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## Teaching Evidence-Based Approaches to Suicide Risk Assessment and Prevention that Enhance Psychiatric Training

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### Abstract

This report describes one in a series of National Institute of Health (NIH) supported conferences aimed at enhancing the ability of leaders of psychiatry residency training to teach research literacy and produce both clinician-scholars and physician-scientists in their home programs. Most psychiatry training directors would not consider themselves research scholars or even well-schooled in evidence based practice. Yet they are the front line educators to prepare tomorrow's psychiatrists to keep up with, critically evaluate, and in some cases actually participate in the discovery of new and emerging psychiatric knowledge. This annual conference is meant to help psychiatry training directors become more enthusiastic, knowledgeable and pedagogically prepared to create research-friendly environments at their home institutions, so that more trainees will, in turn, become research literate, practice evidence-based psychiatry, and enter research fellowships and careers. The overall design of each year's meeting is a series of plenary sessions introducing participants to new information pertaining to the core theme of that year's meeting, integrated with highly interactive small group teaching sessions designed to consolidate knowledge and provide pragmatic teaching tools appropriate for residents at various levels of training. The theme of each meeting, selected to be a compelling and contemporary clinical problem, serves as a vehicle to capture training directors' attention while teaching relevant brain science, research literacy and effective pedagogy. This report describes the content and assessment of the 2011 annual pre-meeting, "Evidence-based Approaches to Suicide Risk Assessment and Prevention: Insights from the Neurosciences and Behavioral Sciences for use in Psychiatry Residency Training."

### Introduction

An annual pre-meeting of the American Association of Directors of Psychiatry Residency Training (AADPRT) is designed to help address nationally recognized needs for increased numbers of psychiatric clinician-scholars and physician-scientists [1, 2] by increasing the competence in evidence-based medicine among psychiatry residency training directors, enhancing their research and neuroscience literacy, and aiding them to acquire tools to transport that knowledge to their home programs. To provide the best care possible, psychiatrists must be able to critically read, understand, evaluate and apply research findings in practice. However, the quantity and the increasing complexity of published literature are

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daunting. Preparing future clinicians to keep current and be capable of incorporating emerging findings into practice requires training programs to teach research literacy more so now than at any time in the past [3]. Moreover, our ability to advance knowledge in the treatment of psychiatric disorders is limited by the low number of trained research psychiatrists. Such shortages are made all the more urgent due to discoveries in neuroimaging, molecular biology (including genetics), proteomics and bioinformatics that require new findings and techniques to be translated into practical applications [4]. Physician-scientists bring to the medical research workforce a unique perspective: their scientific questions are as likely to arise from caring for sick humans [5] as they are from the bench; this is an absolute requirement in advancing the priority of translational research. Physician-Scientists are “Arguably, the most important cohort of future investigators for NIMH” [6]. Yet, the number of psychiatric investigators continues to fall far short of meeting the need [4, 6].

Although training directors alone cannot solve all of the challenges involved in preparing psychiatric residents with the tools necessary to conduct research or for research literacy, no other group of academic faculty is better positioned to establish the tone and values of research and evidence-friendly learning environments, and to facilitate access to resources and opportunities. Thus, teaching psychiatry residency training directors (TDs) and associate directors to enhance their research literacy and teaching skills, their working knowledge of evidence-based psychiatry, their understanding of and enthusiasm about research breakthroughs, and their ability to guide research-oriented residents to academic careers was the driving force behind a 5-year, NIMH funded ‘pre-meeting’ conference grant (NIH R13 - “Teaching Scholarly Activity in Psychiatric Training” - 5R13MH74298) spearheaded by Michele Pato, MD (Pato et al, Academic Psychiatry, In Press). The overall design of each year’s meeting was a series of plenary sessions introducing participants to new information pertaining to the core theme of that year’s meeting, integrated with highly interactive small group teaching sessions designed to consolidate knowledge and provide pragmatic teaching tools appropriate for residents at various levels of training. The theme of each meeting, selected to be a compelling and contemporary clinical problem, served as a vehicle to capture TD’s attention while teaching relevant brain science, research literacy and effective pedagogy.

