Assessing the potential for qualitative data mining in practice-based child welfare research

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Abstract

The multifaceted, dynamic nature of child welfare interventions and the demand for evidence-informed practice calls for an array of practice-based research tools. This analysis examines the use of qualitative data mining related to narrative case record data to conduct practice-based research in child welfare. It includes a structured literature review, and case study results examining 1) qualitative data mining experiences in child welfare agencies and 2) the utility of case records as data sources. It concludes with a discussion of challenges posed by qualitative data mining and the potentials for its use in practice-based research in child welfare settings.

Keywords: qualitative data mining, practice-based research, child welfare, case records

The integration of research into social work practice contexts has a long history, driven in recent years by mandates for agency accountability and evidence-informed practice (Epstein, 2010; Testa, 2010). The emphasis on evidence-informed practice requires innovative strategies for integrating research into child welfare and other practice settings. One strategy involves data mining, or the use of available agency data created by social workers to document various aspects of practice (Epstein, 2010). Agency data collected in public child welfare agencies include case records that document demographic and legal information, service delivery events and client contacts, as well as narrative reports created by service providers to describe social problems, service recipients, and social policies (Tice, 1998). Documentation in public child welfare agencies has become more systematized over the past thirty years with increased attention to federal performance indicators (Whitaker, 2008). Advances have been made in the organization and utilization of these data through the use of structured decision-making tools and electronic records systems. Federal and State reporting requirements have encouraged the development of rigorous quantitative data-mining methodologies and promoted empirical and scholarly work that makes good use of quantitative administrative data (Courtney, Needell & Wulczyn, 2004). In addition, state and county child welfare agencies have built relationships with external evaluators to utilize these data to inform practice (Lunt & Fouche, 2009; Hatton, Parry, McDowell, Brooks & Hafer, 2010; Reilly et al., 2011).

However, despite these advances in child welfare agency data utilization, most efforts have focused on quantitative data with minimal attention given to the qualitative data contained in case records. This has left a gap in our understanding of how qualitative data mining (QDM) could be used to inform practice in child welfare and practice settings. To fill this gap, this analysis explores the use of qualitative case record data as a tool for practice-based research and

evidence-informed practice in child welfare agencies. The paper reviews relevant literature, and presents case study findings to examine uses of child welfare case record data for QDM. The study concludes with a discussion of the strengths and limitations of QDM in child welfare along with recommendations for future data-mining processes.

Literature Review

Case record data have been used by healthcare researchers to examine service outcomes (Dennis, 1993), symptom prevalence and epidemiology (Jansen, Van Aalst-Cohen, Hutten, Büller, Kastelein & Prins., 2005; Neville, Bryce, Robertson, Crombile & Clark, 1992), assessment methods (Niles & McCrady, 1991), and adverse events (Woloshynowych, Neale & Vincent, 2003). In addition, the use of case record data has roots in social science and historical research (Floersch, 2000; Prior, 2003), program evaluation (Christie, 2007; Christie & Fleischer, 2010), psychology (Christian, Norris, Anderson & Blew, 1984), and social welfare (Coohey, 2003; Epstein, 2002; Epstein, 2010; Reilly, McKelvey-Walsh, Freundlich & Brenner, 2010; Schoech, Quinn & Rycraft, 2000; Whitacker, 2008). In these arenas, researchers have used case data to examine service delivery systems (Castellani & Castellani, 2003; Coohey, 2003; Fakunmoju, 2009a, 2009b; O'Brien, 2007; Reilly et al., 2011; Sherwood, Lyburn, Brown & Ryder, 2001; Trickett, Mennen, Kim & Sang, 2009; Wetterneck, Walker, Blosky, Cartmill, Hoonakker, Johnson, Norfolk & Carayon, 2011), how systems achieve or fail to achieve desired outcomes (Center for the Study of Social Policy, 2009; Neville et al., 1992), stakeholders and their experiences (McKeganey, 1983; Nath, Hirschman, Lewis & Strumpf, 2008; Prior, 1994; Teaster, 2002; Wade, 2004), and other social issues (Avery, Hutchinson & Whitaker, 2002; Gordon & O'Keefe, 1984; Pithers, Beal, Armstrong & Petty, 1989).

