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Case Management Roles and Functions Across Various Settings and Professional Disciplines

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ABSTRACT

Purpose: To describe the practice of case managers in diverse settings with special focus on the roles and functions that they engage in during an average work day. Results were also used to validate and revise as indicated in the blueprint of the certification examination of the credential Certified Case Manager (CCM).

Primary Practice Setting(s): The study covered all of the various case management practice settings.

Methodology and Sample: This cross-sectional descriptive study applied the practice analysis method and survey research design. It also employed a purposive nonrandomized sampling procedure that resulted in 6,909 total participants. Data collection was completed between May and July 2009. The survey instrument used consisted of 209 items that addressed background and demographics, case management activities, and knowledge areas.

Results: The case management professionals who participated in this study had similar perceptions of the essential activities and knowledge aspects of their practice except for those who are vocational rehabilitation and work adjustment specialists and those who practice in the life care planning and disability management settings. The study also resulted in the identification of 6 essential activity and 6 knowledge area domains.

Implications for Case Management Practice: This study described the current practice of case management in diverse settings and by different health care professionals who assume the case manager's role. It also forecasted what practice changes might occur in the next few years. In addition, it identified the essential activities and knowledge areas required for effective and competent performance of case managers. These findings provided the evidence of the CCM certification examination and demonstrated that the structure or blueprint of the examination was developed on the basis of rigorous research. In addition, findings of this study can be used for further research in case management and developing training and education curricula for the advancement of case managers.

Key words: *activity, case management roles, case management functions, certification test specifications, factor analysis, function, index of agreement, knowledge, practice analysis, role, survey research*

The practice of case management is constantly evolving. Changes in health care laws, regulations, reimbursement methods, accreditation standards, and innovations in care delivery systems are some of the factors that affect such evolution. Remaining current about the most recent practices of case management is important for the health care professionals, including case managers, especially for ensuring that their clients receive evidence-based care. Experts agree that certification in case management is vitally important to the competent and effective practice across the spectrum of health and human services. The Commission for Case Manager Certification (CCMC, 2010) states in its philosophy of case management that "certification determines that the case manager possesses the education, skills, knowledge, and experience required to render appropriate services [to clients,] delivered according to sound principles of practice." Therefore, it is necessary for case management certification examinations

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The issue of case management certification is particularly timely, given the current era of health care reform in the United States. There is ample and growing evidence of the importance of care coordination to improve the efficiency and efficacy of care across the continuum of health and human services.

to be reflective of current and key knowledge areas and be modified over time as indicated by the evolving practice. One way to ensure currency of certification examinations is the conduct of research about the practice, using job analysis methods, which is the subject of this article.

The issue of case management certification is particularly timely, given the current era of health care reform in the United States. There is ample and growing evidence of the importance of care coordination to improve the efficiency and efficacy of care across the continuum of health and human services (Bodenheimer & Berry-Millett, 2009; Brown, 2009; National Quality Forum, 2010). Increasingly, case managers are fulfilling the role of care coordinator. Therefore, the competency of these professionals has a direct impact on the success and outcomes of care coordination programs. A proven means to measure competence of those delivering case management or care coordination services is with a certification examination, such as the certified case manager (CCM) credentialing process.

At the heart of demonstrating competence is the certification examination itself. To ensure relevancy scientific field surveys must be conducted on a regular and ongoing basis to measure the examination content against current practice. The purpose of conducting field research is to identify, through a multistep process, the current key knowledge areas and essential activities of case management practice that should be reflected in a certification examination. To fulfill its mission as a credentialing organization, CCMC conducts a national role and function study every 5 years to capture the current state of case management practice and build an evidence base that informs the structure and design of the CCM credentialing examination. The latest role and function study was conducted in 2009; the research methods and findings are described in this article.

The CCMC has a well-established history of case management field research, with role and function studies conducted in 1994, 1999, 2004, and most recently in 2009. "Assuring that the CCM examination is empirically based is one factor that allows the CCMC to maintain its accreditation by the National Commission for Certifying Agencies (NCCA)" (Tahan, Huber, & Downey, 2006a, p. 5) by specifically meeting NCCA's research standard (Standard 7) that requires certification examinations to be evidence-based and that it is updated regularly because of changes in practice (NCCA, 2007). The NCCA was established by the National Organization for Competency Assurance, which is now known as the Institute for Credentialing Excellence. Specifically, the CCMC certification process must meet the Institute for Credentialing Excellence's certification process. The quality of previous and current research conducted by the CCMC also makes the case manager's role and functions study a valuable tool to inform the case management field and professionals.

