Case Management Caseload Concept Paper: Proceedings of the Caseload Work Group

Case Management Society of America
National Association of Social Workers

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Table of Contents

Summary

Two nonprofit organizations – the Case Management Association of America (CMSA) and the National Association of Social Workers (NASW) – determined that combining efforts to examine the essential components of appropriately sized caseloads for case managers in health, behavioral health, and workers' compensation settings would be beneficial. Practitioners and researchers from various case management (CM) disciplines were invited to join CMSA and NASW to form the Caseload Work Group (CLWG), bringing together years of frontline and leadership experience. The purpose of the CLWG was to respond to recurring requests from practitioners, supervisory personnel, and policy-makers regarding how to determine appropriate caseload sizes for case managers in health and behavioral health settings. In discussing the construction of a caseload calculator capable of spanning all sectors of CM, or a set of caseload calculators for a limited number of CM practice sectors, the CLWG determined that accomplishing either task would require a multiphase effort. This concept paper represents the culmination of the initial, or Phase I, work and findings of the CLWG. It identifies the purpose, mission, and history of the CLWG; includes synopses of the public comments received in 2007 and 2008 and the literature reviewed by the CLWG members; and offers for consideration the important Phase I product, a Caseload Matrix. The Caseload Matrix is a schematic chart of nonweighted elements sorted into four categories. The CLWG members assessed these elements as likely to influence caseload complexity and size. In addition to presenting the CLWG's Phase I endeavors, research, and recommendations, this concept paper establishes a platform for future research and development of the work to determine appropriate sizes of CM caseloads.

Keywords

caseload, caseload calculator, caseload matrix, caseload size;
case management, case manager;
care management, care manager, care coordination, care coordinator;
complexity, elements, functions, health, behavioral health, workers' compensation, informatics, intensity, interventions, optimization, outcomes, responsibilities, roles, severity, weights, weighted, workload

Caseload Work Group Members[1]

- Joel V. Brill, MD, AGAF, FASGE, FACG, CHCQM, Predictive Health, LLC
- *Garry Carneal, JD, MA, Schooner Healthcare Services, LLC
- Connie Commander, RN, BS, CCM, ABDA, CPUR, Commander's Premier Consulting Corporation
- **Kathy Craig, MS, RN, CCM, Craig Research Continuum, LLC
- Vicki Crowder, RN, CCM, CDDN, Medical Management and Rehabilitation Services
- Mary Ellen Gervais, RN, MS, CCM, InforMed Medical Management Services
- Chris Herman, MSW, LICSW, National Association of Social Workers
- *Cheri Lattimer, RN, BSN, Case Management Society of America
- Mary Beth Newman, RN, MSN, A-CCC, CMAC, WellPoint
- **Marietta Stanton, PhD, RN, C, CNAA, BC, CMAC, CCM, Capstone College of Nursing, University of Alabama

[1] Sponsorship for this effort also was provided in part by Case Management, Inc. (CMI) and Schooner Healthcare Services, LLC.

- Pat Stricker, RN, BSN, MEd, TCS Healthcare Technologies
- Karyn Walsh, MSW, ACSW, LCSW, National Association of Social Workers

* Denotes Caseload Work Group Co-chairs

** Denotes concept paper coeditors

Introduction

For years, case managers from a variety of health and behavioral healthcare settings have complained of inconsistent and inappropriate case management (CM) caseload sizes. Some organizations have designed caseload calculators to help case managers and professional care coordinators determine the sizes of their caseloads; but these calculators have been limited in focus or application. Moreover, rapid changes in the medical management field – such as the integration of utilization management (UM) and disease management (DM) into case management (CM) functions – have made it more difficult to provide equitable benchmarks for caseload determination. Research findings regarding caseload levels, similar to the limited-focus calculators, have been confined to specific clinical areas or applicable to well-defined in-house programs. Despite the research, the complexity of factors across diverse CM settings has prevented the development of a comprehensive model for caseload calculations. Although information technology platforms have the capacity to standardize and automate caseload calculations, a multitude of complex factors must be considered if such computations are to be realistic.

Mission

In this collaborative endeavor, the Case Management Society of America (CMSA) and the National Association of Social Workers (NASW) seek to identify the issues for determining acceptable caseload sizes in a wide variety of CM practice areas.

The mission of the CLWG is threefold:

1. To compile a comprehensive list of elements that can impact potential caseload determinations in complex and diverse CM settings;
2. To organize these identified elements into a schematic matrix useful for preliminary evaluation of factors that impact caseloads; and
3. To enhance professional CM practice, thereby promoting quality care outcomes for clients and patients.

The purpose of the CLWG project is to determine a matrix of elements that can be used to calculate CM caseloads in a wide array of settings. Although the Caseload Matrix presented in this paper is designed for use in health, behavioral health, and workers' compensation settings, the CLWG encourages its adaptation for use in other market segments such as child welfare, immigrant resettlement, and corrections.