Strengths and limitations of qualitative case record data

Despite this growing body of work, researchers remain divided on the appropriateness of case record data for research and evaluation. Critics suggest that the validity of these data is compromised by poor quality and biased documentation (Balbach, 1999; Bush, 1984; Padgett, 1998; Tice, 1998), and that the scope of information that can be gleaned from these data is limited (Floersch, 2000; Padgett, 1998). Padgett (1998) identifies the disadvantages of using data that are not collected for research purposes (e.g. inaccuracy, unevenness, and incompleteness) and views these data as most appropriate for content analysis and extraction of quantifiable data. Bush (1984) argues that child welfare case records can be viewed as: "written, inter alia, to deny the failure of interventions, to justify the refusal to serve 'bad clients,' and to justify the decision to extend hegemony over 'good' clients" (1984, p. 1). Careless documentation can also lead to inaccuracies or "half truths" that are repeated by future case workers, becoming a lasting part of the case record that can affect the quality of records for years to come (Bush, 1984). When comparing written texts and oral narratives, Floersch (2000, p. 171) argues that analyzing text alone silences important aspects of casework practice and warns that for "those who study social work and social workers, using the text alone… confus[es] the map with the territory, the text with the practice and the practitioner." He notes that "one effect of ignoring the oral narrative is that the personal, the practical and the situated have become invisible, that is, research often reduces situated forms of knowledge to organizational structure, policy, and disciplinary knowledge," suggesting that case notes force the work of social workers into discrete, linear processes that often neglect the complicated and contextual aspects of their work (2000, p. 185).

In contrast, a number of researchers support the use of qualitative analysis of existing data, arguing that they: 1) have the potential to expand knowledge (Greeno & Skeem, 2010,

arguing for secondary analysis of qualitative data collected for research purposes), 2) provide unique information on service delivery and organizational history (Padgett, 1998), 3) present an opportunity for practice-based research (Epstein, 2010), and 4) are a practical data source (Epstein, 2010; Padgett, 1998). While criticizing the quality of case records, Padgett (1998, p. 67) acknowledges that secondary qualitative data are the "least intrusive type of data" and that "documents can provide valuable information on the lives of individuals" and "on the history of an important social agency or institution, or even broad social trends". Tice (1998) suggests that early case records are particularly rich historical documents because they were not constrained by the regimented and theoretical confines of fields such as medicine. Epstein (2010) notes that clinical data-mining is valuable because it draws upon data already collected and is amenable to research from the bottom up.

Some proponents of QDM offer strategies for addressing key concerns. For example, Floersch's (2000) concern that the nuance of service delivery is lost in this data source largely assumes that outsiders, such as sociologists, are conducting the research. However, Epstein (2010) notes that if service providers conduct these analyses, they can supplement gaps in textual data with practice-researcher knowledge. Furthermore, Floersch (2000) fails to consider the possibility of researchers utilizing multiple data sources, such as supplementing records with interview data. As noted by Tice (1998) in her study of professionalization through social work records, it is important to frame appropriate research questions that can be addressed through review of case records. While Bush (1984) remains wary that records will be augmented to comply with agency expectations, he acknowledges that conducting audits and peer reviews, and entering data into computer systems (a technology that has dramatically grown since his 1984 critique) may help improve the quality of documentation.

The ability to improve case record data in this way is supported by others who have demonstrated that documentation quality is susceptible to intervention (Christian et al., 1984). Epstein (2010) asserts that the limitations of these data are overshadowed by the benefits of clinical data mining and identifies measures to address the limitations (e.g., creating data extraction forms, utilizing staff most familiar with the data to conduct extraction, using inter- and intra-rater reliability checks, triangulating data, focusing on illuminating the work of social workers, hiring an external party to do data entry, and involving staff in the research process). Ultimately, the strengths and potential contributions of these data, as well as strategies for ameliorating the limitations, are demonstrated by researchers in health and social welfare who have pursued qualitative analyses of case record data.

Examples of QDM

The literature review identified 17 empirical studies utilizing QDM methods, summarized in Table 1 (see Note 1 for description of search methodology).

