Technology Assessment Program
Office of Patient Care Services

VATAP SHORT REPORT: *OUTCOMES MEASUREMENT IN SCHIZOPHRENIA (NUMBER 2 IN A SERIES: OUTCOMES MEASUREMENT IN VHA MENTAL HEALTH SERVICES)*

September 2003

Item	Yes	Partly	No
Preliminary			
1. Appropriate contact details for further information?	√		
2. Authors identified?	√		
3. Statement regarding conflict of interest?			√
4. Statement on whether report externally reviewed?	√		
5. Short summary in non-technical language?	√		
Why?			
6. Reference to the question that is addressed and context of the assessment?	√		
7. Scope of the assessment specified?	√		
8. Description of the health technology?	√		
How?			
9. Details on sources of information?	√		
10. Information on selection of material for assessment?	√		
11. Information on basis for interpretation of selected data?	√		
What?			
12. Results of assessment clearly presented?	√		
13. Interpretation of the assessment results included?	√		
What Then?			
14. Findings of the assessment discussed?	√		
15. Medico-legal implications considered?	√		
16. Conclusions from assessment clearly stated?	√		
17. Suggestions for further actions?		√	

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Technology Assessment Program
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VA TECHNOLOGY ASSESSMENT PROGRAM SHORT REPORT

Outcomes Measurement in Schizophrenia (Number 2 in a Series: Outcomes Measurement in VHA Mental Health Services)

Number 7 One of a series of reports on Outcomes Measurement for Serious Mental Illness September, 2003

Executive Summary

- Schizophrenia is a serious psychiatric disorder characterized by delusions and hallucinations with thought and behavior disorders. The average age at diagnosis is 25 years; consequently, the disease often interferes significantly with important aspects of young adult functional development, leading to lifelong deficits. Schizophrenia is the second most common discharge diagnosis in VHA, with an average cost of $44,000 per patient per year.

- Schizophrenia is a complex setting for outcomes assessment because its course is variable within and among patients, who have variable length and stage of illness (acute and chronic). The variety of symptom clustering schemes and instruments used clinically to measure symptom severity indicates that no single approach is universally applicable. Response to treatment also is variable and difficult to predict for individual patients. Finally, even with the good acute symptom control possible with today's anti-psychotic drugs, functioning and social reintegration may remain problems. In this setting, instruments used in drug therapy trials tend to be generic, rather than schizophrenia-specific, measures of symptom severity.

- VATAP applied methods, including selection criteria, as detailed in the Overview, to standardized instruments developed for schizophrenia. Only one instrument intended specifically for schizophrenia is indexed under that heading in VATAP's primary resource for this series, the APA *Handbook of Psychiatric Measures,* so VATAP also applied VHA selection criteria to instruments that the literature indicates are frequently used in schizophrenia, or to those identified through other sources, including VA investigator research reports.

- Contrary to judgments by other technology assessment agencies (see Overview), that quality of life (QoL) instruments are not suitable for routine use, VHA investigators have reported encouraging findings with some QoL instruments in schizophrenia. Accordingly, those instruments are included in this report.

- Application of VHA criteria to schizophrenia instruments identified through the variety of means noted above resulted in: one QoL instrument [the Quality of Well-Being Scale, self-administered (QWB-SA)] meets all criteria; two additional QoL instruments (Lehman Quality of Life Interview; Heinrich-Carpenter-Hanlon Quality of Life Scale), meet all criteria with the exception of availability of an electronic version; and one schizophrenia-specific instrument (Life Skills Profile) meets seven of the eight criteria. However, QWB-SA has not been tested in patients with schizophrenia to see if they can reliably complete the self-administered version, although the interviewer-administered version has been tested and found acceptable.

- VHA clinicians and managers thus have a variety of constructs and instruments from

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which to choose those most suited to outcomes measurement for schizophrenia care.

Background

Schizophrenia is a chronic psychiatric disorder with a lifetime prevalence of approximately one percent (Lawrie, 2001).

