Patient-Centered Care & Service Delivery Models:
Evidence-Based Practices in Assessment & Classification
Prepared for the California Prison Healthcare Facilities

Introduction

The discussion below presents a basic background on the use of assessment in corrections, provides a brief description of multi-dimensional assessment technologies available for correctional populations, presents the COMPAS assessment system and discusses why COMPAS is the most appropriate selection for the California Prison Healthcare Facilities. The discussion begins with a review of the history of assessment in corrections.

Trends in Correctional Assessment

The last three decades in correctional practice have seen a progression from first generation (1G) to currently emerging 4G assessment approaches (Andrews, Bonta, & Wormith, 2006; Blanchette & Brown 2006; Bonta, 1996; Clements, 1996). These developments occurred as successive generations of assessment and classification methods addressed the more obvious weaknesses of prior phases. These phases and their main characteristics are described below.

The First generation (1G) approach relied on clinical and professional judgment in the absence of any explicit or objective scoring rules. It dominated corrections for several decades and remains preferred by many correctional decision-makers (Boothby & Clements, 2000; Wormith, 2001). Its weaknesses include excessive subjectivity, inconsistency, bias and potential stereotyping, legal vulnerability, and lower predictive validity than structured objective methods (Brennan, 1987; Grove & Meehl, 1996; Hastie & Dawes 2001).

Second generation (2G) assessments adopted an empirical approach that mainly relied on simple additive point scales, often with only a few standardized factors (e.g., Austin, 1983; Gottfredson, 1987; Hoffman, 1984). These mostly reflected Dawes’s (1979) description of “improper” linear models (p. 571) because the selected factors and weightings were often established by common sense or professional consensus rather than by statistical methods. These methods primarily focused on risk prediction, brevity and efficiency. The main criticisms included lack of theoretical background, limited coverage of risk and need factors, neglect of dynamic (changeable) risk factors, lack of treatment implications, weak explanatory value, and questionable relevance for female offenders (Blanchette & Brown, 2006; Jones, 1996). However, as noted by Dawes (1979), these linear models are often surprisingly effective in terms of predictive validity and generally outperformed professional judgment or the opinions of trained experts (Hastie & Dawes, 1979; Grove & Meehl 1996; Mossman, 1994).

Third generation (3G) assessments of the late 1970s and 1980s introduced a more explicit, empirically based and theory-guided approach and a broader selection of criminogenic factors. Additionally, some of these factors were designed to be dynamically sensitive to change. The Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995) exemplified these trends and perhaps has become the most widely used risk and need assessment in

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corrections. However, 3G methods, including the LSI-R, eventually were criticized for a narrow theoretical focus (mainly social learning theory), a failure to address gender sensitivity, a dominant focus on risk, and failure to assess individual strengths or protective factors as emphasized in the “good lives” model (Ward & Stewart, 2003; Andrews, Bonta, & Wormith, 2006; Blanchette & Brown, 2006; Bloom, 2000; Reisig, Holtfreter, & Morash, 2006).

Regarding fourth generation (4G) assessments, Andrews, Bonta, and Wormith (2006) identified several instruments as representing this category, including Correctional Assessment and Intervention System (CAIS; National Council on Crime and Delinquency, 2006); LS/CMI, and COMPAS. Several general features appear to characterize 4G approaches. These include (1) a broader selection of explanatory theories, (2) broader range of risk and need factors (content validity), (3) incorporation of the strengths/resiliency perspective, (4) more advanced statistical modeling, (5) seamless integration of the need/risk domain with the agency management information system (MIS) and criminal justice databases and Web-based implementation of assessment technology. Such integration allows users to track individuals from intake to case closure to support sequential case-management monitoring, information feedback, and decision-making. COMPAS has incorporated all of these features and interested readers may obtain full details in Brennan, Dieterich, and Oliver (2007).