In Phase I, the CLWG aimed to identify all factors that could affect caseload calculations, promote quality client and patient care outcomes, and maximize professional CM practice. After the conclusion of Phase I, the CLWG may begin to assess and evaluate the "weighting" of factors identified in Phase I. The goal of weighting would be to derive an appropriate standardized method of mathematically calculating caseloads across all CM settings or across like sectors of CM practice.

History of Work Group

During the fall of 2006, CMSA's Executive Director, Cheri Lattimer, was approached by Garry Carneal, URAC's former President & Chief Executive Officer, about a coordinated effort to develop national standards for caseloads for case managers. Identified concerns

included the knowledge that the increasing complexity and interdisciplinary integration of client-centered interventions have made the establishment and maintenance of CM caseloads a more complicated task. Recently, many healthcare leaders observed that nurses, social workers, and other case managers often were frustrated with the uneven application of cases in their clinical or workplace settings.

With the endorsement of the CMSA Board, Mr. Carneal and Ms. Lattimer were named co-chairs of the joint task force entitled the Caseload Work Group (CLWG). CMSA also invited NASW to join the CLWG in this collaboration. Next, experts were sought to participate in this effort through voluntary membership in the CLWG.

The participants in the CLWG began to meet in early 2007 and discussed how best to identify and standardize the factors that influence the size and complexity of practitioners' caseloads. These practitioners include nursing and social work case managers and other clinical specialists who directly support CM and DM interventions.

The CLWG identified the following deliverables as goals for the CLWG during Phase I:

- **Creation of a Caseload Matrix.** The development of a Caseload Matrix that would identify the key variables that directly or indirectly impact caseloads for professionals in a broad array of settings. [See Appendix I.]
- **Summarizing Key Peer-Reviewed Literature.** The compilation and analysis of peer-reviewed journal articles that would address caseload levels in different settings. A primary goal was to identify the existence of evidence-based methods and best practices for establishing caseloads.
- **Concept Paper Publication.** The publication of a draft concept paper that would present a basic overview of the clinical and nonclinical factors considered pertinent in calculating caseloads. The paper would also address how clinical workflows relate to caseloads and how to begin incorporating these essential elements into caseload calculations. The intended audience for the paper would include providers, health plans, hospitals, social service organizations, government agencies, and other decision-makers.

During the summer and early fall 2007, the CLWG held the first of two public comment periods. A Town Hall meeting also was hosted in conjunction with CMSA's annual 2007 conference to provide an overview of the project and to solicit feedback. Over 120 written comments were received and processed relating to the Caseload Matrix and another dozen comments were received during the Town Hall meeting. In addition to contributing specific observations about the importance and methods of establishing national standards for caseloads which included some additional insights and suggestions on how to improve the Matrix, all feedback received supported the underlying mission, purpose, and goals of the CLWG.

During the summer 2008, the CLWG held a second public comment period which solicited comments on the Caseload Matrix and this Concept Paper. Similarly, a second Town Hall meeting was convened in conjunction with the CMSA 2008 conference to encourage an open dialogue. Several dozen written and verbal comments were received and processed by the CLWG. Similar to the first round of feedback, these comments also supported the CLWG mission and included some helpful suggestions on how to better address caseload issues in a variety of settings.

Caseload Matrix Overview

The Caseload Matrix (see Appendix I) is a schematic chart comprised of four major categories that contain the elements or factors known to affect caseload complexity and size. Changes in one component of the chart affect the function and outcomes in other categories and their respective elements.

The elements contained in each of the four separate categories are derived from several input streams. The input streams include the diverse professional expertise and practical experiences of the members of the CLWG, the articles and peer-reviewed literature listed in the bibliography that describe CM caseloads in various settings, and the insights garnered from the two public comment periods and Town Hall meetings.

The ultimate outcome is the generation of a comprehensive list of factors that affect caseloads in a wide variety of health and behavioral health settings. The methods used to identify standardized factors or elements are discussed during the CLWG meetings. Methods are based largely on two avenues: a content analysis of literature in CM and interviews with clinicians who directly support CM and DM interventions such as nurses, rehabilitation therapists, and social workers.

Caseload Matrix Discussion

Category One: Initial Elements Impacting Caseload

Category one of the Caseload Matrix contains elements that describe the context and situation in which CM takes place. These context elements include the following dimensions: business environment, market segment, regulatory and legal requirements, clinical practice setting, individual case manager factors (such as skill levels), type of medical management services, and technology support.

Without question, the business environment for CM affects caseload. For example, practicing in a public agency versus a private one would impose different influences on caseload complexity and size. Similarly, the caseload in a busy acute care setting dramatically differs from the caseload in a workers' compensation setting.