A role and function study is designed to yield statistically relevant data that provide specific information about knowledge, skills, and activities required of case managers today. Study data are analyzed to demonstrate the capabilities and functional role of case managers. Findings from scientifically sound research then underscore the relevance of the CCM certification examination. Put another way, the research provides a link between real-world practice and certification test content that is critical to developing a psychometrically sound and legally defensible certification examination.

For the specific purpose of developing the CCM certification examination, a role and function study should identify essential activities, knowledge, skills, and abilities deemed important and common practice by case managers. Before discussing the research methods applied in the case manager's role and function study, it is important to be clear about some related definitions such as role and function; these are available in Table 1. More detailed information about these definitions and their theoretical relevance to the current study can be found in a previously published article by Tahan et al. (2006a).

The Study

The CCMC's role and function study was conducted using the "practice analysis" method, also known as job analysis, role delineation, task analysis, or functional analysis. This method is appropriate for credentialing examination purposes, including delineation of the structure of certification examinations such as the CCM. *Practice analysis* is defined as the investigation of a profession or a specific job within a profession. It aims to construct descriptive information about the practice of such a job, including responsibilities such as activities, tasks, behaviors, and related competencies, including knowledge,

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TABLE 1
Definitions of Key Concepts

Role: A general, conceptual, or abstract term that refers to a set of behaviors associated with a position in a social structure, such as one's job title. It includes theoretical descriptions that guide one's expected behaviors. An example is "case manager."
Function: A less abstract concept than role and includes a grouping of specific activities that are derived from a role. An example would be the case manager fulfilling the function of "coordination of care."
Activity: A concrete, discrete action, task, or behavior that derives from a function. For example, "collaboration" and "communication" are activities (to collaborate, communicate) that are part of the function of care coordination.
Knowledge: Refers to a grouping of specific facts, information, skills, and abilities necessary for effective execution of one's role. An example is knowledge of "health care reimbursement methods."

skills, and abilities, which are necessary for the effective performance of the job (Tahan et al., 2006a).

The CCMC's role and function study consisted of several activities—survey instrument development, instrument pilot testing, survey dissemination, compilation of results, and test specifications development. The successful outcome of the case manager's role and function study depended on the excellent information provided by case managers throughout the study. The study involved a multimethod approach that began with a 2-day workshop with case management subject matter experts who identified the essential activities and knowledge areas that they believed were important to the daily work performed by case managers in various practice settings. Eleven people served as the subject matter experts. Most of them were certified case managers with a background in nursing. Other disciplines and specialties represented were social work, vocational rehabilitation, disability management, workers' compensation, and administration. These experts came from various geographic locations across the United States and worked in settings that included acute care, health insurance, veterans' administration, private case management, disease management, skilled-care facility, and disability management.

The case manager's role and function study was conducted as an online survey research that is an efficient and cost-effective method of obtaining input from a large number of subject matter experts from wide geographic locations and in a relatively short period of time. The primary purpose of this cross-sectional descriptive study applying the practice analysis method and survey research design was to describe the practice of case managers in diverse settings with special focus on the roles and functions they engage in during an average work day. Specifically, the study attempted to answer the following three research questions:

1. What are the essential activities and domains of practice of case managers?
2. What are the knowledge areas commonly used by case managers for effective practice?
3. Should CCMC revise the blueprint for its CCM certification examination?

Project-Planning Meeting

A project-planning meeting was held among the lead researcher, chair of the examination and research committee of CCMC, and test development and design experts from Prometric, Inc. (Baltimore, MD), to discuss several issues, including selection of subject matter experts, CCM test specifications committee members, project meeting dates and logistics, survey timelines, sampling procedure, and online survey delivery. Prometric, Inc., is an organization that specializes in testing services and practice analysis research. The CCMC engaged prometric as a consultant for the case manager's role and function study.