**What is COMPAS?**

COMPAS is an automated decision-support software package that integrates risk/needs assessment with several other domains including sentencing decisions, treatment/case management and recidivism outcomes. Documentation of the full software functionality is available at www.northpointeinc.com. Beyond the integration of separate databases, the following design features of COMPAS further advance and support evidence-based practice (EBP) in criminal justice agencies.

*Theory-guided assessment:* Ideally, explanatory theories of criminality should guide the selection of scale content of an assessment system. Criminologists have long lamented the lack of theory-guided assessments (Bonta, 2002; Clements, 1996, Jones, 1996). Thus, 4G systems have a strong emphasis on theory-guided assessment. In contrast to the LSI-R, which was designed primarily around a social learning explanation (Andrews & Bonta, 1998), COMPAS broadens the theoretical coverage to include key constructs from low self-control theory, strain theory/social exclusion, social control theory (bonding), routine activities-opportunity theory, sub-cultural/social learning theories, and a strengths/good lives perspective.

*Broadband comprehensive assessment:* Secondly, 4G approaches introduce a broader comprehensive coverage of criminogenic factors to match the theoretical and explanatory complexity of criminal behavior and to provide sufficient explanatory information to guide case interpretation and intervention planning. Thus COMPAS includes both theoretically relevant factors as well as the critical eight criminogenic predictive factors that emerged from recent meta-analytic studies (Andrews, Bonta, & Wormith, 2006; Gendreau, Little, & Goggin, 1996; Lipsey & Derzon, 1998; Lösel, 1995). 2G generally approaches reflected the opposite trend by minimizing and simplifying assessment to reduce workload burden on staff, which, not unexpectedly, resulted in extreme poverty of explanatory components and an almost total lack of treatment guidance (Glaser, 1987; Palmer, 1992; Austin 1986).

*Integration of the strength/resiliency perspective:* The strength-based or good lives approach (Andrews, Bonta, & Wormith, 2006; Ward & Brown, 2004) is a natural extension of the shift toward more comprehensive assessment. In their review, Andrews, Bonta, and Wormith (2006) suggested that measures of strengths and well-being are “highly relevant” (p. 23) for correctional assessments. To address this issue, COMPAS includes a number of strength/protective factors that have shown empirical support for potential risk reduction and
protecting individuals’ from the full impact of criminogenic needs. These include job and educational skills, history of successful employment, adequate finances, safe housing, family bonds, social and emotional support, non-criminal parents and friends, and so on.

**More advanced statistical models:** 4G assessments, in contrast with earlier approaches, are beginning to use more advanced statistical methods for predictive modeling and classification. Although Burgess-type, equally weighted, linear models have performed reasonably well (Gottfredson, 1987; Mossman, 1994), the emergence of powerful multivariate, model-averaging, mixed-model ensemble methods and artificial intelligence are now entering correctional assessment approaches. For example, the COMPAS risk and classification models use logistic regression, survival analysis, and bootstrap classification methods in a broad repertoire of prediction and classification procedures (Brennan, Breitenbach & Dieterich, 2008). The present paper specifically examines its predictive models for recidivism based on survival analysis (Cox regression).

**Integration with criminal justice databases to facilitate evidence based practice (EBP):** Another feature of 4G methods, including COMPAS, is the seamless integration of the risk/needs domain with separate domains of sentencing decisions, institutional processing and placement decisions, case-management decisions, treatments given (type and amount), and various outcomes (across time). This integration provides support for correctional agencies when they implement evidence-based practice studies (EBP); (see Andrews, Bonta & Wormith, 2006; Brennan, Wells, & Alexander, 2004). The COMPAS system includes two additional design features of some note: a treatment-explanatory classification to support staff with specific responsivity decisions and gender-sensitive calibration - as described below.

