloting collaborative documentation as a way to further increase transparency in documentation, and provide a mechanism through which clients can achieve their desire to contribute their own thoughts and assessments into their records.

**Theoretical Models and Frameworks**

**Collaborative Documentation.** As indicated in previous sections, the practice of collaborative documentation (CD) is not yet guided by an evidence-based framework. The most widely disseminated model of CD was developed by MTM consultants in conjunction with the National Council. In addition, several states have authored memorandums that clarify, with varying degrees of specificity, how providers should be utilizing collaborative documentation. Table 4 provides a summary of all known definitions of this practice.
<table>
<thead>
<tr>
<th>Source</th>
<th>Specified Model of Collaborative Documentation</th>
</tr>
</thead>
</table>
| Missouri Department of Mental Health (2011) | • Occurs during the course of a mental health session where the client is present  
• Is the process of sharing the assessment, treatment plan, or progress note with the client for whom treatment is being provided  
• Assures the client and provider share the same understanding with regard to what occurred during the service session  
• Does not mean the provider is typing throughout the entire session, nor documenting without sharing the information with the client  
• The client must be actively involved and engaged in writing the note, including seeing and having input into the note.  
• Providing utilizing CD must have policies and procedures guiding this practice |
| New York State Office of Mental Health (2012) | “a provider works with a client during assessment, service planning and intervention sessions to complete as much related documentation as appropriate.” (pg. 28) |
• CD is utilized in person-driven assessment, treatment/recovery planning, and progress notes
• CD is created by incorporating the ideas of the individual and the provider in real time during the face-to-face session
• CD is to be used intentionally as a technique or approach to engage the individual to develop their objectives and support their goals
• CD is a highly engaged conversation through shared narrative between the individual and the provider to assure that both are of the same understanding with regard to what was accomplished during session and that the next steps are that support the individual’s treatment/recovery plan
• Clearly defined by the provider so that the individual is fully informed of the process and may choose to participate in CD
• CD is used to benefit the individual as a part of their recovery
• CD must clearly indicate that the documentation was collaboratively written with the individual
• CD shall occur within the scheduled time limit for the appointment or session
• Providers utilizing CD must have specific policies for using CD which including training for staff prior to the use of CD and ongoing supervision focusing on fidelity

Schmelter (2015)
• Client must be present and engaged in the process of documentation
• CD is not negotiating the required contents of the clinician’s documentation but the following must occur:
  • Client must know what is being written in the chart ideally by having visual access to the documentation
  • Client must clearly understand that if they have a disagreement with what is being written or want their perspective noted that their disagreement or perspective will be noted and identified as theirs.
  • Client is given the opportunity verify the accuracy of the documentation and if the client identifies an actual factual error in the documentation it will be corrected.
Thus far, New York (2012), Missouri (2011), and Pennsylvania (2015) are actively encouraging behavioral health providers to utilize collaborative documentation in practice. The degree to which states identify a clear model of collaborative documentation varies: New York State offers only a concise definition of CD in their memo clarifying billing and reimbursement requirements for this practice, while both Missouri (2011), and Pennsylvania (2015) offer more concrete criteria specifying what constitutes CD.

In 2011, the Missouri Department of Mental Health (MDMH) disseminated a memorandum to all community mental health providers regarding collaborative documentation. The purpose of this communication was to clarify questions regarding billing and reimbursement guidelines related to the practice of CD. Because the focus of this letter is to distinguish between billable and non-billable service, MDMH’s conceptualization of CD can only be gleaned implicitly. The criteria included in Table 4 are reflective of a synthesis of the information presented in this communication.

Outside of the model developed by the National Council, Pennsylvania has created the most comprehensive model of CD. In 2013, the Pennsylvania Office of Mental Health and Substance Abuse Services (OMHSAS) issued a Policy Clarification memo (Pennsylvania Department of Human Services, 2015), which prevented providers from billing directly for documentation time. This memorandum prompted numerous questions and concerns from providers, particularly related to the practice of collaborative documentation and how it is distinguished from billable therapeutic
interventions. These comments prompted the OMHSAS to convene a work group of expert stakeholders in order to offer more concrete guidance on how to implement the practice of CD, including a clearly defined list of “essential elements” of this practice. Significantly, while this model still lacks an empirical basis, the primary role of an expert review panel in developing the CD criteria provided a basis for content validity (Rubio, Berg-Weger, Tebb, Lee, & Rauch, 2003).

Common elements appear across these states’ three models of CD. At the most basic level, the active role of the client in creating a progress note is acknowledged. In addition, both Missouri (2011) and Pennsylvania (2015) emphasize that when implemented correctly, collaborative documentation should facilitate a mutual understanding of what occurred during each treatment session within which the practice was utilized. Similarly, both states articulate that clients should have the opportunity to contribute ideas, input, or clarifying information into their progress note. Of equal import is that Missouri (2011) and Pennsylvania (2015) also require individual organizations to establish policies and procedures related to the implementation of CD, yet no guidance on the process of actually practicing or implementing CD is offered.

Because the act of actively soliciting input from clients and immediately integrating this information into a progress note represents a drastic departure from traditional methods of behavioral health documentation, more practical guidance demonstrating how to introduce and engage clients in this process is important. The collaborative documentation model disseminated by MTM and the National Council (Schmelter, 2015) includes both a general framework for CD (eg, client must be present
and engaged in the process of documentation) in addition to specific behaviors that providers implementing CD should adopt (eg, allowing clients to see progress notes; clarifying how discrepancies between provider and client assessments will be resolved). Further training provided by MTM consultants (Schmelter, 2014) provides additional practical support related to implementing collaborative documentation, including scripts that clinicians can use to introduce this practice to clients (eg “Say: Now let’s sum up what we discussed today), and concrete actions that support CD (eg: “point to the computer screen to allow client to follow where you are and keep them feeling involved”).

Because a single, validated model of collaborative documentation has not been established, the CD framework adopted by the proposed study will be exploratory in nature and will be reflective of a synthesis of pilot data, the frameworks described above, and the broader literature on computer use and PCC reviewed throughout this chapter. The following chapter will specify in greater detail how this information will be applied in order to generate a cohesive conceptualization of collaborative documentation in practice.

**Patient-Centered (Client-Centered) Care.** While the term “patient-centered care” is often a focal point of discussions about health care quality, models identifying key dimensions of this concept are quite varied (Morgan & Yoder, 2012; Scholl, Zill, Härter, & Dirmaier, 2014). As noted previously, defining PCC more concretely has been complicated by the tendency to use this term in different ways, both as a general
philosophy, or approach to treatment, and as a more specific set of practice behaviors (Epstein, 2005, Kitson et al, 2012). The following section will provide an overview of several leading frameworks for patient-centered care, concluding with the model used to conceptualize patient-centeredness within the context of this study. A summary of these frameworks is presented in Table 5.

Table 5. Summary of Conceptual Frameworks for PCC

<table>
<thead>
<tr>
<th>Author</th>
<th>Origin</th>
<th>Key Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davidson, Tondoora, Miller &amp; O’Conner (2015)</td>
<td>Behavioral Health</td>
<td>• Strengths-based approach  &lt;br&gt; • Focus on empowerment and promoting self-management  &lt;br&gt; • Collaboration between clients and providers  &lt;br&gt; • Acknowledgement of “right to fail”  &lt;br&gt; • Mutual agreement on treatment plan goals and action steps</td>
</tr>
<tr>
<td>Rogers (1967)</td>
<td>Behavioral Health</td>
<td>• Genuineness and congruence  &lt;br&gt; • Empathy  &lt;br&gt; • Unconditional positive regard</td>
</tr>
<tr>
<td>Institute of Medicine (2001)</td>
<td>Medical</td>
<td>• Respectful of patients’ values, preferences, and expressed needs  &lt;br&gt; • Coordinated and Integrated Care  &lt;br&gt; • Provide information, communication, and education  &lt;br&gt; • Ensure physical comfort  &lt;br&gt; • Provide emotional support  &lt;br&gt; • Involve family and friends</td>
</tr>
</tbody>
</table>
Within the behavioral health context, this concept can be traced back to the work of Carl Rogers’ (1967) notion of client-centered therapy developed in the 1940s. As the name suggests, client-centered therapy focuses on patients’ challenges, needs, and goals, and rests on the belief that the power to enact change rests with the patient himself, rather than the therapist (Kramer, 1995). Rogers posits that therapists’ role is to foster the change process by creating a safe, therapeutic relationship with clients, characterized by three, primary elements: genuineness, empathy, and an unconditional positive regard (Cepeda & Davenport, 2006; Rogers, 1967). Rogers believed that these conditions of support and acceptance enabled clients to freely engage in the process of self-actualization and enhancing self-awareness (Cepeda & Davenport, 2006).

Though not presented explicitly as a conceptual framework, Davidson and colleagues (Davidson et al., 2015) identify five core principles of client-centered
behavioral health care. Applying Rogerian concepts of encouraging self-efficacy and self-actualization, these authors posit that client-centered therapy: (1) adopts a strength-based approach, meaning that treatment helps clients identify and harness their individual abilities and community supports in order to support recovery; (2) focuses on promoting client empowerment and encouraging self-management; (3) involves active collaboration between clients, providers and outside social supports as integral to client-centered practices; (4) acknowledges clients’ “right to fail”, or make decisions that contradict professional advice; and (5) requires the development of a mutually agreed upon plan of care.

Though client-centeredness has been embraced as a best practice among behavioral health practitioners, formal frameworks for conceptualizing patient-centered care have primarily been developed within the medical literature. The term patient-centered medicine was first coined in the 1960s by Enid Balint, as a way to describe the shift away from paternalistic, authoritative approaches to practicing medicine towards a more egalitarian models of care where patients values, preferences and strengths were acknowledged and respected (Balint, 1969; Morgan & Yoder, 2012). Since this time, several conceptual models of patient-centered care have emerged, many with overlapping components. The two most prominent models will be reviewed.

The Mead and Bower (2000) framework suggests that patient-centeredness is characterized by five components. This conceptual model attempts to move beyond a “positivist, biomedical model” in which patients are assessed, and subsequently viewed, according to their signs and symptoms of disease. In order to advance past this
restrictive concept of illness, the authors first propose that patient-centered care adopt a biopsychosocial perspective, in which biological, psychological and social factors are simultaneously considered in order to understand and treat presenting ailments. As an extension of this concept, the second component of patient-centeredness is the recognition of the “patient-as-person”, or acknowledgment that each patient will have a unique, individual and personal experience of his or her illness that should inform in the treatment process. Respect of the patient-as-person requires providers to share power and responsibility over treatment decisions, which functions as the third component in Mead and Bower’s framework. The fourth component of this model is the development of the therapeutic alliance, or the quality of the working relationship between the provider and patient. A more comprehensive overview of this concept will be provided in the proceeding section. Lastly, Mead and Brower propose that the final component of patient-centered care is the recognition of “doctor-as-person”. This concept recognizes the inherent subjectivity of the provider, in an effort to draw attention to and address potential sources of provider bias and counter-transference that may play a role in influencing treatment.

The second framework, developed by Moira Stewart and colleagues (2003) remains the most widely cited model of patient-centeredness (Hudon, Fortin, Haggerty, Lambert, & Poitras, 2011). Though developed within the medical context, this framework has also been used within mental health contexts (Campbell et al., 2014). For this reason, the proposed project will utilize this model of patient-centeredness to inform the study design and measurement of this construct. Much like Mead and
Bower (2008), Stewart and colleagues (2003) conceptualize patient-centeredness in terms of a holistic approach to care, and an egalitarian relationship between patient and providers. More specifically, this framework defines patient-centeredness in terms of six key components: (1) exploring the patient’s unique disease and the illness experience; (2) understanding the whole person, including their personal history, immediate social supports, and the community and cultural contexts in which they live; (3) finding common ground (i.e., collaboration) around the treatment and management of illnesses; (4) incorporating prevention and health promotion into care as a means to empower patients; (5) enhancing the doctor-patient relationship through empathy, compassion, and self-awareness; and (6) “be[ing] realistic’ about physical, psychosocial and environmental limitations.

In addition to the leading frameworks described above, health services research has yielded a number of alternate definitions of patient-centered care (Epstein et al., 2005; Ouwens et al., 2010). Despite the wide range of variation in precise conceptualizations of this construct, a systematic review of such literature suggests that understandings of patient-centered care largely center around five common elements: addressing the patient perspective; understanding the patient within his or her psychosocial context; involving the patient in care to the extent he or she desires; collaboration in decision-making and treatment planning; and making decisions based on the best clinical evidence, and patient values, beliefs and preferences (McCormack et al., 2011).
Health Information Technology and Patient-Centeredness. In lieu of an established theory underlying collaborative documentation, this study adapted and synthesized two existing frameworks in order to inform the final conceptual model guiding this work. The first, developed by The Evidence-Based Practice Center at Johns Hopkins University, provides a useful model for conceptualizing the moderating relationship between HIT, CD, and person-centered care, but is limited by its failure to articulate the positive or negative impacts of particular implementation strategies relevant to CD specifically, or interpersonal communication more generally. In order to address this limitation, Scott and Purves’ (1996) framework for a triadic relationship between the doctor, computer, and patient (DCP) will be presented as a way to understand the multiple pathways affecting the relationship between in-session computer use and patient-centered communication.

Evidence-Based Practice Center Conceptual Framework. The Evidence-Based Practice Center, based out of Johns Hopkins University, has presented a conceptual framework that illustrates the relationship between health information technology and patient-centered care (Finkelstein et al., 2012). This framework posits that key features of EHR systems and other forms of HIT can be used to facilitate a number of patient-centered practices. Potential barriers and facilitators impacting this relationship are also included in the model.

In order to conceptualize the core elements PCC, several frameworks were synthesized. Eighteen patient-centered practice components were identified across 5 domains (whole person orientation, coordination and integration of care, enhanced
patient-provider relationship, use of clinical information systems, and socio-cultural competence). Consistent with conceptualizations of patient-centered care described in the previous section, essential components of PCC include patient empowerment, finding common ground, and respecting patients’ values, preferences, and needs.

In addition, authors conducted a systematic review of the literature and consulted an expert review panel to identify specific HIT functions that promote patient-centered care and potential barriers and facilitators that may either impede or amplify this relationship. Five types of HIT functionalities were identified as key to patient-centered practice: care management tools (including features such as electronic prescribing, decision supports, and disease registries), telehealth programs, personal health records and patient portals, secure electronic messaging, and shared decision-making tools. Lastly, the authors generated a list of eight facilitators needed to promote the positive relationship between HIT functionality and patient-centeredness: usability, access, training, cost, computer literacy, changes in workload and workflow, effective implementation, and confidentiality of health information. Conversely, provider satisfaction, ease of use, usefulness of the system, efficiency and concerns about dehumanization were cited as key barriers that may impact or reduce the ability to use these systems in the intended manner. The completed model, with examples of each component, is illustrated below in Figure 1.
This conceptual model provides a useful framework for research exploring how specific uses of EHR systems can advance patient-centered practices. Specifically, its attention to providers’ implementation style holds particular significance to this study, by acknowledging that harnessing the potential benefit HIT is partially dependent upon how these systems are being utilized in practice, and the degree to which they are perceived to dehumanize the encounter. This model is strengthened its use of a sound theoretical backing, and the integration of relevant empirical literature.

Within the context of this study, this model is useful in informing how the relationship between computers, implementation style, and person-centered care are conceptualized, by pointing to the important moderating effect that key barriers and facilitators may have on this association. The final conceptual model presented below
adapts this framework by conceptualizing CD as a specific implementation style, and positing that this practice may have a direct or moderating effect on the relationship between computer use and PCC.

This model does not provide a mechanism for understanding the complex dynamics that make a particular style of computer use either a barrier or facilitator to PCC, and more nuanced model outlining the process of how different strategies of computer use impacts the complex processes of patient-centered care delivery is needed. For this reason, this model is used in tandem with Scott and Purves’ (1996) DCP model of the doctor-patient-computer triad, discussed in the next section.

It is important to note that this model was developed for the purposes of guiding a systematic literature review, and was accordingly designed to answer specific research questions of interest to the authors. Therefore, the model was not developed with transferability or generalizability in mind, and does not appear to have been applied elsewhere in the literature. While the applications of this framework may be limited, they are particularly well suited to the specific research objectives of the proposed study. In addition, because research in this area is in a nascent stage, there are many newly emerging frameworks with scientific merit that are simply too new to be broadly utilized and tested.

**The ‘DCP’ Model.** A notable limitation of the HIT and PCC model developed by the Evidence Based Practice Center is that while it identifies that implementation style has an important, moderating effect on the relationship between HIT and PCC, it does not articulate the factors that might contribute to effective and ineffective use of EHRs
in session. To address this gap, the DCP model identifies several pathways that collectively influence the relationship between computer use and the client-provider relationship.

Traditionally, person-centered communication has been understood dyadically, that is, it occurs between two parties involved in a dialogue. As computers became increasingly normative in health care, Scott and Purves (1996) argued that the structure of medical visits have fundamentally changed, such that we must move beyond the doctor-patient dyad and acknowledge the computer as a third ‘person’ that actively alters the nature of doctor-patient communication. In order to understand the nature of this change, these authors proposed the ‘DCP Model’, or the doctor-computer-patient triad, which posits that both doctor-computer and patient-computer interactions collectively work together to influence the nature and quality of the doctor-patient relationship. Where existing research in this area primarily focused on understanding how doctor-computer interactions shape communication and relationship building, the crux of this triadic framework lies in the recognition that both doctors and patients interact with and are influenced by the computer. The cumulative impact of the doctor-computer and patient-computer interactions then play out in the direct communication between doctor and providers, ultimately shaping the quality of their relationship.

In order to illustrate the nature of this triad, the authors first present a literature review of current evidence related to physician-computer and patient-computer relationships and apply this synthesis within a triadic framework to identify primary
ways in doctor-computer and patient-computer factors may influence the doctor-patient relationship. An example adapted from their work is illustrated below.

Figure 2. The ‘DCP’ Framework

As shown here, DCP asserts that the provider-client relationship is influenced by the interactions that both the provider and the client have with the computer. Each doctor-computer and patient-computer interaction can be either positive or negative. Drawing from the example above, doctors may negotiate the change in cognitive load effectively, for example, by maintaining rapport while typing into the computer, or
ineffectively, by typing silently with their backs turned to the patients. These behaviors can shape the way providers present themselves to clients, either as open attentive or closed off and disinterested. Similarly, if patients are closed off from viewing their health information during the appointment their appraisal of the EHR and the EHR user (the doctor) may be negative, while open invitations to view the computer screen may result in a more satisfactory experience with the system. In short, the DCP model asserts that more meaningful interactions with the computer serve to enhance the doctor-patient relationship, and vice versa.

Within the context of this project, the DCP model offers some theoretical rationale for the current conceptualization of collaborative documentation as a practice, and provides support for the hypothesis that CD may be harnessed to enhance PCC in general, and the client-provider alliance in particular. The DCP model acknowledges the unavoidable and multi-directional impact of in-session computing on communication and relationship building, and, in doing so underscores the to build practice strategies that direct providers and clients to attend to the EHR in ways known to have a positive or neutral effect on relationship building. The conceptual model of CD described in this chapter fits naturally within this framework, as the key strategies (prompting, dictation, screen sharing and eliciting feedback) offer prime examples of how to effectively manage the doctor-computer-patient triad. Each dimension of CD focuses on how to proactively and deliberately shape the both the provider and client’s relationship with the EHR by guiding the manner in which both parties work with the system throughout the session. Furthermore, drawing from Scott and Purves’ (1996) understanding of this
triad, if effective strategies for managing computer use can enhance the doctor-client relationship, so to can collaborative documentation.

**Adapted Conceptual Model.** The Evidence-Based Practice Center model and the DCP model have been adapted and synthesized in order to create a conceptual model guiding the present study. An illustration of this model is provided in Figure 3.

