

November 2016

State of West Virginia
Department of Military Affairs and Public Safety
Division of Justice and Community Services

The Correctional Program Quality Index: Measuring Adherence to Evidence-Based Practices

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The quality of correctional service delivery plays a crucial role in determining its effectiveness. Research shows that correctional treatment needs to be provided in ways that adhere to the principles of evidence-based practices in order to have a significant effect on offender behavior (Landenberger & Lipsey, 2005; Lowenkamp, Latessa & Smith, 2006). In particular, programs should prioritize treatment and supervision resources for offenders with a higher risk of recidivating, target services to address offenders' most serious criminogenic needs, and ensure that offenders receive adequate treatment dosage. However, studies suggest that while a growing number of correctional programs have adopted evidence-based treatments, relatively few deliver services in a manner that is consistent with evidence-based practices, thereby limiting their effectiveness (Lowenkamp, Pealer, Latessa & Smith, 2006). Consequently, the development of methods for measuring and improving the quality of treatment implementation has become an important priority for correctional researchers, practitioners, and administrators.

In this report, we present a new method for assessing the quality of treatment implementation—the Correctional Program Quality Index (CPQI). The CPQI utilizes administrative data to assess the extent to which individual programs adhere to evidence-based practices in the delivery of services. It consists of 10 indicators that measure the quality of particular aspects of service delivery. These indicators are combined to create a single composite index score which measures the overall level of quality

Report Highlights...

This study assesses the quality of correctional service delivery in 26 West Virginia Day Report Centers (DRCs) using a new tool called the Correctional Program Quality Index (CPQI).

While a few programs scored highly on the CPQI, most DRCs scored poorly in one or more important areas. The lowest scores were observed for indicators that measured the extent to which DRCs matched services to clients' criminogenic needs and provided adequate treatment dosage.

Recidivism analyses indicate that clients who were supervised by DRCs with higher CPQI scores are less likely to be arrested, booked into jail, or sentenced to prison after release.

The results suggest that the CPQI provides a useful measure of the quality of service delivery both within individual programs and across entire correctional systems.

Implications for monitoring adherence to evidence-based practices, enhancing treatment effectiveness, and future research are discussed.

of treatment implementation for a program. While the present study focuses on day report centers (DRCs), these indicators are designed to be applicable to a wide range of correctional treatment programs. All of the index scores are designed to be interpreted easily by program administrators and practitioners. Unlike many other extant program quality measures (Lowenkamp, Pealer, et al., 2006), the CPQI does not rely on predetermined thresholds to classify programs, but instead treats program quality as a continuous concept.

We begin with a brief review of the current methods for assessing correctional program quality. We then describe the CPQI and discuss how it compares to other approaches. The CPQI is then used to assess the current levels of program quality for the population of DRC programs in the state of West Virginia. This is followed by a comparison of recidivism rates across programs with different levels of quality based on the CPQI. The report concludes with a discussion of the potential research and policy implications as well as recommendations for improving the quality of DRC programs.

PRIOR RESEARCH ON THE MEASUREMENT OF CORRECTIONAL PROGRAM QUALITY

Most studies seek to assess the quality of correctional service delivery through the use of program assessment tools. These instruments provide a framework for assessing program operations in a consistent way and target their observations using evidence-based criteria. Two of the most popular program quality assessment tools include the Correctional Program Assessment Inventory (CPAI) and the Correctional Program Checklist (CPC) (see Gendreau & Andrews, 1994). The CPAI and CPC are particularly attractive for researchers because they produce quantifiable program quality scores shown to be correlated with recidivism and other offender outcomes (Lowenkamp, 2004).

The practical utility of these assessment tools, however, is somewhat limited by their reliance on direct observation of correctional practices. These methods require teams of trained researchers, the accumulation of information from in-person interviews with staff and offenders, and on-site case file reviews. Consequently, this

measurement approach is labor-intensive and costly for large-scale correctional systems. Hence, it is very difficult for states to assess large numbers of facilities as well as conduct frequent reassessments using a direct observation approach. Moreover, the quality scores produced by these tools are dependent to some extent on judgments made by the evaluators given the use of semi-structured interview data and scoring procedures (Latessa, 2006). For these reasons, there is a need for the development of additional methods to assess correctional program quality that can be used to supplement extant observation-based approaches.

One such method has been to use data related to quality assurance practices or staff training levels. For example, several studies have found better outcomes when programs engage in regular quality assurance monitoring and/or have highly trained staff (Aos, 2004; Barnoski, 2004). Likewise, Landenberger and Lipsey (2005) found that programs are more effective when they combine the two aforementioned practices. Thus, they suggest that it is not enough for programs to simply offer quality treatment; they must also work to ensure that substantial numbers of offenders complete the program successfully.

Survey approaches have also been used to assess

Report Highlights...

Most studies which assess the quality of correctional service delivery rely heavily on the direct observation of correctional practices by researchers.

This approach can yield valid measures of program quality, but is often costly in terms of researcher time and resources thereby limiting its utility for assessing large numbers of correctional facilities.

Recent studies have begun to explore the use of other sources of information about program quality such as quality assurance data, staff training levels, and staff and offender surveys.

Administrative data are a particularly promising source of information about program quality because they directly measure the content and amount of treatment services that offenders receive.

correctional program quality. For instance, staff surveys are attractive measurement tools because they can be implemented more quickly and easily than interviews, and produce results that require less interpretation by researchers. In this regard, several studies by Camp and colleagues have used surveys of both prison staff and inmates to assess and compare the quality of operations in private and state-run prisons (Camp, Gaes, Klein-Saffran, Daggett, & Saylor, 2002; Camp, Saylor, & Harer, 1997; Gaes, Camp, Nelson, & Saylor, 2004). This research finds that there is usually considerable consistency between the responses of inmates and staff within the same facility, and that surveys can be used effectively to obtain information about operational differences between prisons. Using an offender survey approach, Haas and Spence (2016a; 2016b) measured the extent to which correctional service delivery adhered to well-established core correctional practices. They found that offenders felt better prepared for release and were less likely to engage in prison misconduct when staff treated them in ways that were more consistent with the principles of core correctional practices.

Finally, researchers have used administrative data to create measures of program quality. These data provide a useful source for information about the quality of service delivery because they are gathered continuously by staff as part of correctional operations. In the best case scenarios these data can directly measure the services provided. In some instances, these data can be used to assess the extent to which programs provide services in accordance with evidence-based practices.