Regulatory influences have a tremendous impact on CM practice and the number of cases that can be managed effectively. Changes in regulations imposed by the Centers for Medicaid and Medicare, such as "Pay for Performance" and "Patient Centered Medical Homes", can have profound effects on case managers. The clinical practice setting affects patient-to-case manager ratios in pronounced ways. For example, case managers who provide telephonic services usually can accommodate more clients than a case manager in an acute or subacute inpatient setting. The skill level of the case manager is an element for consideration in caseload determinations. Often, an experienced case manager can negotiate difficult situations with greater efficiency, timeliness, or success. Because of the development of a versatile set of skills, experienced case managers can be expected to manage a caseload with more complex cases and higher client acuities.

The type and characteristics of medical management service (MMS) often govern caseload levels for nurse and social worker case managers and case managers from other professional backgrounds. With MMS systems becoming more integrated, it is more common for a case manager to wear multiple hats. This means the case manager could be responsible for UM, DM, or predictive modeling in addition to CM. These additional

responsibilities affect the case manager's ability to provide optimal CM services. Another important consideration is whether CM is a stand-alone model or is integrated with other administrative or MMS activities. Perspectives on financial, personnel, material, and technology resource allocations are integral in caseload determination. No matter what the degree of MMS integration is, technology can provide real tools and assistance to the case manager in helping calculate and track proper caseloads.

These elements in category one provides a comprehensive view of the situational factors that must be considered in the context of caseload calculations across all CM delivery models. Although believed to be relevant to CM in all health, behavioral health, and workers' compensation practice settings, the elements must be scaled or weighted for the different degrees of influence and effect.

Category Two: Comprehensive Needs Assessment Impacting Caseload

The elements in the second category of the Caseload Matrix also exert a marked effect on caseload. They are factors associated with direct client care coordination derived from comprehensive needs assessments. For some CM positions involving limited attention to clinical and psychosocial factors, the effects of this category's elements on caseload calculations would be minimal. However, for most case managers, this is the central consideration in caseload calculations. Four sets of elements are found in this category – the presence and severity of clinical factors for the client, psychosocial factors for the client, considerations related to the primary caregiver (carer) and other members of the client's informal support system, and the environment in which the client resides.

The first set of elements in the comprehensive needs assessment category is clinical factors. These describe a constellation of clinical characteristics that have an impact on the acuity and the subsequent services required to assist the patient or client (Huber & Craig, 2007a; Craig & Huber, 2007; Huber & Craig, 2007b). For example, the clinical needs of a person with polytrauma injuries require an enormous investment of CM time and curtail the number of other cases a case manager could manage safely and effectively.

The second set of elements in category two addresses the psychosocial needs of the client. This includes cognitive challenges, adherence issues, and any psychosocial determinants that impact case complexity. The third set of elements within category two examines the psychosocial needs of the family (defined as anyone significant to the client), or nonprofessional caregivers. Caregiver ability to provide care for the client will have a significant impact on caseload projections and monitoring. In any caseload determination, extra demands on a case manager's time arising from the psychosocial needs of the personal caregivers must be considered. The final set of elements in the comprehensive needs assessment category concerns psychosocial factors associated with the client's environment. Included here are the case manager's involvement in transitions of care and obtaining determinations of benefits, which can be very time-consuming activities.

All the elements in category two have a pervasive impact on caseload determination because they focus on the specific needs of the client, the client's primary caregiver, and the client's support system.

Category Three: Case Management Interventions

The third category in the Caseload Matrix contains elements related to actual and required CM interventions that were derived from a thorough analysis of categories one and two. Category three includes client-centered goals, CM plans, and interdisciplinary

cooperation activities. These elements comprise the core of CM functions. Designing a plan based on the assessment data and determining goals in conjunction with the client's family and interdisciplinary team require time and effort. This is the production phase of the CM process.

Although few elements comprise category three, the design and implementation of a CM plan is labor intensive. The determination of the goals and the timing and execution of those goals for each client or client population must be calculated, considered, and recalculated if necessary. Incorporating estimations of these activities is essential to caseload determination.

Category Four: Outcomes

The fourth category contains outcomes, which include both intermediate and long-term outcomes. With intermediate outcomes, changes in the client's health-related behaviors, changes in adherence, changes in environmental barriers, and changes associated with safe and effective transitions of care are evaluated. Long-term outcomes pertain to the appropriate use of healthcare services, cost effectiveness, improved health status, and improved quality of life. As a result of the CLWG's research and public input, a third subcategory concerning factors related to the case manager's satisfaction, health and safety, and competency is added.