Prevalence in 1999 among veterans treated in VHA was 4.6% (Jansen, 2001). Schizophrenia is the second most common discharge diagnosis in the VHA system, with an average cost of $44,000 per patient, per year (HSR&D, 2001).

Diagnosis is based on specific symptoms (delusions, hallucinations, thought disorder, unusual behavior), which usually are clustered as positive (listed above) and negative (deficits in emotional and verbal expression and in motivation and self-care); but alternate symptom clusters have been proposed (White, 1997; Norman, 2000). Depression can overlap and co-exist with negative symptoms and is associated with a high relapse rate and increased mortality (Kontaxakis, 2000).

Risk factors for schizophrenia that have been investigated include family history (although no major genes have been identified), obstetric complications, developmental difficulties, central nervous system infections in childhood, cannabis use, and acute life events. However, the precise contributions of these factors individually, and their interactions, remain undefined (Lawrie, 2001).

The onset of schizophrenia occurs typically in young adults with an average age of 25 years. The disease has acute and chronic phases, with a variable course among individuals and within individuals over time.

Response to treatment and outcomes also are highly variable. Although the disease was originally defined retrospectively by its dismal outcome, some schizophrenics do remarkably well with modern anti-psychotic drugs. However, return to pre-morbid status is uncommon and approximately 75% of patients suffer relapse and continued disability. While anti-psychotic drugs are generally successful in treating positive symptoms, negative symptoms remain notoriously intractable (Lawrie, 2001).

"Schizophrenia is too often a severely disabling disease, and the discovery of interventions that can ease or eliminate symptoms without troubling side effects has long been the goal of schizophrenia research. In this endeavor, researchers, clinicians, and patients all desire an optimal outcome; outcome measures, which measure the relative success or failure of an intervention, are accordingly important." (Conley, 2001)

"Information about outcome status has contributed to the creation, refinement, and validation of the concept of schizophrenia. Nevertheless, there is still much confusion regarding the exact relationship between, predictors, diagnostic criteria, and characteristics of outcome in this disorder." (Strauss and Carpenter, 1972)

Since Strauss and Carpenter proposed their four-domain outcome scale for schizophrenia, the subsequent literature reviewed by VATAP for this report does not indicate increased consensus on the optimal instrument. Many therapeutic trials rely on global measures of symptoms or functioning, including some of the instruments discussed in the "Overview" to this series (Thornley, 1998; Lawrie, 2001) and tabulated in the Appendix here.

Schizophrenia "*is associated with increased risk of suicide, particularly among younger persons, and increased morbidity and mortality because of a variety of physical illnesses later in life. These factors result in an overall reduction in life expectancy of about 10 years compared to the general population…a typical picture of the course of schizophrenia is: it begins in adolescence or early adulthood, interferes significantly with development during those years, and leaves the affected person with various deficits in the capacities to work, form interpersonal relations, and function independently.*" (Adler, 1992)

About half of the patients with schizophrenia do not adhere to treatment in the short term, and lack of compliance (usually attributed to unpleasant side effects of anti-psychotic drugs) is worse long-term (Lawrie, 2001).

Adler (1992) notes that the variable and protracted course of schizophrenia complicates outcomes assessment, and that multiple independent outcomes domains (symptoms, social function, and work) should be considered. Conley (2001) confirms continuing difficulties with defining and measuring outcomes against this heterogeneous background.

McGlashan (1998) reviewed North American long-term follow-up studies, all of which used non-standardized outcome indictors. However, Lindstrom (1996) reported the use of two standardized instruments, Strauss-Carpenter Outcome Scale (SCOS), and Comprehensive Psychopathological Rating Scale (CPRS) in a Swedish longitudinal study.

Unpublished and frequently non-standardized instruments have been demonstrated to be a source of bias in randomized trials of schizophrenia treatments (Marshall, 2000). Such instruments may have been developed for use in a specific research setting, but frequently have not been adequately tested for validity and reliability in either the original research or other settings.

Assessment Methods

Please see the "Methods" section of the Overview report for additional detail. To recapitulate briefly:

VATAP's customary approach to assessment is the qualitative systematic review, which is tailored to evaluating literature on the efficacy of health care interventions.

