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TITLE: Innovative Surveillance and Risk Reduction Systems for Family Maltreatment, Suicidality, and Substance Problems in the USAF

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## INTRODUCTION:

This project aims to enhance the capacity of the Air Force (AF) to reduce death, injury, and degraded force readiness via reduction of the prevalence and impact of family maltreatment, suicidality, and alcohol/drug problems. Managing risk and increasing resilience in military human resources (i.e., “Force Health Protection”) is a top priority for DoD and Armed Forces leadership. The objective of this study is to enhance the AF’s current prevention delivery (known as the Integrated Delivery System; IDS) infrastructure through (a) the development and validation of a information system needed to direct prevention efforts more effectively and efficiently; (b) the adoption of a prevention-science-based approach; and (c) the evaluation of its effectiveness. When funded, the proposed project was broken into two phases. This first phase is a demonstration project on which to build a randomized trial. This project is meeting the objectives by: (a) pilot testing the development of an innovative surveillance system and validating its accuracy (at 4 AF bases) for family maltreatment, suicidality, and problematic alcohol and drug use, and (b) pilot testing the creation of an enhanced IDS by training community leaders in prevention-science-based intervention methodology and testing the impact on factors that are prerequisites for effective community prevention initiatives and on targeted outcomes.

## BODY:

### Year 2 — Continuing Activities

Task 1: Provide technical assistance to IDS teams at pilot bases in implementing action plans; systematically monitor impact, and adjust implementations accordingly

Revise orientation and training materials/guides to prevention interventions

We have continued to revise both the orientation materials and the guides. We have conducted literature searches to keep *Guidebook to Activities That Work* current, with a particular focus on activities that are easily disseminable to large groups. We have created *Guidebook to Evaluating Activities That Work* to help bases with evaluation planning.

Provide technical assistance and briefings; monitor impact and adjust system as needed

In the past year, we have continued to provide technical assistance in the form of weekly calls with IDS Chairs and, as needed, subcommittees. All bases have been offered the opportunity for additional on-site consultation. Additional phone consultation on evaluation has occurred routinely, with our staff providing measures, data collections systems, and protocols for use by the bases. Bases have continued to face challenges in the implementation of activities, but have also remained engaged. Progress update briefings have been held at participating bases and at meetings of MAJCOM IDS Chairs and Behavioral Health representatives, as well as at AF-IDS meetings.

### Wave 1 Bases (Tyndall AFB, Barksdale AFB, Shaw AFB)

The primary purpose of this phase of NORTH STAR was to pilot test materials and procedures before conducting a full, randomized controlled trial. Because each base has a prevention board (the Integrated Delivery System, or IDS), we believed that we would be helping IDSs substitute more effective and targeted activities for the activities they were already doing. What we learned, however, is IDSs' efforts typically fall far short of the planning and activities mandated in AF instructions. This lesson was a critical one to learn in the pilot phase of NORTH STAR, as it has allowed us to take corrective actions at the Wave 2 base and to prepare better for the upcoming controlled randomized trial.

We continue to provide technical assistance at the three Wave 1 bases; however NORTH STAR activities have only achieved partial implementation at these bases. IDS team members were eager, engaged and committed in development and implementation of NORTH STAR action plans. Over time their activities in support of the action plans decreased. We identified consistent challenges for the Wave 1 bases including: 1) turnover in IDS Chair with inadequate handoff / succession planning; 2) lack of senior leadership ownership or buy-in; and 3) denial of funding request by IDS teams for new prevention activities. Based on these findings we identified a number of lessons learned targeted at improving AF institutional supports and rewards to sustain community-wide prevention activities.

#### Wave 1 Lessons Learned

- Importance of senior leadership buy-in and involvement
  - Understand the importance of community prevention
  - Sense of ownership IDS interventions for their communities
- Shared vision / agreement by IDS
  - IDS participants work together on mutually developed plan
- Leadership support to IDS
  - Senior leader appointed as liaison to IDS
  - IDS activities supported by supervisors / commanders
- IDS accountability to leadership
  - Quarterly metric & progress briefings to leadership meetings vs. 'activity'
- Base leadership accountability to major command
  - Quarterly metric & progress briefings to major command
- Resources required for success

### Wave 2 Base (Kadena AB)

We utilized the lessons learned from Wave 1 to make changes in our approach to Kadena. Although our training remained essentially unchanged we invested significant pre-training efforts to increase leadership buy-in and to ensure that leadership had accurate expectations about requirements for supporting its IDS team in successfully implementing community-wide prevention activities.

#### Differences between Wave 1 and Wave 2

- Direct wing leadership involvement and buy-in
- Senior leader liaison between senior leadership council and IDS
- IDS quarterly metrics briefings to senior leadership council
- Major command participation and oversight

The Kadena CAIB approved the IDS recommendation to implement three NORTH STAR prevention based activities. One of these was implemented shortly following the training. A second has been implemented on a partial basis. The third was fully-funded by the CAIB and is presently beginning its roll-out now with twenty community members to be trained in April. The IDS continues to be engaged; and senior leadership, the CAIB and the MAJCOM have continued to provide support and meaningful oversight of IDS activities.