Figure 3. *Guiding Conceptual Model*

![Diagram](image)

The Evidence-Based Practice Center’s model provides a useful framework for conceptualizing the potential relationship between electronic health records and indicators of PCC. More specifically, this model illustrates that this relationship may be moderated by a number of intermediate process, such as implementation strategy, each of which having an essential impact on the ability of these systems to advance patient-
centered models of care. Within the context of the proposed study, this model provided a rationale for moving beyond dichotomous conceptualizations of computer (eg. Rosen et al., 2015; Wiarda et al., 2014) to explore the relationship between particular implementation strategies, specifically the practice of collaborative documentation, and PCC.

Exploring how CD is deployed is of particular import to the study. Development of a conceptual framework of CD drew upon the DCP framework by acknowledging the critical role of the EHR in shaping both provider behaviors and patient perceptions that are central to alliance building. As will be discussed in greater detail in the Methods section, the process of building this conceptual framework was supported by qualitative interviews with behavioral health staff, current collaborative documentation training materials, and additional literature from medical and behavioral health fields.

Finally, as the most prominent models of patient-centered care were developed within the medical settings, it was also necessary to adapt these frameworks in order to increase their relevance to the behavioral health setting. This was accomplished by integrating elements from Moira Stewart and colleagues’ (2003) framework and dimensions of the therapeutic alliance described by Edward Bordin (1979). Stewart’s model has been widely utilized as a framework to guide literature related to patient-centered care, including studies conducted within psychiatric departments (Campbell et al., 2014). Despite its application to behavioral health settings, some dimensions of this model are less applicable to outpatient therapeutic settings, and will therefore not be emphasized in the proposed model. More specifically, the health promotion dimension
of this construct will ultimately be excluded. In addition, while this framework does emphasize the need to work collaboratively and “enhance the patient-provider relationship”, the exchange of highly emotional, sensitive information inherent in therapeutic settings requires that particular attention be paid to the emotional bond developed between providers and patients. For this reason, the concept of patient-centeredness will also include the therapeutic alliance as a fundamental element of this practice. Operationalization of each of these constructs will be discussed in greater detail in the Methods section.

Research Objectives and Hypotheses

As previously delineated, the proposed study is guided by two research objectives, each with associated hypotheses:

(1) To describe methods of computer use, including collaborative documentation, during behavioral health encounters.

Literature conducted within primary care settings suggest that providers adopt a wide range of approaches to integrating computers into medical appointments (eg Frankel et al., 2005; Shachak et al., 2008). In addition, pre-dissertation research found evidence of similar variation in EHR use within behavioral health settings, in addition to uncertainty surrounding the definition and clinical processes related to collaborative documentation (Matthews, 2015). Accordingly, it was hypothesized that there would be variation in their methods of implementing collaborative documentation. Similarly, it is expected that overall frequency of in-session computer
use will differ between visits, depending on contextual cues (eg, presenting problem),
and also across providers, with some using the computer more consistently than others.

(2) To explore how the use of collaborative documentation impacts patient-centeredness.

Conceptually, the tenets of collaborative documentation are congruent with that
of patient-centeredness. For example, collaborative documentation promotes
transparency in treatment and emphasizes patient participation in treatment planning,
both of which are consistent with core elements of PCC frameworks. However,
behavioral health providers may not consistently implement the model as intended.
Therefore, it was hypothesized that sessions in which more elements of collaborative
documentation were utilized would yield positive perceptions of patient-centeredness.
Chapter 3. Methods

Study Design

Findings from pilot, qualitative data described in the preceding section suggested that the use of collaborative documentation (CD) may positively impact the delivery of person-centered care (PCC). Using a correlational, cross-sectional design, this quantitative study was designed to build upon these results by examining how the behaviors described by qualitative respondents were actually implemented in practice, and examining whether the deployment of these strategies achieved the intended result of enhancing PCC. More specifically, the objectives of this study include: (1) describing the nature and extent of in-session computer use during behavioral health encounters; and (2) testing the association between collaborative documentation and the delivery of person-centered care. The hypothesized association between CD and PCC articulated by qualitative respondents provided the basis for the conceptual model guiding this study, and was examined in two ways. First, the direct association between CD and PCC was explored. Secondly, an interaction model testing the moderating role of CD on the relationship between total computing and PCC examined the possibility that the relationship between total computing and the delivery of person-centered care varies as a function of the presence or absence of collaborative documentation. These models are illustrated below in Figure 4.
In order to carry out this study, participants were non-randomly recruited from the behavioral health department of a large network of federally qualified health centers located in New York City. Data was collected from 3 sources: video recorded therapy sessions in which computers and EHRs are present, brief client surveys and brief provider surveys.

The main independent variable domain encompasses the following variables: (1) total computing; and (2) the utilization of collaborative documentation. These data were extracted from video recorded therapy sessions as described in the following sections. Individual therapy sessions were recorded using a tripod mounted video camera. Video equipment was assembled in a designated clinical office space, and was positioned to
capture the provider, client, and the computer in the frame. No members of the research team were present in the room during the recording process.

Video recording was chosen as the preferred data collection method because it has been shown to alter behavior less than direct observation (Asan & Montague, 2014). In addition, video recordings capture behaviors exactly as they occur, as opposed to field notes, which may introduce observer bias. Lastly, video data can be coded by multiple parties, making it possible to enhance the reliability of measurement constructs by establishing inter-rater agreement.

The primary dependent variable domain of interest is person-centeredness, which was measured using surveys completed by providers and clients. At the end of each video recorded session, the principal investigator distributed a survey to both parties for completion. The PI reviewed the survey with providers prior to data collection to ensure clarity of survey instructions, and completed each survey jointly with clients. Several covariates, including patients’ symptom severity, provider age, and duration of therapeutic relationship were also included in the analysis. Each of the variables included in the final model will be described in greater detail in the proceeding section.

Procedures

**Study Setting.** Participants were recruited from The Institute for Family Health (IFH), a large network of federally qualified community health centers (FQHCs) located in Manhattan, the Bronx, and the Mid-Hudson Valley. FQHCs act as safety net providers,
serving primarily underprivileged populations on a sliding scale basis (Health Resources and Services Administration, nd). Consistent with this target population, IFH’s annual budget reports states that 68% of services within the organization were billed through Medicaid (Institute for Family Health, 2015).

In addition to being an FQHC, IFH currently operates as a level three Patient-Centered Medical Home (PCMH). This designation indicates that the organization meets the highest level of standards for providing comprehensive, person-centered care, and reflects an organizational commitment to promoting person-centered practices. In order to qualify for this designation, organizations are required to meet specified benchmarks on quality measures related to team-based coordination of care, adherence to evidence-based guidelines, and meaningful use of technology (National Committee for Quality Assurance, nd).

IFH has been utilizing EpicCare, a popular commercial EHR system, since 2003. In this time, the organization has systematically and comprehensively integrated this system into clinical workflows, such that paper charting is no longer utilized. EpicCare qualifies as a certified EHR system, which indicates that the technology meets certain functional requirements determined by the Centers for Medicaid and Medicare Services (CMS) and US Health and Human Services to be optimal for the delivery of safe, effective patient care (United States Department of Health and Human Services, 2013). Examples of these features include the ability to generate disease registries for population management, integrated decision support tools, and the compilation of printable after visit summaries. This certification reflects that EpicCare offers a robust
set of clinical functionalities commonly understood to facilitate high quality care. At IFH, Epic is a shared system, meaning that all providers across all sites and departments document in the EHR. Each client has only one electronic chart in which all providers document, giving treating providers access to a range of relevant health information, including progress notes, medication lists and lab results.

Within the psychosocial services department, all providers are encouraged but not required to utilize collaborative documentation. As described further in this section, use of collaborative documentation is monitored by the department, but is not used as a criterion for assessing performance. Training on this practice appeared to vary by individual supervisors. Clinical administrators within the department received a formal training on collaborative documentation conducted by senior administration. This training utilizes a range of materials, including internally developed resources and those authored by the National Council, the leaders in training and dissemination of CD practices. Supervisors are then expected to train individual clinicians, though this process is not standardized across programs and therefore may range in formality and frequency.

The psychosocial services department of IFH offers a range of outpatient services, including, psychotherapy, psychiatric medication management and evaluation, case management, and disease management services. In some sites, behavioral health professionals are stationed inside the medical practice, while other behavioral health programs are co-located with the primary care clinic but have a separate, designated practice area. Among those presenting for ongoing therapeutic services across all sites,
the most common diagnoses are depression, anxiety, and post-traumatic stress disorder. On average, patients remain in treatment for 7 months.

**Sample and Recruitment**

**Sample.** IFH owns and operates 20 clinics, which offer a range of integrated primary care, behavioral health, and social services. School-based clinics which work exclusively with students (n=5), and specialty clinics not offering ongoing behavioral health services (n=5) were excluded from this study, leaving a total of 10 sites to be sampled. A total of 65 licensed clinicians are employed within the behavioral health department of this organization. This number excludes psychiatrists, care managers, and case managers employed within the department, and is inclusive of only providers eligible for participation in the study. Table 1 summarizes the staffing mix of the department by position and region.

Table 6. *Staffing Mix of Psychosocial Services Department*

<table>
<thead>
<tr>
<th>Location</th>
<th>Region</th>
<th># of Licensed Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th st Clinic (Sidney Hillman &amp; Phillips Family Practice)</td>
<td>Manhattan</td>
<td>17</td>
</tr>
<tr>
<td>Family Guidance Center at Harlem</td>
<td>Manhattan</td>
<td>13</td>
</tr>
<tr>
<td>New Paltz Family Practice</td>
<td>Mid-Hudson Valley</td>
<td>3</td>
</tr>
<tr>
<td>Kingston Family Practice</td>
<td>Mid-Hudson Valley</td>
<td>8</td>
</tr>
<tr>
<td>AIDS Service Center</td>
<td>Manhattan</td>
<td>4</td>
</tr>
</tbody>
</table>
Participants recruited for this study included direct service providers employed within the psychosocial services department of The Institute for Family Health (IFH), and clients receiving behavioral health services within the psychosocial services department at any of the organization’s 10 qualifying sites.

In order to be eligible for participation, providers were required to be licensed professionals, providing ongoing (as opposed to one-time) therapeutic services. Appropriate licensure included social workers (MSWs), licensed counselors (LMHCs), psychologists (PhD and PsyDs), and other professionals with advanced degrees in counseling and behavioral health care. Eligible clients included adult (aged 18 and over), English-speaking individuals actively receiving ongoing therapeutic services within the psychosocial services of the target organization. Clients were recruited from the designated caseload of participating providers described above.

**Recruitment.** Recruitment was conducted in two phases, with the first phase focused on identifying the provider sample. Providers were first recruited using a purposive, nonproportional quota sampling approach. This method of sampling is used to non-randomly targeted participants based on pre-defined criteria, and enables
researchers to oversample smaller subgroups of interest (Trochim & Donnelly, 2008).

Within the context of this study, recruitment efforts targeted providers that were expected to use computers frequently and collaboratively during therapeutic encounters.

A challenge of quota sampling is to clearly define the distinct groups of interest (Trochim & Donnelly, 2008). Providers with high potential for engaging in collaborative documentation were identified through existing reports from IFH generated through the organization’s EHR system. As part of routine documentation, providers are asked to indicate whether the collaborative documentation was used during the corresponding session. Providers self-report this information by clicking a check box if collaborative documentation was used. These responses are then aggregated on a quarterly basis to determine the percentage of visits using collaborative documentation for each provider within the department. Reports of collaborative documentation at the time of sampling are reported in Table 7 below. The figures are reflective of self reported collaborative documentation frequency (expressed as a percentage of all completed visits) for clinical providers over a three month period of time:

**Table 7. Collaborative Documentation Frequency**

<table>
<thead>
<tr>
<th>Frequency of CD Use</th>
<th>Number of Providers</th>
<th>% of Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 70%</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>≥50%</td>
<td>9</td>
<td>15%</td>
</tr>
<tr>
<td>≥40%</td>
<td>16</td>
<td>25%</td>
</tr>
<tr>
<td>≥30%</td>
<td>24</td>
<td>27%</td>
</tr>
<tr>
<td>&lt;30%</td>
<td>15</td>
<td>23%</td>
</tr>
</tbody>
</table>
Consistent with a nonproportional, purposive approach described above, recruitment began with the highest implementers of collaborative documentation and progressively worked through the list of eligible providers until saturation of the sample population occurred. Access to the providers was facilitated through a research coordinator located at IFH. Recruitment occurred through a combination of a blinded group email to all eligible providers; direct contact to providers via email; and in-person presentations at program and/or department meetings. Ten providers (all providers at or above 50% CD utilization) were directly targeted for participation during the initial phase of recruitment. Of this group, 5 declined participation. An additional 8 providers were recruited by attending program or departmental meetings, for a total sample of 13 providers.

The second phase of recruitment targeted the client sample, using a convenience sampling approach. Each participating provider first selected preferred dates for data collection. All clients scheduling appointments on this preselected date were provided with a flyer outlining the study protocol by either the front desk staff or clinician at least one week prior to data collection. On the day of data collection, the principal investigator was stationed in the waiting room to recruit eligible clients as they arrived for their scheduled appointments. This included clients who received the informational flyer in advance as well as those who presented for walk-in appointments. Informed consent for participation was obtained at that time. A total of 68 clients were approached for participation, and 10 declined, for a resulting sample of 58 clients.
In summary, the study sample consisted of 58 clients across 13 providers. One therapy session per client (n=58) was video recoded. On average, 4 visits per providers was video recorded, with a minimum of 3 and a maximum of 6. Providers were awarded a $50 Amazon gift card for participation, and clients received $20 in cash. The sampling and recruitment process was approved by the Institutional Review Board at both Rutgers University and The Institute for Family Health. The approved protocol is attached in Appendix 1.

Measures
The following section will first describe the methods used to measure the independent, dependent and control variables included in the final analysis designed to explore both the direct and moderating effects of collaborative documentation on person-centered care. Additional measures used to deepen our understanding of in-session computer use, collaborative documentation, and the implications of this practice for the quality of behavioral health care are also presented and described in a subsequent section.

Table 8 summarizes the primary independent and dependent variables included in the final, predictive model. The methods used to measure these constructs will be discussed in greater detail throughout the following section.
Table 8. Primary Variables Included in Final Model

<table>
<thead>
<tr>
<th></th>
<th>Measure</th>
<th>Scale</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaborative Documentation</td>
<td>Global Rating</td>
<td>Binary</td>
<td>Video Data</td>
</tr>
<tr>
<td>Total Computing</td>
<td>Count of Computing Episodes</td>
<td>Standardized</td>
<td>Video Data</td>
</tr>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person-Centered Care</td>
<td>Care Consultation Measure</td>
<td>1-7</td>
<td>Survey</td>
</tr>
<tr>
<td>Therapeutic Alliance</td>
<td>Working Alliance Inventory</td>
<td>1-7</td>
<td>Survey</td>
</tr>
</tbody>
</table>

**Independent Variables.**

**Total Computing.** Computer use was measured from video recorded therapy sessions. All videos were uploaded into Atlas.ti in order to facilitate coding. This software allows the user to attach codes to specified segments of video data, which are measured down to the tenth of a second. Reports can then be exported in Excel format that specify the count of each code, the start and end time of each code, as well as the total duration of each segment. Guided by existing literature (Dowell, Stubbe, Macdonald & Dew 2013), data gleaned from these reports was used to measure the extent of computer use.

For the purpose of this final analysis, the extent of computer use was measured by counting the number of ‘computing episodes’, or instances of computing, that occurred during each session. A computing episode began when a provider interacted with the computer in any way, which included (1) gazing at the computer screen; (2)
moving or touching the mouse; or (3) striking keys on the keyboard. These parameters were derived from existing literature (Dowell, Stubbe, Macdonald & Dew 2013). A computing episode ended as soon as the provider was no longer looking at or touching the computer in any way. The total number of computing episodes was summed for each session, creating a continuous variable reflecting the total amount of computing. Because the range of this variable was large, and it was used as in interaction term in the moderation model, this variable was standardized in the final analysis.

In the following section, methods for measuring the percent of session time spent computing will be described. This continuous variable presents an alternative method for measuring total computing. A count of computing episodes is considered a more comprehensive and informative method of representing the total amount of computing, because it reflects both how much computers are being using in session, and how often providers are transitioning between the client and computer.

Conceptually, this more effectively taps into the type of computing behavior that may be considered problematic, or potentially damaging to the therapeutic alliance. Measuring computing as a percent of session time cannot speak to how frequently providers consult the computing throughout the session, and therefore is used primarily to provide additional descriptive detail about in-session computer use only.

**Collaborative Documentation.** As described in previous sections of this proposal, collaborative documentation is an emerging practice that is currently understudied in empirical literature. As a result, there is no existing scale that can be utilized to measure the utilization of CD. To address this limitation, the present study developed a global
scale designed to measure the extent to which collaborative documentation was deployed in sessions. It should be noted that this tool is not meant to be a measure of fidelity to an established gold standard of collaborative documentation. Because so little is known about the implementation of this practice, this tool is designed to be exploratory in nature, and will be used to describe observed behaviors and understand their impact on person-centered care, rather than rate clinicians based on a predefined standard of collaborative documentation. The following section will describe the process of developing this measure.

*Identifying Criteria for Collaborative Documentation.* The first step in developing a measure of CD was to determine the critical strategies or behaviors that embody this practice. This process was guided by Mowbray, Holter, Teague and Bybee’s (2003) framework for establishing fidelity criteria. While the proposed tool is not designed to explicitly measure fidelity, Mowbray and colleagues’ (2003) framework was selected because it outlines a systematic process for identifying key, fundamental elements of an intervention or practice, which is a necessary step in the proposed study’s objective of understanding how collaborative documentation is being implemented in the field. This method of identifying such criteria requires a triangulated approach, which draws from (1) qualitative research; (2) prevailing, existing models; and (3) expert opinions, including direct feedback from authorities in the subject area or from related literature.
Developing a measure of collaborative documentation utilized information from all three of these sources in order to identify critical components of this practice, as described below:

• *Qualitative Research*: A foundational, qualitative study has provided much of the foundation for the collaborative documentation tool. This study comprised of semi-structured interviews with a total sample of 49 behavioral health professionals from the target organization. These interviews focused more broadly on understanding how computers were used during behavioral health treatment, perceived costs and benefits of using an EHR system, and how computer use changed that way treatment was delivered. Results from the analysis illuminated several strategies commonly employed by respondents in order to engage in collaborative documentation within the context of behavioral health treatment.

• *Existing Literature*: While there is no clearly defined model of collaborative documentation with proven efficacy, the practice of collaborative documentation has been developed and disseminated by MTM Consultants in conjunction with the National Council of Behavioral Health. Material from the comprehensive collaborative documentation training provided from this consulting group was obtained and reviewed in order to derive core components of collaborative documentation from the primary existing model of this practice. Criterion for CD articulated by individual state agencies,
outlined in the previous chapter, was also reviewed, compared, and synthesized during this phase.

- **Expert Opinions:** A review of related literature was conducted in order to identify additional elements relevant to collaborative documentation not captured by the prior two sources of information. In addition, a draft of the collaborative documentation tool was reviewed by substantive experts from academic and practice communities. Feedback from this group was used to refine the final tool.

A synthesis of these three data sources produces a conceptual framework for collaborative documentation, outlined in Table 9. This table identifies four, key behaviors thought to embody the practice of collaborative documentation. A brief definition of this behavior is provided, along with an example of how these practices were described by respondents in the foundational qualitative study.