For the current project, VATAP's charge was to identify the most appropriate standardized outcomes instruments available for use by VHA mental health services. While the aim remained a methodologically transparent and systematic product, the size and scope of the literature encouraged VATAP to draw heavily on existing compendia rather than on original research reports, with reference to the latter where needed or helpful. The *Handbook of Psychiatric Measures* [American Psychiatric Association (APA), 2000] was particularly central to compiling this series of reports.

The series thus attempts to capitalize on existing compendia and reviews of standardized mental health care outcomes measures while providing another level of synthesis. It can be considered a secondary review of other resources, supplemented from the primary research literature as needed, and framed in the context of VHA mental health services. VATAP used the material in the Overview Appendix B to generate selection criteria for the VHA outcomes instruments. The same criteria used in the Overview for global instruments of symptoms, disability, and functioning will be applied to schizophrenia instruments here:

Criteria for VHA outcomes instruments

1. Original purpose congruent with intended VHA use for tracking and reporting the quality of care and documenting effective treatment of veteran patients;
2. Multidimensional;
3. Acceptable reliability and validity;
4. Sensitivity to change;
5. Feasible for routine use;
6. Electronic data entry, analysis;
7. Readily interpretable by non-professionals;
8. Free or obtainable to VHA at minimal cost.

In addition to the methods used for the Overview, VATAP scanned articles identified through its literature database searches that described or analyzed instruments used in schizophrenia. This approach allowed VATAP to identify additional instruments to the one indexed under "Schizophrenia" in the APA *Handbook of Psychiatric Measures* (2000).

Comprehensive searches of the psychological and biomedical databases, MEDLINE®, HEALTHStar®, PSYCInfo®, Current Contents®, EMBASE®, The Cochrane Library®, and the

extensive local monograph collections of McLean Psychiatric Hospital, and the Countway Library of Medicine were carried out. The monographic literature contributed several highly useful books on mental health instruments and outcomes evaluation.

Bibliographic search strategy terms included many exploded MeSH® subject headings for schizophrenia and other psychoses. These terms and their synonyms combined with terms and free text words describing treatment outcomes, outcomes measures, outcomes assessment, treatment efficacy, instruments and surveys, and outcomes evaluation yielded substantial results. These results were combined with additional terms describing study designs, types, randomization, systematic reviews, and age groups (adult, middle age, aged). Over 1400 references, including end references, ranging from 1976 to 2001 were retrieved. Of these, approximately 300 were reviewed for inclusion.

Quality of Life (QoL) measures are sometimes used in schizophrenia (Cramer, 2000; Knudsen, 2000). However, the length and complexity of these measures generally render them unsuitable for routine clinical use. Finally, a critical review of QoL instruments in schizophrenia (Simeoni, 2000) confirmed that research has not supported sensitivity to change for such instruments, although VHA researchers have used them (Pyne, 2002; Rosenheck, 1998). Pyne (2002) does document sensitivity to change for one QoL instrument, the Quality of Well-being Scale. These and other VHA research results argued for inclusion of QoL instruments in this component of the series.

Results

Application of VHA criteria

One QoL instrument (the Quality of Well-Being Scale, self-administered) meets all criteria; two additional QoL instruments (Lehman Quality of Life Interview; Heinrich-Carpenter-Hanlon Quality of Life Scale), meet all criteria with the exception of availability of an electronic version; one generic instrument used frequently in schizophrenia (Role Functioning Scale) meets six of the eight criteria; and one schizophrenia-specific instrument (Life Skills Profile) meets seven of the eight criteria.

Instruments applicable to schizophrenia were identified through the following sources:

APA *Handbook*

The APA *Handbook* (Fischer, 2000) indexes only one instrument under “Schizophrenia”: the Schizophrenia Outcomes Module (SCHIZOM). The editors provide no explanation for the meager index listing, but further reading in the *Handbook* and other sources identifies additional instruments that were either developed specifically for schizophrenia or have been widely used in the disorder, including by VHA clinical researchers. For example, according to the *Handbook,* the Life Skills Profile (LSP) was designed primarily for use in schizophrenia (Parker, 2000).

