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Abstract

The widespread adoption of research-supported treatments by mental health providers has facilitated empirical development of quality assurance (QA) methods. Research in this area has focused on QA systems aimed at assuring the integrity of research-supported treatment implementation, while examination of QA systems to assure appropriate documentation of the implementation has received extant attention. Therefore, the purpose of this study was to pilot the initial development of a standardized QA system to assist mental health providers in effectively maintaining records of their implementation of a research-supported treatment. After a baseline of record-keeping errors was established, a QA program was implemented. Results indicated that QA audits were reliably conducted, frequency of errors decreased significantly upon the implementation of QA, and the QA program was determined to be feasible. A significant negative linear relationship was found between frequency of QA audits and frequency of errors. Study implications for research-supported treatments are discussed in light of these results.

Keywords

quality assurance, research supported practice, audits, case records

The past 30 years have shown unprecedented growth in the development of research-supported mental health treatment programs. Consistent with this growth, quality assurance (QA) procedures have been empirically developed to assure specified standards of care (Nabors, Weist, Tashman, & Myers, 1999). These systems have focused on the integrity of research-supported service implementation (see Sheidow, Donohue, Henggeler, & Ford, 2008). However, investigators have essentially ignored examinations of QA programs that are designed to sustain excellence in the contextual aspects of these practices, such as the management of mental health case records (Ladbury, 2003; McMillen, Zayas, Books, & Lee, 2008). This is problematic, as reviews of case records indicate professionals often grossly underestimate their frequency of documentation-related errors (Grasso, Genest, Jordan, & Bates, 2003).

The appropriate maintenance of professional case records, including documentation of decisions, consultation, treatment planning, and progression of services (Mary et al., 2007), is an ethical and legal requirement of mental health providers (American Psychological Association, 2002). Indeed, quality record keeping permits trainers and supervisors to optimally monitor service provision (Farkas, Gagne, Anthony, & Chamberlin, 2005), examine intervention processes (Haglund, Hallberg, & Pettersson, 2004), understand treatment outcomes, enhance professional communication about treatment issues (Kleschinsky, Boswoth, Neslon, Walsh, & Shaffer, 2009), and

ensures treatment planning is consistent with consumer-generated goals (Mary et al., 2007).

QA programs specific to the development and maintenance of case records typically incorporate internal audits to assure accountability (Pullen & Loudon, 2006). Along these lines, most state statutes specify that mental health treatment programs need to maintain a description of the QA program and methods to examine its effectiveness. Hargrave and Hiatt (2000) recommend standardized protocols should be used to guide QA implementation, and Pyle (2000) report QA should be preventative and corrective (e.g., improving forms based on practitioner feedback and ongoing training). McMillen, Zayas, Books, and Lee (2008) outline the importance of regularly implementing QA procedures, and Bowie, Sweeney, and Beattie (2004) recommend QA procedures should be capable of correcting errors that are commonly found in professional

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records, such as missing signatures, missing information, missing forms, and sloppy writing. Moreover, these authors suggest audits should occur every month or two, with each audit being limited to less than 10 minutes.

Extant studies have examined the effects of QA programs that are aimed at decreasing documentation errors in medical case records. For instance, Jha and colleagues (1998) compared the efficacy of three QA procedures (i.e., self-report of errors by physicians, examination of errors in records by a trained reviewer, and retrospective detection of errors utilizing computer monitoring) in reducing adverse drug events in medical records. Results indicated that more errors were detected by physical record review and, to a lesser extent, computer monitoring, as compared with self-reporting of errors by physicians. Bowie et al. (2004) examined the use of a peer review QA program for community nurses. The QA program was not standardized, although reviewers followed well-established nurse practitioner guidelines. Records were randomly selected for review. The QA program was effective in improving the general quality of record keeping. Opila (1997) found a review of residents' outpatient medical records and periodic feedback from attending physicians improved documentation. No studies, however, have been conducted to systematically examine the effects of standardized QA systems on the appropriate maintenance of mental health records, including evaluations of their feasibility and its influence on errors.

We conducted the current study to empirically develop and initially evaluate a QA program to assist appropriate mental health record keeping. We evaluated this QA program within the context of a mental health clinic that was focused on the provision of research-supported treatment to referrals from Child Protective Services (CPS). The setting provided a unique opportunity to determine the QA program's robustness in managing a variety of legal documents that require frequent and detailed attention due to relatively high rates of problem behavior evidenced in these cases (i.e., domestic violence, child maltreatment, illicit drug use, divorce, child custody issues, judicial hearings, and probation). It was hypothesized that the QA program would decrease record-keeping errors while being reliably feasible to implement.