Development of the Survey Instrument

The lead researcher developed an initial draft survey instrument, using findings from the CCMC's 2004 role and function study, select review of case management literature, and feedback from CCMC sitting commissioners including members of the examination and research committee. The structure of the draft survey instrument consisted of the activity and knowledge domains of the 2004 study findings, each of which included the specific essential activities and knowledge statements from that study (Tahan, Downey, & Huber, 2006b). A representative group of 11 case managers, comprising the subject matter experts, met over 2 days in April 2009 to review, revise, and finalize the survey instrument. Activities conducted during the meeting included reviewing and, as needed, revising the major domains (high-level content areas), statements of essential activities, knowledge items, and background and demographic questions. The experts also added new content to the survey as they deemed necessary. Key criteria used in the review and revision of the survey instrument were that each statement included must be common practice of case management in various settings, considered necessary for effective and competent performance of case managers, and must gain

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consensus among the experts. In addition, the experts discussed the importance and frequency rating scales of the survey and revised them as needed.

The research team conducted a pilot test of the initial survey instrument. The purpose of the test was to allow case managers who had no previous involvement in the development of the survey instrument to review and evaluate it for clarity, relevance, and comprehensiveness, and offer suggestions for its improvement. A total of 34 professionals participated in the pilot test. They comprised 31 CCMs with diverse backgrounds—9 case managers, 1 disease manager, 1 social worker, 14 administrators, 2 in health insurance, 2 in workers' compensation, 3 in disability/vocational rehabilitation, and 2 consultants. Practice settings represented by the pilot test participants also varied—ambulatory, acute care, disease management, government, health insurance, independent, rehabilitation, third party administrator, and workers' compensation. The subject matter experts then convened via a Web conference and had another opportunity to evaluate the relevance and comprehensiveness of the instrument based on the findings of the pilot test and finalize the instrument. The final role and function study survey instrument consisted of five sections, covering 209 items (Table 2).

- *Section 1—Background and General Information (17 items)*: Survey participants were asked to provide general background information about themselves, their education, professional activities, and work experience.
- *Section 2—Essential Activities (107 items)*: Survey participants were asked to rate each item for importance and frequency. Participants were asked to rate "how important is performance of each of this essential activity in your current position?" using a 5-point rating scale (rating of 0 = *of no importance*, 1 = *of little importance*, 2 = *of moderate importance*, 3 = *important*, and 4 = *very important*). Frequency was determined by asking the participants to rate "on average, how frequently do you perform this essential activity in your current position based on your average day of work?" also using a 5-point rating scale (rating of 0 = *never*, 1 = *seldom*, 2 = *occasionally*, 3 = *often*, and 4 = *very often*).
- *Section 3—Knowledge and Skill Areas (85 items)*: Survey participants were also asked to rate each knowledge statement for importance and frequency, using the same scales as described in Section 2 above.

In addition, survey participants were asked to indicate how well the statements covered the essential activities and knowledge areas within each domain on a 5-point rating scale (ranged from 1 = *very poorly* to 5 = *very well*). A write-in area was provided for respondents to note any areas that were not covered within a specific domain.

- *Section 4—Recommendation for Certification Test Content*: Survey participants were asked to indicate the content weights (emphasis) that the six knowledge domains should receive on a certification examination for case managers.
- *Section 5—Comments*: Survey participants were given the opportunity to comment on the following questions:
  - What additional professional development and/or continuing education could you use to improve your performance in your current work role?
  - How do you expect your work role as a case management professional to change over the next few years? What essential activities will be performed and what knowledge will be needed to meet changing job demands?

TABLE 2
The Case Manager's Role and Function Survey Instrument

Background and demographic section (17 items)
Essential activities domains (107 items)
1. Case finding and intake (13 items)
2. Provision of case management services (36 items)
3. Psychosocial and economic issues (19 items)
4. Utilization management activities (14 items)
5. Outcome evaluation and case closure (17 items)
6. Vocational rehabilitation (8 items)

Knowledge domains (85 items)
1. Case management principles and strategies (22 items)
2. Health care management and delivery (19 items)
3. Health care reimbursement (11 items)
4. Vocational concepts and strategies (10 items)
5. Psychosocial and support systems (17 items)
6. Case management related concept (6 items)

Survey Participants

To recruit potential survey participants, CCMC advertised the study in key case management journals, at conferences, and on the CCMC Web site for 3 months before commencing data collection. During that time, those interested in participation were asked to submit their e-mail addresses to CCMC so that they would be notified of the start of data

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collection. The study sample employed a purposive nonrandomized sampling procedure where potential participants were identified on the basis of their involvement in case management practice and for their perceived ability to contribute to the study. They were then approached via e-mail and by sending them a letter that explained the survey and its purpose, and asked for their voluntary participation. The letter also explained that if a participant completed the survey, her or his submission of the survey implied that the individual consented to participate in the study. In addition, participants were ensured that findings would be reported in aggregate form and their individual responses would be kept confidential.