Reviews

Existing reviews or overviews of the schizophrenia literature give further guidance on available standardized measures applicable to schizophrenia:

In a survey of the content and quality of intervention studies relevant to schizophrenia treatment, Thornley (1998) analyzed 2000 published randomized trials of schizophrenia therapy in the Cochrane Schizophrenia Group’s register. Twenty-five percent of the trials did not use a standardized outcomes instrument. The 1490 remaining trials used 640 different standardized instruments. Among these, the most frequent were the Brief Psychiatric Rating Scale (BPRS), used in 40 percent of the trials, and the Scale for Assessment of Negative Symptoms (SANS), used in six percent of the trials. Twenty-two percent of trials assessed side effects by means of measures not specified by Thornley, and 369 instruments were used in only one trial. Twenty percent of trials used global measures of symptoms or functioning, including those discussed in the Overview (e.g., GAF or CGI).

Lawrie (2001) searched the Cochrane Library Issue 2, (2000) further confirming that most schizophrenia trials were small short-term ones, and as a group used many different outcomes measures. These authors provided a concise and useful list of outcomes of schizophrenia treatment: severity of positive and negative symptoms; global clinical impression (CGI); rate of relapse; adherence to treatment; adverse effects of treatment. Of these, only CGI is a standardized instrument *per se*, although other standardized instruments address symptom severity.

The schizophrenia chapter (Sheitman, 1998) of the Nathan and Gorman monumental overview, *A Guide to Treatments that Work*, reports results of atypical anti-psychotic drug trials as changes in CGI and BPRS scores.

In another overview volume, Sweeney (1989) tabulates standardized instruments for schizophrenia according to the domain addressed and the primary application. Sweeney lists: Schedule for Affective Disorders and Schizophrenia (SADS); BPRS; Scale for the Assessment of Positive Symptoms (SAPS); Scale for the Assessment of Negative Symptoms (SANS); Hamilton Scale for Rating Depression (HSRD); and Social Adjustment Scale (SAS).

Single studies of instruments

Brekke (1992) confirmed the use of idiosyncratic or global instruments in many schizophrenia trials, and examined the relationships among three outcomes scales (Global Assessment Scale; Strauss and Carpenter Outcome Scale; and Role Functioning Scale) used in schizophrenia. Of these, only the Global Assessment Scale is included in the APA *Handbook.* Its successor, the Global Assessment of Function (GAF), is already in use within VHA and was included on this assessment's short list of global measures suitable for routine VHA use, as discussed in the "Overview".

Steinert (1999) compared costs and outcomes in a group of German schizophrenics using the Positive and Negative Symptom Scale (PANSS) and the World Health Organization Disability Assessment Schedule (WHO-DAS). The APA *Handbook* (2000) reports the development and testing of the latter as incomplete; VATAP's literature database searches failed to identify final published reports on reliability or feasibility.

Cramer (2000) compared ratings from three quality of life instruments [the Lehman Quality of Life Interview (LQLI), Heinrichs-Carpenter-Hanlon Quality of Life Scale (HQLS), and Strauss-Carpenter Level of Function Scale (SLOF, a brief precursor of HQLS)] with each other, with symptom severity [Positive and Negative Symptom Scales (PANSS)], and with clinical global instruments [GAS and CGI].