The conference grant was renewed for an additional 5 years in 2011 (Sidney Zisook, MD, PI). An innovation in the 2011 pre-meeting was a mid-day (lunchtime) session, Trainees’ Perspectives on How to Facilitate Resident Research, featuring brief presentations from junior faculty (Srijan Sen, MD, PhD) and resident scholars (Ashutosh Atri, MD, Argelinda Baroni, MD, Deepak Prabhakar, MD, MPH, Mercedes Perez-Rodriguez, MD, PhD and Zimri Yaseen, MD) discussing the process of finding mentors, funding, time, and resources during residency.

This report describes the content and assessment of the 2011 annual pre-meeting, “Evidence-based Approaches to Suicide Risk Assessment and Prevention: Insights from the Neurosciences and Behavioral Sciences for use in Psychiatry Residency Training.” The plenary lectures included: 1) What the Research Teaches about Preventing Suicide (Paula Clayton, MD); 2) Myths and Science of Assessing Suicide Risk (Maria Oquendo, MD); and 3) The Neurobiology of Suicide and its Relevance to Clinical Care (John Mann, MD). Speakers were asked to convey contemporary, evidence-based findings that attendees could easily transport to their trainees at their home programs. Slides were made available to all participants through the AADPRT website. The three afternoon workshops included: 1) Physician Depression and Suicide Prevention (Maria Oquendo, MD, Ellen Haller, MD, and Mercedes Perez-Rodriguez, MD, PhD); 2) Collateral Damages: Coping with Patient Suicide (Joan Anzia, MD, Jim Lomax, MD, and Deepak Prabhakar, MD, MPH); and 3) Using

Team-Based Learning (TBL) to Teach Evidence Based Practice on Suicide Risk Assessment (Grace Thrall, MD, Michele Pato, MD, and Zimri Yaseen, MD). Participants attended each of the three 50-minute afternoon workshops, which were focused on how to use interactive teaching methodologies to teach these important concepts to residents. The first two of these workshops included take home CDs containing videos, PowerPoint presentations and suggestions for use. The conference is described in some detail as segments of it may be transportable to other groups interested in assisting educators to teach and support research training.

## Methods

### Morning Plenary Sessions

#### 1. What the Research Teaches about Preventing Suicide (Paula Clayton, MD)

—The first part of the presentation covered risk factors for suicide, emphasizing the prominence of mood disorders [7], but also covered past attempts [8], specific symptoms [9–14], genetic and biological factors [15, 16], sociodemographic [17], and environment [18]. Key points of emphasis included: 1) the primacy of untreated depression, 2) risk is directly proportional to the number of risk factors, 3) it is difficult for even the ‘experts’ to identify with any degree of certainty who will die by suicide, and 4) there is no typical suicide victim - individuals of all races, creeds, incomes, educations and vocations, including and maybe particularly physicians, die by suicide [19].

Next, the presentation reviewed prevention strategies: awareness and education [20], screening [21], means restriction [22], media guidelines [23, 24], simple interventions [25] and treatment [26, 27]. Many of these strategies have been discussed in a systematic review stemming from a 5-day conference of suicide experts from 15 countries who met in Austria in 2004 [19]. The emerging ‘Best Practices’ that all residents should be taught are: the best data for suicide prevention rests in early detection and optimizing treatment for the mental disorders that most often lead to suicide, including providing evidence-based pharmacological interventions such as lithium for mood disorders [28] or clozapine for schizophrenia [29], and targeted psychotherapies such as cognitive behavioral therapy [30] or interpersonal therapy [31] for depression or dialectical behavioral therapy for borderline personality disorder [32].

#### 2. Myths and Science of Assessing Suicide Risk (Maria Oquendo, MD)

—The initial section of this presentation covered terminology: first, terms residents should be taught NOT to use –deliberate self-harm, failed attempt or completion, manipulative act, nonfatal suicide or suicide attempt, parasuicide, and suicide victim, gesture or threat; and next, preferred terms that are descriptive and non-pejorative – suicidal ideation, attempts (including interrupted and aborted attempts and ‘other preparatory suicidal behavior’) and suicide completion. Dr. Oquendo emphasized that although lifetime rates of suicide attempts are very high in certain psychiatric disorders (29% for bipolar disorder and 16% for major depressive disorder), psychiatric illness is not a sufficient condition for suicidal acts. Rather, residents should become familiar with a stress-diathesis model that includes vulnerability factors (the diathesis: aggression/impulsivity/pessimism, borderline personality disorder, substance use, personal/family history of suicidal acts, physical illness and poor social supports) colliding with stressors including environmental factors (financial distress, social disruption, contagion), acute intoxication, or major depressive episodes [33]. She provided examples of how this model offers multiple opportunities for prevention and underscored how important it is for residents to be reassured that asking about suicidality does not create distress or ‘plant the seed’ [34].

