Award Number: W81XWH-09-1-0722

TITLE: SPCR2 High Risk Suicidal Behavior in Veterans - Assessment of Predictors and Efficacy of Dialectical Behavioral Therapy

PRINCIPAL INVESTIGATOR: Marianne Goodman M.D.

CONTRACTING ORGANIZATION: Bronx Veterans Medical Research Foundation Inc.
Bronx, New York 10468

REPORT DATE: October 2013

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;
Distribution Unlimited

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### 4. TITLE AND SUBTITLE
SPCR2 High Risk Suicidal Behavior in Veterans- Assessment of Predictors and Efficacy of Dialectical Behavioral Therapy

### 6. AUTHOR(S)
Marianne Goodman M.D.

### 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Bronx Veterans Medical Research Foundation Inc.  
Bronx, New York  10468

### 9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Medical Research and Materiel Command  
Fort Detrick, Maryland  21702-5012

### 14. ABSTRACT
Approximately one third of the Army's completed suicides last year occurred in the post-deployment period (Alvarez 2009) highlighting the importance of studying high-risk suicidal veteran populations. This project proposes two related studies. The first project is a randomized clinical trial of 120 veterans identified with high-risk suicidal behavior comparing the efficacy of Dialectical Behavioral Therapy (DBT) vs. treatment as usual (TAU) on suicidal behavior as a primary outcome measure. A second aim of the project is to examine group differences between 150 veterans at high risk (HR) for suicide and 150 veterans at low risk (LR) in a variety of symptom domains. The goal of this will be to identify symptoms associated with suicidal behavior that may advise future treatment. Over the 41 months since study approval, 322 subjects have been consented and 293 baseline assessments were completed. 90 high-risk suicidal subjects have been randomized for the clinical trial and 44 have completed the six-month treatment trial. A no-cost extension for year 5 of the trial will allow us to recruit additional subjects for the treatment trial as we aim for 100 subjects total. We will easily meet recruitment goals of 300 for the baseline assessment. Our supplemental project on affective startle is meeting recruitment goals and we hope to begin final data analysis on baseline testing within the next 3 months. Thus far, the supplement has assessed 149 subjects at baseline and completed 14 6-month follow-ups. Post-treatment follow-up assessments will continue into next year.

### 15. SUBJECT TERMS
- Borderline Personality Disorder, SUICIDE

### 16. SECURITY CLASSIFICATION OF:
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<th>b. ABSTRACT</th>
<th>c. THIS PAGE</th>
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### 18. NUMBER OF PAGES
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**Introduction:**

Approximately one third of the Army’s completed suicides last year occurred in the post-deployment period (Alvarez 2009) highlighting the importance of studying high-risk suicidal veteran populations. This project proposes two related studies. The first project is a randomized clinical trial of 120 veterans identified with high-risk suicidal behavior comparing the efficacy of Dialectical Behavioral Therapy (DBT) vs. treatment as usual (TAU) on suicidal behavior as a primary outcome measure. A second aim of the project is to examine group differences between 150 veterans at high risk for suicide and 150 veterans at low risk in a variety of symptom domains. The goal of this will be to identify symptoms associated with suicidal behavior that may advise future treatment.

We will assess symptom domains including mood and substance use in our veteran population by comparing symptoms in low vs. high risk veterans recently discharged from the James J Peters VAMC (JJPVA) psychiatric inpatient unit. In addition, we will explore indices of interpersonal function and measure features that have some evidence of offering protection from suicide, which could be viewed as resilience factors. A particular emphasis of the present project is to characterize the nature of the interpersonal dysfunction in high risk individuals, as there exists very good evidence that social isolation, or a lack of a sense of “belonging” puts people at particularly high risk for suicide, in particular in a military sample. We intend to assess the impact of DBT vs. TAU on these symptom domains in addition to their impact on suicidal behavior.

**Body:**

In October 2011, a supplement to this project was approved to add a physiological measure, affective startle to the baseline assessment and post- DBT treatment.