**Treatment-explanatory classification to address specific responsivity:** Andrews, Bonta, and Wormith (2006) suggested that specific responsivity of individuals is the least explored of their risk-need-responsivity (RNR) principles. Yet specific responsivity is a critical and recurrent challenge for treatment providers in matching individuals to appropriate treatment regimes (Brennan, 2007a; Meier, 2002; Millon & Davis, 1997; Warren & Hindelang, 1979). COMPAS addresses specific responsivity and client-treatment matching using two well-known approaches. First, it provides a person-centered assessment chart of decile scores for each risk and need scale. Second, following the lineage of Marguerite Warren, Ted Palmer, and others (see also Harris & Jones, 1999; Van Voorhis, 1994), COMPAS provides a treatment-relevant typology that integrates risk and need. This explanatory typology identifies and demarcates several specific pathways that may guide differential targeting and programming for diverse types who belong in one particular pathway. Detailed descriptions of these pattern-seeking methods are presented in Brennan, Breitenbach, and Dieterich (2008) and Brennan (2007b).

**Gender-sensitive assessment:** A major criticism of 2G and 3G approaches was that they largely based their assessment and classification methods on dominantly male samples and then mechanically applied to women in the criminal justice system (Blanchette & Brown, 2006; Bloom, 2000; Brennan, 2007b; Farr, 2000; Hannah-Moffat and Shaw 2001). However, compelling arguments are now demanding systematic validation of instruments on separate female and male criminal justice samples (Hardyman and Van Voorhis 2004). COMPAS addresses this issue by using separate samples of males and females to develop gender-specific calibrations of all risk and need factors and by evaluating its predictive and classification models on separate male and female samples. COMPAS now includes gender-specific factors from recent research on gender-sensitive risk and need factors into COMPAS (Salisbury, Van Voorhis, & Wright, 2006).
How does risk and need assessment relate to case management?

Assessment is a part of a more complete case management process. In fact, the alignment of assessment with supervision and programming choices that occurs in the case management process is critical as agencies seek reductions in problem behavior as a result of intervention by the criminal justice system. Figure 1 below is an illustration of the case management logic model. The process involves aligning assessment, interpretation, case planning, programming and evaluation. It has been our experience that the requirements of the case management logic model change as cases move through the criminal justice process. For example, the case management practice in probation prioritizes different assessment, case planning and programming features than the case management practice in a correctional institution or as a person reenters the community on parole. Although the case management features change, the fundamental case management logic model remains fairly stable.

Why use COMPAS?

In California, there is a tremendous opportunity to systemic align in the decision-making effort with the work at CDCR. The alignment creates advantages for the system—efficiency, workload distribution, common language, facilitates efficient transfer out of and into the CDCR system, etc. The alignment also creates alignment for the individual in the system where their
case management strategy has continuity given the variety of risk and need dimensions in their lives. Moreover, the alignment creates an opportunity to develop improvements from a common risk and need platform that instruct practices in the prison healthcare facilities—e.g., internal classification and case management.

The COMPAS assessment system has also been normed on California inmates with separate norms available for men and women. These norms provide an opportunity to understand risk and need relative to inmates in similar—aside from medical and health needs—circumstances providing a rationale basis for case triage and prioritization.

Finally, the criminal justice system is a process informed by decisions that precede involvement in prison and that come subsequent to an individuals’ release. These processes are also repeated as individuals are challenged to sustain non-criminal alternatives in the community. The cycle requires systemic alignment to help ensure that what has been done before is known and to inform how the system will proceed in light of current circumstances. This systemic alignment is facilitated by the COMPAS assessment system. We have provided a sketch of the reasons users of COMPAS find the system helpful for these purposes. They are presented in the discussion below.