EPSILON study

The European Psychiatric Services: Inputs Linked to Outcome Domains and Needs (EPSILON) study used five instruments for its cross-national study of schizophrenia (Becker, 2000; Knudsen, 2000). EPSILON's aim was to produce standardized European versions of five instruments in key areas of mental health services in five languages and to compare data on patients with schizophrenia from five countries. The instruments were: Camberwell Assessment of Need (CAN); Client Service Receipt Inventory (CSRI); Involvement Evaluation Questionnaire (IEQ); Lancashire Quality of Life Profile (LQoLP); and Verona Service Satisfaction Scale (VSSS). Among these, CAN, LQoLP, and VSSS meet the definition of outcomes adopted for this series of VATAP reports (see Overview), although these instruments are not included in the APA *Handbook.*

VHA research

Work by VHA investigators provides further guidance on instruments useful in a schizophrenia setting. Rosenheck (1998) reported cost-effectiveness of clozapine in the treatment of refractory schizophrenia. These authors constructed a composite health index for schizophrenia, using six outcomes domains as measured by standardized instruments: symptoms (PANSS total score); side effects (a side effects composite score from several instruments); family relationships (Lehman

Quality of Life Interview family subscale); social relationships (Heinrichs-Carpenter Quality of Life Scale relationship subscale); daily activities (Heinrichs-Carpenter Quality of Life Scale objects and activities subscale); and community role function (Heinrichs-Carpenter Quality of Life Scale role function subscale).

Cramer (2000) compared three QoL instruments used in a VHA clinical trial: Lehman Quality of Life Interview; Heinrichs-Hanlon-Carpenter Quality of Life Scale; and Strauss-Carpenter Level of Function Scale. These authors found the Quality of Life Interview to be less sensitive to change than the others for clinical trial use, concluding that QoL in schizophrenia is a more heterogeneous concept than previously appreciated. Pyne (2002) reports results for the Quality of Well Being Scale that confirm this view. Pyne (2002) compared four QoL instruments used in an observational VHA study: Quality of Well-Being scale (QWB), a quality-adjusted index score based on the SF-36 VAS, Veterans SF-36 mental health component summary score (MCS), and the World Health Organization Disablement Assessment Schedule (WHO-DAS). These authors found the QWB to be more sensitive to schizophrenia-specific symptom change than the other instruments.

Using the model established in the Overview, which is based on data elements provided in the APA *Handbook,* abstracted details on instruments that are potentially useful as schizophrenia outcomes measurements within VHA are presented in Table 1, and summarized in Table 2. Information is included in this report's tables and discussion to the extent that comparable information to that in the APA *Handbook* could be obtained from other sources.

Summary And Discussion

VATAP identified thirteen instruments that were either developed for outcomes measurement in schizophrenia or have been frequently used to that end. The purposes underlying two of these, the Schizophrenia Outcomes Module (SCHIZOM) and the Role Functioning Scale (RFS), most closely align with the VHA's intended use. However, only one QoL instrument, the self-administered version of the Quality of Well Being scale, (…the self-administered QWB has not been tested or used in patients with schizophrenia, however) meets all VHA selection criteria for an outcomes instrument.

The length and relative complexity of SCHIZOM, at least on paper, argue against its use for routine outcomes data collection on a large scale, and information on RFS (including a copy of the instrument itself) was neither fully nor immediately available to VATAP, due to its omission from the APA *Handbook*. Among the remaining instruments fully or closely meeting the criteria for VHA use; three are QoL instruments (Lehman Quality of Life Interview, Heinrich-Hanlon-Carpenter Quality of Life Scale; Quality of Well Being scale, self-administered). Once again, the self-administered version has not been evaluated for use in patients with schizophrenia – the questions here would be (1) whether or not these patients can reliably and accurately complete a self-administered measure or (2) what subgroup of patients cannot reliably complete the self-administered measure, e.g. the more severely symptomatic patients. Another [Life Skills Profile (LSP)] was developed specifically for use in schizophrenia. As noted in the corresponding discussion for the "Overview" section of this series, VHA clinicians and managers will need to reach consensus regarding preferred outcomes dimensions before finally selecting an instrument or instruments for routine use in this disorder.

The need for consensus on preferred approaches for VHA is further supported in that one of the high ranking global instruments discussed in the "Overview", the Global Assessment of Function (GAF), is not a pervasive presence in the schizophrenia literature.