**Aim 1 relates to a randomized clinical trial of Dialectical Behavior Therapy (DBT) vs. treatment as usual (TAU) in 120 veterans recently hospitalized with high-risk suicidal behavior. This will be accomplished under the leadership of Dr. Marianne Goodman, James J. Peters VAMC, Bronx, NY 10468**

**Aim 1:** To examine, in a randomized controlled trial (RCT), the efficacy of a 6 month treatment with standard DBT (weekly individual sessions, skills training group and telephone coaching as needed) as compared to TAU in 120 veterans recently discharged from an acute psychiatric inpatient stay with high risk suicidal behavior. The primary treatment outcome will be a quantification of suicidal events, as assessed by the Columbia Suicide Severity Rating Scale, which measures suicide attempts, plans and preparations. Our study will be powered to examine treatment assignment differences in this measure. Secondary outcomes will include suicidal ideation, parasuicidal events, treatment compliance, depressed mood, substance abuse and hopelessness.

This aims involves recruiting 120 veterans off the JJPVA “high-risk” suicide list; a designation made primarily after psychiatric inpatient admission for serious suicidal behavioral. High-risk
(HR) suicide subjects will undergo a comprehensive diagnostic interview prior to entering the treatment study. Subjects will receive 6 months of TAU vs. DBT but both groups will continue to receive standard psychopharmacology and case management services from their clinic providers. Subjects will receive a battery of assessments at month 6, 12 and 18.

**Aim 2** relates to a comparison of high-risk and low-risk suicidal veterans in interpersonal functioning and resiliency, in an effort to identify intermediate symptoms that are closely associated with HR suicidal behavior. This will be accomplished under the leadership of Dr. Marianne Goodman, James J. Peters VAMC, Bronx NY 10468

**Aim 2:** To recruit veterans recently discharged from an acute psychiatric inpatient stay comparing 150 veterans with HR suicidal behavior to 150 veterans without such behavior (LR) in symptom domains focusing on interpersonal functioning and resiliency.

**Aim 3** is exploratory and examines the effect of treatment (DBT or TAU) on the putative intermediate symptom domains associated with HR suicidal behavior of interpersonal functioning and resiliency. This will be accomplished under the leadership of Dr. Marianne Goodman James J. Peters VAMC, Bronx NY 10468

**Aim 3:** To explore the effect of DBT on the candidate intermediate symptoms of interpersonal functioning and resiliency associated with HR suicidal behavior.

**Promised work:**
**Parent Project**
The first 3 months is devoted to training the raters on our assessment and diagnostic battery while we await regulatory approvals. During months 3-6, we expect to perform thirty baseline assessments and 15 high-risk subjects will be randomized to treatment. During months 6-12, 12-18, 18-24, 24-30, we expect that thirty high-risk and thirty low-risk suicidal subjects will receive baseline assessments during each 6 month block. We anticipate that 25 of the high-risk subjects will proceed into treatment during each one of the time blocks. Months 30-36 will target 30 total additional assessments for baseline high and low-risk subjects with 5 of the HR individuals being randomized for treatment. The baseline assessment is a more comprehensive evaluation and we estimate that it will take approximately 6-7 hours with follow-up assessments requiring 1-2 hours.

While we met recruitment goals for Aim 1 of the study, our recruitment for the RTC fell behind. In order to continue recruitment we requested and were granted a fifth year, no cost extension. The Table below reflects promised work, and new numbers with a 5th year added.

<table>
<thead>
<tr>
<th>Baseline assessments (50% HR, 50% LR)</th>
<th>Randomized to treatment (HR only)</th>
<th>Follow-up assessments 6mo 12mo 18mo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Months 0-3</td>
<td>------</td>
<td>----  -----  ----</td>
</tr>
<tr>
<td>Months 4-6</td>
<td>30</td>
<td>15    ----  ----</td>
</tr>
<tr>
<td>Months 7-12</td>
<td>60</td>
<td>25    12    ----</td>
</tr>
<tr>
<td>Months 13-</td>
<td>60</td>
<td>25    19    11</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Months 19-24</th>
<th>Months 25-30</th>
<th>Months 31-36</th>
<th>Months 37-48 (year 4)</th>
<th>Months 49-60 (year 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>60</td>
<td>30 –</td>
<td>New year 4 target- 60 Actual 65 293 to date (goal 300)</td>
<td>New year 5 target- 10 Recruitment just to meet RTC goals</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
<td>5 –</td>
<td>New year 4 target-25 Actual 15 90 to date (goal 120)</td>
<td>New year 5 target-10 15</td>
</tr>
<tr>
<td>19</td>
<td>19</td>
<td></td>
<td></td>
<td>28 19 30</td>
</tr>
<tr>
<td>17</td>
<td>17</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>15</td>
<td>15</td>
<td></td>
<td>15 20 30</td>
</tr>
</tbody>
</table>