Insert Table 1 about here

Of these, 16 were published in peer-reviewed journals, and one was published as part of a chapter in a clinical textbook (See Note 2). Studies were primarily located within the fields of health and social welfare, with a substantial number representing the fields of child welfare and health. The research questions varied from descriptive (e.g. What are the preferences for end of life care for elderly, African American patients? (Nath et al., 2008)) to explanatory (e.g. What are the family characteristics predictive of reunification and the interventions that social workers use to support this process? (Cordero, 2004)).

The aims of the 17 studies can be classified in terms of processes, people, and problems. Processes related to program or professional functions and service outcomes were most common (Cordero, 2004; Dennis, 1993; Fakunmoju, 2009a, 2009b; Knox, 1996; O'Brien, 2007; O'Callaghan, 2005; Pockett, Walker & Dave, 2010; Sherwood et al., 2001; Wetterneck et al., 2011). The people classification included studies examining groups of stakeholders (e.g. those with cognitive limitations) (Cordero, 2004; Dennis, 1993; Nath et al., 2008; Pithers et al., 1989; Teaster, 2002), while the social problems classification included incest (Gordon & O'Keefe, 1984), neglect (Coohey, 2003), and emotional abuse (Trickett et al., 2009). These categories are not mutually exclusive and some studies reflect multiple aims (e.g. Cordero, 2004).

The studies utilized a range of research designs and methods, reflecting variations in sampling strategies, data sources, and analytical methods. Samples ranged in size from five to 602; the majority had samples of less than 50. Large samples were used to understand phenomena or develop taxonomies and small samples were used in narrative or thematic analysis. Most studies used non-probability methods for sampling and tended to use purposive techniques based on case characteristics or time. While the unit of analysis was typically the case, some studies used events as the unit of analysis. The most common data sources were medical patient records, child welfare case records, and court reports. A significant number of studies utilized multiple data sources (e.g. interviews, surveys, and program documents).

The studies used a variety of qualitative analytic methods, including content analysis (Fakunmoju, 2009a, 2009b; Knox, 1996; Nath et al., 2008; Pockett et al., 2010; Wetterneck et al., 2011), thematic analysis (O'Brien, 2007), pattern analysis (Teaster, 2002), and grounded theory (O'Callaghan, 2005). However, reviewers often found it challenging to identify the analytic methods used in the sample of studies due to a lack of reported details, especially studies

that utilized content analysis (Pockett et al., 2010). Another challenge was the difficulty in identifying the discrete qualitative component of mixed qualitative and quantitative studies (e.g. Knox, 1996; O'Brien, 2007; Pockett et al., 2010). Additional analytic strategies included inductive and deductive coding (Dennis, 1993; Fakunmoju, 2009a, 2009b; O'Callaghan, 2005; Pockett et al., 2010; Teaster, 2002; Trickett et al., 2009), and data triangulation (Nath et al., 2008; Teaster, 2002). Qualitative data analysis software and data extraction tools were used to improve data organization and reduce the labor intensive nature of qualitative analysis (Dennis, 1993; O'Callaghan, 2005).

The majority of study results contributed to an increased understanding of program operations and/or service outcomes (Cordero, 2004; O'Brien, 2007; Wetterneck et al., 2011) and sought to translate study results into practice (Coohey, 2003; Fakunmoju, 2009a, 2009b). The studies on stakeholder perspectives combined interview data with case record data to create a more complete understanding of the experience and perspectives of the individuals served (Nath et al., 2008; Teaster, 2002).

Unique strengths and limitations of QDM studies. The most common and significant strengths of qualitative administrative data exhibited in these studies include: 1) data availability, 2) real world relevance derived from an "in vivo" view of service delivery, 3) utility for exploratory analyses of processes, people, and problems, 4) information related to multiple stakeholders and/or sensitive topics with little burden to stakeholders, 5) improved documentation quality as a result of analyses, and 6) perspective on interactions between complex service recipients, providers, time and systems (Coohey, 2003; Cordero, 2004; Dennis, 1993; Fakunmoju, 2009a, 2009b; Gordon & O'Keefe, 1984; Nath et al., 2008; Pockett et al.,

2010; Teaster, 2002; Trickett et al., 2009). These strengths support the view that QDM facilitates a unique understanding of the nuanced and multifaceted work of social workers.

