Title: A Multisite System Intervention for Unemployed Persons with Social Anxiety Disorder

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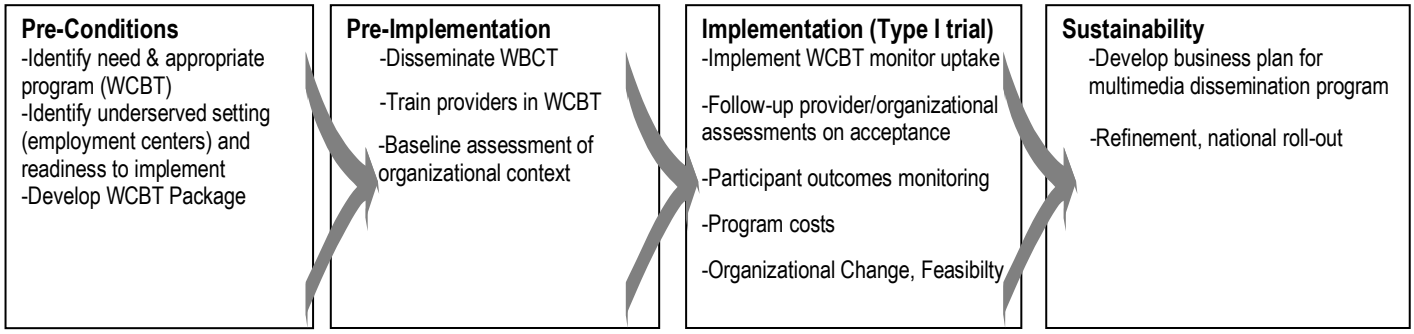
D. Research Design and Methods

The overall aim of this project is to conduct a randomized Type 1 hybrid effectiveness implementation trial of work-related cognitive behavioral therapy (WCBT) versus vocational services as usual (VAU), across two nationally representative urban sites among unemployed job seekers with social anxiety disorder (SocAD). Hybrid Type 1 trials are analogous to effectiveness trials in which the focus is on determining the impact of the intervention on individual outcomes with observational data collected on implementation of the intervention. The design was chosen because preliminary data were underpowered to assess potential mediators, moderators, or other mechanisms of effect (e.g., symptoms → employment, homelessness history) that are vital to further dissemination of WCBT, and because of the need to better understand the context in which the program is implemented in a second site in a major urban location serving a predominately Latino population. We will use the Enhanced Replicating Effective Programs (REP) implementation framework (see Figure 2) to guide study roll out and to ensure that WCBT is designed for further dissemination if proven effective. Enhanced REP has been previously used by study investigators to simultaneously implement and evaluate the uptake process for evidence-based mental health treatments R01 MH79994; VA HSR&D 11-232) (75-77). REP is based on the Centers for Disease Control and Prevention's Research to Practice Framework (75-77) and derives its origins from Social Learning Theory (78) and Rogers' diffusion model (79). Enhanced REP consists of four stages (Pre-Conditions, Pre-Implementation, Implementation, and Sustainability).The first two stages have already been completed as they involve organizational readiness to conduct the intervention and development of intervention materials based on community feedback (see Figure 2). The focus of this R01 will be the Implementation and Sustainability phases as the effectiveness of WBCT will be further demonstrated and key outcomes including long-term consumer impact and costs will be ascertained.(

Participants will be recruited from two urban-based study sites that provide employment assistance to a population of primarily underserved minority group members who are typically under-represented in studies of mental health interventions (U.S. Department of Health and Human Services, 2001). Participants will be randomly assigned to WCBT+vocational services as usual or to vocational services as usual (VAU). Social anxiety, other mental health conditions and employment-related variables will be assessed pre-treatment through a one-year follow-up. In the spirit of "designing for dissemination/implementation," (81) we designed WCBT to be a practical intervention based on bi-directional feedback from agencies that reach out to a diverse population. Moreover, our secondary aim is to describe the implementation of the intervention as well as provider and consumer acceptance, leadership buy-in, and feasibility, in order to inform its further dissemination as a multimedia tool that is acceptable to agencies.

Figure 2: Enhanced Replicating Effective Programs (REP) to Facilitate Implementation of WCBT in a Type I Hybrid Effectiveness-Implementation Trial



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STUDY PHASES: **Phase I** (8 months) will involve meetings with the two site PI's, co-investigators, JVSLA and JVSD staff to determine if site-specific procedural tailoring is needed to fit the characteristics of the JVSLA population. Members of the U of Michigan-based investigative team, the UCLA-based team, and representatives from JVSD and JVSLA have already met via teleconference and a two-day site visit to Los Angeles. We will develop technology-assisted WCBT, modifying the platform already built for the CALM study

(58), and technology-assisted clinician training, modifying a platform already built for CBT for social anxiety (3) to fit WCBT. **Phase 2** (4 months) will involve technology-assisted training of group leaders and piloting of two groups at each site (JVSLA and JVSD) with technology-assisted WCBT. Pilot group participants will be invited to participate in focus group sessions after every WCBT session. These focus groups will focus on participants' experiences attending each session in order to inform intervention refinements prior to the RCT. The pilot groups will also permit training and testing of independent evaluators who will rate group leader competence and adherence, and tailoring WCBT and other necessary adjustments to study procedures in preparation for the RCT. **Phase 3** (44 months) involves an RCT of the WCBT intervention+usual vocational services versus a vocational services as usual control group (VAU) for JVS clients meeting structured interview criteria for SocAD. Our expectation is that WCBT will improve social anxiety symptoms, job seeking, and job attainment compared to the VAU control condition. **Phase 4** (4 months) involves data analysis, preparation of manuscripts and preparation of an implementation study if WCBT is found to be effective.
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STUDY SITES: Jewish Vocational Services – Detroit (JVSD) and Jewish Vocational Services – Los Angeles (JVSLA). Both JVSD and JVSLA provide a comprehensive range of vocational habilitation and rehabilitation services, including career assessment, goal setting, resume construction, job application skills, job interviewing, retention and search skills, conflict resolution, budgeting/money management, GED preparation, computer literacy, job placement assistance, community voice mail, case coordination, on the job training, and job coaching. These types of services are commonly offered in vocational service centers (56) and include a mix of classroom and individual sessions led by a range of vocational rehabilitation professionals. Although the two sites have very similar employment services, they have some differences (e.g., walk-in resource center access at JVSLA; financial support for medical co-pays at JVSD) which is in keeping with real-world variability between vocational service agencies to which WCBT must be responsive. We will quantify the specific services received by each participant using the comprehensive, computerized service-tracking systems in place at both JVSD and JVSLA.

Dr. Himle has collaborated with JVSD for over 6 years and established close working relationships with WCBT group leaders and JVSD administrators (see Letter of Support), as evidenced by successful completion of the R34 project and continued WCBT offerings at JVSD after completion of the R34 (WCBT will be suspended at JVSD during the proposed trial). JVSLA is ready to partner with us (see Letter of support). Price and Lorion (82) describe four critical attributes of an organization's readiness to adopt innovative practices like WCBT. First, when organizations experience pressures from the external environment that are potentially addressed by the practice innovation, adoption is facilitated. Given the high levels of unemployment in Los Angeles, term limits on certain forms of public assistance, and pressure on local service organizations that serve poor people who are unemployed, JVSLA is very interested in practice innovations that may enhance employment outcomes. A second important indicator of organizational readiness is awareness and acceptance of the problem by the host organization. The PIs have met with top managers and clinical staff at JVSLA and they are aware of our research that indicates that social anxiety is a potentially malleable condition that, if addressed, could improve employment outcomes. JVSLA administrative and clinical staff translated this awareness into enthusiastic support of this research project. A third organizational readiness variable is the fit between the practice innovation and the attitudes, beliefs, and practices in the host organization. JVSLA and JVSD's core mission is to provide services that build skills to facilitate finding and keeping gainful employment. WCBT fits well with this core mission and the main method of service delivery used at JVS (small, skill-based groups led by vocational rehabilitation specialists). Finally, an agency needs to make resources available to support the innovation. JVSLA and JVSD have enthusiastically provided resources to support our screening efforts, have supported our plans to utilize JVS vocational service professionals to lead WCBT groups, and have offered meeting space and other practical supports.

JVSLA has distinctive features that make it valuable as a companion site. JVSLA serves 7,000 clients/year in an urban center on the west coast which provides geographic diversity from Detroit. Also, JVSLA's client base includes a large number of Latinos and other ethnicities not well represented at JVSD, and higher educational attainment (40% bachelors) compared to the low levels found at JVSD (5% bachelors). Unemployment rates are relatively high at both sites: 9.1% in Los Angeles versus 9.7% in Detroit (83).

TREATMENT: ***Work-Related Cognitive Behavioral Therapy (WCBT)****.* WCBT is an 8-session group intervention that meets twice weekly for 2 hours each session (see appended manual). WCBT participants will

join cohorts of six individuals who start and end together. WCBT is based on Heimberg and Becker's group CBT treatment manual for SocAD, the most extensively studied and widely accepted evidence-based psychosocial treatment for SocAD (32) and the JOBS program intervention described above (15). Exposure therapy is the cornerstone of WCBT and involves repetitive exposure to progressively more challenging social situations that are mostly work-related. WCBT relies heavily on fellow group members to serve various roles in exposure exercises. Participants complete exposure and cognitive-based homework from sessions 3-8. Sessions 3-8 also include a series of vocationally relevant psychoeducational topics adapted from the JOBS program (15). These include: reducing self-defeating behavior; asking others for help finding work; recognizing your strengths; turning weaknesses into strengths; and talking with co-workers and supervisors. Two JOBS program components that are not explicitly incorporated in WCBT but are in keeping with CBT treatment include inoculation against setbacks (e.g., coping responses for self-statements associated with failure to obtain a given job) (27, 47, 85) and efficacy enhancement (e.g., enhancing expectations of success if new skills are utilized) (47, 78).