The determination, monitoring, and evaluation of results or outcomes are also labor-intensive functions for case managers. If evidence-based protocols exist, by which is meant the well-defined indicators for measuring results and well-developed metrics for data analysis, then the determination, monitoring, and evaluation of outcomes may be a less demanding task. Often, the case manager is the critical link in outcomes measurement. Without the case manager's direct supervision of the outcomes process, this outcomes triad – determining, monitoring, and evaluating results – is seldom completed. Therefore, the case manger's time and energy to address this category of elements are critical components of both accurate caseload calculations in CM and future improvements to the evidence base of CM outcomes.

Outcomes measurement is a necessary component not only for CM evaluation of an individual client but also for evaluation of a targeted population as a whole. Examining the outcomes of target populations aids the case manager to detect client, staff, or system variances for timely interception and to modify protocols and procedures for quality outcomes assurance. The outcomes category addresses the performance improvement component of the CM function. To be successful in improving the client's situation, the case manager must have time, resources, and support.

The outcomes in this section also incorporate quality of life issues for the case manager such as job satisfaction, competency, and enhanced health and safety. These factors affect job performance and retention of case managers; in turn, the health and well-being of the case manager affect individual and system-level outcomes.

Summary of Categories

This review of the categories and components of the Caseload Matrix provides a framework for examining CM caseloads. In Phase I of this process, the CLWG's goal is to identify all the possible and potential factors that should be considered in caseload calculations. Although comprehensive, other elements may need to be added to the categories of the Caseload Matrix to reflect the varied and diverse values and

responsibilities of case managers across the healthcare spectrum. At this point, the elements of the Caseload Matrix are one dimensional; they are not weighted. With the input of case managers across the country, a system of weighting elements should emerge. Configuring those weighted elements into a single formula that can be applied across the CM industry or unique sets of algorithms for a limited number of specific CM practice settings will require additional work to score and weigh the elements and specialized expertise to construct interactive logistic models. However, acquiring the ability to generate consistent and appropriate caseload determinations is worth the effort.

Literature Search Overview

Focusing on the usefulness to the Caseload Work Group (CLWG) mission – to determine the comprehensive content and context of essential elements that would populate the caseload calculator — a representative literature search was executed by members of the CLWG. The primary keywords included, among others, caseload (case load), complexity, delivery model, outcomes, and workload. Sixteen articles were considered and 14 articles were retained for thorough review. Information was abstracted from the 14 articles using a template for examination consistency and record uniformity. The goals of the literature examination are to confirm the projected components in the draft Caseload Matrix and discover missing components that should be added.

The breadth of existing research and published articles involving caseloads was limited, especially ones directly concerning CM. The work settings of these 14 articles reviewed by the CLWG fell into three main categories: acute inpatient; ambulatory care and outpatient; and home health and community CM. The 14 articles included six that concerned behavioral or mental health, four of these from authors in the USA, and one each from Australia, Canada, and the UK (England). Two articles focused on women's health and one article concerned care of people with American Indian and Alaska Native heritages (all USA). Also present were client populations concerning people who lived in rural settings (two articles, one USA and one UK) and those receiving Medicare/Medicaid or considered underinsured or uninsured (three articles, all USA).

Themes Overview from Literature

Themes from the 14 articles relating to the Caseload Matrix covered numerous minor and major considerations in CM. Sorted into loose collections for comparison purposes, these themes included the following topics.

1. Caseload specifics – intensity of involvement, case acuity and complexity, direct and indirect care provision, geographic and demographic difficulties, time measurements of CM interventions, timing of delivery of CM interventions, caseload maturity, caseload versus workload, and caseload sharing or team CM
2. CM specifics – roles, role dilution, skills training, competence, seniority, administrative support, demoralization, and satisfaction
3. Measuring specifics – rating strategies, outcomes, sensitivity of results to CM interventions, informatics, variables' dependence or independence related to CM interventions, variables' dependence or independence related to

caseload sizes, billable versus nonbillable services, optimization, weighting methods, and work analysis

Role dilution relates to the effects of "dual-hatted" practice such as when case managers deliver therapy or nursing services concurrently during the course of CM contacts, encounters, or visits. Demoralization addresses the self-awareness of case managers who must adjust to doing less work per client due to expanded responsibilities or excessive caseloads. The resulting effects of demoralization include psychological dissonance, stress, and burnout.

Selected Themes

Caseload Sizes

The size of caseloads crosses a large span of numbers of cases, which are considered ratios of clients-to-case manager. Caseloads ranged widely over six delivery examples contained in the literature reviewed by the CLWG. Specifically, caseloads ranged from a high in a social work clinic model of 365 clients to 1 case manager (365:1) (Wilson, Curtis, Lipke, Bachenski, & Gillian, 2005) to 50:1 or 40:1 in community mental health (Hromco, Moore, & Nikkel, 2003) to 26:1 or 32:1 in acute inpatient units considered less intense (Underwood, McKagen, Thomas, & Cesta, 2007) to 20:1 in a maternity ambulatory outpatient clinic (Kane & Issel, 2005) to 12:1 or 10:1 in the intensive Mental Health (MH) CM model (Dewa et al., 2003) to 2:1 or 1:1 in acute inpatient intensive care settings (Underwood et al.). This wide expanse of cases in different CM settings exemplified the central difficulty in producing one single caseload calculator to configure caseloads across the entire CM spectrum.

