ISSUE BRIEF

The Technical Background of the Risk, Need, Responsivity (RNR) Simulation Tool

What is the RNR Simulation Tool?

The Risk, Need, Responsivity (RNR) Simulation Tool was developed to help jurisdictions apply the RNR framework to practice. This document describes the RNR Simulation Tool and how it was developed. The RNR Simulation Tool is supported by a database of over 20,000 unique offender profiles of various risk, need, and recidivism combinations. The goal of this document is to help users understand the components of the model. The RNR Simulation Tool has three portals:

1. **The RNR Program Tool:** Assesses programs based on content, quality, dosage, and implementation. Jurisdictions input information about a specific program and the RNR tool rates the program's overall quality as it relates to the RNR principles. The three main goals of the program tool are: 1) to classify programs to facilitate treatment matching, 2) to explore how programs currently target the risk level and criminogenic needs of their clients, and 3) to asses programs on their use of evidence-based practices. The tool can help criminal justice and service agencies improve their understanding of the treatment resources that are available to them and to foster responsivity at a system level.

2. **Assess an Individual:** This portal makes programming recommendations for individual offenders based on inputted information about their risk, criminogenic needs, and other clinically relevant factors. Included is an estimate of the percent reduction in recidivism that one may expect if institutional and community corrections or service agencies match an offender to the level of programming that is consistent with their unique needs. This portal is geared for use by front-line personnel such as case managers, counselors, officers, and others who have to make decisions and recommendations after screening and assessing individuals.

3. **Assess Jurisdiction's Capacity:** This portal uses an underlying database of unique offender profiles to assess a jurisdiction's capacity to address the risk and need factors of the offenders under its correctional control. It draws from information provided by the jurisdiction on offender profiles and/or programming to identify system-level gaps in the capacity to be responsive to the needs of their population. This portal is geared for use by jurisdiction administrators or front-line professionals who wish to estimate the expected recidivism reductions when programming is matched to risk and needs at the jurisdictional level.

What is the Theoretical Framework behind the RNR Simulation Tool?

The theoretical framework builds upon Andrews and Bonta's (2010a) Risk-Need-Responsivity principles and illustrates how outcomes are a result of better assessment and matching to appropriate services and level of care/control:

Risk Principle – Offenders vary by level of probability of recidivism. History of involvement with the criminal justice system is a strong predictor of future involvement with the criminal justice system. Generally, the calculation of risk includes static factors such as age of first arrest, number of prior arrests, etc. which cannot decrease over time.

Need Principle – Criminogenic needs are dynamic factors that drive participation in criminal offending and are amenable to change. Supervision, correctional, and/or treatment staff can assess these factors and target them for reduction through treatment and controls. Targeting needs (i.e. drug dependence and criminal lifestyle) is one way to reduce individuals' overall risk of recidivism.

Responsivity Principle – Responsivity refers to matching individuals to appropriate treatment programming and controls to maximize outcomes (see Figure 1).

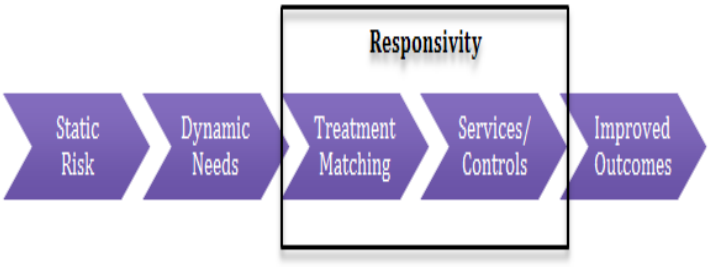

Figure 1. A Focus on Responsivity

Inherent in the RNR Framework is that:

1. Other clinically relevant factors such as age, gender, mental health status, and housing stability are important factors to consider in the matching decision;
2. The quality of programs affects outcomes; and
3. The availability of programs/controls affects outcomes.

The RNR Framework requires attention to a myriad of issues, and provides the tools to deliver feedback to a jurisdiction on each of these factors, as shown in Figure 2.