**Table 9. Framework for Collaborative Documentation**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Behavior</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prompt</td>
<td>Alerting clients that documentation is about to occur by providing verbal alerts or prompts</td>
<td>“I’ll just say, ‘That’s very important. Let me just write that down’ or ‘Let me make a note of this.’”</td>
</tr>
<tr>
<td>Dictation</td>
<td>Sharing the progress note narrative by reading out loud either as it is being written or</td>
<td>“I'm like, “Okay. Great. And so now I'm just going to type up what we did today.” And so while I'm typing, I'm</td>
</tr>
</tbody>
</table>
Development & Validation of the Global Measure. Once the core dimensions of collaborative documentation were identified, the next step was to develop and validate a scale for measuring how each component was implemented in the sampled video recorded therapy sessions. Development of this scale occurred in several stages, using established guidelines (DeVellis, 2012). As previously described, content validity of the scale items was established through a theory driven process. Next, multiple response formats were considered in order to determine the optimal method of scoring responses, including frequency (counts), binary responses, and global measures. All response formats were piloted in a small sample of video sessions by the principal investigator and a research assistant and tested for interrater reliability. Peer debriefing was also used to determine the limitations and benefits of each measurement method. This process is briefly outlined in the following paragraphs.
Frequency response formats, which provide a count of each behavior of interest, have strong precedent in related literature (Margalit et al., 2006; Noordman et al., 2010; Teri, McCurry, Edland, Kukull, & Larson, 1995). Within this study context, CD was initially measured by using video data to count the number of times each CD behavior (screen sharing, prompting, dictation, and feedback) occurred. While this process produced more detailed data than binary response formats, calculating these frequencies required coders to isolate the precise start and end of each CD behavior. Ultimately, practice behaviors related to collaborative documentation were found to be nuanced and interwoven within complex interactions, making them too difficult to reliably ‘count’ as discrete actions. Poor interrater reliability within a small subsample deemed this measurement approach unfeasible.

Within the context of coding video recorded medical visits, binary response formats (eg, present or absent; yes or no) have been found to produce highly reliable data across coders (Makoul, Arntson, & Schofield, 1995; Makoul, Curry & Tang, 2001), making this a viable alternative to frequencies. Because binary responses fail to account for the degree or extent of a practice, this measurement system limited variation in the sample, and made it difficult to capture important differences in the amount of collaborative documentation that occurred in each visit. It was determined that this system offered a reductive representation collaborative documentation; because the purpose of an exploratory study is to provide as much insight into a particular practice as possible, this method of measurement was not deemed optimal for the purpose of this project.
Ultimately, a global rating system was used to measure collaborative documentation. This approach has been used to measure the adoption of complex, multidimensional clinical practices (Moyers, Manuel & Ernst, 2015) and addressed the limitations of the previously described measurement strategies by rating sessions as whole, rather than discrete parts, while maintaining the ability to speak to the degree or extent to which collaborative documentation was present in sessions. Consistent with similar studies seeking to measure providers’ utilization of a clinical practice (Moyers, Manuel & Ernst, 2015), a rater assigned a single number from a 5-point likert scale that characterized her impression of the entire session, often referred to as a global rating. A separate global rating was conducted for each of the four dimensions considered critical to collaborative documentation. To establish reliability of this method, 20% (n=12) sessions were co-coded by a research assistant. Inter-rater reliability was evaluated using Pearson’s Correlation statistic, and was found to meet rigorous standards for reliability (α=.97).

An overall collaborative documentation value was generated by calculating the mean score across three dimensions (feedback, prompting, and dictation). Screen sharing emerged in the data as an outlier, as providers infrequently deployed this strategy. Reliability analyses reflected that alpha coefficients were improved when this dimension was dropped from the overall mean score of collaborative documentation. The overall scale therefore reflects the mean score of global ratings related to dictation, prompt, and feedback, and demonstrated adequate reliability (α=. 87).
In order to explore the impact of collaborative documentation on person-centered care, it was important to identify the sessions that most fully exemplified the identified components of this practice. This was accomplished by creating a dichotomous variable that differentiated between sessions with ‘high collaborative documentation’ versus those in which CD was minimal or absent. Sessions with CD scores at or above the 75th percentile were coded as ‘high collaborative documentation’. The 75th percentile was chosen for two reasons: first, using quartiles reflects a conventional approach to grouping data, and second, there was clustering around the median value, such that a 50th percentile cutoff produced groups with similar mean CD scores. Therefore, splitting the sample at the 75th percentile better reflected two groups with CD ratings that were meaningfully different.

**Dependent Variables.**

*Person-Centered Care.* Elements of patient-centeredness were measured using surveys completed by both patients and providers. Copies of these instruments are included in Appendix 2. In order to measure patient-centeredness, the study utilized the Care Consultation Measure (Little et al., 2001a; Little et al., 2001b), a 26-item scale completed by clients immediately following their appointment. Due to feasibility, providers did not complete this questionnaire. This measure was selected due to its clear, theoretical backing and transferability to behavioral health settings. The complete Care Consultation Measure (CCM) consists of five subscales derived from Stewart’s (2003) theoretical model of patient-centeredness: partnership and communication;
development of a personal relationship; health promotion; positive and clear approach to the problem; and interest in effect on life. Cronbach’s alpha coefficients for each subscale ranged from .84 (positive and clear approach to the problem) to .96 (communication and partnership) (Little et al., 2001a). For the purposes of this study, however, only three subscales from this measure were utilized. The “health promotion” subscale and “positive and clear approach to the problem” subscale were removed, as these subscales relate primarily to providers’ ability to describe symptoms, courses of treatment, and prevention strategies (eg, “the doctor advised me on how to prevent future health problems; and “the doctor was definite about what the problem was”) and were therefore not relevant to the therapeutic context. Within the study sample, the composite score (α=.92), and the communication and partnership (α=.88), and interest in effect on life (α=.82) subscales of this measure were found to have acceptable reliability. The reliability of the personal relationship scale had lower than optimal reliability (α=.63), and was therefore not examined in the final analysis.

Despite the measure’s overall strengths, the Consultation Care Measure has been criticized for underrepresenting items related the presence of emotional bond and provider demonstrations of warmth and empathy (Hudon, 2011). Because the presence of a working partnership between patients and providers is particularly central to quality and patient-centeredness of behavioral health treatment (Howgego, Yellowlees, Owen, Meldrum, & Dark, 2003; Thompson & McCabe, 2012), surveys also included measures of therapeutic alliance, in order to comprehensively explore the impact of computing on the delivery of person-centered care. The importance of examining this
measure is particularly underscored by the necessary omission of the ‘personal relationship’ subscale of the CCM.

Therapeutic alliance was measured from both the client and provider perspective using the Working Alliance Inventory (WAI) Short Form (Tracey & Kokotovic, 1989. This instrument draws from Edward Bordin’s (1979) theoretical framework, which posits that alliance is comprised of three components: mutual agreement of tasks, mutual agreement on goals, and the development of a positive, reciprocal bond between the patient and provider. The WAI Short Form (Tracey & Kokotovic, 1989) is an abbreviated version of the 36 item Working Alliance Inventory developed by Horvath and Greenberg (1989). To develop this measure, Tracey and Kokotovic (1989) used confirmatory factor analysis in order to construct a condensed, 12-item version of the WAI for both clients and providers. Research has found support for the validity (Horvath & Greenberg, 1994; Martin, Garske, & Davis, 2000) and reliability (Tracey & Kokotovic, 1989) of this measure, with alpha coefficients of the provider version ranging from .81 (task subscale) to .95 (general alliance factor). Alpha coefficients for the client version of this scale all ranged above .90, indicating strong reliability. Research also provides support for validity of the client WAI short term as well (Horvath & Greenberg, 1994). The WAI short form consists of 12 items answered using a 7 point likert scale, and produces both a total alliance score in addition to subscale scores for each of Bordin’s three domains of alliance (task, bond, and goals).

Within the study sample, composite scores from both the client (α=.87) and provider (α=.92) versions of the WAI demonstrated strong reliability. Bond and goal
subscales in both client and provider groups were not found to be reliable, and were therefore excluded from the final analysis.

**Covariates.** Client level factors known to impact either the independent or dependent variables were included as covariates in this model. Due to the small sample size and the need to address nesting at the provider-level though the inclusion of a random effect, the fully controlled statistical model needed to be extremely parsimonious in order to retain analytic integrity. Covariates included in the model were chosen using the following criteria: (1) its known impact on the therapeutic alliance in extant literature; and (2) its direct impact on the independent or dependent variables within the study sample, tested through bivariate regression.

Research has shown that symptom severity may negatively impact both client (McCabe & Priebe, 2003) and provider (Couture et al, 2006) ratings of therapeutic alliance. To control for this, analyses controlled for the presence of a serious mental illness, which included any psychotic disorder or bipolar disorder. In addition, literature suggests that time in treatment also plays a large role in predicting therapeutic alliance; studies have found the first three months of treatment to be critical in the development of ‘early alliance’, after which point the established relationship may stabilize (Elvins & Green, 2008). Within the scope of this study it was not possible to limit the client sample to those in the early stages of treatment. To address this limitation, time in treatment was included as a control variable in the fully controlled model. Clients enrolled in treatment for less than six months were considered in early stages of care, as the number of clients within the first three months of treatment was too small to
provide a meaningful comparison category. This was included in the model as a dichotomous variable. Related to this phenomenon, descriptive analysis indicated that the type of session had significant impact on provider’s overall amount of computing. Due to the amount of information gathering required in psychosocial assessments, significantly more computer use was evidenced in these sessions (n=5). Therefore, a dichotomous variable distinguishing assessments versus ongoing visits was included in the model. Lastly, client demographics, including age (in years) and race (white, Hispanic, African American, Other) were included in the analysis.

**Additional Measures.** As noted in the beginning of this section, several additional measures were included in this study. As this study is exploratory in nature, these data were collected in order to provide more detailed information about in-session computer use in general, and collaborative documentation in particular. Specifically, these measures are intended to add to our understanding of how computers were used in session, and how collaborative documentation was subjectively perceived by both clients and providers.

**Time Computing.** In order to provide more descriptive detail related to the nature and extent of computer use, amount of computing was also examined by measuring the percent of session time spent computing. As described above, this variable was extracted from video data coded in Atlas.ti. Using precedent from prior research (Asan, Young, Chewning, & Montague, 2015; Chan, Stevenson & McGlade, 2008; Margalit, Roter, Dunevant, Larson & Reis, 2006), computing time was measured
by summing the duration of all computing episodes, rounding the length of each episode to the nearest second. This created a summed total for each session, but, because visits varied in length, time computing was expressed as a percentage reflecting the proportion of total session time spent using the computer.

*Categorizing Computing Activity.* In-session computer use was further described by categorizing the specific activities that comprised the ‘time computing’ variable articulated above. These categories were iteratively refined using a peer debriefing process, and were developed in response to the unique patterns of computer use within this study context. Two levels of categorization were applied to each computing episode. The first level of categorization designated each computing episode as either ‘active’ or ‘passive’. Passive episodes referred to instances of computing where providers looked at the computer monitor, but did not physically interact with the technology in any way. Conversely, episodes were coded as ‘active’ computing when providers touched the keyboard or mouse for any portion of the coded segment. All computing episodes were assigned one of these two codes, such that the proportion of active and passive computer use was calculated and expressed as a percentage. The second level of categorization coded each active episode according to type of the computing activity. Two, primary activities were identified: documentation and navigation. Documentation episodes occurred at the instant providers began striking a key, and ended as soon as providers removed his or her hand from the keyboard. Navigation episodes were defined as any period where the provider had his or her hand on the mouse. Consistent with this coding approach, navigation episodes began as soon
as providers made contact with the mouse, and ended as soon as his or her hand was removed. All active computing episodes were also coded as either navigation or documentation episodes, such that the proportion of active computer use that was spend documenting or navigating was calculated and expressed as a percentage. These categories were developed to be exhaustive, such that all computing episodes were coded as active or passive, and all active episodes were coded as either documentation or navigation. This coding system is illustrated in Figure 5 below.

Figure 5. Categorization of Computer Use.

Subjective Perceptions of Computer Use. To add to our understanding of collaborative documentation, clients and providers were asked to rate their experience of in-session computer use after each video recorded session. Surveys included four statements designed to tap into key dimensions of collaborative documentation in a way that was both accessible and easy to assess for both clients and providers. Using a
5 point likert scale, clients and providers responded to the following statements: (1) During the session I/my therapist used the computer (Never, Rarely, Sometimes, Often, Always) (2) My/ my therapist’s use of the computer was disruptive to our session today (Completely Disagree, Somewhat Disagree, Neutral, Slightly Agree, Completely Agree); (3) My therapist let me know what she was putting into the computer today / My client knows what I documented into the computer today (Completely Disagree, Somewhat Disagree, Neutral, Slightly Agree, Completely Agree); (4) My client/I had a say in what information I put into the computer today (Completely Disagree, Somewhat Disagree, Neutral, Slightly Agree, Completely Agree). These questions were developed by the principal investigator to address the unique objectives of this study.

Analysis

Univariate statistics was used in order to describe the extent of computer use in sessions. Comparisons of client and provider ratings of therapeutic alliance and collaborative documentation were explored using bivariate, pairwise Pearson correlations as well as paired sample t-tests. Finally, the relationship between total computer use, collaborative documentation and therapeutic alliance was explored using ordinary least squares regression. A key analytic challenge of the study design was to account for the nesting of client subjects within providers. To address this, the final model included a random effect at the provider level, in order to account for variation in the dependent variables that may be accounted for by between provider differences. This approach is consistent with established literature exploring the impact of computer use on a variety of clinical outcomes (Chan et al., 2008; Noordman et al., 2010).
Consistent with the conceptual model developed out of qualitative findings, two hypotheses were tested: (1) collaborative documentation has a direct effect on person-centered care; (2) collaborative documentation moderates the relationship between total computing and the delivery of person-centered care. In total, 10 models were run. In order to explore both of the potential associations reflected in the conceptual model, a main effects model and an interaction model were run to explore the impact of the independent variables on measures of both person-centered care and the therapeutic alliance. In addition to the composite score on the Care Consultation Measure, main effects and interaction models were run on each of the subscales (Communication & Partnership, Interest in Effect on Life). As therapeutic alliance was measured from both the client and provider perspective, the main effect and interaction models were also run to explore the association between the independent variables of interest and both client and provider rated alliance. Findings from the descriptive, correlational and predictive models are discussed in the following chapter.
Chapter 4. Results

The objectives of this study were to (1) describe the nature and extent of in-session computer use in behavioral health treatment; and (2) test the association between collaborative documentation and the delivery of person-centered behavioral health care. The focus of this chapter will be to present findings from each analysis described in the previous chapter. Section one includes sample demographics, which provide context to the study results. Objective one will be addressed by summarizing the nature and extent of computer use descriptively. These descriptive findings reflect the overall amount (ie, extent) of computer use sampled sessions, and provide a breakdown of the computing activities (ie, nature of computer use) that occurred during visits. Objective two will be addressed through a series of analyses, designed to provide an in depth understanding of how person-centered care, computer use, and the relationship between the two are viewed by both clients and providers. First, results from bivariate comparisons of client and provider ratings of alliance and in-session computing will be presented. These analyses illustrate discordance between client and provider perspectives. Next, collaborative documentation strategies will be reviewed descriptively, in order to articulate how dimensions of this practice were deployed in sessions. Finally, the cumulate regression models exploring the relationship between total computing, collaborative documentation, and person-centered care (including therapeutic alliance) will be presented. The chapter will conclude with a brief synthesis of these findings, and a discussion that addresses each research objective specifically.
Sample Demographics

Provider Demographics. A total of 13 providers participated in this study. All providers held an MSW license. Just under half of this group identified as Caucasian (46.2%), while just over 30% reported Hispanic descent. The majority of recruited providers were female (69.2%), and between the ages of 25-39 (76.9%). On average, providers had been in the field of behavioral health for just under 7 years (Mean=6.8, SD=5.7). The complete demographics of this sample are summarized in Table 10.

Table 10. Provider Demographics (N=13)

<table>
<thead>
<tr>
<th>Professional License</th>
<th>N or Mean</th>
<th>% or SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSW</td>
<td>13</td>
<td>100.0</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>1</td>
<td>7.7</td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
<td>15.4</td>
</tr>
<tr>
<td>White- Hispanic</td>
<td>4</td>
<td>30.8</td>
</tr>
<tr>
<td>White- Non Hispanic</td>
<td>6</td>
<td>46.2</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>69.2</td>
</tr>
<tr>
<td>Male</td>
<td>4</td>
<td>30.8</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-39</td>
<td>10</td>
<td>76.9</td>
</tr>
<tr>
<td>40-59</td>
<td>3</td>
<td>23.1</td>
</tr>
<tr>
<td>Years in Behavioral Health</td>
<td>6.8</td>
<td>5.7</td>
</tr>
</tbody>
</table>

Client Demographics. A total of 58 clients were recruited for the study, each of whom participated in one videotaped therapy session. Of these 58 sessions, 5 were excluded due to quality issues (video recording cut off prematurely, provider out of frame), for a total analytic sample of 53 clients. Client characteristics are summarized in
Table 11. Overall, the client sample was well educated; the majority had either some college (28.6%) or a college degree (26.5%), while just over a quarter had less than a high school diploma. Only a small percentage of the clients self identified as Caucasian (13.2%), with most reporting either Hispanic ethnicity (43.4%), or African American descent (32.1%). The client sample was evenly split between male (49.1%) and female (50.9%) respondents. Most clients fell into either a 25-39 (37.7%) or 40-59 (37.7%) age bracket. Diagnostically, just over a quarter (28.3%) met the criteria for a serious mental illness, which includes any psychotic disorder and bipolar disorder.

Table 11. Client Demographics (N=53)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; High School</td>
<td>13</td>
<td>26.5</td>
</tr>
<tr>
<td>HS/GED</td>
<td>9</td>
<td>18.4</td>
</tr>
<tr>
<td>Some College</td>
<td>14</td>
<td>28.6</td>
</tr>
<tr>
<td>College or More</td>
<td>13</td>
<td>26.5</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>17</td>
<td>32.1</td>
</tr>
<tr>
<td>White- Hispanic</td>
<td>23</td>
<td>43.4</td>
</tr>
<tr>
<td>White- Non Hispanic</td>
<td>7</td>
<td>13.2</td>
</tr>
<tr>
<td>Othera</td>
<td>6</td>
<td>11.3</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>27</td>
<td>50.9</td>
</tr>
<tr>
<td>Male</td>
<td>26</td>
<td>49.1</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>5</td>
<td>9.4</td>
</tr>
<tr>
<td>25-39</td>
<td>20</td>
<td>37.7</td>
</tr>
<tr>
<td>40-59</td>
<td>20</td>
<td>37.7</td>
</tr>
<tr>
<td>60+</td>
<td>8</td>
<td>15.1</td>
</tr>
<tr>
<td><strong>Serious Mental Illnessb</strong></td>
<td>15</td>
<td>28.3</td>
</tr>
</tbody>
</table>

a Other consists of Asian and more than one race
b Serious Mental Illness includes psychotic disorders and bipolar disorder
The Nature and Extent of In Session Computer Use

The first, primary objective of this study was to understand the nature and extent of in-session computer use. Table 12 summarizes the frequency and duration of computer use episodes. On average, sessions included in this sample were 35 minutes in length (SD=8.9 minutes). Of this time, nearly 33%, or 11.6 minutes (SD=9.2 minutes) of session time was spent using the computer. These findings suggest that computers play an active, visible role in behavioral health treatment within this organization.

Furthermore, providers engaged in an average of 42 (SD=38.5) computing episodes throughout the session, which reflects the number of unique instances of computer use that occurred within the visit. In other words, this number illustrates the number of times providers transitioned their focus from the client to the computer. In general, these episodes of computing tended to be short, with the mean length of computing episode at .3 minutes (or 18 seconds; SD=.3 minutes). These findings speak to the extent to which computer use may disrupt traditional flows of conversation during sessions by punctuating dialogue with frequent transitions to the computer screen, keyboard, or mouse.