Method

Setting

The study was conducted in a mental health clinic serving referrals for child neglect and drug abuse from the county's CPS within the umbrella of a clinical trial funded by the National Institute on Drug Abuse (Donohue et al., 2014). Referrals received up to 20 sessions of home-based family behavior therapy (FBT; Donohue & Allen, 2012). FBT is research supported behavioral treatment program that includes 10 intervention components that are implemented successively and cumulatively, including emergency management, goals and rewards/contingency management, treatment planning, safety skills training, child management, self-

control, environmental control, communication skills training, job-getting skills training, and financial management. Treatment providers have consistently been found to demonstrate high adherence to FBT protocols (Azrin, Donohue, Besalel, Kogan, & Acierno, 1994; Azrin et al., 2001; Donohue et al., 2014).

Measure

The Quality Assurance Client Chart Review (QACCR; See Appendix A) form assesses seven types of record-keeping errors (i.e., missing forms, illegible writing, missing dates, missing times, missing information, missing client signature, and missing signature of the service provider) across various forms within the record (e.g., log of contacts, progress notes, consent form, and release of information). The form tracks identifying information (i.e., auditor, date of audit, and client record number) and consists of a table with record forms listed in rows and potential types of errors listed in columns. Errors are tracked by tallying specific errors in the respective cells, which permits a cumulative frequency of errors. The auditor then determines whether record forms are in order and whether various forms match with the log of professional contacts. Notes about types of errors are written on the back of the form and the therapist signs and dates the form upon correcting identified errors. Following guidelines specified by Bond, Evans, Salyers, Williams, and Hea-Won (2000), the QACCR was developed in a series of brainstorming groups consisting of the second author in the current study, who is an expert in treatment outcome research involving child maltreatment and drug abuse, and five bachelor of arts (BA)-level child welfare service providers and case managers. The first task involved assuring content in the existing case records was consistent with standards of care outlined in the literature, including state and federal law. The second task involved brainstorming errors that were commonly evidenced in case record management within the child welfare population targeted in this study. This process resulted in classification of the seven types of errors that were mentioned previously. The last task involved construction of a form in which to record error frequency for each case (see Appendix A).

Professional Case Records

A case record containing all record forms from every completed treatment session was constructed for each consumer of FBT in this study ($N = 34$). Each case record included a log of professional contacts, informed consent, a demographics form, release of information forms, treatment plan, treatment progress notes, outside session notes (outstanding notes not specific to FBT, e.g., emergency management), and a treatment termination report.

Participants

Treatment providers. Mental health records were managed by 10 FBT providers in this study. One provider was at the doctoral

level, two were at the master's level, and eight were at the bachelor's level. Mean age of providers was 26 years ($SD = 3.3$ years).

Auditors. Five undergraduate research assistants were trained to identify record-keeping errors using the QACCR. Auditors had no previous experience in QA or therapeutic implementation prior to this study. For the purposes of the study, the auditors met with the QA Coordinator as a group to learn the QA study audit protocol. Auditors were instructed to refrain from individual consultation and bring QA questions only to the QA Coordinator. Four auditors were randomly assigned records to review. Auditors were assigned between 6 and 10 records each. A fifth independent auditor was randomly assigned to review 25% of the records (i.e., nine records) to obtain an estimate of interrater agreement of client record errors.

Training. All auditors received approximately 3 hours of training. Training consisted of discussion about the purpose of QA record-keeping audits, didactic instruction specific to each section of the QACCR, and supervised QA practice implementation utilizing the QACCR with exemplary professional records. Auditors were required to demonstrate at least 70% agreement with the instructor in each of the QACCR error detection domains prior to examining the case records that were included in the study. Percentage agreement was obtained by dividing the number of agreements by the number of agreements plus disagreements and multiplying the dividend by 100%.

