Concise Health Risk Tracking Scale: A Brief Self-Report and Clinician Rating of Suicidal Risk

Madhukar H. Trivedi, MD; Stephen R. Wisniewski, PhD; David W. Morris, PhD; Maurizio Fava, MD; Jackie K. Gollan, PhD; Diane Warden, PhD; Andrew A. Nierenberg, MD; Bradley N. Gaynes, MD; Mustafa M. Husain, MD; James F. Luther, MA; Sidney Zisook, MD; and A. John Rush, MD

Objective: Monitoring suicidality and risk following initiation of antidepressant treatment is an essential component of clinical care, but few brief, reliable ratings of suicidal ideation and behavior in adults are available. This report evaluates the psychometric properties of a brief self- and clinician-rated measure of factors related to the risk of suicide attempt or completion.

Method: Adult outpatients with nonpsychotic major depressive disorder (MDD) (n = 240) were enrolled from July 2007 through February 2008 and treated in an 8-week, open-label trial with the clinician's choice of a selective serotonin reuptake inhibitor at 6 primary care and 9 psychiatric clinical care settings in the National Institute of Mental Health–funded Depression Trials Network. Diagnosis of MDD was determined by the Psychiatric Diagnostic Screening Questionnaire and an MDD checklist based on *DSM-IV-TR* criteria. Suicidal ideation and behavior are 1 of 9 symptoms of MDD (depressed mood, loss of interest, appetite or weight change, sleep disturbance, reduced concentration or indecisiveness, fatigue or decreased energy, psychomotor agitation or retardation, feelings of worthlessness, or excessive guilt). The newly developed Concise Health Risk Tracking (CHRT) scale was administered both as the CHRT Self-Report (CHRT-SR) and Clinician Rating (CHRT-C) scales. Psychometric evaluations were conducted on both scales.

Results: The internal consistency (Cronbach α) was .77 for the 7-item CHRT-C and .78 for the 7-item CHRT-SR with a consistent factor structure, and 3 independent factors (current suicidal thoughts and plans, perceived lack of social support, and hopelessness) for both versions.

Conclusions: The 7-item CHRT-C and the 7-item CHRT-SR have excellent psychometric properties and can be used to monitor suicidal risk in clinical practice and research settings. Whether either scale will predict suicide attempts or completions in actual practice would require a very large prospective study sample.

Trial Registration: clincaltrials.gov Identifier: NCT00532103

J Clin Psychiatry 2011;72(6):757–764

See related article by Trivedi et al on p 765.

Submitted: *January 5, 2011; accepted March 18, 2011 (doi:10.4088/JCP.11m06837).*
Corresponding author: *Madhukar H. Trivedi, MD, Department of Psychiatry, The University of Texas Southwestern Medical Center, 5323 Harry Hines Blvd, Dallas, TX 75390-9086 (Madhukar.Trivedi@UTSouthwestern.edu).*

Despite the reported success of antidepressant drugs in the treatment of suicidal states, some studies suggest that antidepressant medications may have a paradoxical effect on a minority of patients, actually inducing suicidal states in susceptible individuals.[1–4] Based on the available evidence in 2007, the US Food and Drug Administration (FDA) introduced a product labeling change concerning the use of all antidepressants in adults. This advisory suggested that during the "initial few months" of a course of antidepressant medication therapy or at times of dosage titration, "patients should be monitored for worsening suicidality and unusual changes in behavior, including anxiety, agitation, panic attacks, insomnia, irritability, hostility, aggressiveness, impulsivity, akathisia, hypomania and mania."[5] Although several methods to assess suicidality have been recommended (mostly in pediatric populations),[1,6,7] the need for a brief rating tool has yet to be met for clinical practice or research purposes.

Currently, available instruments to measure suicidal risk require interviews that typically evaluate both state- and trait-like ideation. A useful tool in practice should be able to monitor suicide-related factors to identify suicidal ideation and related symptoms and to be used as a repeated measure to detect changes in these factors over time. We developed the Concise Health Risk Tracking Self-Report (CHRT-SR) and Clinician Rating (CHRT-C) scales. These measures include questions about hopelessness, self-worth, pessimism about future, perception of social support, and active suicidal plans. Following the model set forth by Beck et al,[8] items were developed to encompass stages of escalating suicidality, from hopelessness about the future and lack of perceived support to nihilistic thinking or passive thoughts of death to active plans about death and suicide. Items were included in the questionnaire only if there was good face validity for the construct being assessed. To maximize clinical and research utility, the Concise Health Risk Tracking (CHRT) scale was designed to be used as either a patient self-report (CHRT-SR) or a clinician rating (CHRT-C).

This report presents psychometric data on the newly developed clinician- and self-rated versions of the CHRT scale in a group of 240 outpatients with nonpsychotic major depressive disorder (MDD) from primary and psychiatric care practice sites who were recruited as part of the Suicide Assessment Methodology Study conducted through the National Institute of Mental Health (NIMH)–funded Depression Trials Network.

Clinical Points

- Use of standardized measures to monitor suicide risk is essential in the care of patients with depression.
- The Concise Health Risk Tracking (CHRT) scale is a brief, easy-to-use rating instrument for suicide risk.
- The CHRT scale can be used in routine clinical care with minimal burden.

METHOD

Study Description

The primary objective of the Suicide Assessment Methodology Study was to evaluate a brief clinician- and patient-rated measure of suicidal ideation and associated symptoms. Secondary objectives were to (1) describe and measure the occurrence and course of treatment-emergent suicidal ideation and associated symptoms in depressed outpatients after initiation and dose escalation of selective serotonin reuptake inhibitor (SSRI) pharmacotherapy and (2) evaluate suicidal ideation assessment methods in representative clinical psychiatric and primary practice settings.

This study was overseen by the Depression Trials Network National Coordinating Center (The University of Texas Southwestern Medical Center) and the Data Coordinating Center (Epidemiologic Data Center at the University of Pittsburgh) and conducted at 15 clinical sites. The institutional review boards at the National Coordinating Center, the Data Coordinating Center, and each participating site approved and oversaw the study protocol. A data safety and monitoring board reviewed the study protocol and participant consent prior to study enrollment and monitored participant safety throughout the study's course. The study is registered at clinicaltrials.gov (identifier NCT00532103).

