EVALUATION OF THE FEASIBILITY AND POTENTIAL VALUE OF THE POLARIS MENTAL HEALTH OUTCOMES MANAGEMENT SYSTEM AT CFB HALIFAX

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EXECUTIVE SUMMARY

Mental health problems in the military are leading contributors to lost productivity, readiness problems, sick leave, medical releases, other types of attrition, and veterans’ pensions. Mental health care costs for military and veterans’ organizations are also substantial. In addition, these conditions obviously take a heavy personal toll on the well-being of CF members and their families.

The CF has taken a number of steps to overcome various barriers to mental health care. Unfortunately, getting into mental health care is only the first hurdle that patients face. While mental health treatments are more effective than ever, research in a broad variety of settings has shown that only about a quarter of patients get optimal care once there, even when they seek care from qualified professionals in well-organized clinics. This gap between optimal care and the care that actually gets delivered is termed the “quality chasm” in mental health care.

The causes of this quality chasm are complex and incompletely understood. Simple education of clinicians has been shown to contribute little to bridging it. Instead, two system-level interventions have consistently shown large benefits: The first of these is implementation of what is called a “collaborative care model,” which is in fact a cornerstone of the CF’s new mental health system.

Research over the past few years has also identified another powerful approach: Computerized “mental health outcomes management systems” can more than halve the significant fraction of patients (about 8%) who experience deterioration during mental health care. Since about 13% of CF members seek mental health care each year, this translates into about 675 Regular Force members who will fare very poorly in care each year and hence presumably have a high risk of adverse outcomes such as readiness problems, family conflict, performance issues, sick leave, medical releases, etc. Halving this group would offer clear, concrete benefits for the CF.

Outcomes management systems generally achieve these results without increasing the overall volume of care delivered: Instead, patients who are doing well in care receive somewhat less care, while those who are doing poorly receive somewhat more. *These systems are highly cost-effective, with the cost to prevent a single failure in therapy being as low as a few hundred dollars.* Enhanced mental health care can actually be cost-saving to employers through increased productivity, decreased absenteeism, decreased turnover, and decreases in other medical care costs.

The primary benefit of outcomes management system is as a clinical tool to enhance the effectiveness of care. However, such systems also capture rich data for the purposes of routine clinic administration, quality assurance activities, performance measurement, and population health surveillance.

This report details the feasibility and potential benefits of the trial of one such system (the POLARIS Mental Health System) at the General Mental Health Clinic at CFB Halifax. The system involved completion of a computerized questionnaire by the client at each visit; clinicians received a report summarizing the results prior to each session of therapy. Clinicians completed a brief questionnaire at the end of the first visit.
(and, if they desired, periodically thereafter); the clinician intake questionnaire captured the DSM-IV diagnosis.

The experience in Halifax confirmed that use of the system was feasible, and it was wellaccepted by patients. Although completion of the clinician questionnaire took only a few minutes per episode of care, the use of the system was uneven: Clinician questionnaire data was available for 77% of episodes of care, and a valid diagnosis was recorded in only 56% of episodes. Clinician data tended to be missing more often in more mildly affected clients. This level of clinician compliance, while not ideal, is remarkable given that no systematic efforts to monitor or enhance compliance were undertaken.

Analysis of the data showed that patients saw, on average, expected levels of improvement while in care. Their satisfaction with care was similar to benchmark data from other POLARIS clients.

The patterns of care delivered were consistent with high-quality care. For example, few patients received long-term therapy, and nearly all patients received some individual psychotherapy. More ill patients received more sessions of care. The only potential problem area identified was that about 17% of clients appeared to have had significant mental health care needs but received only a single visit. This is unlikely to have been sufficient to meet their needs. There are many potentially benign explanations for this pattern of care. For example, clients may have been referred for care elsewhere, posted to another base, or released. The system cannot, unfortunately, explore these possibilities directly, but it can identify the individuals in question for further review of the circumstances underlying their failure to follow-up.

The experience with POLARIS in Halifax has demonstrated the feasibility and potential value of a mental health outcomes management system in the CF. The system does have certain limitations, the most important of which is that the strongest evidence of immediate clinical benefit from mental health outcomes management systems involves a somewhat different system. While there are good reasons to believe that similar benefits would also accrue to the use of POLARIS, some uncertainty about the generalizability of these benefits remains.

POLARIS also has distinct advantages over competing systems, particularly in the area of surveillance and quality improvement. For example, several CF clinics have used the OQAnalyst mental health outcomes management system on and off over a number of years, but that system has never been integrated into routine clinical care as well as POLARIS was in Halifax. In part for this reason, the OQAnalyst system has produced no useful data for quality assurance, performance measurement, or health surveillance. POLARIS could also be used to support the Enhanced Post-deployment Screening System, resulting in important operational efficiencies.

Halifax had access to a clinic-wide Protected B network apart from CFHIS, and this greatly facilitated implementation of the POLARIS system. While POLARIS and similar systems can run with a paper-and-pencil approach or using a stand-alone workstation, experience with other systems has shown this approach to be a difficult one to sustain. Establishment of a CF-wide Protected B platform (ideally using the secure
data transmission capabilities within CFHIS and its workstations) would facilitate the implementation of the system, and it would offer other benefits to CFHS.

Implementation of a computerized mental health outcomes management system within CFHS will improve the effectiveness of care delivered, facilitate performance measurement and quality improvement, and support essential health surveillance activities. This pilot showed that the POLARIS system proved to be feasible in the CF; whether it is the best system for our needs cannot be determined from the experience in Halifax alone. Our less successful efforts with the most credible alternative (the OQAnalyst system) should of course be considered in the selection process.

The final section of this report includes a number of recommendations on the selection and implementation of a mental health outcomes management system in the CF.
INTRODUCTION: THE QUALITY CHASM IN MENTAL HEALTH CARE

Individuals with mental health problems often experience a wide range of barriers to care (Fikretoglu, Guay, Pedlar, & Brunet, 2008; Sareen et al., 2007; Wang, 2006). The CF has undertaken a systematic and wide-ranging effort to eliminate these barriers to care, and there is evidence that these efforts are paying off.

Those who overcome these barriers and seek care should have access to mental health treatments that are more effective than ever before. But data from a variety of settings show that about 5 to 10% of patients will actually deteriorate under care, and many more will fail to achieve significant improvement (Hansen, Lambert, & Forman, 2002).

While some cases of treatment failure are due to inherently refractory conditions and to intrinsic technical limitations in currently available treatments, many are due to the delivery of care that is simply not optimal for the individual patient’s needs. This gap between technically optimal care and the care that actually gets delivered is substantial in health care in general (Committee on Quality Health Care in America, 2001), but it is particularly large in mental health care (Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders: Institute of Medicine, 2006; Pincus et al., 2007): One large survey in the US determined that only about a quarter of mental health patients in care were receiving optimal treatment (Bauer, 2002), leading some to call this a “quality chasm” as opposed to a “quality gap” (Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders: Institute of Medicine, 2006). The size of the “quality chasm” for mental health care in the CF is presently unknown, but data from well-organized care systems elsewhere suggests that it is probably still substantial.

Getting into care is thus only the first hurdle that patients with mental health problems face. Getting optimal care is the next hurdle, and patients can only do so much to assure that this happens: The brunt of the responsibility for provision of quality care must lie with the clinician and the care delivery system.

Bridging the Quality Chasm

The reasons for this quality chasm in mental health care are varied and incompletely understood (Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders: Institute of Medicine, 2006). Because knowledge deficits on the part of clinicians account for only a fraction of it, education, training, and/or careful selection of clinicians can only go so far to close it (Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders: Institute of Medicine, 2006; Gilbody, Whitty, Grimshaw, & Thomas, 2003).

Instead, two system-level interventions show the greatest promise: First, implementation of a so-called “collaborative care” model has been shown to result in substantial and sustained improvements in meaningful patient outcomes (Gilbody, Bower, Fletcher, Richards, & Sutton, 2006). For this reason, collaborative care is a cornerstone of the CF’s mental health services renewal project.
Second, the use of computerized mental health outcomes management systems has recently been shown in several randomized controlled trials to more than halve the substantial fraction of patients (approximately 8%) who would otherwise deteriorate in therapy (Harmon et al., 2007). These systems involve completion by the patient of a computerized questionnaire measuring well-being, symptoms, and functioning at every visit. Using statistical algorithms, the system identifies patients that are at high risk for treatment failure and provides tailored advice to the clinician on how to optimize care.

The magnitude of the benefits such a system could provide to the CF is substantial: Within the CF, approximately 13% of our members seek mental health care in a given year. Data from other settings suggests that about 8% of those who seek care will deteriorate. These deteriorated patients are likely to have functional impairments and health care needs that will interfere with readiness and potentially lead to impaired productivity (Rost, Smith, & Dickinson, 2004), absenteeism, (Rost et al., 2004) medical employment limitations, medical releases, turnover (Wang et al., 2007), workplace conflict, (Smith et al., 2002) and other undesirable occupational outcomes. With about 65,000 Reg Force members, this translates into about 675 predicted treatment failures each year; this could be more than cut in half with implementation of an outcomes management system (Harmon et al., 2007).

These systems appear to achieve these remarkable results without increasing the overall volume of care delivered: Patients who are at low risk for treatment failure typically see modestly improved outcomes with fewer treatment sessions on average, while patients who are at high risk for failure see dramatically improved outcomes with a slightly greater number of treatment sessions (Harmon et al., 2007; Lambert, 2007). That is, these systems allocate treatment resources more appropriately.

The collaborative care model and outcomes management systems offer complimentary and potentially synergistic benefits. For example, one of the benefits of collaborative mental health care is improved use of psychotherapeutic medications (Neumeyer-Gromen, Lampert, Stark, & Kallischnigg, 2004), while outcomes management systems target the optimization of psychotherapy (Lambert, 2007). In addition, one of the key features of an effective collaborative care model is a systematic approach to following-up regularly on patients who are in care so as to decrease treatment dropouts (Gilbody et al., 2003); outcomes management systems can be used as a tool to accomplish this task.

Outcomes Management Systems as a Performance Measurement, Quality Improvement, and Health Surveillance Tool

The CF has invested massively in its mental health care system, but it has no systematic way of demonstrating the effectiveness or efficiency of the care it is providing. Without detailed information on the process and outcomes of care, performance measurement and quality improvement efforts are difficult to initiate and harder still to sustain (Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders: Institute of Medicine, 2006).

Questions frequently arise from within the CF and from outside stakeholders such as the media and Members of Parliament as to the numbers of individuals affected by
given health problems, the type of care they are receiving, and how they are faring as a result of their care. Operational Stress Injuries are a frequent topic of inquiry, given the nature of the current operation in Afghanistan. At present, many of these important questions simply cannot be answered at all, and others can only be answered with great effort that could be better directed elsewhere.

The Canadian Forces Health Information System (CFHIS) holds some future promise to enhance clinical outcomes at the patient and system levels and to provide some useful data for performance measurement, quality improvement, and health surveillance activities. Reporting features that will allow this data to be exploited are foreseen as part of Phase III of the project, which is due to be operational in 2011. However, this capability focuses only on getting extant data out of the system in a usable form. CFHIS unfortunately does not capture detailed data on the process and outcomes of mental health care, and its decision-support capabilities are rudimentary. Thus, CFHIS cannot be considered a sufficient tool to support mental health care outcomes management, surveillance, or quality management. For these purposes, CFHIS will be better than nothing but far from adequate.

In addition to CFHIS, other electronic data sources are emerging within CFHS. These include the Sick Leave Database, the Enhanced Post-deployment Screening Database, the Periodic Health Appraisal Database, the Recruit Health Questionnaire Database, and the Medical Standards Database. These provide an opportunity to link information on the process and outcomes of mental health care to a broad range of other health-related data.

Thus, in addition to their proven ability to immediately improve patient outcomes at the level of the individual patient, outcomes management systems can also provide high-quality data for quality improvement and health surveillance activities. At minimum, such systems can document:

1. Who seeks care;
2. How much care they seek;
3. The nature and extent of their symptoms and impairment when they enter care;
4. The number of treatment sessions they receive; and
5. The extent of their improvement during therapy.

Some systems also include additional information from the patient such as prognostic factors, social support, treatment motivation, therapeutic bond, medication compliance, side effects, satisfaction with care, etc. Benchmark data for some of these items are available; this obviously facilitates quality improvement by identifying potential problem areas. In time, systems develop their own internal benchmarks that permit comparisons of the outcomes of care from clinic to another or from one therapist to another.

Some systems also collect information from the clinician, such as diagnosis, treatment plan, perceived patient improvement, etc. The information on diagnosis is particularly valuable for health surveillance activities, and it can serve as a useful (though perhaps not essential) tool to adjust aggregate findings to facilitate valid comparisons.
Currently Available Outcomes Management Systems

There are three widely-used outcomes management systems that would be appropriate for the CF, and each has strengths and weaknesses. The systems are complex and flexible, so the following brief descriptions are meant only to provide some useful background information; it is not intended to be a systematic or rigorous comparative analysis.

**The OQ Analyst:** The most widely-used system in North America is the OQ Analyst; this system also has the strongest evidence base behind it. The driving force behind this system was a desire to develop a tool that would improve the outcomes of psychotherapy, particularly to decrease the fraction of clients who deteriorate during therapy. Its developers followed an extremely methodical and well-documented approach (Harmon et al., 2007; Lambert, 2007). Central to this approach was the ability of the system to reliably identify clients who are “on track” (making expected gains in therapy) vs. “not on track” (at risk for failure because they are not making such gains).

Having shown that a 45-item questionnaire (called the “OQ45,” shown in ANNEX A) could reliably measure improvement (and predict failure) in therapy, its developers executed a series of randomized controlled trials to explore three different approaches to using the questionnaire results to improve outcomes in psychotherapy (Harmon et al., 2007). First, they showed that simply providing the results of the questionnaire to the therapist at each visit along with an indication as to whether the client was “on track” or not resulted in significant improvement in client outcomes for both “on track” and “not on track” clients. Next they showed that also providing this information directly to the client as well as the clinician contributed little or nothing. Finally, they showed that providing decision support to clinicians decreased the fraction of “not on track” clients who failed in therapy. The fraction of “not on track” clients who improved significantly in care was 21% in the control group, 29% in the feedback only group, and 42% in feedback plus decision support group. The decision support targeted three key areas: readiness for therapy, therapeutic bond, and social support.

The focus of the OQ Analyst is in improving patient outcomes in therapy at the individual level. It was not designed to be a health surveillance or quality improvement tool. For this reason, it does not include any capture of clinician data (such as diagnosis, treatment provided, etc.).

**The CORE System:** The development of the CORE System was driven by the desire to have a brief (34 questions, shown in ANNEX B), non-proprietary mental health outcome measurement instrument that could be used as a quality management tool in mental health and primary care settings in the United Kingdom (Gray & Mellor-Clark, 2007). Its history as a quality management tool is reflected in the fact that it collects a significant amount of data from clinicians, in addition to the data collected from the patients. It can produce individual client reports session-by-session but it does not incorporate an Expected Treatment Response approach. Instead, it simply shows where the patient’s score falls on a fixed severity scale. The CORE investigators have shown in observational trials that implementation of the system leads to a very gradual and relatively modest improvement in the outcomes of care (Gray & Mellor-Clark, 2007). The quality management focus of the system and the gradual nature of the improvement
suggest that the latter is being mediated by system-level interventions rather than changes in care at the individual level as is seen with the OQ Analyst.

**POLARIS:** The POLARIS Mental Health System was initially developed as a tool to help managed care systems in the US monitor and manage their mental health benefit in the early 1990’s; it collects data from both clients and therapists (Grissom & Lyons, 2006; Lueger et al., 2001). POLARIS also offers similar systems for the management of chemical dependency and several other chronic conditions. Since its initial development, POLARIS Mental Health has gradually incorporated additional features, including a sophisticated Expected Treatment Response model. Like the OQ Analyst, it provides a detailed client report with some decision support information (though the decision support does not provide direct clinical advice to therapists on readiness for therapy, therapeutic bond, or social support). The POLARIS questionnaire and report cover a broader range of sub-domains than the other systems, and its intake questionnaire is thus substantially longer (105 questions, shown in ANNEX C). The POLARIS system can support quality management and surveillance activities through its reporting function.

POLARIS does not have any randomized controlled trial data or observational data to support its use for either outcomes management or for quality assurance, though it is clearly similar to systems that have shown such benefits.

*Data Capture and Storage:* All of the above systems offer a variety of data entry approaches and IS/IT platform (e.g., paper and pencil, PDA, stand-alone computer, local area network, enterprise wide network, etc.). These systems are designed for use in a broad range of health care institutions with different hardware, network infrastructures, core software, etc. As such, they are built around very fundamental software platforms that are common to all institutions. For example, the user interface is simply a web browser such as Internet Explorer. *This approach means that interference with other enterprise-wise systems is very unlikely.* All systems incorporate standard approaches to protect the security and integrity of the data.