For example, Lowenkamp et al. (2006) used administrative data drawn from 40 community corrections programs in Ohio to determine whether or not these programs adhered to evidence-based practices. They considered programs to have been consistent with evidence-based practices if at least 75% of the services they provided were treatment-based, if they kept higher-risk offenders in the program longer than lower-risk offenders, if they provided higher-risk offenders with more referrals for treatment than lower-risk offenders, and if they served an offender population in which at least 75% of clients were moderate or high risk. For each of these indicators, Lowenkamp et al. (2006) found that programs with greater adherence to evidence-based practices were more effective at reducing recidivism.

In a subsequent study, Lowenkamp, Flores, Holsinger, Makarios, and Latessa (2010) combined these four indicators with other program quality measures derived from staff surveys. Here, they found that the combination of high adherence to evidence-based practices with staff commitment to a treatment-oriented philosophy resulted in larger recidivism reductions. Thus, administrative data combined with other methods can be useful for assessing the quality of service delivery in correctional programs.

THE CORRECTIONAL PROGRAM QUALITY INDEX

The Correctional Program Quality Index (CPQI) is designed to measure the extent to which correctional programs adhere to the principles of evidence-based practices when delivering treatment services. The CPQI does this by examining administrative data that describe the types of services (e.g., substance abuse treatment, anger management classes) and the amount of treatment (e.g., the number of treatment sessions or interventions completed) that programs provided to each of their clients in a given period. These data are then used to assess the degree to which the program adheres to three important elements of evidence-based practices: A) the risk principle, B) the need principle, and C) established standards for effective treatment dosage.

Measuring Adherence to the Risk Principle

The risk principle refers to the strategy of providing more intensive treatment dosage and supervision to individuals with a greater risk of reoffending. A large body of literature shows that treatment programs that adhere to the risk principle achieve greater reductions in recidivism (Dowden & Andrews, 1999a, 1999b, 2000, 2004; Lipsey, 2009; Lipsey, Landenberger & Wilson, 2007). The CPQI contains four indicators that are used to measure adherence to the risk principle.

First, the CPQI captures the percentage of offenders that received at least one LS/CMI risk and needs assessment while in the program. Offender risk and needs information is essential in order for staff to ensure that they are treated in ways that are consistent with evidence-based practices, and should play an integral role in case planning. In a high-

quality program, direct-sentence clients should receive an assessment shortly after being placed in DRC custody and be reassessed every six months thereafter at a minimum.

Second, the CPQI measures the percentage of high-risk clients that stayed in the program longer than the average low-risk client. Since clients are expected to receive treatment throughout their time in DRC custody, length of stay provides a basic measure of the amount of services received. Programs which adhere to the risk principle routinely keep high-risk clients in the program longer than low-risk clients due to the need for greater treatment and supervision.

Third, the CPQI records the percentage of high-risk clients that completed more treatment interventions than the average low-risk client. In this regard, each intervention refers to the complete course of treatment sessions. Programs should require high-risk clients to complete more interventions than low-risk clients due to a broader range of criminogenic needs, and the need for multiple interventions to target each need area (e.g., substance abuse, procriminal attitude).

Finally, the CPQI also measures adherence to the risk principle using the number of treatment sessions that clients completed, as this provides the most direct measure of the amount of services clients received. Programs exhibit a higher level of adherence to the risk principle if a greater percentage of high-risk clients completed a larger number of treatment sessions than low-risk clients. These four indicators are then averaged to create a component score which measures the level of adherence to the risk principle.

Measuring Adherence to the Need Principle

The need principle asserts that treatment interventions should be targeted to address the individual criminogenic needs of offenders. Research demonstrates that programs that adhere to the need principle are much more effective at reducing recidivism (Latessa, Cullen & Gendreau, 2002; Smith, Cullen & Latessa, 2009). Adherence to the need principle is measured using three indicators.

The first indicator captures the percentage of clients identified by the LS/CMI as having serious alcohol or drug problems (i.e., a high or very high level of need) and received at least one intervention classified as substance abuse treatment.

The second indicator utilizes the same procedure to record the percentage of clients with high levels of need related to education or employment issues. These clients also received at least one intervention that targeted this area (e.g., adult basic education classes, G.E.D. courses, job skills training).

The third indicator related to the need principle measures the percentage of clients that have a high risk of recidivism and received individual counseling as an intervention. Some researchers argue that high-risk clients should receive individual counseling because their risk of recidivism is often related to complex needs and issues which cannot always be adequately addressed by group-based treatment alone (Landenberger & Lipsey, 2005).

Programs that adhere to the need principle score higher in all three areas. Using the same process applied to the risk principle indicators, the three

Report Highlights...

The risk principle asserts that more services and treatment resources should be provided to individuals with a higher risk of reoffending.

The CPQI measures adherence to the risk principle using four indicators:

- 1) The percentage of clients who received at least one LS/CMI risk and needs assessment
- 2) The percentage of high-risk clients who stayed in the program longer than low-risk clients
- 3) The percentage of high-risk clients who completed more treatment interventions than low-risk clients
- 4) The percentage of high-risk clients who completed more treatment sessions than low-risk clients

These four indicators are averaged to create a subcomponent score that measures the level of adherence to the risk principle.

indicators are averaged to create a component score that measures the level of adherence to the need principle.

Measuring Treatment Dosage

Research shows that offenders need to receive proper treatment dosage to produce changes in behavior (Sperber, Latessa, & Makarios, 2013). The CPQI measures the extent to which programs provide adequate treatment dosage to high-risk offenders using three indicators.

The first indicator records the percentage of high-risk clients that stayed in the program for at least six months. Community corrections programs have been shown to be effective if clients are able to endure in the program for at least six months (Barton & Roy, 2005; Lipsey, 2009).

A second indicator includes the percentage of high-risk clients that completed at least three interventions. Some evidence indicates that high-risk offenders who receive multiple interventions are less likely to recidivate than clients who receive fewer than three interventions (Landenberger & Lipsey, 2005).

Finally, the third indicator records the percentage of high-risk clients that completed at least 50 treatment sessions. Since treatment sessions in DRCs typically last between 2 and 4 hours, at least 50 treatment sessions are needed in order for clients to accumulate 200 hours of programming. This is a threshold dosage that literature has identified as the minimum necessary for treatment to be effective for high-risk offenders in community corrections programs (Sperber et al., 2013).

These indicators are averaged to create a component score which reflects the percentage of high-risk clients that received an adequate treatment dosage, as measured by their length of stay, number of interventions, and treatment sessions completed.

DATA AND METHODS

Analysis Plan

The analysis plan is set forth in two stages. First, we present the current CPQI scores for each of the 26 DRC programs in West Virginia. We begin by presenting the individual indicator scores for each of the three areas of the index (risk, needs, and dosage), and then present the CPQI composite scores which measure the overall level of program quality. These scores are calculated using administrative

Report Highlights...