Adult outpatients with nonpsychotic MDD, 18–75 years of age, were enrolled from July 2007 through February 2008 at 6 primary and 9 psychiatric care sites across the United States from the NIMH-funded Depression Trials Network. Major depressive disorder was diagnosed clinically and confirmed with the Psychiatric Diagnostic Screening Questionnaire (PDSQ)[9,10] and an MDD checklist based upon the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision (*DSM-IV-TR*).[11] Study participants were treated, open label, with an SSRI antidepressant medication and monitored for 8 weeks. The SSRIs used in the study included citalopram, escitalopram, fluoxetine, paroxetine, paroxetine controlled release, or sertraline, with the choice of the SSRI made by each individual participant's physician and recommended by clinical treatment guidelines. Clinical research coordinators at each clinical site supported participants in collecting all relevant rating instruments and assisted clinicians in the implementation of the protocol.

To provide appropriately vigorous yet tolerable dosing, clinical management was informed by critical decision-point dosing tables and utilized a measurement-based care treatment paradigm.[12–14] At each clinic visit depressive symptom severity was measured by using the 16-item Quick Inventory of Depressive Symptomatology–Clinician Rating (QIDS-C_{16}),[15–17] a measure that captures the 9 *DSM-IV-TR* diagnostic criteria for a major depressive episode; scores range from 0 to 27, with higher numbers indicating greater severity. Side effects were assessed by the Systematic Assessment for Treatment Emergent Events—Systematic Inquiry,[18] a 55-item self-report that rates the most commonly reported side effects associated with pharmacologic interventions, and by the 3-item Frequency, Intensity, and Burden of Side Effects Rating,[19] a self-report measure that provides global ratings of frequency, intensity, and overall burden due to side effects attributable to the antidepressant medication. Adherence to the prescribed antidepressant was assessed with a self-rated medication adherence questionnaire. Protocol treatment visits were to occur at weeks 0, 2, 4, 6, and 8. In addition, the QIDS-C_{16} and the Frequency, Intensity, and Burden of Side Effects Rating were collected by phone at weeks 1, 3, 5, and 7. During the first 2 weeks following medication initiation and following a dose increase (week 4 or later), participants were contacted by telephone on Mondays, Wednesdays, and Fridays to evaluate the presence of suicidal ideation and for the emergence of associated symptoms as assessed by the CHRT-C.

Study Population

Eligible outpatients seeking care for depression provided written informed consent and were enrolled at 15 psychiatric and primary care clinical sites in the Depression Trials Network. Eligible participants scored ≥ 14 on the baseline 17-item Hamilton Depression Rating Scale ($HDRS_{17}$).[20,21] Participants with general medical conditions were eligible as long as their general medical conditions did not contraindicate the use of SSRI treatment. Patients were ineligible if they had bipolar disorder; schizophrenia; schizoaffective disorder; MDD with psychotic features (lifetime); a current primary diagnosis of anorexia nervosa, bulimia nervosa, or obsessive-compulsive disorder; current diagnosis of substance abuse or dependence; required inpatient treatment at the time of study entry; or had a well-documented history of nonresponse (in the current major depressive episode) to 2 adequately delivered SSRI treatments (in terms of both dose and duration). Patients were also ineligible if they were breast-feeding, pregnant, or intending to become pregnant; had taken an antipsychotic medication within 4 months of study entry; or had taken antidepressants in the 2 weeks prior to screening (4 weeks for fluoxetine and 6 weeks for monoamine oxidase inhibitors). The presence of suicidal ideation was allowed as long as acute inpatient treatment was not indicated at the baseline visit.

Assessments

At the screening/baseline visit, clinical research coordinators collected clinical and sociodemographic information and completed the $HDRS_{17}$ by direct interview. At baseline,

© Copyright 2011 Physicians Postgraduate Press, Inc.

Figure 1. Concise Health Risk Tracking (CHRT) Scale

For the following questions, please rate the extent to which each of the following statements describes how you have been feeling or acting in the past 24 hours.

For example, if you feel the statement very accurately describes how you have been feeling in the past 24 hours, you would give a rating of "Strongly Agree." If you feel the statement is not at all how you have been feeling in the past 24 hours, you would give a rating of "Strongly Disagree."

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I feel as if things are never going to get better.	☐	☐	☐	☐	☐
2. There is no one I can depend on.	☐	☐	☐	☐	☐
3. I have no future.	☐	☐	☐	☐	☐
4. It seems as if I can do nothing right.	☐	☐	☐	☐	☐
5. I wish my suffering could just all be over.	☐	☐	☐	☐	☐
6. Everything I do turns out wrong.	☐	☐	☐	☐	☐
7. I feel that there is no reason to live.	☐	☐	☐	☐	☐
8. I wish I could just go to sleep and not wake up.	☐	☐	☐	☐	☐
9. The people I care the most for are gone.	☐	☐	☐	☐	☐
10. I have been having thoughts of killing myself.	☐	☐	☐	☐	☐
11. I have thoughts about how I might kill myself.	☐	☐	☐	☐	☐
12. I have a plan to kill myself.	☐	☐	☐	☐	☐

Note. Shaded items reflect the 7-item CHRT scale.

participants also completed a 125-item forced-choice (symptom present or absent) self-report *DSM-IV* Axis I screening questionnaire; the PDSQ[9,10]; and the Self-Administered Comorbidity Questionnaire,[22] a 40-item self-report that assesses the presence of a range of common medical conditions, their severity, and whether or not the conditions limit functioning.

During all clinic visits, including baseline, the clinical research coordinators also collected the QIDS-C_{16}, the Frequency, Intensity, and Burden of Side Effects Rating; the Systematic Assessment For Treatment Emergent Events—Systematic Inquiry; the patient adherence measure; the Positive and Negative Suicide Ideation Inventory[23] (a 20-item self-report of positive and negative thoughts related to suicide attempts); the Modified Scale of Suicidal Ideation[6] (an 18-item clinician-administered scale that monitors intensity of ideation, courage and competence to attempt, and talk and writing about death over the past year); and the 21-item Beck Anxiety Inventory[24,25] self-report of physiologic hyperarousal and cognitive anxiety over the last week. At baseline and at each clinic visit, patients and the clinical research coordinators also collected the CHRT-SR and CHRT-C.

At each of the Monday, Wednesday, and Friday phone calls for 2 weeks after dose initiation and again at dose increase, the clinical research coordinators completed the CHRT-C. These calls took place the first 2 weeks after the initiation of SSRI treatment, and again for 2 weeks if the dosage was changed, either increased or decreased.

CHRT-C and CHRT-SR were originally developed to include 12 items reflecting the following domains: (1) hopelessness, (2) interpersonal attachment/social support, and (3) active suicidal ideation and behavior. Each of the items is presented as a statement and the extent to which it is applicable to the preceding 24 hours is rated on a 5-point, fully anchored, Likert scale, with responses ranging from "strongly agree" to "strongly disagree" for all items (CHRT-SR; Figure 1).