*Cost:* The CORE system itself (including its enterprise-wide software platform) is free, while the OQ Analyst annual licensure fee is approximately $240 per clinician. Total costs for implementation of the POLARIS system in the General Mental Health clinic at CFB Halifax for this two-year pilot was $22,100, of which $10,500 represented one-time charges for things such as customization of the software, installation, training, training, computer hardware, etc. The unit cost for both the OQ Analyst and POLARIS licensure fees would likely be lower if the system were to be implemented system-wide. Experience with these systems suggests that training needs would be very limited. Each system would require one or two inexpensive application servers at the enterprise level. A single kiosk per clinic would suffice for questionnaire completion by patients.

*Cost-effectiveness:* Enhancements in mental health care are cost-effective when compared with other health interventions (Wang et al., 2006). For employers, these enhancements can be cost-saving both through decreases in other health care costs (Wang et al., 2006) and increases in productivity (Rost et al., 2004) seen with effective mental health care.

Assuming that 675 Regular Force members would be expected to do poorly in mental health care each year and that this could be halved through implementation of a
system-wide mental health outcomes management system, the cost per treatment failure prevented would be only $250 with, for example, the OQ Analyst system (at a cost of $240 per clinician for 350 clinicians = $84,000 per year). As alluded to above, this small cost would be readily recouped through savings in other health care costs and through improvements in productivity, decreased absenteeism, decreased turnover, etc.

**Summary:** The strengths and weaknesses in these systems can be traced in large measure to their origins, and the evidence supporting each varies: The OQ Analyst is very strong in terms of its proven ability to improve care at the patient level. The CORE System has been shown to be an effective quality assurance tool. POLARIS tries to accomplish both, but has no strong evidence of impact for either.

**The CF Experience with Outcomes Management Systems**

In short, implementation of a computerized mental health outcomes management system would significantly improve the effectiveness and efficiency of mental health care in the CF and provide useful population-level data in the process. Improvement of mental health care will attenuate the threat the mental health problems pose to readiness, operational effectiveness, and force sustainability.

The CF has experience with using two computerized outcomes management systems: The “OQ Analyst” and the “POLARIS Mental Health” systems.

**The OQ Analyst:** The OQ Analyst system has been used on and off at the General Mental Health Clinic and Operational Trauma and Stress Support Centre (OTSSC) at CFB Edmonton and CFB Esquimalt. Edmonton collected the data from patients using a paper-and-pencil questionnaire at intake only; clerical staff entered the questionnaire data into the system, which prepared a summary for the clinician in near real-time. This approach functioned well for some time, but changes in support staff and failure of the stand-alone computer used for data entry led to the system falling apart for a period of two years. Edmonton has just re-instated their OQ Analyst system and will be collecting data at baseline and every three months during the course of care. Reminders for the three-month follow-up are being manually entered into the CFHIS reminder system to facilitate this.

The OQ Analyst system has also been used for at least three years at CFB Esquimalt. Their protocol is to have the client complete the OQ45 questionnaire at the time of intake, every three months during care, and at the time of termination of treatment. The client completes a paper-and-pencil version of the test, which the clerk enters into the OQ Analyst system running on a stand-alone workstation. A recent audit disclosed that compliance for the follow-up questionnaires was uneven. As a result, the clinic has started using a separate database to track this; it is too early to tell how effective this will prove to be.

Other clinics have used the paper-and-pencil version of the OQ45 questionnaire without the OQ Analyst software, but uptake among clinicians has been inconsistent.

**POLARIS Mental Health:** In early 2006, CFB the General Mental Health Clinic at CFB Halifax implemented the POLARIS Mental Health outcomes management system; the system remains in active use currently. The purpose of this report is to answer two general questions about the Halifax experience with POLARIS:
1. Was the system feasible? That is, did patients and clinicians actually use the system as intended for a prolonged period of time?

2. Did the system provide useful data for health surveillance and quality assurance?
METHODS

Overview of the POLARIS Mental Health System

The POLARIS system is a computerized system in which clients complete a detailed questionnaire at the time of intake and briefer follow-up questionnaires to monitor their progress during care. The provider receives a computerized interpretation of the client’s responses. The system supports comparison of the client’s progress in therapy against the expected response (based on the experience of thousands of patients in therapy), but this particular feature was not implemented in Halifax. Clinicians also complete a brief questionnaire at the time of intake and periodically over the course of care. Among other things, the clinician intake questionnaire captures the full five Axis DSM-IV diagnosis. The system captures and stores all of the questionnaire data, which can be accessed to provide standard or customized reports. Data extracts can be exported in a variety of formats for in-depth statistical analysis by other programs.

Theoretical Framework

POLARIS is grounded in three inter-related theories about patient improvement in psychotherapy:

1. **The Dosage Model:** Work from a variety of populations, settings, and therapies have shown that there is a consistent mathematical relationship (specifically a log-linear relationship) between the number of sessions of therapy and patient outcome (Howard, Moras, Brill, Martinovich, & Lutz, 1996). This means that patients improve more rapidly early in the course of therapy and more slowly thereafter; there is clear evidence of diminishing returns with each additional session.

2. **The Phase Model:** The Phase Model both extends and interprets the Dosage Model by establishing three sequential phases and dimensions of improvement during therapy (Howard, Lueger, Maling, & Martinovich, 1986; Howard, Lueger, Maling, & Martinovich, 1993). Improvement in well-being (“remoralization”) occurs first, followed by relief of symptoms (“remediation”) and then by improvement in functioning (“rehabilitation”). The Phase Model proposes that the decelerating rate of improvement seen in the Dosage Model is due to the increasing difficulty of these three treatment goals.

3. **The Expected Treatment Response (ETR) Model:** The ETR Model further refines the Dosage Model by establishing the expected response to treatment for a given patient based on a variety of patient prognostic characteristics, such as severity of initial symptoms, chronicity of their problem, readiness for therapy, etc (Lueger et al., 2001). Hierarchical Linear Modelling (HLM) is used to project an expected recovery curve (along with confidence bounds), which can then be used to determine if a patient is making expected progress or not. Simply providing this type of information to the provider has been shown to improve outcomes significantly for both “On Track” and “Not on Track” clients (though the latter benefit significantly more, on average) (Harmon et al., 2007). As noted above, providing clinical decision support information to therapists that target three
common problem areas for “Not on Track” clients (poor therapeutic bond, lack of readiness for change, and poor social support) further improves outcomes (Harmon et al., 2007).

**Client Questionnaire Content**

The POLARIS patient intake questionnaire principally measures the three main dimensions of the Phase Model: Subjective well-being, symptoms, and functioning. The symptom questionnaire includes subscales measuring the following:

- Depression
- Anxiety
- PTSD
- Obsessions/compulsions
- Phobias
- Somatization

Functioning is measured across three domains: Personal (activities of daily living), social, and vocational. Subscales are available for each.

The subjective well-being, symptom, and functioning scores can be summarized with a single continuous measure called the “Behavioural Health Score” (BHS); the BHS and other scale scores are expressed as percentiles, with the reference population being patients entering outpatient mental health care. Thus, a patient with a BHS percentile score of 50 would be about as ill as the typical patient seeking outpatient mental health care.

To enhance the predictive utility of Expected Treatment Response curves, it also captures variables that empirically have strong prognostic value (e.g., chronicity, treatment expectations). The instrument also includes a number of other items with practical value, such as screens for mania/hypomania, drug and alcohol abuse, and psychosis.

POLARIS uses two shorter questionnaires (“updates,” ANNEX C) for following patient progress during care, with the focus being on monitoring subjective well-being, symptom intensity, and functioning with reasonable precision. In addition, updates provide information on the satisfaction with care and on the therapist-client relationship. “Brief” updates (20 items) are done if less than 30 days has elapsed since the most recent evaluation; “Long” updates (69 items) provide additional detail and precision, particularly with respect to different symptom clusters (e.g., anxiety, depression, somatization).

The vendor modified the client intake questionnaire slightly at the request of CFB Halifax: A question on how well the client perceived they were functioning at work was added, along with a question about whether the client was on a CF medical category because of their mental health problems.

Clinicians received a report summarizing each client’s responses at intake and at each follow-up visit (see examples in ANNEX D).
Client Questionnaire Validation

Most of the POLARIS scales have been validated (Grissom & Lyons, 2006). The scales and subscales have very good reliability ($\alpha = 0.75$ to 0.93) and they correlate well with other well-validated instruments such as the Beck Depression Inventory ($r = 0.80$), the General Well-being Scale ($r = 0.72$), and the Social Adjustment Scale ($r = 0.58$). Similar validity is seen for the POLARIS parent instruments (Grissom, Lyons, & Lutz, 2002; Lueger et al., 2001). The POLARIS summary measure (BHS score) correlates strongly with the OQ45 overall score ($r = 0.87$) (Grissom & Lyons, 2006). This is particularly important because the OQ45 is the instrument used in the randomized controlled trials showing the benefit of mental health outcomes management systems.

There are, however, some weaknesses in the POLARIS validation:

1. The phase model conceptualizes three separate (though correlated) dimensions: Subjective well-being, symptoms, and functioning. However, the overall BHS that POLARIS uses as its primary outcome empirically has only two factors—the well-being and symptom items load together on the same factor, making the use of separate scales for these questionable. Still, subjective well-being scale has excellent reliability ($\alpha = 0.82$) and very good concurrent validity ($r = 0.72$ with the Global Well-being Scale) (Grissom GR, personal communication). The manufacturer reports that feedback from clinicians on this scale has been favourable.

2. Some of the subscales have not been subjected to concurrent or criterion validity testing. Specifically, the PTSD scale score has not been rigorously validated, though it does have face validity. The manufacturer does report that an extended version of the PTSD scale (10 vs 3 items) did show good concurrent validity with the Impact of Events Scale in children and adolescents ($\rho = 0.62$).

3. Some of the other single items used (such as the screening question for mania/hypomania) have not been rigorously validated (though again they have face validity).

4. Some of the validation has been done on parent instruments that are minimally different from that used by POLARIS (Grissom et al., 2002; Lueger et al., 2001).

Measurement of Clinical Improvement

POLARIS looks at clinical improvement in two ways: First, it compares client results against normative data drawn from non-clinical population; this establishes a single cut-off (specifically the 84th percentile of the BHS) as reflecting recovery (Grissom & Lyons, 2006; Lueger et al., 2001). Second, because well-being, symptoms, and functioning fluctuate from day-to-day and because of unavoidable measurement errors, the Expected Treatment Response (ETR) approach requires the ability to identify reliable change, i.e., a change that reflects a meaningful, reproducible difference in mental health status. POLARIS uses a conventional approach to determine this called the Reliable Change Index (Jacobson & Truax, 1991).
Expected Treatment Response

The ETR component of POLARIS was validated using information on the care trajectories of more than 5,000 patients in outpatient mental health care in a variety of settings. This reference data permits the construction of an expected care trajectory (with the “failure boundary”) for a given patient based on a Hierarchical Linear Model that adjusts for important prognostic factors. The “failure boundary” reflects the 25th percentile of the expected score. The operating characteristics for this cut-off in a sample of more than 5,000 clients were as follows (Grissom GR, personal communication):

- Sensitivity: 79%
- Specificity: 58%
- Positive predictive value: 76%
- Negative predictive value: 62%

This sensitivity is slightly lower than that demonstrated by the OQ Analyst system (79% vs. 88%), but the positive predictive value is much better with POLARIS (76% vs. 20%) (Harmon et al., 2007). Note again that the POLARIS client report used in Halifax did not include the ETR feature.

Clinician Questionnaire Content

The clinician evaluations capture key information on DSM-IV diagnosis, including:

I. One primary and one secondary Axis I disorder code;
II. The presence of a personality disorder (Axis II), coded as “Yes,” “Probably,” “Probably not,” or “No”;
III. The presence of medical co-morbidity that influences psychological state (coded as for Axis II);
IV. Severity of psychological stressors (a 6-point scale ranging from “None” to “Catastrophic”);
V. Global Assessment of Functioning (standard scale score from 0 to 100).

Clinician intakes also identify special problems (such as homelessness, unemployment), their own perception of the client’s well-being, symptom burden, functioning, the therapeutic relationship, treatment motivation, and the likely benefit of additional treatment.

Questionnaire Completion and IS/IT Infrastructure: While the system supports different data entry approaches, Halifax provided a dedicated computer kiosk for completion of the questionnaires by clients. This kiosk uses a conventional web browser interface to access a secure web server and database over a Protected B network. Clinicians entered their reports from desktop computers connected to the same server/database. Note that this Protected B network is a legacy system outside of CFHIS, and it is not available at other bases.
Clients completed an intake evaluation at their first visit and a follow-up evaluation at every subsequent visit. Clinic staff report that at most a handful of clients refused to complete the online questionnaires.

Clinicians were supposed to complete an intake evaluation at the first visit in an episode of care; they were encouraged to complete follow-up evaluations periodically during care, though no particular schedule was advocated.

**Time Frame**

This analysis includes all client and clinician evaluations completed between the full implementation of the system in early 2006 through April 2008.

**Data analysis**

Data analysis on anonymized extracts was done using SPSS for Windows, version 15.0 (SPSS, 2006). Because the POLARIS data extract provided only percentile scores (as opposed to true scale scores or T scores), non-parametric statistics were largely used for continuous measures. The \( \chi^2 \) statistic was used for contingency table data. Log-linear ordinary least squares regression was used to explore the relationship between the BHS and the visit number.
RESULTS

Responses

A total of 2,825 evaluations were completed by clients; 1,701 were completed by clinicians. Less than 1% of client evaluations were incomplete, and less than 2% of clinician evaluations were incomplete.

These evaluations reflected a total of 571 episodes of care on 567 clients. Only 4 clients were identified as having a second (new) episode of care. As shown in Figure 1, there were 134 out of 571 episodes of care (23%) in which no clinician evaluation was completed; for 7 out of 571 episodes of care (1%) there was no client evaluation completed.

Figure 1

Number of Questionnaires and Responses

Client Questionnaire Completion

The number of client questionnaires completed was relatively stable over the observation period (Figure 2), though there did appear to be a modest decline beginning in the third quarter of 2007. It is not clear whether this represented a decline in clinical volume or waning enthusiasm for the system.
Figure 2

Number of Client Surveys, by Quarter

The POLARIS system captures the time to complete the questionnaires automatically (Figure 3). To the extent that few incomplete questionnaires were submitted (Figure 1, above), the completion times appear acceptable to patients. A single patient kiosk was sufficient for data entry in that no clinically unacceptable delays in patient flow were experienced by staff (data not shown). This is corroborated by the system data showing that the kiosk was in active use for only 37 minutes a day on average (range 1 – 119 minutes); the kiosk was in use for more than one hour a day on only 15% of days.

Clients largely felt that the questionnaire described their current psychological condition at least “moderately well.” Interestingly, the more detailed intake questionnaire was judged to describe their condition *less* well ($\chi^2 = 75.6$, d.f. = 4, $p < 0.0001$).