Northpointe has developed a complete database called COMPAS that allows the user to track case planning, placement outcomes, offending trajectories, program participation, caseload termination reasons and more. COMPAS also includes a variety of secondary assessments that are used to sharpen the match between assessment results and the priorities of individualized case plans. Northpointe adds to these secondary assessments by developing tools in partnership with clients in the field. For example, the Case Supervision Review Instrument is a secondary assessment in COMPAS design to assess changes in risk and need during community supervision. A similar tool is in development to quickly gauge change in individual risk and need inside institutions, a process that generally happens at annual review, completion of a program cycle or following an institutional misconduct event. Other secondary assessments included in COMPAS are the Static99, TCU-Criminal Thinking, TCU-Drug Screen, Vermont Assessment of Sex Offender Risk (VASOR), URICA for gauging stage of change, and the National Institute of Justice Mental Health Screen for men and women.

COMPAS provides scales for both the male and female populations in assessing the risks and needs of individual’s preparing to leave prison and transition back into the community. The gender neutral COMPAS Reentry assessment scales include standard risk factors in combination with community Reentry domains such as early onset of delinquency, history of non-compliance, occurrences of prison misconduct, or the risk of housing problems upon release. Instead of relying on factors established for men who have committed crimes, additional female factors are provided in COMPAS to address specific risk and needs that present challenges faced by women upon reentering the community.

The integrated COMPAS software modules allow users to generate ad hoc reports and track case planning, placement outcomes, program participation, caseload termination reasons and other key case management data.

Northpointe has developed an automated risk and needs assessment specifically for women involved in criminal activity. Comprehensive in its coverage of risk and needs factors it is designed to take advantage of the most recent research on characteristics most strongly linked to behavior in women. These factors include economic marginalization, trauma, victimization and abuse, mental health, dysfunctional intimate relationships, self-efficacy and parental stress.

With public safety at the core of corrections decision-making, individuals who pose the highest risk should be identified and case managed accordingly. COMPAS uses an evidence-based approach to provide the most reliable assessment of future recidivism, violence and likelihood of flight. Identification of risk and need factors is the most effective way to
make good recommendations about the appropriateness for community and institutionally-based supervision, as well as informing case management decisions for providing appropriate services.

COMPAS allows correctional practitioners to: identify risk and criminogenic needs; target the appropriate corrections population; create case plans that address identified criminogenic needs, provide services to address the social, psychological and criminogenic factors impacting behavior; and measure the impact of those services on recidivism. With these features in place community supervision programs have an objective basis to assess outcomes and document the effectiveness of correctional programming.

The design features of COMPAS were introduced to upgrade the science-practice integration in corrections. COMPAS is an automated decision-support software package that integrates the related information domains of risk/needs assessment, treatment/case management, sentencing decisions, and recidivism outcomes.

Beyond information integration, the following design features of COMPAS further advance and support Evidence-Based Practice (EBP). These are now briefly described:

- COMPAS has a broad and comprehensive coverage of risk and need factors—including dynamic factors that may change over time.
- COMPAS is a theory-guided assessment covering personal dispositions as well as socioeconomic and environmental factors of risk and need. It draws from a range of well established criminological theories.
- The main COMPAS risk and needs scales are closely related to factors consistently emerging in meta-analytic studies and therefore its selected factors are empirically supported.
- COMPAS scales have high scale reliability and predictive validity.
- COMPAS uses advanced statistical methods and pattern recognition based on needs and responsivity factors.
- Gender-responsive risk and need scales: Northpointe is partnering with University of Cincinnati and the California Department of Corrections and Rehabilitation to develop and implement an automated women’s COMPAS and women’s COMPAS ReEntry. The project uses an action research approach exploring how the case management model works for women involved in crime and tailors the assessment and case management needs to local established priorities.
- COMPAS incorporates an individual’s strengths according to research on resiliency or the “good lives” perspective.
- COMPAS is fully automated and tested. The software structures the scaling process into easy to use segments such as intake, case-management, treatment, and recidivism outcomes.
- COMPAS facilitates evidence-based practice through data integration and a seamless connection between risk/ need assessment, case-management, and outcomes.
- The COMPAS scale calculation, risk prediction, and classification procedures are transparent and publicly replicated.
- COMPAS is a software system tied to the case management logic model to support the alignment and evaluation of case management practice.
- COMPAS has an outcome tracking mechanism to accumulate case progress and events which will be meaningful in assessing the impact of case management practice.
- COMPAS is customizable to the needs of the client, both in terms of language and client populations.
COMPAS is used by several states to streamline state service delivery to individuals reentering society from prison using a reliable risk/need assessment as the cornerstone of the reentry plan to direct, coordinate and identify the needs of the individuals reentering society.