**Progress to date Parent Study:**

Towards accomplishing these aims, we received approval from our local IRB 7/9/09 and local Research and Development approval on 7/15/2009; prior to official funding of the project. This allowed us to pilot the intervention, assessments and randomization procedure. Dept of Defense approval was obtained on 4/27/2010; almost four months later that we had projected in our initial statement of work.

**Recruitment for year #4**

The study's recruitment has continued to be steady with 59 high risk (HR) subjects and 15 low-risk (LR) subjects signing consent between 9/29/12-9/30/13. Of the 59 HR consented subjects, 51 completed baseline assessments. 15 LR subjects were consented over the past year and 15 of the 15 completed the baseline assessment. We are prioritizing HR recruitment in order to maximize flow through to the treatment trial.

For the treatment trial, 15 high-risk subjects were randomized during year 4. For the DBT arm: 21 subjects completed the 6 month trial, 20 have completed 12 month follow-up and 14 have completed the entire trial. For the TAU arm: there have been 23 patients who completed the 6-month trial and 21 completed 12 months. 16 have completed the entire trial.

These numbers are summarized below.

**Overall recruitment since the study’s inception includes:**

203 high risk and 119 low risk consented with 190 completed high risk baseline assessments and 103 completed low risk baseline assessments. 90 subjects have been randomized in the treatment trial and 44 completed the 6-month treatment.

**Summary of Year 4: 9/29/11-9/30/12 recruitment**

<table>
<thead>
<tr>
<th></th>
<th>High Risk</th>
<th>Low Risk</th>
</tr>
</thead>
</table>

7
Summary of Entire Study to date

<table>
<thead>
<tr>
<th></th>
<th>High Risk</th>
<th>Low Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td># consented</td>
<td>203</td>
<td>119</td>
</tr>
<tr>
<td># completed</td>
<td>190</td>
<td>103</td>
</tr>
<tr>
<td># randomized</td>
<td>90</td>
<td>103</td>
</tr>
<tr>
<td># complete 6 month</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>12 month f/up</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>18 month f/up</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

Total: 293 of 300 completed baseline assessments
90 of 120 randomized to clinical trial

Progress Pertaining to Aim #1

Our Statement of work projected that by study completion we will have 300 baseline assessments finished. Currently we are at 293 and expect to achieve 300 by the end of this calendar year, easily completing this aim. Data analysis will proceed over year 5 along with manuscript generation. Interim analyses have yielded findings pertaining to the importance of Axis I diagnoses of substance abuse, Axis II diagnoses of borderline personality disorder and responses on the interpersonal psychological survey as important risk factors for identifying "high-risk" veterans (see Figure 1).

The identification of the interpersonal psychological survey as a critical instrument has led us to further examine its contents through a computerized implicit task assessment that we will be piloting in year 5 (see Figure 2).

High vs. Low Risk Suicidal Veterans
What Predicts High Risk status?

Logistic Regression predicting high-risk vs. low-risk subjects using diagnostic variables and self report measure variables

<table>
<thead>
<tr>
<th>IPS score (Interpersonal psychological survey)</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig</th>
<th>Exp(B)</th>
</tr>
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<tbody>
<tr>
<td>SLDE Borderline Personality Disorder, diagnosis</td>
<td>.215</td>
<td>.057</td>
<td>14.129</td>
<td>1</td>
<td>.000</td>
<td>1.239</td>
</tr>
<tr>
<td>Constant</td>
<td>-.066</td>
<td>.958</td>
<td>18.024</td>
<td>1</td>
<td>.000</td>
<td>.017</td>
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</table>
Progress Pertaining to Aim #2
We have randomized 90 subjects to the treatment trial to date and are aiming to achieve 100 of the 120 promised. We continue to run subjects through the treatment trial and 1 year follow-up.