Socio-demographic Characteristics of Respondents

The limited socio-demographic information captured by POLARIS (Table 2) suggests that the Halifax care-seeking population appears fairly representative of the Reg Force population there, with the possible exception of an expectedly disproportionate number of female mental health clients. No information on military characteristics (e.g., rank, military occupation, deployment history) is available, though linkage with other administrative data from HRMS is feasible because POLARIS data remains fully identified.
Figure 3

Time to Complete Client Questionnaires
(by Type)

<table>
<thead>
<tr>
<th>Minutes for client to complete questionnaire</th>
<th>&lt;5</th>
<th>5 to 9</th>
<th>10 to 14</th>
<th>15 to 19</th>
<th>20 to 24</th>
<th>25 to 29</th>
<th>&gt;30</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>0</td>
<td>1500</td>
<td>1200</td>
<td>800</td>
<td>600</td>
<td>400</td>
<td>200</td>
</tr>
</tbody>
</table>

Table 1

Client Perception of How Well the Questionnaire Described Their Condition

<table>
<thead>
<tr>
<th>Type of evaluation</th>
<th>Client intake</th>
<th>Client update (long form only)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Valid %</td>
<td>Count</td>
</tr>
<tr>
<td>Very poorly</td>
<td>7</td>
<td>1%</td>
<td>29</td>
</tr>
<tr>
<td>Fairly poorly</td>
<td>52</td>
<td>9%</td>
<td>44</td>
</tr>
<tr>
<td>Moderately well</td>
<td>197</td>
<td>35%</td>
<td>342</td>
</tr>
<tr>
<td>Pretty well</td>
<td>253</td>
<td>45%</td>
<td>608</td>
</tr>
<tr>
<td>Very well</td>
<td>54</td>
<td>10%</td>
<td>297</td>
</tr>
<tr>
<td>Total</td>
<td>563</td>
<td></td>
<td>1320</td>
</tr>
</tbody>
</table>
Table 2
Socio-demographic Characteristics of Respondents

<table>
<thead>
<tr>
<th></th>
<th>Count</th>
<th>Valid %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>439</td>
<td>78%</td>
</tr>
<tr>
<td>Female</td>
<td>124</td>
<td>22%</td>
</tr>
<tr>
<td><strong>Age at intake</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;25</td>
<td>320</td>
<td>11%</td>
</tr>
<tr>
<td>25 - 34</td>
<td>1097</td>
<td>39%</td>
</tr>
<tr>
<td>35 - 44</td>
<td>1014</td>
<td>36%</td>
</tr>
<tr>
<td>45 - 54</td>
<td>367</td>
<td>13%</td>
</tr>
<tr>
<td>&gt;=55</td>
<td>11</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Race/ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian/White</td>
<td>534</td>
<td>95%</td>
</tr>
<tr>
<td>African American</td>
<td>9</td>
<td>2%</td>
</tr>
<tr>
<td>Asian/Asian American</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>2</td>
<td>0%</td>
</tr>
<tr>
<td>Native American Indian</td>
<td>5</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Educational attainment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 8 or less</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>Some high school</td>
<td>40</td>
<td>7%</td>
</tr>
<tr>
<td>High school graduate</td>
<td>221</td>
<td>39%</td>
</tr>
<tr>
<td>Some college/university</td>
<td>199</td>
<td>35%</td>
</tr>
<tr>
<td>University diploma</td>
<td>68</td>
<td>12%</td>
</tr>
<tr>
<td>Post graduate or higher</td>
<td>34</td>
<td>6%</td>
</tr>
</tbody>
</table>

Findings on Client Intake Evaluations

64% of respondents had had previous counselling, and 9% had a history of psychiatric hospitalization at some point in the past. The presenting problem had been present for less than 6 months in 27%, for 6 to 12 months in 15%, for one to two years in 14%, and for more than two years in 44%. Relatively few clients (14%) reported chronic co-morbid medical problems such as arthritis (7%), cardiac problems (3%), or diabetes (2%).

As shown in Table 3, Halifax clients had a somewhat lower symptom burden, somewhat less impairment, and somewhat more impaired subjective well-being than the POLARIS reference population of individuals seeking outpatient mental health care. This translated into a slightly more favourable Behavioural Health Score (BHS) than the reference population, on average (recall that the reference population has a median BHS percentile score of 50).
Table 3

Client Scores at Intake

<table>
<thead>
<tr>
<th>Score Percentile</th>
<th>Median</th>
<th>Inter-quartile range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms score percentile</td>
<td>69.0</td>
<td>41 – 84</td>
</tr>
<tr>
<td>Subjective well-being score percentile</td>
<td>39.0</td>
<td>18 – 67</td>
</tr>
<tr>
<td>Functioning score percentile</td>
<td>66.0</td>
<td>39 – 86</td>
</tr>
<tr>
<td>Behavioural Health Score (BHS) percentile</td>
<td>58.5</td>
<td>32 - 81</td>
</tr>
</tbody>
</table>

While Halifax clients were slightly less ill on average, most had evidence of clinically important mental health care needs: Nearly all clients (87%) reported at least one “more severe” symptom (that is, symptoms present “often” or “all or almost all of the time” over the previous two weeks); depression and generalized anxiety were the most common “more severe” symptoms reported, but more severe symptoms of a variety of conditions were also prevalent (Table 4). An important minority reported thinking of harming themselves (24%), ending their life (22%), or harming someone else (23%).

Table 4

Symptoms “Often” or “Almost All the Time” at Intake

<table>
<thead>
<tr>
<th>Condition</th>
<th>No Count</th>
<th>No Valid %</th>
<th>Yes Count</th>
<th>Yes Valid %</th>
<th>Total Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>123</td>
<td>22%</td>
<td>441</td>
<td>78%</td>
<td>564</td>
</tr>
<tr>
<td>Anxiety</td>
<td>137</td>
<td>24%</td>
<td>427</td>
<td>76%</td>
<td>564</td>
</tr>
<tr>
<td>Phobia</td>
<td>379</td>
<td>67%</td>
<td>185</td>
<td>33%</td>
<td>564</td>
</tr>
<tr>
<td>Obsessive-compulsive</td>
<td>259</td>
<td>46%</td>
<td>305</td>
<td>54%</td>
<td>564</td>
</tr>
<tr>
<td>Somatization</td>
<td>321</td>
<td>57%</td>
<td>243</td>
<td>43%</td>
<td>564</td>
</tr>
<tr>
<td>Panic</td>
<td>411</td>
<td>73%</td>
<td>153</td>
<td>27%</td>
<td>564</td>
</tr>
<tr>
<td>PTSD</td>
<td>378</td>
<td>67%</td>
<td>186</td>
<td>33%</td>
<td>564</td>
</tr>
<tr>
<td>Any of the above</td>
<td>75</td>
<td>13%</td>
<td>489</td>
<td>87%</td>
<td>564</td>
</tr>
</tbody>
</table>

Perceived Occupational Impact

While patients were functioning better than average compared to other patients entering outpatient mental health care (see Table 3 above), nearly all clients (91%) perceived some occupational dysfunction, and 42% believed that they were functioning at 60% or less of their normal level. Nearly half (49%) reported having had time off or
modified workdays as a result of mental health problems, but only 20% reported having a temporary or permanent medical category as a result.

**Readiness for Treatment and Barriers to Care**

Clients were largely ready for help with their mental health problems (Table 5), indicating that they were ready to work with their therapist (97%), that they needed professional help (85%), that they were confident that treatment could help (90%), and that they had a lot to lose if they didn’t get help (73%). An important minority (41%) felt that many of their problems were caused by others, and 21% indicated that it would be hard for them to come in for treatment.

**Sources of Encouragement to Seek Care**

The most commonly identified group of people who encouraged clients to seek care were physicians (54%), spouse/family members (50%), friends (29%), and employer/supervisor (20%); some clients identified more than one source of encouragement to seek care.

**Clinician Evaluations**

As shown in Figure 4, the number of clinician evaluations per quarter appears to have declined slightly over the observation period; this was more apparent for updates than for intakes. It is not clear whether this represented a decline in clinical volume or waning enthusiasm for the system.

**Figure 4**

![Number of Clinician Evaluations per Quarter (N = 1,630)](chart.png)

NOTE: Above graph excludes evaluations (N = 71) done during incomplete quarters (prior to the third quarter of 2006 or after the first quarter of 2008).
### Table 5

**Readiness for Treatment and Perceived Barriers to Care at Intake**

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Valid %</td>
<td>Count</td>
<td>Valid %</td>
<td>Count</td>
<td>Valid %</td>
</tr>
<tr>
<td>&quot;I am ready to work with my therapist to deal with my problems&quot;</td>
<td>4</td>
<td>1%</td>
<td>7</td>
<td>1%</td>
<td>6</td>
<td>1%</td>
</tr>
<tr>
<td>&quot;I have a lot to lose if I don’t get help with my problems&quot;</td>
<td>37</td>
<td>7%</td>
<td>73</td>
<td>13%</td>
<td>40</td>
<td>7%</td>
</tr>
<tr>
<td>&quot;I need professional help to deal with my emotional-psychological problems&quot;</td>
<td>29</td>
<td>5%</td>
<td>23</td>
<td>4%</td>
<td>32</td>
<td>6%</td>
</tr>
<tr>
<td>&quot;I am confident that treatment can help me&quot;</td>
<td>9</td>
<td>2%</td>
<td>17</td>
<td>3%</td>
<td>30</td>
<td>5%</td>
</tr>
<tr>
<td>&quot;Many of my problems are caused by other people&quot;</td>
<td>110</td>
<td>20%</td>
<td>155</td>
<td>28%</td>
<td>66</td>
<td>12%</td>
</tr>
<tr>
<td>&quot;It will be hard for me to come to treatment (e.g., expense, time, transportation)&quot;</td>
<td>135</td>
<td>24%</td>
<td>250</td>
<td>44%</td>
<td>62</td>
<td>11%</td>
</tr>
</tbody>
</table>
As shown in Figure 5, clinician intake evaluations typically took one to three minutes to complete; updates typically took less than one minute. Note that this does not include the time needed to log in to the workstation or to the POLARIS system.

**Figure 5**

![Time for Clinician to Complete Evaluations (by Type)](chart)

**Figure 6**

![Number of evaluations per clinician](chart)

Some clinicians completed more evaluations than others (Figure 6); this was more noticeable for updates than for intakes. The bulk of the updates were completed by two
particular clinicians. It is not clear if these differences reflect differences in case load, differences in enthusiasm for the system, and/or other factors.

As shown in Figure 1 (above), at least one clinician evaluation was available for 437 out of 571 episodes of care (77%); at least one clinician and one client evaluation was available for 430 out of 571 episodes (75%). However, the first clinician evaluation was done more than 30 days after the clinician evaluation in 59 out of 430 (14%) episodes of care.

As shown in Table 6, clinician evaluations were missing in a non-random fashion: Those in which a clinician evaluation was not completed (N = 134) had less impaired well-being, a lower symptom burden, and better functioning.

### Table 6

**Differences in Intake Scores in Respondents with and without Clinician Evaluations**

<table>
<thead>
<tr>
<th></th>
<th>Clinician Evaluation Completed</th>
<th>Both consumer and clinician evaluations completed</th>
<th>p value (Mann-Whitney U test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Subjective Well-Being (percentile score)</td>
<td>51.4</td>
<td>40.7</td>
<td>p = 0.0035</td>
</tr>
<tr>
<td>Mean Symptoms (percentile score)</td>
<td>64.8</td>
<td>59.6</td>
<td>p = 0.0004</td>
</tr>
<tr>
<td>Mean Functioning (percentile score)</td>
<td>66.7</td>
<td>59.2</td>
<td>p = 0.0018</td>
</tr>
<tr>
<td>Mean BHS (Percentile score)</td>
<td>62.1</td>
<td>53.2</td>
<td>p = 0.0007</td>
</tr>
</tbody>
</table>

**Clinician Intake Evaluation Findings**

Clinicians perceived that most clients had at least some symptoms, impairment in well-being, or dysfunction (Figure 7). For episodes of care in whom a clinician evaluation was completed within 7 days of the client intake evaluation (N = 317 out of 571, 56%), clinician rating of well-being, symptom burden and functioning (using a 10-point scale) correlated well (but not perfectly) with the corresponding client percentile scores (rank correlation coefficients = 0.58, 0.48, and 0.51 for well-being, symptoms, and functioning, respectively).

At the time of their first evaluation, clinicians felt that most clients (94%) could benefit from further treatment “greatly” (35%), “moderately” (46%), or “slightly” (6%).
**DSM-IV Diagnosis**

As shown in Figure 8, usable DSM-IV Axis I diagnoses was missing for 250 out of 571 episodes of care (44%). A variety of factors contributed to this missing data, but the most important two were as follows: First, no clinician evaluation was completed at all for 134 episodes of care (23%). Second, the POLARIS system asks the clinician if they have already completed an evaluation on the patient; if they answer “yes,” the system does not prompt for diagnostic information. In 98 episodes of care (17%), the clinician answered indicated that an evaluation had already been completed when in fact none was available in the system. Such cases occurred disproportionately early in the course of implementation of the system (data not shown), suggesting that what the clinician meant was that they had done an evaluation on the patient prior to the implementation of the system.

Figure 8 also shows the breakdown of DSM-IV diagnostic categories for the 321 episodes of care (56%) which had valid information; in 41 episodes of care (7%), it was clearly indicated that a primary Axis I disorder was absent.

As shown in Table 7, the most prevalent primary Axis I disorders were adjustment disorders and V-codes (32%), depressive disorders (26%), and anxiety disorders (20%). The breakdown of depressive and anxiety disorder diagnoses are shown in Table 8 and Table 9, respectively. Medical conditions having an influence on psychological health were identified in 13% of episodes of care and suspected in an additional 8% (Table 11). The severity of psychological stressors was judged to be “severe” or “extreme” in 1% and 22% of episodes of care, respectively (Table 12). In 73% of episodes of care, the Global Assessment of Functioning was 70 or below (reflecting at least mild symptoms and/or dysfunction); in 34% it was 60 or below (reflecting moderate symptoms and/or impairment) (Figure 9).
Primary substance-related disorders were uncommon (4%, largely alcohol-related), as were developmental disorders (3%, largely ADHD). There was a secondary Axis I disorder recorded in 19% of episodes of care; the most common co-morbidities were adjustment disorders or V-codes (5%), substance-related disorders (4%), depressive disorders (4%), and anxiety disorders (4%). An Axis II (personality) disorder was seen in 7 out of 329 episodes of care (1%) for which a valid response was recorded; such co-morbidity was suspected in an additional 52 episodes (16%).

Figure 8
Axis I Diagnosis Availability

Table 7
Breakdown of Primary and Secondary Axis I Diagnoses

<table>
<thead>
<tr>
<th>Disorder</th>
<th>N</th>
<th>% with Axis I disorder</th>
<th>N</th>
<th>% with primary Axis I disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment disorders or V-codes only</td>
<td>103</td>
<td>37%</td>
<td>13</td>
<td>5%</td>
</tr>
<tr>
<td>Depressive disorders</td>
<td>74</td>
<td>26%</td>
<td>10</td>
<td>4%</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>55</td>
<td>20%</td>
<td>11</td>
<td>4%</td>
</tr>
<tr>
<td>Substance-related disorders</td>
<td>11</td>
<td>4%</td>
<td>12</td>
<td>4%</td>
</tr>
<tr>
<td>Developmental disorders only</td>
<td>9</td>
<td>3%</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Bipolar disorders</td>
<td>7</td>
<td>3%</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Other</td>
<td>21</td>
<td>8%</td>
<td>7</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>280</td>
<td>100%</td>
<td>53</td>
<td>19%</td>
</tr>
</tbody>
</table>

-- indicates that counts were suppressed due to sparse cell counts
Medical conditions having an influence on psychological health were identified in 13% of episodes of care and suspected in an additional 8% (Table 11). The severity of psychological stressors was judged to be “severe” or “extreme” in 1% and 22% of episodes of care, respectively (Table 12). In 73% of episodes of care, the Global Assessment of Functioning was 70 or below (reflecting at least mild symptoms and/or dysfunction); in 34% it was 60 or below (reflecting moderate symptoms and/or impairment) (Figure 9).

Table 8
Depressive Disorder Diagnoses

<table>
<thead>
<tr>
<th>Depressive Disorder</th>
<th>N</th>
<th>Valid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Depressive Disorder (single episode)</td>
<td>40</td>
<td>54%</td>
</tr>
<tr>
<td>Major Depression Disorder (recurrent)</td>
<td>17</td>
<td>23%</td>
</tr>
<tr>
<td>Dysthymic Disorder</td>
<td>14</td>
<td>19%</td>
</tr>
<tr>
<td>Depressive Disorder NOS</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 9
Anxiety Disorder Diagnoses

<table>
<thead>
<tr>
<th>Anxiety Disorder</th>
<th>N</th>
<th>Valid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSD</td>
<td>10</td>
<td>18%</td>
</tr>
<tr>
<td>Panic Disorder</td>
<td>10</td>
<td>18%</td>
</tr>
<tr>
<td>NOS</td>
<td>9</td>
<td>16%</td>
</tr>
<tr>
<td>GAD</td>
<td>8</td>
<td>15%</td>
</tr>
<tr>
<td>Specific Phobia</td>
<td>6</td>
<td>11%</td>
</tr>
<tr>
<td>OCD</td>
<td>5</td>
<td>9%</td>
</tr>
<tr>
<td>Social Phobia</td>
<td>4</td>
<td>7%</td>
</tr>
<tr>
<td>Acute Stress Disorder</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>100%</td>
</tr>
</tbody>
</table>
Table 10

Axis II Diagnosis

<table>
<thead>
<tr>
<th>Presence of an Axis II Diagnosis</th>
<th>N</th>
<th>Valid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Probably</td>
<td>52</td>
<td>16%</td>
</tr>
<tr>
<td>Probably not</td>
<td>175</td>
<td>53%</td>
</tr>
<tr>
<td>No</td>
<td>99</td>
<td>30%</td>
</tr>
<tr>
<td>Total</td>
<td>329</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 11

Presence of a Medical Condition Having an Influence on Psychological Health (Axis III)

<table>
<thead>
<tr>
<th>Depressive Disorder</th>
<th>N</th>
<th>Valid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>44</td>
<td>13%</td>
</tr>
<tr>
<td>Probably</td>
<td>27</td>
<td>8%</td>
</tr>
<tr>
<td>Probably not</td>
<td>81</td>
<td>24%</td>
</tr>
<tr>
<td>No</td>
<td>187</td>
<td>55%</td>
</tr>
<tr>
<td>Total</td>
<td>339</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 12

Severity of Psychological Stressors (Axis IV)

<table>
<thead>
<tr>
<th>Severity of Stressors</th>
<th>N</th>
<th>Valid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>8</td>
<td>2%</td>
</tr>
<tr>
<td>Mild</td>
<td>69</td>
<td>20%</td>
</tr>
<tr>
<td>Moderate</td>
<td>185</td>
<td>55%</td>
</tr>
<tr>
<td>Severe</td>
<td>73</td>
<td>22%</td>
</tr>
<tr>
<td>Extreme</td>
<td>4</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>339</td>
<td>100%</td>
</tr>
</tbody>
</table>
Global Assessment of Functioning at Intake (N = 273)

Number of Visits and Types of Therapy Received

The mean number of visits per episode of care was 5.0 (SD = 5.9). As shown in Figure 10, 37% of episodes of care resulted in only a single visit. Only 3% had 20 or more visits.