Process of examining professional records. To establish a baseline in this study, the QA procedure was not implemented in the clinic during the time the first 18 clients received FBT. These 18 case records were retrospectively audited after their treatment termination utilizing the QACCR to obtain data for this study. The following 16 case records were audited for QA on an ongoing monthly basis utilizing the QACCR. For most records, QA audits were performed within a week or 2 after the first treatment session utilizing the QACCR, and monthly audits were scheduled to occur thereafter until treatment termination. Auditors utilized the QACCR to review each record in its entirety to identify errors. Treatment providers received instructions to correct all errors that were detected in the QACCR audits within 7 days of each respective audit. The mean number of audits for the 16 case records was 4.75 with a range of three to seven audits per record depending on the number of completed treatment sessions. At the time of the current study, 34 records (QA and non-QA) were randomly assigned to one of the four primary auditors for review of errors utilizing the QACCR. Each auditor was assigned between 6 and 10 professional records. A fifth independent auditor was randomly assigned to review 25% of the records (i.e., nine) to assist in determining reliability.

The study was approved by the appropriate institutional review board, and a federal certificate of confidentiality was obtained prior to initiating the study to assist in protecting undesired disclosure of study-related information. No adverse events were determined to be due to the study.

Table 1. Interrater Reliability of QA Implementation.

Error Type	Intraclass Correlation Coefficient
Illegible writing	.25
Missing date	.54
Missing information	.99
Missing client signature	1.0
Missing clinic signature	.89
Missing time	1.0
Missing form	.94
Overall	.80

Note. QA = quality assurance.

Results

Interrater Reliability of Audits

To determine interrater reliability for study audits, intraclass correlation coefficients were computed between the four primary auditors and the independent auditor for each of the seven error categories in case records. Table 1 shows the resulting coefficients for the seven error categories, as well as the overall intraclass correlation coefficient, which was 80%. The coefficients indicated that interrater reliabilities for the various audits of errors were generally good to excellent, with the exception of illegible writing and missing dates, both of which were found to have poor reliability.

Examination of Errors in Records With and Without QA

The ranges, means, and standard deviations of errors found in records that did, and did not, receive QA are presented in Table 2. Pearson correlation coefficients were computed between type of errors and errors across forms to examine collinearity. None of the study variables were found to be multicollinear. The frequency of forms within each record was not significantly related to total errors ($p > .05$). Therefore, to assist in answering the primary research question (i.e., did clinical records receiving ongoing QA audits evidence fewer documentation errors than those records not receiving QA audits), an analysis of variance (ANOVA) was conducted to compare total number of errors in QA and non-QA records. Results revealed a statistically significant difference in total number of errors between QA ($M = 29.55$, $SD = 10.04$) and non-QA records ($M = 53.55$, $SD = 40.81$); $F(1, 33) = 5.237$, $p = .029$. Thus, non-QA records evidenced significantly more errors relative to QA records. Chi-square analysis examining potential differences in organization between non-QA and QA records revealed a significant effect, $\chi^2(1, N = 34) = 6.17$, $p = .013$, showing QA records were also more organized than non-QA records. To better understand these results, a multivariate analysis of variance (MANOVA) test was conducted to compare QA and non-QA groups on the different types of errors (see Table 2). Wilks's criterion (Λ) was considered for the omnibus test statistic, and the combined dependent variables resulted in a significant main effect for QA group, $F(7, 26) = 3.811$, $p = .006$, partial $\eta^2 = .506$. Significant multivariate effects were probed utilizing univariate

Table 2. Number of Errors Found in Clinical Case Records That Received and Did Not Receive Ongoing QA.

Type of Errors	Non-QA (n = 18)		QA (n = 16)		F	df	p
	Range	M (SD)	Range	M (SD)			
Missing form	0–4	1.4 (1.2)	0–2	0.5 (0.6)	7.94	1, 32	.004
Illegible writing	0–12	4.9 (4.1)	0–19	8.6 (5.3)	5.23	1, 32	.015
Missing date	0–8	2.4 (2.4)	0–5	0.9 (1.4)	5.39	1, 32	.014
Missing information	2–134	27.8 (36.0)	4–20	10.7 (4.6)	3.56	1, 32	.034
Missing client Sig.	0–0	0 (0)	0–2	0.1 (0.5)	1.13	1, 32	.148
Missing clinician signature	0–5	1.4 (1.7)	0–3	0.8 (0.9)	1.77	1, 32	.096
Missing time	0–3	0.2 (0.7)	0–0	0 (0)	.89	1, 32	.177

Note. QA = quality assurance.

Table 3. Relationship Between Number of QA Audits and Errors.