Brekke (1992) found only modest convergent validity among SCOS, GAF, and RFS, suggesting support for Straus' and Carpenter's conception of outcomes as an open-linked

system in which measurements should be made of separate dimensions across a variety of functioning domains, with care taken to recognize non-significant correlations between some domains, e.g., work and social function. In contrast, Brekke found significant correlation between independent living/self care, family, and work dimensions.

In conclusion, Brekke (1992) gave good counsel for thoughtful discussion and consideration among all VHA participants in outcomes measurement deliberations: *"While the rationale for a uniform and integrated outcome assessment battery is straightforward, its development is more problematic."*

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Appendix

Criteria for VA use of standardized measures of mental health care outcome

1. Original purpose congruent with intended VA use for quality of care tracking and reporting, performance measure for effective treatment of veteran patients;
2. Multidimensional;
3. Acceptable psychometrics (reliability and validity);
4. Sensitive to change;
5. Feasible for routine use (i.e., brief, imposing minimal administrative, clinical, and respondent burdens);
6. Electronic data entry and/or analysis available;
7. Low cost (i.e., measure in the pubic domain or available for distribution and use at minimal cost to VA);
8. Readily interpretable by non-professionals (i.e., summary score of generally understood construct not requiring extensive background information for interpretation and immediate understanding).

Notes: Unless otherwise noted, the information in this table was obtained from The American Psychiatric Association's *Handbook of Psychiatric Measures* (2000). Instruments still under development, or with full development results not yet published were omitted from this and table 2, as available information is likely to be incomplete. Instruments not included in the APA *Handbook* were omitted from Table 1 unless comparable (i.e., substantially equivalent) information could be obtained from alternate sources.

Abbreviations in Appendix

APA, American Psychiatric Association [*Handbook of Psychiatric Measures* (2000)]
BPRS, Brief Psychiatric Rating Scale
CGI, Clinical global impressions scale
GAF, Global Assessment of Function
HQLS, Heinrich-Carpenter-Hanlon Quality of Life Scale
LQLI, Lehman Quality of Life Interview
LSP, Life Skills Profile
PANSS, Positive and Negative Symptom Scale
Q0L, Quality of Life
QWB, Quality of Well-Being scale
QWB-SA, Quality of Well Being scale – Self Administered
RFS, Role Functioning Scale
SANS, Scale for the Assessment of Negative Symptoms
SAPS, Scale for the Assessment of Positive Symptoms
SCHIZOM, Schizophrenia Outcomes Module
SCOS, Strauss Carpenter Outcome Scale (Strauss, 1972)
WHO, World Health Organization
?, inconclusive research reports do not permit definitive conclusions on this criterion

Table 1: Measures evaluation matrix: Abstracted details for instruments specific to schizophrenia, global instruments frequently used in schizophrenia, and Quality of Life instruments used in schizophrenia by VA investigators

Name	Purpose	Multi-Dimen-sional?	Reliability	Validity	Change?	Time	Acceptability	Who?	Electronic?	Cost	Interpretation
Global Instruments (see Overview in this series of reports) frequently used in schizophrenia											
CGI	To allow clinicians to rate severity of illness, change over time & efficacy of medication, taking into account patient's clinical condition & severity of side effects	No: Symp-toms, improve-ment, adverse reactions. Function not specifically rated.	Mixed research results: Test retest reliability low, but Internal consistency high	Good concurrent validity	Good sensitivity to change over time	1-2 minutes after a clinical interview	Widely used outcome scale in psycho-pharmacology trials in spite of mixed results on reliability	Clinician	No	Public domain	Sub-scales: Severity of illness, global improvement, efficacy index
RFS	Developed to report outcomes in Georgia state mental health programs to chronically ill (McPheeters, 1984). Sub-scales: working, independent living, immediate social network, extended social network	No, functioning but not symptoms	Not published (Green and Gracely, 1987)	Not published (Green and Gracely, 1987)	Good (Green and Gracely, 1987)	Brief, but time to complete not explicit in literature.	Probably good (Green and Gracely, 1987)	Not explicit in literature	No	Low (Green and Gracely, 1987)	Straightforward summary score (Green and Gracely, 1987)
BPRS	Designed to measure symptom change in patients with psychotic illness	No, symptoms only	Varies with training and experience of clinician rater. Good joint reliability requires considerable time and effort: results of joint rating sessions should be discussed to improve reliability.	Inpatients and outpatients, but less useful for patients with low levels of psychopathology. Positive and negative symptom sub-scales of BPRS highly correlated with those of PANSS; total scores on BPRS and PANSS also highly correlated.	Only in patients with high levels of psychopathology, less so in patients with lower levels.	20-30 minutes, depending on familiarity with patient and on patient cooperation	Often used to assess effectiveness of interventions. Clinical use less well documented. Does not cover all areas of potential clinical interest. Items consistent with domains routinely covered in clinical assessment.	Experienced clinician, using information from interview and patient observation	No	Public domain	Simple, efficient review & summary of broad range of clinically relevant psychopathology