Implications: The general consensus presented in the articles was that the higher the number of cases assigned at any given time, then the larger the number of responsibilities and the greater the frequency of encounters the case managers must accomplish to perform their jobs adequately. As healthcare professionals, case managers must be enabled through their roles, functions, activities, and interventions to promote and attain optimal levels of client and caregiver advocacy, education, safety, and self-care ability. Furthermore, case manager satisfaction and psychological accord were seen as stemming from the performance of duties at levels beyond adequacy or sufficiency. Enabling case managers to perform to their optimal professional levels can be accomplished when caseloads are right sized and weighted for complexity and acuity.

Incorporation: The significance of this information is that the vast range of caseload sizes must be accommodated. This accounting for and inclusion of the wide array of caseload size differences must be done in ways that consider manageable caseloads that realistically represent the ranges occurring the full field of CM. The best way to accomplish this is by constructing caseload calculators by sectors that are alike in scope of practice and delivery model. Alternatively, the user of a more generic calculator could be queried at the initiation of a calculation event to specify a limited caseload range from a predetermined list of sub-ranges representing reasonable groups of caseloads. From this platform of common caseload size, then the calculator can advance to incorporate other pertinent items such as practice setting and other elements noted in the Caseload Matrix.

Activities and Interventions

The scope of activities and interventions that are presented in the articles reviewed by the CLWG represented different authors' attempts to identify and define these important elements. Examples include specifically detailed single items, groupings of similar task-driven activities, and high-level functional roles.

Acute inpatient CM was perceived as heavier when UM was added to the duties to be performed (Underwoodet al., 2007). Hromco et al. (2003) presented 24 common CM activities divided into six categories and five CM functions described in rank order from least necessary (5) to most necessary (1) for successful outcomes. The six activity categories are administration (four activities), therapy (three activities), case coordination (six activities), education and consultation (five activities), skills training (five activities), and alcohol and drug (one activity). Some activities had average time estimates or actual measured times attached to the execution expectations.

Wilson et al. (2005) considered activities and interventions in terms of "encounters." In a 12-month study interval, the number of patient encounters for diabetic care CM and medical care CM ranged from 347 to 2580 per case manager. This almost eightfold difference in encounters was unexplained. Kane and Issel (2005) calculated the costs of CM activities performed on behalf of community maternity care and categorized interventions into 11 groups: assessment, care plan development, referral to or coordination of services, monitoring of client status, health education, coaching, emotional support, direct clinical services, provision of tangible items (for example, bus tickets and infant formula), related paperwork, and travel time. Dollar amounts were based on case managers' salaries and were classified into direct and indirect costs. Also pertaining to women's medical care, Fawcett, Schutt, Gail, Riley Cruz, and Woodford (2007) reported that the largest category of CM activities and interventions was spent to perform client service activities such as tracking test results, finding and connecting with clients, assessing clients' needs, and educating clients. The largest single activity under a category called "bureaucratic" activities included documentation. The least amount of time was spent discharging clients. Organizational factors appeared as both system-level efficiencies and barriers.

In the Assertive Community Treatment (ACT) model for severe mental health (MH) CM delivery, medical and psychological services were grouped into five categories: vocations and work-related skills; activities of daily living; social and recreational activities; family support; and medications, psychotherapy, and nursing care (Dewaet al., 2003). Meyer and Morrissey (2007), who also studied the administration of an ACT program, followed the model based on principles of CM including assessment, planning, linking, monitoring, and advocacy. However, Dewa et al. approached CM cases from the multidisciplinary perspective of shared caseloads instead of individual caseloads. Time spent on office-centered paperwork was about 10%.

In the UK model of geriatric MH care management in rural settings, 41 activities were defined within six major areas. The six categories included direct contact with client, direct contact with client's informal caregiver, service contact related to client or caregiver, social services procedures and organizational commitments, and approved social worker activities (Jacobs, Hughes, Challis, Stewart, & Weiner, 2006). Regarding caseload measurement in community MH CM in Australia, the authors presented three models of caseload index methods that employed seven variables impacting caseloads (King, Meadows, & LeBas, 2004). The seven variables King et al. identified were contact frequency,

client needs and response difficulty, intervention type, case manager competence and seniority, caseload maturity, geographical distribution of clients, and roles other than CM. Of the three Australian models, one was based on contact frequency with the goal of achieving caseload equity; one was based on response difficulty per contract frequency for the twin goals of productivity and efficiency; and one model, called the caseload index (CLI), was based on three blended factors: response difficulty, CM delivery by either an intensive or maintenance approach, and clinical seniority. The CLI model displayed the best match to the blended, multifaceted goals researched and developed by the CLWG in the Caseload Matrix.