Analytic Methods

Descriptive statistics, percentages for discrete characteristics, and measures of central tendency for continuous characteristics were used to describe the sample. Of the baseline sample (n = 265), 25 patients were not included in the analysis due to incomplete data. All analyses were conducted on baseline data separately for the CHRT-C and the CHRT-SR. Spearman rank correlation coefficients are used to assess inter-item correlations. The factor structure was evaluated using a principal component analysis. The Goodness-of-Fit Index (GFI) was used to assess the fit of the factor structure. The GFI ranges between 0 and 1, with higher scores

Table 1. Patient Baseline Characteristics (N = 240)

Characteristic	Value
Age, mean (SD), y	41.4 (13.6)
Women, n (%)	170 (70.8)
Race, n (%)	
White	153 (63.8)
Black	59 (24.6)
Other	28 (11.7)
Hispanic, n (%)	29 (12.1)
Education, mean (SD), y	13.3 (2.8)
Employment status, n (%)	
Employed	139 (57.9)
Unemployed	89 (37.1)
Retired	12 (5.0)
Medical insurance, n (%)	
Any private	105 (44.3)
Public	47 (19.8)
None	85 (35.9)
Marital status, n (%)	
Never married	71 (29.6)
Married/cohabiting	96 (40.0)
Separated/divorced	64 (26.7)
Widowed	9 (3.8)
Age at first episode < 18 y, n (%)	87 (36.6)
At least 1 prior episode, n (%)	139 (57.9)
Family history, n (%)	
Substance abuse	114 (47.5)
Suicide	7 (2.9)
Psychiatric care, n (%)	161 (67.1)
Current episode 24+ mo, n (%)	82 (34.3)
$HDRS_{17}$ score, mean (SD)[a]	20.9 (4.1)
$QIDS\text{-}C_{16}$ score, mean (SD)[a]	14.3 (3.0)
Anxious features, n (%)	161 (67.1)
PDSQ, n (%)	
Agoraphobia	22 (9.2)
Alcohol abuse	12 (5.0)
Bulimia	29 (12.1)
Drug abuse	17 (7.1)
Generalized anxiety	40 (16.7)
Hypochondriasis	5 (2.1)
Obsessive-compulsive	46 (19.2)
Panic	28 (11.8)
Posttraumatic stress	43 (17.9)
Social phobia	55 (23.1)
Somatoform	3 (1.3)
SCQ score, mean (SD)	3.3 (3.7)

[a]Total score less suicide item.
Abbreviations: $HDRS_{17}$ = 17-item Hamilton Depression Rating Scale; PDSQ = Psychiatric Diagnostic Screening Questionnaire; $QIDS\text{-}C_{16}$ = 16-item Quick Inventory of Depressive Symptomatology, clinician rating; SCQ = Self-Administered Comorbidity Questionnaire.

indicating a better fit. Pearson correlation coefficients were used to assess the association of the total score of the CHRT scale with each of the factors and to estimate the discriminant and concurrent validity by evaluating the correlations of the CHRT scale total score with other measures of mood disorders, suicidal ideation, and general medical comorbidity burden.

RESULTS

Two hundred eighty-nine subjects were screened, of which 24 were ineligible and 25 had missing data items in either the CHRT-C or the CHRT-SR. Hence, the evaluable sample included 240 male (n = 70) and female (n = 170) outpatients with nonpsychotic MDD, from 18 to 65 years of age (mean [SD], 41.4 [13.6]), with a pretreatment $HDRS_{17}$ score > 14 (20.9 [4.1]) (Table 1).

Exploratory Factor Analyses

Table 2 provides results of the principal component analyses. An examination of the scree plot of eigenvalues indicated 3 orthogonal factors should be retained. Within the 3-factor solution for both 12-item versions of the CHRT, items 5, 7, and 8 (passive suicidal ideation) cross-loaded on 2 factors and were excluded from subsequent analysis. Factor analysis on the remaining 9 items found 2 items (1 and 3, pessimism about the future) cross-loading on 2 factors of the CHRT-SR and these items were, therefore, dropped. Analysis of the resultant 7-item versions of the CHRT-C ($CHRT\text{-}C_7$) (GFI = 0.985) and CHRT-SR ($CHRT\text{-}SR_7$) (GFI = 0.979) provided an excellent goodness of fit for the 3-factor solution, with no cross-loading items, and a consistent factor structure across both versions of the $CHRT_7$. The 3 factors identified include hopelessness, perceived lack of social support, and active suicidal thoughts and plans.

Item-Item Correlation

Table 3 provides inter-item correlations for both the $CHRT\text{-}C_7$ and $CHRT\text{-}SR_7$. High item-item correlations were observed for active suicidal ideation (items 10 and 11) and plans (item 12). There were acceptable item-item correlations for questions associated with social support (items 2 and 9), and hopelessness (4 and 6). Comparable correlations were observed for both the self- and clinician-rated versions.

Distribution of Responses to Items

Table 4 provides the distribution of items endorsed at baseline in the 2 versions of the $CHRT_7$. The more severe items, active suicidal thoughts and plans, were endorsed by fewer patients than were the nihilistic thinking, social support, and hopelessness items, as might be expected.

Reliability

Cronbach α for the 7-item versions were .77 ($CHRT\text{-}C_7$) and .78 ($CHRT\text{-}SR_7$). There was also a high agreement between the self-rated and clinician-rated items of the CHRT scale (Table 5) with κ ranging from 0.63 to 0.81.

Summary Statistics and Factor Scores of the $CHRT\text{-}C_7$ and $CHRT\text{-}SR_7$

Table 6 provides total scores on the $CHRT\text{-}C_7$ and $CHRT\text{-}SR_7$ as well as the 3 factors. Each factor revealed a correlation with the total scale score of 0.70 to 0.75 across the $CHRT\text{-}C_7$ and $CHRT\text{-}SR_7$. The 3 factors each show a low correlation with each other.