Name	Purpose	Multi-Dimen-sional?	Reliability	Validity	Change?	Time	Acceptability	Who?	Electronic?	Cost	Interpretation
Schizophrenia-specific instruments											
LSP	To measure functional disability in adults with schizophrenia; To chart general functioning over time.	No: functioning indepen-dent of symptoms	Cronbach's alpha (internal consistency): .67-.88 (high). Test-retest reliability good.	Good (high correlation to BPRS). Good predictor of readmission after discharge.	Yes (Trauer, 1997)	5 minutes by respondent who knows patient well; up to 20 minutes if informant interview is needed.	Likely to be good: brief and simple, can be administered by non-clinicians.	Anyone who knows patient well.	Yes	Copy-righted ($1 per form), but costs may be waived	5 sub-scale scores corresponding to areas of disability
PANSS	To measure severity of psychopathology in adults with schizophrenia, schizo-affective disorder, or other psychoses Includes items from BPRS	No: symptoms only	Good to excellent joint reliability. Intra-class correlation coefficients >.80	Good concurrent validity	Yes	30-40 minutes to administer and score	Usefulness in clinical settings not empirically demonstrated, but easy to use reliably	Clinician	In develop-ment	Copy-righted ($95 for manual and 25 forms)	Positive, negative, and general psycho-pathology scales
SAPS and SANS	Complementary instruments to assess severity of symptoms in schizophrenia and other psychotic disorders	Not strictly, but, global rating includes impact of symptom on function.	Inter-rater fair to excellent; training specific to scales required. Test-retest modest. Internal consistency high.	High correlation between these scales and others for symptom severity in schizophrenia (except for BPRS factors of anxiety, depression, activity, hostility).	Yes	30 minutes each = 60 minutes total	Used in numerous studies to monitor treatment response; can be administered as part of clinical interview. More difficult to learn, take longer than PANSS or BPRS.	Psychiatric clinicians	Not noted	Copyrighted, but can be obtained without cost.	Individual items plus global severity for each SANS domain. Used together, comprehensively describe symptoms in schizophrenia and other psychotic disorders