Implications: The array of roles, functions, activities, interventions, encounters, and duties in the literature reviewed varies widely. Even the names of the case managers' work actions are inconsistent. An incredibly important hurdle to surmount relate to the production of one caseload calculator versus several interlinked calculators is the listing, combining, and synthesizing of activities into lesser and greater strata of interventions with definitions that have reached agreement among the numerous and varied practitioners in the CM field.

Incorporation: The accomplishment of this collating exercise would exceed the scope of the CLWG's mission in Phase I. However, accomplishing this task in the future could be approached through modified Delphi examinations between working groups of experts to achieve consensus regarding agreements on naming and specifying activities, as well as cluster analyses to discern higher-order groupings. Sorting and ordering these fundamental questions must precede the construction of caseload calculation methods. Activities and interventions would become more cohesive and manageable if done in perhaps six structured CM delivery models or sectors. Identification and resolution of the sectors and collation of the activities should be commenced – if not by the CLWG, then by another equally experienced group. This work specific to CM could stand on the foundational work of nursing nomenclature or other indexing efforts.

Measurement Strategies

Several strategies of measuring caseloads were discovered during the structured reviews of the 14 articles. Useful concepts include informatics, optimization, and weighting. Informatics, as discussed by Soo Hoo and Parisi (2005), presented the merits and challenges of statistical process control in three main issues: data stability, data acceptability, and data covariation. Organizational performance data can be translated into meaningful information using software analysis tools that facilitate evaluation of process control (stability), comparison to targets (acceptability) and analysis of covariation between elements. Several authors (Hendrix, 2003; King et al., 2004; Lechman, 2006) discussed weighting to varying degrees of description and depth. Lechman's weighting strategy used expenditures of case managers' time through a six-point system assigned to levels of intervention primarily related to psychosocial acuity. Although this author asserted that psychosocial severity was the best indicator of complexity of care, findings were specific to the acute inpatient setting in Canada. Optimization and weighting are discussed by Hendrix as a production model that weighs the independent variable of interest (such as caseload size) and differentiates the dependent variable (for example, intervention time or client acuity). Optimization techniques determined a specific cusp of maximum effectiveness and established a threshold at which level the effectiveness was diminished due to competing priorities (such as quality or cost). Hendrix described calculating optimal staffing levels either to minimize negative outcomes (for example, dissatisfaction) or to maximize positive outcomes (for example, timely transitions).

Implications: Informatics concerns the technology to carry out accurate data capture to provide confidence in caseload calculations. Optimization addresses a robust technique to statistically calculate caseloads as well as the decision-making process that must underlie the evidence of objective caseload calculations. Unequivocal weighting of CM elements, activities, and interventions in the Caseload Matrix that are broadly accepted across the CM field emerges as a pivotal issue crucial to the reliable calculation of caseloads.

Incorporation: The incorporation of informatics, optimization, and weighting exceeds the scope of the CLWG mission in Phase I. However, these fundamental issues must be determined before the calculation of caseloads within the health, behavioral health, and workers' compensation sectors can proceed with confidence.

Case Management Outcomes

Outcomes are discussed in several articles with different degrees of successful explanation and association (Hendrix, 2003; Kane & Issel, 2005; Kinget et al., 2004; Wilson et al., 2005). Wilson found positive outcomes, such as a higher likelihood of referrals, screening examinations, health instruction receipts, and positive changes in HbA1c (blood sugar) levels, for patients with nurse case managers. However, the outcomes were reported by presence or absence of nurse case managers and not by larger or smaller sizes of caseloads. In the article by Kane and Issel concerning ambulatory outpatient care of maternity clients who are Medicaid recipients, the "softer" CM interventions, such as coaching and emotional support, were presented as critical, yet time-intensive, activities. Unfortunately, these interventions proved difficult for Kane and Issel to factor into both reimbursement methodologies and outcomes associated with caseload sizes.

In the study of MH CM in Australia, King et al. (2004) explained that:

> "as caseload increases, contacts become less frequent and approach to work becomes more reactive…. Not only is general case manager self-efficacy a function of caseload, it is clear that case managers report specific roles as being sensitive to caseload. These include timely response to client needs, documentation of work, receptiveness to urgent client needs, contact during hospital admissions, home visits, and advocacy" (p. 456).