Comparing COMPAS Features with LSI/R
The list below is a summary comparison of the COMPAS assessment system with the LSI/R.

1. COMPAS assesses 4 separate risks all standardized and calibrated to your individual population; and compared to National Norms. The separate risk scales are as follows:
   - Violence
   - Recidivism
   - Flight/Failure to Appear
   - Non-Compliance (technical violations)

   LSI/R produces only a single “GENERIC” risk (Scored: High, Medium, Low)

2. COMPAS facilitates evidence based practice by including all key information domains, informing the decision process at key points
   - Risk Assessment
   - Criminal Justice Decisions and Offender Processing Decisions
   - Case Management Plans and Treatment Tracking
   - Outcomes Tracking

   LSI/R, in contrast omits domains 2, 3, and 4

3. COMPAS has a more comprehensive coverage of key risk factors. COMPAS has a more comprehensive coverage of the well validated Risk, Need Scales and predictors of criminal behavior than the LSI/R. All are psychometrically assessed with impressive reliability.
   - Criminal opportunity / High risk lifestyle
   - Criminal thinking
   - Criminal personality (low Self-Control)
   - Sociopathy tendency
   - Juvenile criminal history

4. COMPAS includes the following built-in validity tests
   - Lie Test Scale (To assess “faking good”)
   - Inconsistent responding (To assess random, incoherent responding)

   LSI/R does not contain either of these data validation tests.

5. COMPAS addresses a broader base of criminological theory, thus it provides a deeper explanatory level than LSI/R
   - LSI emphasizes only one criminological theory – Social Learning Theory.

6. COMPAS is flexible and scalable—allows for sequential assessment
• COMPAS is configurable to match information needs & time
• Constraints of staff needs across an agency e.g.
  • Intake assessment
  • Assessment for treatment planning
  • Release assessment
  • Total assessment can be "split" across sequential assessment
  • Phases by turning on and off any combination of COMPAS 22 Scales

7. COMPAS is locally normed and calibrated
   • Can be customized, validated and normed to your agency and specific population.

8. COMPAS allows separate male and female norms
   • COMPAS offers separate automatic male and female norms
     • Separate Norms are also available for incarcerated vs. community populations

9. COMPAS uses more advanced statistical methods
   • Factor analysis for “factorial validity” tests of all scales
   • Logistic regression and survival modeling
   • ROC analysis to assess predictive validity tests

10. COMPAS provides responsivity classification – for treatment planning
    • COMPAS offers an alternative “Treatment relevant classification” or typology in which each individual is assigned to a specific classification pattern
    • This will aid staff in developing case plans to best address the supervision and treatment needs of the individual.

11. COMPAS is embedded in a fully automated database Software package:
    • Easily integrated with current agency MIS platform
    • Data easily transferred to other software application (e.g. SPSS, SAS, etc.)
    • Management reports easily created using Quick Charts feature & ad hoc report generator

12. Additional COMPAS Features:
    • COMPAS includes an assessment priority Pre-Screener
    • COMPAS includes an integrated Case Planning Module
    • COMPAS includes a Mental Health Pre-screener
    • COMPAS offers optional Scanable Data Entry
    • COMPAS offers an optional touch screen with audio self report
    • NEW: COMPAS ReEntry is now available for prison populations and to
      Support Prison Re-entry Initiatives
    • NEW: Women's COMPAS and Women's ReEntry COMPAS gender-specific scales are now available as well
Selected References