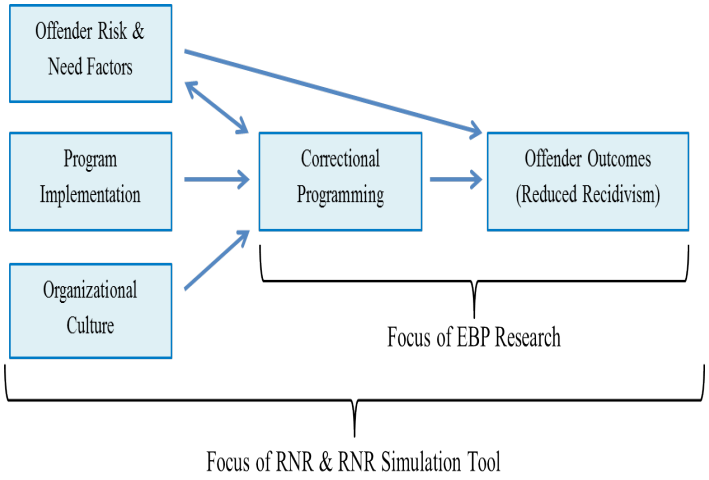

Figure 2. Focus of the RNR Simulation Tool

What are the Goals of the RNR Simulation Tool?

There are three goals of the RNR Simulation Tool:

1. To provide feedback on programs currently in use (RNR Program Tool);
2. To provide tools to support decision making at the staff level of a counselor, case manager, officer, or others that are working with offenders (Assess an Individual); and
3. To provide system building capability for a jurisdiction/agency to use to identify their programming needs (Assess Jurisdiction's Capacity).

The RNR Simulation Tool can also educate practitioners on the concepts related to responsivity, illustrate how to tie decisions to program placement, and improve system capacities to address public safety and health needs.

What Data Supports the Tool?

The RNR Simulation Tool provides users with a number of estimates at the individual, program, and jurisdiction level. The tool is flexible in that it can integrate jurisdiction-specific data to inform the estimates it provides, but such data is not required for users to experience the full functionality of the tool. Users can choose from any of the

following options to generate output from the portals:

1. Use the tool's default (national) distributions;
2. Provide jurisdiction-specific population and individual distributions of risk, needs, and other relevant information; or
3. Use a combination of jurisdiction-specific and national distributions.

The RNR Simulation Tool data consists of over 20,000 individual-level profiles (risk and needs). It was developed by using different models to combine various federal, state, and local databases. The federal databases are: Survey of Inmates in Local Jails (2002); Survey of Inmates in State Correctional Facilities (2004); State Court Processing Statistics (SCPS) 1990-2006; and BJS National Recidivism Study of Released Prisoners (1994). The data was validated using information from six state and local agencies that included a combination of risk, needs, and outcomes.

What Evidence was Used to Assess Recidivism Reduction from Specific Programs?

The RNR Simulation Tool database contains program impact estimates based on evidence regarding the effectiveness of different program options. The tool uses a conservative estimate of recidivism reductions expected for different types of programs and services offered, based on available meta-analytic literature. We rely on meta-analyses and systematic reviews because the research literature is rich in each area of programming and has reached a level of maturity necessary to form a consensus about the expected outcomes. In the RNR Simulation Tool we assume a modest fidelity to the intervention (based on studies of program operations) which means that in most cases the expected recidivism reduction may be less than what is reported in the research literature.

In Table 1 on page 4, we list the major studies for each general area of programming and the percent recidivism reduction (or increase) expected based on the meta-analyses and systematic reviews.

How does the RNR Simulation Tool Classify Programs into Groups?

The RNR Simulation Tool classifies programs into groups based on target behaviors, as shown in Figure 3 (page 5). The content and dosage of programs then varies within each group.

Group A: Treatment focuses cognitive restructuring techniques for substance users with dependence on opioids, cocaine, amphetamines, and other harder drugs. These programs predominately target offenders (regardless of risk levels) that have dependence on drugs that tend to be "criminogenic" or lead to criminal behavior (Bennett, Holloway, & Farrington, 2008). Most of these programs should be of higher dosage and implemented with a curriculum.

Group B: Programs focus on criminal thinking using cognitive restructuring techniques, but also include interpersonal and social skills interventions. These programs predominately target high and moderate-risk offenders, have a higher dosage of clinical hours, and are implemented with a curriculum.

Group C: Programs focus on developing self-improvement and management skills including some cognitive restructuring work for those with substance abuse (marijuana or alcohol abuse) and/or mental health issues. These programs predominately target moderate-risk offenders with a modest dosage of clinical hours.