It appears logical that as these roles, activities, and interventions suffered due to increased caseload size, then client outcomes would deteriorate, too. However, the authors did not conduct outcomes studies to confirm or refute this supposition.

Several articles addressing mental health, burnout, and job satisfaction of case managers are examined as outcomes as well. Because job stress may exacerbate burnout, authors explained that stress poses problems associated with the recruitment and retention of case managers (Evans et al., 2006). Priebe, Fakhoury, Hoffman, & Powell (2005) emphasized that health and safety outcomes for case managers impact the quality of care provided to clients. The National Institute for Occupational Safety and Health (NIOSH, 2002) used an instrument called the "Quality of Worklife Survey," to provide important insights into areas that affect case managers' stress levels. Through a study using the survey, NIOSH discovered six primary sources of stress for social work case managers: workload intensity, control versus employee autonomy, support from other employees, relationships

or peer cohesion, role stresses, employees' understanding (or lack of understanding) of their job responsibilities, and change (especially, the management and communication of change). Although this study concerned stresses related to social workers, it provided baseline information germane to the practice of CM by other professional disciplines such as nurses and rehabilitation therapists.

In addition to stress and satisfaction, the Centers for Disease Control (CDC) explored the impact of the changing work environment on the health and safety of workers. In its 2002 publication, *The Changing Organization of Work and the Safety and Health of Working People – Knowledge Gaps and Research Directions*, the CDC advocated four basic approaches to improve workers' health and safety. These four approaches included recommendations to: (1) improve surveillance mechanisms to better track how the arrangement or organization of work is changing; (2) accelerate the research regarding implications of health and safety on the changing organization of work; (3) increase the research focus on organizational interventions to protect health and safety; and (4) take steps to formalize and nurture organization of work as a distinctive field in occupational health and safety. The importance of workers' health and safety to client-related outcomes lies in appreciating the direct and indirect connections between case managers' health and safety and their ability to work effectively and efficiently on behalf of their clients.

In the past, the production model of optimization was used primarily in manufacturing. Yet, Hendrix (2003) showed that optimization could be capable of successful application to issues such as staffing levels in the healthcare industry. Using optimization techniques to calculate caseloads that produce optimal outcomes at high levels of efficiency, quality, or cost would be feasible. Appropriate to a variety of caseload applications, numbers of cases or "caseload acuities" (Craig & Huber, 2007) could be plotted against a particular positive CM outcome to discover and predict optimal caseload sizes under different criteria. Qualitative outcomes include those that measure the impact of stress and burnout on CM retention and job satisfaction as well as on the case managers' health and safety are also outcomes that are examined in the articles.

Implications: The main points regarding outcomes appear to support the supposition that large caseload sizes negatively impact the ability of case managers to assist patients and clients to achieve better outcomes. The accountability of case managers for CM outcomes will be strengthened by improving the clarity in the differences of caseloads. To a large extent, clarifying the differences in caseloads is based on the differences in the weights of activities, interventions, encounters, and responsibilities, as well as their timing and continuing (or ending). Enhanced case manager satisfaction and quality of life increases the retention of case managers and this, in turn, enhances patient and system outcomes.

Examining the dimensions regarding job satisfaction and stressors, retention and burnout, and health and safety within the Caseload Matrix emerges as a pivotal component of caseload calculation. The impact of changing work environments on workers' health and safety represents an important area of inquiry in CM to examine how case management is executed across many settings and disciplines. Moreover, work environment determination is a dynamic issue. Remaining vigilant to the changes and reorganization of case managers' workflows within their work environments requires periodic monitoring and adapting. It could be argued or reasonably expected that as the security of the health and safety of case managers improves, the outcomes measures that represent case managers' abilities to concentrate on improving the health and safety of clients would increase.

Incorporation: The optimization technique described by Hendix (2003) could be adapted readily to demonstrate and predict how the size of a caseload and the performance of a (specifically chosen) element change in relation to each other (covary). This statistical method would facilitate the determination of optimal caseload sizes that minimize negative outcomes and optimize positive outcomes. Optimization would provide a quantitative measure to assist case managers in demonstrating concretely to administrators how caseload numbers impact CM outcomes in relation to different activities and interventions. Weighting strategies could be simulated objectively for various CM practice sectors and caseload sizes could be demonstrated as negative or positive effectors of client-focused outcomes. Since the CDC did not examine this proposed linkage between workers' health and safety and workers' outcomes in their report, the association between work environment and worker output awaits study and clarification. However, health and safety interventions and outcomes for case managers must be a component of the Caseload Matrix and factored into caseload determinations.

Public Comment Contributions

From summer through early fall 2007, the draft Caseload Matrix was displayed and made available on the CMSA website for public comment. Of the approximately 120 submissions received, numerous comments congratulated the efforts of the CLWG and confirmed the need for caseload calculation work to occur. One member[2] of the CLWG reviewed all the public comment offerings and produced a document of extracted public comments used for discussions in the CLWG. Repetition of subjects was considered an important indicator of prevalence within the national CM communities.