In technology-assisted WCBT, leaders will use the practice support system to guide session content. The internet program will be delivered in a group format, building upon a program already developed for the CALM study and already reformatted for group treatment of anxiety and substance abuse delivered by lay counselors (86). The internet program will prompt the group leader to show videos, graphics, or conduct an exercise (e.g., identify the parts of anxiety, create a fear hierarchy). For individual activities, the group leader will lead one or two group members through an example while entering relevant information into the program for all group members to follow along. Then, group members will use hardcopy versions of the interactive forms and the group leader will provide feedback as each group member completes the activity. For role play activities, the group leader will show demonstrations from the internet program, and then lead role play exercises among group members. At completion of each session, the system will generate personalized educational materials and homework assignments based on leader input. Data captured during sessions (e.g., symptom scales, knowledge ratings, homework completion) will be stored and organized at the patient level, providing feedback regarding progress.

PARTICIPANTS AND RECRUITMENT:

Taking advantage of our ongoing screening efforts at JVS, JVS consumers who score 5 or more on the MINI-SPIN will be informed about the research study on their first day of service seeking at JVS. Potential participants will be questioned by their JVS intake professional if they would be willing to consider participating in a study about social anxiety and unemployment. If they agree to consider participating, and a research associate is present at JVS, the Research Associate will join the potential subject and their JVS intake professional in the JVS professional's private office. The research associate will briefly describe the study and will inquire about whether the potential participant is willing to consider participating. If the JVS consumer is interested, informed consent will then be obtained and participants will complete a contact form. Next, the participant will be offered an appointment for a baseline assessment interview. After completion of the baseline assessment interview, those who qualify to participate will be offered participation. .
If a consumer agrees to consider participating and a research associate is not present at JVS, the JVS professional will ask potential participants if they would like to fill out a contact form and have a Research Associate contact them at a later time. Contact form allows participants to provide phone number for themselves and another contact and an email address, Confidentiality will be emphasized. Research Associates will re-contact potential participants who voluntarily complete contact forms by phone and briefly describe the study. If participants contact research staff via the email provided on the contact form at any time during the study, research staff will respond via email. If the potential participant remains interested, the Research Associate will schedule an in-person meeting at JVS to obtain informed consent. Once informed consent is obtained, the participant will be offered an appointment for a baseline assessment interview. After completion of the baseline assessment interview, those who qualify to participate will be offered participation. .

Participants will be 300 men and women aged 18-60 who are seeking vocational services at JVS (96 JVSD; 204 JVSLA) who meet the inclusion and exclusion criteria below. We expect to be able to recruit enough JVS consumers to fill the groups within 3 to 4 weeks depending on potential participant flow. Our screening efforts have found that approximately 27% of JVS consumers score 5 or greater on the MINI-SPIN. Of those who

score 5 or more, we anticipate that approximately 70% will agree to undergo a formal baseline interview for the pilot study. Of these, we anticipate that approximately 83% will meet full study criteria. Of these, we anticipate that 75% will be randomized. We estimate that we will need to screen 2500 people over our 34-month recruitment interval (JVSD=850; JVSLA= 1650) in order to complete the RCT. Given the large number of new clients entering JVSD and JVSLA services each year, we do not anticipate any difficulty recruiting a *minimum* of 8 participants per month at JVSLA or 6 participants per month at JVSD, but we *expect* to recruit approximately 16 per month at JVSLA and 10 per month at JVSD, resulting in an average of 15 days waiting period or less before randomization.

Inclusion. Participants will be JVS service-seeking adults who are unemployed, score at least five on the MINI-SPIN (Connor et al., 2001), meet structured interview criteria for SocAD. Participants taking psychotropic medications will be offered participation without restriction. We will monitor medication as a potential moderator of outcomes. Participants must agree to refrain from outside psychotherapy throughout the active 4-week treatment period.

Exclusion. Presence of any of the following: substance dependence; current use of opiates or freebase cocaine; schizophrenia; other psychotic symptoms and/or manic symptoms that would interfere with study participation; current anorexia nervosa; prior course of CBT for SocAD (at least 8 sessions); or prominent suicidal/homicidal ideation with imminent risk. Indicators for imminent suicidal risk will be assessed by the interviewer and will include expression of current suicidal intent and/or plan, severe hopelessness, and recent self-harm behavior (i.e., suicidal attempt or self-harm behavior within the past month). Subjects with significant risk for suicide or self-harm must be excluded on ethical grounds, as joining the study prohibits other treatments that may be needed to insure their safety (e.g., medication changes, other therapy, hospitalization). JVS consumers excluded due to suicidality, substance dependence, or the presence of any of the above psychiatric disorders will be provided with appropriate resources and treatment referrals through well established JVS referral networks. Ms. Hamameh (group leader, see below) is the lead mental health specialist at JVS and she is intimately familiar with Detroit area substance abuse and mental health treatment resources and will expertly manage referrals for emergent, outpatient, inpatient, and residential care for those excluded from the study. Persons meeting diagnostic criteria for substance abuse (but not dependence) will be included in the study if they are able to attend sessions while not under the influence, except for those abusing opiates or freebase cocaine, who will be excluded; this is the standard practice at JVS. Our prior experience at JVSD revealed that participants with limited psychotic, manic or substance abuse symptoms were often capable of participating in WCBT. This approach aligns with standard practices at JVSD and JVSLA. Our limited exclusion criteria are in keeping with our goal of testing WCBT in a sample that is representative of clients who visit urban-based vocational service agencies. Potential subjects will be excluded if they do not plan to participate in a vocational rehabilitation program at JVS.

Persons who score below 6th grade reading level are typically referred for remedial reading training at JVS before beginning vocational rehabilitation; we will exclude potential participants who score below this level. Participants who speak English as a second language or could benefit from having self-report questions read aloud will be provided with this service if requested. Non-English speaking participants will be excluded.

Recruitment. Using procedures from our R34, all men and women aged 18-60 who score 5 or above on the Mini-SPIN will be asked by their intake worker if he or she would be interested in learning more about a study on social anxiety and employment that they may be eligible to participate in. If consumers are interested in learning more about the study, they will be asked if they would be willing to speak with a Research Associate. Research Associates will then privately explain the purpose of the study, either in person or via phone, and invite participation. Reasons for screening or baseline interview refusal will be collected and coded.

PROCEDURES.

Screening. All men and women aged 18 - 60 who score 5 or above on the MINI-SPIN (part of routine screening at JVS) will be asked by their intake worker if he or she would be willing to speak to a Research Associate. Research Associates will be available on intake/orientation days, and when possible, they will meet with interested potential participants in person. If a Research Associate is not present or available to meet with

interested potential participants on intake/orientation days, potential participants will be asked if they would like to complete a contact form so a Research Associate can contact them later. Research Associates, either via face-to-face meeting or phone, will privately explain the purpose of the study and invite them to participate. Confidentiality will be emphasized. Our Psychiatry Department has successfully used this approach in a number of screening studies as a sensitive and effective way to enroll participants, and we have worked with the University of Michigan IRB to ensure compliance with all federal regulations, including HIPAA. Those who agree to participate will be scheduled for a baseline interview to further determine eligibility (as described in Inclusion and Exclusion sections above). Potential participants will not be remunerated for the screening phase of the study. Reasons for screening or baseline interview refusal will be collected and coded for use in data analyses and in publications of the findings.

Baseline Interview. All participants who meet screening eligibility criteria and agree to participate, will complete a baseline interview to diagnose SocAD and comorbid psychiatric conditions and assess other psychometric and demographic variables (see Table 2). Based on our prior experience with the measures to be used, we expect this interview will take an average of 2 to 2.5 hours and we will not exceed 3.5 hours to complete. Participants will receive $40 remuneration for this interview. Participants will be provided with a bus ticket for participating in the interview. All baseline interviews will be completed by independent evaluators who have clinical mental health experience and have received extensive training in all interview-based measures (see training standards below).

Randomization. We will randomize each cohort of six to either WCBT or VAU, until 17 WCBT and 17 VAU groupings are completed at JVSLA and 8 WCBT and 8 VAU groupings are completed at JVSD. In our R34, there was a median wait time of 15 days from assessment to randomization and median wait times were identical for WCBT (2.14 weeks) and VAU (2.14 weeks). We will not reduce group size in response to a longer-than-expected wait. We will re-assess participants on key assessment measures immediately prior to randomization for those who wait beyond one week. In our R34, groups assembled every two to three weeks and the randomization scheme was acceptable (100% of qualified participants agreed to be randomized). Participants will receive $20 for attending randomization meeting. This reimbursement is for travel and any meals missed during the meeting.