After describing tools for assessing suicide risk (C-SSRS, BSSI, CSHF) and emphasizing the need to assess for protective factors [35], she cautioned that “it is difficult and often impossible to tell who is at imminent danger of suicide.” While many residents assure themselves of a patient’s safety if they are willing to ‘contract for safety,’ Dr. Oquendo noted that a ‘no-harm contract’ is neither a substitute for crisis management, nor appropriate if the resident feels the patient is an immediate danger to self or others. Dr. Oquendo ended her presentation with a discussion of one of the most vexing challenges faced by residents, the management of chronic suicidality. For these patients, hospitalization can be a double edged sword; once introduced, admissions can be repetitive, leading to ‘psychiatrization’ in which the patient learns to ‘work the system’ and obtain admissions whenever life is particularly difficult [36, 37]. Rather, she emphasized the utility of ‘Safety Planning,’ which draws on strategies from cognitive behavioral and dialectical behavioral therapies [38], treatment with newer generation antidepressants [39], and helping residents manage their inevitable countertransference reactions to chronically suicidal patients. Dr. Oquendo closed by raising the important question: “Why are those with the highest mortality in psychiatric conditions least studied? We have more questions than answers.”

**3. The Neurobiology of Suicide and its Relevance to Clinical Care (J John Mann, MD)**—Noting that the serotonergic system is the most intensively studied target for understanding the biologic underpinnings of suicide and non-fatal suicidal behaviors, Dr. Mann described studies showing a robust relationship between low CSF 5-HIAA levels and suicide as well as low serotonin transporter binding in suicide attempters [40]. He also described studies showing that some of the key character traits, such as aggressive traits, that contribute to the diathesis for suicidal acts, and aspects of suicide intent, are related to low serotonin function [41] and postmortem studies showing lower serotonin transporter binding in decision-making areas of the brain of depressed suicides [42]. As an example of a gene-by-environment interaction, Dr. Mann discussed the Caspi, et al. study [43] finding lower expressing alleles of the serotonin transporter gene promoter was associated with childhood adversity increasing the risk of stress-induced major depression and suicidal behavior in adulthood. This gene-by-environment interaction shows that how an individual is affected by childhood adversity is influenced by his or her genetic makeup. Subsequent studies have demonstrated links between serotonin transporter genetic variations and specific brain regions and connectivity related to emotional regulation and suicidality [44–46]. Other target systems for suicide risk discussed by Dr. Mann included the noradrenergic stress response system, neurotrophins such as brain derived neurotrophic factor (BDNF) and genes related to the hypothalamic-pituitary-adrenal (HPA) axis. Dr. Mann ended with a note on how important it will be for the next generation of psychiatrists to understand the complementary roles of both stressors and diatheses as predictors of suicidal behavior and targets for prevention and treatment.

**Mid-day Session:** Trainees’ Perspectives on How to Facilitate Resident Research (Srijan Sen, MD, PhD, Ashutosh Atri, MD, Argelinda Baroni, MD, Deepak Prabhakar, MD, MPH Mercedes Perez-Rodriguez, MD, PhD and Zimri Yaseen, MD): To start this highly interactive session, Dr. Sen briefly described a study he had conducted as a resident that showed a marked increase in depressive symptoms during medical internship and that specific individual, internship-stress, and the 5-HTT promoter polymorphism are associated with the increase in depressive symptoms [47]. Each resident scholar, in turn, described his/her views on how to do meaningful research in busy residencies and provided hints on overcoming institutional and personal obstacles. In the form of advice to trainees, key points were:

- Know what you are getting into: If you know you are interested in research, choose a residency or fellowship program that will provide opportunities, resources and mentorship.
- Don't be alone: Residents should find a mentor as soon as possible during their training. A mentor not only provides important advice and guidance on both academic and practical matters of research, but also can be a key source of support and encouragement. Your program directors or other faculty can help you establish mentoring relationships with faculty members who may have complementary research interests and opportunities.
- Plan ahead: If you know what you want to do, negotiate for protected time to work on your research project. If you aren't sure what you want to do, negotiate for time to visit various faculty members' research laboratories to learn what opportunities may be available. If you have elective time available, it is ideal to know ahead of time how you will use it. Plan for more time than you think you need; any research activity takes longer than expected.
- Learn what you love: If you are excited about what you are doing, research during clinical training need not be merely more work; it can be a creative outlet too. Ask yourself what you like to do and what you feel you miss in your clinical work:
  - Is it an opportunity to influence how the institution functions? - Perhaps a QI initiative is the thing for you.
  - Is it in-depth reading on a particular topic of interest? - Maybe a literature review would scratch that itch.
  - Do you miss the clean logic of the basic sciences? - Someone may have a data set in need of statistical analysis and interpretation waiting for you.
- Be realistic: Adjust your research goals to the realities and demands of clinical training. For example, writing a review paper about a specific aspect of your field of interest may be a reasonable goal for the PGY1 and/or PGY2 years. You can easily fit short writing/literature search sessions in a busy schedule, and you will get published and learn about your field of interest at the same time. Also, do not get discouraged if you cannot produce a masterpiece of scientific writing. Remember: if you knew everything already, you would not be in training!
- Be creative: Look everywhere to find resources. Many institutions offer easy ways to get seed money for pilot projects. Also look at foundations that specifically target your field of interest (e.g., the AFSP for suicidal behavior). The APA website offers plenty of relevant information and many interesting links for research during residency.
- Write!: Get used to setting aside time for writing. While in clinical training, it is difficult to secure long periods of time (i.e., several hours) for writing. However, you would be surprised to learn what can be accomplished in short bouts of writing in between other assignments.
- Get involved: Be proactive about letting your training director know of your interest in being nominated for various awards and fellowships. The APA and AADPRT websites provide information on many of the most popular research fellowships. Attending national meetings as awardees or fellows stimulates scientific inquiry by exposing trainees to the breadth of contemporary research topics while also providing an opportunity to establish mentoring relationships with experts in the field.

## Afternoon Small Groups

**1. Physician Depression and Suicide Prevention (Maria Oquendo, MD, Ellen Haller, MD and Mercedes Perez-Rodriguez, MD, PhD)**—This presentation started by underscoring the importance of suicide prevention among physicians. Physicians (especially female physicians) have suicide rates much higher than the general population [48]. While prevention efforts have decreased physician deaths from smoking-related illnesses by 40–60%, suicide rates among physicians are not decreasing, likely due to lack of attention to this problem. Risk factors for suicide among physicians include depression (with rates of depression in medical students, interns and residents higher than in the general population, particularly among females), bipolar disorder, and substance abuse. Physicians have a higher completion to attempt ratio, which may result from greater knowledge of lethality of drugs and easy access to means. Moreover, physicians have lower rates of seeking help, due in part to concerns about confidentiality. Female physicians, unlike women in the general population, have a suicide completion rate equal to male physicians. The presentation included a screening of the documentary *Struggling in Silence*, which is part of the American Foundation for Suicide Prevention’s continuing commitment to reducing physician depression and suicide.

**2. Collateral Damages: Coping with Patient Suicide (Joan Anzia, MD, Jim Lomax, MD and Deepak Prabhakar, MD, MPH)**—Patient suicide is an integral part of the clinical work of most psychiatric practitioners and trainees. It is one of our few “worst outcome” events, and yet it is experienced by a majority of attending psychiatrists and about half of psychiatry residents. Much of psychiatric training is dedicated to helping residents learn to assess suicide risk in order prevent suicide. Despite the fact that patient suicide is an “occupational hazard” for anyone caring for severely ill psychiatric patients, most training programs provide relatively minimal education, if any, to help trainees learn about and cope with the completed suicide of one their patients.