Group D: Programs focus on social skills and interpersonal skills, targeting multiple destabilizing issues. These programs target moderate and low-risk offenders, and should have a low to modest dosage of clinical hours depending on the number of needs.

Group E: These programs focus on life skills. They predominately target low-risk individuals and have a have a low dosage of clinical hours.

Group F: Few to no conditions with an emphasis on punishment; only use programming/services as needed.

Table 1. Meta-Analytic Literature Used to Inform RNR Simulation Tool Estimates		
Intervention	**Reference**	**% Reduction**
Interventions for General Offenders		
Cognitive Behavioral Therapy	Lipsey, Landenberger & Wilson, 2007	25%
Moral Reconation Therapy	Little, 2005; Wilson, Bouffard & MacKenzie, 2005	16%[c] - 35%
Reasoning and Rehabilitation	Tong & Farrington, 2008; Wilson, Bouffard & MacKenzie, 2005	14%
Restorative Justice	Lattimer, Dowden & Muise, 2005	14%[a]
CBT for Anger Management	Beck & Fernandez, 1998	51%
Intensive Supervision Probation w/ Treatment	Drake, Aos & Miller, 2009	17.9%
Electronic Monitoring	Renzema & Mayo-Wilson, 2005	2%[c]
Interventions for Substance Using Offenders		
General Drug Treatment	Holloway, Bennett & Farrington, 2006; Prendergast, Podus, Chang & Urada, 2002	12%c – 22%[c]
Therapeutic Community	Lipton, Pearson, Cleland & Yee, 2008; Mitchell, Wilson & MacKenzie, 2007	16%[c] – 27%
Therapeutic Community (Hard Drugs)	Holloway, Bennett & Farrington, 2006	45%
Counseling (General)	Mitchell, Wilson & MacKenzie, 2007	20%
Narcotic Maintenance	Mitchell, Wilson & MacKenzie, 2007	9% INCREASE
Narcotic Maintenance (Hard Drugs)	Holloway, Bennett & Farrington, 2006	27%[c]
Boot Camp	Mitchell, Wilson & MacKenzie, 2007	5%
Intensive Supervision Program	Perry et al., 2009	33%[c]
Post-Release Supervision	Dowden, Antonowicz & Andrews, 2003	26%[d]
Post-Release Supervision (Hard Drugs)	Holloway, Bennett & Farrington, 2006	33%[c]
Interventions for Offenders with Mental Illness		
Mental Health Treatment	Martin, Dorken, Wamboldt & Wooten, 2001	17%[c]
Vocational/Educational Programs		
General Vocation/Education	Wilson, Gallagher & MacKenzie, 2000	21%
Ex-Offender Employment	Visher, Winterfield & Coggeshall, 2005	3%[c]
Academic/Educational	Wilson, Gallagher & MacKenzie, 2000	18%
Post-Secondary Correctional Education	Wilson, Gallagher & MacKenzie, 2000	27%
Vocational	Wilson, Gallagher & MacKenzie, 2000	22%
Correctional Industries	Wilson, Gallagher & MacKenzie, 2000	19%
Supervision Only Interventions for General Offenders		
Incarceration (vs. community)	Smith, Goggin & Gendreau, 2002	14% INCREASE
Intermediate Sanctions	Smith, Goggin & Gendreau, 2002	2%
Boot Camp	Wilson, MacKenzie & Mitchell, 2008	1%
Interventions for Domestic Violence Offenders		
General DV Treatment (Police Report) *Experimental Design Only	Babcock, Green & Robie, 2004; Feder & Wilson, 2005	16% - 32%
General DV Treatment (Partner Report) *Experimental Design Only	Babcock, Green & Robie, 2004; Feder & Wilson, 2005	0% - 10%
Interventions for Sexual Offenders		
Sex Offender Treatment (Sexual Recidivism)	Gallagher et al., 1999; Hansen et al., 2002; Hall, 1995; Schmucker & Losel, 2008	16% - 37%
Sex Offender Treatment (Violent Recidivism)	Schmucker & Losel, 2008	44%
Sex Offender Treatment (General Recidivism)	Hansen et al., 2002; Schmucker & Losel, 2008	31% - 32%

a. Standardized mean difference was converted to odds ratio. Phi coefficient was converted to an odds ratio with an assumed 0.50 control recidivism. Success/failure rates for treatment and control groups were used to calculate odds ratio.
b. Insufficient information to calculate confidence interval.
c. Calculation assumed 0.50 control recidivism base rate.
d. Treatment and control group recidivism rates were converted to percent reduction.