Table 12. Session Computing Characteristics (N=53)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session Duration (min)</td>
<td>35.0</td>
<td>8.9</td>
</tr>
<tr>
<td>Total Computing Time (min)</td>
<td>11.6</td>
<td>9.2</td>
</tr>
<tr>
<td>Average Computing Episode (min)</td>
<td>0.30</td>
<td>0.30</td>
</tr>
<tr>
<td>Percent Computing (%)</td>
<td>32.7</td>
<td>23.8</td>
</tr>
<tr>
<td>Number Computing Episodes (#)</td>
<td>42.0</td>
<td>38.5</td>
</tr>
</tbody>
</table>
As described in the previous chapter, each computing episode was further categorized as passive, meaning providers were exclusively gazing at, but not touching, the computers, or active, indicating that providers were physically interacting with the computer in some way. Further, the type of computing behavior comprising all active episodes of use was categorized as documentation, meaning providers were typing into the record, or navigation, which included all forms of mousework (clicking, tracking, navigating, etc.). Figure 6 illustrates the percent of total computing time categorized as passive or active, as well as the percent of total active computing categorized as documentation or navigation.

Figure 6. Computing Characteristics

Of the time spent computing, 10% was spent gazing at the computer (i.e., passively computing), while the vast majority, 90% was accounted for by active
computer use. The majority of active computer use (69%) was spent navigating the computer, while 31% was spent documenting in the chart. These findings again underscore the visibility of EHRs during session, while also shedding some light on what in-session computing may look like. In particular, navigation, which includes clicking check boxes, accessing and retrieving client health information, and navigating between tabs, appears to account for a large portion of computing activities.

Discordance in Client and Provider Perceptions of Alliance and Computing
As described in the previous chapter, both clients and providers were asked to provide ratings at the end of their session. These ratings included each party’s independent perception of the therapeutic alliance as measured by the Working Alliance Inventory, and their own subjective experience of in-session computing, which included: how frequently computers were used during the appointment; how disruptive computer use was to the session; how transparent providers’ were in their computer use (i.e., were clients told what providers were inputting into the computer); and, how much input clients had into their own record. These paired measures made it possible to examine concordance; that is, compare how both parties perceived the same session activities.

Listwise deletion was used to manage missing data. Data quality issues resulted in the exclusion of alliance inventory response from four clients within the sample. These cases were subsequently removed from the paired t-test and correlations reported in this section. All ‘don’t know’ responses related to perceived computer use were also treated as missing. Paired sample t-tests were used to compare client and provider
ratings of both alliance and perceptions of computing. Findings from these analyses reflect significant mean differences in provider (M=5.8, SD=.67) and client (M= 6.5, SD= .59) perceptions of the therapeutic alliance; t(47)=-8.6; p<.001. These findings reflect that client ratings of alliance are significantly higher than that of providers. Significant differences were also found in client and provider ratings of in-session computer use.

When rating the same session on a 5 point likert scale, providers (M=3.7, SD=1.23) rated computer use as more frequent than clients (M=3.1, SD=1.27; t(52)=2.7, p<.001). Compared to clients (M=1.6, SD=1.22) providers (M=2.4, SD=1.08) also reported computer use as more disruptive; t(52)=3.4, p<001). Conversely, clients (M=4.3, SD=1.3) found computing to be more transparent than providers (M=3.7, SD=.97; t(52)=-2.7, p<.01). There were no significant differences between client (M=3.6, SD=1.61) and provider (M=3.82, SD=.99) ratings of input. Collectively, these findings suggest that clients have more favorable views of both the therapeutic alliance and in-session computer use. Mean differences of client and provider perceptions are illustrated Figure 7.
Figure 7. Mean Differences in Client and Provider Perceptions

![Bar chart showing mean differences in client and provider perceptions]

Table 13. Correlations of Client and Provider Perceptions of Computing

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>ρ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alliance</td>
<td>48</td>
<td>.17</td>
</tr>
<tr>
<td>Computing Frequency</td>
<td>53</td>
<td>.38**</td>
</tr>
<tr>
<td>Disruption from Computing</td>
<td>53</td>
<td>.03</td>
</tr>
</tbody>
</table>
Differences among client and provider perceptions of alliance computing were further explored using Spearman’s rank correlation test. This test was favored over a Pearson’s correlation coefficient due to the non-linearity of the relationship between client and provider rankings of these constructs. Spearman’s test is the preferred method of exploring correlations among variables with non-linear relationships. Correlation coefficients are summarized in Table 13. Notably, provider and client perceptions of the alliance ($r_s(47)=.17, p=.25$) disruptiveness ($r_s(52)=.03, p=.85$) and transparency ($r_s(47)=.18, p=.22$) of EHR use were not significantly related, indicating that dependence between these two ratings cannot be assumed. Perceptions of computing frequency ($r_s(52)=.38, p<.01$) and client input ($r_s(48)=.40, p<.01$) were significantly correlated, but the strength of this relationship was moderate. Collectively, these findings further underscore the discordance between client and provider perceptions of both the therapeutic alliance and in-session computer use by illustrating that high ratings of alliance or collaborative documentation by the client did not correspond with high ratings by the provider, and vice versa.

**Characteristics of Collaborative Documentation**
In total, 21 of the 53 visits included in the sample met criteria for ‘high’ collaborative documentation (CD). To identify these sessions, a mean score across global ratings of CD (dictation, prompt, feedback) were first created. Sessions considered ‘high CD’ had mean scores at or above the 75th percentile. Table 14 summarizes both the client and session characteristics of visits where CD was present or absent. Chi square analyses were conducted to explore whether there were group differences in the deployment of collaborative documentation, but none were found to be statistically significant. Where variables included cell sizes smaller than 5, a Fisher’s Exact test was also run to compare results, though again no significance was found. Thus, this table illustrates descriptive data only. Notably, collaborative documentation was used on only 33% of sessions with established clients (those in treatment for more than 6 months), compared with 50% of those in early stages of care. In addition CD was used in only 35% of sessions where clients were African American, and in zero sessions where clients identified as another race (which includes more than one race or Asian). Furthermore, collaborative documentation was present in only 29% of sessions where the client was college educated, and in 33% of visits where the client was female.
Table 14. Characteristics of Sessions With and Without CD

<table>
<thead>
<tr>
<th></th>
<th>Collaborative Documentation Implemented (N=21)</th>
<th>Collaborative Documentation Not Implemented (N=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Visit Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment Visit</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>Ongoing Visit</td>
<td>19</td>
<td>40%</td>
</tr>
<tr>
<td>Time in Treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Treatment (&lt;6 mo)</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>Established Client (&gt;6 mo)</td>
<td>11</td>
<td>33%</td>
</tr>
<tr>
<td>Client Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>6</td>
<td>35%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>12</td>
<td>52%</td>
</tr>
<tr>
<td>Caucasian</td>
<td>3</td>
<td>43%</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Client Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>25-39</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>40-59</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>60+</td>
<td>6</td>
<td>75%</td>
</tr>
<tr>
<td>Client Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;HS</td>
<td>6</td>
<td>46%</td>
</tr>
<tr>
<td>HS/GED</td>
<td>4</td>
<td>44%</td>
</tr>
<tr>
<td>Some College</td>
<td>6</td>
<td>43%</td>
</tr>
<tr>
<td>College or More</td>
<td>5</td>
<td>29%</td>
</tr>
<tr>
<td>Client Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>33%</td>
</tr>
<tr>
<td>Male</td>
<td>12</td>
<td>46%</td>
</tr>
<tr>
<td>Serious Mental Illness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In order to understand how this practice strategy was actually implemented in sessions, Figure 3 illustrates the percent of visits within which each individual CD behavior was deployed at least once. Prompting was the most commonly utilized strategy, and was employed at least once in all 21 ‘high CD’ sessions. Within this group, dictation was nearly universal, being used at least once in 90.5% of these sessions. While feedback was used in over three quarters (76.2%) of sessions, screen sharing was infrequent, included in less than a quarter (23.8%) of visits. Despite the failure to incorporate screen sharing into the visit regularly, most sessions (76.2%) deployed at least 3 CD strategies at least once. Overall, these findings suggest that the conceptual framework of CD developed as part of this study is reflective of how this practice is actually deployed in session.
The Relationship Between Collaborative Documentation and Person-Centered Care

OLS regression was used to explore the impact of collaborative documentation on person-centered care. As described in the previous chapter, two relationships were tested: first, the direct effect of CD on the dependent variables was examined. Second, CD was included in the analysis as a moderator, hypothesizing that the relationship between total computing and person-centered care would vary as a function of this practice. Main effects and interaction models were run for each of the dependent variables, which include the Care Consultation Measure composite score, the communication and partnership and interest in effect on life subscales, and both client and provider rated therapeutic alliance.

As described earlier in this chapter, the average number of computing episodes per session was 42 (SD=38.5). This variable was standardized in the final analysis.
Results from the OLS model examining the impact of the independent variables on the CCM composite and subscales will be presented first. The average score on the Care Consultation Measure (CCM) was 4.2 (SD=.44), on a likert scale ranging from 1-5. Scores on the communication and partnership (M=4.0, SD=.43) and the interested in effect on life (M=4.7, SD=.58) subscales were similarly high, suggesting that clients overall perceived their care as person-centered.

The interaction model testing the moderating effect of CD on the association between total computing and PCC as measured through the CCM was not found to be significant, indicating that the relationship between collaborative documentation and client perception of person-centered care does did not vary as a function of total computer use. Significance was found in the main effects model, however. Collaborative documentation was found to be positively associated with overall reports of person-centered care (β=.27, p<.05) as well as ratings on communication and partnership (β=.29, p<.01). Interestingly, the presence of a serious mental illness was also associated with increases on the composite (β=.3, p<.05) and communication and partnership subscales (β=.3, p<.05). Racial differences were also noted; compared to Caucasian clients, African American (β=.44, p<.05), Hispanic (β=.54, p<.05), and clients of other racial background (β=.54, p<.05) rated overall PCC more highly. Compared to Caucasian participants, being of Hispanic origin was also associated with higher ratings on communication and partnership (β=.41, p<.05). The independent variables were not found to significantly impact scores on the interest in effect on life subscale. Findings are summarized below in Table 15.
Table 15. Impact of Computing Characteristics on Client Perceptions of Person-Centered Care

<table>
<thead>
<tr>
<th></th>
<th>Composite PCC Score N=53</th>
<th>Communication &amp; Partnership N=53</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adjusted β</td>
<td>Unadjusted β</td>
</tr>
<tr>
<td><strong>MAIN EFFECTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MODEL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Computing (standardized)</td>
<td>-0.03</td>
<td>-0.00</td>
</tr>
<tr>
<td>Collaborative Documentation</td>
<td>0.27*</td>
<td>0.27*</td>
</tr>
<tr>
<td>Early Treatment</td>
<td>0.00</td>
<td>0.10</td>
</tr>
<tr>
<td>Age (Years)</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>Serious Mental Illness</td>
<td>0.30*</td>
<td>0.17</td>
</tr>
<tr>
<td>Assessment Visit</td>
<td>0.14</td>
<td>0.20</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>0.44*</td>
<td>0.28</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.54*</td>
<td>0.41*</td>
</tr>
<tr>
<td>Caucasian</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Other</td>
<td>0.54*</td>
<td>0.22</td>
</tr>
<tr>
<td><strong>College Education</strong></td>
<td>0.08</td>
<td>-0.06</td>
</tr>
<tr>
<td>Female</td>
<td>0.04</td>
<td>0.02</td>
</tr>
<tr>
<td><strong>INTERACTION MODEL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Computing (standardized)</td>
<td>-0.08</td>
<td>-0.00</td>
</tr>
<tr>
<td>Collaborative Documentation</td>
<td>0.27*</td>
<td>0.27*</td>
</tr>
<tr>
<td>Total Computing * Collaborative Documentation</td>
<td>0.10</td>
<td>0.02</td>
</tr>
<tr>
<td>Early Treatment</td>
<td>-0.00</td>
<td>1.10</td>
</tr>
<tr>
<td>Age (Years)</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Serious Mental Illness</td>
<td>0.30*</td>
<td>0.17</td>
</tr>
<tr>
<td>Assessment Visit</td>
<td>0.19</td>
<td>0.20</td>
</tr>
</tbody>
</table>
Therapeutic alliance was examined from both the client and provider perspective, using the Working Alliance Inventory, a widely used instrument. Again, the interaction model exploring the moderating role of CD in the relationship between total computing and alliance were not found to be statistically significant; however, main effects were found to be significant. Among providers, increases in total computing was associated with a decrease in provider rated alliance ($\beta=-.18$, $p<.05$). Non-significance in the interaction model suggests that this relationship does not vary as a function of CD implementation. Conversely, consistent with findings from the previous models, among clients, collaborative documentation increased perceived alliance ($\beta=.43$, $p<.01$). Again, failure to find significance in the interaction model suggests that changes in in-session computing do not affect this association. Within this model, compared to Caucasian respondents, African American ($\beta=.58$, $p<.01$) and clients of other races ($\beta=.82$, $p<.05$) reported stronger working alliances.
Table 16. Impact of Computing Characteristics on Therapeutic Alliance

<table>
<thead>
<tr>
<th></th>
<th>Provider Rated Alliance N=53</th>
<th>Client Rated Alliance N=48</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adjusted β</td>
<td>Unadjusted β</td>
</tr>
<tr>
<td><strong>MAIN EFFECTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MODEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Computing (standardized)</td>
<td>-.18*</td>
<td>-0.15</td>
</tr>
<tr>
<td>Collaborative Documentation</td>
<td>0.18</td>
<td>0.03</td>
</tr>
<tr>
<td>Early Treatment Age (Years)</td>
<td>-0.13</td>
<td>-0.16</td>
</tr>
<tr>
<td>Serious Mental Illness Assessment Visit</td>
<td>0.00</td>
<td>-0.13</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>0.18</td>
<td>0.09</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.13</td>
<td>0.02</td>
</tr>
<tr>
<td>Caucasian ref Ref</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Other</td>
<td>0.35</td>
<td>0.18</td>
</tr>
<tr>
<td>College Education</td>
<td>-0.10</td>
<td>-0.07</td>
</tr>
<tr>
<td>Female</td>
<td>-0.16</td>
<td>-0.11</td>
</tr>
<tr>
<td><strong>INTERACTION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MODEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Computing * Collaborative Documentation</td>
<td>0.08</td>
<td>-0.13</td>
</tr>
<tr>
<td>Early Treatment Age (Years)</td>
<td>-0.12</td>
<td>-0.16</td>
</tr>
<tr>
<td>Serious Mental Illness Assessment Visit</td>
<td>0.05</td>
<td>-0.13</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>0.21</td>
<td>0.09</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.12</td>
<td>0.02</td>
</tr>
<tr>
<td>Caucasian ref Ref</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Other</td>
<td>0.37</td>
<td>0.18</td>
</tr>
<tr>
<td>College Education</td>
<td>-0.11</td>
<td>-0.07</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Female</td>
<td>-0.16</td>
<td>-0.11</td>
</tr>
</tbody>
</table>

*p<.05; **p<.01

Summary
A brief synthesis of these findings will be summarized. In order to clearly articulate the relevance to each of the stated study objectives, each will be discussed in turn.

**Objective 1: Describe the nature and extent of computer use.** Descriptive results illustrate that computer use was an active component of samples behavioral health sessions, accounting for nearly one-third of session time. For the vast majority of computing (90%), providers were actively interacting with the computer by either typing into the system or navigating the screen. System navigation, conceptualized as clicking, scrolling, and moving the mouse, accounted for a majority (69%) of this time.

**Objective 2: Test the Association Between collaborative documentation and the delivery of person-centered behavioral health care.** Pairwise comparisons of post-session assessments indicate that clients and providers view both the therapeutic alliance and in-session computer use differently, with clients expressing more favorable attitudes towards their relationship with providers and the way computers were used in sessions. The conceptual framework for CD utilized in this study appeared to reflect practice behaviors well; In visits where CD was utilized (‘High CD’ sessions), providers utilized prompting, dictation and feedback strategies at least once, though screen sharing was used less often.

The final regression model testing the relationship between total computing, collaborative documentation, and person-centered care (including alliance) found
further differences in client and perceptions. Among providers, increases in time spent computing was associated with decreases in alliance, regardless of whether CD was deployed. Conversely, for client, CD increased ratings of both alliance and PCC, regardless of time spent computing. Implications of these results will be discussed in the following chapter.
Chapter 5. Discussion & Conclusions

Discussion

The extent of computer use. This study found that computer use accounted for roughly 1/3 of session time, with the vast majority (90%) consisting of time where providers were actively typing into the system or navigating through screens. These findings indicate that EHRs are indeed visible components of integrated behavioral health care. Comparatively, research has found that physicians compute anywhere from 20% (Dowell et al, 2013) to 55% (Shachak, Hadas-Dayagi, Ziv, & Reis, 2009) of appointment time. This study demonstrates that computing may be as prevalent in integrated behavioral health treatment as it is in medical care, but, problematically, research exploring the impact of EHRs on client-provider communication and relationship building has primarily been performed in medical care settings, and is therefore limited in its generalizability to behavioral health. Compounding this issue is the broad base of literature that suggests that the importance of a working relationship is the most robust and consistent predictor of successful outcomes in therapeutic treatment (Horvath, Del Re, Flückiger & Symonds, 2011; Martin Garske & Davis, 2000), making research in this area of particular important within the context of behavioral health. Consequently, the results of this study signal an urgent need for more research that will increase our limited understanding of how EHRs are used in behavioral health (both within and outside integrated settings) and what implications this may have for practice.
Further exploration of in-session computing found that providers use computers in a variety of ways, including documentation, and chart navigation (ie, retrieving information from records). While the focal point of this study was to describe the process of collaborative documentation and explore the impact of this practice on the delivery of person-centered care, this descriptive data illustrates that computers are used for a number of tasks beyond building the progress note narrative. A more thorough discussion of the study’s limitations will be discussed in further detail within this chapter, however, it is worth noting now that because the video data could not capture what was happening on the computer screen, one constraint of this study was the inability to determine the precise tasks being accomplished during some of these periods of navigation. Future work would benefit from identifying and describing these activities more discretely in order to understand the value or impact of other forms of computing beyond the documentation process. Ultimately, this could strengthen the collaborative documentation model by further informing how they should be incorporated into our conceptualization of collaborative documentation and how we train providers to use computers in session.

**Client and provider perceptions of alliance and computing.** Paired-sample t-tests indicate that, when rating the same session, clients have more favorable views of the therapeutic alliance than providers. This finding is consistent with patterns reported in the extant literature, which have extensively documented the discordance between client and provider ratings (Fenton, Cecero, Nick, Frankforter & Carroll, 2001; Meier & Donmall, 2006; Tryon, Blackell & Hammel, 2007), with clients typically reporting higher
alliance than providers (Hilsenroth, Peters & Ackerman, 2004; Tryon, Blackell & Hammel, 2007).

Interestingly, this pattern persisted when examining perceptions of in-session computer use as well. When reporting on the same visit, providers consistently rated their own computer use as more frequent and disruptive, and less transparent than clients. These findings are also reflective of trends found elsewhere in the literature; among medical and behavioral health professionals, concerns about the client-provider relationship are a commonly cited source of resistance towards widespread EHR adoption (Ajami & Bagheri-Tadi, 2013; Craig & Lorenzo, 2014; Gadd & Pendord, 2000; Linder, Ma, Bates, Middleton, & Stafford, 2007; Zhang et al, 2016).

Conversely, studies exploring the client perspective in both mental health and medical contexts suggest that end users generally have favorable opinions towards the integration of technology, including EHRs, into their care. For example, a qualitative study by Cromer and colleagues (2017) found that clients believed electronic health records could improve their mental health care by enhancing trust in their provider and improving the transparency in treatment. Similarly, clients have described health information technology in general as a way to increase access to mental health treatment, both by reducing the stigma associated with receiving treatment and making it easier to reach providers for both urgent and non-urgent issues (Forchuk et al, 2015).