At the last visit for episodes of care with valid information (N = 315), 90% of clients reported receiving individual psychotherapy and 58% reported receiving medication. Few clients were receiving family/couples therapy (6%), group therapy (6%), or other forms of therapy (4%).

At the most recent visit, clients on medication (N = 184), 90% reporting taking their medication as prescribed, 3% not as prescribed, and 7% not at all. Clients taking their medication (N = 172), 45% reported that the medication was helping “quite a lot,” 30% “somewhat,” 19% “a little,” and 5% “not at all.” Medication side effects were reported to be not a problem in 55%, “a slight problem” in 26%, “a problem” in 15%, and “a big problem” in 5%.
As expected, the number of sessions of therapy received per episode of care was related to the severity of the presenting problem (Table 13): Clients with less favourable Behavioural Health Scores received a greater number of sessions of treatment ($\chi^2$ for Kruskal Wallis test = 48.6, d.f. = 3, $p < 0.0001$).

Table 13

| Number of Sessions of Therapy Received as a Function of Initial Behavioural Health Score |
|---------------------------------------------|----------|----------------|
| BHS Quartile at Intake                      | Mean     | Standard Deviation |
| 1st                                         | 6.1      | 6.1             |
| 2nd                                         | 6.7      | 7.8             |
| 3rd                                         | 3.9      | 4.2             |
| 4th                                         | 3.2      | 4.0             |
| Total                                       | 5.0      | 5.9             |

Progress during Therapy

As shown in Figure 11, Behavioural Health Scores improved over the course of treatment, on average. Specifically, the mean change in BHS percentile was 24 percentile points for the episodes of care with at least two visit (N = 347, excluding 7 episodes in which the client had just entered therapy within the previous 60 days). This
change corresponds to an effect size (Cohen’s $d$) of 0.9, which is considered large. The mean change in subjective well-being scores was 28 ($d = 1.0$) and in functioning was 12 ($d = 0.4$). The change in symptom score could not be determined because of a programming error in the data extraction procedure by POLARIS.

Because the Dose Model of psychotherapy shows that progress in therapy is a function of the logarithm of the visit number, a logarithmic regression curve was fitted using the ordinary least-squares method (Figure 11). The slope of this curve was greater than zero ($b = 5.04, F = 95.8, d.f. = 2823, p < 0.0001$), demonstrating that clients improved during therapy, on average.

**Figure 11**

### Behavioural Health Score Trajectory during Treatment

**Drop-outs during Care**

As noted above (Figure 10), a number of individuals received very few sessions of care: 37% received only a single session and 10% received only two sessions. For those with significant impairment, such care is unlikely to be sufficient. But for those with minimal impairment, limited care may be entirely appropriate.
POLARIS data can be used to explore the appropriateness of these short episodes of care (defined as only one session of care, N = 196, excluding 14 episodes of care in which the first visit was within the previous 60 days).

**Apparent Mental Health Care Needs of Those with a Single Visit**

As shown in Table 14, half of these clients (N = 97, 50%) had a BHS of 70 or less at the time of their initial (and only) visit, suggesting that they had clinically significant mental health care needs. An important minority expressed having thought in the previous month about harming someone else (N = 27, 39%), harming themselves (N = 26, 37%), or ending their life (N = 21, 35%). More than half (N = 43, 62%) reported functioning at “less than 60%” at work and a similar number (N = 43, 62%) reported having had at least some time off or some modified workdays due to mental health symptoms in the previous month. All of these findings point to significant mental health care needs in perhaps half of those who only received a single visit.

**Barriers to Care in Those with a Single Visit**

Another explanation for the failure of some with significant needs to follow-up might be that they were not ready for care, but this does not seem to be the case: 56 (81%) agreed or strongly agreed that they were ready to work with their therapist, and 50 (72%) agreed or strongly agreed that they needed professional help. Only 18 (26%) agreed or strongly agreed that many of their problems were caused by other people, and only 6 (9%) agreed or strongly agreed that it would be hard for them to come for treatment due to expense, time, transportation, etc. Thus, lack of readiness for care and barriers to care do not appear to account for the failure of most of this group to follow-up.

**Table 14**

**Behavioural Health Scores (Percentiles) of Episodes of Care with a Single Visit**

(N = 196)

<table>
<thead>
<tr>
<th>Initial BHS Score</th>
<th>N</th>
<th>Valid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10</td>
<td>10</td>
<td>5%</td>
</tr>
<tr>
<td>11 - 20</td>
<td>10</td>
<td>5%</td>
</tr>
<tr>
<td>21 - 30</td>
<td>9</td>
<td>5%</td>
</tr>
<tr>
<td>31 - 40</td>
<td>12</td>
<td>6%</td>
</tr>
<tr>
<td>41 - 50</td>
<td>15</td>
<td>8%</td>
</tr>
<tr>
<td>51 - 60</td>
<td>13</td>
<td>7%</td>
</tr>
<tr>
<td>61 - 70</td>
<td>28</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Subtotal &lt;= 70</strong></td>
<td>97</td>
<td>50%</td>
</tr>
<tr>
<td>71 - 80</td>
<td>26</td>
<td>13%</td>
</tr>
<tr>
<td>81 - 90</td>
<td>35</td>
<td>18%</td>
</tr>
<tr>
<td>91 - 99</td>
<td>38</td>
<td>19%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>196</td>
<td>100%</td>
</tr>
</tbody>
</table>
Satisfaction with Care

POLARIS captures client satisfaction at every visit other than the intake. “Brief updates” have only a single overall satisfaction item, whereas “long” updates provide some additional items. As shown in Table 15, clients were largely satisfied with their care and felt that they were making at least some progress in therapy.

Table 15
Client Satisfaction (at Last Visit with Valid Data)

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Count</th>
<th>Valid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>“How well does your counsellor-therapist seem to understand what you are feeling and thinking?”</td>
<td>Misunderstands how I think and feel</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Doesn’t understand too well</td>
<td>6</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Understands pretty well</td>
<td>69</td>
<td>28%</td>
</tr>
<tr>
<td></td>
<td>Understands very well</td>
<td>96</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>Understands exactly</td>
<td>51</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>I have not met my counsellor-therapist</td>
<td>18</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>243</td>
<td>100%</td>
</tr>
<tr>
<td>“Are you able to talk about what is really on your mind with your counsellor-therapist?”</td>
<td>Not at all</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Not much</td>
<td>4</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Sometimes</td>
<td>23</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Mostly</td>
<td>86</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>Completely</td>
<td>110</td>
<td>49%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>225</td>
<td>100%</td>
</tr>
<tr>
<td>“Do you feel accepted and respected by your counsellor-therapist?”</td>
<td>Not at all</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Not much</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Sometimes</td>
<td>11</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Mostly</td>
<td>78</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>Completely</td>
<td>133</td>
<td>59%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>225</td>
<td>100%</td>
</tr>
<tr>
<td>“How helpful has your counsellor-therapist been to you?”</td>
<td>Not at all helpful</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Slightly helpful</td>
<td>4</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Somewhat helpful</td>
<td>37</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>Pretty helpful</td>
<td>78</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>Very helpful</td>
<td>103</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>225</td>
<td>100%</td>
</tr>
<tr>
<td>Question</td>
<td>Response</td>
<td>Count</td>
<td>Valid %</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>“How much progress have you made in dealing with your emotional or psychological problems?”</td>
<td>My problems seem to have gotten worse</td>
<td>7</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>I don’t seem to be getting anywhere</td>
<td>17</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>I have made some progress</td>
<td>55</td>
<td>24%</td>
</tr>
<tr>
<td></td>
<td>I have made moderate progress</td>
<td>50</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>I have made considerable progress</td>
<td>96</td>
<td>43%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>225</td>
<td>100%</td>
</tr>
<tr>
<td>“How satisfied are you with the treatment you are receiving?”</td>
<td>Very dissatisfied</td>
<td>4</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Dissatisfied</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Mildly dissatisfied</td>
<td>10</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>Mildly satisfied</td>
<td>52</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Satisfied</td>
<td>159</td>
<td>47%</td>
</tr>
<tr>
<td></td>
<td>Very satisfied</td>
<td>110</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>337</td>
<td>100%</td>
</tr>
</tbody>
</table>
DISCUSSION

The purpose of this analysis was to answer two key questions:

- Was the system feasible?
- Did it provide useful data for health surveillance and quality assurance?

These are explored below.

Feasibility

Implementation of the POLARIS Mental Health System was feasible in the General Mental Health Clinic at CFB Halifax. Patients were accepting of the system (very few refused to use it), and they largely felt that the questionnaires described their current psychological condition well. Although the intake evaluation took about 14 minutes to complete (on average), very few evaluations were incomplete, suggesting that the respondent burden was acceptable. A single patient kiosk was sufficient to meet demand at one of our busiest mental health clinics.

The system also proved to be feasible for clinicians in that at least some clinician data was available for 77% of episodes of care, even in the absence of any systematic effort to monitor and enhance compliance. Completion of the clinician evaluations over time (particularly the intake evaluations) was relatively constant, though there did appear to be a modest decrease in the number of evaluations (particularly updates) over the study period. Clinician intake evaluations took only one to three minutes to complete, while clinician updates generally took less than a minute.

Clinician data was less complete than client data: In 134 episodes of care (23%), no clinician evaluation was completed. Conversely, no client evaluation was completed in only 7 episodes of care (1%), suggesting that efforts to enhance compliance should target clinicians rather than clients. Clinicians were less likely to complete evaluations for patients who were less unwell. Diagnostic data was not infrequently missing even when clinicians did complete an evaluation; the most important contributing factor to this missing data was that the POLARIS system did not give the clinician the opportunity to enter diagnosis data if they indicated that they had already completed an evaluation on the patient.

Cost-effectiveness

Outcomes management systems appear to be highly cost-effective: The total cost of implementation of the POLARIS in Halifax over the two-year course of this study was $22,100, with $10,513 representing one-time costs such as customization of the software and purchasing the computer server. Assuming that 8% of the 567 patients (about 45 total) seen in Halifax would have been expected to deteriorate in the absence of an outcomes management system and that this was cut in half by the POLARIS system, the cost per treatment failure prevented would be $22,100 / 22 cases or about $1000 each. Substantial economies of scale are likely to be realized if the system were implemented system-wide in the CF, so the expected cost per treatment failure prevented is likely to be significantly lower. As alluded to above, this cost would be readily recouped through
savings in other health care costs and through improvements in productivity, decreased 
absenteeism, decreased turnover, etc.

**Data for Health Surveillance and Quality Assurance**

Despite the above limitations, the system did generate a large volume of high-
quality data that permitted the exploration of different aspects of care. When evaluations 
were completed, the electronic nature of data entry saw to it that missing or invalid data 
were very rare.

The system provided insight into the flowing areas:

*Burden of Illness:* CF members seeking care in the General Mental Health clinic 
at CFB Halifax had a somewhat lower symptom burden and somewhat better functional 
status than the POLARIS reference population of individuals seeking outpatient mental 
health care. However, the well-being of the Halifax cohort was somewhat more 
impaired.

*Readiness for Care:* With relatively few exceptions, patients were ready for care 
and reported relatively few barriers to care.

*Diagnoses:* Valid diagnostic information was only available for 56% of episodes 
of care. The most prevalent primary Axis I disorders were adjustment disorders, V-
codes, depressive disorders, and anxiety disorders. 19% also had a secondary Axis I 
disorder.

*Care Delivered:* The average number of sessions of care per episode was 5.0; 
37% received only a single visit, and very few (3%) received 20 or more sessions. More 
severely affected patients received more care. Patients reported receiving largely 
individual psychotherapy (90%) and medication (58).

*Improvement during Care:* Clients improved during therapy, on average. As 
predicted by the phase model, well-being improved more than symptoms burden, which 
in turn improved more than functioning.

*Satisfaction with Care:* Patients were largely satisfied with their care, and they 
largely felt it was helping. Patient satisfaction and perceived efficacy of care were 
similar to that of other clinical settings using the POLARIS system. Compliance with 
medications was very good (90%), and burdensome side-effects were uncommon.

The data above would answer most of the routine questions we get from senior 
leaders, Parliament, and the media with respect to how many people seek care, what 
diagnoses they have, how effective the care is, how satisfied clients are, etc.

**Using POLARIS Data to Evaluate the Quality of Care:**

As noted in the introduction, there is strong evidence that systems similar to 
POLARIS significantly and immediately improve care at the individual level. That is, no 
analysis of aggregated data or implementation of system-level changes is required to see 
these improvements.

But analysis of POLARIS data can potentially serve as a powerful tool for the 
evaluation and improvement of the quality of care through system-level changes. The
availability of reference data from the vendor permits the identification of potential problem areas. With the exception of patient satisfaction (which is an important independent attribute of quality of care in and of itself), POLARIS data provides largely indirect evidence of the quality of care. With one exception (discussed below), the patterns of care appear to be consistent with high-quality care.

For example, very few clients (only 3%) received 20 or more sessions of therapy; this is consistent with the current thinking that relatively few patients should be in long-term psychotherapy. In addition, those with more serious problems appropriately received more care, on average. Nearly all clients received at least some individual psychotherapy, which would be appropriate for this group that largely had adjustment disorders, non-diagnostic psychosocial problems (V-codes), depressive, and anxiety disorders. Moreover, clients improved in care, on average, and the average effect size for care was comparable to that seen in other outpatient settings. Compliance with medication was very good and side-effects manageable, suggesting that the medications were thoughtfully managed. Finally, patient satisfaction was similar to that seen in other settings.

One potential problem area was identified: About half of those who had only a single visit appeared to have significant mental health care needs yet they appear to have not received any further care. There were 96 such episodes of care, representing a significant minority (17%) of all episodes of care. Most of these clients appeared to be ready for care and reported relatively few barriers to care, suggesting that the problem did not lie in these areas.

There are of course many good reasons for individuals with significant needs to have received only a single session of care: For example, they might have elected to have their problem managed by their primary care provider, or they might have been referred to the Halifax OTSSC for evaluation. Alternatively, their problems might have resolved on their own, or they might have been posted elsewhere or even separated from service.

POLARIS can only go so far to sort out this puzzle. Such systems often cannot specify what the quality problem is (or even prove that one exists). But they can help exclude certain hypotheses (e.g., we easily excluded the possibility that all of those with a single visit simply had very limited needs), and it can clearly identify which patients to look at to definitively establish or refute the presence of a quality gap. A reasonable next step would be to review the files of these 96 episodes of care (or a random sample thereof) to explore whether most had a benign reason for apparently failing to receive needed care.

Such systems can also point away from certain issues by showing that the available data is reassuring. For example, analysis might have shown that there were numerous patients who were receiving long-term psychotherapy, so that group could be targeted for further investigation. Problems with medication compliance or side-effects would be targeted if these seemed out of proportion to what is expected. Thus, systems such as POLARIS may identity what the quality problem is, but they can tell you where to look (and perhaps equally importantly, where not to look).
While this approach is a powerful one, it can hide important quality problems. For example, having about half of outpatient mental health clients receiving psychiatric medications seems about right. But the system can’t determine directly whether the right half of the population got the medications. Comparing our results with those of other systems and only targeting those areas in which there are apparent deviations can be a recipe for the reinforcement of mediocrity instead of achievement of excellence.

Limitations

This analysis has a number of important limitations.

Evidence from a single clinic: The POLARIS system proved feasible at a single General Mental Health clinic in the CF. While the clinic is a busy one, the number of clinicians involved was relatively small, and not all appeared to show the same enthusiasm for the system. Experience has shown that quality improvement efforts that are successful in one location with particularly motivated clinicians can be hard to implement or sustain elsewhere.

Implementation at Halifax was facilitated by their existing Protected B network service, which most bases do not have. While data collection from the patients would not require this capability (the system can run off a single stand-alone workstation), the collection of clinician data was likely facilitated by the fact that clinicians had access to the system right in the office.

The health surveillance and quality assurance findings described above may also be unique to Halifax. That is, bases with different patient populations, different local culture and climate, different clinicians, etc. might see different patterns of care and different outcomes of care.