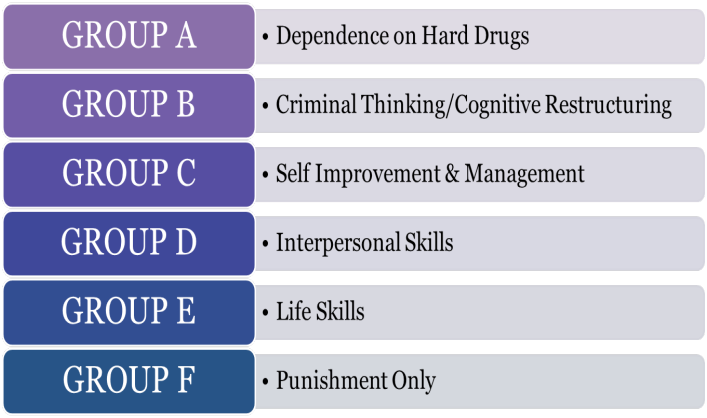

Figure 3. Primary Targets of RNR Program Groups

The RNR Simulation Tool is grounded in a number of important principles that research has identified to ensure programming is implemented with optimal effectiveness (Gendreau, Goggin, French, & Smith, 2006; Smith, Gendreau, & Swartz, 2009). The responsivity components of each program group adhere to the following principles of effective interventions:

- Focus on primary target behavior(s) using evidence-based interventions
- Increase severity of response based on risk level: increase controls/restrictions as risk increases
- Increase the intensity of the intervention when the number and severity of criminogenic (and non-criminogenic) needs increases
- Use Cognitive-Behavioral Therapy (CBT) and/or social learning interventions
- Embed interventions in criminal justice environments that are responsive
- Focus on building motivation to change and providing feedback reports to offenders
- Measure outcomes and evaluate programs regularly

What Feedback does the RNR Program Tool Provide for Users?

To assess the degree to which programs adapt to EBPs, the RNR Program Tool assesses and provides feedback on six scoring areas (i.e. risk, needs, responsivity, dosage, implementation, and other integration factors). Program classification considers several key factors including:

1. **Intervention Target**—Focus of the program—includes substance use, criminal thinking, mental illness, social skills, interpersonal skills, life skills, and supervision only. Andrews and Bonta (2010b) emphasize the importance of identifying intervention targets in order to increase adherence to the RNR Principles. The goal is to identify program targets and match them with individual needs to improve responsivity.

2. **Content**—Features of the program designed to address behavioral targets—includes primary programming modality/philosophy, rewards, sanctions, restrictions, ratio of treatment to controls, and drug testing. This includes the mix of both treatment interventions and criminal justice controls. Programs that use cognitive learning techniques and that integrate social controls into programming have been shown to effectively reduce offending and improve offender supervision outcomes (Aos, Miller, & Drake, 2006; Drake, Aos, & Miller, 2009; Mitchell, Wilson, & MacKenzie, 2007; Lipsey, Landenberger, & Wilson, 2007; Padgett, Bales, & Blomberg, 2010; Pattavina, Miofsky-Tusinski, & Byrne, 2010; Pearson, Lipton, Cleland, & Yee, 2002; Wilson, Bouffard, & MacKenzie, 2005).

3. **Dosage**—Combination of frequency, length of sessions, duration of the intervention, and length of aftercare. The concept of dosage is that more intensive services should be devoted to moderate and higher-risk offenders with more services designated for offenders with more needs. The best estimate of needs-based dosage is derived from Bourgon & Armstrong (2006), meta-analyses on therapeutic communities (Wilson, Mitchell, & MacKenzie, 2007) and drug treatment courts (Mitchell, et al 2012), as well as consensus from experts in the field. Higher-need clients require higher levels of dosage such as over 200 hours across multiple levels of care and programming; moderate-risk should have around 200 hours across various levels of care; and lower-risk with at least one criminogenic need should have less than 100 hours. The actual amount

will depend on the individual need factors as discussed in the following section.