Research exploring patient perceptions of EHR use in medical settings is more robust, and also indicates that patients report improvements in the quality of their care as a result of EHR use, but do not perceive negative impacts on their interactions with
doctors (Lee et al, 2016; Mwachofi, Khaliq, Carillo & Winfree, 2016). Reinforcing this point, a recent systematic review on the impact of EHR use on the doctor-patient relationship found no change in overall patient ratings of satisfaction or quality of communication (Alkureishi et al, 2016). Ultimately, the results of this study support existing literature, which collectively suggest that while providers may be pessimistic about the impacts of technology on the client experience in treatment, this may not reflect the experience of clients.

Efforts to explore the root causes driving providers’ skepticism related to EHR use and better understand how clients perceive the role of technology in behavioral health in particular may help illuminate reasons for this discordance, and also inform how we develop and disseminate practices like collaborative documentation in a way that will increase uptake by providers. Within the context of collaborative documentation specifically, provider attitudes may be shaped by the perceived utility and intent of this practice. While promoted as a mechanism to promote the delivery person-centered care, another primary function of CD is to improve providers’ productivity by increasing efficiency in documentation and reducing administrative time that occurs outside of patient care (Schmelter, 2012). The prevalence of burnout among social workers, caused in part by heavy workloads within a demanding, face-paced work environment, is a well documented concern within the profession (Diaconescu, 2015). Rather than a remedy to these issues, it is possible that the introduction is collaborative documentation is perceived as a practice that will exacerbate these existing challenges by removing
existing administrative downtime and adding additional skills and responsibilities to an already overwhelmed workforce.

**The relationship between collaborative documentation and person-centered care.**

Analyses from OLS regression models found that, among clients, there was a direct, positive relationship between collaborative documentation and client perceptions of person-centered care. This association was evident in both overall ratings of person-centered care as well as dimensions of communication and partnership. Similarly, collaborative documentation was found to positively impact client ratings of therapeutic alliance. The lack of significance in the interaction models suggests that these relationships do not vary as a function of total computing. The robustness and consistency of these associations signal that collaborative approaches to computer use increases clients’ overall experience of person-centeredness.

Regression models exploring the association between computer use, collaborative documentation, and provider rated therapeutic alliance produced different findings; among this group, increases in total computer use was associated with decreases in provider-rated working alliance. Again, interaction models were not found to be statistically significant, indicating that the presence of collaborative documentation did not impact the nature of this relationship.

Together, these findings add to the evolving narrative described in the previous section, which suggests that clients and providers view the impact of in-session computer use on the quality of treatment differently. While providers perceived negative impacts of computer use on the quality of the working relationship, client data
suggests that quite the opposite may be true for the recipients of technologically driven care. While both perspectives should be used to shape how models of collaborative documentation are developed and disseminated, it is important to note that in adult populations, client ratings of alliance are more predictive of outcome than that of providers’ (Elvins & Green, 2008; Horvath & Symonds, 1991). Because of this, designing and implementing practice strategies that are responsive to their preferences is essential to improving the quality and effectiveness of care. To this end, findings from this study suggest that while overall computer use may not necessarily be detrimental to delivery of PCC, the *nature* of computer use matters, such that the deployment of strategies designed to deliberately include clients in the process of in-session computing is critical to leveraging the potential benefits of this technology.

**Limitations & Recommendation for Future Directions**

There are several limitations to this study that must be addressed. Each will be discussed, and recommendations for future work in this area will be made.

**Sample Size.** First, the sample size limited the ability to conduct more complex, nuanced analyses of the data. For example, inadequate representation from certain age groups (only 5 clients were over the age of 60) and educational backgrounds (only 9 clients had a high school diploma only, and 1 had graduate education) made it difficult to compare certain subpopulations within the sample. In addition, it may be important to explore how provider level factors impact the relationship between collaborative documentation and person-centered care, particularly as therapist experience and perceived competence may play a role in the quality of the working relationship from
both the provider (Hersoug, Høglend, Monsen & Havik, 2001) and client (Ackerman & Hilsenroth, 2003) perspective, respectively. As only 13 providers participated in this study, and clients were nested within these providers, it was not possible to include provider-level factors in this analysis with a total n of 53. In this study, sample size was limited as saturation of the sample population was reached. Next steps for this line of inquiry will require recruitment of additional, comparable organizations in order to better understand the generalizability of these findings, and more effectively explore how provider-level characteristics that may impact the deployment of these strategies.

**Time in Treatment.** Another limiting factor of this study design was the inability to limit the sample visits to those in early stages of treatment. Within this study sample, 33 clients (62%) had been in treatment for 6 months or more. Research suggests that the process of relationship building is most variable in early stages of treatment (Crits-Cristof, Gibbons, Hamilton, Ring-Kurtz & Gallop, 2011; Hilsenroth & Cromer, 2007), making it particularly essential to understand how clients and providers perceive the impact of collaborative documentation at this point in care. Furthermore, Crits-Cristof and colleagues (2011) suggest that, in order to truly understand the working relationship, clients should be assessed at multiple time points in treatment. Examining alliance at a single time point that occurred after a client-provider relationship has stabilized therefore may yield an incomplete picture of the role collaborative documentation plays in this process.

Furthermore, sampling clients who have been in treatment for longer periods may increase susceptibility to selection bias, as, the clients who both presented for care (ie,
did not skip or miss their appointment) and consented to participation in the study may also be clients who are more likely to have positive feelings about their relationship with their provider and the way they use the computer. In order to address this limitation, the final analysis controlled for time in treatment by including this variable in the model as a covariate. While the scheduling practices of the target organization made this unfeasible for this study, future work would benefit from more deliberately exploring the unique impact of collaborative documentation on PCC and alliance in early stages or treatment, or at multiple time points in care.

**Study Setting.** When interpreting these results, it is important to consider how the study setting may affect client experiences in care. Being an integrated care organization, many clients receiving behavioral health services first come to the clinic for primary care, thereby gaining initial exposure to the electronic health record and the practice of in-session computer use within the context of medical treatment. As discussed above, research has suggested that clients have positive attitudes towards technology in medical practice (Alkureishi et al, 2016), and, while a more limited research base suggests that this attitude may carry forward within mental health treatment (Cromer et al, 2017; Forchuk et al, 2015) it is possible that frequent EHR use is more acceptable or expected within medical care. As clients first became familiar with the practice of in-session computer use with their doctor, they may be ‘primed’ to anticipate the use of technology within behavioral health care as well. For this reason, it is possible that clients may not have the same response to technology use in different therapeutic contexts, such as intensive outpatient care, or inpatient settings. Future
work should explore how the relationship between collaborative documentation, computer use, and person-centered care differ in other behavioral health settings, where client expectations and normative practices may be different than those found in integrated care clinics. Particularly as the sample size was small, this study should be considered exploratory and foundational in nature, and is therefore not designed to be generalizable to other contexts or organizations using EHRs to deliver behavioral health treatment. That being said, as the delivery of therapeutic services within integrated settings is becoming increasingly normative, this study adds to a timely, but limited knowledge base that may be built upon to inform emerging best practices critical to clinical practice in this environment.

**Directionality of Relationships.** Lastly, although findings from this study pointed to a negative association between total computing and provider rated alliance, the direction this relationship could not be determined from this analysis. One way to interpret these results is to suggest that increases in computing interferes with providers’ perceived ability to develop a working relationship with their clients. This is largely in line with existing literature exploring providers’ attitudes and beliefs about in-session computer use (Ajami and Bagheri-Tadi, 2013; Craig and Lorzeno, 2014; Gadd and Pendor, 2000; Zhang et al, 2016), and therefore, this conclusion has some empirical support. Alternatively, it could also be argued that providers use the computer more often when they feel less bonded, such that the alliance drives computing behavior, rather than the reverse. To further understand the nature and directionality of this relationship, it may be helpful to utilize a methodological technique adopted by Ventres and colleagues.
(2006), in which video recorded sessions were then played back for physicians, who were asked to reflect on key aspects of the observed visits. This data was used to understand factors that affected providers’ patterns of computer use during medical encounters. A similar approach may be used to illuminate how behavioral health providers make decisions about how and when to use computers during sessions, and what makes providers more or less likely to deploy strategies around collaborative documentation.

Conclusions

Implications for social work practice. As the rate of EHR adoption continues to climb in both medical and behavioral health organizations, it is becoming increasingly likely that behavioral health providers will be using these systems as a part of routine care. Social workers will be particularly impacted by this shift, as the social work profession has emerged as the primary provider of psychotherapy (Bureau of Labor Statistics, 2017), and are among the most frequently employed professions within settings where EHRs are most widely adopted including health care settings in general and integrated care settings in particular (Buckley, 2017).

These changes have prompted calls from both practice and academic circles to refine core social work skills and competencies in order to better reflect the needs of contemporary social work practice (de Saxe Zerden, Lombardi, Fraser, Jones & Rico 2018; Stanhope, Videka, Thorning & McKay, 2015). Findings from this study underscore the importance of including best practices related to effective use of technology in these conversations.
This need has not gone unrecognized; the National Association of Social Workers (NASW) recently released an updated Code of Ethics including a lengthy section dedicated to the ethical use of technology in social work practice (National Association of Social Workers, 2017). These standards shape social work practice by providing the overarching framework for safe, high quality, clinical treatment. In this document, NASW explains that “[s]ocial workers’ use of technology is proliferating. Technology has transformed the nature of social work practice and ....social workers’ use of technology has created new ways to interact and communicate with clients, raising fundamentally new questions about the meaning of the social worker-client relationship” (pg. 7). In an effort to address the complexity that technology introduces to the client-provider relationship, this chapter outlines several practice standards identifying the knowledge and skills required to use technology within the context of social work practice. This including ensuring that providers are able to, “communicate effectively while using the technology to provide social work services”, and “attend to clients’ unique needs and challenges” while using technology (pg.16). To accomplish this, it is recommended that “social workers should keep apprised of the types of technology that are available and research best practices, risks, ethical challenges, and ways of managing them. Social workers should also ensure that they know how to use technology in an effective manner so that they perform functions required for work with communities, organizations and in policy practice.” (p 28).

The publication of this addendum to the code of ethics is significant both in its recognition of the ways in which technology, including EHRs, is transforming practice, and by its call to incorporate these systems into practice in a way that maintains the integrity of clinical work, and prioritizes the client-provider relationship. Problematically,
while the Code of Ethics clearly identifies this goal as a priority for social work practitioners, the precise strategies or behaviors that achieve this end are not detailed in this document. The question remains: how can providers use EHRs in a way that supports, rather than detracts from, the person-centeredness of their care?

Results from this study support the notion that technology can in fact be beneficial to the quality of treatment when used collaboratively. Interestingly, despite the increasing recognition of collaborative documentation in certain practice and policy settings, it is not specifically named within these recent NASW guidelines. While CD can potentially offer a useful framework for guiding providers’ meaningful use of EHR systems, elevating this model to a best practice will require continued work in two, primary areas. First, a clearly defined model of collaborative documentation must be established. Examining the generalizability of the collaborative documentation framework enumerated in this work to other service settings is one important step in this process. Secondly, additional rigorous, empirical studies are needed in order to understand the full range of implications collaborative documentation poses for therapeutic treatment.

Despite the immense need for additional knowledge development in this area, findings from this provide important beginning steps in identifying what collaborative documentation specifically and in-session computing more generally look like in practice. Continuing this line of inquiry is critical to social workers’ ability to honor the code of ethics put forth by the NASW, and gain skills that are increasingly relevant to the settings within which clinical social work practice is being delivered.
Once established, an important way to ensure the dissemination of evidence-based practices in this area is to include them in education and training for emerging social work practitioners. Presently, the great interest in preparing social workers for success working in integrated care settings provides unique opportunities to incorporate training around in-session EHR use into field placements and core social work curricula. Through the Behavioral Health Workforce Education and Training Program, the Health Resources and Services Administration (HRSA) has awarded 136 contracts to educational institutions and behavioral health professional training programs in order to promote interdisciplinary behavioral health training (Health Resources and Services Administration, nd). In addition, the Council for Social Work Education (CSWE) has sponsored the Social Work and Integrated Behavioral Healthcare Project, which has led to the development of two integrated care courses designed to be incorporated into masters level social work education, as provides ongoing support for social work field placements occurring within integrated care settings. As of 2013, these courses were being offered at more than 30 schools of social work (Council for Social Work Education, 2018). In a controlled group study, Morrow and colleagues (2009) found that medical students who were explicitly trained in class to adopt specific communication techniques while using an EHR during appointments were able to translate these skills into actual patient care. This suggests that collaborative documentation is a skill that, if incorporated into social work education, can help emerging practitioners learn how to use EHRs in a way that promotes a person-centered approach to treatment.
**Implications for policy.** In 2009, the Health Information Technology for Economic and Clinical Health, or HITECH Act, was passed as part of the larger American Recovery and Reinvestment Act. HITECH allocated a large sum of money to develop a health information technology (HIT) infrastructure and accelerate rates of EHR adoption in the United States (Office of the National Coordinator for Health Information Technology, 2011). This section will focus on recommendations that may strengthen HITECH’s ability to advance the effective use of EHRs in behavioral health care in particular.

One of the largest contributions of this legislation was the authorization of incentive payments, distributed through the Centers for Medicare and Medicaid Services (CMS), which reward eligible providers who have adopted electronic health records and can demonstrate that these systems are being used efficaciously in practice. To measure this, the Office of the National Coordinator for Health Information Technology (ONC) and the Centers for Medicare and Medicaid Services (CMS) have established a set of “Meaningful Use” criteria, which collectively function to ensure EHRs are used in a way that will optimize the quality and safety of care, and engage patients and their family in treatment (ONC, 2017). As of May 2016, CMS estimates that over 34 billion dollars have been awarded to hospitals and providers in form of incentive payments (Centers for Medicare and Medicaid Services, 2016).

Presently, CMS designates what professionals are eligible to receive incentive payments. This list includes physicians, nurse practitioners, certified nurse-midwives, dentists, and physician assistants (Centers for Medicare and Medicaid Services, 2012), but notably omits behavioral health professionals, such as licensed clinicians and
substance use providers. If, as this study suggests, electronic health records have the ability to improve the quality of treatment by way of enhancing the person-centeredness of care, it becomes problematic that behavioral health organizations and professionals are excluded from these payments. While overall tends in health and mental health care are moving towards co-location or integration of services, many independent, stand alone behavioral health and social service organization remain. The cost of adopting an electronic health record is a primary barrier towards adoption among behavioral health (National Council, 2012) and medical organizations (DesRoches et al, 2008) alike. Fleming and colleagues (2011) found that the first year of adopting and implementing an EHR may cost as much as $46,649 per provider, requires 611 hours of administrative and IT work, and 134 hours of “end user” (ie, providers and other clinical staff) preparation per provider. Without the support of incentive payments, these direct and indirect costs likely put EHR adoption out of reach for many behavioral health organizations. To this point, a report by the National Council (2012) suggests that stand alone behavioral health centers, which are unlikely to employ medical providers or other providers eligible to receive incentive payments, lag behind medical clinics in their uptake of these systems. In particular, community-based organizations that serve the most disadvantaged populations may be especially unable to afford EHR adoption, which would have the ultimate effect of disproportionally depriving underserved populations of tools that can be used to provide more person-centered care. Given the evidence supporting the positive outcomes associated with delivering care in a person-centered way (Alakeson, 2007; Wilder, Elbogen, Moser,
Swanson, & Swartz, 2010), this raises important, ethical concerns about the inequality in access to these systems. Therefore, it is first recommended that CMS revise the list of eligible providers to be more inclusive of behavioral health providers.

Related to this shortcoming of the incentive payment program, Meaningful Use criteria could also be revised in order to better reflect the need to incorporate collaborative approaches to in-session computer use. Presently, Meaningful Use criteria pay scant attention to the role of EHRs in behavioral health in general, as none of the 15 required core quality measures directly relate to the identification or treatment of behavioral health disorders (Centers for Medicare and Medicaid Services, 2013). Furthermore, criterion are primarily designed to address issues related to safety (ie, using decision supports to reduce the prescription of contraindicated medication) and population health management (ie, using disease registries to track A1c results among diabetic patients), and provide no guidance on the use of EHRs during client-provider interactions. As it has been established throughout this paper that the quality of the client-provider relationship has significant implications for the quality of treatment, incorporating known practices, such as collaborative documentation, into Meaningful Use requirements may increase this program’s ability to ensure EHRs are being used in a way that can maximize the benefits of these systems.

In summary, through the exclusion of behavioral health providers in the CMS incentive programs, HITECH Act may reduce the likelihood that clients receiving treatment in certain behavioral health settings are able to reap these rewards. Furthermore, for those who do qualify for incentive payments, present Meaningful Use
criteria fail to address the impact of EHR implementation on more micro-level indicators of quality, including the effects of computing in the client-provider relationship, while incentivizing providers to focus their attention on workflow processes (ie, prescribing practices), or macro-level outcomes (ie, population health). Including criteria that focuses on effective in-session computer use may be critical to meeting the goals outlined by the Meaningful Use program, particularly related to the successful engagement of patients and family.

**Concluding Summary.** In summary, findings from this study suggest, despite some skepticism from providers, clients receiving behavioral health care within an integrated setting may benefit from EHR use in general, and the deployment of collaborative documentation strategies in particular. These results offer important, foundational knowledge upon which more comprehensive best practices guiding the effective use of EHRs in clinical social work practice may be developed. As therapeutic services are increasingly offered in integrated settings where EHRs are likely present, it will be important for training programs to incorporate strategies related to effective use of technology in practice. In contrast, trends indicating that stand along behavioral health organizations lag medical clinics in EHR adoption suggest that policies should work to equalize access to technology that may function as an important tool in promoting person-centered care; as our knowledge of collaborative documentation and its impact on important markers of quality, continues to develop, it will be important to revise policies that directly impact who adopts EHRs and how these systems are used to
ensure that all individuals are able to benefit from the unique benefits of receiving technologically driven care.
REQUEST FOR FULL / EXPEDITED REVIEW
OF A RESEARCH PROTOCOL INVOLVING HUMAN SUBJECTS
Version 2014.b

This form is to be used for requesting Expedited or Full IRB review of any new project. IRB approval is required before any research involving human subjects may be initiated. Full details must be given and all necessary documentation submitted. If you are unable to provide certain information at the time of submission, please indicate this in a cover letter. It is vital that all information be submitted at the time of review in order to ensure appropriate review and timely processing of the protocol. Please read the attached instructions before completing this form.

*Handwritten and/or incomplete forms will be returned to the investigator(s) without IRB review.*

**IRB REVIEW TYPE REQUESTED:** (specify only one of the following)

- Full IRB panel review
- Expedited IRB panel review - specify category(s): __7_______
- De Novo Application (i.e. Rewrite of a previously approved protocol): Please Provide: 1) Protocol Number : ; 2) Number of Currently Enrolled Subjects: ; 3) Total Number of Subjects Requested:

For exemptions submit instead the Request for Exemption from IRB Review form. If unsure after reviewing the “Categories of IRB Review” for Exemptions, you may fill out this form or call the IRB office for assistance.

**TITLE OF PROJECT:** Computer Use and Patient-Centeredness in Mental Health Encounters

**Projected Study Dates:** Begin Recruitment: 9/1/2015  
End Analysis: 9/1/2017

I certify that the statements made in this request are accurate and complete, and that I will conduct this study in accordance with the recommendations of the Institutional Review Board for the Protection of Human Subjects in Research (IRB). I will not begin work on this project until I receive a Notice of Approval from the IRB. I understand that I am responsible for reporting any serious adverse events or emergent problems to the IRB, for obtaining IRB approval before implementing modifications, and for requesting continuing review and approval. I have read the Federal Wide Assurance (FWA), which is available at <http://orsp.rutgers.edu/Human.asp>, and understand my responsibilities as a Principal Investigator. If work will be done by an undergraduate student, I will properly mentor them.