Use of a system with a weaker evidence base: Most aspects of the POLARIS system have been well-validated or rest on a sound evidence base: The instruments measuring subjective well-being, symptom burden, functioning, and overall mental health status are measuring the right constructs with good reliability and precision. The version of POLARIS used in Halifax did not include the Expected Treatment Response (ETR) capability; this was developed by POLARIS only after its implementation in Halifax. Nevertheless, the ETR approach used by POLARIS is a conventional one, and it uses an appropriate statistical modelling technique.

The weakest part of the evidence base for POLARIS is the lack of randomized controlled trials showing that it improves patient outcomes at the individual level compared to usual care. Such data is available for the OQ Analyst system, which differs from the POLARIS system in a number of ways:

- The instrument used to measure treatment progress (and project the trajectory of recovery while in care) is different, and their dimensionality is slightly different. Nevertheless, the development approach and foundation for each instrument is very similar, and the instruments have strong concurrent validity with other widely-used instruments.
- Both systems use Hierarchical Linear Modelling and the Reliable Change Index approach to development of ETR curves, and both systems correct for the severity
of the presenting problem. However, the POLARIS system also adjusts for a number of additional prognostic factors that add significantly to its predictive ability. While better predictive ability sounds like an unequivocal advantage, it is at least theoretically possible differences in the ETR approach would lead to differences in the clinical impact of the system.

- The POLARIS instrument provides additional detail, particularly with respect to specific symptom clusters (e.g., depression, anxiety, PTSD). Again, this might not be advantageous if additional detail proves to be distracting or confusing to the clinician.

- The OQ Analyst has shown that provision of specific clinical decision support in three areas (readiness for treatment, therapeutic bond, and social support) improves the quality of care. POLARIS provides clinical feedback on these areas to the clinician, but it does not provide specific decision support information (i.e., specific actions to take to address problems in these areas). Hence, POLARIS may see different results. The vendor has indicated that it can readily adapt the program to offer this sort of decision support.

- There is substantial overlap between the scientists involved in the development of both systems.

For health surveillance and quality assurance purposes, though, POLARIS has clear advantages:

- Most importantly, it has the built-in capacity to capture clinician data longitudinally during the course of care. The ability to capture diagnosis is particularly valuable for surveillance purposes.

- The broader range of co-variates permits better adjustment for potential confounding factors, enhancing the validity and credibility of comparisons.

- POLARIS captures patient satisfaction data. This is a highly relevant outcome of care, and it is an area where we occasionally get criticism.

The manufacturer acknowledges that they placed a greater emphasis on the functionality of the IS/IT platform than on questionnaire validation or demonstrating the fundamental value of their particular approach to Expected Treatment Response and clinician feedback/decision support. The result is a system that aims to do three things at the same time (outcomes management, surveillance, and quality improvement)—it is not surprising that it may do each of these somewhat less well than systems that try to do only one of these functions.

**Missing clinician data:** Clinician data was not infrequently missing or incomplete, and there is strong evidence that it is missing in a non-random fashion: Clients with missing clinician data tended to be less ill. Thus, the true breakdown in diagnoses may be different from that shown in the above analysis.

The extent of missing data from clients is difficult to estimate, but it appears to have been uncommon in that the administrative staff indicated that very few clients refused to complete the questionnaire, very few questionnaires were incomplete, and there were very few clients in whom there was a clinician evaluation but not a client
evaluation. However, without some external source of validation data (e.g., the clinic appointment register), the true extent of missing data is unknown.

*Use of percentile data for analysis:* Almost all of the client questionnaire data analysis above relies on percentile scores, simply because that was what the POLARIS data extracts provided. There are some theoretical disadvantages in that the distribution of the scores is far from normal. Scaling validation that was performed on the native scales will generally not apply to the percentile scores. To compensate for this, non-parametric approaches were used for most analyses.

For effect size, there is no widely-used, readily-calculable, easily-interpreted non-parametric estimate, so Cohen’s d was used instead. This is questionable, and should be confirmed using T scores or actual scale scores on a future data extract.
CONCLUSIONS

Implementation of a mental health outcomes management system would offer highly tangible benefits to the CF in terms of optimization of care, surveillance, performance measurement, and quality improvement. The POLARIS system was implemented successfully in one CF mental health clinic, suggesting that it could work elsewhere within our system. Such a system is likely to be both cost-effective and cost-savings, even without consideration of the value of the health surveillance and quality assurance data it would produce.

Aside from its proven feasibility in our institution, the POLARIS system has advantages and disadvantages over other similar systems. Its greatest advantages are:

- Its ability to capture longitudinal data (particularly diagnosis) from clinicians;
- The richness of client data;
- The built-in integration of client and clinician data;
- The proven ability of the vendor to customize the system to our needs.

Its greatest disadvantage is the lack of randomized controlled trial data showing that it improves care at the patient level as does the OQ Analyst.

All of these systems work best if deployed on a wide-area network, and this can be done in a fashion that satisfies the security concerns of nearly everyone except DND. For example, both the OQ Analyst and POLARIS comply with the privacy and security standards of the US’s Health Insurance Portability and Accountability Act (HIPAA). Halifax was able to run POLARIS on a legacy Protected B network that other bases don’t have.

Using stand-alone workstations or paper-and-pencil work-arounds tends to result in a fragile, inefficient system that relies largely on the motivation and dedication of a single individual at a given site. Moreover, such approaches trade one set of security threats (e.g., unauthorized access to electronic data) for another (e.g., improper storage of sensitive materials). Whether any such system can work reliably over the long haul with a “handraulic” approach is an open question.

If the CF is to hold itself out as offering high quality, evidence-based care, it arguably must implement such a system given the strength of the evidence that such systems significantly improve meaningful patient outcomes. But the main benefit of implementation would not lie in the realm of public relations: Instead, the CF would benefit from hundreds more effective employees each year, and its members would benefit from better well-being, fewer symptoms, and better functioning.

Similarly, if the CF is to effectively manage and improve its growing and increasingly costly mental health program, it must have real-time access to population-level data on the process and outcomes of care. Such data could be collected using a separate mechanism, but the advantages of using a mental health outcomes management system as the backbone for data collection are obvious.
One important side-benefit of implementation of a mental health outcomes management system is that it could be used to replace the current post-deployment screening questionnaire and the whole infrastructure that supports that. Doing so would simplify data entry, analysis, tracking of compliance, determining the ultimate outcome of screening, etc. Pre-deployment psychosocial screening could be treated similarly.

RECOMMENDATIONS

1. **Before selecting a particular system for mental health outcomes management, surveillance, performance measurement, and quality assurance, CFHS needs to articulate our needs in each of these areas as clearly as possible.** Finding a single platform to meet these overlapping needs has clear appeal, but this should not be a foregone conclusion. Moreover, we have to keep in mind that the proven benefit of outcomes management systems is the immediate improvement of outcomes of care at the patient level. The benefits of surveillance and quality assurance are more remote and uncertain.

2. **Data needs for surveillance, performance measurement, and quality assurance should be validated through consideration of how precisely each piece of information will be used to enhance the effectiveness or efficiency of our care.** Data collection should not be driven by idle curiosity, and the specific way in which the data will be used will drive how and when it will be collected.

3. **Existing outcomes management, surveillance, performance measurement, and quality assurance systems need to be evaluated against these needs.** POLARIS may or may not be the best system. If more than one system is deemed to be necessary to meet different needs, the interoperability of these components and the feasibility of their implementation should be carefully considered.

4. **Meaningful and effective performance measurement in mental health services delivery requires particularly rich data on the process of care (i.e., what care was delivered), the outcomes of care, and the potential covariates of these outcomes.** Measuring outcomes of organizational interest (e.g., retention, medical employment limitations) is appealing because of their relevance, concreteness, and ease of measurement. But credibly linking these complex, multi-factorial, and temporally remote outcomes to the process of mental health care will always be difficult. Mental health problems are at their core a subjective experience on the part of the patient, so accurately measuring this experience through questionnaires must remain the cornerstone of a mental health care quality management approach. Rich data on potential covariates and thoughtful statistical modelling are essential if clinicians are to be convinced of the need for quality improvement. Without these, clinicians tend to readily attribute disappointing outcomes to differences in patient populations or to methodological deficiencies.
5. **Careful consideration will need to be made of the likely trade-off between the intrinsic, known limitations of existing systems such as POLARIS and the risks and uncertainties associated with developing our own system or integrating two or more systems.** Our past experiences with the time and effort involved in developing even simple custom systems and the disappointing performance of same must be seriously considered.

6. **Collaborating with VAC in the specification, evaluation, and implementation of such a system makes sense provided that our needs and overlap sufficiently and our operating environments are sufficiently similar.** Preliminary discussions with VAC suggest that overlap in these areas is actually less than anticipated.

7. **Selection of the system should reflect the experience that surveillance systems tend to work best when:**
   a. The system provides something of immediate clinical value to the clinician;
   b. Use of the system is required in order for the clinician to be reimbursed for the service;
   c. Data is collected by a dedicated individual whose primary responsibility is the collection of this data;
   d. The system relies as little as possible on clinicians to provide surveillance data;
   e. Data is collected at every encounter as opposed to on a particular schedule (e.g., every 3 months);
   f. Data entry is done using an IS/IT platform that limits missing, incomplete, or invalid data.

8. **The need to have the system functional in both official languages needs to be foreseen early in the procurement process.** This may limit our choice of vendor significantly.

9. **Continuing to gain broader experience with systems such as POLARIS will help us in the specification, selection, and implementation even if we ultimately choose a different platform.** In particular, there are three areas to explore:
   a. Assuring the applicability of the system to our OTSSC’s is essential, given their central role in our mental health system.
   b. Exploring the perceived value of the new ETR function in POLARIS would be helpful.
   c. If deploying such a system on a local- or wide-area network is not likely to be feasible (or at least not initially), verifying the functionality of the system using a stand-alone workstation would be very helpful.
10. The reasons for missing clinician data need to be explored in Halifax. The best way to proceed would be to do some qualitative research with the clinicians to help understand the barriers to the use of the system, sources of dissatisfaction, etc. A project to do just this is already underway in Halifax. This work will also look further into the acceptability of the system to clients.

11. If a system other than the OQ Analyst is selected for implementation, its report should be modified to make it as close to the approach used by the OQ Analyst, given the strong evidence of efficacy of that system.

12. The system selected will need to have built-in functionality to enhance compliance, particularly if collection of data from clinicians is part of the system. For example, the system should have specific, built-in reports to flag cases with missing clinician data.

13. Robust and responsive analytic capacity should be guaranteed if we are to be able to use the data for effective surveillance and thoughtful quality improvement activities. Simply having the data is only the first step, and the routine reports built into the system are unlikely to provide much. At minimum, the analyst would need to be able to access and manipulate the data, perform sophisticated statistical analysis, and produce both routine and ad hoc reports/studies for all stakeholders. At minimum this will require one FTE permanently dedicated to this system alone, likely at the ES05 level.

14. CFHS needs a flexible Protected B network capability at every point of care for the entry, storage, and management of identified health-related data. CFHIS is not flexible enough (and will never be flexible enough) to meet all of our needs. Implementation of a mental health outcomes management system is only one of many possible uses for such capability; others include the Sick Leave Database, the Case Management Database, etc. Without a sound IS/IT platform on which to build or place an outcomes management system, the entire initiative will be doomed to failure from the start. We have enough experience trying to make data capture systems work without strong IS/IT support to be able to conclude that that is not a viable alternative over the long haul. Thus, the development of a flexible Protected B network capability outside of CFHIS should be actively pursued. Implementation of the system can precede this capacity, but uneven compliance will have to be expected.

15. Whatever system is selected, it must do a better job than the existing version of POLARIS in the following areas:
   a. The system needs to clearly and accurately reflect the beginning and end of each episode of care. Minor modification of the POLARIS clinician intake and follow-up questionnaires could easily do this. Identifying the beginning of an episode of care is particularly important for those patients who are already in care at the time of implementation of the system.
   b. The system needs to capture the relationship between the mental health problem and military service, to permit the identification of OSI’s.
c. The ultimate disposition of the patient at the end of the episode of care is essential if drop-outs are to be managed effectively. Substantial data from a variety of setting suggests that systematic efforts to follow up each and every patient contribute strongly to better outcomes, so reports should be built in to the system to facilitate this.

d. The completeness and accuracy of the capture of DSM-IV diagnosis needs to be improved; minor changes in the way that diagnoses are entered into the system could decrease the amount of missing or invalid data.

e. The ability to change the DSM-IV diagnosis during an episode of care is important, given that co-morbidities may emerge or become apparent during care.

f. Ideally, the system should provide better information on the process of care. For example, capture of the specific type(s) of psychotherapy provided would be helpful for quality assurance purposes, given that certain types of therapy have been shown to work for certain conditions. For the same reason, capture of the medications used (at least the therapeutic class, e.g., SSRI, tricyclic, etc.) would be very helpful. Linkage with pharmacy data is, however, possible, and this would provide additional detail on the specific agent used, dose, compliance, etc.

g. Capture of additional socio-demographic and military characteristics (e.g., marital status, rank, MOSID, deployment history) would be ideal because these are potential co-variates of interest in analytical studies. Many of these are available through administrative data sources (e.g., HRMS, CFTPO), but data linkage can be laborious, time-consuming, and problem-prone.

The proven ability of the POLARIS vendor to customize their product should be considered in the selection of an outcomes management system.

16. **Selling these essential efforts to senior leadership will require careful consideration, in and of itself.** We will have to have ready answers to foreseeable questions such as: Why wasn’t the need for an outcomes management system included as part of the Rx2000 initiative? What will be the concrete organizational benefits of such a system? Why can’t CFHIS meet these needs?

17. **Selling such a system to clinicians will also require effort.** Buy-in cannot be assumed, and there will be some training required. Clinicians are likely to be suspicious of the use of detailed quality assurance data to judge their effectiveness/performance, and appropriately so. Using the data for this purpose is very difficult given the substantial random variation. Care will need to be taken to both reassure clinicians about these concerns and to assure that the data is not misused.
REFERENCE LIST


ANNEX A

OQ45 Questionnaire
Outcome Questionnaire (OQ®-45.2)

Instructions: Looking back over the last week, including today, help us understand how you have been feeling. Read each item carefully and mark the box under the category which best describes your current situation. For this questionnaire, work is defined as employment, school, housework, volunteer work, and so forth. Please do not make any marks in the shaded areas.

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<th>Sometimes</th>
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Name: ____________________ Age: ___ yrs.
ID: ________________________ Sex M □ F □

Developed by Michael J. Lambert, Ph.D. and Gary M. Burlingame, Ph.D.
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E-MAIL: info@oqmeasures.com
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FAX: 801-990-4236

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ANNEX B

CORE Questionnaire
IMPORTANT - PLEASE READ THIS FIRST
This form has 34 statements about how you have been OVER THE LAST WEEK. Please read each statement and think how often you felt that way last week. Then tick the box which is closest to this. Please use a dark pen (not pencil) and tick clearly within the boxes.

Over the last week

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all</th>
<th>Only Occasionally</th>
<th>Sometimes</th>
<th>Often</th>
<th>Most of all the time</th>
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<td>1 I have felt terribly alone and isolated</td>
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<td>2 I have felt tense, anxious or nervous</td>
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<td>3 I have felt I have someone to turn to for support when needed</td>
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<td>4 I have felt O.K. about myself</td>
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<td>5 I have felt totally lacking in energy and enthusiasm</td>
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<td>6 I have been physically violent to others</td>
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<td>7 I have felt able to cope when things go wrong</td>
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<td>8 I have been troubled by aches, pains or other physical problems</td>
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<td>9 I have thought of hurting myself</td>
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<td>10 Talking to people has felt too much for me</td>
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<td>11 Tension and anxiety have prevented me doing important things</td>
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<td>12 I have been happy with the things I have done.</td>
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<td>13 I have been disturbed by unwanted thoughts and feelings</td>
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<td>14 I have felt like crying</td>
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<th>I have felt panic or terror</th>
<th>I made plans to end my life</th>
<th>I have felt overwhelmed by my problems</th>
<th>I have had difficulty getting to sleep or staying asleep</th>
<th>I have felt warmth or affection for someone</th>
<th>My problems have been impossible to put to one side</th>
<th>I have been able to do most things I needed to</th>
<th>I have threatened or intimidated another person</th>
<th>I have felt despairing or hopeless</th>
<th>I have thought it would be better if I were dead</th>
<th>I have felt criticised by other people</th>
<th>I have thought I have no friends</th>
<th>I have felt unhappy</th>
<th>Unwanted images or memories have been distressing me</th>
<th>I have been irritable when with other people</th>
<th>I have thought I am to blame for my problems and difficulties</th>
<th>I have felt optimistic about my future</th>
<th>I have achieved the things I wanted to</th>
<th>I have felt humiliated or shamed by other people</th>
<th>I have hurt myself physically or taken dangerous risks with my health</th>
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THANK YOU FOR YOUR TIME IN COMPLETING THIS QUESTIONNAIRE

Total Scores

Mean Scores
(Total score for each dimension divided by number of items completed in that dimension)

(W) (P) (F) (R)
ANNEX C

POLARIS Questionnaires
Polaris-MH Intake Assessment: Item List

COPY FOR ILLUSTRATION ONLY. THIS FORM IS NOT USED BY PATIENTS. PATIENTS COMPLETE THE ASSESSMENT BY COMPUTER.