Variables	Audits
Total errors	-.35*
Error type	
Missing forms	-.45**
Illegible writing	.46**
Missing date	-.34*
Missing information	-.31*
Missing client signature	.26
Missing clinical signature	-.18
Missing time	-.16

Note: N = 34. QA = quality assurance. N = 34 for all other variables not indicated.

*Correlation is significant at the .05 level. **Correlation is significant at the .01 level.

ANOVAs for each dependent variable. For missing forms, there was a significant main effect, $F(1, 32) = 7.942, p = .004$, partial $\eta^2 = .199$, indicating there were more missing forms within non-QA records as compared with QA records. Examination of missing dates also revealed a significant main effect, $F(1, 32) = 5.385, p = .013$, partial $\eta^2 = .144$, showing more missing dates within non-QA records relative to QA records. Missing information also resulted in a significant main effect, $F(1, 32) = 3.56, p = .034$, showing that non-QA records had more missing information than QA records. Another significant main effect was found for illegible writing, $F(1, 32) = 5.225, p = .015$, partial $\eta^2 = .140$, showing there were more cases of illegible writing in QA records as compared to non-QA records. No other comparisons between QA and non-QA were found in regard to the type of errors (all $ps > .05$).

Relationship Between Frequency of QA Audits and Frequency of Errors

Pearson correlation coefficients were computed between the frequency of QA audits and the frequency of each type of error assessed (see Table 3). It was expected that there would be statistically significant negative linear relationships found between these variables, which would suggest QA audits were associated with documentation accuracy in clinical records. Results indicated that as QA audits increased, the number of missing forms,

missing information, and missing dates decreased. There was a statistically significant positive linear relationship between QA audits and illegible writing, indicating that as the frequency of QA audits increase, the frequency of illegible writing also increases. No other types of errors were significant (all $ps > .05$), although there were trends indicating the frequency of QA audits were associated with decreased error types.

Discussion and Applications to Practice

In this study, we examined, for the first time, a comprehensive standardized QA program targeting the reduction of errors commonly found in maintaining mental health case records. It was hypothesized that implementation of this QA program within the context of research-supported mental health clinic would lead to significantly fewer errors in professional records and that the frequency of QA audits would be negatively associated with errors. Overall, auditors administered the QA program with acceptable interrater reliability, although interrater reliability was poor in the examination of illegible writing (which may be irrelevant to behavioral treatment programs that utilize computer-assisted case record technologies) and missing dates. Of clinical importance, professional records that received ongoing QA were more organized and evidenced significantly less errors, particularly in regard to missing dates, missing information, and missing forms, as compared with records that did not receive QA. This is central to client professional record-keeping practices, as errors and disorganization lead to inefficiency, problems confirming required forms, interpretation of incorrect information, and obstruction in the transfer of records. Moreover, accurate dates assist in establishing a timeline of events (e.g., treatment planning and progress reviews) and inclusion of requisite forms assist in preventing problems due to a lack of care continuity, such as breaches in confidentiality.

Contrary to expectations of the investigators, QA records were found to have significantly more occurrences of illegible writing and missing forms than records that did not receive QA. In retrospect, we believe writing became more illegible with increased QA implementation because treatment providers spent relatively more time attempting to manage their records during QA and may have felt rushed correcting errors for which

they were responsible. Of course, illegible writing hinders professional correspondence among service providers and has been found to influence malpractice claims (Sokol & Hettige, 2006). Therefore, a method of objectifying the evaluation of handwriting (and perhaps incentivizing providers in writing neatly) in the examined QA program is warranted. As use of electronic records becomes more prominent, monitoring of handwriting could easily be removed from this QA procedure. However, it is suspected that many practice settings will continue to utilize written records.

Relevant to practice implementation, as the frequency of ongoing audits increased the total number of errors decreased, suggesting ongoing QA monitoring influenced accuracy in record keeping. Indeed, specific feedback regarding the type of error and its location within the record is written into the QACCR and left in the record to facilitate awareness and opportunities to practice error correction. Regarding feasibility of the examined QA program, its primary cost was specific to the amount of time dedicated to QA audits, which in this study usually involved 5 to 10 minutes per audit per month. This expense must be considered in contrast to risks associated with unmonitored professional records, as reviewed earlier. To further assist QA adoption and enhance feasibility, we recommend professional colleagues encourage and train others to monitor their own records utilizing standardized QA forms (see Bowie, Sweeney, & Beattie, 2004), such as the QACCR. It is important to point out that the providers were not coerced into correcting their errors or compelled to participate in the QA procedure.