Data collection commenced in May and concluded in mid-July of 2009. We electronically sent the case manager's role and function survey instrument to 27,300 CCMs and 2,500 non-CCMs, inviting them to participate. These included the database of the CCM holders at the time of the study and others who indicated interest in participation. A total of 6,950 participants completed the survey, with representation from every state in the United States. Forty-one surveys, including 27 that were 50% completed or less, and 14 from international participants, were excluded from the analysis,. The final sample was 6,909, for a 27.3% response rate. The researchers determined that a representative group of case managers completed the survey in sufficient numbers to meet the requirements for conducting statistical analyses especially for participants' subgroups such as by job title, practice setting, professional specialty background, and so on. Table 3 describes the background and demographics of the participants.

The majority of survey participants (88.5%) had nursing backgrounds, with social work accounting for 1.7%, vocational rehabilitation at 1.6%, and other specialties at 8.2%. More than three quarters (78.6%) of the participants were CCMs, with 21.4% noncertified; this was an improvement in representation when compared with the 2004 study where noncertified participants were 5.2% of the sample. The sample was predominantly female (96.4%); a majority of the participants (87.9%) identified themselves as White (non-Hispanic), followed by Black or African American (6.0%), Hispanic or Latino (2.4%), Asian (2.0%), American Indian or Alaska native (0.8%), native Hawaiian/Pacific islander (0.2%), and other (0.3%). An interesting finding in this study was that 27 participants identified themselves as multiracial (0.3%), although the US census bureau currently does not track multiracial ethnicity. These demographic results indicate that there are fewer Black/African American and Hispanic case managers than their

TABLE 3
Background and Demographics (Total Sample = 6,909)

Category	N	%
Job title		
Care coordinator, care manager, case manager, discharge planner	4,526	65.58
Disease manager	80	1.16
Administrator/manager/supervisor/ director/executive	936	13.56
Consultant	137	1.98
Admissions liaison, bill auditor, insurance benefits manager	76	1.10
Worker's compensation specialist	165	2.39
Rehabilitation counselor, vocational evaluator, work adjustment specialist	107	1.55
Utilization reviewer	198	2.87
Social worker	109	1.58
Addictions counselor, health coach, medical doctor, nurse practitioner, occupational therapist, physical therapist, staff/clinical nurse, university educator	567	8.22
Total	6,901	99.99
Missing	8	
Professional background/specialization		
Nursing	6,057	88.50
Social work	109	1.70
Vocational rehabilitation	107	1.60
Other	567	8.20
Total	6,840	100.00
Missing	69	
Percentage of time spent daily in direct case management services		
Not involved in direct case management services	639	9.27
<10%	654	9.49
10%–20%	387	5.62
21%–30%	306	4.44
31%–40%	261	3.79
41%–50%	445	6.46
51%–60%	501	7.27
61%–70%	436	6.33
71%–80%	730	10.59
81%–90%	775	11.25
91%–100%	1,757	25.50
Total	6,891	100.00
Missing	18	
Primary work setting		
Ambulatory care, wellness organization	186	2.80
Disease management	146	2.19

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TABLE 3
Background and Demographics (Total Sample = 6,909) *(Continued)*

Category	N	%
Government agency, military treatment facility, veterans health administration	271	4.07
Health insurance company, reinsurance	1,931	29.02
Home care agency	121	1.82
Hospital	1,522	22.88
Independent care/case management company, private practice	960	14.43
Independent rehabilitation company, rehabilitation facility	186	2.80
Life/disability insurer	109	1.64
Worker's compensation agency	806	12.11
Third-party administrator	234	3.52
Community residential program, hospice care, long-term acute care, mental health center, skilled nursing facility/long-term care facility	181	2.72
Total	6,653	100.00
Missing	256	
Years of experience in case management		
≤5	1,120	16.23
6–10	1,859	26.94
11–15	1,849	26.80
16–20	1,156	16.75
21–25	587	8.51
26–30	225	3.26
31–35	81	1.17
36–40	15	0.22
41–45	4	0.06
45–50	2	0.03
>51	2	0.03
Total	6,900	100.00
Missing	9	
Employer requires work on weekends		
Yes	1,285	18.66
No	4,788	69.53
On-call only	813	11.81
Total	6,886	100.00
Missing	23	
Weekend day worked		
Saturday	261	12.58
Sunday	13	0.63
Both Saturday and Sunday	1,800	86.79
Total	2,074	100.00
Missing	24	