To recognize the contributions of the public, several thematic subjects are presented below in bulleted form, listed from higher to lower frequency of occurrence.

- Geography and travel 6 mentions
- Outcomes with respect to expectations, accountability, quality, measurable return on monetary investment (ROI), interventions, etc. 6 mentions
- Managed care 6 mentions
- Acuity "ranking" 5 mentions
- Comorbidities 5 mentions
- Administrative support (or lack of) 5 mentions
- Documentation weight 5 mentions
- CM involvement weight 3 mentions
- Payor sources, effects of 3 mentions
- Difficulties of placement transitioning for severe illness conditions such as ventilator dependency and inpatient hemodialysis dependency 3 mentions
- Mental health 3 mentions
- Decision-making authority (lack of) 3 mentions
- Importance of caregiver 3 mentions
- Incarceration 3 mentions
- Age dependency (youth) 2 mentions
- Federal time requirements 2 mentions

[2] CLWG 2008

- Reports 2 mentions
- CM role dilution via extra duties 2 mentions
- Turnover rate, inconsistency 2 mentions
- Skill matches (credentials) 2 mentions
- Incongruence between condition and care needs 2 mentions
- Mandatory and regulatory requirements that impede the ability to improve work process efficiency 2 mentions
- Case manager health and safety 2 mentions
- Nursing nomenclature guidance 1 mention
- CM integrity and patient focus 1 mention
- Caselife and caseload longevity 1 mention
- Prognosis linked to guidelines 1 mention
- Clients unfamiliarity with benefits 1 mention

Although this is not an exhaustive list, it represents a sampling of the comments that were received, considered, and incorporated into the discussions and, when feasible, directly into the Caseload Matrix.

During the summer of 2008, a second public comment period was held on this Concept Paper including the Caseload Matrix.

Recommendations

Having completed Phase I of its work, the CLWG offers the following recommendations (listed from higher to lesser importance).

1. This Concept Paper should be used as a reference tool to help better understand all of the different factors that can be considered when establishing caseload requirements or goals.
2. The Caseload Calculator project should be advanced from Phase I of literature search, public comment, and Caseload Matrix production and refinement by public and/or private sector interests.
3. A strategic goal of work resulting from the CLWG's Phase I endeavors should be to consider the experts, methods, and timeframes for the production of the caseload calculator.
4. The four categories and individual elements of the Caseload Matrix developed by the CLWG in Phase I should be carried forward as a good, reasonable, and widely representative cross section of the important and relevant components necessary to calculate CM caseloads in health, behavioral health, and workers' compensation settings.
5. Weighting of the individual elements and overarching categories of the Phase I Caseload Matrix should be performed, either as a direct undertaking of the CLWG in a future phase of work or by an academic or commercial entity. The sorting and ordering of fundamental elements must precede construction of caseload calculation methods.
6. A modified Delphi process and cluster analyses should be undertaken to determine the appropriate CM activities and interventions.
7. Input of additional sources of weighting, caseload formulae, and possible matrix configurations should be solicited actively from the greater CM communities.

8. Additional literature resources should be explored to determine the existence of peer-reviewed publications since the inception of the CLWG.
9. The development of CM outcomes associated with the CLWG products, especially those stemming from the Caseload Matrix, should produce credibility and transparency (which means having associations between a proposed intervention and a claimed outcome clearly stated and correctly identified as fully as possible) and generate evaluation pathways capable of being replicated or reproduced.
10. Informatics and optimization should be considered among the primary vehicles to accomplish the production of robust and reliable caseload calculators.

Conclusion

This concept paper and the Caseload Matrix fill a longstanding gap in case management. The CLWG members concur that the Caseload Matrix defines the essential factors that must be considered in the calculation of caseload sizes for case managers practicing in health, behavioral health, and workers' compensation. With right-sized caseloads, case managers can operate more efficiently and effectively, thereby achieving the primary goal of CM: client-focused improvement in healthcare delivery of services, advocacy, and coordination. The CLWG's groundbreaking Phase I work forms the foundation for vigorous future attempts to define caseload parameters in a variety of clinical and business settings.

The key challenge in future development efforts will be to support the "next generation" caseload calculator by establishing the underlying algorithms, based not only on available evidence but also on a series of clinical criteria and business value judgments. During Phase II, if so charged by CMSA and NASW, the CLWG will continue the work to establish and refine evidence-based guidelines to help caseload applications become more effective and accurate. CMSA and NASW will undertake such efforts directly or will provide resources to support private sector initiatives to accomplish the design and construction of a model caseload calculator for CM practice.

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Appendix I: Caseload Matrix