THIS DOCUMENT CONTAINS ALL POSSIBLE ASSESSMENT QUESTIONS. PATIENTS WILL TYPICALLY NOT ANSWER ALL QUESTIONS (BRANCHING LOGIC).

1. What is your gender?
   ___ 1. Male
   ___ 2. Female

2. How much school have you completed?
   ___ 1. 8th grade or less    ___ 4. Some college
   ___ 2. Some high school     ___ 5. 4-year college graduate
   ___ 3. High school graduate/GED ___ 6. Post graduate or higher

3. Do you consider yourself:
   ___ 1. Caucasian/White      ___ 4. Hispanic/Latino
   ___ 2. African American     ___ 5. Native American Indian
   ___ 3. Asian/Asian American ___ 6. Other

4. What is your current employment status?
   ___ 1. Employed Full-time
   ___ 2. Employed Part-time
   ___ 3. No Paid Employment

(If answer is “3. No Paid Employment” Skip to question #7)

5. In the past 30 days, how many days did you have difficulty doing routine tasks at work?
   __________

6. In the past 30 days, on how many days did you miss work?
   __________
7. Have you ever been hospitalized for a psychological or emotional problem?
   ____1. Never
   ____2. Once
   ____3. Twice
   ____4. Three or more times

(IF ANSWER IS “1. Never” SKIP TO QUESTION #9)

8. When was your most recent hospitalization for a psychological problem?
   ____1. Less than 3 months ago
   ____2. 3-6 months ago
   ____3. 6-12 months ago
   ____4. 1-2 years ago
   ____5. More than 2 years ago

THE NEXT QUESTIONS ASK ABOUT YOUR TREATMENT HISTORY

9. How much counseling or psychotherapy have you had in the past?
   ____1. None                      ____4. Three to six months
   ____2. Less than one month       ____5. Six months to one year
   ____3. One to three months       ____6. More than one year

(IF ANSWER IS “1. None” SKIP TO QUESTION #13)

10. How many times have you been in counseling or psychotherapy before now?
    ____1. Once
    ____2. Twice
    ____3. Three times
    ____4. Four or more times
11. How much did you benefit from this past counseling or psychotherapy?
   ____ 1. Not at all
   ____ 2. A little
   ____ 3. Moderately
   ____ 4. Quite a lot
   ____ 5. Extremely

12. How easy was it for you to talk to, and trust the therapist(s) you worked with in the past?
   ____ 1. Very difficult
   ____ 2. Difficult
   ____ 3. Somewhat difficult
   ____ 4. Somewhat easy
   ____ 5. Easy
   ____ 6. Very easy

13. Indicate the most important reason(s) that you are seeking help (check all that apply):
   ____ 1. Marital problems
   ____ 2. Other relationship problems
   ____ 3. Alcohol or drug problems
   ____ 4. Depression
   ____ 5. Anxiety
   ____ 6. Other psychological problems
   ____ 7. Other issue not listed

14. I have been encouraged to seek counseling by (check all that apply):
   ____ 1. Friends
   ____ 2. Spouse/Family
   ____ 3. Employer/Supervisor
   ____ 4. Doctor
   ____ 5. Courts
   ____ 6. Clergy (e.g., Priest, Rabbi, Minister)
   ____ 7. None of the above
15. How long have you had the problem or problems that brought you to treatment?
   
   ____ 1. Less than one month                        ____ 4. Six months to one year
   ____ 2. One to three months                        ____ 5. One to two years
   ____ 3. Three to six months                        ____ 6. More than two years

PLEASE INDICATE HOW MUCH YOU AGREE OR DISAGREE WITH EACH OF THE FOLLOWING.

16. I usually remain hopeful in the face of hardship.
   
   ____ 1. Strongly Disagree                         ____ 4. Slightly Agree
   ____ 2. Disagree                                  ____ 5. Agree
   ____ 3. Slightly Disagree                         ____ 6. Strongly Agree

17. I am able to think of more than one way to deal with a problem.
   
   ____ 1. Strongly Disagree                         ____ 4. Slightly Agree
   ____ 2. Disagree                                  ____ 5. Agree
   ____ 3. Slightly Disagree                         ____ 6. Strongly Agree

18. There are people in my life who love me very much.
   
   ____ 1. Strongly Disagree                         ____ 4. Slightly Agree
   ____ 2. Disagree                                  ____ 5. Agree
   ____ 3. Slightly Disagree                         ____ 6. Strongly Agree

19. I am able to bounce back when things go wrong (e.g., divorce, death of a friend, loss of job, etc.).
   
   ____ 1. Strongly Disagree                         ____ 4. Slightly Agree
   ____ 2. Disagree                                  ____ 5. Agree
   ____ 3. Slightly Disagree                         ____ 6. Strongly Agree
20. There is little purpose or meaning to my life.

____ 1. Strongly Disagree
____ 2. Disagree
____ 3. Slightly Disagree
____ 4. Slightly Agree
____ 5. Agree
____ 6. Strongly Agree

21. When I have problems, I go to people (e.g., clergy, helpful family members, close friends, etc.) who can help me.

____ 1. Strongly Disagree
____ 2. Disagree
____ 3. Slightly Disagree
____ 4. Slightly Agree
____ 5. Agree
____ 6. Strongly Agree

22. There are people in my life that I love very much.

____ 1. Strongly Disagree
____ 2. Disagree
____ 3. Slightly Disagree
____ 4. Slightly Agree
____ 5. Agree
____ 6. Strongly Agree

23. My daily routine provides opportunities to do things that are meaningful to me.

____ 1. Strongly Disagree
____ 2. Disagree
____ 3. Slightly Disagree
____ 4. Slightly Agree
____ 5. Agree
____ 6. Strongly Agree

24. Something good can come out of my negative experiences.

____ 1. Strongly Disagree
____ 2. Disagree
____ 3. Slightly Disagree
____ 4. Slightly Agree
____ 5. Agree
____ 6. Strongly Agree
25. How well have you been getting along emotionally and psychologically?
   ____1. Quite poorly, can barely manage to deal with things
   ____2. Fairly poorly, life gets pretty tough for me at times
   ____3. So-so, manage to keep going with some effort
   ____4. Fairly well, have my ups and downs
   ____5. Quite well, no important complaints
   ____6. Very well, much the way I would like to

26. How well do you expect you will be getting along emotionally and psychologically when you complete treatment?
   ____1. Quite poorly, I will barely be able to deal with things
   ____2. Fairly poorly, life will be pretty tough for me at times
   ____3. So-so, I will be able to manage to keep going with some effort
   ____4. Fairly well, I will have my ups and downs
   ____5. Quite well, I will have no important complaints
   ____6. Very well, much the way I would like to

27. During the past two weeks, how often have you felt confident and optimistic about your future?
   ____1. Not at all
   ____2. Seldom
   ____3. Sometimes
   ____4. Often
   ____5. Most or all the time

28. During the past two weeks, how satisfied have you been with your life?
   ____1. Quite dissatisfied
   ____2. Mildly dissatisfied
   ____3. Mostly satisfied
   ____4. Very satisfied
29. Are you currently experiencing any of the following health problems (check all that apply)?

____1. Cardiac
____2. Cancer
____3. Diabetes
____4. Chronic Obstructive Pulmonary Disease (COPD)
____5. Arthritis
____6. Chronic pain
____7. None of the above

30. Do you have a prescription for medication to treat a psychological or emotional problem?

____1. Yes, I'm taking it as prescribed
____2. Yes, but I am not taking my medication as prescribed
____3. Yes, but I am not taking my medication at all
____4. No

31. During the past two weeks, how has your health been in general?

____1. Poor
____2. Fair
____3. Good
____4. Very good
____5. Excellent

32. During the past two weeks, has your PHYSICAL HEALTH limited you in performing MODERATE ACTIVITIES (e.g., carrying groceries, climbing stairs)?

____1. No, not limited at all
____2. Yes, limited a little
____3. Yes, limited a lot

33. During the past two weeks, how much have you had to CUT DOWN THE AMOUNT OF TIME you spent on work or other activities as a result of any EMOTIONAL PROBLEMS (such as feeling depressed or anxious)?

____1. Not at all
____2. Cut down a little
____3. Cut down a lot
THE NEXT QUESTIONS ASK ABOUT RECENT PSYCHOLOGICAL SYMPTOMS

34. In the past two weeks, how often have you felt sad, down, or depressed?
   ____1.  Never or rarely
   ____2.  Some of the time
   ____3.  Often
   ____4.  All or almost all of the time

35. In the past two weeks, how often have you worried too much about things?
   ____1.  Never or rarely
   ____2.  Some of the time
   ____3.  Often
   ____4.  All or almost all of the time

36. In the past two weeks, how often have you had to avoid things, places, or situations that you fear?
   ____1.  Never or rarely
   ____2.  Some of the time
   ____3.  Often
   ____4.  All or almost all of the time

37. In the past two weeks, how often have you felt less pleasure from things you used to enjoy?
   ____1.  Never or rarely
   ____2.  Some of the time
   ____3.  Often
   ____4.  All or almost all of the time
38. In the past two weeks, how often have you had repeated thoughts or images that wouldn't go away?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

39. In the past two weeks, how often have you had headaches?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

40. In the past two weeks, how often have you had trouble concentrating?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

41. In the past two weeks, how often have you had problems falling asleep, staying asleep, or sleeping too much?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

42. In the past two weeks, how often have you had attacks of terror or panic?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time
43. In the past two weeks, how often have you felt like you are worthless or a failure?
   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time

44. In the past two weeks, how often have you felt tense or anxious?
   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time

45. In the past two weeks, how often have you been in places or situations that you fear?
   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time

46. In the past two weeks, how often have you had so much energy that you could not sleep?
   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time

47. In the past two weeks, how often have you felt sick to your stomach?
   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time
48. In the past two weeks, how often have you suddenly felt that a stressful past experience was happening again?

___1. Never or rarely
___2. Some of the time
___3. Often
___4. All or almost all of the time

49. In the past two weeks, how often have you felt you were going crazy or losing your mind?

___1. Never or rarely
___2. Some of the time
___3. Often
___4. All or almost all of the time

50. In the past two weeks, how often have you seen things that other people did not seem to see?

___1. Never or rarely
___2. Some of the time
___3. Often
___4. All or almost all of the time

51. In the past two weeks, how often have you felt chest pain, tightness, or racing heart?

___1. Never or rarely
___2. Some of the time
___3. Often
___4. All or almost all of the time
52. In the past two weeks, how often have you been more fearful than you should be of some situations, places, or things?

____1. Never or rarely
____2. Some of the time
____3. Often
____4. All or almost all of the time

53. In the past two weeks, how often have you felt irritable or easily angered?

____1. Never or rarely
____2. Some of the time
____3. Often
____4. All or almost all of the time

54. In the past two weeks, how often have you felt that something was crawling all over your body?

____1. Never or rarely
____2. Some of the time
____3. Often
____4. All or almost all of the time

55. In the past two weeks, how often have you worried about having attacks of extreme fear or panic?

____1. Never or rarely
____2. Some of the time
____3. Often
____4. All or almost all of the time

56. In the past two weeks, how often have you felt hopeless or pessimistic about the future?

____1. Never or rarely
____2. Some of the time
____3. Often
____4. All or almost all of the time
57. In the past two weeks, how often have you heard voices that other people did not seem to hear?

___ 1. Never or rarely
___ 2. Some of the time
___ 3. Often
___ 4. All or almost all of the time

58. In the past two weeks, how often have you tried to keep unwanted thoughts out of your mind?

___ 1. Never or rarely
___ 2. Some of the time
___ 3. Often
___ 4. All or almost all of the time

59. In the past two weeks, how often have you had repeated disturbing dreams of a frightening past experience?

___ 1. Never or rarely
___ 2. Some of the time
___ 3. Often
___ 4. All or almost all of the time

60. In the past two weeks, how often have you had fits of rage that you could not control?

___ 1. Never or rarely
___ 2. Some of the time
___ 3. Often
___ 4. All or almost all of the time
61. In the past two weeks, how often have you been bothered by having to do or think about things over and over again?

   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time

62. In the past two weeks, how often have you felt dizzy or light-headed?

   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time

63. In the past two weeks, how often have you been unable to recognize the voice of a loved one?

   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time

64. In the past two weeks, how often have you had repeated disturbing memories, thoughts, or images of a frightening past experience?

   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time
65. In the past two weeks, how often have you felt keyed up or on edge?

___1. Never or rarely
___2. Some of the time
___3. Often
___4. All or almost all of the time

66. In the past two weeks, how often have you felt sluggish or slowed down?

___1. Never or rarely
___2. Some of the time
___3. Often
___4. All or almost all of the time

67. During the past SEVERAL MONTHS, how often have you had very strong mood swings (highs and lows)?

___1. Never or rarely
___2. Some of the time
___3. Often
___4. All or almost all of the time

68. In the past MONTH, how often have you felt that you may have an alcohol or drug problem?

___1. Never
___2. Sometimes
___3. Often
___4. I do not use alcohol or recreational drugs

(IF ANSWER IS “4. I do not use…” SKIP TO QUESTION #83)
69. In the past MONTH, how often have you had an employer, family member, or friend express concern about your drinking or non-medical drug use?

____1. Never

____2. Sometimes

____3. Often

70. In the past MONTH, how often have you felt that your health, work, or home life was affected by drinking or non-medical drug use?

____1. Never

____2. Sometimes

____3. Often

71. In the past MONTH, how often have you felt guilty about your alcohol or non-medical drug use, or that you should cut back?

____1. Never

____2. Sometimes

____3. Often

(IF ANSWER IS “2. Sometimes” OR “3. Often” OR IF ANSWER TO QUESTION #68 WAS “2. Sometimes” OR “3. Often” OR IF ANSWER TO QUESTION #69 WAS “2. Sometimes” OR “3. Often” OR IF ANSWER TO QUESTION #70 WAS “2. Sometimes” OR “3. Often” MOVE AHEAD TO QUESTION #72

OTHERWISE SKIP TO QUESTION #83)

72. On how many days did you have problems related to your alcohol use? (Example: Cravings or strong urges to drink, withdrawal or sickness, arguments, poor work performance)

____

THE NEXT QUESTIONS ASK ABOUT YOUR ALCOHOL AND DRUG USE.

DURING THE PAST 30 DAYS . . .

73. During the past 30 days, on how many days did you drink any alcohol? (Example: beer, wine, liquor)

____
DURING THE PAST 30 DAYS . . .

74. On how many days did you have at least 4 drinks?

________

DURING THE PAST 30 DAYS . . .

75. How much money did you spend for alcohol? (Enter an amount between $0 and $9999.)

________

DURING THE PAST 30 DAYS . . .

76. How much have you been troubled or bothered by ALCOHOL PROBLEMS?

___1. Not at all
___2. Slightly
___3. Moderately
___4. Considerably
___5. Extremely

77. How important to you now is treatment for ALCOHOL PROBLEMS?

___1. Not at all
___2. Slightly
___3. Moderately
___4. Considerably
___5. Extremely

DURING THE PAST 30 DAYS . . .

78. On how many days did you have problems related to your drug use? (Example: Cravings, withdrawal or sickness, arguments, poor work performance)

________

DURING THE PAST 30 DAYS . . .

79. On how many days did you use any drug (except alcohol or cigarettes) non-medically?

________
DURING THE PAST 30 DAYS . . .

80. On how many days did you use more than one substance (except alcohol, cigarettes or drugs you take for medical reasons) per day?

___________

DURING THE PAST 30 DAYS . . .