In contrast, limitations noted in these studies include: 1) lack of breadth in qualitative methods utilized (most were confined to thematic or content analysis), 2) problematic sampling criteria (e.g. convenience sampling), 3) deductive coding systems lacking theoretical or empirical grounding, 4) inappropriate use of unblinded coders, 5) lack of generalizability of findings, 5) limited ability to make cause-effect assertions, 6) variability in documentation quality, 7) inability to capture the full breadth of an intervention, 8) dominance of staff and agency perspectives, 9) lack of access to information regarding individuals unconnected to service systems, and 10) intensiveness of time and labor related to researcher training and analytic procedures. In addition, these studies do not adequately describe the specific approach to research (i.e. QDM) or fully explicate methods used to analyze data. Given this lack of methodological specification, it made it difficult to locate these studies in existing databases.

In sum, as with any research method or data source, QDM presents both strengths and limitations. The strategies for addressing the limitations hold considerable promise that can benefit applied researchers and service providers alike. Yet, while the scholarly literature on QDM has implications for the future of practice-based research, these publications reflect little on current data-mining practices in human service organizations.

Approach and Methods

To further explore data-mining among practice-based researchers in public child welfare agencies and the research potential for QDM in such settings, a two phase set of case studies were carried out. Case study methods were based on the approaches of Stake (2006) and Yin (2003); appropriate for answering "how" and "why" questions, case studies are particularly

relevant to organizational phenomena in real-life contexts, where multiple data sources are available and necessary to understand the phenomena of interest (Yin, 2003). Case studies cañ be both descriptive and explanatory in nature, and can be used to directly inform practice.

Phase 1 aimed to describe the array of data mining strategies currently employed by child welfare agencies, perceived barriers to and facilitators of QDM, and QDM acceptability to service providers. Four public child welfare agencies in [location deleted to maintain integrity of review process] were purposefully identified and invited to participate in the investigation. These cases were selected based on previously existing relationships between the researchers and agency staff that would facilitate the trust necessary to share agency documents and speak openly about existing agency research practices. Data sources included key informant interviews (program management and evaluation staff) and archival documents (evaluation reports, data collection tools, and case records). A team of graduate student researchers conducted interviews and data analysis under the supervision of the first author in order to develop individual agency case studies. The first author then carried out a cross case analysis using a manual, pattern coding approach to identify common themes and unique features across the four cases (Saldaña, 2010). The cross case analysis was shared with child welfare directors from the participating agencies for validation and further interpretation.

Phase 2 sought to assess the strengths and weaknesses of secondary qualitative data found in child welfare case records. One large, urban public child welfare agency with a dedicated research team of evaluators was purposefully selected as an optimal study site. The agency possesses the administrative and physical infrastructure necessary to support QDM, and a research staff who have conducted internal case record reviews, enabling them to provide valuable consultation in support of the investigation.

Two researchers independently examined case records in [name deleted to maintain integrity of review process], a comprehensive statewide case management and reporting system used to document child welfare cases. Data included text from nine case records. These nine case records were selected purposefully to increase variation based on: 1) representation of different types of child welfare services (i.e. Family Reunification, Family Maintenance, and Adoption), 2) case status (open), and 3) demographic information (gender, age, race and ethnicity). Reviewers spent two to three hours mapping the location of narrative data and assessing each case based on the following domains of interest: clarity (i.e., external reviewer can understand phenomena being described, limited use of jargon and acronyms), completeness (i.e., key participants and events are described, no significant gaps in record content or history), and lack of bias (e.g., language used to characterize clients does not reflect overt sociocultural or individual bias, evidence in record is substantiated by content from other authors or forms of documentation). Researchers developed a brief case record review instrument to document findings.

Results

Phase 1: Data Mining in Practice

The cross-case analysis of data-mining practices in four public child welfare agencies identified common themes in four areas: factors promoting data mining; data mining aims and impacts; staff participation; and QDM capacity.