Selection and delivery of the control condition. The proposed study aims to test the effect of WCBT on social anxiety and employment outcomes among unemployed, job seekers with SocAD. A comparison to treatment as usual is considered to be the most appropriate comparison condition for an effectiveness study because evidence-based psychosocial treatments for social anxiety are currently not provided for most unemployed people with social anxiety disorder. Thus, comparison to vocational services as usual (VAU) best tests an effectiveness-based hypothesis that WCBT leads to improved outcomes for work-seeking persons with social anxiety as compared to services as usually delivered in a vocational rehabilitation setting.

The VAU condition will include all other typically offered services at JVS (see site description above). Ms.Hamameh, in her capacity as the lead mental health specialist at JVS, will interact with every person assigned to the VAU condition regarding the psychiatric disorders revealed in the MINI interview. This is relevant only for conditions that are not part of the study exclusion criteria. If referral for therapy or medication management is indicated, Ms. Hamameh will recommend the most reasonable treatment options tailored to the participant's preferences, insurance status, and geographical area. Ms. Hamameh has established and extensive referral network for the mental health needs of JVS consumers. Ongoing assessment of mental health problems for VAU participants will also occur as an enhancement of usual care 4 weeks, 12 weeks, 26 weeks, and 52 weeks weeks after assignment to VAU, which corresponds to the assessment schedule for those assigned to WCBT. If the person is experiencing significant mental health problems at any of these time points and has not initiated treatment, he or she will meet with Ms. Hamameh and additional referral information will be provided and the participant will again be encouraged to pursue a treatment option that works for him or her. The suicide risk protocol as described in the Human Subjects section will be followed if a participant is at risk for suicidal (based on clinical impressions and assessment (suicide module of the MINI; PHQ-9; BSI-18), or other poor outcomes (e.g. inability to care for self).

Work-Related Cognitive Behavioral Therapy (WCBT). All participants will receive 4-weeks of WCBT group treatment, as described above, delivered in twice weekly, 2-hour sessions, for a total of 8 sessions. Treatment will be scheduled on Tuesday and Thursday mornings at JVS because these time slots do not conflict with

existing programs, the schedules of our group leaders, and the transportation services schedule at JVS. The groups will be "closed ended" meaning that the WCBT groups will involve a single group cohort of six individuals who start and complete the group together. We carefully considered an open entry, rotating group format where people can flexibly join a group regardless of how long the person has been receiving services at JVS. However, since group CBT for social anxiety has not been tested using an open enrollment format, and taking critical issues related to group cohesion and group-based exposure exercises into account, we opted for a closed-ended format. Our decision is supported by the effectiveness of the closed-ended JOBS program groups provided in vocational settings (Vinokur et al., 1995). Participants will be reimbursed $10 for food and transportation for each session attended. Participants will also be provided with a bus ticket for each group attended. Information about participant adherence and satisfaction will be gathered and recorded immediately following each session (See TARS measure). Participant adherence data will consist of information about meeting scheduled appointments, completing in session exposure and cognitive restructuring exercises, completing therapy assignments, and barriers to completing assignments. Participants will also be asked to comment on the applicability of treatment content and assignments, both as an ongoing measure of satisfaction, and as a means of fine tuning the treatment to meet the participants' needs. Clinicians will be asked to keep logs of adaptations made, comments received by participants, and weekly measures of adherence and to report these both in weekly 1.5 hour supervision sessions with Dr. Himle and with the entire study team in treatment refinement teleconferences at the end of each of the two pilot groups. Discussion in supervision and the treatment refinement teleconferences will focus on refining the manuals to meet the needs of JVS consumers while remaining consistent with CBT for social anxiety.

Follow-up interviews. All participants who completed the baseline mental health assessment interview and are randomized will complete interviews immediately post-treatment and at 12, 26, and 52 weeks from study entrance, including those that drop out. All participants will be asked to complete these interviews, regardless of number of treatment sessions completed. Participants who refuse or prematurely drop out of treatment will be queried about their reasons for discontinuation. Responses to these open-ended queries will be considered during the scheduled treatment refinement teleconferences discussed above. The post-treatment and three month follow-up interviews will also include measures of the presence of social anxiety disorder (MINI), social anxiety severity, functional impairment, and treatment satisfaction (see measures battery below). Participants will be paid $40 for the post-treatment and the follow-up interviews and will be provided with a bus ticket for each interview. We expect these interviews to, on average, take between 1.5 and 2 hours to complete.

Maintenance of samples. Several strategies will be used to encourage attendance. Each day at JVS, consumers receive a typewritten schedule of available services along with suggested activities recommended by their assigned caseworkers. WCBT groups will be highlighted on this schedule. Reminder postcards regarding the upcoming session will be mailed to participants each week. This will be particularly important for those who do not attend JVS every day. If a participant misses a session, he or she will be contacted by the group leader to ascertain reasons for failing to attend and barriers to attendance will be discussed and potential remedies will be put in place. Group leaders will stress the importance of regular attendance at all JVS vocational rehabilitation activities, including WCBT sessions. Participant addresses and phone numbers will be updated through regular contact from the time of baseline throughout the active treatment period. Participants will receive reminder text messages each month starting after their post interview until their fifty two week interview. Participants will receive $10 for responding to the reminder/checks during the follow up phase. Participation will also be encouraged through payment for all assessments and reimbursement for sessions. Other retention methods include: (1) reminder postcards mailed two weeks prior to the scheduled follow-up interview; (2) reminder postcards prior to the initial and follow-up interviews; (3) the name, address, and telephone number of two contact persons not living with the patient who will know their whereabouts will be obtained. Participants will be asked to provide written permission to speak with these individuals in an effort to locate them; (4) follow-up interviews will be scheduled at the subject's convenience limited only to normal JVS business hours; (5) study participants will be encouraged to call our offices collect or toll-free with any questions, to notify us of address/telephone changes, or to schedule interviews. Finally, any participant wanting or needing alternative forms of intervention after the active four week WCBT period (e.g. management, other mental health treatment) will be provided with assistance in locating such treatment by Ms. Hamameh (see below).

Group leaders and training. Three group leaders will serve at JVSD (n=96) and four at JVSLA (n=204). Group leaders (already identified at each site) will undergo technology-assisted training over a 5-week period

in Phase 1 through an on-line tutorial that contains instructional material presented in a variety of formats: interactive exercises, animations, graphical illustrations, and videos of an expert clinician demonstrating techniques covered in each module. “Challenge questions” present new material and reinforce learning (87). Principles of instructional design will be employed to ‘chunk’ material in appropriate segments (based on limits of working memory) and to guide the presentation of material in ways that enhanced learning (88). Next, trainees will receive 3 remote, applied training sessions with Drs. Himle, Craske, and Rose via Skype videoconference, who will portray a standardized patient with social anxiety disorder while the trainee role plays as the therapist. The tutorial and applied training will be modified from a program already developed for CBT for social anxiety (3).Training will also include two pilot WCBT groups at each site, over a four-week interval. Drs. Himle, Craske and Rose and the JVSD and JVSLA group leaders will meet after every Phase 1 pilot session to review session audiotapes and address training needs. Throughout Phase 2, 1.5 hour weekly supervision sessions will be conducted to discuss clinical care and to review selected sections of audiotapes for continued training purposes. In addition, cross-site consistency in treatment delivery will be maintained (see cross-site consistency plan below).

Group leader adherence and competency. Therapist competence and adherence in delivering WCBT will be measured by independent ratings of session audiotapes, using the Therapist Adherence Scale for CBT for SocAD (89) that we adapted to fit the WCBT manual (TAS-WCBT; see Appendix). Training of independent raters will involve didactic review of the WCBT manual and the TAS, followed by rating 8 sessions from one of the Phase 1 pilot groups in discussion with Drs. Himle, Craske and Rose. This will be followed by an assessment of inter-rater reliability based on ratings of a second pilot group (8 sessions). During Phase 2, integrity of WCBT and group leader drift will be addressed by rating 3 randomly selected sessions of each WCBT group. Drs. Himle, Craske and Rose will give feedback to group leaders as necessary. Our R34 project yielded impressive TAS-WCBT session fidelity ratings. Trained independent raters rated 23 of 56 WCBT sessions, on 1-to-5 scales, ranging from 1 (ineffective discussion) to 5 (extremely effective discussion). The average overall rating across sessions was 4.23 (SD=.66). We expect adherence and competence to be further enhanced via technology-assisted delivery of WCBT (computer-assisted CBT in the CALM study yielded good to excellent competencies and adherence) (61).

Diagnostic interviewer training & inter-rater reliability. Two independent evaluators (IE) at each site will be trained to complete interviews (MINI, BPRS, & MSIF – see Table 2). They will be trained by Drs. Himle, Craske and Rose via a 3-day training course during which they will conduct 5 or more interviews until inter-rater agreement on ratings and diagnosis is satisfactory (80% agreement). Then, each IE will be observed doing five or more interviews until there is 90% agreement for the MINI and 95% for the BPRS and MSIF. Throughout the study, 25% of participants will be randomly selected to repeat their assessment battery at one randomly selected time-point by a different IE. Spearman correlation coefficients will be calculated between each rater with coefficients above 0.85 deemed acceptable. If this standard is not obtained, further training will be provided. Using these interviews, the IE's ratings will again be compared to consensus ratings obtained via discussion between that IE and the PI’s/Co-I until the 0.85 criterion is met.