81. How much have you been troubled or bothered by DRUG PROBLEMS?

____ 1. Not at all
____ 2. Slightly
____ 3. Moderately
____ 4. Considerably
____ 5. Extremely

82. How important to you now is treatment for DRUG PROBLEMS?

____ 1. Not at all
____ 2. Slightly
____ 3. Moderately
____ 4. Considerably
____ 5. Extremely

THE NEXT QUESTIONS ASK ABOUT SELF HARM

83. In the past MONTH, how often have you felt like harming yourself?

____ 1. Never
____ 2. Sometimes
____ 3. Often
84. In the past MONTH, how often have you thought about ending your life?
   ___1. Never
   ___2. Sometimes
   ___3. Often

(IF ANSWER IS “1. Never” SKIP TO QUESTION #86)

85. How many times have you (ever) attempted to kill yourself?
   ___1. Never
   ___2. Once
   ___3. Twice
   ___4. Three or more times

86. In the past MONTH, how often have you felt like harming someone else?
   ___1. Never
   ___2. Sometimes
   ___3. Often

THE NEXT QUESTIONS ASK ABOUT HOW WELL YOU HAVE BEEN MANAGING ROUTINE ACTIVITIES

87. In the past two weeks, how well have you been able to manage your day-to-day life?
   ___1. Very poorly
   ___2. Fairly poorly
   ___3. Fairly well
   ___4. Very well

88. In the past two weeks, how well have you been able to get along with friends?
   ___1. Very poorly
   ___2. Fairly poorly
   ___3. Fairly well
   ___4. Very well
89. In the past two weeks, how well have you been able to perform work/school/household tasks?
   ___1. Very poorly
   ___2. Fairly poorly
   ___3. Fairly well
   ___4. Very well

90. In the past two weeks, how well have you been able to get along with co-workers?
   ___1. Very poorly
   ___2. Fairly poorly
   ___3. Fairly well
   ___4. Very well
   ___5. Not applicable

91. In the past two weeks, how well have you been able to get along with family members?
   ___1. Very poorly
   ___2. Fairly poorly
   ___3. Fairly well
   ___4. Very well
   ___5. Not applicable

92. In the past two weeks, how well have you been able to take care of everyday money matters?
   ___1. Very poorly
   ___2. Fairly poorly
   ___3. Fairly well
   ___4. Very well
93. In the past two weeks, how well have you been able to perform routine tasks (chores, driving, shopping)?
   ____ 1. Very poorly
   ____ 2. Fairly poorly
   ____ 3. Fairly well
   ____ 4. Very well

94. In the past two weeks, how well have you been able to participate in your usual social activities?
   ____ 1. Very poorly
   ____ 2. Fairly poorly
   ____ 3. Fairly well
   ____ 4. Very well

95. In the past two weeks, how well have you been able to get along with supervisors?
   ____ 1. Very poorly
   ____ 2. Fairly poorly
   ____ 3. Fairly well
   ____ 4. Very well
   ____ 5. Not applicable

96. In the past two weeks, how well have you been able to develop and keep friendships?
   ____ 1. Very poorly
   ____ 2. Fairly poorly
   ____ 3. Fairly well
   ____ 4. Very well
97. In the past two weeks, how well have you been able to make everyday decisions?
   ___1. Very poorly
   ___2. Fairly poorly
   ___3. Fairly well
   ___4. Very well

98. In the past two weeks, how well have you been able to work accurately (making few errors)?
   ___1. Very poorly
   ___2. Fairly poorly
   ___3. Fairly well
   ___4. Very well

PLEASE INDICATE HOW MUCH YOU AGREE OR DISAGREE WITH EACH OF THE FOLLOWING.

99. I need professional help to deal with my emotional/psychological problems.
   ___1. Strongly Disagree   ___4. Slightly Agree
   ___2. Disagree            ___5. Agree
   ___3. Slightly Disagree   ___6. Strongly Agree

100. Many of my problems are caused by other people.
   ___1. Strongly Disagree   ___4. Slightly Agree
   ___2. Disagree            ___5. Agree
   ___3. Slightly Disagree   ___6. Strongly Agree

101. I am confident that treatment can help me.
   ___1. Strongly Disagree   ___4. Slightly Agree
   ___2. Disagree            ___5. Agree
   ___3. Slightly Disagree   ___6. Strongly Agree
102. It will be hard for me to come to treatment (e.g., in terms of expense, time, transportation, etc.).

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103. I have a lot to lose (e.g., job, marriage, health) if I don't get help with my problems.

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104. I am ready to work with my therapist to deal with my problems.

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105. How well do your answers to this questionnaire describe your current psychological condition?

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Polaris-MH Update Assessment: Item List

COPY FOR ILLUSTRATION ONLY. THIS FORM IS NOT USED BY PATIENTS. PATIENTS COMPLETE THE ASSESSMENT BY COMPUTER.

THIS DOCUMENT CONTAINS ALL POSSIBLE ASSESSMENT QUESTIONS. PATIENTS WILL TYPICALLY NOT ANSWER ALL QUESTIONS (BRANCHING LOGIC).

1. How well have you been getting along emotionally and psychologically?
   ____1. Quite poorly, can barely manage to deal with things
   ____2. Fairly poorly, life gets pretty tough for me at times
   ____3. So-so, manage to keep going with some effort
   ____4. Fairly well, have my ups and downs
   ____5. Quite well, no important complaints
   ____6. Very well, much the way I would like to

2. During the past two weeks, how often have you felt confident and optimistic about your future?
   ____1. Not at all
   ____2. Seldom
   ____3. Sometimes
   ____4. Often
   ____5. Most or all the time

3. During the past two weeks, how satisfied have you been with your life?
   ____1. Quite dissatisfied
   ____2. Mildly dissatisfied
   ____3. Mostly satisfied
   ____4. Very satisfied

4. During the past two weeks, how much have you had to CUT DOWN THE AMOUNT OF TIME you spent on work or other activities as a result of any EMOTIONAL PROBLEMS (such as feeling depressed or anxious)?
   ____1. Not at all
   ____2. Cut down a little
   ____3. Cut down a lot
THE NEXT QUESTIONS ASK ABOUT RECENT PSYCHOLOGICAL SYMPTOMS

5. In the past two weeks, how often have you felt sad, down, or depressed?
   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time

6. In the past two weeks, how often have you worried too much about things?
   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time

7. In the past two weeks, how often have you had to avoid things, places, or situations that you fear?
   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time

8. In the past two weeks, how often have you felt less pleasure from things you used to enjoy?
   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time
9. In the past two weeks, how often have you had repeated thoughts or images that wouldn't go away?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

10. In the past two weeks, how often have you had headaches?
    ____1. Never or rarely
    ____2. Some of the time
    ____3. Often
    ____4. All or almost all of the time

11. In the past two weeks, how often have you had trouble concentrating?
    ____1. Never or rarely
    ____2. Some of the time
    ____3. Often
    ____4. All or almost all of the time

12. In the past two weeks, how often have you had problems falling asleep, staying asleep, or sleeping too much?
    ____1. Never or rarely
    ____2. Some of the time
    ____3. Often
    ____4. All or almost all of the time

13. In the past two weeks, how often have you had attacks of terror or panic?
    ____1. Never or rarely
    ____2. Some of the time
    ____3. Often
    ____4. All or almost all of the time
14. In the past two weeks, how often have you felt like you are worthless or a failure?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

15. In the past two weeks, how often have you felt tense or anxious?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

16. In the past two weeks, how often have you been in places or situations that you fear?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

17. In the past two weeks, how often have you had so much energy that you could not sleep?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

18. In the past two weeks, how often have you felt sick to your stomach?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time
19. In the past two weeks, how often have you suddenly felt that a stressful past experience was happening again?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

20. In the past two weeks, how often have you felt you were going crazy or losing your mind?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

21. In the past two weeks, how often have you seen things that other people did not seem to see?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

22. In the past two weeks, how often have you felt chest pain, tightness, or racing heart?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

23. In the past two weeks, how often have you been more fearful than you should be of some situations, places, or things?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time
24. In the past two weeks, how often have you felt irritable or easily angered?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

25. In the past two weeks, how often have you felt that something was crawling all over your body?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

26. In the past two weeks, how often have you worried about having attacks of extreme fear or panic?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

27. In the past two weeks, how often have you felt hopeless or pessimistic about the future?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

28. In the past two weeks, how often have you heard voices that other people did not seem to hear?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time
29. In the past two weeks, how often have you tried to keep unwanted thoughts out of your mind?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

30. In the past two weeks, how often have you had repeated disturbing dreams of a frightening past experience?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

31. In the past two weeks, how often have you had fits of rage that you could not control?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

32. In the past two weeks, how often have you been bothered by having to do or think about things over and over again?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

33. In the past two weeks, how often have you felt dizzy or light-headed?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time
34. In the past two weeks, how often have you been unable to recognize the voice of a loved one?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

35. In the past two weeks, how often have you had repeated disturbing memories, thoughts, or images of a frightening past experience?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

36. In the past two weeks, how often have you felt keyed up or on edge?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time

37. In the past two weeks, how often have you felt sluggish or slowed down?
   ____1. Never or rarely
   ____2. Some of the time
   ____3. Often
   ____4. All or almost all of the time
38. During the past SEVERAL MONTHS, how often have you had very strong mood swings (higns and lows)?
   ___1. Never or rarely
   ___2. Some of the time
   ___3. Often
   ___4. All or almost all of the time

39. In the past MONTH, how often have you felt that you may have an alcohol or drug problem?
   ___1. Never or rarely
   ___2. Sometimes
   ___3. Often
   ___4. I do not use alcohol or recreational drugs

(IF ANSWER IS “1. Never or rarely” OR “4. I do not use…” SKIP TO QUESTION #51)

THE NEXT QUESTIONS ASK ABOUT YOUR ALCOHOL AND DRUG USE.

DURING THE PAST 30 DAYS . . .

40. On how many days did you have problems related to your alcohol use? (Example: Cravings or strong urges to
drink, withdrawal or sickness, arguments, poor work performance)

________

DURING THE PAST 30 DAYS . . .

41. During the past 30 days, on how many days did you drink any alcohol? (Example: beer, wine, liquor)

________

DURING THE PAST 30 DAYS . . .

42. On how many days did you have at least 4 drinks?

________

DURING THE PAST 30 DAYS . . .

43. How much money did you spend for alcohol? (Enter an amount between $0 and $9999.)

________
DURING THE PAST 30 DAYS . . .

44. How much have you been troubled or bothered by ALCOHOL PROBLEMS?
   ___1. Not at all
   ___2. Slightly
   ___3. Moderately
   ___4. Considerably
   ___5. Extremely

45. How important to you now is treatment for ALCOHOL PROBLEMS?
   ___1. Not at all
   ___2. Slightly
   ___3. Moderately
   ___4. Considerably
   ___5. Extremely

DURING THE PAST 30 DAYS . . .

46. On how many days did you have problems related to your drug use? (Example: Cravings, withdrawal or sickness, arguments, poor work performance)


DURING THE PAST 30 DAYS . . .

47. On how many days did you use any drug (except alcohol or cigarettes) non-medically?


DURING THE PAST 30 DAYS . . .

48. On how many days did you use more than one substance (except alcohol, cigarettes or drugs you take for medical reasons) per day?
DURING THE PAST 30 DAYS . . .

49. How much have you been troubled or bothered by DRUG PROBLEMS?
   ___ 1. Not at all
   ___ 2. Slightly
   ___ 3. Moderately
   ___ 4. Considerably
   ___ 5. Extremely

50. How important to you now is treatment for DRUG PROBLEMS?
   ___ 1. Not at all
   ___ 2. Slightly
   ___ 3. Moderately
   ___ 4. Considerably
   ___ 5. Extremely

THE NEXT QUESTIONS ASK ABOUT SELF HARM

51. In the past MONTH, how often have you felt like harming yourself?
   ___ 1. Never
   ___ 2. Sometimes
   ___ 3. Often

52. In the past MONTH, how often have you thought about ending your life?
   ___ 1. Never
   ___ 2. Sometimes
   ___ 3. Often

*(IF ANSWER IS “1. Never” SKIP TO QUESTION #54)*
53. How many times have you (ever) attempted to kill yourself?
   ___1. Never
   ___2. Once
   ___3. Twice
   ___4. Three or more times

54. In the past MONTH, how often have you felt like harming someone else?
   ___1. Never
   ___2. Sometimes
   ___3. Often

THE NEXT QUESTIONS ASK ABOUT HOW WELL YOU HAVE BEEN MANAGING ROUTINE ACTIVITIES

55. In the past two weeks, how well have you been able to manage your day-to-day life?
   ___1. Very poorly
   ___2. Fairly poorly
   ___3. Fairly well
   ___4. Very well

56. In the past two weeks, how well have you been able to get along with friends?
   ___1. Very poorly
   ___2. Fairly poorly
   ___3. Fairly well
   ___4. Very well
57. In the past two weeks, how well have you been able to perform work/school/household tasks?
   ___ 1. Very poorly
   ___ 2. Fairly poorly
   ___ 3. Fairly well
   ___ 4. Very well

58. In the past two weeks, how well have you been able to get along with co-workers?
   ___ 1. Very poorly
   ___ 2. Fairly poorly
   ___ 3. Fairly well
   ___ 4. Very well
   ___ 5. Not applicable

59. In the past two weeks, how well have you been able to get along with family members?
   ___ 1. Very poorly
   ___ 2. Fairly poorly
   ___ 3. Fairly well
   ___ 4. Very well
   ___ 5. Not applicable

60. In the past two weeks, how well have you been able to take care of everyday money matters?
   ___ 1. Very poorly
   ___ 2. Fairly poorly
   ___ 3. Fairly well
   ___ 4. Very well
61. In the past two weeks, how well have you been able to perform routine tasks (chores, driving, shopping)?
   ____ 1. Very poorly
   ____ 2. Fairly poorly
   ____ 3. Fairly well
   ____ 4. Very well

62. In the past two weeks, how well have you been able to participate in your usual social activities?
   ____ 1. Very poorly
   ____ 2. Fairly poorly
   ____ 3. Fairly well
   ____ 4. Very well

63. In the past two weeks, how well have you been able to get along with supervisors?
   ____ 1. Very poorly
   ____ 2. Fairly poorly
   ____ 3. Fairly well
   ____ 4. Very well
   ____ 5. Not applicable

64. In the past two weeks, how well have you been able to develop and keep friendships?
   ____ 1. Very poorly
   ____ 2. Fairly poorly
   ____ 3. Fairly well
   ____ 4. Very well
65. In the past two weeks, how well have you been able to make everyday decisions?
   ___ 1. Very poorly
   ___ 2. Fairly poorly
   ___ 3. Fairly well
   ___ 4. Very well

66. In the past two weeks, how well have you been able to work accurately (making few errors)?
   ___ 1. Very poorly
   ___ 2. Fairly poorly
   ___ 3. Fairly well
   ___ 4. Very well

67. What is your current employment status?
   ___ 1. Employed Full-time
   ___ 2. Employed Part-time
   ___ 3. No Paid Employment

(IF ANSWER IS "3. No Paid Employment" SKIP TO QUESTION #70)

68. In the past 30 days, how many days did you have difficulty doing routine tasks at work?
   __________

69. In the past 30 days, on how many days did you miss work?
   __________
70. How well does your counselor/therapist seem to understand what you are feeling and thinking?
   ___ 1. Misunderstands how I think and feel
   ___ 2. Doesn't understand too well
   ___ 3. Understands pretty well
   ___ 4. Understands very well
   ___ 5. Understands exactly
   ___ 6. I have not met my counselor/therapist

   (IF ANSWER IS “6. I have not met my counselor/therapist” SKIP TO QUESTION #77)

71. Are you able to talk about what is really on your mind with your counselor/therapist?
   ___ 1. Not at all
   ___ 2. Not much
   ___ 3. Sometimes
   ___ 4. Mostly
   ___ 5. Completely

72. Do you feel accepted and respected by your counselor/therapist?
   ___ 1. Not at all
   ___ 2. Not much
   ___ 3. Sometimes
   ___ 4. Mostly
   ___ 5. Completely

73. How helpful has your counselor/therapist been to you?
   ___ 1. Not at all helpful
   ___ 2. Slightly helpful
   ___ 3. Somewhat helpful
   ___ 4. Pretty helpful
   ___ 5. Very helpful
74. How much progress have you made in dealing with your emotional or psychological problems?

___ 1. My problems seem to have gotten worse
___ 2. I don't seem to be getting anywhere
___ 3. I have made some progress
___ 4. I have made moderate progress
___ 5. I have made considerable progress

75. How satisfied are you with the treatment you are receiving?

___ 1. Very dissatisfied
___ 2. Dissatisfied
___ 3. Mildly dissatisfied
___ 4. Mildly satisfied
___ 5. Satisfied
___ 6. Very satisfied

76. The type(s) of treatment I am receiving for emotional and psychological problems are (check all that apply):

___ 1. Individual
___ 2. Group
___ 3. Couples/Family
___ 4. Other psychotherapy
___ 5. Psychoeducational classes
___ 6. Stress reduction (e.g., Biofeedback, Meditation)
___ 7. None of the above
77. Do you have a prescription for medication to treat a psychological or emotional problem?
   ___ 1. Yes, I'm taking it as prescribed
   ___ 2. Yes, but I am not taking my medication as prescribed
   ___ 3. Yes, but I am not taking my medication at all
   ___ 4. No
   *(IF ANSWER IS “4. No” SKIP TO QUESTION #80)*

78. Are medication side effects a problem for you?
   ___ 1. No
   ___ 2. Slight problem
   ___ 3. Problem
   ___ 4. Big problem
   *(IF ANSWER TO QUESTION 77 IS “3. Yes, but I am not taking my medication at all” SKIP TO QUESTION #80)*

79. Do you feel that the medication is helping?
   ___ 1. Quite a lot
   ___ 2. Somewhat
   ___ 3. A little
   ___ 4. Not at all

80. How well do your answers to this questionnaire describe your current psychological condition?
   ___ 1. Very poorly
   ___ 2. Fairly poorly
   ___ 3. Moderately well
   ___ 4. Pretty well
   ___ 5. Very well
Polaris-MH Brief Update Assessment: Item List

COPY FOR ILLUSTRATION ONLY. THIS FORM IS NOT USED BY PATIENTS. PATIENTS COMPLETE THE ASSESSMENT BY COMPUTER.