Signature of Principal Investigator: _____  Date __6/2/15______

Appendix 1. Institutional Review Board Approval
Name of Undergraduate Investigator________E-Mail: __________

Signature of Student: ___________________________ Date: __________

Indicate the date that the undergraduate successfully completed the Human Subjects Certification Program:

If this project is being performed as part of an honors program:
Please check here □ and specify the program: ___________________________

In lay language, briefly state the hypothesis, objectives, or purpose of the proposed research, in the space below. This must be no more than 2 sentences, understandable by a person not familiar with your research. Attach a complete research protocol, marked ‘Attachment 1’.

The proposed research project has two primary research objectives: (1) to explore and categorize different methods of computer use during mental health encounters, and (2) to explore the relationship between in-session computer use and patient-centeredness in mental health encounters. It is hypothesized that providers will vary in styles of
computer use, which may moderate the relationship between the presence of a computer and indicators of patient-centeredness in mental health encounters.

**Faculty Advisor as Co-Principal Investigator for Graduate Student Principal Investigator:**

Faculty Advisor must serve as the Co-Principal Investigator if their graduate student serves as the Principal Investigator:
As faculty advisor for the graduate student named as Principal Investigator for the this protocol, I certify that I am familiar with Rutgers University policies and federal regulations as they apply to research involving human subjects. I have advised and/or assisted the student in the preparation of this application and have reviewed it for completeness and accuracy. I endorse the study and certify that it fulfills all the guidelines and requirements for IRB review. I agree to serve as the Co-Principal Investigator for this project.

**Name:** (printed) Beth Angell, PhD  
**Signature:**  
**Date:** 6/24/15

**Title:** Associate Professor  
**Department:** School of Social Work  
**Office Phone:** 848-932-5872

**Cell Phone** (optional):  
**Home Phone** (optional):  
**Fax:** 732-932-8181

**E-Mail:** angell@ssw.rutgers.edu

**Human Subjects Certification Completion Date:** 3/31/15

**Graduate Program Director:**
The graduate program director will be contacted if problems arise from the protocol. Provide program director’s information below:

**Name:** (printed) Allison Zippay  
**Title:** Associate Professor & Director of PhD Program  
**Department:** Social Work

**Office Phone:** 848-932-5385

**Cell Phone** (optional):  
**Home Phone** (optional):  
**Fax:** 848-932-8181

**E-Mail:** zippay@ssw.rutgers.edu

---

**Complete this section if someone in addition to the PI is designated to receive and respond to correspondence.**

**CONTACT PERSON:**

**Title:**

**Department/Unit:**

**Mailing Address:**

**Phone:**  
**Fax:**  
**E-Mail:**

---

**REQUESTS RECEIVED WITHOUT THE APPROPRIATE SIGNATURE(S) WILL NOT RECEIVE REVIEW.**
FUNDING STATUS:
1. Funded by: (Agency or Organization): Awaiting funding decision
2. Funding proposal submitted to: (Agency or Organization): National Association of Social Workers (NASW)

If #1 and/or #2 above is applicable, please complete and sign the following:

Anticipated Start Date: 9/1/2015  Projected End Date: 9/1/2016

I certify that the grant application or contract listed above describes no research involving human subjects other than that which is included in this protocol.

Name (printed): Elizabeth Matthews  Signature: __________________________

3. Funding not applied for at this time (check here): _______ (PI must sign even if not funded)

EDUCATION
Effective January 1, 2001, successful completion of the web-based Human Subjects Certification Program by the principal investigator and all other key personnel will be required prior to the Notice of Approval being issued for a protocol.

Indicate the date that the Principal Investigator successfully completed the Human Subjects Certification Program:

Date of Completion (MM/DD/YYYY): __6/25/15_________________.

List below other key personnel including undergraduate investigators, who are responsible for the design OR conduct of the study. Attach additional sheets if necessary, marked ‘Attachment 2’.

<table>
<thead>
<tr>
<th>Name: Victoria Stanhope</th>
<th>Phone: (212) 998-5910</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title: Associate Professor</td>
<td>Fax:</td>
</tr>
<tr>
<td>Department: NYU Silver School of Social Work</td>
<td>Email: <a href="mailto:victoria.stanhope@nyu.edu">victoria.stanhope@nyu.edu</a></td>
</tr>
<tr>
<td>Mailing Address: 1 Washington Square N, New York, NY 10003</td>
<td>Date of successful completion of Human Subjects Certification Program / CITI: 2/28/09</td>
</tr>
</tbody>
</table>
**Name:** Jordana Rutigliano  
**Title:** Assistant Vice President of Psychosocial Services  
**Department:** Psychosocial Services  
**Mailing Address:** 16 E. 16th st  
New York, NY 10003  
**Phone:** 212-633-0800 x1312  
**Fax:**  
**Email:** jrutigliano@institute.org  
**Date of successful completion of Human Subjects Certification Program / CITI:** 1/25/13

---

**Name:**  
**Title:**  
**Department:**  
**Mailing Address:**  
**Phone:**  
**Fax:**  
**Email:**  
**Date of successful completion of Human Subjects Certification Program / CITI:**

---

**Name:**  
**Title:**  
**Department:**  
**Mailing Address:**  
**Phone:**  
**Fax:**  
**Email:**  
**Date of successful completion of Human Subjects Certification Program / CITI:**

---

**RATIONALE FOR EXPEDITED REVIEW:** (if applicable)  
If you are requesting EXPEDITED review, please provide your rationale here:

The proposed study does not subject participants to any risk greater than that encounter within everyday life, nor will it include any vulnerable or at risk populations. Any personal information disclosed during video recorded therapy sessions will remain confidential. Furthermore, such information is not relevant to research objectives, and will not be used as part of data analysis or presentation of results.

**PROTOCOL DESCRIPTION:**  
1. **THE HUMAN SUBJECTS INVOLVED IN THIS RESEARCH:**
   
a) **Who are the subjects?**

The subjects of this study include direct service providers employed within the psychosocial services department of The Institute for Family Health (IFH), and patients receiving behavioral health services within the psychosocial services department of The Institute for Family Health (IFH). IFH is a large network of community health centers with locations in Manhattan, the Bronx, and the Mid-Hudson Valley.

Direct service providers will include licensed behavioral health staff members providing ongoing behavioral health services within the psychosocial services department of the
target organization. Licensed staff may be social workers (MSWs), licensed counselors (LMHCs), psychologists (PhD and PsyDs), psychiatrists (MDs and NPs), and other professionals with advanced degrees in counseling and behavioral health care.

The patients that will be recruited for this study include adult (aged 18 and over), English-speaking individuals actively receiving ongoing behavioral health services within the psychosocial services of the target organization. Patients will be recruited from the designated caseload of participating providers described above.

b) **How many subjects will be involved in the project?**

The study will target 20 providers and a minimum of 80 patients (4 patients per provider), for a total of 100 subjects.

It is anticipated that providers will participate in one 8 hour work day of data collection. During this day, each patient on the provider’s schedule (6-8 patients, on average) will be invited to participate in the study. Because not all patients will attend scheduled appointments and not all patients will consent to participate in the study, the expected sample size is 4 patients per provider. However, should more than 4 patients agree to participate in the study, the same size may extend slightly above 80 patients.

c) **Specify your plans for including women and minorities, if appropriate.**

NA

d) **List all inclusion and exclusion criteria.**

Eligible providers must be providing ongoing, direct services to patients, and must be employed within the psychosocial services department of the selected community health center. Providers offering one-time services to patients will not be included in this sample. In addition, providers must conduct their sessions within an office setting; those providing community (ie, field based) services will also be excluded from the sample.

Eligible patients must be aged 18 and older. In addition, patients must be actively receiving (or have been referred to receive) ongoing behavioral health services at the community health center. Patients must be conducting their therapeutic services in English. Lastly, eligible patients must be assigned to the designated caseload of a participating behavioral health provider.

e) **Do your subjects include any of the following:**
___Yes__X_No  Pregnant Women or Human Fetuses or Neonates? *Indicate only if specifically needed for the research.*

___Yes__X_No  Children and Minors ages seven through seventeen?

___Yes__X_No  Infants or Children younger than seven years of age?

___Yes__X_No  Cognitively Impaired Persons?

___Yes__X_No  Inmates/Prisoners?

___Yes__X_No  Elderly/Aged Persons?

___Yes__X_No  Non-English Speaking Persons?

**NOTE:** These subjects, by virtue of their age or status, may not be competent or free to give their own consent and may be particularly vulnerable to coercion and undue influence. Investigators must incorporate additional safeguards into the research plan and document fully the informed consent of these individuals and/or that of their legal representatives. Guidelines for inclusion of vulnerable populations are available from the IRB office via the web site: [http://orra.rutgers.edu/rutgers-irb](http://orra.rutgers.edu/rutgers-irb)

**f) Are your subjects students?**

___Yes__X_No  If YES, name the institution(s) in which they are enrolled:

**g) Are you including students who are enrolled in your own class or in a "subject pool" at Rutgers?**

___Yes__X_No  Read and sign Appendix A, entitled "Use of Rutgers Students as Experimental Subjects in Research" *regardless of your response.*

**h) Are there prospective subjects who, if selected for this project, would be especially vulnerable to risk because of the procedures you will be using?**

___Yes__X_No  If YES, describe the process you will use to screen such subjects

2. **RECRUITMENT:**

a) **Specify how you will gain access to, recruit, and select your subjects.**

Providers will be recruited using a targeted sampling approach. The target organization actively collects data on providers’ self-reported frequency of computer use during sessions. Accordingly, the organization has already identified both high and low computer utilizers within the psychosocial services department. The PI will directly outreach to the highest and lowest utilizers via email, with the assistance of known sponsors at IFH. In addition, the PI will attend staff meetings (dates to be determined) in order to recruit provider participants. Particular efforts will be made to recruit providers using computers most frequently.
The sample of 20 providers will obtained prior to the recruitment of patient participants. Patient recruitment will come from a convenience sample based on patients scheduled to see the participating provider(s) on the determined day(s) of data collection. Prior to the planned day of data collection, the patient registration staff will provide eligible patients with a flyer describing the study (Attachment 3). Patients will directed to the research team with any questions about the study, and will have the opportunity to opt out of being approached by research staff by communicating their preference to the registration staff or their mental health provider. On the day of data collection, the PI will be stationed in the waiting room to recruit eligible patients prior to the start of their session. Consent for participation will be obtained at that time.

b) Are you advertising or posting a notice for subjects/volunteers?

__X__Yes___No

If YES, submit a copy of the advertisement or notice, marked ‘Attachment 3’.

c) Will the subjects be recruited from your place of employment?

___Yes__X__No

If YES, explain how this research relates to your job role and provide any other information pertinent to your relationship with the subjects (e.g., how will you ensure against the possibility of coercion?):

3. **DURATION OF PARTICIPATION:**

a) Indicate the length of each session (e.g. minutes, hours) and the number of sessions in which each subject will participate:

It is anticipated that providers will participate in one 8 hour work day of data collection. During this day, each patient on the provider’s schedule (6-8 patients, on average) will be invited to participate in the study. For each patient that agrees to participate, one 30-45 minute session will be video recorded. Providers will not be expected to manipulate the video equipment in any way (ie, start and stop the camera, position the camera, etc) and as such should not interrupt their normal clinical workflow. For each patient that agrees to participate, providers will also be asked to complete a brief survey consisting of 21 likert scale responses. It is expected that each survey will take approximately 15 minutes to complete. In addition, factoring in appointment no-shows and patients that decline, it is expected that approximately 4 patients per provider will agree to participate in the proposed study. Should the PI fail to successfully recruit 4 patients throughout the course of one day, data collection will be extended to a second day.
Similarly, one 30-45 minute session per patient will be video recorded. Patients will also be asked to complete a brief survey immediately following their session. The survey consists of approximately 32 likert-scale questions and it is expected to take approximately 30 minutes to complete.

b) What is the total duration of an individual subject’s involvement (e.g. days, weeks, months)?

Both providers and patients will be involved in this study for one business day. Providers may be involved for one additional business day should the targeted number of patients (n=4) not be recruited in a single day.

4. **COST/PAYMENT:**
   a) Are you paying your subjects?
      
      _x_ Yes  _No
      
      If YES, indicate the amount of payment and describe if (and how) you will pro-rate the payments to subjects who withdraw before they complete their participation:

      Providers will be offered the ability to enter into a raffle. Three prizes, not exceeding a total cost of $400, will be distributed to randomly selected providers.

      Patients will be offered $20 for participation in the study. If patients withdraw their consent or fail to complete the study they will receive $10.

      b) Will participation in the study involve any cost to the subject?
         
         _Yes_x_No
         
         If YES, indicate the anticipated costs to the subject.

5. **INFORMED CONSENT:**
   a) Does your protocol involve the use of an informed consent form?
      
      _x_ Yes _No
      
      If YES, enclose a copy of the form, marked ‘Attachment 4’.
      Informed consent must be obtained from the subjects and/or, in the case of minors under the age of 18, the parent or legal guardian. Review the instructions regarding the use of written vs. oral consent. The document must include all of the relevant elements mentioned in the instructions.

   b) Does your protocol involve the use of assent or oral consent?
      
      _Yes_x_No
      
      If YES, provide an approximate script that will be communicated to the subjects, or the assent statement, marked ‘Attachment 5’. Assent is agreement by an individual not competent to give legally valid informed consent to participate in research (e.g. A child or cognitively impaired person). See the instructions for the use of assent and oral consent.
c) If you do not intend to use a consent form, please provide your rationale here:

NA

6. DOMESTIC / INTERNATIONAL SITE(S):
   a) Domestic Sites: Specify the site(s) within the United States where you will perform your study (e.g. on Rutgers campus, in local schools, hospital, prison).

The study will be conducted at The Institute for Family Health, a large network of community health centers with sites in Manhattan, the Bronx, and the Mid-Hudson Valley. The following clinics have a behavioral health program will therefore be targeted for recruitment:

**Manhattan:**
- **16th st. practice (Sidney Hillman/Philips Family Practice):** 16 E. 16th st New York, NY 10003
- **Family Health Center of Harlem Center for Counseling:** 1824 Madison Avenue New York, NY 10035
- **The Institute for Family Health Center for Counseling at ASC:** 64 West 35th Street New York, NY 10001

**The Bronx:**
- **Institute for Family Health Center for Counseling at Frisby Avenue:** 2590 Frisby Avenue Bronx, NY 10461
- **Mount Hope Family Health Center:** 130 West Tremont Avenue Bronx, NY 10453
- **Urban Horizons Family Practice:** 50-98 East 168th Street Bronx, NY 10452
- **Walton Family Health Center for Counseling:** 1894 Walton Avenue Bronx, NY 10453

**Mid-Hudson Valley**
- **Kingston Family Health Center:** 1 Family Practice Drive Kingston, NY 12401
- **New Paltz Family Health Center:** 279 Main Street, Suite 102 New Paltz, NY 12561

b) International Sites: Will any of the research under this protocol be conducted outside of the United States?
   ___ Yes _x_ No If YES, Complete Appendix C found at
c) Is one or more of the sites a non-Rutgers institution?

_x__Yes__No  If YES, list the institutions and provide letters from appropriate institutional official(s) (e.g. school principal, director of institution, IRB), marked ‘Attachment 6’.

7. THE RESEARCH PROCEDURES:

a) Describe in lay language exactly what you will be doing to, or with, your subjects:

The PI will be obtaining the formal consent for participation from patients at the day on the day of data collection.

Data collection involves 4 components: video recorded therapy sessions, brief surveys for both participating providers and patients, and review of the progress note associated with the video recorded session. Using a tripod mounted video camera and microphone, the study will seek to record approximately four therapy sessions per provider. Only one session per patient will be recorded. The video camera will be set up in a designated office and will be positioned to capture body poster, eye contact, gaze of both the patient and provider, in addition to computer use and keyboarding of the provider only. The video camera will be set up by the PI; neither providers nor patients will be asked to operate the video equipment.

At the conclusion of the video recorded session, both providers and patients will be asked to complete a brief survey, which includes likert scale items measuring perceived patient-centeredness and therapeutic alliance. They surveys will be distributed by the PI. The PI will give the patient the option to conduct the survey orally or on pen and paper in order to address potential literacy challenges. The PI will also review the survey instrument with the provider prior to the start of data collection in order to address any questions or challenges to their self-administration of the survey.

At the conclusion of each day of data collection, a designated staff member will print progress notes from IFH’s electronic health record. The progress notes will be de-identified at this time to include only the patient’s six digit medical record number (MRN) and a unique respondent ID for the provider. These numbers will be used to link video recorded data, provider surveys, and patient surveys.

7. Will you be carrying out procedures or asking questions that might disturb your subjects emotionally or produce stress or anxiety?

___Yes__x__No  If YES, describe your plans and criteria for counseling such subjects:
We do not anticipate that any of the questions will be distressing to study participants. In any interaction with participants, however, the possibility exists that emotional distress will occur. We expect that if distress does occur, it will be mild and transient. The PI conducting data collection holds a master’s in social and has training and experience working both with individuals with mental illness and behavioral health professionals. The PI will have a phone number and contact information for the caseworker assigned to each patient, and a known sponsor at the organization that will be available to address any questions, comments, or concerns expressed by providers.

b) Are you using a questionnaire, survey, and/or an interview as part of your procedure?
   __x__ Yes  ___No
   If YES, submit a copy of the questionnaire(s) and/or interview questions, marked ‘Attachment 7’.

c) Are you using focus group discussions as a part of your procedure?
   ___Yes_x__ No
   If YES, submit a copy of the focus group guide, marked ‘Attachment 8’.

d) Does your study involve deception of your subjects?
   ___Yes_x__ No
   If YES, describe the deception, justify its need, and describe the procedure you will use to debrief your subjects. Submit a copy of the debriefing statement, marked ‘Attachment 9’, which should include a statement of your willingness to allow subjects to withdraw from your study after debriefing and to remove from your files all records of their involvement.

e) Will this study involve the use of existing data, documents, records, pathological specimens, or diagnostic specimens?
   ___Yes_x__ No
   If YES, include authorization to access the data if not publicly available, marked ‘Attachment 10’.

8. DATA COLLECTION:
   a) Are you obtaining from your subjects information about their private behavior, economic status, sexual preferences, religious beliefs, or other matters which, if made public, might impair their self-esteem or reputation, or could reasonably place the subjects at risk of criminal or civil liability or be damaging to their financial standing or employability?
      ___Yes_x__ No
      If YES, please explain:
b) Indicate below the types of demographic data that will be recorded. (Check all that apply.)

___Names of people ___Ethnicity ___Names of employers
___Addresses ___Marital status ___Types of employers
___Phone numbers ___Income ___Other
unique information
_x__Age ___Social security number
(Specify) ___Length of time in field (provider only); Length of time treating
patient (provider only)
_x__Gender ___Job title

c) Do you plan to use a code to link a subject to his/her response?
_x__Yes ___No If YES, indicate where and by whom the code is held.

The code linking each subject to his/her responses will be kept in a secure, locked location by the PI of this study. This information will be accessible only to the PI and other investigators involved in this study who may have adequate reason (as approved by the PI) to access this information.

9. DATA STORAGE/DISPOSITION:

a) Describe how you will keep your data secure and maintain confidentiality during the course of your project:

Confidentiality protocols will be submitted to the Rutgers University Institutional Review Board (IRB) for their review and approval. As per university policy, no data will be collected until IRB approval is received. As per university policy, all project investigators and research assistants working with data collection, data entry, or data analysis must receive training in the conduct of research with human subjects and obtain certification.

Each participant in the study will be given a case ID that will be used to identify video recordings of therapy sessions, survey instruments and progress notes. The respondent’s name will not appear on any of these materials.

A list that links the case IDs to respondent names will be kept in locked file cabinets in the locked office of the PI. Any paper copies of survey instruments will also be kept in a separate, locked file cabinet in the locked office of the PI.