WCBT retention. All JVS consumers will receive a schedule of available services along with suggested activities recommended by their assigned caseworkers that includes a schedule of WCBT sessions. If a participant misses a session, s/he will be contacted by the group leader to ascertain reasons for failing to attend, and to discuss barriers and potential attendance remedies. Participant addresses and phone numbers will be updated through regular contact from the time of baseline, throughout active treatment, and follow-up. Participation will be encouraged by a $40 payment for each assessment. In the R34 trial, participant dropout rate from WCBT was very low at 6%; therefore, we estimate a maximum 15% rate of drop-out from WCBT.

Assessment retention. Maintenance of samples for assessment purposes was strong in our R34 project (91% of the ITT sample). However, we are improving our retention practices in keeping with published guidelines for retaining at-risk study populations published by Dr. Bybee and colleagues (90). These strategies include collecting contact information from all contact persons not living with the participant who know of their whereabouts, providing business cards with contact information for next appointment time and payment amount, initiating contact efforts well before assessment time, persisting with contact attempts throughout the follow-up period regardless of prior assessment session attendance, JVS employees reminding participants of

study assessments and encouraging participants to call our offices with questions and to report address/telephone changes. Assessment retention will also likely be enhanced by the newly developed work hours reporting method described below. Dates will be collected for all assessments, and those participants who schedule and complete an assessment within 75% of the time interval will be considered within protocol. Participants who do not schedule and complete an assessment within 75% of the time interval will be reported as deviating from protocol. Missed assessments will be tolerated, and there will be no dismissal from the study due to missed assessments. Research staff will continue participant contact attempts as their continued presence in the sample is needed for the proposed intent-to-treat analysis. Participants that have completed the study and have missed the 52 week follow up assessment time point will be contacted by the study coordinator by phone, email or mail. If the participant is interested in completing a follow up interview, this can be completed over the phone or face to face and the participant will be given a $40 incentive for completing this interview.

MEASURES (see Table 4 for administration schedule)

Social anxiety disorder screening. As noted above, JVS consumers complete the MINI Social Phobia Inventory (MINI-SPIN; Connor et al., 2001) as part of their routine intake assessments at JVS. The MINI-SPIN is a three question measure that yields a total score ranging from 0-12. Nearly 90% of persons scoring five or greater on this instrument have been found to meet structured diagnostic interview criteria for generalized social anxiety (Connor et al., 2001).

Diagnostic interviews. Diagnostic assessments will be conducted for DSM-V disorders at baseline, post-treatment, and at 12, 26, and 52 weeks follow-up. The primary measure will be the MiNi International Neuropsychiatric Interview v. 7 (MINI; Sheehan et al., 2015). The MINI will be administered by Research Associates blinded to treatment conditions. The MINI is a widely used structured interview with excellent test-retest and interrater reliability (93, 94).

Measures of subjects' social anxiety symptoms. The primary symptom measure for assessing treatment outcome will be the Liebowitz Social Anxiety Scale (LSAS: Liebowitz, 1987). It assesses fear and avoidance of several social interaction and performance situations. The LSAS total score has excellent internal consistency and has demonstrated sensitivity to change following pharmacological and cognitive-behavioral therapy (Heimberg et al., 1998; 1999). The Social Phobia Inventory (SPIN) will assess social anxiety symptoms across assessment time points, while the Mini-SPIN (Connor et al., 2001) will assess change in social anxiety symptoms among participants randomized to the treatment condition, weekly throughout active treatment.

Measures of employment. Several methods are in place to assess employment including: a) Following Vinokur et al.'s JOBS program, our primary work-related outcome measures will be the reported number of paid work hours per week during the follow-up period.;b)In the R34, participants were asked to recall the average number of hours worked per week over three months: this yielded little variance, with many respondents reporting either 0 or 20 hours per week. This clustering is likely related to difficulty recalling work hours over a three-month period, especially with inconsistent schedules or more than one employer. Precision on 'number of paid hours will be enhanced by a new"timecard" system wherein gift cards are remotely "recharged" with a $5 incentive for every pre-dated, weekly "timecard" that is returned by mail or text within one week of the due date. These timecards will include questions on the hours worked per day and number of missed work days as a measure of work impairment;; c) Measures of work status and time to re-employment will be collected at follow-up using a modified version of a Work Activity Questionnaire used by Vinokur (15). This questionnaire also inquires about the number of job interviews and job applications completed during the follow-up period; e) Job search self-efficacy and motivation will be measured using Vinokur et al.'s Job Search Motivation Index (15, 46), which assesses job search self-efficacy, attitude, subjective norms, and intention to engage in intensive job search; f) Finally, work productivity and performance will be measured by the work performance subscale of the Multidimensional Scale of Independent Functioning (MSIF) (96). This instrument has good criterion, discriminant, interrater and construct validity along with strong inter-rater reliability (96). Convergence of the multiple methods of assessing paid work hours will be examined using confirmatory factor analysis, and missing data for each method will be examined for systematic patterns. If adequate convergence is found, multiple methods may be analyzed as observed indicators of a latent "paid work hours" construct; advantages include reduction in method-related error variance, strategies for analysis of construct- and

method-specific effects, and accommodation of missing data on one or more measures. A latent variable approach is expected to be especially informative for Aim 2, which examines mediators of WCBT effects on work outcomes.

Measures of client functioning. Overall disability will be measured using the Sheehan Disability Scale (SDS) (Sheehan, 1996). The SDS is a commonly used three item measure of functional impairment and has high internal consistency and construct validity (Leon et al., 1997).

Measures of other symptoms in subjects. Since general anxiety and depression may influence outcomes, we will assess comorbid depressive symptoms using the PHQ-9, which has adequate reliability and validity (101), and anxiety symptoms using the Brief Symptom Inventory-18 (BSI-18) which has well-established reliability and validity (102).

Demographics. Collected demographic information will include gender, date of birth, race/ethnicity, education level, family composition, and other relevant clinical and demographic characteristics. Given the impact of the number of caregiven children, ages of children, health problems among children, and prior work experience on the welfare status in our Women's Employment Study, we will also collect this information from participants.

Measures of treatment credibiltiy and beliefs. Treatment expectations will be measured using the Expectancy Rating (Borkovec & Nau, 1972). This is a four item self-report instrument designed to assess patient expectations regarding change with treatment. The Expectancy rating will be administered before treatment and then after the 3rd WCBT session such that subjects can report expectations after the subject has been well socialized to the treatment. The Expectancy Rating has high internal consistency and high test-retest reliability (Devilly et al., 2000). Treatment satisfaction will be rated using the Treatment Impressions Rating Scale, a Likert-based self-report instrument.

VAU active phase questionnaires. Participants in the VAU (control) condition will complete measures at time intervals consist with session measures completed by the WCBT intervention condition. These questionnaires include a series of sham measures are not sensitive and do not relate to study outcomes (e.g., health; physical activity; sleep) as well as a measure of social anxiety symptom (Mini-SPIN) and medication use and adherence (Morisky). VAU participants will have the option of receiving a link to complete these measures via an electronic data collection system (qualtrics) or receiving paper copies of the questionnaires at baseline that can be returned by mail following the twice weekly administration schedule.

Other treatments. Measures of other treatments include: a) The Morisky Adherence Measure (107) is a 4-item self-report measure of medication adherence, with high internal consistency and concurrent and predictive reliability when applied to medication use (107). We will monitor medication throughout treatment and follow-up; b) We will track the specific number and type of JVS services utilized, according to computerized records of client service use at both JVSD and JVSLA; c) The CBT Use Questionnaire tracks self-use of CBT and use of additional therapist-directed CBT, over the follow-up period, as utilized in the R34 study.

Table 4. Measure Administration Schedule

Measure and Reference	Abbreviation	Time points for Measurement	Measure Type and Person Completing Assessment
MINI-SPIN Social Phobia Inventory (Connor et al., 2001)	MINI-SPIN	Screening, Sessions 1,3,5,7	Subject-Report Questionnaire
MINI International Neuropsychiatric Interview v. 7.0 (Sheehan et al., 2015)	MINI	BL, PT, 12 wk, 26 wk, 52 wk.	Diagnostic Interview
Baseline Demographic and Work History	NA	BL	Clinician Administered Questionnaire
Brief Psychiatric Rating Scale (Ventura et al., 2003)	BPRS)	BL, PT, 12wk, 26wk, 52 wk	Clinician Rating Scale/Interview
Liebowitz Social Anxiety Scale (Liebowitz, 1987)	LSAS	BL, PT,, 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Alcohol, Smoking and Substance Involvement Screening Test	ASSIST	BL, PT,, 12 wk, 26 wk, 52 wk	Clinician-Administered Questionnaire
Sheehan Disability Scale (Sheehan et al., 1996)	SDS	BL, PT, , 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Social Phobia Inventory	SPIN	BL, PT, 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Interpersonal Competence Questionnaire	ICQ	BL, PT, 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Brief Symptom Inventory-18	BSI-18	BL, PT, 12wk, 26 wk,	Subject-Report Questionnaire