Progress Pertaining to Aim #3
This aim requires the completion of DBT treatment for multiple subjects and awaits year 5 of the study for adequate data to address. At present, all longitudinal data has been entered and we are planning on starting treatment trial data analysis fall-winter 2013.

Problems Accomplishing Tasks

With Hurricane Sandy this past year, the Manhattan VA hospital was closed for upwards of 5 months. This lead to disruptions of care at our facility, as Manhattan patients sought treatment temporarily at our hospital. This complicated RCT recruitment efforts as pts were less likely to enroll in a longitudinal study that would require changing the location of their outpatient care beyond the expected time of Manhattan VA’s closure.

SUPPLEMENT:

In addition to our three aims for the parent study, we have two additional aims for the supplemental study:

Supplement Aim 1 is to conduct a nonverbal and objective psychophysiological assessment of emotion processing using the affective startle paradigm to test whether it might serve as a potential biomarker for differentiating levels of suicidality. This will be
accomplished under the leadership of Drs. Marianne Goodman and Erin Hazlett, James J. Peters VAMC, Bronx NY 10468

**Aim 1.** To examine the magnitude, time course, and rate of habituation of the startle eyeblink response during unpleasant, neutral, and pleasant pictures in 150 veterans with varying levels of suicidality; 60 veterans with a recent suicide attempt (during past 3 months), 60 veterans with suicidal ideation but no history of attempts, and 30 healthy veteran controls (i.e. no current psychiatric diagnosis).

This aim will be accomplished by adding the affective startle modulation paradigm to our current assessment battery of high- and low-risk suicidal subjects. Eligible subjects enrolled in the DoD funded parent project will participate in a 1-hour psychophysiology session at the MIRECC psychophysiology laboratory where we will record our primary variable of interest, namely the affective startle eyeblink response at baseline and 6 months for those enrolled in the DoD treatment trial. During this session, participants will view an intermixed series of unpleasant, neutral, and pleasant pictures from a standardized picture set. For each of the 3 picture conditions, we will examine three measures related to affective startle eyeblink modulation which is our psychophysiological measure of emotion processing: (1) the amplitude of the startle eyeblink response; (2) the time course of emotion processing by presenting the startle probes at different times during and post-picture processing; and (3) the rate of habituation of the startle eyeblink response.

**Supplement Aim 2** is to compare startle variables across suicide groups (ideators, attempters) by presence or absence of borderline personality disorder to clarify if differences in affective startle modulation extend beyond personality disorder diagnosis. Thirty suicide attempters with BPD (SABPD+) will be compared with 30 suicide attempters without BPD (SABPD-) and 30 suicide ideators with BPD (SIBPD+) will be compared to 30 ideators without BPD (SIBPD-) across startle variables. This will be accomplished under the leadership of Drs. Marianne Goodman and Erin Hazlett, James J. Peters VAMC, Bronx NY 10468

**Aim 2** investigates the relationship of Axis II diagnosis, suicidality and affective startle. The collected data for Aim 2 will be used to explore this question.

**Supplement Aim 3** is exploratory and will examine whether (a) magnitude, time course and/or rate of habituation to unpleasant, neutral and pleasant pictures predicts treatment response to six-month Dialectical Behavioral Therapy (DBT) for suicidal behavior; and (b) magnitude, time course and/or habituation of affective startle improves with 6 months of DBT in treatment responders compared with non-responders.

We plan to study 150 veterans with varying levels of suicidality; 60 veterans with a recent suicide attempt (during the past 3-months), 60 veterans with suicidal ideation but no history of attempts, and 30 healthy veteran controls (i.e. no current psychiatric diagnosis) with a measure of psychophysiology. This aim will be accomplished by adding the affective startle modulation to our current assessment battery of high- and low-risk suicidal subjects. Eligible subjects enrolled in the DoD funded parent project will participate in a 1-hour psychophysiology session at the MIRECC psychophysiology laboratory where we will record our primary variable of interest, namely the affective startle eyeblink response. We will be testing whether affective startle is a biomarker of suicide risk and examining the effect of treatment on affective startle.
We will accomplish this by re-testing affective startle at 6-months for those enrolled in the DBT treatment arm.