4. **Implementation quality**—Features of the operation of the program—includes staff credentials, quality assurance measures, communication with justice system partners, use of a manual for consistent service delivery, evaluation history, quality assurance, and technical assistance. Research indicate such features are important to insure that programs are implemented with fidelity to maximize effectiveness (Smith, Gendreau, & Swartz, 2009; Taxman & Belenko, 2012). For more information on these features, see Taxman & Belenko (2012).

How are Individuals Assessed and Matched to a Program?

The Assess an Individual portal allows practitioners to assess individuals for appropriate programs and controls based on their risk and needs. Also integrated into this assessment are other factors that affect recidivism such as age and gender. The tool will calculate and produce a recommended group of programming for the individual (see Groups A-F on page 3). The portal also estimates a percent reduction in recidivism that one may expect if the offender completes a program from the program group that is consistent with their unique needs.

The key components (decision criteria) of the Assess an Individual portal are:

Criminal History Risk. Criminal history risk refers to an individual's static risk level as determined using a validated risk assessment instrument (for more information on static risk factors and assessment instruments see Andrews and Bonta, 2010a). The RNR Simulation Tool is equipped to accommodate multiple variations of risk levels that jurisdictions may use; it can provide output with individual recommendations whether a jurisdiction uses a 3, 4, or 5-level risk grouping. The tool uses individual risk levels to determine the recommended intensity of controls and programming of programming. If there is no validated tool, the RNR Simulation Tool uses the compiled database to identify the offender's profile and estimate a recidivism level.

Primary Criminogenic Needs. The second set of criterion relates to offenders' primary criminogenic needs. Primary criminogenic needs are those needs which research indicates are directly related to offending behavior: criminal thinking (Andrews and Bonta, 2010a & 2010b; Walters, 2006 & 2012) and substance dependence on a hard drug (i.e. heroin, crack, cocaine, amphetamines, and other opiates) (Bennett, Holloway & Farrington, 2008). Criminal thinking includes behavior patterns such as antisocial personality and low self-control and should be assessed using a validated risk and needs instrument (subscale) or an instrument specific to criminal thinking/cognitions.

Self-Improvement & Management. After considering individuals' primary needs, the model's next group of decision criteria includes factors related to substance abuse and mental health. The RNR Simulation Tool defines substance abuse as abuse of a hard drug, or abuse or dependence of any other substance, including marijuana and alcohol. It is again strongly encouraged that users consult a validated assessment instrument specific to substance use disorders such as the DSM-IV.

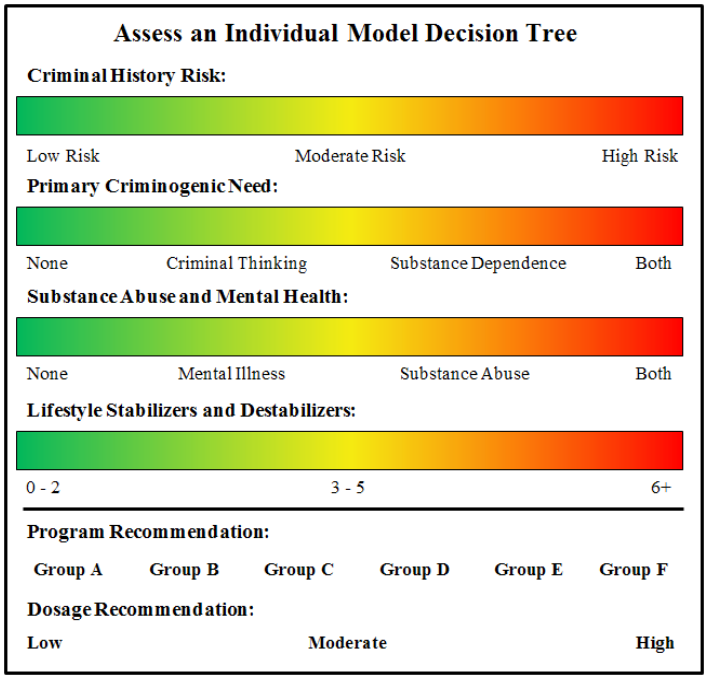

Figure 4. Assess an Individual Decision Tree

The tool recommends individuals who have a primary need and have either a mental illness or substance abuse disorder for programming that aims to stabilize their mental illness or abuse while targeting their primary need. For individuals who do not have a primary need but have either a mental illness or substance abuse disorder, the tool recommends programming that directly targets either their mental illness or substance abuse.