		52 wk	
Follow-Up Questionnaire Employment	FUQ-E	12 wk, 26 wk, 52 wk	Subject-Report Questionaire
Multidimensional Scale of Independent Functioning – Work Performance Anchors	MSIF	PT, 12 wk, 26 wk, 52 wk	Clinical Administered Interview
Job Search Behavior Questionnaire	JSB	BL, PT, 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Brief Comprehensive Effects of Alcohol Questionnaire	B-CEQA	BL, PT, 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Drinking Motives Questionnaire	DMQ	BL, PT, 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Flexibility Measure	AAQI	BL, PT, 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Group Cohesiveness Scale	GCS	Sessions 1,4,8	Subject-Report Questionnaire
Cognitive-Behavioral Therapy for Social Anxiety Disorder: Therapist Adherence Scale	TAS	Sessions 1-8	Independent Observer Rating
Medication Use Questionnaire	FUQ	BL, Sessions 4,8, PT, 12 wk, 26 wk, 52 wk	Clinician Administered Questionnaire
Morisky Medication Adherence Measure (Morisky, et al., 1986)	Morisky	BL, Sessions 4,8, PT, 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Expectancy Rating (Borkovec & Nau, 1972)	ER	BL, Session 3	Subject-Report Questionnaire
Treatment Impressions Rating Scale	TIRS	Post-Treatment	Subject-Report Questionnaire
Treatment Adherence Rating Scale	TARS	Sessions 1-8	Clinician Rating Scale
Job Search Self-Efficacy (Vinokur et al., 1995; 2000)	JSSE	BL, PT, 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Patient Health Questionnaire 9	PHQ-9	BL, PT, , 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Clinical Global Impressions Scale (Guy, 1976)	CGI	BL, Sessions 1 – 8, PT,, 12 wk, 26 wk, 52 wk	Clinician Rating Scale
Job LSAS	JOBLSAS	BL, PT, 12 wk, 26 wk, 52 wk	Subject-Report Questionnaire
Everyday Discrimination and Major Experiences of Discrimination Scale		BL	Subject Report Questionnaire
VAU Active Phase Questionnaires	VAU	Twice weekly between BL and PT	Subject Report Quesionnaire

MIXED METHOD IMPLEMENTATION STUDY: We will use the Enhanced Replicating Effective Programs (REP) implementation framework (see Figure 2) to guide our observational study of WCBT implementation at JVSD and JVSLA, including agency and employer acceptance of WCBT and incremental costs associated with WCBT training, delivery, and maintenance. Using enhanced REP as a guide, we will use mixed methods data collection to evaluate WCBT implementation. Agency leaders and employees providing WCBT will complete an initial in-person interview and a follow-up interview using the Organizational Transformation Model (OTM) assessment (109, 110) that measures organizational processes found to be associated with improved uptake of new programs, including the agency's readiness to implement new programs, leadership commitment, degree to which frontline providers are involved in the operationalization of a new program, and alignment of new program goals with existing priorities and day-to-day processes.

Enhanced REP also emphasizes dissemination of data to health plan leaders and other stakeholders, and aligning program components with reimbursement strategies that may inform the implementation of emerging initiatives. Paying for clinicians' time enables us to more accurately track employee time as these employees will be under the organizational responsibility of the study team. Assessing employee time is an important step in understanding the potential sustainability of the program especially in determining potential employee burden and workflow. To this end, data on the cost of implementing WCBT including employee time, training, and technical support will be ascertained using employee interviews in which we will determine total time spent on: 1) REP-based WCBT training and technical assistance; 2) delivering WCBT sessions, including charting and client contacts/follow-up; and 3) time spent with site leadership and other staff members to garner feedback

on sustainability issues including barriers and facilitators to uptake and planning future dissemination activities. In addition, we will ascertain the total time study staff spent conducting REP activities such as WCBT packaging, training, and technical assistance, including note-taking and time spent at the sites.

CROSS SITE CONSISTENCY PLAN: Coordinating committee: Drs. Himle and Craske will chair the coordinating committee comprised of the PIs (Drs. Himle and Craske) and co-investigators (Drs. Bybee, Kilbourne, Rose, Miranda). Biweekly conference calls will be held. Matters requiring close cross-site coordination include recruitment, diagnosing, treatment integrity, attrition patterns, all aspects of data collection, and site disagreements. Also, the PI's and Co-Is will meet in person at least once per year.

Procedural consistency: *1.) Recruitment and attrition.* Standardized study description forms and screening instruments will be used across sites. Refusal rates, attrition rates and reasons will be monitored and compared across sites 4 times a year with procedural changes where appropriate to maximize participant retention equally across sites. *2.) Screening and assessment*. We will use manualized procedures for each measure; assessors will undergo standardized training in the measures, and an observation certification check in which the assessors will be observed and rated on adherence to procedures by either Dr. Himle or Dr. Craske. Assessors must pass the adherence check before being certified. Adherence checks will be repeated once per year to minimize site or assessor drift. 3.) *Psychiatric diagnostic interviews.* We will hold quarterly joint teleconferences among interviewers and PIs from both sites to discuss diagnostic issues, and cross-site consistency checks, in which 5% of audio-taped interviews at each site will be randomly selected to be blindly rated by interviewers of the other site. Rates of agreement will be analyzed and significant disparities corrected through additional interviewer training and adherence monitoring. 4.) *Treatment delivery*. Technology-assisted training in WCBT will facilitate cross-site consistency. Weekly group supervision will combine therapists from both sites to facilitate cross-site consistency. In addition, half-day cross-site (videoconference) workshops every six months (years 1-4) will serve for recalibrations. 5.) *Data collection and analysis.* This area involves development of methods for ensuring that data collection instruments are programmed; data are properly collected; participants are tracked and monitored over the course of the study; data sets are documented and maintained; variables are created and documented; and main analyses are conducted. Rapid feedback to each site about missing or incorrect data is essential. The study coordinator at each site will schedule and coordinate assessments for all participants, and speak daily with staff about any problems and procedural changes. Study coordinators at the two sites will participate in biweekly conference calls with the PIs to address any data collection problems. During startup, we will develop programs for computer-assisted data entry. These programs will include range checks and logic checks to ensure accuracy and consistency of acquired data, as well as incorporating the logic of skip patterns in assessment instruments. On a daily basis, results will be backed up onto secure servers to be maintained at each site. Backups of the centralized database onto an external medium will be carried out after every update to ensure that no data will be lost in the process. Data will be transferred from the UCLA site to the U of Michigan site for analysis. If there is missing data from participants that have ended the study, the study coordinator will contact participants via email and/or phone to obtain the missing data. Study coordinators will use an oral or written script that will explain the purpose of contacting the participant.

POWER ANALYSIS AND STATISTICAL STRATEGY Multilevel (mixed effects) longitudinal regression (MLM) (111) and multilevel structural equation modeling (MSEM) (112) will be used for analysis. Both accommodate the multilevel, nested structure of the data, with randomization at the group level (113) and individual-level outcomes assessed repeatedly over time (114). Multilevel analysis is necessary in order to appropriately accommodate shared (nonindependent) variances due to both group-level

randomization and delivery of the WCBT intervention in groups, as well as individual-level observations repeated over time.

Aim 1. *Evaluate the effects of WCBT on employment (e.g., hours worked, job search behavior, job search self-efficacy) and mental health (e.g., social anxiety, generalized anxiety, depression) compared to VAU. We hypothesize that WCBT will show greater improvements than VAU in employment and mental health symptoms at 12 weeks, 26 weeks and 52 weeks post study entrance*. We will use the same MLM approach that we used in our R34 pilot to compare individuals assigned to WCBT vs. VAU. 3-level models will incorporate repeated measures on individuals nested within the 50 6-person groups randomly assigned to WCBT or VAU. HLM software will be used (115). Individual baseline scores on each outcome variable will be incorporated as level 2 covariates to increase the precision and statistical power of tests of the randomized intervention and reduce regression to the mean artifacts (116). Observations will be centered at a post-intervention or follow-up time point to provide a straightforward WCBT vs. VAU comparison on outcome level. Persistence of intervention effects will be assessed through WCBT vs. VAU comparisons on the level 2 slopes characterizing individual outcome trajectories through 52-week follow-up; quadratic or piecewise slope terms (117) will be included if needed to reflect acceleration or slowing of change over time. Power estimates for the planned MLM analyses were conducted using Optimal Design software (118). The entire sample of 300 individuals, nested within 50 groups, with 5 assessments over time, will provide power of .8 to detect (at 2-tailed $p < .05$) an intervention effect on intercept or slope of at least d=0.34; power estimates range from .7 to detect d=.30 to .9 to detect d=.39. Effect sizes in the R34 pilot ranged from .46 for hours worked to 1.36 for social avoidance; this suggests that power in this larger R01 will be adequate to detect condition differences on all outcomes, including employment. These estimates assume a minimum intraclass correlation (ICC) between groups of .01, which is larger than the ICCs observed in the R34 pilot. If the ICC for the R01 is found to be substantially higher at .03, the effect size detectable with power of .8 will rise only slightly, from d= .34 to d=.36.

Aim 2. *Evaluate whether improvements in social anxiety mediate the effect of WCBT upon employment related behaviors and outcomes. We hypothesize that reductions in social anxiety will lead to more employment related behaviors and greater employment success. In addition, it is hypothesized that specific reductions in social anxiety will better explain the effects of WCBT on employment compared with general improvements in depression and generalized anxiety.* Multilevel SEM will assess whether reductions in social anxiety explain WCBT effects on subsequent employment (hours worked, job search activities, job search self-efficacy). This approach provides several advantages that are essential to testing mediation in this design. First, it accounts for nesting of individuals within randomized groups (119); it allows us to focus on change by using centering to disentangle between- and within-person effects (112); it lets us specify temporal order (i.e., change in social anxiety symptoms precedes change in employment related outcomes), and it accommodates latent variables (e.g., hours worked) (119). In addition, multilevel SEM provides ways to formally compare multiple alternative mediation paths (120), which will be essential to testing our hypothesis that reduction in social anxiety will better explain WCBT effects on employment than improvements in depression and generalized anxiety. Mplus software (121) will be used for these analyses due to its flexible estimation capabilities, use of bootstrap algorithms appropriate for testing indirect effects (122), and ability to test and compare specific mediation effects (123). Simulations conducted in MPlus and ProcClin (124) indicate that power can be expected to exceed .8 to detect significance at $p < .05$ an indirect effect in which the two component standardized direct effects *a*' (WCBT -> SocAD) and *B*' (SocAD -> employment-related outcome) are .20 or above, which is larger than the minimum *a'* and *B'* effects observed in the R34 pilot.