**Supplement Promised Work:**

<table>
<thead>
<tr>
<th>Supplement:</th>
<th>Startle assessments:</th>
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<tbody>
<tr>
<td>Pt</td>
<td>Pt</td>
</tr>
<tr>
<td>HC</td>
<td>HC</td>
</tr>
<tr>
<td>Baseline</td>
<td>6mo</td>
</tr>
<tr>
<td>Baseline</td>
<td>6mo</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Months</th>
<th>Recruitment – Total</th>
<th>Recruitment – Last 12-Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-24</td>
<td>45</td>
<td>12</td>
</tr>
<tr>
<td>25-30</td>
<td>50</td>
<td>23 *</td>
</tr>
<tr>
<td>31-36</td>
<td>25</td>
<td>22 *</td>
</tr>
<tr>
<td>37-42</td>
<td></td>
<td>5 *</td>
</tr>
<tr>
<td>43-48</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Obtain IRB approval</td>
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The project was awarded funding on 9/24/2011. In its first 12 months, the research team was incredibly effective in mobilizing resources and enrolling and testing 94 subjects at baseline and completing 1 6-month follow-up. Over the most recent 12-month period (10/1/12 → 9/30/13), the team has been similarly effective with recruitment, testing an additional 55 subjects at baseline and 13 at 6-months following the treatment trial. These figures bring the cumulative total of baseline and 6-month numbers to 149 subjects and 14 subjects respectively. We therefore have almost completed baseline affective startle recruitment (149 of promised 150).

**Progress Pertaining to Supplement Aim #1**

Since receiving funding, we have run 149 patients at baseline and have done 14 6-month follow-ups and therefore have met our recruitment goals for supplement Aim #1. The overall and 12-month breakdowns are as follows:

<table>
<thead>
<tr>
<th>Group</th>
<th>Recruitment - Total</th>
<th>Recruitment – Last 12-Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls</td>
<td>32 (3F/29M)</td>
<td>10 (1F/9M)</td>
</tr>
<tr>
<td>Ideators</td>
<td>33 (1F/32M)</td>
<td>13 (13M)</td>
</tr>
<tr>
<td>Single Attemptors</td>
<td>34 (8F/26M)</td>
<td>13 (2F/11M)</td>
</tr>
<tr>
<td>Multiple Attemptors</td>
<td>50 (21F/29M)</td>
<td>19 (9F/10M)</td>
</tr>
<tr>
<td>6-Month Follow-Up</td>
<td>14 (2F/12M)</td>
<td>13 (2F/11M)</td>
</tr>
</tbody>
</table>

Initial analyses on the first 40 subjects demonstrated a significant interaction between affective startle and suicide risk. (see **figure 3**). Multiple ideators, in the unpleasant picture condition, had significantly elevated affective startle % change values as compare to single attempters and ideators. We await confirmation of these exciting preliminary findings with the full data set.

**Progress Pertaining to Supplement Aim #2**

See information pertaining to Aim #1.

**Progress Pertaining to Supplement Aim #3**

We have assessed a total of 14 subjects with affective startle after six months of treatment.
Recruitment for this aim is dependent on successful completion of the parent RCT. We will continue to gather data for this aim over the duration of the treatment trial.

**Problems Accomplishing Tasks**
We are not experiencing any difficulty recruiting for this project and are in fact ahead of schedule. We expect to substantially increase the number of 6-month assessments in the coming year.

**Affective Startle and Suicide Risk**

![Affective Startle and Suicide Risk](image)

**Figure 3- Affective Startle and Suicide Risk in veterans with ideation, history of single and multiple suicide attempts.**

**Key Research Accomplishments for both Parent and Supplement Projects**
We have just completed year 4 of 5 for this study.

- In the 41 months since DoD IRB approval (4/27/10): recruitment has been brisk.
  - **322** subjects have signed consent.
- **293** (out of promised 300) subjects completed baseline assessments.
- **90** HR patients were randomized to the treatment trial,
- **44** HR patients have completed the 6-month treatment trial, many are still in progress.
- **149** (out of 150) subjects have completed baseline affective startle
Reportable Outcomes 2012-2013:

Dissemination

Presentations
1) American Psychiatric Association, May 2012
2) DOD/VA Joint Conference Suicide Prevention, June 2012
3) Society Psychophysiology, Research, September 2012*
4) Veterans Integrated Service Network (VISN) 3 Conference on Addressing Mental Health Needs of OEF/OIF Soldiers, October 2012
5) American Psychiatric Association, May 2013