Correlation of $CHRT\text{-}C_7$ and $CHRT\text{-}SR_7$ With Measures of Suicidal Ideation and Depressive Symptom Severity

Table 7 provides correlations of $CHRT\text{-}C_7$ and $CHRT\text{-}SR_7$ with other standard suicide scales and measures of depression, anxiety, and general medical comorbidity. As expected, the strongest association was with the positive symptom scale

Table 2. Factor Loadings and Goodness of Fit Indices for the Concise Health Risk Tracking Clinician Rating (CHRT-C) and Self-Report (CHRT-SR) Scales by Number of Items[a]

		12 Items			9 Items			7 Items		
Item No.	Item	F1	F2	F3	F1	F2	F3	F1	F2	F3
CHRT-C										
1	Things are never going to get better	.05	**.49**	**.50**	.06	**.54**	**.47**	…	…	…
2	There is no one I can depend on	.07	**.74**	.07	.10	.10	**.79**	.11	.14	**.83**
3	I have no future	.23	**.66**	.39	.23	**.43**	**.63**	…	…	…
4	I can do nothing right	.05	.07	**.90**	.06	**.91**	.07	.07	**.93**	.09
5	I wish it could just all be over	**.41**	**.42**	**.51**	…	…	…	…	…	…
6	Everything I do turns out wrong	.14	.15	**.84**	.16	**.85**	.16	.16	**.89**	.19
7	There is no reason to live	**.49**	**.59**	.30	…	…	…	…	…	…
8	I wish I would not wake up	**.53**	**.42**	**.40**	…	…	…	…	…	…
9	The people I care most for are gone	.13	**.76**	.05	.14	.07	**.79**	.15	.11	**.83**
10	I think of killing myself	**.86**	.22	.18	**.87**	.19	.22	**.88**	.18	.19
11	I think of how I might kill myself	**.88**	.10	.12	**.90**	.14	.12	**.91**	.12	.08
12	I have a plan to kill myself	**.83**	.07	–.02	**.85**	.00	.09	**.84**	.01	.11
Goodness-of-Fit Index			0.7736			0.8953			0.9846	
CHRT-SR										
1	Things are never going to get better	.10	**.64**	.31	.09	**.65**	.31	…	…	…
2	There is no one I can depend on	.05	.19	**.80**	.07	.22	**.82**	.08	.17	**.85**
3	I have no future	.29	**.62**	.38	.26	**.63**	.37	…	…	…
4	I can do nothing right	.05	**.88**	–.01	.07	**.91**	.01	.09	**.94**	.10
5	I wish it could just all be over	**.47**	**.55**	.34	…	…	…	…	…	…
6	Everything I do turns out wrong	.13	**.85**	.06	.14	**.87**	.07	.15	**.92**	.17
7	There is no reason to live	**.57**	**.50**	.37	…	…	…	…	…	…
8	I wish I would not wake up	**.62**	**.49**	.20	…	…	…	…	…	…
9	The people I care most for are gone	.17	.10	**.82**	.15	.10	**.83**	.16	.07	**.85**
10	I think of killing myself	**.87**	.23	.06	**.87**	.24	.08	**.88**	.22	.09
11	I think of how I might kill myself	**.90**	.12	.06	**.92**	.15	.09	**.93**	.12	.09
12	I have a plan to kill myself	**.85**	–.03	.12	**.89**	.02	.15	**.89**	.00	.15
Goodness-of-Fit Index			0.7248			0.9055			0.9786	

[a]The items in boldface type define the factors (F1, F2, F3). For example, for the 12-item CHRT-C, factor 1 is defined by items 5, 7, 8, 10, 11, and 12; for the 7-item CHRT-C, factor 1 is defined by items 10, 11, and 12.
Abbreviations: F1 = factor 1, F2 = factor 2, F3 = factor 3.

Table 3. Inter-Item Correlations for the 7-Item Concise Health Risk Tracking Clinician Rating ($CHRT\text{-}C_7$) and Self-Report ($CHRT\text{-}SR_7$) Scales

		Item No.						
Item No.	Item	2	4	6	8	10	11	12
$CHRT\text{-}C_7$								
2	There is no one I can depend on	1.0	0.22	0.28	0.28	0.29	0.18	0.18
4	It seems as if I can do nothing right		1.0	0.72	0.36	0.23	0.16	0.11
6	Everything I do turns out wrong			1.0	0.40	0.31	0.26	0.16
9	The people I care the most for are gone				1.0	0.28	0.22	0.22
10	I have been having thoughts of killing myself					1.0	0.81	0.63
11	I have thoughts about how I might kill myself						1.0	0.64
12	I have a plan to kill myself							1.0
$CHRT\text{-}SR_7$								
2	There is no one I can depend on	1.0	0.24	0.29	0.23	0.20	0.18	0.19
4	It seems as if I can do nothing right		1.0	0.81	0.38	0.28	0.20	0.12
6	Everything I do turns out wrong			1.0	0.44	0.32	0.27	0.17
9	The people I care the most for are gone				1.0	0.22	0.23	0.25
10	I have been having thoughts of killing myself					1.0	0.80	0.68
11	I have thoughts about how I might kill myself						1.0	0.76
12	I have a plan to kill myself							1.0

from the Positive and Negative Suicide Ideation Inventory, and with the $HDRS_{17}$, while there were fewer associations with general medical comorbidity burden.

DISCUSSION

The clinician and self-report versions of the $CHRT_7$ are best defined by a 3-factor structure consisting of indices of active suicidal ideation and plans (items 10, 11, and 12), perceived lack of social support (items 2 and 9), and hopelessness (items 4 and 6).

The 3 $CHRT_7$ items representing the active suicidal thoughts and plans factor (items 10, 11, and 12) may show the most clinical utility as indicators of imminent risk. However, the additional items including the hopelessness and the perceived lack of social support items most likely have additional value for predicting future suicidal ideation.[26] All 3 factors have been consistently shown to be associated with suicidal behavior.[8,26]

Interestingly, suicidal thoughts and plans were more likely to be endorsed by patients than by clinicians, and clinicians were less likely to use the more extreme rating ("strongly agree"). These results suggest the possibility that some patients may be more willing to endorse suicidal ideation on self-report assessments or that some physicians may be reluctant to record suicidal ideation. Findings from Mundt et al[27] support the feasibility of assessing suicidality using an Interactive Voice Response computer version of the Columbia Suicide-Severity Rating Scale. While the need for directly querying patients about suicidal ideation, plans, and intent in order to provide an appropriate treatment and safety response is evident, the frequency of positive responses to these questions is relatively low for outpatients with MDD, suggesting the importance of including potential precursors or associated indicators of suicidality, such as lack of social support and a sense of hopelessness or powerlessness. These factors, which are also associated with suicidal ideation, provide additional opportunities to detect a need for clinical evaluation and possible intervention.