Thus, it is likely these factors did not compromise validity of the study findings. Indeed, the only consequence treatment providers received for having demonstrated errors in their records was the provision of feedback (i.e., through the QACCR form that indicated which errors had occurred). Therefore, the examined QA procedure is likely to be acceptable to community providers within child welfare, contributing QA procedure's transportability.

In conclusion, results of this pilot study support continued evaluation of the implementation of a standardized QA program for professional case record keeping within the context of research-supported treatment provision in larger samples. The examined QA procedure utilizes standardized forms that are easily adapted across community mental health care agencies and hospitals. Therefore, independent research groups are encouraged to evaluate the examined QA procedure in various populations that receive mental health care within treatment centers that necessitate high record-keeping standards. Although there did not appear to be systemic changes in clinic policy throughout this study that may have resulted in decreased record-keeping errors beyond QA, it is important to emphasize that the current study did not involve controlled methodology (random assignment of participants to experimental conditions; i.e., QA or non-QA). Therefore, although the current study results are promising, future controlled trials are warranted in the empirical development of QA record-keeping systems in general and the examined QA procedure in particular.

Appendix

Quality Assurance Case Record Review

Quality Assurance Client Chart Review									
<i>Please Place This Form in the Completed Quality Assurance Forms File in Cabinet # 8, Drawer 1 After making All Necessary Corrections</i>									
Reviewed by: _____					Client ID #: _____				
Review Date: _____					Due Date: _____				
	Form Is Missing	Writing Is Sloppy	Date Not Recorded	Time Not Recorded	Supervisor Signature Missing	Clinician Signature Missing	Client Signature Missing	All Relevant Information Not Completed	Client ID missing
Table of Contents		NA	NA	NA	NA	NA	NA	NA	
Log of Contacts					NA		NA		
Informed Consent		NA		NA	NA	NA			
Phone/Meal Contract		NA	NA	NA	NA			NA	NA
Client Contact Sheet				NA	NA	NA			NA

	Form Is Missing	Writing Is Sloppy	Date Not Recorded	Time Not Recorded	Supervisor Signature Missing	Clinician Signature Missing	Client Signature Missing	All Relevant Information Not Completed	Client ID missing
Treatment Referral Form				NA	NA	NA	NA		
Phone Prescreen Form			NA	NA	NA	NA			
Demographics Form			NA	NA	NA	NA	NA		
Authorization to Release				NA					
Authorization for Release				NA					
Monthly Client Progress Report/ MCWC Progress Notes					NA		NA		
Treatment Plan				NA	NA	NA	NA		
Status of Referral Form			NA		NA	NA	NA		
Consent/Assent Forms				NA		NA			NA
Standard Tx Session Progress Notes					NA		NA		
Progress Notes Continuation Page					NA		NA		
Enlistment Standard Progress Notes					NA		NA		
Assesment Progress Notes				NA	NA	NA	NA		
Treatment Assessment Summary		NA	NA	NA	NA	NA	NA		
Outside Session Progress Notes					NA		NA		
Receipts For Incentives		NA		NA	NA				
Termination Report ^a				NA			NA		
LSS		NA		NA	NA	NA	NA		
PSCS		NA		NA	NA	NA	NA		

- | | | |
|--|-------------|----------|
| 1. Are all the forms in the correct order? | Yes _____ | No _____ |
| 2. Do the log of contacts and standard tx. session progress notes match? | Yes _____ | No _____ |
| 3. Do the log of contacts and Outside Session Progress notes match? | Yes _____ | No _____ |
| 4. Does the Monthly Client Progress Report include a cover sheet and fax confirmation sheet? | Yes _____ | No _____ |
| 5. Does MCPR have note in Outside Session Progress notes? | Yes _____ | No _____ |
| 6. Do meal receipts match the number of meals administered? | Yes _____ | No _____ |
| Signature of Therapist: _____ | Date: _____ | |

Note. MCWC = Monthly Caseworker Call; LSS = Life Satisfaction Scale; PSCS = Parent Satisfaction with Child Scale; MCPR = Monthly Client Progress Report.
 *Termination report to be completed at the end of treatment or otherwise noted by therapist.

Authors' Note

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