Agencies responded to multiple internal and external pressures and opportunities in developing data-mining processes, including grants, federal performance measures, community concerns, accreditation requirements, and staff capacity and interest. For example, one agency embarked on a multi-phase initiative using data-mining to understand racial disproportionality in

their caseload in response to community concerns. In another county, an external commission called for independent review of organizational functioning of the child welfare agency. In response, the agency elected to undergo an accreditation process, in which they were required to establish a Quality Improvement program that included a peer record review process. The evolution of data-mining practices was further shaped by leadership, organizational values, contextual factors, and serendipity. In one agency, a part-time contract evaluator hired under a specific grant evolved into a full-time member of the senior administrative team as senior leadership sought to promote stronger use of agency data.

Agencies sought to address a wide range of evidence needs through data-mining, including measuring child welfare outcomes, tracking compliance and quality improvement, and examining specific issues such as racial disproportionality. Although the four agencies experienced challenges translating data-mining evidence into organizational changes, all agencies identified some impact on practice and policy. In several agencies, it was noted that supervisors play a critical leadership role in fostering staff acceptance of data mining findings and implementing any proposed practice changes. In another agency, progress was being made at generating changes at the individual practice level; however, the case record review process had not yet been used to develop or to track agency wide practice reforms.

Staff participation in data-mining activities (e.g. question generation, data collection, extraction, validation, analysis and interpretation) promoted positive attitudes toward data-informed practice and strengthened quality of data and data analysis. Agencies instituted a number of promising strategies aimed at engaging staff in data-mining, including enabling individual staff and staff teams to pose questions to be addressed in the Systems Improvement Plan process. Agency research and evaluation staff worked to make data accessible by: 1)

creating usable data collection tools; 2) providing narrative summaries in addition to displays of numeric data; and 3) engaging in one on one "data talk" with staff.

While quantitative data-mining analyses were typically sophisticated and rigorous, methods for qualitative data analyses were less well developed. Two agencies developed structured instruments to extract and summarize textual data for quality improvement purposes; however other tools for qualitative analysis (e.g., systematic coding, conceptually ordered matrices, automated text analysis) were not used. The primary analytical approach involved staff discussions ranging from informal conversations to more formally structured processes.

Phase 2: Assessment of case records

The mapping of narrative data in the nine case records reviewed at one child welfare agency revealed that qualitative data were located primarily in court reports, case plans, and service logs. Client Service Case Notes (service logs) provide a record of interventions provided by case workers, predominantly interventions that involve direct client contact. Court documents provide a range of information in a single report, often including an organized summary of the case and key events (e.g. services, visitation, parental compliance with mandates, extent of parental progress, and recommendations). The Jurisdiction Report contains particularly rich data regarding the initial incident of abuse and the perspectives of each family member. The Case Plan outlines client needs to be prioritized and steps to address and minimize risks for the child.

Assessments in the domains of clarity, completeness, and evidence of bias indicated five strengths and five limitations for using case records as QDM sources. With respect to strengths, case notes and court reports provide enough detail to give a general understanding of each case, including the characteristics of the child and caregivers, past and current familial and personal experiences, and a detailed timeline of services provided, client contacts, contact with others,

placements, and progress made in working with the parents. Second, the data depict the everyday work of child welfare workers representing the perspective of workers and how they interact with children and families. Third, the level of detail contained within records is sufficient for thematic coding and narrative or chronological analysis. Fourth, the data were amenable to triangulation and could be made more complete by drawing from other sections of the case record (e.g. summary narrative from court reports could be supplemented with detail from chronological service logs). Finally, with respect to the aforementioned case record components containing narrative data, researchers found no significant gaps in information.

Results also indicated five limitations. First, all information contained within narrative data is interpretive and shaped by domains of interest predefined by the state and workers; such records first and foremost reflect the child welfare worker's perspective within the parameters of state-required documentation. At times, the case records contained social workers' reports of the perspectives of stakeholders involved in the case, raising the concern that researchers might not account for the interpretive nature of such reports. As case workers are not required to document content such as familial feedback on system-involvement, or barriers to service plan compliance, notation of these perspectives varies according to the style and intentions of the documenting social worker. In some instances, notes contained overtly subjective or value-based assessments.