The current accepted standard for quantifying and qualifying existing suicidality is the Columbia Classification Algorithm of Suicide Assessment (C-CASA),[7] which categorizes suicidality into acts preparatory to a suicidal

Table 4. Descriptive Statistics for the 7-Item Concise Health Risk Tracking Clinician Rating (CHRT-C_7) and Self-Report (CHRT-SR_7) Scales[a]

Item No.	Item	Response[b] Strongly Disagree, n (%)	Disagree, n (%)	Neutral, n (%)	Agree, n (%)	Strongly Agree, n (%)	Response Score, Mean (SD)
CHRT-C_7							
2	There is no one I can depend on	34 (14.2)	93 (38.8)	28 (11.7)	57 (23.8)	28 (11.7)	2.80 (1.27)
4	It seems as if I can do nothing right	19 (7.9)	66 (27.5)	50 (20.8)	78 (32.5)	27 (11.3)	3.12 (1.17)
6	Everything I do turns out wrong	19 (7.9)	90 (37.5)	53 (22.1)	59 (24.6)	19 (7.9)	2.87 (1.11)
9	The people I care the most for are gone	59 (24.6)	102 (42.5)	24 (10.0)	38 (15.8)	17 (7.1)	2.38 (1.21)
10	I have been having thoughts of killing myself	111 (46.3)	87 (36.3)	22 (9.2)	16 (6.7)	4 (1.7)	1.81 (0.97)
11	I have thoughts about how I might kill myself	120 (50.0)	85 (35.4)	15 (6.3)	17 (7.1)	3 (1.3)	1.74 (0.95)
12	I have a plan to kill myself	144 (60.0)	86 (35.8)	7 (2.9)	3 (1.3)	0 (0.0)	1.45 (0.62)
CHRT-SR_7							
2	There is no one I can depend on	35 (14.6)	92 (38.3)	27 (11.3)	63 (26.3)	23 (9.6)	2.78 (1.25)
4	It seems as if I can do nothing right	25 (10.4)	65 (27.1)	50 (20.8)	72 (30.0)	28 (11.7)	3.05 (1.21)
6	Everything I do turns out wrong	27 (11.3)	76 (31.7)	54 (22.5)	60 (25.0)	23 (9.6)	2.90 (1.18)
9	The people I care the most for are gone	67 (27.9)	89 (37.1)	33 (13.8)	32 (13.3)	19 (7.9)	2.36 (1.24)
10	I have been having thoughts of killing myself	123 (51.3)	68 (28.3)	15 (6.3)	30 (12.5)	4 (1.7)	1.85 (1.10)
11	I have thoughts about how I might kill myself	132 (55.0)	68 (28.3)	18 (7.5)	18 (7.5)	4 (1.7)	1.73 (1.00)
12	I have a plan to kill myself	155 (64.6)	72 (30.0)	9 (3.8)	1 (0.4)	3 (1.3)	1.44 (0.71)

[a]N = 240.
[b]Response scores were derived using the following criteria: strongly disagree equals 1; disagree, 2; neutral, 3; agree, 4; and strongly agree, 5.

Table 5. Percentage Agreement and κ Statistic for the 7-Item Concise Health Risk Tracking Clinician Rating (CHRT-C_7) and Self-Report (CHRT-SR_7) Scales

Item No.	Item	Agreement, %[a]	Weighted κ (95% CI)
2	There is no one I can depend on	79	0.79 (0.74–0.85)
4	It seems as if I can do nothing right	70	0.73 (0.67–0.79)
6	Everything I do turns out wrong	69	0.72 (0.65–0.78)
9	The people I care the most for are gone	77	0.81 (0.76–0.86)
10	I have been having thoughts of killing myself	74	0.71 (0.64–0.78)
11	I have thoughts about how I might kill myself	77	0.70 (0.62–0.78)
12	I have a plan to kill myself	80	0.63 (0.53–0.72)

[a]Number of concordant responses divided by 240 assessments.

Table 6. Descriptive Statistics and Inter-Scale Correlations for the 7-Item Concise Health Risk Tracking Clinician Rating (CHRT-C_7) and Self-Report (CHRT-SR_7) Scales

$CHRT_7$ version	$CHRT_7$ Score, Mean (SD)	Range	F1	F2	F3	Total
CHRT-C_7						
F1	5.2 (2.1)	2–10	1.00	0.31	0.30	0.73
F2	6.0 (2.1)	2–10		1.00	0.26	0.71
F3	5.0 (2.3)	3–13			1.00	0.73
Total	16.2 (4.7)	7–33				1.00
CHRT-SR_7						
F1	5.1 (2.2)	2–10	1.00	0.29	0.27	0.70
F2	6.0 (2.3)	2–10		1.00	0.27	0.71
F3	5.0 (2.6)	3–15			1.00	0.75
Total	16.1 (5.0)	7–35				1.00

Abbreviations: F1 = factor 1, F2 = factor 2, F3 = factor 3.

Table 7. Correlations Between the 7-Item Concise Health Risk Tracking Clinician Rating (CHRT-C_7) and Self-Report (CHRT-SR_7) Scales and Measures of Anxiety, Depression, and Suicidality Scales

Measure	CHRT-C_7 F1	F2	F3	Total	CHRT-SR_7 F1	F2	F3	Total
Beck Anxiety Inventory	0.07	0.25	0.09	0.19	0.10	0.25	0.15	0.24
Hamilton Depression Rating Scale[a]	0.12	0.16	0.00	0.13	0.18	0.21	0.05	0.20
Modified Scale for Suicidal Ideation	0.16	0.16	0.44	0.36	0.12	0.10	0.42	0.31
Positive Suicide Ideation Inventory	0.35	0.39	0.65	0.64	0.32	0.39	0.74	0.69
Negative Suicide Ideation Inventory	–0.17	–0.27	–0.28	–0.33	–0.18	–0.32	–0.30	–0.37
Self-Administered Comorbidity Questionnaire	0.07	–.11	0.06	0.01	0.08	–.14	0.09	0.01

[a]Less suicide item.
Abbreviations: F1 = factor 1, F2 = factor 2, F3 = factor 3.

act, self-harm behaviors with and without suicidal intent, suicidal acts with and without suicidal intent, and actual completed suicide. The C-CASA system provides clinically essential details allowing for the accurate evaluation of suicidal intent and action. In response to the C-CASA criteria, a brief clinician-rated CHRT scale behavioral module has been developed that, when combined with the CHRT-SR or CHRT-C, maps to the C-CASA rating system, consistent with FDA reporting requirements. The assessment of behavioral symptoms, such as preparatory acts, and self-harm behaviors in addition to clinical symptoms (suicidal ideation, hopelessness, social isolation) provide clinicians with additional information necessary to evaluate patient safety. Currently, the Columbia Suicide-Severity Rating Scale[28,29] is the assessment of choice to document C-CASA criteria in clinical trials. The CHRT scale system offers a brief alternative to traditional ratings of suicidality. The CHRT (SR or C version) may be used alone as a screening device to identify patients with suicidal ideation or for those desiring to map C-CASA, in combination with the CHRT scale behavior module.