Data collected from survey instruments, video recordings, and progress notes will be entered into statistical software for data analysis. The statistical software will be
installed on a password protected computer with unique user names and log-in information, such that users other than the PI or designated investigators will not have access to these files.

b) Describe how you will ultimately dispose of your data (notes, drafts, lists of subjects, photographic records, tapes, computer disks, etc.) after you have completed your research (e.g. shredding, burning) (please note that all research records must be maintained for at least three years after the completion of the research, including consent forms, flyers, etc.).

If you do not plan to destroy research data, please provide a justification for maintaining the data for an indefinite period of time and how you will ensure confidentiality:

After a period of 3 years, video recordings will be permanently deleted from the data storage device. After 3 years, data entered on hard copy survey instruments and progress notes will be shredded.

10. RISK/BENEFIT:
In three or four sentences, summarize the risk/benefit ratio of the proposed research, with regard to the human subjects, the risks to them, and the potential benefits to knowledge or society:

There is currently a dearth of literature exploring how computers and electronic health records are used in behavioral health sessions, and how methods of computer use affect important indicators of quality. The proposed study will address this gap in the literature by exploring the categorizing methods of computer use and exploring the relationship between different types of computer use and patient-centeredness. Such knowledge will be an important contribution to the field of behavioral health, as electronic health records continue to become more prevalent in these practice settings. Findings from this research can play an important role in guiding emerging best practices related to computer use.

11. INTERNAL REVIEW:
Does your department, unit, or school have an ethics or research review committee?
___Yes___No
If YES, state the name of the committee and the date it reviewed and approved your project:

12. COLLABORATION:
Does this research project involve the IRB approval of one or more participating institutions or organizations other than that of Rutgers?
___Yes___No
If YES, list the institutions and submit copies of the related IRB approval notices, marked ‘Attachment 11’.

13. ADDITIONAL INFORMATION (OPTIONAL)
• If you are unable to provide certain information at the time of submission, **please indicate this in a cover letter.** It is vital that all information be submitted at the time of review in order to ensure appropriate review and timely processing of the protocol.

• All subjects must be informed by the investigator that they are free to terminate their participation in the study at any time without penalty.

• Review the application before submission to verify that all required signatures are included. Requests received without the appropriate signature(s) **will be returned without review.**

• Submit (via e-mail) the complete application packet by the 12th of the month for review consideration at the upcoming IRB meeting.

• All required and relevant attachments should be marked and attached to your application form in the following order:

  **Appendix A**  Use of Rutgers Students as Experimental Subjects in Research *(required)*
  **Appendix B**  Investigator Checklist
  **Appendix C:**  Full-Board/Expedited Studies Involving International Research
  **Appendix D**  Exempt Studies Involving International Research
  **Attachment 1**  Research Protocol (narrative description of the project) including, but not limited to: *(required. See template on the Arts and Sciences IRB website)*
  Background, Objectives, Subject population & recruitment, Methodology, Provisions for protection of private, identifiable information
  Attachment 2  Additional Key Personnel Information, if all information did not fit in the space provided on p.1
  Attachment 3  Advertisement or Recruitment Notice, if applicable
  Attachment 4  Consent Form(s), if applicable *(See attached template after Instructions)*
  Attachment 5  Assent or Script for Oral Consent, if applicable
  Attachment 6  Authorization from Non-Rutgers Research Sites, if applicable (e.g., school, business)
  Attachment 7  Questionnaire(s), Survey(s), Interview Questions, if applicable
  Attachment 8  Focus Group Guide, if applicable
  Attachment 9  Authorization to Use Data, if existing data will be used and the data are not publicly available
  Attachment 10  IRB Approval Notices from Participating Institutions, if applicable.
****NOTE THAT YOU MUST SUBMIT ONE SCAN (AS ONE PDF FILE) OF THE APPLICATION AND ALL RELEVANT MATERIALS AND EMAIL TO IRB-ADMIN@GRANTS.RUTGERS.EDU****

YOU DO NOT NEED TO EMAIL AND MAIL COMPLETED APPLICATIONS. PLEASE SUBMIT USING E-MAIL ONLY!
APPENDIX A

RUTGERS - THE STATE UNIVERSITY OF NEW JERSEY
USE OF RUTGERS STUDENTS AS EXPERIMENTAL SUBJECTS IN RESEARCH

The procedures outlined in this statement are designed to reduce the element of coercion or influence in any use of Rutgers students as subjects the research projects conducted by faculty or instructional staff. These procedures DO NOT apply to students studying research techniques in courses that require them to perform experiments; rather, they apply to experimentation that uses students not as investigators, but as subjects.

The ethical principles of professional societies insist that all consent to participate in research must be voluntary, and that all potential subjects must be treated as autonomous agents, with the right to choose or not to choose to take part in experiments. Federal regulations (e.g., 45 CFR 46.116) are explicit: "An investigator shall seek such consent only under circumstances that provide the prospective subject or the representative sufficient opportunity to consider whether or not to participate and that minimize the possibility of coercion or undue influence." By action of the Rutgers Board of Governors, all research in this university that involves human subjects is required to conform with federal regulations.

Consequently, individual faculty members and instructional staff, students, and departments that use students as experimental subjects, or that maintain "subject pools" of students from which investigators may draw research participants, are asked to adopt procedures that meet the following conditions:

1. Before they enroll in a course, students must be informed of the possibility that they may be asked to serve as research subjects in experiments under direction of the faculty.

2. If there is a course requirement that students serve as research subjects in such experiments, then alternative ways must be provided for students to meet this requirement. During the first week of classes, students should receive a written description of the various ways of meeting the requirement.

3. Each department that regularly requires students to act as research subjects should establish a committee composed of faculty and students to review the research projects involved. This committee should be responsible for hearing and acting on any student complaints in connection with the research-participation requirement.
4. All members of the faculty who invite students to act as subjects in their research must be acquainted with the ethical standards that govern such activities, such as those promulgated by the American Psychological Association or other discipline-related professional organization, or those in the so-called Belmont Report of the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. A copy of the latter report is obtainable from ORSP. (Website: [https://orra.rutgers.edu](https://orra.rutgers.edu))

Please check one box below, sign your name, and include this form with your application.
[ ] I have read the above statement and agree to follow the procedures recommended.

**OR**

[ x ] I will not be using Rutgers students as subjects in this protocol.

Name (Printed):

Signature: __________________ Date: __6/5/15_________________
APPENDIX B
Rutgers, The State University of New Jersey
INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS IN RESEARCH
INVESTIGATOR CHECKLIST

This checklist is to be completed by the PI and submitted with the IRB application.

Principal Investigator: ___ Elizabeth Matthews ________________________________

Date: __6/14/15_______________________

Type of IRB review requested: ___full panel ___expedited ___exempt

APPLICATION: (use X if "yes" and N/A if "not applicable")

NA___Justification provided for expedited review or exemption, if requested
X___Application typed or computer-generated, not hand written
X___Summary in non-technical terms (2 sentence maximum)
X___Risks specified
X___Benefits specified
X___Informed Consent Form appended
X___All instruments appended (e.g. questionnaires, standardized tests, interview schedules)
X___Form: "Use of Rutgers Students as Experimental Subjects..." signed, appended
X___Advertisement for recruitment of participants appended, if relevant
X___Performance site(s) specified
X___Principal Investigator's signature on application
X___Names of all investigators specified
X___Study dates specified (beginning, ending)
X___Funding source(s), if any, specified
X___Approval letter(s) from ALL relevant off-campus site(s) (e.g. school principal, other IRB's) appended
X___FINAL disposal of data (and time) specified
X___If applicant is a STUDENT, advisor signature on page 2
X___Inclusion/exclusion criteria specified
X___Inclusion of women and/or minorities addressed in text

NA___ Appendix C: FULL / EXPEDITED Studies Involving International Research, attached.
NA___ Appendix D: EXEMPT Studies Involving International Research, attached.

Investigator: check ONLY ONE of the following:

Participants' identity will be: ___anonymous ___x_confidential ___neither
INFORMED CONSENT FORM (must be written in non-technical terms for participants)

_X__Study description and goals
_X__Clear description of what will be done to the participant (e.g. withdraw _ amount of blood)
_X__Clear description of what will be required of participant (e.g. physical exertion)
_X__Risks (e.g. side effects, toxicities, radiation) to participant specified
_X__Benefits to participant specified
_X__Duration of participation (e.g. minutes, days, months, number of sessions, etc.)
_X__Provision and procedure for accessing counseling specified, if participants may be affected adversely
_NA__Alternatives to participation, if applicable
_X__Payment to participant specified, including reimbursement for expenses, if applicable
_X__Freedom to withdraw from study at any time without penalty: STATED PROMINENTLY
_X__Pro-rating specified, if participant withdraws early from study
_X__Costs to participant specified (i.e. those not reimbursed, if any)
_X__Conditions under which INVESTIGATOR may terminate subject’s participation, if relevant
_X__Number of participants in overall study
_X__Rutgers Disclaimer / Coverage for adverse effects specified
_X__Names, phone numbers, addresses of contact persons (investigators AND IRB)
_X__Signature lines for participant AND investigator; witness signature line if appropriate
_X__Video, audio, and/or photographic consent, if applicable
_NA__Consent for the use of subjects’ genetic material, if applicable
_NA__Translation into appropriate foreign language, if applicable
_NA__Pregnancy waiver, if applicable
_X__Specification of any groups to be excluded from the study (e.g. women, minorities)
_X__Specification of whether research results (individual, group) will be provided to participant
_X__Explicit assurance of participant's confidentiality/anonymity in investigator's reports of findings
_X__Consistent use of "I / you" in the text

****NOTE THAT YOU MUST SUBMIT ONE ORIGINAL AND TWO COPIES OF THE APPLICATION AND ALL RELEVANT MATERIALS****

Investigator Comments (optional):
Matthews Attachment 1

The proposed study will be conducted as dissertation research for the Principal Investigator, Elizabeth Matthews. The purpose of this research is to understand how computers are being used during mental health encounters, and explore the relationship between different types of computer use and indicators of mental health care quality, namely, patient-centeredness.

Electronic health records (EHRs) are becoming increasingly prevalent in health and mental health care environments. EHR systems are digital, computerized versions of patient charts. EHRs may also have additional features such as automated flags that alert providers when follow-up care is needed, secure messaging between providers and patient portals that allow patients’ access to parts of their record, which are thought to enhance the safety and quality of services.

Due to the relatively recent rise in EHR use, standard practices around how to make use of the system features within the context of treatment is still developing within the mental health community. The practice of collaborative documentation (CD), where providers complete progress notes jointly with patients during the clinical encounter, has emerged as a potential best practice for mental health professionals using EHR systems. It is purported that collaborative documentation is a way to leverage the computer as a tool for engagement. Problematically, the prevailing model of CD has not been empirically tested for effectiveness, nor has it underdone systematic implementation or fidelity trials. Accordingly, the proposed study will address this knowledge gap through the following research objectives: (1) to describe and categorize methods of collaborative documentation used in mental health sessions within community health centers; (2) to explore how different methods of in-session computer use, including collaborative documentation, are associated with indicators of patient-centeredness in mental health treatment provided in community health center settings.

The subjects of this study include direct service providers employed within the psychosocial services department of The Institute for Family Health (IFH), and patients receiving behavioral health services within the psychosocial services department of The Institute for Family Health (IFH). IFH is a large network of community health centers with locations in Manhattan, the Bronx, and the Mid-Hudson Valley. Direct service providers targeted for this sample will be limited to licensed behavioral health staff members providing ongoing behavioral health services within the psychosocial services department of the target organization. Licensed staff may be social workers (MSWs), licensed counselors (LMHCs), psychologists (PhD and PsyDs), psychiatrists (MDs and NPs), and other professionals with advanced degrees in counseling and behavioral health care. Providers offering one-time services to patients will not be included in this sample. In addition, providers must conduct their sessions within an office setting; those providing community (ie, field based) services will also be excluded from the sample. The patients that will be recruited for this study include adult (aged 18 and over), English-speaking individuals actively receiving ongoing behavioral health services within the psychosocial services of the target organization. Patients will be recruited from the designated caseload of participating providers described above.
A total for 20 providers and 80 patients (approximately 4 patients per provider) will be recruited for this study. Providers will be recruited using a targeted sampling approach. The target organization actively collects data on providers’ self-reported frequency of computer use during sessions. Accordingly, the organization has already identified both high and low computer utilizers within the psychosocial services department. The PI will directly outreach to the highest and lowest utilizers via email, with the assistance of known sponsors at IFH. In addition, the PI will attend staff meetings (dates to be determined) in order to recruit provider participants. Particular efforts will be made to recruit providers using computers most frequently. Providers will offered the opportunity to enter a raffle in compensation for their participation. Three raffle prizes, not exceeding a total of $400 in value, will be offered to three randomly selected providers. Consent from providers will be obtained immediately on the scheduled day of data collection. Consent forms are included in Attachment 4.

The sample of 20 providers will obtained prior to the recruitment of patient participants. Patient recruitment will come from a convenience sample based on patients scheduled to see the participating provider(s) on the determined day(s) of data collection. Prior to planned data collection, patient registration staff will distribute a flyer describing the study to eligible patients (Attachment 3). On the day of data collection, the PI will be stationed in the waiting room to recruit eligible patients prior to the start of their session. Consent for participation will be obtained at that time. Patients will receive $20 for participation in this study, and $10 for partial completion of this study. Consent forms are included in Attachment 4.

Data for this study will be collected from 4 sources: video recorded therapy sessions, patient and provider surveys, and progress notes. One 30-45 minute therapy session will be video recorded for each participating patient. Accordingly, approximately 4 sessions per provider will be video taped. The video camera will be set up in a designated office and will be positioned to capture body poster, eye contact, gaze of both the patient and provider, in addition to computer use and keyboarding of the provider only.

At the conclusion of the video recorded session, both providers and patients will be asked to complete a brief survey, which includes likert scale items measuring perceived patient-centeredness and therapeutic alliance. They surveys will be distributed by the PI. The PI will give the patient the option to conduct the survey orally or on pen and paper in order to address potential literacy challenges. The PI will also review the survey instrument with the provider prior to the start of data collection in order to address any questions or challenges to their self-administration of the survey. It is anticipated that the patient survey will take approximately 30 minutes to complete, while the provider survey will take approximately 10 minutes to complete.

At the conclusion of each day of data collection, a designated staff member will print progress notes from IFH’s electronic health record. The progress notes will be de-identified at this time to include only the patient’s six digit medical record number (MRN) and a unique respondent ID for the provider. These numbers will be used to link video recorded data, provider surveys, and patient surveys.
Each participant in the study will be given a case ID that will be used to identify video recordings of therapy sessions, survey instruments and progress notes. The respondent’s name will not appear on any of these materials. A list that links the case IDs to respondent names will be kept in locked file cabinets in the locked office of the PI. Any paper copies of survey instruments will also be kept in a separate, locked file cabinet in the locked office of the PI. Data collected from survey instruments, video recordings, and progress notes will be entered into statistical software for data analysis. The statistical software will be installed on a password protected computer with unique user names and log-in information, such that users other than the PI or designated investigators will not have access to these files.

Video data will be used to categorize methods of collaborative documentation, total amount of screen gaze, and total amount of keyboarding time. Progress notes will also be coded for degree of patient-centeredness. The relationship between these independent variables will be and the dependent variables, therapeutic alliance and patient-centeredness, will be explored using a regression analysis.
We Want Your Feedback!

We are conducting a study to help us understand clients’ experience in mental health treatment

You Can Help!
If you are currently receiving therapy, you are eligible to participate.

What Will I Be Asked to Do? As part of this study, we will ask you to allow us to video tape one therapy session between you and your provider. We will also ask you to complete a brief survey after your session. Please consider the following:

What Else Should I Know? If you’re thinking about participating, here are a few things to consider
• You will receive up to $20 for your participation.
• Participation in the study is voluntary.
• Your input in this study will be confidential. This means that what you say will not be identified with your name or shared with anyone outside the research team.
• The survey should take 30 minutes, and you can complete it after you’re done with your session

Why Participate? Getting feedback from the people using services can be the best way to make them better! Your participation in this study is very important because understanding your experiences, needs, and concerns can have a positive impact on therapy services in the future.

Want to Get Involved? The research team will be on site on (DATE) to talk about the study, answer questions, and recruit participants.

Prefer to Opt Out? If you’d rather not be approached by research staff regarding this study, you can opt out in advance by communicating this preference to the registration staff who gave you this flyer, or your therapist

Want to learn more?
Contact Liz Matthews:
ematthews@ssw.rutgers.edu
Matthews Attachment 4 (Patient Consent)

RUTGERS UNIVERSITY
CONSENT FOR INVESTIGATIONAL STUDIES

Project Title: Computer Use and Patient-Centeredness in Mental Health Encounters

Investigator: Elizabeth Matthews (emathews@ssw.rutgers.edu)

Introduction/Purpose

I am a doctoral student in the School of Social Work at Rutgers University, and am conducting a study exploring clients’ experience in mental health treatment, including how therapists and clients communicate, how computers are used during sessions, and what you like best and worst about your care. As part of this study, one session with your therapist will be video recorded. You will also be asked to complete a brief survey after your session is over. Participation in this study is entirely voluntary. Refusal to participate will involve no penalties or negative consequences, and you may end or withdraw your participation at any time.

Study Procedure

As part of this study we will ask to video record one session with your therapist. In addition, we will ask you to complete a brief survey after your session is over. Information you share during your therapy session and information you share on the survey is confidential. This means that no information regarding your participation will be shared with anyone other than the study investigator.

Risks and Benefits of the Study

You will earn $20 for your participation in the study. If at any point you choose to end your participation before the end of the study, you will still earn $10.

The video camera will be positioned in a way that should not interrupt your normal therapy session. No one else will be in the room with you, and the video camera will not make any sounds that might interrupt your therapy session or cause a distraction.

The questions included on the survey are not expected to be upsetting or anxiety provoking. The content of the survey should be similar to discussions that you may have during your everyday life. If you wish not to answer a question, however, you may skip it at any time. By participating in this study, you will help the investigator understand clients’ experience during mental health treatment, and how clients and therapists
communicate. This research could be an important step in making mental health treatment more effective.

**Study Results**

The survey questions and video recordings will be collected for the research study only. Results of the study will be reported in group form only, and no individuals’ responses will be identified. Recordings may be played in academic or research presentations in altered format that makes faces and voices unidentifiable.

**Confidentiality**

This research is confidential. Confidential means that the research records will include some information about you and this information will be stored in such a manner that there is some linkage between your identity and the response in the research exists. Some of the information collected about you includes your name and current job title. Please note that we will keep this information confidential by limiting individual's access to the research data and keeping it in a secure location, such as a locked drawer or password protected electronic file. The research team and the Institutional Review Board (a committee that reviews research studies in order to protect research participants) at Rutgers University are the only parties that will be allowed to see the data, except as may be required by law. If a report of this study is published, or the results are presented at a professional conference, only group results will be stated. All study data will be kept for at least three years.

**Summary of your Rights as a Participant in a Research Study**

Your participation in this research study is voluntary. Declining to participate will not alter your reputation or result in any penalty or loss of benefits to which you are otherwise entitled. If you decide to participate you may withdraw from this study at any time and for any reason without any penalty. Your identity will not be revealed if information from this study is published or presented.

**Disclosure of your Study Records**

The Rutgers University Institutional Review Board reserves the right to review study records at any time to ensure that investigators are following the requirements of ethical research. If your records are reviewed by them, your identity could become known to them.