The need principle asserts that correctional treatment should be targeted to address offenders' greatest criminogenic needs.

The CPQI uses three indicators to measure adherence to the need principle:

- 1) The percentage of clients with high needs in the area of alcohol or drug problems that received substance abuse treatment
- 2) The percentage of clients with high needs in the area of education/employment that received services that targeted this area (e.g., adult basic education classes, G.E.D. courses, job skills training)
- 3) The percentage of high-risk clients who received individual counseling

These three indicators are averaged to create a subcomponent score that measures the level of adherence to the need principle.

data that describe the types of services and the amount of treatment that programs provided to the 1,474 direct-sentence clients who were released from West Virginia DRCs in 2014. Thus, these data provide a "snapshot" that captures the quality of service delivery during this year.

In the second stage of the analysis, we examine the relationship between CPQI composite scores and recidivism. CPQI scores are calculated using data which describe the experiences of the 1,495 direct-sentence clients who were released from DRCs in 2011. A 2011 release cohort was used to track recidivism for these clients over a 24-month follow-up period.

Sample Description

Table 1 presents descriptive statistics for all of the variables that were used to construct the CPQI indicators. These variables were created using data provided by the Community Corrections Information System (CCIS). The

Report Highlights...

Research demonstrates that rehabilitative treatment is most effective when offenders receive an adequate treatment dosage.

The CPQI uses three indicators to measure the extent to which programs provide adequate dosage:

- 1) The percentage of high-risk clients who stayed in the program for at least six months
- 2) The percentage of high-risk clients who completed at least three treatment interventions
- 3) The percentage of high-risk clients who completed at least 50 treatment sessions

The scores for these three indicators are averaged to create a subcomponent score that measures the extent to which a program provides adequate treatment dosage.

CCIS is a statewide data system that is utilized by all West Virginia DRCs and contains information on a broad array of factors related to the services that clients receive and their experiences while in DRC custody. This information is entered into the system directly by DRC staff, and the database is managed by the Office of Research and Strategic Planning (ORSP) in the Division of Justice and Community Services (DJCS).

In the recidivism analyses we utilize three measures of recidivism that come from three different data sources. First, we measure recidivism as the occurrence of an arrest for a new offense using arrest records provided by the West Virginia State Police. Second, we also consider clients to have recidivated if they were booked into a regional jail. Jail bookings data are provided by the WV Regional Jail and Correctional Facility Authority (RJCFJA) TAG database. Finally, we also track recidivism using incarcerations data provided by the WV Division of Corrections (DOC). These data capture any instance in which an individual is committed into the custody of a DOC facility. These measures capture a broad range of criminal behavior, and record any instance in which a former DRC client continued to have an impact on the state's correctional

Table 1
Descriptive Statistics for All Variables Used to Construct the Correctional Program Quality Index (N = 1,474)

Variable	<i>N</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min.</i>	<i>Max.</i>
LS/CMI Total Risk Score	1,174	18.99	8.50	0	40
High Needs (Alcohol/Drug)	1,174	0.51	0.50	0	1
High Needs (Ed./Employment)	1,174	0.37	0.48	0	1
High/Very High Risk	1,174	0.48	0.50	0	1
Length of Stay (days)	1,436	247.60	184.91	8	1,093
Interventions Received (total)	1,267	2.22	2.52	0	12
Received at Least 3 Interventions	1,267	0.28	0.45	0	1
Substance Abuse Intervention	1,267	0.46	0.49	0	1
Ed./Employment Intervention	1,267	0.07	0.26	0	1
Individual Counseling	1,267	0.31	0.46	0	1
Treatment Sessions Completed	1,128	23.45	41.51	0	148
Completed at Least 50 Sessions	1,128	0.15	0.36	0	1

resources after release. Each of these measures is treated dichotomously in the analyses, and is coded as 1 if the client was arrested, booked, or incarcerated at least once during the two-year study period and 0 otherwise.

RESULTS

Table 2 presents the scores for the four CPQI components related to the risk principle, as well as the risk principle component score, for all 26 DRC programs in West Virginia. It reveals several important findings. First, the broad range of risk principle component scores indicates that there is substantial variation across DRC programs in regard to how well they differentiate between clients based on risk. The highest-scoring program had a nearly perfect subcomponent score of 96.4 while the lowest-scoring program had a score of only 18.8. This means that, consistent with the risk principle, the highest-scoring program provided about 96% of high-risk clients with a greater level of services than low-risk clients. Conversely, the lowest-scoring program provided only about 19% of high-risk clients with a greater level of services, and thus violated the risk principle in most cases. Yet, while a few programs had very high risk principle component scores, most fell near the middle of the scale with the average score being 51.6. Substantively, this means that in the average DRC program only about 52% of high-risk clients receive more services than low-risk clients.

A second set of findings revealed by Table 2 concerns the individual indicators that are used to construct the risk principle component score. In regard to the first indicator, which measures the percentage of clients who received at least one LS/CMI assessment, Table 2 shows that most programs do a fairly good job of assessing their clients. The statewide average for this indicator is 82.7, and six programs have scores of 100, indicating that they completed an assessment on every direct-sentence client that they treated during the study-year. However, there are still a few programs that scored fairly low. The lowest-scoring program completed assessments on only about 33% of clients, while the next lowest-scoring reported assessments for only 53% of clients. This indicates that there are still a few programs that have yet to make the delivery of risk assessments a routine part of their

Report Highlights...

Program scores for indicators related to the risk principle show that there is substantial variation across programs in regard to how well they differentiate treatment for clients based on risk.

While some programs scored highly on all of the indicators, others had scores that were near the bottom of the scale.

Most programs do a fairly good job of assessing clients. Statewide, 82.7% of DRC clients received at least one assessment prior to release.

However, DRC programs were generally less effective at ensuring that high-risk clients received greater treatment, as only about 50% of high-risk clients stayed in the program longer or received more interventions than low-risk clients.

Only about 28% of high-risk clients completed more treatment sessions than low-risk clients prior to release.

operations. Since proper adherence to the risk and need principles requires that program staff have knowledge of clients' risk and needs, the lack of assessment data in these programs is likely to have a significant detrimental effect on the overall quality of service delivery.