The clinician and self-report versions of the $CHRT_7$ have comparable psychometric properties. The internal

consistency for both versions is good, and the factor structures are almost identical. Both versions provide comparable GFIs. The 7-item CHRT (C or SR version) provides a quick (1 to 2 minutes), easy to administer evaluation of suicidal ideation and related factors. Given the recent recognition of the possibility that increased suicidal ideation is associated with a wide variety of medications, the development of a quick and effective means to identify, quantify, and qualify treatment-emergent suicidal ideation for use in both clinical and research settings appears timely.

The current study is limited by several factors: (1) the study sample size is modest, though the sample was drawn from a range of clinical settings; (2) the psychometric properties of the $CHRT_7$ have not been replicated; (3) the $CHRT_7$ is suitable to document suicidal ideation but requires the behavioral module, which was subsequently developed to provide complete coverage of the C-CASA; (4) while we were able to present data supporting the measures' content and construct validity, criterion and predictive validity requires a large epidemiologic sample to determine if scale scores predict suicidal attempts; (5) the sample size precluded the stratification for analysis by subgroups of specific interest, such as young adults; (6) the sensitivity of the scales to change over time (worsening or improvement) remains to be examined; and (7) the scales have not been used with children, adolescents, or the elderly. On the other hand, the naturalistic design allowed for the collection of data from a highly representative sample of outpatients with nonpsychotic MDD.

In summary, both $CHRT_7$ assessments possess acceptable psychometric properties and are easy to use in practice. The self-rated instrument performed as well as the clinician-rated version. The 3 factors (suicidal ideation/plans, hopelessness, perceived lack of social support) have excellent face validity and they identify different domains that have been related to suicidal behavior in other studies in the past. To determine whether CHRT scale ratings predict suicide attempts or completions would require a much larger prospective study.

Drug names: citalopram (Celexa and others), escitalopram (Lexapro and others), fluoxetine (Prozac and others), paroxetine (Paxil, Pexeva, and others), sertraline (Zoloft and others).

Author affiliations: Department of Psychiatry, The University of Texas Southwestern Medical Center at Dallas (Drs Trivedi, Morris, Warden, and Husain); Epidemiology Data Center, Graduate School of Public Health, University of Pittsburgh, Pennsylvania (Dr Wisniewski and Mr Luther); Depression and Clinical Research Program, Massachusetts General Hospital, Boston (Drs Fava and Nierenberg); Feinberg School of Medicine, Northwestern University, Chicago, Illinois (Dr Gollan); Department of Psychiatry, University of North Carolina School of Medicine, Chapel Hill (Dr Gaynes); Department of Psychiatry, University of California, San Diego and Veterans Affairs Medical Center, San Diego (Dr Zisook); and Office of Clinical Sciences, Duke-National University of Singapore, Singapore (Dr Rush).

Author contributions: Drs Trivedi and Wisniewski and the study team are responsible for the integrity of the work as a whole, from inception to published article, and had access to the data presented. The principal investigator and the study team participated in the conception and design of the study and participated in the acquisition, analysis, and interpretation of data. Dr Trivedi drafted the article and all authors assisted in revising it critically for important intellectual content, and all approve of the final version being submitted for publication.