Even the most seasoned master clinicians are vulnerable to losing patients to suicide and to personal reactions that include sadness, grief, shame, doubt, guilt, self-recrimination, anger, perplexity and feelings of abandonment. Psychiatric residents, whose skill sets and personal identities as healers are still being formed, may be particularly vulnerable to the negative impact of a patient suicide, yet they treat the most difficult, challenging and “at-risk” patients in our healthcare settings. This workshop was developed to help TDs prepare residents for the inevitability of a patient’s suicide, facilitate awareness in residents that they are not alone in facing this devastating experience, and to provide a roadmap of what to expect and guidelines for what to do.

The core of the workshop is embedded in a DVD entitled “Collateral Damages: The Impact of Patient Suicide.” The DVD consists of: 1) opening comments by a senior clinical scholar, 2) five brief personal vignettes by two senior clinicians and three trainees about their personal experiences with patient suicide, 3) a group discussion, 4) a brief PowerPoint presentation on suicide in psychiatric practice, 5) pre- and post-workshop evaluation forms, 6) a list of resources and suggested readings, and 7) an instructor’s guide. In the workshop, two of the vignettes were presented and were followed by interactive discussions of reactions and ways this could be used to enhance training at home programs. Copies of the DVD were given to all participants and portions of the program were provided to all training directors through the AADPRT website.

**3. Using Team-Based Learning (TBL) to Teach Evidence Based Practice on Suicide Risk Assessment (Grace Thrall, MD, Michele Pato, MD and Zimri Yaseen, MD)**—As clinical commitments and income generation pull time away from

experienced clinicians to teach one-on-one and face-to-face, the ability to learn as a team becomes more critical and valuable for learning new skills and updating knowledge. Thus this workshop featured teaching training directors in a hands-on way to learn TBL as real-time participants and thus be able to transport similar teaching methods to residents and faculty in their home programs. TBL requires “students” to read selected material before coming to class. While in class, they take an individual Readiness Assessment Test (iRAT) to show what they have learned from the reading individually. They are then assigned to teams of 5–7 and take the team Readiness Assessment Test (tRAT) to demonstrate how working as a team enhances learning and mastery. The ultimate goal of the class is for students to work together in small groups (teams) to answer one or more questions raised by the teacher that test critical thinking and problem solving based on what they have read before class as well as any new knowledge emerging from team discussions during class [49]. Following the theme of suicide risk assessment, the pre-class assignment was a reading on the relationship between body mass index and suicidal thinking [50]. As the team objective, each team was asked to address the issues of making inferences about causation from observations of association. To determine if the presented data supported the conclusions in the paper, teams were asked to assess whether the data represented a “True cause and effect relationship” or if instead there was a “flaw” in the reasoning. Four potential flaws were described: 1) chance (random error), 2) systematic error (bias) 3) effect->cause rather than cause->effect (reverse-causation), or 4) a confounding third factor. After an animated discussion of 20–30 minutes in each of the teams, participants were asked to simultaneously provide their group’s conclusions and reasoning regarding the nature of the relationships and to identify which of the 4 flaws might be demonstrated in the publication. Simultaneous reporting is an important part of TBL, so that one team’s explanations do not alter subsequent teams’ conclusions. This led to lively discussions with the goals of enhancing the ability to critically evaluate evidence while also developing new skills in use of TBL to teach critical thinking and evidence based practice.

### **Closing Plenary Session (Michele Pato, MD)**

The pre-meeting represented the sixth in an ongoing series and a second round of grant funding through R-13 mechanisms of the NIH. Thus it seemed appropriate to end the sixth meeting with a reflection on the data from the first five (2006–2010), presented by the PI of the original R-13 grant, Michele T. Pato, MD. She presented the goals of the first 5 years as: 1) providing a program that would make learning enjoyable, 2) improving psychiatric educators’ knowledge on important and contemporary topics, 3) preparing educators to disseminate this new knowledge through teaching and distributing material, and 4) increasing training directors’ ability to train residents in research and evidence based medicine (EBM) by becoming more research-literate themselves. While the full results are now part of a paper in press in *Academic Psychiatry*, in general the pre-meeting series in its 5 years of funding was successful in meeting all of these goals. All but 3 of the approximately 180 training programs attended at least 1 of the 5 pre-meetings, and 70–80% (about 140/180) had a representative at all 5. As a way of exploring the impact of the series, attendees were asked to complete online surveys between each of the 5 pre-meetings. Despite differences in the number of people who completed the survey each year, more training programs reported the inclusion of EBM teaching in their curriculum, increasing from only 75.2% of respondents before the 2006 pre-meeting to 92.6% of respondents between the 2009 and 2010 pre-meetings. Roughly 48% of respondents reported they had enhanced their curriculum by adding at least some EBM and research literacy to their teaching in the specific content areas that we covered in the pre-meetings. Finally, more than 70% of respondents had made the textbooks and other resource materials from each pre-meeting available within their libraries, and 32% of respondents had incorporated chapters and articles into assigned readings in their residency training programs.