The other three indicators related to the risk principle measure the percentage of high-risk clients who received greater services than low-risk clients. The first and second of these indicators show that, on average, about 48% of high-risk clients stayed in the program longer, and about 49% received more interventions than low-risk clients, respectively. These averages indicate that, statewide, only about half of high-risk clients received greater services. However, it should be noted that there is again substantial variation across programs with some scoring as high as 100% and others scoring as low as 0%. In regard to the number of treatment sessions completed, Table 2 reports that only about 28% of high-risk clients completed more sessions than low-risk clients

Table 2

Scores for Correctional Program Quality Indicators Related to the Risk Principle, by Program (N = 26)

Program ID No.	<i>Percentage of High Risk Clients With...</i>				Risk Principle Component Score
	<i>At Least 1 Completed Risk Assessment</i>	<i>Longer Length of Stay than Low Risk Clients</i>	<i>More Interventions than Low Risk Clients</i>	<i>More Completed Sessions than Low Risk Clients</i>	
24	85.7	100.0	100.0	100.0	96.4
21	100.0	33.3	100.0	66.6	74.9
26	100.0	60.1	58.3	50.5	67.0
13	100.0	100.0	50.1	11.1	65.2
23	79.1	62.5	75.3	41.6	64.5
20	95.1	75.5	69.3	16.3	63.9
9	100.0	66.7	62.5	25.4	63.5
1	70.7	37.5	69.5	56.5	58.3
5	100.0	64.7	38.8	29.6	58.2
19	53.4	57.1	68.1	47.6	56.4
15	72.3	80.0	41.6	30.4	56.0
4	99.0	44.4	46.4	34.5	56.0
16	87.5	38.9	50.1	45.4	55.4
12	88.5	25.8	78.5	21.4	53.3
3	94.7	50.2	35.4	19.3	49.8
6	100.0	44.4	41.3	6.9	48.1
17	80.9	60.9	28.7	16.3	46.7
2	92.1	16.7	44.4	31.4	46.1
10	81.8	71.4	25.7	0.0	44.5
14	78.1	50.1	20.5	25.6	43.5
18	71.4	30.8	38.7	12.5	38.3
11	65.5	29.4	42.8	3.7	35.3
8	65.1	36.8	30.9	0.0	33.2
22	72.2	0.0	25.0	12.5	27.4
7	86.6	0.0	0.0	0.0	21.6
25	32.5	0.0	28.5	14.2	18.8
Statewide Average	82.7	47.5	48.8	27.6	51.6

statewide. While the best program had a score of 100 for this indicator, the scores for most other programs in this area are much lower, with 12 of 26 programs achieving a score of 20 or less. This indicates that while many programs may do a fairly good job of ensuring that high-risk clients are assigned more interventions, they are not as effective at making sure that high-risk clients actually attend and complete a larger number of treatment sessions.

In Table 3, we present the need principle component score for each program as well as the scores for the three indicators that were used to construct the component score. Table 3 reveals that need principle component scores are significantly lower than those related to the risk principle. The statewide average for this component score is only 34.3, with the highest-scoring program achieving a score of 57.8 and the lowest-scoring program achieving a score of 0. The score of 0 is particularly notable in that it indicates that, for this program, 0% of high-needs clients received appropriate services in any of the three areas captured by the indicators. Thus, these findings indicate that, outside of a handful of programs, most clients had one or more important criminogenic needs that were not targeted by the interventions they received.

The first indicator related to the need principle deals with substance abuse treatment. Here, Table 2 reports that, on average, about 56% of clients who were identified by the LS/CMI as having a high level of need in the area of alcohol or drug problems received at least one intervention that was classified as substance abuse treatment. Most programs have a score for this indicator that is above 50 and seven programs have scores that are above 80. However, there is one program that has a score of 0, and another five programs have scores lower than 30. This suggests that while most DRC programs provide substance abuse treatment to those clients who need it, there are a few programs that fail to provide substance abuse treatment, even to clients who have been assessed as having serious alcohol or drug problems.

The second indicator addresses education and employment needs. The scores for this indicator show that very few clients who have high needs in this area receive relevant interventions (e.g., adult basic education, G.E.D classes, job skills training). The statewide average score for this indicator is only 15.4, and while one program

achieved a score of 70.5, six programs have scores of 0, and another 17 programs have scores of less than 30. Thus, this area of criminogenic need appears to be largely unaddressed by most DRC programs in the state.

The third need-related indicator measures the percentage of high-risk clients who received an intervention classified as individual counseling. Here, Table 2 shows that on average about 33% of high-risk clients received individual counseling. As with the other indicators, the scores varied greatly across programs with the highest-scoring program achieving a score of 100, and another six programs having scores above 60, but with nine programs having a score of 0.

Taken together, the scores for the need-related indicators suggest that many programs appear to specialize in particular types of services. For example, Program 22 provides 100% of clients who have high substance abuse needs with relevant treatment, but provides relevant treatment to only about 8% of clients with high levels

Report Highlights...

Need principle indicator scores were much lower than scores for the risk principle indicators.

DRCs are most effective at targeting alcohol and drug problems, with about 56% of clients with high needs in this area receiving some form of substance abuse treatment.

However, on average, programs provided only about 15% of clients with high needs in the area of education or employment with relevant interventions, and only 33% of high-risk clients received individual counseling.

These findings indicate that most clients have one or more important criminogenic needs that are not being addressed by the interventions.

Furthermore, these findings suggest that many programs appear to specialize in particular types of treatment, providing high levels of service in one area while largely neglecting others.

Table 3

Scores for Correctional Program Quality Indicators Related to the Need Principle, by Program (N = 26)

Program ID No.	<i>Percentage of High Needs Clients Receiving...</i>			Need Principle Component Score
	<i>Substance Abuse Treatment</i>	<i>An Education/ Employment Intervention</i>	<i>Individual Counseling</i>	
1	87.1	12.5	73.9	57.8
6	80.0	9.5	82.7	57.4
19	85.7	23.9	63.6	57.0
2	95.4	0.0	72.2	55.6
13	82.7	50.6	0.0	44.0
9	53.1	28.5	50.7	43.8
20	65.5	0.0	61.2	41.9
26	15.3	70.5	33.3	39.5
15	66.0	14.2	33.3	37.6
3	55.0	0.0	58.1	37.6
22	100.0	8.3	0.0	36.1
18	27.1	14.2	63.2	34.9
5	54.1	0.0	48.1	33.9
16	27.7	21.0	50.4	32.7
8	54.3	19.3	20.0	31.2
14	76.9	11.1	0.0	29.1
23	81.8	4.5	0.0	28.3
10	57.0	16.6	0.0	24.5
17	68.3	3.2	0.0	23.7
4	39.0	13.5	17.8	23.3
12	38.2	25.2	0.0	21.0
25	19.1	30.1	14.2	20.9
11	23.0	10.5	0.0	11.0
7	0.0	0.0	0.0	0.0
24	---	0.0	100.0	---
21	---	16.6	20.0	---
Statewide Average	56.1	15.4	33.1	51.6

Note: Substance abuse treatment indicator scores could not be calculated for two programs because these programs did not have any direct-sentence clients who were assessed as having high or very high levels of need in alcohol/drug problems during the study period.