Potential conflicts of interest: **Dr Trivedi** has been a consultant for Abbott, Akzo (Organon), AstraZeneca, Bayer, Bristol-Myers Squibb, Cephalon, Cyberonics, Eli Lilly, Fabre-Kramer, Forest, GlaxoSmithKline; Janssen, Johnson & Johnson PRD, Eli Lilly, Meade Johnson, Neuronetics, Parke-Davis, Pfizer, Pharmacia & Upjohn, Sepracor, Solvay, VantagePoint, and Wyeth-Ayerst; has served on speakers bureaus for Abdi Brahim, Akzo (Organon), Bristol-Myers Squibb, Cephalon, Cyberonics, Forest, GlaxoSmithKline, Janssen, Eli Lilly, Pharmacia & Upjohn, Solvay, and Wyeth-Ayerst; and has received grant support from Bristol-Myers Squibb, Cephalon, Corcept Therapeutics, Cyberonics, Eli Lilly, Forest, GlaxoSmithKline, Janssen, Merck, National Institute of Mental Health (NIMH), National Alliance for Research in Schizophrenia and Depression (NARSAD), Novartis, Pfizer, Pharmacia & Upjohn, Predix, Solvay, and Wyeth-Ayerst. **Dr Wisniewski** has been a consultant for Cyberonics, ImaRx Therapeutics, Bristol-Myers Squibb, Organon, Case-Western University, Singapore Clinical Research Institute, Dey, and Venebio. **Dr Fava** has received research support from Abbott, Alkermes, Aspect Medical Systems, AstraZeneca, BioResearch, BrainCells, Bristol-Myers Squibb, Cephalon, CeNeRx BioPharma, Clinical Trials Solutions, Clintara, Covidien, Eli Lilly, EnVivo Pharmaceuticals, Euthymics Bioscience, Forest, Ganeden Biotech, GlaxoSmithKline, Icon Clinical Research, i3 Innovus/Ingenix, Johnson & Johnson Pharmaceutical Research & Development, Lichtwer Pharma GmbH, Lorex, NARSAD, National Center for Complementary and Alternative Medicine, National Institute of Drug Abuse (NIDA), NIMH, Novartis AG, Organon, PamLab, Pfizer, Pharmavite, Photothera, Roche, RCT Logic, Sanofi-Aventis, Shire, Solvay, Synthelabo, and Wyeth-Ayerst; has provided advisory/consulting services to Abbott, Affectis Pharmaceuticals AG, Alkermes, Amarin Pharma, Aspect Medical Systems, AstraZeneca, Auspex, Bayer AG, Best Practice Project Management, BioMarin Pharmaceuticals, Biovail, BrainCells, Bristol-Myers Squibb, CeNeRx BioPharma, Cephalon, Clinical Trials Solutions, CNS Response, Compellis, Cypress, DiagnoSearch Life Sciences (P), Dinippon Sumitomo Pharma, Dov, Edgemont, Eisai, Eli Lilly, ePharmaSolutions, EPIX, Euthymics Bioscience, Fabre-Kramer, Forest, GenOmind, GlaxoSmithKline, Grunenthal GmbH, i3 Innovus/Ingenis, Janssen, Jazz, Johnson & Johnson Pharmaceutical Research & Development, Knoll, Labopharm, Lorex, Lundbeck, MedAvante, Merck, MSI Methylation Sciences, Naurex, Neuronetics, NextWave Pharmaceuticals, Novartis AG, Nutrition 21, Orexigen Therapeutics, Organon, Otsuka, PamLab, Pfizer, PharmaStar, Pharmavite, PharmoRx Therapeutics, Precision Human Biolaboratory, Prexa Pharmaceuticals, Puretech Ventures, PsychoGenics, Psylin Neurosciences, Rexahn Pharmaceuticals, Ridge Diagnostics, Roche, RCT Logic, Sanofi-Aventis, Sepracor, Servier Laboratories, Schering-Plough, Solvay, Somaxon, Somerset, Sunovion, Supernus, Synthelabo, Takeda, Tal Medical, Tetragenex, TransForm Pharmaceuticals, Transcept, and Vanda; has speaking/publishing relationships with Adamed, Advanced Meeting Partners, American Psychiatric Association, American Society of Clinical Psychopharmacology, AstraZeneca, Belvoir Media Group, Boehringer Ingelheim GmbH, Bristol-Myers Squibb, Cephalon, CME Institute/Physicians Postgraduate Press, Eli Lilly, Forest, GlaxoSmithKline, Imedex, Massachusetts General Hospital (MGH) Psychiatry Academy/Primedia, MGH Psychiatry Academy/Reed Elsevier, Novartis AG, Organon, Pfizer, PharmaStar, United BioSource, and Wyeth-Ayerst; has equity holdings (excluding mutual funds/blinded trusts) with Compellis; has received royalty/patent or other income for Sequential Parallel Comparison Design (SPCD) and patent application for a combination of azapirones and bupropion in major depressive disorder; has received copyright royalties for the MGH Cognitive & Physical Functioning Questionnaire, Sexual Functioning Inventory, Antidepressant Treatment Response Questionnaire, Discontinuation-Emergent Signs & Symptoms Scale, and State vs Trait, Accessibility, Facial Validity, Exological Validity, Rule of 3 *P*'s (SAFER); and has received a patent for research and licensing of SPCD with RCT Logic; Lippincott, Williams & Wilkins; World Scientific Publishing. **Dr Gollan** has received grant/research support from NIMH, Northwestern Memorial Hospital Women's Board, Evergreen Invitational Award, NARSAD, Educational Foundation of America, American Foundation of Suicide Prevention, and Brain Research Foundation and other financial or material support from the American Psychological Association. **Dr Warden** has owned stock in Pfizer, and Bristol-Myers Squibb within the last five years and has received funding from NARSAD. **Dr Nierenberg** has been a consultant for Appliance Computing, Medergy, Brain Cells, Johnson & Johnson, Labopharm, Merck, PGx Health, Targacept, and Takeda/Lundbeck; has received grant/research support from Agency for Healthcare Research and Quality, NIMH, PamLab, Pfizer, Shire, and Wyss Institute for Biologically Inspired Engineering; has also received honoraria from American Society for Clinical Psychopharmacology, American Professional Society of ADHD and Related Disorders, Belvior Publishing, Canadian Psychiatric Assoc, CNS Spectrums, Dartmouth

Medical School, Johns Hopkins Medical School, MBL Publishing, Montreal McGill Douglas Hospital, Northeast Counseling Center Directors, PamLab, Physicians Postgraduate Press, SciMed, Slack Med, University of Florida, WebMD, and Wolters Klower Publishing; has been a presenter for MGH Psychiatry Academy (MGHPA talks are supported through Independent Medical Education [IME] grants from the following pharmaceutical companies in 2008: AstraZeneca, Eli Lilly, and Janssen); is on the advisory boards of Appliance Computing, Brain Cells, InfoMedic, Johnson & Johnson, Takeda/Lundbeck, and Targacept; owns stock options in Appliance Computing and Brain Cells; and, through Massachusetts General Hospital, is named for copyrights to The Clinical Positive Affect Scale and the MGH Structured Clinical Interview for the Montgomery-Asberg Depression Scale, exclusively licensed to the Clinical Trials Network and Institute. **Dr Gaynes** has received grants and research support from NIMH, Agency for Healthcare Research and Quality, Robert Wood Johnson Foundation, M-3 Corporation, Bristol-Myers Squibb, Novartis, Pfizer, and Ovation; has performed as an advisor or consultant for Bristol-Myers Squibb, Pfizer, Shire, and Wyeth-Ayerst; and has also received a speaker's honorarium from GlaxoSmithKline. **Dr Husain** has received research support from NIMH, Stanley Medical Research Institute, Cyberonics, Neuronetics, Magstim, and Advanced Neuromodulation Systems; and has served on advisory boards or speakers bureaus for Cyberonics, Avinar, Cerebrio, AstraZeneca, Bristol-Myers Squibb, Optima/Forest, GlaxoSmithKline, Forest, and Janssen. **Dr Zisook** receives grant support from the NIMH, the Veterans Affairs Cooperative Studies Program, the American Foundation for Suicide Prevention, and PamLab. **Dr Rush** has received consultant fees from Advanced Neuromodulation Systems, AstraZeneca, Best Practice Project Management, Brain Resource, Bristol-Myers Squibb/Otsuka, Cyberonics, Forest, Gerson Lehrman Group, GlaxoSmithKline, Jazz, Magellan Health Services, Merck, Neuronetics, Novartis, Ono, Organon, Otsuka, PamLab, Pfizer, University of Michigan, Transcept, Urban Institute, and Wyeth-Ayerst; has received speaking fees from Cyberonics, Forest, GlaxoSmithKline, and Otsuka; has received royalties from Guilford Publications, Healthcare Technology Systems, and University of Texas Southwestern Medical Center; has received research support from NIMH and the Stanley Medical Research Institute; and has owned shares of stock in Pfizer. **Dr Morris** and **Mr Luther** have no disclosures to report.

Funding/support: This project was funded by the NIMH under contract N01MH90003 to University of Texas Southwestern Medical Center at Dallas (primary investigator, Dr Trivedi).

Role of sponsor: The NIMH approved of the design of the overall study and reviewed its conduct, but performed no role in the collection, management, and interpretation of the data analyzed in this article, nor in the preparation, review, or approval of the manuscript.