1. How well have you been getting along emotionally and psychologically?
   ____ 1. Quite poorly, can barely manage to deal with things
   ____ 2. Fairly poorly, life gets pretty tough for me at times
   ____ 3. So-so, manage to keep going with some effort
   ____ 4. Fairly well, have my ups and downs
   ____ 5. Quite well, no important complaints
   ____ 6. Very well, much the way I would like to

2. During the past two weeks, how much have you had to CUT DOWN THE AMOUNT OF TIME you spent on work or other activities as a result of any EMOTIONAL PROBLEMS (such as feeling depressed or anxious)?
   ____ 1. Not at all
   ____ 2. Cut down a little
   ____ 3. Cut down a lot

THE NEXT QUESTIONS ASK ABOUT RECENT PSYCHOLOGICAL SYMPTOMS

3. In the past two weeks, how often have you felt sad, down, or depressed?
   ____ 1. Never or rarely
   ____ 2. Some of the time
   ____ 3. Often
   ____ 4. All or almost all of the time

4. In the past two weeks, how often have you felt less pleasure from things you used to enjoy?
   ____ 1. Never or rarely
   ____ 2. Some of the time
   ____ 3. Often
   ____ 4. All or almost all of the time
5. In the past two weeks, how often have you had trouble concentrating?
   ___ 1. Never or rarely
   ___ 2. Some of the time
   ___ 3. Often
   ___ 4. All or almost all of the time

6. In the past two weeks, how often have you felt like you are worthless or a failure?
   ___ 1. Never or rarely
   ___ 2. Some of the time
   ___ 3. Often
   ___ 4. All or almost all of the time

7. In the past two weeks, how often have you felt hopeless or pessimistic about the future?
   ___ 1. Never or rarely
   ___ 2. Some of the time
   ___ 3. Often
   ___ 4. All or almost all of the time

8. In the past two weeks, how often have you had problems falling asleep, staying asleep, or sleeping too much?
   ___ 1. Never or rarely
   ___ 2. Some of the time
   ___ 3. Often
   ___ 4. All or almost all of the time

9. In the past two weeks, how often have you felt sluggish or slowed down?
   ___ 1. Never or rarely
   ___ 2. Some of the time
   ___ 3. Often
   ___ 4. All or almost all of the time
10. In the past MONTH, how often have you thought about ending your life?
   ___ 1. Never
   ___ 2. Sometimes
   ___ 3. Often

11. In the past two weeks, how often have you felt tense or anxious?
   ___ 1. Never or rarely
   ___ 2. Some of the time
   ___ 3. Often
   ___ 4. All or almost all of the time

12. In the past two weeks, how often have you been in places or situations that you fear?
   ___ 1. Never or rarely
   ___ 2. Some of the time
   ___ 3. Often
   ___ 4. All or almost all of the time

13. In the past two weeks, how often have you had repeated thoughts or images that wouldn't go away?
   ___ 1. Never or rarely
   ___ 2. Some of the time
   ___ 3. Often
   ___ 4. All or almost all of the time

14. In the past two weeks, how often have you felt sick to your stomach?
   ___ 1. Never or rarely
   ___ 2. Some of the time
   ___ 3. Often
   ___ 4. All or almost all of the time
15. In the past two weeks, how often have you felt you were going crazy or losing your mind?
   ____ 1. Never or rarely
   ____ 2. Some of the time
   ____ 3. Often
   ____ 4. All or almost all of the time

16. In the past two weeks, how often have you had repeated disturbing memories, thoughts, or images of a frightening past experience?
   ____ 1. Never or rarely
   ____ 2. Some of the time
   ____ 3. Often
   ____ 4. All or almost all of the time

THE NEXT QUESTIONS ASK ABOUT HOW WELL YOU HAVE BEEN MANAGING ROUTINE ACTIVITIES

17. In the past two weeks, how well have you been able to manage your day-to-day life?
   ____ 1. Very poorly
   ____ 2. Fairly poorly
   ____ 3. Fairly well
   ____ 4. Very well

18. In the past two weeks, how well have you been able to get along with friends?
   ____ 1. Very poorly
   ____ 2. Fairly poorly
   ____ 3. Fairly well
   ____ 4. Very well
19. In the past two weeks, how well have you been able to perform work/school/household tasks?
   
   ___ 1. Very poorly
   ___ 2. Fairly poorly
   ___ 3. Fairly well
   ___ 4. Very well

20. How satisfied are you with the treatment you are receiving?

   ___ 1. Very dissatisfied       ___ 4. Mildly satisfied
   ___ 2. Dissatisfied           ___ 5. Satisfied
Polaris-MH Counselor Assessment: Item List

COPY FOR ILLUSTRATION ONLY. THIS FORM IS NOT USED BY COUNSELORS. COUNSELORS COMPLETE THE ASSESSMENT BY COMPUTER.

THIS DOCUMENT CONTAINS ALL POSSIBLE ASSESSMENT QUESTIONS. COUNSELORS WILL TYPICALLY NOT ANSWER ALL QUESTIONS AFTER THE FIRST TIME (BRANCHING LOGIC).

1. Have you already completed an assessment for this individual (during the current treatment episode)?
   ____1. Yes
   ____2. No
   ____3. Not Sure
   (IF ANSWER IS “1. Yes,” SKIP TO QUESTION #13)

2. Does this individual have an Axis I DSM-IV diagnosis?
   ____1. Yes
   ____2. No
   ____3. Don’t know
   (IF ANSWER IS “2. No” OR “3. Don’t know,” SKIP TO QUESTION #5)

3. (Primary Diagnosis) Please provide the primary Axis I five-digit code without the decimal (code "V" as "1", enter "99999" if unknown):
   __________

4. (Secondary Diagnosis) Please provide the secondary Axis I five-digit code without the decimal (code "V" as "1", enter "99999" if none or unknown):
   __________

5. Does this individual meet criteria for an Axis II personality disorder?
   ____1. Yes
   ____2. Probably
   ____3. Probably not
   ____4. No
6. Axis III (Medical Issues): Does this individual have a comorbid issue that affects their psychological state?
   ____1. Yes
   ____2. Probably
   ____3. Probably not
   ____4. No

7. Axis IV (Psychosocial Stressors): Rate the severity of this individual’s psychosocial stressors:
   ____1. None
   ____2. Mild
   ____3. Moderate
   ____4. Severe
   ____5. Extreme
   ____6. Catastrophic

8. Axis V- Global Assessment of Functioning. Enter a number between 0 and 100, or if unknown enter 999. Current:
   _______

9. Has this individual been homeless at any time during the past 12 months?
   ____1. Yes
   ____2. No
   ____3. Don't know

10. Has this individual been hospitalized for psychiatric/psychological problems at any time in the past 12 months?
    ____1. Yes
    ____2. No
    ____3. Don't know

11. Has this individual been in jail or prison, or convicted of a crime, at any time in the past 12 months?
    ____1. Yes
    ____2. No
    ____3. Don't know
12. Has this individual been unemployed due to psychiatric/psychological problems at any time in the past 12 months?
   ___1. Yes
   ___2. No
   ___3. Don't know

13. Compared to your other counselees/patients, how do you rate this individual’s motivation for treatment?
   ___1. Very low
   ___2. Low
   ___3. About average
   ___4. High
   ___5. Very high

14. Compared to your other counselees/patients at this point in treatment, do you feel your therapeutic relationship with this individual is...
   ___1. Much worse
   ___2. Worse
   ___3. About the same
   ___4. Better
   ___5. Much better

15. Use a rating from 1 ("extremely poorly") to 10 ("extremely well"). How well is this individual getting along emotionally/psychologically:

          

16. Use a rating from 1 ("extremely severe") to 10 ("extremely mild"). How severe are this individual’s symptoms:

          

17. Use a rating from 1 ("extremely severe") to 10 ("extremely mild"). How severe is the impact of this individual’s psychological problems upon his/her functioning:

          

18. Rate this individual’s overall progress since the start of treatment:

___1. N/A - Individual just started treatment ___4. Some progress
___2. Individual seems worse ___5. Good progress
___3. Little or no progress ___6. Excellent progress

19. How much would this individual benefit from (further) treatment?

___1. Very little or not at all
___2. Slightly
___3. Moderately
___4. Greatly

20. Do you want this patient to complete the long form of the next assessment?

___1. Yes
___2. No
ANNEX D

Sample POLARIS Intake and Follow-up Reports
**Polaris-MH Initial Assessment Report**

**Client Name:** Christopher Smith  
**Date of Birth:** 6/11/1987  
**Assessment Date:** 11/3/2008  
**Counselor:** Counselor  
**Time to Complete:** 7:50

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<tr>
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<td>4 or more episodes</td>
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<tr>
<td>Most recent hospitalization</td>
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<td>6 months - 1 year</td>
</tr>
<tr>
<td>Previous counseling or psychotherapy</td>
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<tr>
<td>Total time in counseling or psychotherapy</td>
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<td>Moderately</td>
</tr>
<tr>
<td>Ease of relating to prior therapist(s)</td>
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<td></td>
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<tr>
<td>Benefited from prior treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has prescription for psychiatric med</td>
<td>Yes, but not taking as prescribed</td>
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<td></td>
</tr>
<tr>
<td>Has a lot to lose</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Confident that treatment can help</td>
<td></td>
<td>Slightly disagree</td>
</tr>
<tr>
<td>Problems caused by other people</td>
<td>Disagree</td>
<td></td>
</tr>
<tr>
<td>Treatment will be a hardship</td>
<td></td>
<td>Slightly agree</td>
</tr>
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</table>

**Reason(s) for Seeking Treatment:** Anxiety problems, marital problems

**Who encouraged client to seek treatment?** Friends

---

**How Does The Client Compare With Other People In Treatment?**

<table>
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<tr>
<th>Category</th>
<th>Percentile</th>
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<tbody>
<tr>
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<tr>
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</tr>
<tr>
<td>Functioning</td>
<td>50%</td>
</tr>
<tr>
<td>Overall</td>
<td>40%</td>
</tr>
</tbody>
</table>

---

This report reflects only the information supplied by the client and is not intended to replace clinical judgment. The clinician retains full responsibility for decisions regarding treatment. (c) 2008 Polaris Health Directions, all rights reserved. Contact Polaris at: (267) 583-6336 -- info@polarishealth.com -- www.polarishealth.com
Treatment Strengths / Assets | Indicators of Strength | Indicators of Concern
--- | --- | ---
People in my life who love me very much | Slightly agree |  
People in my life I love very much | Agree |  
Find strength in religious/spiritual practices |  |  
When I have problems I go to people who can help me | Strongly agree |  
Can think of more than one way to deal with a problem |  |  
Able to bounce back when things go wrong |  |  
Daily routine provides opportunities to do meaningful things |  |  
Usually remain hopeful in the face of hardship |  |  
Something good can come out of my negative experiences |  |  
There is little purpose or meaning to my life |  |  
I have more difficulty than most people adapting to change |  |  
Resilience Percentile Score (higher = more resilient) | 38% |  

Information Relating to Positive Screen(s)

**Danger to self or others**
The client reports feeling like harming himself / herself during the past month.
The client reports thoughts of ending his / her life during the past month.

**Evidence of possible serious mental illness**
The client reports hearing things other people don't seem to hear.
<table>
<thead>
<tr>
<th><strong>Screens</strong></th>
<th><strong>Negative</strong></th>
<th><strong>Positive</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inauthentic responding</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Dangerousness to self or others</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Evidence of possible serious disturbance</td>
<td></td>
<td>See last page</td>
</tr>
<tr>
<td>Evidence of possible chemical dependency</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Therapeutic Bond -- Satisfaction</strong></th>
<th><strong>Agree</strong></th>
<th><strong>Disagree</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapist understands how client thinks/feels</td>
<td>Misunderstands</td>
<td>Not at all</td>
</tr>
<tr>
<td>Client feels able to talk about what is on mind</td>
<td>Mostly</td>
<td></td>
</tr>
<tr>
<td>Client feels accepted and respected by therapist</td>
<td>Somewhat helpful</td>
<td></td>
</tr>
<tr>
<td>Therapist has been helpful</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client assessment of progress so far</td>
<td>Not getting anywhere</td>
<td></td>
</tr>
<tr>
<td>Satisfaction with treatment</td>
<td>Mildly dissatisfied</td>
<td></td>
</tr>
</tbody>
</table>

**Medication:** Client HAS a prescription for a CNS medication

<table>
<thead>
<tr>
<th><strong>Question</strong></th>
<th><strong>Answer</strong></th>
<th><strong>Note</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the client taking the med?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Are side effects a problem?</td>
<td>Slight problem</td>
<td></td>
</tr>
<tr>
<td>How much is the med helping?</td>
<td>Somewhat</td>
<td></td>
</tr>
</tbody>
</table>

**Global Behavioral Health Status Score**

![Graph showing global behavioral health status score over weeks from 11/03/08 to 12 weeks. The predicted and actual trends are shown.]

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Has the severity of depression changed?

**Severity of Depressive Symptoms**

```
+-----------------+-----------------+-----------------+-------------------+
<table>
<thead>
<tr>
<th></th>
<th>11/03/08</th>
<th>12/04/09</th>
<th>1/6/09</th>
<th>2/10/09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing Well</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doing Poorly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
+----------------+----------+----------+--------+---------|
```

How have the client's symptoms, functioning, and feelings of well being changed during therapy?

**Percentile Score: High is Favorable**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Intake 11/03/08</th>
<th>Previous 1/06/09</th>
<th>Current 02/10/09</th>
<th>Change Since Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective Well Being</td>
<td>31</td>
<td>60</td>
<td>63</td>
<td>32</td>
</tr>
<tr>
<td>Symptom-Free</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>35</td>
<td>44</td>
<td>78</td>
<td>43</td>
</tr>
<tr>
<td>Anxiety</td>
<td>40</td>
<td>60</td>
<td>62</td>
<td>22</td>
</tr>
<tr>
<td>Phobia</td>
<td>31</td>
<td>41</td>
<td>61</td>
<td>30</td>
</tr>
<tr>
<td>Obsessive-Compulsive</td>
<td>88</td>
<td>88</td>
<td>88</td>
<td>0</td>
</tr>
<tr>
<td>Somatization</td>
<td>96</td>
<td>96</td>
<td>96</td>
<td>0</td>
</tr>
<tr>
<td>Panic</td>
<td>92</td>
<td>92</td>
<td>92</td>
<td>0</td>
</tr>
<tr>
<td>PTSD</td>
<td>96</td>
<td>96</td>
<td>96</td>
<td>0</td>
</tr>
<tr>
<td>Functioning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal</td>
<td>62</td>
<td>68</td>
<td>80</td>
<td>18</td>
</tr>
<tr>
<td>Social</td>
<td>52</td>
<td>74</td>
<td>74</td>
<td>22</td>
</tr>
<tr>
<td>Vocational</td>
<td>66</td>
<td>70</td>
<td>72</td>
<td>6</td>
</tr>
<tr>
<td>Behavioral Health Status</td>
<td>17</td>
<td>33</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>(Global Score)</td>
<td>38</td>
<td>52</td>
<td>77</td>
<td>39</td>
</tr>
</tbody>
</table>
Polaris-MH Client Progress Report

Client Name: Christopher Smith  Date of Birth: 6/11/1987  Assessment Date: 2/10/2009
Counselor: Counselor  Time to Complete: 6:32

In what areas have there been marked change?

<table>
<thead>
<tr>
<th>Areas That Are Significantly Improved</th>
<th>Intake</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trouble concentrating</td>
<td>Almost all the time</td>
<td>Some of the time</td>
</tr>
<tr>
<td>Felt tense or anxious</td>
<td>Almost all the time</td>
<td>Some of the time</td>
</tr>
<tr>
<td>Feeling hopeless/pessimistic</td>
<td>Often</td>
<td>Never or rarely</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Areas That Are Significantly Worse</th>
<th>Intake</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting along with co-workers</td>
<td>Fairly well</td>
<td>Very poorly</td>
</tr>
</tbody>
</table>

What are the current areas of serious concern?

Getting along with co-workers

Information Relating to Positive Screen(s)

Evidence of possible serious disturbance
The client reports having so much energy during the past two weeks that he/she felt no need for sleep.