Aim 3. *Explore moderators of the effects of WCBT, including site, race/ethnicity, education, prior work experience, psychiatric medication status and comorbid depression.* Moderation will be tested by adding moderating variables to the MLM regression models testing mental health and employment outcome effects (Aim 1). Because groups are nested within site (16 sites at JVSD and 34 at JVSLA),

site-level effect differences will be tested as level 3 interactions with condition; assuming overall average WCBT effects on a given outcome are *d*=.5 or above, power is estimated at .8 to detect a between-site effect difference of *d*=.4 or greater. Moderation by time-invariant individual characteristics (race/ethnicity, education, pre-intervention work experience) will be incorporated as cross-level interactions with condition and with condition and time, in order to test moderation of outcome change trajectory as well as level at a specific post-intervention timepoint. Because it is possible for several moderators to vary from assessment to assessment (e.g., psychiatric medication, depression diagnosis), it may be necessary to model their effects as time-varying covariates at level 1, in cross-level interaction with condition, depending on the observed levels of variability. It is not possible to know in advance how individual-level moderating variables will be distributed across the 50 randomized groups; therefore it is difficult to estimate power to test multilevel moderation of WCBT effects, and projections are necessarily tentative (125). However, assuming that a given dichotomous moderator (e.g., comorbid depression diagnosis) is present in at least 30% of the sample and is distributed relatively evenly across the 50 groups, power should exceed .8 to detect an interaction effect (i.e., between-persons difference in WCBT effect) as small as *d*=.20. Because the JVSD site is expected to have minimal variability on race/ethnicity, we plan to test moderation by this variable only among the 36 groups at the JVSLA site. Power to detect differences in WCBT effects among 3 types of participants – Hispanic (anticipated *n*=49), African-American (*n*=59), and White (*n*=110) – is estimated at .8 for interaction effects as small as *d*=.30.

General approach to quantitative analysis. All raw data will be examined to verify quality and identify potential outliers and distributional issues that may require transformation or nonlinear link functions, including survival functions for variables subject to censoring (e.g., time to job loss). Psychometric properties of all measures will be verified in the study sample. Adequacy of randomization will be verified through multivariate comparisons of intervention and control arms on all baseline variables, using 2-level mixed effects regression models (individuals nested in groups). Variables showing significant baseline differences will be considered as covariates in subsequent analyses. Primary analyses will involve the ITT sample of all individuals who completed the baseline interview and were randomized. If there is sufficient variability in fidelity, participation, or drop-out, parallel secondary outcome analyses will incorporate measures of intervention dosage (i.e., attendance and participation) and fidelity as covariates, to account for variation in intervention engagement and retention. Additional analyses will identify characteristics of individuals who drop out or receive lower dosage. Covariates of treatment drop-out will be used to estimate complier average causal effects (126). Assessment attrition will be minimized through use of incentives and proactive retention strategies. In our pilot, our post-intervention retention rate was 86%; retention was equal across arms; no baseline variables were found to be related to attrition; and missing data patterns were not related to study outcomes. As in the pilot study, we will use pattern mixture modeling (127) to determine whether missing assessments at various time points affect study conclusions or are "ignorable" (i.e., conditionally missing at random). Missing data determined to be ignorable will be estimated using expectation maximization and multiple imputation procedures appropriate for longitudinal data (128). Sensitivity analysis will be used to examine the possible impact on study conclusions involving any missing data found to be nonignorable (129).

ELEMENTS UNIQUE TO THIS SITE: The University of Michigan site offers a team of investigators who bring expertise to this project that complements the expertise of Dr. Craske and her colleagues at UCLA. Dr. Himle was the PI of the R34 project that forms the basis of this R01 application. He is the lead designer and developer of WCBT and has developed the fidelity assessment tool for use in this trial. As such, Dr. Himle is intimately familiar with the intervention and its implementation in an employment service agency. Dr. Himle and his colleagues at JVSD have also established a strong relationship with the International Association of Jewish Vocational Services, a critical implementation conduit now and in the future. Study personnel at this site also include one experienced WCBT group leaders (Ms. Golenberg) who will play key roles in training new WCBT group leaders at JVSLA. Mr.

Steinberger, who was integral in the intervention development process and an experienced group leader, while no longer employed at JVSD, will continue to provide consultation, including assistance in training new group leaders as needed. Dr. Bybee was the senior methodologist on the R34 pilot study that preceded this current R01 and will be responsible for data analysis for the multi-site trial. Dr. Kilbourne is a national expert in the development and application of implementation frameworks to promote the uptake and subsequent improved outcomes of evidence-based mental health treatments. The JVSD site also provides an understudied group of urban-dwelling, impoverished, primarily African American clients with SocAD. JVSD also provides critical system-based expertise related to WCBT implementation in an employment services agency.

(D) PROTECTION OF HUMAN PARTICIPANTS

This project meets the definition of a clinical trial. The study will involve collaboration between UCLA, University of Michigan, and the respective Jewish Vocational Services at each site. This section on the Protection of Human Participants focuses upon participants at the University of Michigan-Jewish Vocational Services Detroit site.

D 1. HUMAN PARTICIPANTS INVOLVEMENT AND CHARACTERISTICS

Participants will be unemployed male and female adults aged 18 to 60 years, evaluated and diagnosed with social anxiety disorder (SocAD). This research is focused specifically on adults in order to determine whether adding WCBT to usual vocational services will yield superior outcomes (social anxiety symptoms and increased employment) compared to vocational services as usual control condition. Participants on medication for psychiatric conditions will be accepted into the study and medications use will be monitored throughout treatment and at each follow-up point. Those who are unwilling or unable to refrain from outside psychotherapy throughout the 4-week active treatment period will be excluded in order to lessen confounding of study treatment effects with outside therapy effects. Given that the focus of this study lies in the treatment of SocAD, participants with substance use dependence within the past month; current use of opiates or freebase cocaine; chronic neurological disorder; mental retardation; schizophrenia, other psychotic symptoms and/or current bipolar I disorder with manic symptoms that would interfere with study participation; current anorexia nervosa; medical conditions contraindicating study treatment (e.g., history of severe head trauma); or prominent suicidal/homicidal ideation with imminent risk will be excluded. These exclusions also will ensure participant safety and allow them to pursue appropriate health care directed at these other conditions. Participants who have received a prior course of CBT appropriate for social anxiety (at least 8 sessions) will be excluded since they may represent a pre-selected treatment refractory sample that would confound the investigation of the efficacy of WCBT.

Gender and Minority Inclusion. Our screening efforts yielded a sample that was 33% female and 86% African American, 10% White, and 3% Other at JVSD. At JVSLA, administrative data suggests that we will recruit approximately 49% female participants with 35% White, 29% African American, 24% Hispanic, 10% Asian, and 1% Other. Therefore we expect that the overall sample will be mostly made up of minority group members and that men will outnumber women. All eligible and willing men and women will be enrolled regardless of minority status.

Removing Participants from the Protocol. Based on our experience, removal of participants from the protocol for clinical reasons is expected to be very rare, and established procedures are available to appropriately respond to various forms of clinical deterioration. There have been occasional instances in our clinic where adult patients receiving individual CBT for social anxiety have required inpatient hospitalization due to comorbidity, or suicidality, but these have been rare. Nonetheless, participants may be removed from the trial for the reasons listed below. In each case, participants will be consulted regarding potential removal. Final judgment for participant withdrawal will be made via consensus of the two PI's and the JVS group leaders. Effort will be made to continue assessment of any participants removed from the trial. Withdrawn participants will be referred for the best available treatment outside the research protocol.

Worsening severity. During the active intervention phase, participants who experience significant worsening of SocAD symptoms will be evaluated and removed from the trial if they evidence a significant worsening of symptoms based on the Social Anxiety Change Index that persists for four consecutive sessions. Worsening suicidality or comorbid conditions that are determined to compromise participant safety will also be grounds for participant removal. These concerns may come to our attention directly via the group leaders,

participants, family members, or worsening scores on the Beck Scale for Suicidal Ideation (BSS), which will be given weekly. A safety-monitoring plan will be in place for participants experiencing worsening severity during the waiting period prior to treatment assignment or during the follow-up period. Although we anticipate that the time from point of study enrollment up to commencement of treatment will be short (approximately 3 weeks), participants will be contacted weekly by a member of the research team to clinically reassess SocAD symptom severity and other clinical signs that may indicate need for removal from the study during the waiting period. During the follow-up period, clinical reassessments for worsening severity will occur on a monthly basis via the telephone. In addition, at first contact, participants will be provided with an information sheet detailing procedures for contacting investigators should their social anxiety symptoms, comorbid symptoms, or risk for harm to self or others become a source of concern. If any of these scheduled reassessments reveal worsening social anxiety symptoms, comorbid symptoms, or risk for harm to self or others, a repeat face-to-face assessment will be completed, including the LSAS, PHQ-9, BSS, and measures of functioning. If there is a clinically significant worsening on the LSAS, PHQ-9, or BSS relative to the prior assessment, significant effort will be made to expedite entry into the best available treatment outside the research protocol.