Disclaimer: The content of this publication does not necessarily reflect the views or policies of the Department of Health and Human Services, nor does mention of trade names, commercial products, or organizations imply endorsement by the US Government.

Acknowledgement: The authors would like to acknowledge the editorial support of Jon Kilner, MS, MA, (Pittsburgh, Pennsylvania). Mr Kilner is an independent contractor unaffiliated with any organization and has no disclosures to report.

REFERENCES

1. Moynihan R. FDA advisory panel calls for suicide warnings over new antidepressants. *BMJ*. 2004;328(7435):303.
2. Healy D. Lines of evidence on the risks of suicide with selective serotonin reuptake inhibitors. *Psychother Psychosom*. 2003;72(2):71–79.
3. Mann JJ, Kapur S. The emergence of suicidal ideation and behavior during antidepressant pharmacotherapy. *Arch Gen Psychiatry*. 1991;48(11):1027–1033.
4. Hansen L, Wilkinson DG. Drug induced akathisia, suicidal ideation and its treatment in the elderly. *Int J Geriatr Psychiatry*. 2001;16(2):231–233.
5. Food and Drug Administration. Labeling change request letter for antidepressant medications.http://www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/ucm096352.htm. Last updated February 29, 2009; Accessed May 5, 2011.
6. Miller IW, Norman WH, Bishop SB, et al. The Modified Scale for Suicidal Ideation: reliability and validity. *J Consult Clin Psychol*. 1986;54(5):724–725.
7. Posner K, Oquendo MA, Gould M, et al. Columbia Classification Algorithm of Suicide Assessment (C-CASA): classification of suicidal events in the FDA's pediatric suicidal risk analysis of antidepressants. *Am J Psychiatry*. 2007;164(7):1035–1043.
8. Beck AT, Weissman A, Lester D, et al. Classification of suicidal behaviors, 2: dimensions of suicidal intent. *Arch Gen Psychiatry*. 1976;33(7):835–837.
9. Zimmerman M, Mattia JI. A self-report scale to help make psychiatric diagnoses: the Psychiatric Diagnostic Screening Questionnaire. *Arch Gen Psychiatry*. 2001;58(8):787–794.
10. Zimmerman M, Mattia JI. The Psychiatric Diagnostic Screening Questionnaire: development, reliability and validity. *Compr Psychiatry*. 2001;42(3):175–189.
11. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision. Washington, DC: American Psychiatric Press; 2000.
12. Trivedi MH, Rush AJ, Wisniewski SR, et al; STAR*D Study Team. Evaluation of outcomes with citalopram for depression using measurement-based care in STAR*D: implications for clinical practice. *Am J Psychiatry*. 2006;163(1):28–40.
13. Trivedi MH, Rush AJ, Gaynes BN, et al. Maximizing the adequacy of medication treatment in controlled trials and clinical practice: STAR(*)D measurement-based care. *Neuropsychopharmacology*. 2007;32(12):2479–2489.
14. Trivedi MH, Daly EJ. Measurement-based care for refractory depression: a clinical decision support model for clinical research and practice. *Drug Alcohol Depend*. 2007;88(suppl 2):S61–S71.
15. Rush AJ, Carmody TJ, Reimitz PE. The Inventory of Depressive Symptomatology (IDS): clinician (IDS-C) and self-report (IDS-SR) ratings of depressive symptoms. *Int J Methods Psychiatr Res*. 2000;9(2):45–59.
16. Rush AJ, Trivedi MH, Ibrahim HM, et al. The 16-Item Quick Inventory of Depressive Symptomatology (QIDS), clinician rating (QIDS-C), and self-report (QIDS-SR): a psychometric evaluation in patients with chronic major depression. *Biol Psychiatry*. 2003;54(5):573–583, Erratum 585.
17. Trivedi MH, Rush AJ, Ibrahim HM, et al. The Inventory of Depressive Symptomatology, Clinician Rating (IDS-C) and Self-Report (IDS-SR), and the Quick Inventory of Depressive Symptomatology, Clinician Rating (QIDS-C) and Self-Report (QIDS-SR) in public sector patients with mood disorders: a psychometric evaluation. *Psychol Med*. 2004;34(1):73–82.
18. Levine J, Schooler NR. SAFTEE: a technique for the systematic assessment of side effects in clinical trials. *Psychopharmacol Bull*. 1986;22(2):343–381.
19. Wisniewski SR, Rush AJ, Balasubramani GK, et al; for the STARD Investigators. Self-rated global measure of the frequency, intensity, and burden of side effects. *J Psychiatr Pract*. 2006;12(2):71–79.
20. Hamilton M. A rating scale for depression. *J Neurol Neurosurg Psychiatry*. 1960;23(1):56–62.
21. Hamilton M. Development of a rating scale for primary depressive illness. *Br J Soc Clin Psychol*. 1967;6(4):278–296.
22. Sangha O, Stucki G, Liang MH, et al. The Self-Administered Comorbidity Questionnaire: a new method to assess comorbidity for clinical and health services research. *Arthritis Rheum*. 2003;49(2):156–163.
23. Osman A, Gutierrez PM, Kopper BA, et al. The positive and negative suicide ideation inventory: development and validation. *Psychol Rep*. 1998;82(3, Pt 1):783–793.
24. Beck AT, Epstein N, Brown G, et al. An inventory for measuring clinical anxiety: psychometric properties. *J Consult Clin Psychol*. 1988;56(6):893–897.
25. Beck AT, Steer RA. *Beck Anxiety Inventory Manual*. San Antonio, TX: Psychological Corporation; 1990.
26. Wetzel RD. Hopelessness, depression, and suicide intent. *Arch Gen Psychiatry*. 1976;33(9):1069–1073.
27. Mundt JC, Greist JH, Gelenberg AJ, et al. Feasibility and validation of a computer-automated Columbia-Suicide Severity Rating Scale using interactive voice response technology. *J Psychiatr Res*. 2010;44(16):1224–1228.
28. Brent DA, Greenhill LL, Compton S, et al. The Treatment of Adolescent Suicide Attempters study (TASA): predictors of suicidal events in an open treatment trial. *J Am Acad Child Adolesc Psychiatry*. 2009;48(10):987–996.
29. Brent DA, Emslie GJ, Clarke GN, et al. Predictors of spontaneous and systematically assessed suicidal adverse events in the treatment of SSRI-resistant depression in adolescents (TORDIA) study. *Am J Psychiatry*. 2009;166(4):418–426.

See p 765 for a report by Trivedi et al on the Concise Associated Symptoms Tracking Scale.

© Copyright 2011 Physicians Postgraduate Press, Inc.