Table 4

Scores for Correctional Program Quality Indicators Related to the Level of Treatment Dosage, by Program (N = 26)

Program ID No.	<i>Percentage of High Needs Clients that...</i>			Treatment Dosage Composite Score
	<i>Stayed in the Program at least 6 Months</i>	<i>Received at least 3 Interventions</i>	<i>Completed at least 50 Treatment Sessions</i>	
2	62.1	97.2	40.0	66.4
1	60.8	91.3	43.4	65.1
19	68.1	77.2	47.6	64.3
26	83.3	58.3	25.7	55.5
6	75.8	62.0	24.1	53.9
15	80.7	54.1	0.0	44.9
23	85.2	41.6	4.1	43.6
5	65.3	38.8	25.9	43.3
9	75.0	25.5	25.0	41.6
22	20.1	100.0	0.0	40.0
3	64.5	54.8	0.0	39.7
4	71.4	17.8	10.9	33.3
24	100.0	0.0	0.0	33.3
21	100.0	0.0	0.0	33.3
17	43.8	28.7	9.0	27.1
13	54.5	10.0	11.1	25.2
8	44.2	30.9	0.0	25.0
18	56.8	8.1	6.2	23.7
20	39.6	4.5	22.4	22.0
14	56.4	2.5	5.1	21.3
7	60.0	0.0	0.0	20.3
25	0.0	42.8	14.2	19.1
11	48.1	1.5	0.0	16.5
16	31.3	16.6	0.0	15.8
10	42.8	0.0	0.0	14.2
12	15.7	21.4	0.0	12.3
Statewide Average	57.8	34.0	12.1	34.6

Report Highlights...

On average, about 58% of high-risk clients stayed in the program for at least six months, about 34% received three or more interventions, and only about 12% completed more than 50 treatment sessions.

These findings indicate that while most high-risk, direct-sentence clients were kept under DRC supervision long enough to receive adequate treatment, relatively few received adequate treatment dosage while in custody.

While five programs had average scores for three dosage indicators that were above 50%, most had scores that were near the bottom of the scale.

of education or employment needs, and this program provides no individual counseling to high-risk clients. Conversely, Program 6 provides about 80% of high-needs clients with substance abuse treatment and individual counseling, but provides relevant treatment to only about 10% of clients with high education or employment needs.

The scores for the CPQI components related to treatment dosage are reported in Table 4. The treatment dosage component scores indicate that most high-risk clients in WV do not receive an adequate level of treatment dosage as the statewide average is only 34.6 and only five programs have scores above 50. The low scores for this subcomponent appear to be driven largely by the dosage indicator which measures the percentage of high-risk clients who completed at least 50 treatment sessions. Here, the highest score is only 47.6, and 12 out of 26 programs had a score of 0. This means that nearly half of DRC programs failed to provide a single high-risk client with 50 or more sessions of treatment during their time in DRC custody.

The average scores are greater for the indicators which measure treatment dosage in terms of clients' length of stay and the number of interventions they received. Table 4 shows that for the length of stay indicator, 17 programs have scores above 50, indicating that they kept a majority of high-risk clients in the program for at least six months. However, only 8 programs had scores

Table 5

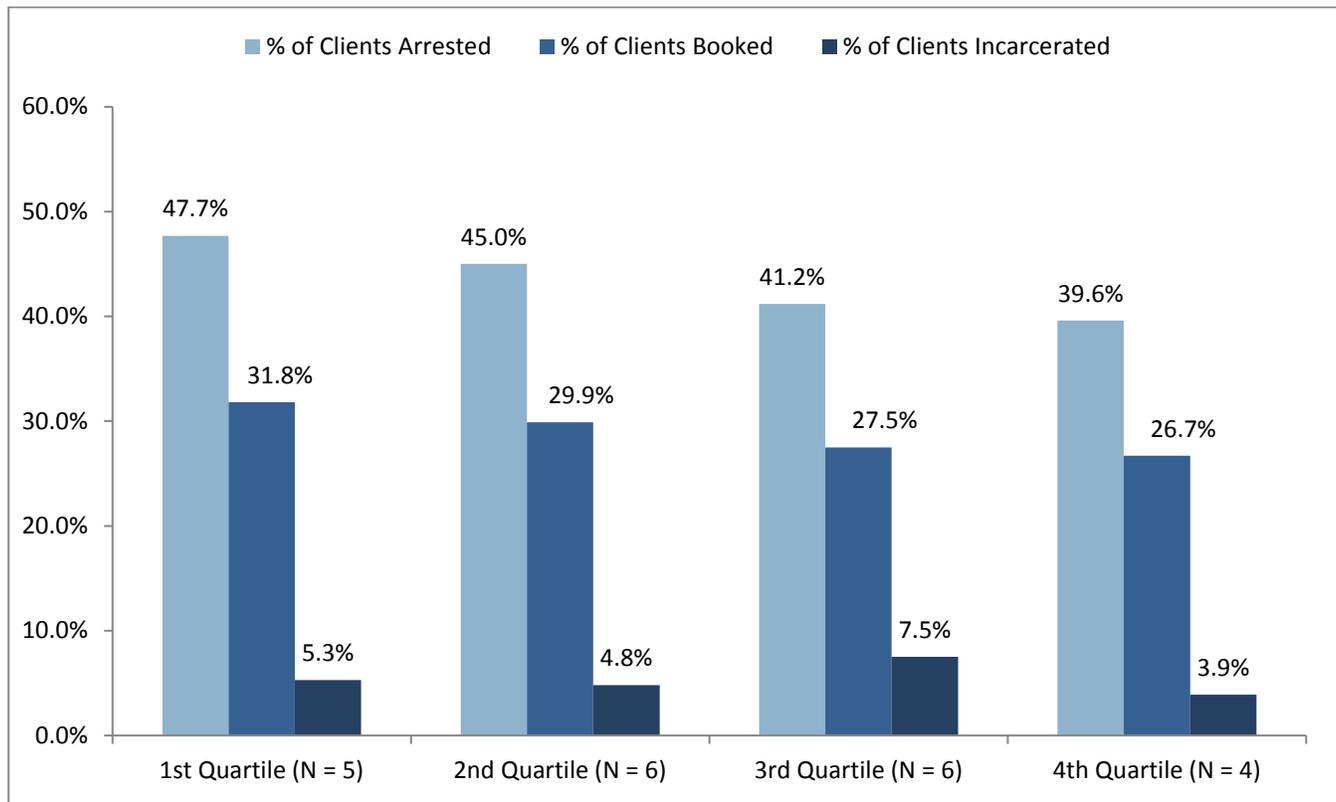
Correctional Program Quality Index (CPQI) Scores by Program (N = 26)