Second, some portions of the record are more meaningful and reliable than others. For example, service logs can be complicated and difficult to follow when new people appear or disappear in the trajectory of cases. When there are multiple child welfare workers working on a case over time, service logs and court reports can vary substantially in their content, structure, and level of detail. In addition, court reports contain less detail than service notes and reflect an additional level of interpretation as they are summary documents based on abstracted service

notes. Third, because multiple workers and interventions may be involved in a case, it is difficult to determine how the services provided or individual worker may have affected case outcomes. Fourth, records can be edited after they are entered, which may increase or decrease validity depending on the motivation for editing. There is a risk, for example, that caseworkers could modify notes to align with service delivery expectations. Absent a method of checking notes for augmentation, efforts to minimize this source of bias are limited. Finally, while some cases are appropriate for QDM, other cases are missing data or are difficult to follow given their complexity (e.g. multiple entrances and exits of the client into the system).

The pilot review suggests that case records are a unique lens offering an in depth and in vivo perspective on service delivery and system involvement. They are meaningful sources of data on children, youth, and their families, caseworker interventions, involvement with other social service systems, and a child's trajectory through the child welfare system. Given the breadth of documentation contained within the records, the various elements of a record provide an opportunity to increase validity by triangulating data between different sections of a record. However, there are limitations, especially for researchers seeking to capture the perspectives of individuals other than the caseworker, or those seeking to measure outcomes. While case records provide information on the trajectory through which a family enters and, in some cases, exits the child welfare system, they are shaped by the perspectives of case workers and state-defined categories of interest. In addition, given the lack of systematization of written notes and the different writing styles of multiple caseworkers involved with the same case, the data extraction and coding process is time-intensive. In weighing the strengths and limitations of the records reviewed, and considering the quantity of data available in these records, this pilot review supports the argument that qualitative case record data can be an appropriate data source,

with the caveat that appropriateness of these data are dependent on the research question of interest.

Discussion

Prior (2003) reminds us that written documents are a form of technology enabling us to return to information in order to analyze, re-interpret and expand our knowledge, providing a foundation for evidence-informed practice. This analysis of QDM as a practice-based research strategy is based on a review of the research literature, case studies of data-mining in practice and assessment of case records as a data source. The analysis identified the major strengths of QDM, including: 1) rich, relatively comprehensive, and easily accessed data source, 2) unique perspective on service delivery through documents recorded in vivo, 3) utility for thematic and exploratory analyses, 4) opportunity for strengthening analysis through data and researcher triangulation, and 5) perceived value of QDM in practice-based research by service providers and their related motivation to improve documentation and service delivery.

Aligning with and adding to the concerns presented by Tice (2000), Floersch (1998), and Padgett (1998), the major limitations of qualitative case record data-mining include: 1) limited to case worker perspective and state-defined categories of interest, that may reflect individual biases and institutional influence; 2) varied documentation content and quality; 3) time and labor intensive; 4) vulnerable to post-documentation augmentation; and, 5) potential for systematic gaps in data. In addition, agencies lack expertise and infrastructure for conducting QDM. While these limitations should be considered when deciding whether to engage in QDM, it is also important to acknowledge that the data recorded and analyzed by researchers are not immune to many of these challenges. Thus, simply discrediting QDM is unnecessary; instead, to promote evidence-informed practice. Practice-based researchers are called upon to recognize these

limitations, address limitations when possible, and choose appropriate research questions. Suggested strategies for improving validity in QDM of case record data are summarized in Figure 1.

Insert Figure 1 about here

Social workers can contribute to the science of social work through QDM. When adequate training and time are allocated for documentation, their notes provide invaluable perspectives on their roles providing services to address complex social problems. These data can bring to life the otherwise lifeless check boxes and drop-down menus that characterize automated data systems. Putting this case data to use not only honors the time social workers spend documenting, but can improve documentation quality and increase our understanding of the important and difficult work in which they are engaged.