Lifestyle Stabilizers and Destabilizers. The next level of decision criteria involves consideration of lifestyle stabilizers and destabilizers. There are seven potential factors for consideration: emotional support, education, employment, housing, financial, associates, and environment. Each of these factors alone has the potential to act as either a stabilizing or destabilizing influence on an individual. The more stabilizers an individual has, the more stable their lifestyle will be. The reverse is true for destabilizers. These factors are the direct target of recommended programming for individuals who do not have a primary criminogenic need, mental illness, or substance abuse disorder.

Age, Gender & Specific Offender Type. The RNR Simulation Tool considers each individual factor as well as recidivism estimations for individuals of different demographic groups. For example, younger offenders and males tend to exhibit higher recidivism rates than older individuals or females (Langan & Levin, 2002). It also allows the model to recommend gender-specific programming. Finally, if an individual is identified as a particular type of offender (sexual, violent, drug, etc.), the model can make population-specific recommendations for applicable programing that will further target the offender's needs (when available).

Dosage. The recommended dosage of programming for individuals is dependent upon a combination of each of the components of the RNR Simulation Tool. Dosage includes the frequency and duration of recommended programming. For individuals who are high-risk and dependent on opioids, cocaine, and other "harder drugs," for example, the tool will recommend higher dosage programming than for individuals who abuse alcohol or marijuana.

How is the Capacity of a Jurisdiction Assessed?

The Assess Jurisdiction's Capacity portal allows users to enter the aggregate characteristics of the jurisdiction's client population to identify program recommendations at the jurisdiction level. The RNR Simulation Tool provides the type of programming that is in place in a jurisdiction (based on information entered into the Program Tool portal) and the type of programming that should be in existence (based on the existing distribution of offenders). This portal identifies system-level gaps in the programming offered versus what the RNR Simulation Tool recommends to meet the needs of the population (see Figure 5).

This portal can provide jurisdiction estimates with or without integrating information for that jurisdiction from the Program Tool portal. This portal requires users to enter only minimal data from their jurisdiction and relies on the tool's underlying database to fill in when information is missing. This portal uses the same decision criteria as the Assess an Individual portal to determine the proportion of the jurisdiction's population that it recommends for programming in each of the six program groups.

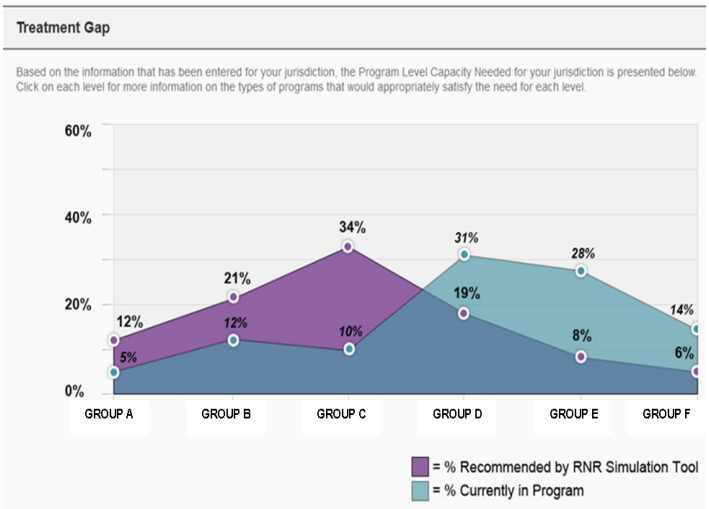

Figure 5. Example of System-Level Gap Analysis

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, D.C.: American Psychiatric Association.

Andrews, D. A., & Bonta, J. (2010a). Rehabilitating criminal justice policy and practice. *Psychology, Public Policy, and Law*, 16(1), 39–55. doi:10.1037/a0018362

Andrews, D. A., & Bonta, J. (2010b). *The Psychology of Criminal Conduct*. Elsevier Science Ltd.