Program ID No.	CPQI Score	Avg. Client Risk Score	Clients Served in Study Year
1	60.4	16.3	50
19	59.2	16.1	53
2	56.0	23.2	51
26	54.0	19.2	23
6	53.1	16.5	35
9	49.6	19.0	13
15	46.2	18.1	76
23	45.5	21.6	48
5	45.1	19.3	47
13	44.8	15.2	49
20	42.6	19.0	83
3	42.4	18.7	57
4	37.6	17.7	102
16	34.6	22.7	40
22	34.5	19.6	18
17	32.5	22.5	105
18	32.3	15.9	105
14	31.3	16.8	87
8	29.8	22.6	129
12	28.9	16.4	35
10	27.7	25.1	11
11	20.9	19.7	180
25	19.5	19.6	43
7	13.8	17.2	15
24	---	12.1	7
21	---	13.0	12
Statewide Avg.	39.3	18.9	57

Note: CPQI composite scores could not be calculated for two programs due to insufficient data for one or more indicators. The number of clients served includes only those clients who were directly sentenced to DRC supervision.

Figure 1

Comparison of Recidivism Rates across Programs, by Correctional Program Quality Index Score Quartiles (N = 21)



Note: Recidivism rates are calculated using a 24-month follow-up period. Index scores could not be calculated for four programs due to insufficient data.

above 50 for the dosage indicator based on the number of interventions. Together, these findings indicate that while about 58% of high-risk clients stay in DRC custody for six months or more, only 34% receive three or more interventions and only about 12% complete 50 or more treatment sessions during this time. Thus, while most high-risk clients are kept under DRC supervision long enough to receive adequate treatment, relatively few receive a sufficient treatment dosage while in custody.

Table 5 displays the CPQI composite scores for each program, the number of direct-sentence clients who were released from each program in 2014, and the average LS/CMI risk scores for the clients released from each program. Statewide, the average CPQI composite score is 39.3, indicating that about 39% of high-risk DRC clients are treated appropriately in regard to treatment dosage and the risk and need principles. Only 5 of 26 DRC programs have CPQI composite scores above 50.0, while

6 programs have scores that are below 30.0. Although the CPQI does not specify predetermined standards for what constitutes an effective program, these scores indicate that there is significant room for improvement in the quality of service delivery by DRC programs in West Virginia.

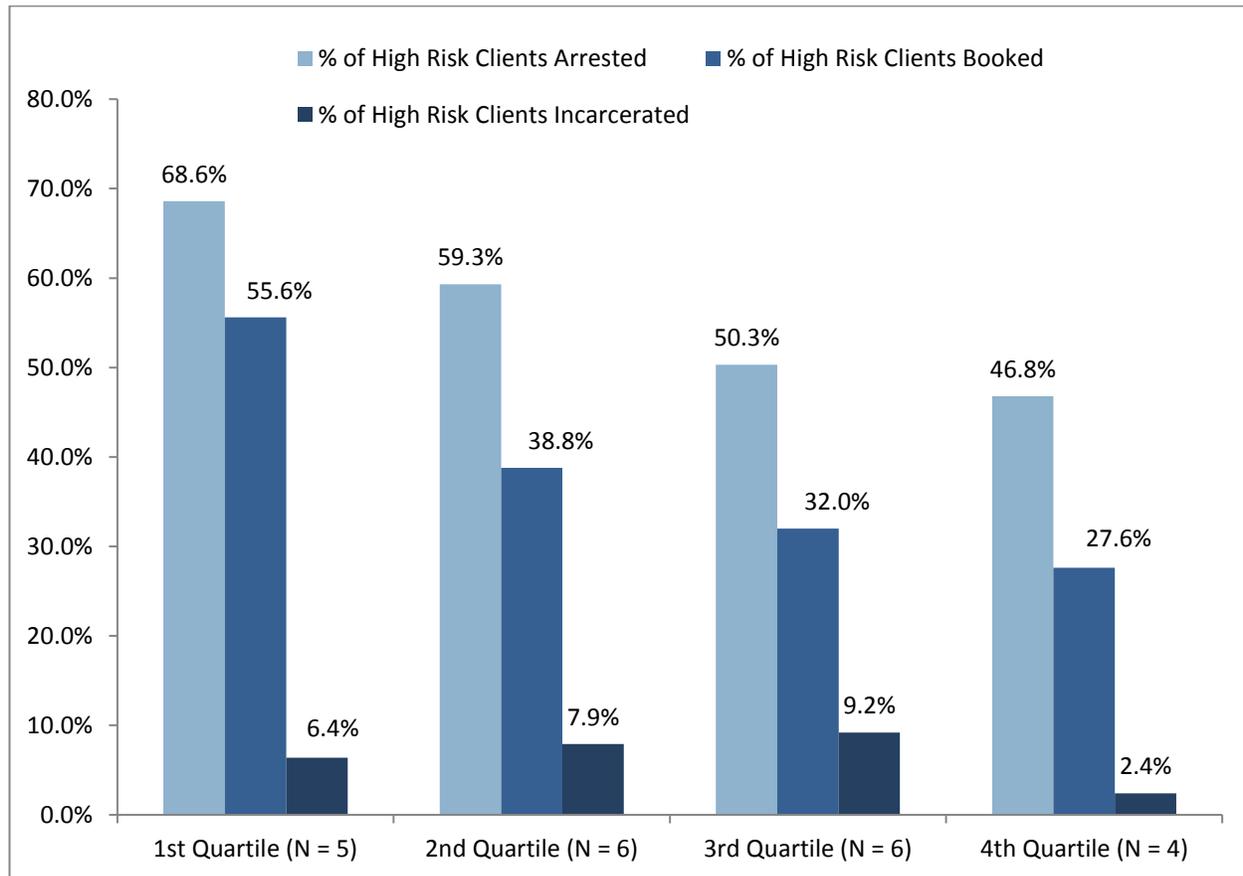
Table 5 also shows that while DRC programs vary significantly in regard to the number of clients they serve, they do not exhibit much variation in regard to the risk levels of those clients. Statewide, the average direct-sentence DRC client has a risk score of about 19, which places them in the upper end of the medium risk category. Most programs had client populations whose average risk scores fell near the mean.