Posters
1) International Society of Psychoneuroendocrinology (ISPNE)* special meeting on Biomarkers of PTSD, September 2012
2) North American Society of Personality Disorders, April 2013
3) Biological Psychiatry, May 2013*
4) International Society Psychophysiology, September 2013*
* DoD Supplement

Conclusion:
Our preliminary baseline data highlights the importance of Axis II psychopathology, in particular, borderline personality disorder as a risk factor for high-risk suicidal behavior. This is relevant as the disorder is often under recognized in VA settings and not even listed in the Uniform Services Package, the document listing required services for Veterans. Additional data from the treatment trial, which has currently completed year 4 of 5 is needed before any conclusions can be drawn pertaining to the efficacy of dialectical behavioral therapy for high risk suicidality in veterans.

References:

Appendices: none included

Supporting Data: none included
Affective Startle Modulation in Suicidal Veterans
DMRDP Proposal Number WX81WX0-09-1-0722

PI: Goodman, Harlan
Org: James J. Peters VA HSC, Bronx NY
Award Amount: $461,834

Study/Project Aim(s)

Aim 1: To examine the magnitude, timedecay, and rate of habituation of the startle reflex in veterans during unmedicated and medicated phases in 180 veterans with histories of suicide attempts during past 3 months, 80 veterans with suicidal ideation only, and 100 controls with no suicidality issues. This study will test whether startle reflex is a marker of group (medicated vs. unmedicated) differences by way of autonomic dysfunction (sympathetic and parasympathetic). It will also test whether higher startle reflexes in cases with PTSD and higher startle reflexes in cases with anxiety disorders are associated with greater duration of recency of suicide attempts compared with non-attempts.

Aim 2: To examine whether the magnitude, timedecay, and rate of habituation of the startle reflex is different for suicide attempters with PTSD and non-PTSD and for suicide attempters with anxiety disorders and without anxiety disorders.

Aim 3: To examine whether the magnitude, timedecay, and rate of habituation of the startle reflex is different for suicide attempters with PTSD and non-PTSD and for suicide attempters with anxiety disorders and without anxiety disorders.

Activities

- CY 10
- CY 11
- CY 12
- CY 13
- CY 14

Budget Expenditure to date
Projected Expenditure $461,834
Actual Expenditure $533,525

Activities

- CY 10
- CY 11
- CY 12
- CY 13

Updated: 1/2013

High Risk Suicidal Behavior in Veterans - Assessment of Predictors and Efficacy of Dialectical Behavioral Therapy
DMRDP Proposal Number WX81WX0-09-1-0722

PI: Boocock, Catherine
Org: James J. Peters VA HSC, Bronx NY
Award Amount: $51,178

Study/Project Aim(s)

Aim 1: To examine the magnitude, timedecay, and rate of habituation of the startle reflex in veterans during unmedicated and medicated phases in 180 veterans with histories of suicide attempts during past 3 months, 80 veterans with suicidal ideation only, and 100 controls with no suicidality issues. This study will test whether startle reflex is a marker of group (medicated vs. unmedicated) differences by way of autonomic dysfunction (sympathetic and parasympathetic). It will also test whether higher startle reflexes in cases with PTSD and higher startle reflexes in cases with anxiety disorders are associated with greater duration of recency of suicide attempts compared with non-attempts.

Aim 2: To examine whether the magnitude, timedecay, and rate of habituation of the startle reflex is different for suicide attempters with PTSD and non-PTSD and for suicide attempters with anxiety disorders and without anxiety disorders.

Aim 3: To examine whether the magnitude, timedecay, and rate of habituation of the startle reflex is different for suicide attempters with PTSD and non-PTSD and for suicide attempters with anxiety disorders and without anxiety disorders.

Activities

- CY 10
- CY 11
- CY 12
- CY 13

Updated: 1/2013

Goals/Outcomes

- CY 1 Goal: Complete RRB approval, begin recruitment and assessment of subjects for baseline assessment.
- CY 2 Goal: Complete baseline assessments for all subjects (N=120).

Updated: 1/2013

Updated: 1/2012