Aos, S., Miller, M., & Drake, E. (2006). *Evidence-Based Public Policy Options to Reduce Future Prison Construction, Criminal Justice Costs, and Crime Rates.* Olympia, WA: Washington State Institute for Public Policy.

Babcock, J. C., Green, C. E., & Robie, C. (2004). Does batterers' treatment work? A meta-analytic review of domestic violence treatment. *Clinical Psychology Review,* 23(8), 1023–1053.

Beck, R., & Fernandez, E. (1998). Cognitive-behavioral therapy in the treatment of anger: A meta-analysis. *Cognitive Therapy and Research*, 22(1), 63–74.

Bennett, T., Holloway, K., & Farrington, D. (2008). The statistical association between drug misuse and crime: A meta-analysis. *Aggression & Violent Behavior,* 13(2), 107–118.

Bureau of Justice Statistics. (2002). *Survey of inmates in local jails (SILJ)* (ICPSR 4359) [Data File]. Available from ICPSR website, http://www.icpsr.umich.edu/icpsrweb/ICPSR/series/00069/studies/4359?archive=ICPSR&sortBy=7&permit[0]=AVAILABLE.

Bureau of Justice Statistics. (2004). S*urvey of inmates in state and federal correctional facilities (SISFCF)* (ICPSR 4572) [Data File]. Available from ICPSR website, http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/4572?sortBy=7&permit[0]=AVAILABLE&archive=ICPSR&q=sisfcf

Bureau of Justice Statistics. (1990-2006). State court processing statistics, 1990-2006: F*elony defendants in large urban counties (SCPS)* (ICPSR 2038) [Data File]. Available from ICPSR website, http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/2038?sortBy=7&permit[0]=AVAILABLE&archive=ICPSR&q=scps

Bureau of Justice Statistics. (1994). *Recidivism of prisoners released in 1994* (ICPSR 3355) [Data File]. Available from ICPSR website, http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/3355?sortBy=7&q=recidivism+of+released+prisoners&prefix=R&permit[0]=AVAILABLE&archive=ICPSR&keyword[0]=recidivism&paging.startRow=1

Dowden, C., Antonowicz, D., & Andrews, D. A. (2003). The effectiveness of relapse prevention with offenders: a meta-analysis. *International journal of offender therapy and comparative criminology*, 47(5), 516–528.

Drake, E., Aos, S., & Miller, M. (2009). *Evidence-based public policy options to reduce crime and criminal justice costs: implications in Washington state* (No. 09-00-1201). Washington State Institute for Public Policy.

Feder, L., & Wilson, D. B. (2005). A meta-analytic review of court-mandated batterer intervention programs: Can courts affect abusers' behavior? J*ournal of Experimental Criminology*, 1(2), 239–262.

Gallagher, C. A., Wilson, D. B., Paul Hirschfield, M. A., Coggeshall, M. B., & MacKenzie, D. L. (1999). Quantitative review of the effects of sex offender treatment on sexual reoffendering. *Corrections Management Quarterly*, 3(4), 11.

Gendreau, P., Goggin, C., French, S., & Smith, P. (2006). Practicing psychology in correctional settings: "What works" in reducing criminal behavior. In A. K. Hess & I. B. Weiner (Eds.), *The handbook of forensic psychology* (3rd ed., pp. 722–750). New York: John Wiley.

Hall, G. C. N. (1995). Sexual offender recidivism revisited: A meta-analysis of recent treatment studies. *Journal of Consulting and Clinical Psychology*, 63(5), 802–09.

Holloway, K. R., Bennett, T. H., & Farrington, D.P. (2006). The effectiveness of drug treatment programs in reducing criminal behavior: a meta-analysis. *Psicothema*, 18(3), 620–629.

Langan, P., & Levin, D. (2002). *Recidivism of Prisoners Released in 1994* (BJS Special Report No. NCJ 193427). Washington, D.C.: Bureau of Justice Statistics.

Latimer, J., Dowden, C., & Muise, D. (2005). The effectiveness of restorative justice practices: A meta-analysis. *The Prison Journal*, 85(2), 127–144.

Lipsey, M. W., Landenberger, N. A., & Wilson, S.J. (2007). *Effects of cognitive-behavioral programs for criminal offenders* (Campbell Systematic Review). Oslo, Norway: The Campbell Collaboration.