Recidivism Analyses

In Figures 1 and 2, we examine the relationship between CPQI scores and offender recidivism. In order to track the recidivism of offenders over the course of

Figure 2

Comparison of Recidivism Rates for High Risk Clients across Programs, by Correctional Program Quality Index Score Quartiles (N = 21)



Note: Recidivism rates are calculated using a 24-month follow-up period. Index scores could not be calculated for four programs due to insufficient data.

a 24-month follow-up period, the CPQI scores used in these analyses were calculated using data from direct-sentence clients terminated in 2011. Figure 1 shows that for all three recidivism measures, rates of recidivism were generally lower for programs that scored higher on the CPQI. For example, while about 48% of clients who were released from programs that scored in the lowest quartile on the CPQI were arrested within 24 months of release, the arrest rate for programs that scored in the highest quartile was about 40%. Likewise, the percentage of clients booked into regional jails also decreased as CPQI increased, falling from about 32% for programs in the lowest quartile to about 27% for programs in the highest quartile. This pattern is less consistent for incarcerations, but programs that scored in the highest quartile did have a lower incarceration rate (3.9%) than those that scored

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Programs that had higher CPQI composite scores generally had lower rates of recidivism as measured by the occurrence of new arrests or jail bookings post release.

The pattern is less consistent in regard to incarceration rates, but programs in the highest-scoring quartile had incarceration rates that were roughly half that of other programs.

The relationship between CPQI scores and recidivism rates is strongest when examining the recidivism of high-risk offenders.

Table 6**Comparison of Mean Recidivism Rates and LS/CMI Risk Scores across Day Report Center Programs, by CPQI Score (N = 21)**

	<u>Higher Scoring Programs</u>			<u>Lower Scoring Programs</u>			<i>t</i>	<i>p</i>	<i>df</i>
	<i>Mean</i>	<i>S.D.</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>	<i>N</i>			
Recidivism Measure									
% Arrested	38.6	13.0	11	49.0	6.1	10	2.369*	0.033	19
% Booked	25.5	10.0	11	33.0	5.7	10	2.111	0.054	19
% Incarcerated	5.5	8.2	11	5.6	3.9	10	0.014	0.989	19
LS/CMI Risk Score	18.5	2.8	11	18.9	3.1	10	0.364	0.720	19

Note: “Higher scoring programs” include all programs with CPQI scores above the sample mean of 45.1. “Lower scoring programs” include all programs with a CPQI score below the sample mean; * $p < 0.05$

in the lowest quartile (5.3%). These findings suggest that programs that have higher scores on the CPQI are generally more effective at reducing recidivism.

Figure 2 presents the recidivism rates by program for clients who were classified by the LS/CMI as having a high or very high risk for recidivism. It reveals a similar pattern to the one observed in Figure 1. The five programs with CPQI scores that fell into the lowest quartile had arrest and booking rates that were much higher than the other programs, and these rates decreased in a stepwise fashion as CPQI scores increased. Furthermore, the results of bivariate correlations indicate that there is a strong, statistically significant, negative correlation between a program’s CPQI score and the percentage of high-risk clients who are arrested (Pearson’s $R = -.700$, $p < 0.001$) or booked into jail (Pearson’s $R = -.700$, $p < 0.001$) within 24 months of release. However, as observed in Figure 1, the relationship between CPQI and incarceration rates is less consistent. While the four programs with CPQI scores in the highest quartile had incarceration rates that were much lower than the other programs, the programs with CPQI scores in the second and third highest quartiles had incarceration rates that were slightly higher than those for the programs in the lowest quartile. Thus, high-risk clients who were released from the highest-scoring programs were the least likely to be reincarcerated, but it is unclear whether there is a linear relationship between incarceration rates and CPQI scores.

Table 6 compares the recidivism rates for programs with CPQI scores that were above the sample mean

(45.1) to the recidivism rates for programs with CPQI scores that were below the mean. Here, the results of independent samples t-tests show that programs which scored above average on the CPQI had arrest rates that were 11 percentage points lower than those of below-average programs. This difference is large enough to be considered statistically significant ($p < 0.05$). In addition, above-average programs also had booking rates that were about 8 percentage points lower than below-average programs. Consistent with the findings in Figures 1 and 2, there is no significant variation in incarceration rates for above- and below-average programs.

There is also very little variation across higher- and lower-scoring programs in regard to their clients’ average LS/CMI risk scores. The mean risk score for clients in above-average programs was 18.5, compared to an average score of 18.9 for clients in below-average programs. This indicates that programs which scored highly on the CPQI served a clientele which was very similar to the clientele of low-scoring programs in regard to risk level.

DISCUSSION AND CONCLUSION

Policy Implications

This study assesses the quality of service delivery and adherence to evidence-based practices in 26 DRC programs in West Virginia using the CPQI. It finds that while most DRC programs routinely provide clients

with risk and needs assessments, and generally provide higher-risk clients with greater services, DRCs are less successful at ensuring that these services are targeted to clients' individual needs and that clients receive adequate treatment dosage. Consequently, the composite CPQI scores for most programs are fairly low, indicating that these programs are still far from the ideal of treating all clients appropriately according to the principles of evidence-based practices. These low scores are likely to have important implications for the effectiveness of DRC programming, and the results of recidivism analyses using historical data show that programs with lower CPQI scores tended to have higher rates of recidivism. Although more research is needed in order to fully validate the CPQI, these findings suggest that the CPQI captures aspects of program quality that have an important impact on client outcomes. Consequently, the findings of this study point to a number of significant implications for DRC administrators and staff as well as state planners and policy-makers.

First, the results of the recidivism analyses provide initial evidence that the CPQI is an effective framework for using administrative data to measure the quality of service delivery, both within individual programs and across entire correctional systems. This opens up the possibility of using the CPQI to guide future research or program assessment efforts, and provides a tool that can be used to provide administrators with up-to-date information about the quality of correctional services. Furthermore, since the CPQI utilizes administrative data that are routinely gathered by most correctional treatment programs, it should be possible to use the CPQI to assess service delivery in a wide variety of correctional contexts, including both community and institutional settings. However, it is important to point out that the validity of CPQI scores is contingent on the quality of the data it utilizes, and that every effort should be made to ensure that the data gathered by staff in the field are accurate, comprehensive, and available for analysis. Correctional program managers are also encouraged to use the CPQI framework to track their own adherence to the principles of evidence-based practices, and to use this information to make decisions about the allocation of treatment services.