The lessons learned from our experience at each of these sites are of immediate benefit to the Air Force. We identified some systematic gaps in the base prevention consortium structure and operation, specifically in the area of oversight, accountability and leadership involvement and follow-through. Unattended, these gaps have the effect of reducing the effectiveness of the IDS. The Air Force expressed interest in utilizing our findings to strengthen its IDS and CAIB processes. We ‘hotwashed’ our findings and their implications with leadership from the Community Behavioral Health Division, who briefed the Air Force IDS with recommendations. These recommendations were written into a binding AF guidance document that was distributed to major commands and bases. Ultimately, these new Air Force efforts to strengthen the IDS and CAIB will improve their ability to foster change and will increase the chances that the upcoming NORTH STAR randomized controlled prevention trial will be successful.

Conduct annual base leadership follow-up assessment

- o One-year base leadership follow-up at Kadena AB is underway

#### Task 2: Develop and validate algorithms

- *Compare accuracy of using (a) correction factors on separate algorithms vs. (b) global algorithms (Months 18-21).*

We have completed the bootstrapped confidence intervals for the 22 algorithms (which will allow their accuracies to be determined and compared using (a) correction factors on separate algorithms vs. (b) global algorithms). Confidence intervals are typically less than 2% around the prevalence means.

#### Task 3: Begin planning for re-administration of AF Community Assessment and supplement (CA+)

The CA+ will be launched on April 10, 2006. We have been in at least weekly contact with Maj. David Linkh, research director of the AF’s Behavioral Health Division, to facilitate progress on the CA. We conducted psychometric evaluation of every scale administered in the 2003 CA and made final recommendations to the AF for scale modifications. Nearly all were adopted.

The Air Force contract for the 2006 survey was finalized in October 2005. Caliber Associates (Fairfax, VA) was chosen to create the WWW interface and conduct the survey.

A major event affecting the CA+ was the Air Force Chief of Staff’s decision to field another survey at the same time as the CA. The AF asked that both surveys go ahead but not sample participants more than once. This introduced enormous complications that required continuous negotiations to ensure that the CA+ would get the sample size and random sampling necessary. We attended a meeting in Arlington, VA in Oct-05, with Maj. Linkh, the CA contractor, other

AF representatives, and the contractor for the other survey to negotiate terms. Frequent teleconferences ensued. We attended a subsequent meeting in Feb-06 in Rockville, MD to review the sampling plan and correct significant problems in it.

## Year 3 (Months 25-36)

Task 1: Oversee CA and supplement survey administration (including strategies to increase response rate at all AF bases).

We checked several iterations of the CA and worked with the CA contractor to ensure that the CA would be carried consistent with the plan we had negotiated with the AF.

Task 2: Conduct proposed HLM analyses to evaluate impact of Enhanced IDS program at pilot sites

- Much of the work of this project is focused on providing technical assistance to IDS teams at pilot bases to support improved practice in the delivery of scientifically-proven effective interventions. However, the ultimate question asks if these are efforts successful in bringing about change in the prevalences of secretive problems as well as the risk and protective profiles in the test communities. The data necessary to answer this question will be collected in the 2006 administration of the CA+. The completion of this task required an approved extension.

## Summary

This project has experienced delays due to changes in the Air Force's timeline, most specifically the one year delay in the CA+. Currently work on the project is progressing successfully with productive outcomes, including findings of specific use and application to the Air Force as it moves forward to improve its institutional IDS and base leadership council system. We requested and received a one year, no-cost extension in order that we may complete the originally proposed aims pushed back by Air Force delays. Completion of these tasks is important, not only to adequately answer the research questions under study, but also to ensure a smooth transition from Phase 1 (pilot project) to Phase 2 (randomized controlled prevention trial). We protected our allocated funds for the delayed tasks and are in position to complete this research consistent with our proposed new SOW timeline (reprinted below) which reflects the one year Air Force imposed delay.

KEY RESEARCH ACCOMPLISHMENTS:
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We developed and cross-validated prevalence estimation algorithms. Results are shown below. These algorithms will be used to match bases for the NORTH STAR randomized controlled prevention trial.