*Treatment Non-Participation***.** Given our intent to gather participant consent prior to enrollment and our previous experience with WCBT for SocAD, we expect complete participant non-participation to be limited. If a participant does not participate in a session they will be counseled by one of the group leaders and a plan will be put in place to encourage participation. However, should any participant completely fail to participate for three consecutive sessions with associated group leader counseling, they will be dropped from WCBT and offered continued services at JVS. All efforts will be undertaken by the group leader to encourage the participant to participate in the treatment before initiating withdrawal from the trial.

Interference with group process. If any participant interferes with the group process due to extremely disruptive behavior, the participant will be counseled to minimize interference. If the disruptive behavior persists, he/she will be removed from WCBT treatment. Given that disruptive behavior during group sessions at JVS is rare and considering the extensive experience base of our JVS clinicians, we expect that very few participants will be removed from WCBT for disruptive behavior.

D 2. SOURCES OF MATERIALS

Data and rating forms completed by participants, clinicians, and independent evaluators will be collected electronically. Employment verification data will collected by JVS staff. These data will be obtained specifically for research purposes. No biological specimens will be collected. Existing records will not be used as study data.

D 3. POTENTIAL RISKS

Risks of study participation are mild to moderate. Participation in WCBT will likely cause participants to experience temporary increases in anxiety, by nature of the cognitive-behavioral treatment techniques. This is not deemed serious, as such increases associated with CBT are typically temporary, well tolerated, and not associated with any negative long-term consequences. In fact, CBT-induced anxiety is considered productive to long-term anxiety reduction. The primary risk associated with participating in the study is that a participant will be randomized to the VAU control condition and therefore may not experience improvements in social anxiety and employment related outcomes compared to WCBT. However, we believe that this risk is acceptable given that the effects of WCBT are under investigation and that individuals assigned to the VAU control condition will still receive all currently available vocational services at JVS. Another potential risk relates to delaying treatment for a mental health condition during the active treatment phase of this study. This is not deemed serious as participants assigned to the WCBT condition will be receiving twice weekly sessions of the intervention, where they complete weekly symptom ratings. Participants with worsening severity will be removed from the treatment group and referred to appropriate mental health resources. Participants assigned to the VAU condition will be clinically assessed by JVS staff as part of standard agency practice. Participants who are found to have acute mental health needs will be removed from the study and referred to appropriate mental health resources. Finally, a safety-monitoring plan is in place for removal of participants who experience substantial hardships during study participation. Participants may withdraw from participation at any time without penalty or loss of benefits to which they are otherwise entitled. In the event of study withdrawal, group leaders at JVS will make arrangements to connect the participant to the best available treatment including pharmacotherapy and/or locally available psychosocial treatment.

Protection Against Risk. The following efforts will be made to manage the temporary increases in anxiety likely associated with WCBT: therapy will be closely monitored; efforts will be made to minimize unnecessary

distress; difficulty level of exposure assignments will be determined by participants with group leader guidance; and assignments will be designed in a manner to promote anxiety-reductions over time. These procedures will very likely be effective in managing this minor risk. Weekly assessments of illness severity will be conducted both as clinical outcome data and to ensure the safety of WCBT participants. Data will be reviewed by the investigators in weekly team meetings. Participants who experience significant worsening of SocAD for two consecutive weeks will be reviewed by JVS group leaders, Dr. Himle, Dr. Craske and Dr. Rose and removed from the study if clinically indicated. Worsening suicidality (as measured by the Beck Suicide Scale) or comorbid conditions that are determined to compromise participant safety will also be grounds for participant removal if clinically indicated. Participants assigned to VAU will also receive condition-specific protections. While WCBT participants are receiving treatment during the 4-week active treatment phase, VAU participants will obviously not experience the same degree of clinician contact that WCBT participants will have. Each VAU participant will meet with Ms. Hamameh to discuss clinical conditions revealed during baseline assessment and the advisability of remaining in the study given restrictions on outside psychotherapy. Any final decision regarding discontinuation based on the outside psychotherapy restriction will involve a conference call with Drs. Himle or Craske/Rose. Withdrawal from the R34 study for these reasons was very rare in the R34 and we anticipate it to be rare in this RO1 trial. If referral for therapy or medication management is indicated, the group leaders at each site recommend the most reasonable treatment options tailored to the participant's preferences, insurance status, and geographical area. VAU participants will also be assessed throughout the study and if the participant is experiencing significant mental health problems at any of these time points, he or she will meet with the site group leaders and referral information will be provided if they are not in treatment.
In the event that a participant is physically injured as a result of research-related treatments, JVS will provide first aid medical treatment. Additional medical treatment would also be provided at the University of Michigan Health System if it determines that it is responsible to provide such treatment. However, the University of Michigan and the UCLA do not provide compensation to a person injured while taking part as a participant in research. Research-related injury is considered very unlikely with this study, but these procedures will likely be effective in managing any injuries that do arise in this research.
In order to maintain participant confidentiality and also maintain blindedness of the research interviewers, JVS case-files will be kept separate from research assessment records and linked by an identifying code, with code access limited to study investigators. Research records will be kept in locked file cabinets in locked staff offices at JVS and at The University of Michigan. No part of the research record collected for this project, will be released without written consent from the participant. These procedures will very likely be effective in preventing threats to confidentiality.

D 6. POTENTIAL BENEFITS OF THE PROPOSED RESEARCH TO THE PARTICIPANT AND OTHERS

The risk/benefit ratio in this research is very good. Benefits include free psycho-education and treatment, potential enhancement of compliance and treatment response
associated with extensive professional attention provided in repeated and detailed assessments, and contribution to science and to the future treatment of unemployed adults with SocAD. Risks include temporary anxiety increases, and the possibility of non-improvement of SocAD-specific symptoms, especially for those participants assigned to the VAU control condition. In sum, risks are temporary and minor to moderate, whereas benefits are many and apply to all research participants. We believe this risk/benefit ratio is very reasonable for each participant given the extensive professional evaluation, symptom improvements, destigmatization, monetary compensation, and therapeutic support resulting from study participation.

D 8. DATA SAFETY AND MONITORING PLAN

This plan specifies our proposed study's oversight and monitoring procedures. These will be put in place to ensure the safety of study participants as well as the validity and integrity of our data. The plan was developed based on guidance from the NIH Notice for Data and Safety Monitoring (OD-00-038).
Participants recruited for the proposed study are 18-60 year-old unemployed adults with social anxiety disorder. We have included several safety and monitoring components in this plan.
1. Institutional Review Board Approval. Approval for the proposed research study, including informed consent documents, is approved at Institutional Review Board for Human Participant Research at the University of Michigan Medical School (IRB) and pending at the UCLA IRB. We plan to secure "continuing approval" for the project yearly and to notify the IRB of any adverse events that occur. This notification would occur promptly and in writing, in keeping with the policy of the IRB.

2. Project Staff Education on the Protection of Human Research Participants. All members of this study's research team have completed the required certification in good research and ethics practices as mandated by each University. Specifically, all UM research staff members and JVS Detroit staff members who will be leading WCBT groups have completed relevant, required modules of UM's online Program for Education and Evaluation in Responsible Research and Scholarship (PEERRS). All research staff will complete re-certification of PEERRS modules as required.

3. Data and Safety Monitoring Board. We will establish a Data Safety Monitoring Board (DSMB) to monitor human participant protections on an ongoing basis at the University of Michigan and at UCLA. The DSMB is a monitoring body established in keeping with NIH guidelines for the appropriate oversight and monitoring of the conduct of clinical trials. The DSMB will convene a minimum of two times each year, to review the following: (a) research protocol and plans for data and safety monitoring, (b) adverse events and unforeseen outcomes, (c) ethical issues related to recruitment activities, (d) risk management policies and activities, and (e) intermediary data analyses. They will evaluate the progress of the proposed intervention trial through regular assessments of data quality, participant recruitment, and risk versus benefit, retention, and performance of the trial site. The DSMB will make recommendations to the IRB and study investigators concerning continuation or conclusion of the trial.

Proposed members of the DSMB include University of Michigan faculty members Dr. Jorge Delva and Dr. Andrew Grogan-Kaylor and UCLA faculty members Drs. Alexander Bystritsky and Bruce Kagan, Department of Psychiatry and Biobehavioral Sciences. We will name an additional member from outside of the University to join each board. In keeping with the "NIH Policy for Data and Safety Monitoring," additional members will be included in the DSMB or consultants will be involved as necessary to interpret the data and ensure patient safety. For instance, the expertise of a biostatistician who is uninvolved with the study could potentially be needed.

Each year, the DSMB will issue a report that summarizes:

(1) All serious and unexpected adverse events (e.g., inpatient hospitalizations or significant worsening of clinical status) or other unanticipated problems that involve risk to study participants or others, and whether these appeared related to the study-based interventions or research assessment protocols.

(2) The committee's judgments regarding the assurance of the participants' safety, privacy, and confidentiality.

(3) Judgments as to whether research instruments have been administered appropriately while assuring participants' confidentiality.