In regard to the findings related to adherence to the need principle, the CPQI indicator scores show that substance

abuse issues were the most common targets of interventions and that a majority of clients with high needs in this area received relevant services. However, most clients with high needs in the area of education or employment issues did not receive any relevant interventions. Likewise, most clients with high levels of risk and need did not receive individual counseling while in DRC custody. This suggests that outside the area of substance abuse, many important criminogenic needs are not being adequately addressed by DRC programs. These results are consistent with findings of prior studies of DRC programs in WV which show that substance abuse treatment accounts for more than 50% of all treatment services provided by DRCs (Spence & Haas, 2014). Most DRC programs could substantially increase their CPQI scores in this area by providing more interventions that address clients' other criminogenic needs.

Another issue revealed by the CPQI indicator scores is that many programs appear to specialize in particular areas of treatment. For example, while most programs rarely provided clients with interventions classified as individual counseling, there was one program that provided these services to 100% of high-risk clients, and several

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The CPQI can serve as a useful tool to assess the quality of service delivery across correctional systems, track changes in quality within programs over time, and identify particular programs for further assessment.

DRCs can improve performance by providing a broader range of services and by better targeting treatment to clients' criminogenic needs.

Increased investment in the treatment capacity of DRCs may also improve program effectiveness, particularly for smaller programs.

DRC staff should seek to increase treatment dosage by assigning more interventions, improving program completion rates, and by emphasizing formal treatment sessions to deliver services.

others who did so for more than 70%. However, none of these programs provided more than 25% of clients with high needs in the area of education or employment with a relevant intervention. Conversely, the two DRC programs that did frequently provide education or employment interventions rarely provided individual counseling. These findings suggest that in many cases the content of service delivery may be determined more by the capacity of programs to provide treatment in particular areas than by the specific needs of individual clients. Thus it may be possible to significantly enhance the quality of treatment services in DRCs by improving their capacity to offer a broader range of programs, or by developing new ways in which different DRCs can collaborate and pool their resources.

The findings for the CPQI indicators related to treatment dosage also suggest several possibilities for improving the performance of WV DRC programs. Here, the results show that while about 58% of high-risk clients stayed in the program for more than 6 months, only about 34% were assigned three or more interventions, and only about 12% completed 50 or more treatment sessions during their time in DRC custody. Thus, most high-risk clients endure in the program long enough to receive adequate treatment, but relatively few clients do so because many programs are not providing an adequate intensity of treatment services for high-risk clients while they are under supervision.

DRC staff can increase the amount of treatment that clients receive by expanding the length of treatment sessions or by assigning clients to participate in larger numbers of relevant interventions during a given treatment period. Research suggests that this “stacking” of interventions can help improve treatment effectiveness by providing offenders with complementary services (e.g., substance abuse treatment in a group setting as well as individual counseling) and by increasing the number of hours per week that clients spend in a controlled environment (Zweig, Yahner, & Redcross, 2011). In particular, the principles of effective intervention assert that, when dealing with high-risk offenders, correctional rehabilitation programs should seek to occupy about 40-70% of their time with treatment services (Gendreau, 1996).

A second strategy for enhancing treatment dosage is to work to increase the percentage of clients who complete the program successfully. As described in

Spence and Haas (2014), only about 50% of clients who are sentenced to DRCs successfully complete the program and the completion rate is significantly lower for clients with greater risk and needs. Consequently, DRC staff can potentially improve the level of treatment dosage for high-risk clients by working to increase completion rates through the use of proven retention techniques such as motivational interviewing and the proper use of reinforcements and incentives (Harper & Hardy, 2000; Miller & Rollnick, 2002).

Many DRC programs may also benefit from placing greater emphasis on the use of formal treatment sessions to deliver services to clients. In many programs, clients often spend significant time working with non-treatment staff such as case managers, or engaging in non-treatment-related activities such as community service. Although these interactions and activities can be beneficial for clients and the community, they are not counted as treatment by extant measures of treatment dosage because they have not been proven by research to have an impact on recidivism. Thus, programs can likely improve their level of adherence to evidence-based practices by increasing the amount of evidence-based treatment sessions they provide relative to other services.

Opportunities for Future Research

The present study makes several significant contributions to research investigating the quality of correctional service delivery. First, it provides a new framework for using administrative data to assess the level of adherence to evidence-based practices. In doing so, it provides researchers and administrators with a valuable tool that can be used to assess larger numbers of correctional facilities and conduct more frequent reassessments than is typically possible using observation-based tools such as the CPC and CPAI. The CPQI can therefore serve as a useful complement to these tools and can identify programs for further assessment as well as track program quality levels over time. Second, the CPQI also improves on prior methods for assessing program quality using administrative data (e.g., Lowenkamp et al., 2010) by incorporating indicators that address levels of treatment dosage, and by utilizing interval rather than dichotomous measures of program quality. The use of interval measures provides a richer source of information

about program operations and frees researchers from the need to rely on predetermined thresholds to distinguish between effective and ineffective programs.

Future research can build on the present study in a number of ways. One possibility is to examine the relationship between CPQI scores and other indicators which measure levels of program capacity. The findings presented here suggest that one reason some programs scored poorly in the areas of treatment dosage and adherence to the need principle is because they may lack the resources to offer particular types of services or provide a sufficient number of treatment sessions. It would be therefore worthwhile to investigate the relationship between CPQI scores and program capacity levels. These efforts may help to identify programs that perform particularly well given their resources, and could also lay the foundation for efforts to develop standards regarding the level of resources necessary to operate an effective program. Just as the dosage literature has helped to reveal the number of interventions or treatment hours that are needed to induce behavior change in offenders, future studies could examine how factors such as staff-to-client ratios or funding levels impact the quality of service delivery.

Another avenue for future research concerns the fluctuation in levels of program quality over time. Levels of correctional program quality can change significantly due to staff turnover or because of the impact of external changes in policy or funding levels. Researchers can potentially use the CPQI to assess the impact of major policy changes and reforms on the quality of service delivery by comparing correctional practices before and after implementation. This kind of information is essential for state planners and policy-makers to gauge to extent to which policy changes have actually altered practices, and it opens up new research questions related to the time it takes for policy changes to take effect and the factors which may facilitate or impede this process.

Finally, future studies should also work to further investigate the relationship between CPQI scores and other measures of program quality, such as the scores produced by program assessment tools (e.g., CPC, CPAI) as well as the results of surveys of correctional staff and offenders. While it is expected that there should be a close correlation between the results produced by these

different measures of program quality, this has not yet been demonstrated empirically. Studies in this area would help to validate the CPQI and further increase confidence in its ability to accurately measure the quality of correctional operations. These efforts may ultimately pave the way for the development of program assessment tools which combine these many different sources of information into a single measure of program quality.

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