Lipton, D. S., Pearson, F. S., Cleland, C. M., & Yee, D. (2008). The Effects of Therapeutic Communities and Milieu Therapy on Recidivism: Meta-analytic Findings from the Correctional Drug Abuse Treatment Effectiveness (CDATE) Study. In J. McGuire (Ed.), *Offender Rehabilitation and Treatment* (pp. 39–77). John Wiley & Sons Ltd.

Little, G. L. (2005). Meta-analysis of moral reconation therapy recidivism results from probation and parole implementations. *Cognitive Behavioral Treatment Review*, 14(1/2), 14–16.

Mitchell, O., Wilson, D. B., Eggers, A., & MacKenzie, D. L. (2012). Assessing the effectiveness of drug courts on recidivism: A meta-analytic review of traditional and non-traditional drug courts. *Journal of Criminal Justice*, 40(1), 60–71.

Mitchell, O., Wilson, D. B., & MacKenzie, D. L. (2007). Does incarceration-based drug treatment reduce recidivism? A meta-analytic synthesis of the research. *Journal of Experimental Criminology*, 3(4), 353–375.

Padgett, K. G., Bales, W. D., & Blomberg, T. G. (2006). Under surveillance: An empirical test of the effectiveness and consequences of electronic monitoring. *Criminology & Public Policy*, 5(1), 61–91.

Pattavina, A., Miofsky-Tusinski, K., & Byrne, J. (2010). Innovation in community corrections: from monitoring technology to persuasive technology. *Journal of Offender Monitoring*, 23(1), 1–5.

Pearson, F. S., Lipton, D. S., Cleland, C. M., & Yee, D. S. (2002). The effects of behavioral/cognitive-behavioral programs on recidivism. *Crime & Delinquency*, 48(3), 476–496.

Perry, A., Coulton, S., Glanville, J., Godfrey, C., Lunn, J., McDougall, C., & Neale, Z. (1996). Interventions for drug-using offenders in the courts, secure establishments and the community. In *Cochrane Database of Systematic Reviews*. John Wiley & Sons, Ltd.

Prendergast, M. L., Podus, D., Chang, E., & Urada, D. (2002). The effectiveness of drug abuse treatment: a meta-analysis of comparison group studies. *Drug and Alcohol Dependence*, 67(1), 53–72.

Renzema, M., & Mayo-Wilson, E. (2005). Can electronic monitoring reduce crime for moderate to high-risk offenders? *Journal of Experimental Criminology*, 1, 215–237.

Schmucker, M., & Lösel, F. (2008). Does sexual offender treatment work? A systematic review of outcome evaluations. *Psicothema*, 20(1), 10–19.

Smith, P., Goggin, C., & Gendreau, P. (2002). *The effects of prison sentences and intermediate sanctions on recidivism: General effects and individual differences* (No. JS42-103/2002). Canada: University of New Brunswick, Saint John.

Smith, P., Gendreau, P., & Swartz, K. (2009).Validating the principles of effective intervention: a systematic review of the contributions of meta-analysis in the field of corrections. *Victims & Offenders*, 4(2), 148–169.

Taxman, F. S., & Belenko, S. (2012). *Implementing Evidence-Based Practices in Community Corrections and Addiction Treatment*. Springer.

Tong, J., & Farrington, D. P. (2006). How effective is the "Reasoning and Rehabilitation" programme in reducing reoffending? A meta-analysis of evaluations in four countries. *Psychology, Crime & Law*, 12(1), 3–24.

Visher, C., Winterfield, L., & Coggeshall, M. (2005). Ex-offender employment programs and recidivism: A meta-analysis. *Journal of Experimental Criminology*, 1(3), 295–316.

Wilson, D.B., MacKenzie, D. L., & Mitchell, F.N. (2008). *Effects of correctional boot camps on offending* (Campbell Systematic Review). Oslo, Norway: The Campbell Collaboration.

Wilson, David B., Bouffard, L. A., & MacKenzie, D. L. (2005). A quantitative review of structured, group-oriented, cognitive-behavioral programs for offenders. *Criminal Justice and Behavior*, 32(2), 172–204.

Wilson, David B., Gallagher, C. A., & MacKenzie, D. L. (2000). A meta-analysis of corrections-based education, vocation, and work programs for adult offenders. *Journal of Research in Crime and Delinquency*, 37(4), 347–368.

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