Notes

1   This review was conducted in July through October of 2011 by searching multiple online social science resources, including: 1) Social Service Abstracts, Family and Society Studies World Wide, CSA Illumina: Social Sciences Subject Area, JSTOR, and the Web of Science: Social Science Citation Index), 2) selected journals (*American Journal of Evaluation*, *Qualitative Health Research*, *Journal of the American Medical Informatics Association, Journal of Medical Sociology,* and *Sociology of Health and Illness*), 3) federal government websites (Administration for Children and Families and the Children's Bureau), and 4) general internet searches (Google). Search terms included "qualitative case record review," "case record review," "'data-mining' or 'record review' and 'qualitative,'" "case notes," and "case records." These searches generated a limited number of relevant citations, and many of the articles included in this review were identified from article references and through personal correspondence with child welfare and methods experts (personal communication R. Barth, August 24, 2011; M. Courtney, August 25, 2011; I. Epstein, August 16, 2012; and T. Lindhorst, July 23, 2013). Finally, research methods textbooks specializing in qualitative methods or in narrative analysis were reviewed for chapters or sections on qualitative analysis of archival documents.

    Two types of literature were included; namely, methodological literature discussing QDM and articles describing studies that applied a qualitative approach to the analysis of case record data. Large-scale historical studies utilizing case records as archival data sources were omitted from the second of these two categories (e.g. Tice, 1998; Wagner, 2007), as their goals and methods were more appropriate for scholarly investigation than practice-based research. Mixed methods studies that used qualitative

methods to analyze other data sources and only applied quantitative analytic methods to case record data were excluded. The lack of labeling of qualitative record review studies made it difficult to conduct a comprehensive review. While this review was extensive, it does not represent a systematic review of all studies utilizing qualitative methods to analyze case records.

2   The Pithers, Beal, Armstrong and Petty (1989) text is the only study that was contained within a larger text. It did not contain the methodological detail of the other studies included, but demonstrates the potential for integrating research directly into practice. In this study social workers are directly encouraged to use coding strategies to inform their practice by identifying risk factors in their clients.

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Table 1. Studies reviewed.

Reference	Field	Purpose	Sample	Methods	Advantages	Disadvantages
Coohey (2003) Defining and classifying supervisory neglect.	Child Welfare	Understand social problem; develop typology	Purposive sample (n=602)	Undefined; deductive coding	In vivo data; integrative of data sources	Variable data quality; cannot ensure all data reliably recorded by caseworkers; limits to generalizability
Cordero (2004) When family reunification works: Data-mining foster care records.	Child Welfare	Understand processes; understand people	Purposive sample (n=18)	Qualitative data-mining	Understand complex phenomena	Subjective view of caseworkers; limits to data reliability; not generalizable; cannot make cause-effect assertions
Dennis (1993) Acquired lymphedema - a chart review of 9 women's responses to intervention.	Health	Understand processes; understand people	Purposive sample (n=9)	Grounded theory-like	Array of data to understand complex phenomena	Case records disorganized; findings not generalizable
Fakunmoju (2009a) Substantiation and adverse appeal outcomes: Content analysis and testing of Drake's Harm/Evidence model.	Child Welfare	Understand processes	Sample of cases over a specific time period (n=221)	Mixed methods; content analysis	Facilitated understanding of a poorly understood phenomenon and development of tool to address problem	Not generalizable; unvalidated coding scheme; missing data for protection of confidentiality; data lacking sufficient detail to code
Fakunmoju (2009b) Contested cases of physical abuse: Evidentiary characteristics of modified and overturned outcomes.	**Child Welfare**	**Understand processes**	**Sample of cases over a specific time period (n=104)**	**Mixed methods; content analysis**	**Facilitated understanding of poorly understood phenomenon and development of tool to address problem**	**Abstraction and coding errors due to nature of legal data**