(4) The committee's review of the study's progress toward recruitment goals, quality of data, treatment adherence, and participant retention/attrition rates.

(5) The committee's review of new research relevant to the safety of participants or the ethics of participation (for example, new therapeutic developments).

(6) Its recommendations as to whether risk/benefit ratios have changed to the extent that the trial should be modified or discontinued. Specific recommendations for protocol modifications will be described, with the accompanying rationale for each.

These yearly DSMB reports will be filed immediately with the IRB, as well as with the NIH Project Officer and the NIH Office for Human Research Protections (OHRP). The reports will include the dates that the committee met and the procedures used for monitoring participants' safety, confidentiality, and data integrity. The PI will take responsibility for reporting any serious and unexpected adverse events in a timely fashion directly to the DSMB and IRB. Actions taken by the IRB in response to adverse event reports will be immediately reported to the DSMB and the NIMH Project Officer and OHRP office. The PI's recognize the need for regular communication between the DSMB and the IRB.

The primary risk with the proposed study is suicide risk. We have developed a comprehensive protocol for responding to suicide risk. In every case, if a participant is determined to be at risk for suicide, several steps will be followed: (1) ongoing contact between the participant and group leaders at JVS will occur until risk is determined to be minimal; (2) Drs. Himle and Craske will be informed immediately and continuously apprised of any changes/developments in the participant's risk for suicide; (3) all assessments, conversations, and steps taken with the participant to ensure his or her safety will be thoroughly documented; (4) we will communicate with our IRB to determine the need for adverse event reporting, and any actions taken and outcomes will be reported to the IRB and the NIH.

All participants will be assessed for suicide risk using a modified version of the University of Michigan Hospital System suicide risk assessment protocol during their intake interview and at each subsequent major assessment point (baseline, post treatment, follow-up). If a participant is determined to be at risk based on responses to clinical assessment or routine weekly contact, the Research Associate or Ms. Hamameh will contact Dr. Himle immediately, by telephone or via paging system. Dr. Himle will then contact the participant immediately and further assess suicide risk. If risk is determined to be present, we will implement the following protocol for responding to suicide risk.

(1) Mild risk (e.g., suicidal ideation present without presence of current plan, low intent, presence of hope, no current means).

If the subject's suicidality is assessed in person:

- The individual participant will speak with Ms. Hamameh. At this meeting the participant will discuss the nature of their suicidal ideation/plan/intent and collaborate about a resolution.
- Ms. Hamameh will contact Dr. Himle via telephone.
- The individual participant will also be encouraged to discuss his or her feelings with their support networks (e.g., family, friends, service providers, etc.).
- Follow-up contact attempts will be provided by the research team until risk is determined to be minimal using contact strategies developed with the individual.
- Participants will be given a suicide wallet resource card.

If the subject's suicidality is assessed via telephone:

- The individual participant will speak with Ms. Hamameh. At this telephone meeting the participant will discuss the nature of their suicidal ideation/plan/intent and collaborate about a resolution.
- Ms. Hamameh will contact Dr. Himle via telephone.
- The individual participant will also be encouraged to discuss his or her feelings with their support networks (e.g., family, friends, service providers, etc.).
- Follow-up contact attempts will be provided by the research team until risk is determined to be minimal using contact strategies developed with the individual.
- The Detroit Wayne Authority Mental Health Access Center phone number will be shared with the client.

(2) Moderate risk (e.g., suicidal ideation present with additional risk factors: moderate intent, low hope, possible plan and/or possible means).

If the subject's suicidality is assessed in person:

- The individual participant will speak with Ms. Hamameh. At this meeting the participant will discuss the nature of their suicidal ideation/plan/intent to collaborate about a resolution.
- Ms. Hamameh will contact Dr. Himle via telephone or paging system.
- In collaboration with the client, the determination will be made whether or not the client will be transported to Detroit Receiving Hospital.
- The Detroit Wayne Mental Health Access Center phone number will be shared with the client via the suicide wallet card.
- The individual will also be encouraged to discuss his or her feelings with support networks (e.g., family, friends, service providers, etc.).
- If a support network is available and the participant refuses treatment, Ms. Hamameh will make contact with the support network person. If there is not a support network available, then a phone call will be initiated to the Detroit Wayne Authority Mental Health Access Center in the office with the goal of using this resource as a support system.
- A plan will be made for removing from the participant's dwelling any means with which to commit suicide, preferably with the assistance of family or trusted resources.

- Continuous follow-up phone contact (with Ms. Hamameh, or Dr. Himle) ensuring the participant's safety will be made throughout the day and then on a daily basis until risk is determined to be mild. Phone calls will then occur less frequently until risk is determined to be minimal. The participant will be encouraged to return to JVS daily until risk is determined to be minimal. If he or she refuses, the client will be transported to Detroit Receiving Hospital.

If the subject's suicidality is assessed via telephone:

- The individual participant will speak with Ms. Hamameh. At this telephone meeting the participant will discuss the nature of their suicidal ideation/plan/intent to collaborate about a resolution.
- Ms. Hamameh will contact Dr. Himle via telephone.
- In collaboration with the client, the determination will be made whether or not the client will be transported to Detroit Receiving Hospital. Arrangements will be made with the local authorities to transport the client to Detroit Receiving Hospital.
- The individual will also be encouraged to discuss his or her feelings with support networks (e.g., family, friends, service providers, etc.).
- If a support network is available and the participant refuses treatment, Ms. Hamameh will make contact with the support network person. If there is not a support network available, then a 3-way phone call will be initiated to the Detroit Wayne Authority Mental Health Access Center with the goal of using this resource as a support system.
- A plan will be made for removing from the participant's dwelling any means with which to commit suicide, preferably with the assistance of family or trusted resources.
- Continuous follow-up phone contact (with Ms. Hamameh or Dr. Himle) ensuring the participant's safety will be made throughout the day and then on a daily basis until risk is determined to be mild. Phone calls will then occur less frequently until risk is determined to be minimal. The participant will be encouraged to return to JVS daily until risk is determined to be minimal. If he or she refuses, arrangements will be made with the local authorities to transport the client to Detroit Receiving Hospital.

(3) High risk (e.g., suicidal ideation present with several additional risk factors: high intent, no hope, a definite plan, and current means).

If the subject's suicidality is assessed in person:

- The individual participant will speak with Ms. Hamameh. At this meeting the participant will discuss the nature of their suicidal ideation/plan/intent to collaborate about a resolution.
- Ms. Hamameh will contact Dr. Himle via telephone or paging system.
- In collaboration with the client, a determination will be made whether or not the client will be transported to Detroit Receiving Hospital.
- If Ms. Hamameh or Dr. Himle determine that hospitalization is necessary, the participant will be sent via ambulance to Detroit Receiving Hospital. If the participant refuses to be taken to Detroit Receiving Hospital, the EMS personnel will be encouraged to call the Detroit Police for assistance.
- The Detroit Wayne Authority Mental Health Access Center phone number will be shared with the client via the suicide wallet card.
- The individual will also be encouraged to discuss his or her feelings with support networks (e.g., family, friends, service providers, etc.).
- If a support network is available and the participant refuses treatment, Ms. Hamameh will make contact with the support network person. If there is not a support network available, then a phone call will be initiated to Detroit Wayne Authority Access Center in the office with the goal of using this resource as a support system.
- A plan will be made for removing from their dwelling any means with which to commit suicide, preferably with the assistance of family or trusted resources.

- If the participant is not hospitalized, continuous follow-up phone contact (with Ms. Hamameh or Dr. Himle) ensuring the participant's safety will be made throughout the day and then on a daily basis until risk is determined to be mild. Phone calls will then occur less frequently until risk is determined to be minimal. The participant will be encouraged to return to JVS daily until risk is determined to be minimal. If he or she refuses, the client will be transported to Detroit Receiving Hospital.

If the subject's suicidality is assessed via telephone:

- The individual participant will speak via the telephone with Ms. Hamameh. At this telephone meeting the participant will discuss the nature of their suicidal ideation/plan/intent to collaborate about a resolution.
- Ms. Hamameh will contact Dr. Himle via telephone or paging system.
- In collaboration with the client, the determination will be made whether or not the client will be transported to Detroit Receiving Hospital. Arrangements will be made with the local authorities to transport the client to Detroit Receiving Hospital.
- The individual will also be encouraged to discuss his or her feelings with support networks (e.g., family, friends, service providers, etc.).
- If a support network is available and the participant refuses treatment, Ms. Hamameh will make contact with the support network person. If there is not a support network available, then a 3-way phone call will be initiated to the Detroit Wayne Authority Mental Health Access Center with the goal of using this resource as a support system.
- The clinician will remain in constant telephone contact until the participant's safety is ensured. Should the participant refuse hospitalization and it is deemed necessary, Ms. Hamameh will engage police and authorities in ensuring involuntary hospitalization.
- Any potential means with which to commit suicide will be removed from the dwelling, preferably with the assistance of family or trusted others.
- If the client is not hospitalized, continuous follow-up phone contact (with Ms. Hamameh or Dr. Himle) ensuring the participant's safety will be made throughout the day and then on a daily basis until risk is determined to be mild. Phone calls will then occur less frequently until risk is determined to be minimal. The participant will be encouraged to return to JVS daily until risk is determined to be minimal. If he or she refuses, arrangements will be made with the local authorities to transport the client to Detroit Receiving Hospital.