Problem	Prevalence		Difference
	Actual	Estimated	
Alcohol Abuse	6.48	5.52	0.96
Suicidality	4.8	4.32	0.48

## Partner Maltreatment

### Male-to-Female

Physical	1.4	1.12	0.52
Emotional	6.92	5.88	1.08

### Female-to-Male

Physical	1.4	1.12	0.52
Emotional	5.88	6.24	0.36

## Child Maltreatment

Physical	1.4	1.12	0.52
Emotional	4.26	3.44	0.82
Neglect	36.6	31.82	6.82

## REPORTABLE OUTCOMES:

Based on this research we have applied for and received the following funding through the PRMRP FY05 announcement:

1. Family Maltreatment, Substance Problems, and Suicidality: Randomized Prevention Effectiveness Trial (Heyman, PI).

**Objective/Hypothesis:** This study aims to enhance the ability of base, major command (MAJCOM), and Air Staff IDSs to reduce death, injury, and degraded force readiness through (a) dissemination of base, MAJCOM, and AF prevalences of secretive problems; (b) provision of base-level information to identify and prioritize risk and protective factors, (c) assistance in bases' selecting and implementing empirically supported interventions, and (d) evaluation of whether prevalences were lowered. Thus, we hypothesize that NORTH STAR will enhance military readiness by reducing the prevalence of these threats and by decreasing the level of risk factors and increasing the level of protective factors in test communities.

**Specific Aims:** Conduct a randomized, controlled prevention trial to test the effectiveness of the prevention science-guided NORTH STAR framework in reducing targeted risk factors; increasing targeted protective factors; and reducing base prevalences of family maltreatment, suicidality, and problematic alcohol and drug use.

**Study Design:** Twelve matched pairs of bases will volunteer and be randomly assigned to either (a) the NORTH STAR implementation condition or (b) the control condition (which will receive comparable prevalence and risk/protective factor information from the 2006 AF Community Assessment (CA+) but not receive any NORTH STAR training, support, or consultation). At the 12 test and 12 control bases we expect average participation (i.e., 912 AD members and 349 spouses per base) in the CA+, providing us with excellent statistical power.



*Presentations:* Dr. Heyman was a visiting scholar for two weeks at Griffith University in Brisbane, Australia to present colloquia on NORTH STAR and to consult on community prevention (based on our PRMRP-funded experience). The colloquia are entitled:

1. “Community-Based Prevention for Family Maltreatment, Alcohol Abuse, Drug Use, And Suicidality” 08-Apr-05
2. “Engaging Communities in Prevention Activities: Lessons From Work With The US Air Force” 08-Apr-05

CONCLUSIONS:
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We are quite encouraged about the progress made in the pilot phase. The pilot bases appear to have the prerequisites to implement effectively a modern prevention initiative. Base IDS teams were very receptive to the NORTH STAR framework and are making good progress in designing and implementing empirically-supported action plans. The goals set out by PRMRP reviewers for the first phase of the project are being achieved.

REFERENCES:

APPENDICES: No applicable at this time

## Revised Time Line

### Year 2 (Months 13-24)

Task 1:	Provide technical assistance to IDS teams at pilot bases in implementing action plans; systematically monitor impact, and adjust implementations accordingly		
	<ul style="list-style-type: none"> <li>Revise orientation and training materials/guides to prevention interventions</li> </ul>	Months 13-18	<b>Month 36</b>
	<ul style="list-style-type: none"> <li>Provide technical assistance and briefings; monitor impact and adjust system as needed</li> </ul>	Months 12-24	<b>Month 42</b>
	<ul style="list-style-type: none"> <li>Conduct annual base leadership follow-up assessment</li> </ul>	Month 24	<b>Month 42</b>

#### *Necessary to accomplish:*

- Travel to pilot bases for follow-up consultations/ trainings (as needed); conduct post- testing.
- Distribute training materials

Task 2:	Develop and validate algorithms		
	<ul style="list-style-type: none"> <li>Develop and crossvalidate 22 algorithms</li> </ul>	Months 13-16	Complete
	<ul style="list-style-type: none"> <li>Bootstrap confidence intervals for 22 algorithms</li> </ul>	Months 15-18	Complete
	<ul style="list-style-type: none"> <li>Compare accuracy of using (a) correction factors on separate algorithms vs. (b) global algorithms</li> </ul>	Months 18-21	Complete
Task 3:	Begin planning for re-administration of CA and supplement		
	<ul style="list-style-type: none"> <li>Devise and plan survey logistics</li> </ul>	Months 17-23	<b>Months 30-36</b>
	<ul style="list-style-type: none"> <li>Secure final approval at Air Staff, MAJCOM, and base levels</li> </ul>		Complete

### Year 3 (Months 25-36)

Task 1:	Oversee CA and supplement survey administration (including strategies to increase response rate at all AF bases)	Months 25-27	<b>Months 37-39</b>
Task 2:	Conduct proposed HLM analyses to evaluate impact of Enhanced IDS program at pilot sites		
	<ul style="list-style-type: none"> <li>Process evaluation</li> </ul>	Months 28-30	<b>Months 40-42</b>
	<ul style="list-style-type: none"> <li>Outcome evaluation</li> </ul>	Months 30-33	<b>Months 42-45</b>
	<ul style="list-style-type: none"> <li>Provide feedback to IDS teams, provide assistance in modifications to action plans</li> </ul>	Months 33-34	<b>Months 45-46</b>
	<ul style="list-style-type: none"> <li>Write-up final reports</li> </ul>	Months 33-36	<b>Months 45-48</b>

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