Gordon & O'Keefe (1984) **Incest as a form of family violence: Evidence from historical case records.**	Child Welfare	Understand social problem	Sub-sample of random sample of 1534 case records, 50 met criteria (n=50)	Qualitative; content analysis-like	Able to understand sensitive topic via information collected for administrative purposes	Only describes cases that come to the attention of service providers; threat to generalizability; potential bias in documentation by agency site; unable to understand trends due to small sample
Knox (1996) **Homebased services for Southeast Asian refugee children: A process and formative evaluation.**	Social Welfare	Understand processes	Sample of program participants (n=42)	Quantitative; qualitative- content analysis	Facilitated understanding of real world program	Not generalizable; activities quantified in content analysis may not capture full intervention
Nath et al. (2008) **A place called LIFE: Exploring the advance care planning of African-American PACE enrollees.**	Social Welfare	Understand people	Convenience sampling (n=18)	Abstraction of medical record data to triangulate participant interview responses	Implications for practice; captured participant perspectives	Not generalizable
O'Callaghan (2005) **QDM through reflexive journal analysis: Implications for music therapy practice development.**	Mental Health	Understand processes	A sample of notes limited by time; single author	Reflexive journal analysis	Directly informed practice	Limited sample
O'Brien (2007) **Achieving a successful and sustainable return to the workforce after ABI: A client-centred approach.**	Health	Understand processes	Purposive sample (n=27)	Content analysis; thematic analysis	Informed service delivery	Cannot establish causal relationship between interventions and outcome

Pithers et al. (1989) Identification of risk factors through clinical interviewing and analysis of records.	Social Work	Understand people	Unclear	Unclear	Demonstrated case worker ability to code data	Time consuming; unclear
Pockett et al. (2010) "Last Orders": Dying in a hospital setting	Social Welfare/ Health	Understand processes; understand people	Random sample meeting study criteria (n=310)	Content analysis	Elucidated deficits in record system and variation in documentation of patient death; illustrated narratives of death and dying	Auditing had emotional impact on social workers
Sherwood et al. (2001) How are abnormal results for liver function tests dealt with in primary care? Audit of yield and impact.	Health	Understand processes	Cohort (n=933)	Unclear	Facilitated deeper understanding of treatment patterns	Unclear methods for coding doctor's notes
Teaster (2002) The wards of public guardians: Voices of the unbefriended.	Social Welfare	Understand people	Purposive sample (n=19)	Pattern analysis	Data triangulation facilitated inclusion of difficult to capture voices	Potential participant bias due to participation criteria; variability in data quality
Trickett et al. (2009) Emotional abuse in a sample of multiply maltreated, urban young adolescents: Issues of definition and identification.	Child Welfare	Understand social problem; develop typology	Cases meeting study criteria (n= 303)	Quantitative; qualitative	Informed development of improved coding tool for emotional abuse, which may better target services	Laborious process
Wetterneck et al. (2011). Factors contributing to an increase in duplicate medication order errors after CPOE implementation.	Health	Understand processes	Purposive sample (n=215)	Mixed methods; content analysis	Facilitated understanding of complex process	Unexaminable factors may have impacted outcome

Figure 1. Strategies for improving validity in qualitative analysis of case record data.

- **Use QDM when appropriate.**
  Frame research questions that: 1) relate to service delivery or the perspective of practitioners, 2) are thematic or exploratory and less vulnerable to missing data, or 3) address complex interactions between service recipients, their circumstances, service providers, and programs.
- **Examine the quality of the data available.**
  Identify and address potential threats to validity at study outset, ensure that data are sufficiently rich to answer the research question, and examine variability in documentation to assess the impact of time limitations, service mandates, and documenter's perspective and style.
- **Utilize triangulation.**
  Use triangulation among data sources to validate findings, triangulation among researchers to reduce researcher bias, and theoretical triangulation to derive meaning and promote accurate interpretation.
- **Accurately estimate time and resource requirements.**
  Allocate sufficient time for data extraction, coding, triangulation, theory building, and summation to increase accuracy and promote rigor.
- **Develop tools to improve documentation and aid analysis.**
  Create templates and establish clear expectations for documentation to increase reliability of case record data. Use data extraction tools and qualitative data analysis software to increase inter- and intra-rater reliability and streamline reliability checks.
- **Consider the strengths and weaknesses of stakeholder analysts.**
  Include practitioners in analytic processes to promote cross-caseworker learning, improve documentation, and increase the perceived value of research, while taking into account the need to ensure client and caseworker confidentiality, and address service provider concerns about being evaluated.
- **Develop a research infrastructure for QDM.**
  Explicate and disseminate methods, including labeling work as "QDM," and encouraging funders to incorporate qualitative data into reporting requirements.