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Name	Purpose	Multi-Dimen-sional?	Reliability	Validity	Change?	Time	Acceptability	Who?	Electronic?	Cost	Interpretation
SCHIZOM	To assess process of care, patient characteristics, and outcomes of care for schizophrenic adults in mental health care settings. Designed to be used as part of outcomes management/ system that aggregates data at provider or system level to monitor and improve outcomes	Yes: Symptom severity + disease-specific and general functional status	Cronbach's alpha adequate for symptom severity, IADLs, social activities. Test-retest reliability good for all scales but suicidal and violent behaviors, pre-morbid adjustment.	Acceptable to good; significant correlations with gold standard instruments (BPRS, Addiction Severity Index, Neuro-behavioral Cognitive Status Exam, Personal Profile) for all domains but IADLs	Yes, but period during which outcomes are measured should represent a clinically meaningful episode.	20-28 minutes, in spite of 73 pages (includes some SF-36 questions)	Useful as comprehensive set of instruments for outcomes monitoring and management	Lay interviewer (no specific training required) to patient and other informant (separately)	No	Copyrighted, but available without cost if used in clinical care or research without charges to patients.	Baseline and 6-month follow-up assessments generate several scores: outcomes (change from baseline); Symptom severity; Other domains (suicide, IADLs, productive activity, social activity, housing independence, legal problems, leisure activities, satisfaction). SF-36 scored as usual
SCOS (Strauss, 1972)	Developed for use in a study to predict outcome in schizophrenia: WHO international pilot study of schizophrenia	Yes, symptoms and functioning	Inter-rater reliability high	Mixed evidence for convergent validity among SCOS, GAF, RFS (Brekke, 1992); convergent validity among scales is only modest	Not reported in original reference (Strauss, 2972)	Not explicitly reported in original reference (Strauss, 1972), but very brief (4 items)	Not reported in original reference (Strauss, 1972)	Clinician interviewer	No	Public domain	Summary score
Quality of Life Measures for Schizophrenia											
LQLI	To assess QoL of individuals with severe and persistent mental illness; planning and evaluating medical and mental health services	Satisfac-tion, functional status, and access to resources	Cronbach's alpha: .6-.9, depending on sub-scale; Test-retest correlations.57-.75, for subscales.	Correlations with other QoL scales low to moderate.	Responsive to change within 2-week interval.	45 minutes for full version; 16 minutes for brief version	According to Cramer (2000), acceptable for large VA trial use	Clinical or non-clinical interviewer; telephone not recommended.	Not noted	Copyrighted, but toolkit with both versions and manual available at no cost	General life satisfaction plus several subscales
HQLS	To assess QoL for individuals with schizophrenia	Symptoms and impaired role functioning	High for total score and subscales	General well-being correlated with LQLI	Yes	30-45 minutes	Used by Cramer (2000) for large VA trial	Clinicians and trained interviewers	Not noted	Free, but permission to use needed	Total score and 4 sub-scales
SCOS	Precursor of HQLS. For details see above.										

Name	Purpose	Multi-Dimen-sional?	Reliability	Validity	Change?	Time	Acceptability	Who?	Electronic?	Cost	Interpretation
QWB	Generic measure of health-related quality of life (Groessl, 2002)	Yes, symptoms and functioning	Test-retest good	Well-validated in many disease populations over 25 years	Yes	12-15 minutes	Probably good re use in large NIH studies	Trained interviewer	Yes	Free Manuals $79	4 domain scores (3 functioning + 1 symptom) weighted by preference to create total expression of well-being
QWB-SA	Generic measure of health-related quality of life (Groessl, 2002)	Yes, symptoms and functioning	Reliability in schizophrenia not yet tested in self-administered version.	Newer, but validated in large studies	Yes	10 minutes	More useful for clinicians than QWB, better coverage of mental health	Self-administered	Yes Internet version pending	Free for non-profit use	4 domain scores (3 functioning + 1 symptom) weighted by preference to create total expression of well-being

Table 2: Measures evaluation matrix summary: instruments specific to schizophrenia, global instruments used frequently in schizophrenia, and quality of life instruments used in schizophrenia research by VA investigators

Notes: Darker shading indicates scales fully meet VHA criteria for use; lighter shading indicates scales meet all but one of the criteria

Measure	Criteria							
	Purpose	> 1 dimension	Reliability, validity	Change	Feasible	Electronic	Interpretation	Cost
Global instruments used in schizophrenia								
CGI	X		?	X	X		X	X
BPRS	X		?	?	X		X	X
RFS	X		?	X	X		X	X
Schizophrenia-specific instruments								
LSP	X		X	X	X	X	X	X
PANSS	X		X	X			X	
SAPS and SANS	X		X	X	?		X	X
SCHIZOM	X	X	X	X	?		X	X
SCOS	X		?	?	X		X	X
QoL instruments used in VA schizophrenia research								
LQLI	X	X	X	X	X		X	X
HQLS	X	X	X	X	X		X	X
SCOS	?	X	X	?	X		X	X
QWB	X	X	X	X	?		X	X
QWB-SA	X	X	X	X	X	X	X	X

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