## Results

Table 1 provides a summary of attendees' assessments of their likeliness to use the material in their home programs, familiarity with the material presented, both before and immediately after the conference, and overall satisfaction with the conference. With only one exception, participants overwhelmingly felt they would use the material covered in each session. The one exception was the lunchtime workshop on "Trainees' Perspectives on How to Facilitate Resident Research." Paradoxically, the conference leaders felt this should have been, and would have been, one of the most appreciated and useful aspects of the conference. However, the room selected for this event was not ideal and technical difficulties made it difficult for many participants to hear the presentations. Plans are already in place to try this innovative session again at next year's conference and to ensure high quality audio equipment. Based on ratings of familiarity of the material before and after the conference, participants seemed to meet our learning goals and all but two attendees (99%) felt the conference was very good to outstanding.

## Discussion

This report describes one in a series of NIH supported conferences aimed at enhancing the ability of leaders of psychiatry residency training to teach research literacy and produce both clinician-scholars and physician-scientists in their home programs. Most psychiatry training directors would not consider themselves research scholars or even well-schooled in evidence based practice. Many are gun-shy and perhaps even avoidant of anything that smacks too directly of research methodology, design and especially statistics. Yet they are the front line educators to prepare tomorrow's psychiatrists to keep up with, critically evaluate, and in some cases actually participate in the discovery of new and emerging psychiatric knowledge. Our hope is that by helping psychiatry training directors become more enthusiastic, knowledgeable and pedagogically prepared to create research-friendly environments at their home institutions, more trainees will, in turn, become research literate, practice evidence-based psychiatry, and enter research fellowships and careers. Both the attendance and the evaluations of training directors and associate training directors suggest that these conferences are helping. Next steps are to begin tracking results in trainees themselves (e.g., how many publish, successfully compete for research grants, go into research fellowships, and/or take academic positions), provide between conference mentoring opportunities for interested faculty, and continue refining and improving these annual conferences. It may also be that similar research-training conferences may have value in other settings and institutions.

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**Table 1**

Evaluation (N=170)

	<b>Likeliness to use material</b>	
	<b>1(not likely) thru 7 (very likely) % 5-7</b>	<b>1(not likely) thru 7 (very likely) mean score</b>
Plenary 1: The Neurobiology of Suicide and its Relevance to Clinical Care	86%	5.71
Plenary 2: Myths and Science of Assessing and Managing Suicide Risk	89%	6.07
Plenary 3: What the Research Teaches about Preventing Suicide	86%	5.76
Lunchtime Presentation: What Works for Resident Research *	45%	4.12
Group 1: Using TBL to Teach Suicide Assessment and Prevention	80%	5.59
Group 2: Collateral Damages: Coping with Patient Suicides in Training Programs	97%	6.48
Group 3: Physician Depression and Suicide Prevention	86%	5.88
<b>Familiarity with the material presented in this conference</b>		
	<b>1 (none) thru 7 (thorough) % 5-7</b>	<b>1 (none) thru 7 (thorough) Mean score</b>
Before the meeting	60%	4.71
After the meeting (% extensive or thorough).	99%	5.63
<b>Overall conference rating</b>		
	<b>1(poor) thru 7 (outstanding) % 5-7</b>	<b>1(poor) thru 7 (outstanding) Mean score</b>
	96%	5.86

\* Informal feed-back suggests ratings for this segment would have been much higher but for a faulty sound and A-V system