**Contact Information**

Elizabeth Matthews (Investigator) has described to you the purpose and process of this study. She has explained the risks and potential benefits of your participation. She can
be contacted at ematthews@ssw.rutgers.edu. Alternatively, the faculty advisor for this study, Dr Beth Angell, may be reached at angell@ssw.rutgers.edu. Further information about your rights as a research participant is available from the Rutgers University Institutional Review Board:

Rutgers University, the State University of New Jersey
Institutional Review Board for the Protection of Human Subjects
Office of Research and Sponsored Programs
3 Rutgers Plaza
New Brunswick, NJ 08901-8559
Telephone: 848-932-0150
Email: humansubjects@orsp.rutgers.edu

Signature

Signing below means that you have been informed about the research study in which you voluntarily agree to participate; that you have asked any questions about the study that you may have; and that the information given to you has permitted you to make a fully informed decision about your participation in this study. A copy of this consent will be provided to you.

Participant’s Signature

Printed Name of Participant

Date:

Signature of Person Obtaining Consent
Consent

Printed Name of Person Obtaining

Date:

Signature of Principal Investigator

Date
You have already agreed to participate in a research study entitled “Computer Use and Patient-Centeredness in Mental Health Encounters” conducted by Elizabeth Matthews. We are asking for your permission to allow us to videotape this interview as part of that research study.

The recording(s) will be used for data analysis. The recording(s) will not include your name. Instead we will refer you to using a number that will link your name. Your name will be kept confidential and will be kept separately from the video of your session.

The recording(s) will be stored in a locked desk drawer with no link to other identifying information related to this study. The recording will be kept for three years following the completion of this study, and will then be permanently erased from the recording device.

Your signature on this form grants the investigator named above permission to record you as described above during participation in the above-referenced study. The investigator will not use the recording(s) for any other reason than that/those stated in the consent form without your written permission.

Subject (Print ) ____________________________________________

Subject Signature _____________________________ Date _______________________

Principal Investigator Signature _______________________ Date ________________
Introduction/Purpose

I am a doctoral student in the School of Social Work at Rutgers University, and am conducting a study exploring clients’ and providers’ experience in mental health treatment, including how therapists and clients communicate, the relationships between patients and providers, and how computers are used during sessions. As part of this study, we will ask to video record approximately four therapy sessions with patients from your caseload. In addition, you will be asked to complete a brief survey once each video recorded session is over. Participation in this study is entirely voluntary. Refusal to participate will involve no penalties or negative consequences, and you may end or withdraw your participation at any time.

Study Procedure

As part of this study, we will ask to video record your therapy sessions for one day or until four sessions are recorded. Only therapy sessions with consenting patients on your caseload will be recorded. In addition, you will be asked to complete a brief survey once each video recorded session is over. Information shared during recorded therapy sessions and information you share on the survey is confidential. This means that no information regarding your participation will be shared with anyone other than the study investigator.

Risks and Benefits of the Study

By participating in this study, you will have the opportunity enter a raffle. Three prizes will be raffled off for provider participants.

The video camera will be positioned in a way that should not interrupt your normal therapy session. No one else will be in the room with you, and the video camera will not make any sounds that might interrupt your therapy session or cause a distraction.

The questions included on the survey are not expected to be upsetting or anxiety provoking. The content of the survey should be similar to discussions that you may have
during your everyday professional life. If you wish not to answer a question, however, you may skip it at any time. By participating in this study, you will help the investigator understand clients’ and providers’ experience during mental health treatment, and how clients and therapists communicate. This research could be an important step in making mental health treatment more effective.

**Study Results**

The survey questions and video recordings will be collected for the research study only. Results of the study will be reported in group format only, and no individuals’ responses will be identified. Recordings may be played in academic or research presentations in altered format that makes faces and voices unidentifiable.

**Confidentiality**

This research is confidential. Confidential means that the research records will include some information about you and this information will be stored in such a manner that there is some linkage between your identity and the response in the research exists. Some of the information collected about you includes your name and current job title. Please note that we will keep this information confidential by limiting individual’s access to the research data and keeping it in a secure location, such as a locked drawer or password protected electronic file. The research team and the Institutional Review Board (a committee that reviews research studies in order to protect research participants) at Rutgers University are the only parties that will be allowed to see the data, except as may be required by law. If a report of this study is published, or the results are presented at a professional conference, only group results will be stated. All study data will be kept for at least three years.

**Summary of your Rights as a Participant in a Research Study**

Your participation in this research study is voluntary. Declining to participate will not alter your reputation or result in any penalty or loss of benefits to which you are otherwise entitled. If you decide to participate you may withdraw from this study at any time and for any reason without any penalty. Your identity will not be revealed if information from this study is published or presented.

**Disclosure of your Study Records**

The Rutgers University Institutional Review Board reserves the right to review study records at any time to ensure that investigators are following the requirements of ethical research. If your records are reviewed by them, your identity could become known to them.

**Contact Information**
Elizabeth Matthews (Investigator) has described to you the purpose and process of this study. She has explained the risks and potential benefits of your participation. She can be contacted at ematthews@ssw.rutgers.edu. Alternatively, the faculty advisor for this study, Dr Beth Angell, may be reached at angell@ssw.rutgers.edu. Further information about your rights as a research participant is available from the Rutgers University Institutional Review Board:

Rutgers University, the State University of New Jersey
Institutional Review Board for the Protection of Human Subjects
Office of Research and Sponsored Programs
3 Rutgers Plaza
New Brunswick, NJ 08901-8559
Telephone: 848-932-0150
Email: humansubjects@orsp.rutgers.edu

Signing below means that you have been informed about the research study in which you voluntarily agree to participate; that you have asked any questions about the study that you may have; and that the information given to you has permitted you to make a fully informed decision about your participation in this study. A copy of this consent will be provided to you.

__________________________________________  ______________________________
Participant’s Signature                              Printed Name of Participant

__________________________________________
Date:

__________________________________________  ______________________________
Signature of Person Obtaining Consent                Printed Name of Person
Obtaining Consent

__________________________________________
Date:

__________________________________________  _________________
Signature of Principal Investigator                  Date
You have already agreed to participate in a research study entitled “Patient-Centeredness in Mental Health Encounters” conducted by Elizabeth Matthews. We are asking for your permission to allow us to videotape this interview as part of that research study.

The recording(s) will be used for data analysis. The recording(s) will not include your name. Instead we will refer you to using a number that will link your name. Your name will be kept confidential and will be kept separately from the video of your session.

The recording(s) will be stored in a locked desk drawer with no link to other identifying information related to this study. The recording will be kept for three years following the completion of this study, and will then be permanently erased from the recording device.

Your signature on this form grants the investigator named above permission to record you as described above during participation in the above-referenced study. The investigator will not use the recording(s) for any other reason than that/those stated in the consent form without your written permission.

Participant (Print) ____________________________________________

Participant Signature __________________________ Date ________________

Principal Investigator Signature __________________ Date ________________
Patient Survey
Draft 7.21.15

Respondent ID: ________

Thank you for agreeing to participate in this study. Please take a moment to answer the questions below.

Remember there are no wrong answers. Please try to answer every question as completely and honestly as you can. All responses will be confidential, meaning they will not be shared with anyone outside the research team.

Section I.

1. Age (in years) : ____________

2. Gender:
   ___ Male
   ___ Female
   ___ Transgender
   ___ Other

3. Race/Ethnicity:
   ___ American Indian or Alaska Native
   ___ Asian
   ___ Black or African American
   ___ Hispanic
   ___ Native Hawaiian or Other Pacific Islander
   ___ White
   ___ Two or More Races

Section II.

On the following pages there are sentences that describe some of the different ways a person might think or feel about his or her therapist. Please select the best answer based on today’s session only.

During today’s session.....

1. My therapist and I were working towards mutually agreed upon goals.
2. I felt that my therapist appreciated me.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Very much</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. My therapist and I respected each other.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Very much</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. We were in agreement on what is important for me to work on.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Very much</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. I felt that my therapist cared about me even if I had done things that he/she does not approve of.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Very much</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. I believe the way we were working with my problem(s) was correct.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Very much</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section III.

The following section asks questions about the way you felt during your session and your relationship with your therapist in general. Please answer how much you agree or disagree with each statement.
1. My therapist was interested in my worries about my problem(s)

0 1 2 3 4 5
Very Strongly Agree Strongly Agree Neutral Disagree Strongly Disagree Very

2. My therapist was interested when I talked about my symptoms

0 1 2 3 4 5
Very Strongly Agree Strongly Agree Neutral Disagree Strongly Disagree Very

3. My therapist was interested in what I wanted to know

0 1 2 3 4 5
Very Strongly Agree Strongly Agree Neutral Disagree Strongly Disagree Very

4. I felt encouraged to ask questions

0 1 2 3 4 5
Very Strongly Agree Strongly Agree Neutral Disagree Strongly Disagree Very

5. My therapist was careful to explain the plan of treatment

0 1 2 3 4 5
Very Strongly Agree Strongly Agree Neutral Disagree Strongly Disagree Very

6. My therapist was sympathetic

0 1 2 3 4 5
Very Strongly Agree Strongly Agree Neutral Disagree Strongly Disagree Very

7. My therapist was interested in what I thought the problem was
8. My therapies and I discussed and agreed together what the problem was

9. My therapist was interested in what I wanted done

10. My therapist was interested in what treatment I wanted

11. My therapist and I discussed and reached agreement with me on the plan of treatment

12. My therapist knows me and understands me well

13. My therapist understands my emotional needs
14. I’m confident that my therapist knows me and my history

Section IV.

This section will ask you questions about your therapist with your clinician in general. Please circle the number on the scale to indicate how often each event occurs.

1. My therapist speaks with me about my personal goals and thoughts about treatment.

2. My therapist and I are open with one another.

3. My therapist and I share a trusting relationship.

4. I believe my therapist withholds the truth from me.

5. My therapist and I share an honest relationship.

6. My therapist and I work towards mutually agreed upon goals.
7. My therapist is stern with me when I speak about things that are important to me and my situation.

8. My therapist and I have established an understanding of the kind of changes that would be good for me.

9. My therapist is impatient with me.

10. My therapist seems to like me regardless of what I do or say.

11. We agree on what is important for me to work on.

12. I believe my therapist has an understanding of what my experiences have meant to me.

Section V.
The last section asks about how you therapist used the computer during your session, and how their use of the computer made you feel.

1. During today’s session, my therapist used the computer:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Always</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Always</td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
<td>--------</td>
<td>-----------</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>2. My therapist’s use of the computer was disruptive to our session</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>Complete</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td></td>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Slightly</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Neutral</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Matthews Attachment 7 (Provider Survey)

Provider Survey
Draft 7.21.15

Respondent ID: ________

Thank you for agreeing to participate in this study. Please take a moment to answer the questions below.

Remember there are no wrong answers. Please try to answer every question as completely and honestly as you can. All responses will be confidential, meaning they will not be shared with anyone outside the research team.

Section I.

This section will be completed only once and will provide us important demographic information about the providers participating in our study.

1. Age (in years) : ________

2. Gender:
   ___ Male
   ___ Female
   ___ Transgender
   ___ Other

3. Race/Ethnicity:
   ___ American Indian or Alaska Native
   ___ Asian
   ___ Black or African American
   ___ Hispanic
   ___ Native Hawaiian or Other Pacific Islander
   ___ White
   ___ Two or More Races

4. Number of Years in Field: ______

Section II.

1. How long have you provided treatment for this client?
   Please check the most appropriate response. If you cannot remember, select a response based on your best estimate.

   _____ This is his/her first session with me
_____ >1 month
_____ 3-6 months
_____ 6 months or more

2. What is this patient’s most recent GAF score? ______

Section III
On the following pages there are sentences that describe some of the different ways a person might think or feel about his or her client. As you read the sentences mentally insert the name of your client in place of ____________ in the text.

1. _____________ and I agree about the steps to be taken to improve his/her situation.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

2. My client and I both feel confident about the usefulness of our current activity in therapy.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

3. I believe _____________ likes me.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

4. I have doubts about what we are trying to accomplish in therapy.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

5. I am confident in my ability to help _____________.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

6. We are working towards mutually agreed upon goals.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>
7. I appreciate ______________ as a person.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

8. We agree on what is important for ______________ to work on.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

9. ______________ and I have built a mutual trust.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

10. ______________ and I have different ideas on what his/her real problems are.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

11. We have established a good understanding between us of the kind of changes that would be good for ______________.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

12. ______________ believes the way we are working with her/his problem is correct.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
</tbody>
</table>

Section IV.

The next section includes some questions about your session today. Please answer them based only on the visit that just occurred today.

1. To what extent was your patient’s main symptoms or illness discussed today?

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
2. How satisfied were you with the discussion of your patient’s symptoms or illness?


3. To what extent did you listen to what you patient had to say?


4. To what extent did you explain your patient’s illness or symptoms (ie, psychoeducation)?


5. To what extent did you and the patient discuss your respective roles? (who is responsible for making decisions and who is responsible for what aspects of care?)


6. To what extent did you explain the intervention used in today’s session to the patient?


7. To what extent did you and the patient explore how manageable this intervention would be for the patient? We explored this:


8. How well do you think you understood the patient today?

9. Regardless of today’s presenting problem, to what extent did you discuss personal or family issues that might be affecting your patient’s health and/or mental health?


Section IV
The last section asks about how you therapist used the computer during your session, and how their use of the computer made you feel.

1. During today’s session, I used the computer:


2. My use of the computer was disruptive to our session.

Appendix 2: Survey Instruments

Provider Demographic Form

Thank you for agreeing to participate in this study. Please take a moment to answer the questions below. Remember there are no wrong answers. Please try to answer every question as completely and honestly as you can. All responses will be confidential, meaning they will not be shared with anyone outside the research team.

This form will be completed only once and will provide us important demographic information about the providers participating in our study.

1. Age (in years): _______

2. Gender:
   □ Male
   □ Female
   □ Transgender
   □ Other

3. Race/Ethnicity:
   □ American Indian or Alaska Native
   □ Asian
   □ Black or African American
   □ Hispanic
   □ Native Hawaiian or Other Pacific Islander
   □ White (Non-Hispanic)
   □ More than one race
   □ Other: ________________

4. Professional Degree
   □ MSW
   □ LMHC
☐ PhD
☐ MD
☐ BA
☐ Other:_________________________

5. Number of Years in Field: ______
Provider Survey Face Sheet

Client Name:______________________

Provider Name:____________________

Session Number:_______________
Post-Session Provider Feedback Form

Thank you for your continued participation in this study. You will be asked to answer a few questions about your client after every video recorded session. Your responses and confidential, and will not be shared with anyone outside the research team.

SECTION I.

1. How long have you provided treatment for this client?
   Please check the most appropriate response. If you cannot remember, select a response based on your best estimate.

   □ This is his/her first session with me
   □ >1 month
   □ 3-6 months
   □ 6 months or more

2. Please rate this client’s current GAF (0-100) : _______

3. What is the client’s primary psychiatric diagnosis?
   ________________________________

SECTION II.

On the following pages there are sentences that describe some of the different ways a person might think or feel about his or her client. As you read the sentences mentally insert the name of your client in place of _________ in the text. Please circle the most appropriate response below.

Error! Not a valid link.

SECTION III.
The last section asks about how you used the computer during your session, and how the use of the computer made you feel.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>During <strong>today</strong>'s session, I used the computer:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Completely Disagree</th>
<th>Somewhat Disagree</th>
<th>Neutral</th>
<th>Slightly Agree</th>
<th>Completely Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The computer was disruptive to our session <strong>today</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>My client knows what I documented into the computer <strong>today</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>My client had a say in what information I put into the computer <strong>today</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Client Survey Face Sheet

Client Name:____________________

Provider Name:__________________

Session Number:_________________
Client Feedback Survey

Thank you for agreeing to participate in this study. Please take a moment to answer the questions below.

Remember there are no wrong answers. Please try to answer every question as completely and honestly as you can. All responses will be confidential, meaning they will not be shared with anyone outside the research team, including your therapist, your family or any members at The Institute for Family Health.

SECTION I.

1. Age (in years): __________

2. Gender:
   □ Male
   □ Female
   □ Transgender
   □ Other: __________

3. Race/Ethnicity:
   □ American Indian or Alaska Native
   □ Asian
   □ Black or African American
   □ Hispanic
   □ Native Hawaiian or Other Pacific Islander
   □ White or Caucasian
   □ Two or More Races
   □ Other: __________

4. Highest Education
   □ Less than High School
   □ High School Graduate or GED
   □ Some College
These next questions describe some of the different ways a person might think or feel about his or her therapist. Please select the best answer based on today’s session only.

<table>
<thead>
<tr>
<th>During today’s session....</th>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Very much</th>
<th>Completely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My therapist and I were working towards mutually agreed upon goals.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. I felt that my therapist appreciated me.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. My therapist and I respected each other.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. We were in agreement on what is important for me to work on.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. I felt that my therapist cared about me even if I had done things that he/she does not approve of.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I believe the way we were working with my problem(s) was correct.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

SECTION III.

The following section asks questions about what happened during today’s session. Please indicate how much you agree or disagree with each statement by circling the correct response.

<table>
<thead>
<tr>
<th>During today’s session....</th>
<th>Very Strongly Disagree</th>
<th>Strongly Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Very Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My therapist was interested in what treatment I wanted</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>During today's session.....</td>
<td>Very Strongly Disagree</td>
<td>Strongly Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
<td>Very Strongly Agree</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------------</td>
<td>-------------------</td>
<td>---------</td>
<td>-------</td>
<td>----------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>2. My therapist knows me and understands me well</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. My therapist understood my emotional needs</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. My therapist was sympathetic</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. My therapist encouraged me to be positive</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. My therapist was interested in the effect of my problem(s) on my everyday activities</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. My therapist was interested in what I wanted to know</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. My therapist was interested in what I wanted to do during the session</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. My therapist ignored the effect of my problem(s) on my everyday activities</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. My therapist and I discussed and reached agreement with me on what problems we should focus on</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. My therapist was interested in my worries about my mental health</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. My therapist was interested in the effect of my problems on my family and personal life</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. My therapist ignored the effect of my problem(s) on my family and personal life</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. I felt encouraged to ask questions</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. My therapist discussed and reached agreement with me about the plan of treatment</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. My therapist was careful to explain clearly the plan of treatment</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. My therapist ignored what I wanted to do during the session</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. My therapist was interested in what I thought my problems were</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
### During today’s session....

<table>
<thead>
<tr>
<th>Event</th>
<th>Very Strongly Disagree</th>
<th>Strongly Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Very Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. My therapist was interested when I talked about my symptoms</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20. My therapist alone decided on the plan of treatment without discussion</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>21. I’m confident that my therapist understands me and my history</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>22. My therapist ignored what I thought my problems were</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

### SECTION IV.

This section will ask you questions about your relationship with your therapist in general. Please circle the number on the scale to indicate how often each event occurs.

<table>
<thead>
<tr>
<th>Event</th>
<th>Never</th>
<th>Rarely</th>
<th>Occasionally</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My therapist and I agree about the things I will need to do in therapy to help improve my situation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2. What I am doing in therapy gives me new ways of looking at my problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>3. I believe my therapist likes me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4. My therapist doesn’t understand what I am trying to accomplish in therapy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>5. I am confident in my therapist’s ability to help me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>6. My therapist and I are working towards mutually agreed upon goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7. I feel that my therapist appreciates me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8. We agree on what is important for me to work on.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
SECTION V.

Sometimes, therapists might use the computer during therapy sessions. The last section asks about how you therapist used the computer during this session, and how you felt about their use of the computer.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Occasionally</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. During today's session, my therapist used the computer:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely Disagree</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Somewhat Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slightly Agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely Agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
References


Bartels, J. (2017) What’s All This Silence? Computer-centered communication in patient-doctor-computer communication. In Aviv Shachak Elizabeth Borycki Shmuel P. Reis


Health Resources and Services Administration. (nd). *Behavioral health workforce education and training (BHWET) program.* Retrieved from https://bhw.hrsa.gov/fundingopportunities/?id=67ee4161-1b08-433d-8224-d1e009af2663.


Schmelter, B. (2014). *Implementing collaborative documentation* [PowerPoint Slides].