(continues)

TABLE 3
Background and Demographics (Total Sample = 6,909) *(Continued)*

Category	N	%
Employer requires work on holidays		
Yes	954	13.87
No	4,943	71.85
On-call only	983	14.29
Total	6880	100.00
Missing	29	
Holds CCM certification		
Yes	6,031	87.60
No	854	12.40
Total	6,885	100.00
Missing	24	
Employer requires certification in case management		
Yes	2,480	35.96
No	4,416	64.04
Total	6,896	100.00
Missing	13	
Employer offers monetary compensation for certification		
Yes	1,841	26.70
No	5,055	73.30
Total	6,896	100.00
Missing	13	
Highest academic degree		
Associate's degree	1,426	20.65
Nursing diploma	856	12.40
Bachelor's degree	3,067	44.42
Master's degree	1,393	20.17
Doctoral degree	49	0.71
Other	36	0.52
Total	6,827	98.87
Missing	82	
Age (years)		
≤30	57	0.83
31–35	188	2.74
36–40	463	6.75
41–45	738	10.76
46–50	1,290	18.81
51–55	1,863	27.16
56–60	1,472	21.46
61–65	648	9.45
66–70	122	1.78
>70	18	0.26
Total	6,859	100.00
Missing	50	

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TABLE 3
Background and Demographics (Total Sample = 6,909) *(Continued)*

Category	N	%
Gender		
Female	6,625	96.35
Male	251	3.65
Total	6,876	100.00
Missing	33	
Ethnicity		
American Indian or Alaska Native	55	0.80
Asian	138	2.01
Black or African American	413	6.01
Hispanic or Latino	166	2.41
White (Non-Hispanic)	6,045	87.94
Other	23	0.33
Multiracial	27	0.39
Total	6,867	99.90
Missing	42	

numbers in the population would indicate. These ethnic groups account for about 13% each for women in the approximate age group of 25–64. Among all RNs, which is the primary recruitment pool for case managers, about 4.2% are Black/African American and 1.6% are Hispanic (Gallup Organization, 2004). This may suggest that Blacks and Hispanics do not move into case management to the same extent as White non-Hispanic nurses, or that Blacks/African Americans and Hispanics were perhaps later arrivals to nursing, and thus may lag entry into case management.

Looking at educational background, the largest segment of the participants held bachelor degrees (44.4%), followed by 20.7% with associate degrees, 20.2% with master's degrees, and 12.4% held nursing diplomas. Doctoral degrees were held by 0.7% participants with the other category accounting for 0.5%. These results show that the field of case management appears to be "professionalizing," with an increasing number of respondents holding a bachelor's degree or higher (65% in the 2009 study vs. 60% in the 2004 study).

The largest segment of participants (27%) had 6–10 years' experience in case management followed by 11–15 years (26.8%), 16–20 years (16.7%), 0–5 years (16.2%), 21–25 years (8.5%), 26–30 years (3.3%), and 31–35 years (1.2%). Interestingly, more than 40% of case managers have been in the field for less than 10 years. Less than 1% (0.8%) of participants were younger than 30 years. In fact, the largest age population was 51–55 (27.2%), followed by 56–60 (21.5%). The age demographics for case managers contrast with those of RNs. Approximately 9% of RNs are younger than 30 years and approximately 15% are older than 55 years (Gallup Organization, 2004). This indicates that case management is a practice taken by RNs later in their careers.

Regarding job title, the largest segment of participants (65.6%) identified themselves as care coordinators, case/care managers, or discharge planners. The next largest segment (13.6%) was administrator, director, manager, or supervisor. The number of those who reported being in an administrative or executive position was up significantly compared with the less than 3% in the 2004 survey.

Nearly one third (29%) of participants reported their primary work setting as a health insurance company, followed by hospital at 22.8%, which were slight increases from the 2004 results. Other settings included independent case management/private practice (14.4%) and workers' compensation agency (12.1%).

There were three other interesting findings including the following:

- A total of 36% of participants reported that their employer required case management certification as a job qualification. This showed a rise of 10 percentage points when compared with the 2004 study's finding.
- A total of 26.7% said that their employer offered additional monetary reward/compensation to those who achieve certification in case management, which was an increase from about 20% in 2004.
- A total of 18.7% reported that their employer required work on weekends (physically present on the job) and 11.8% required case managers to be available on call. In addition, almost 14% required case managers to work during holidays and 14.3% had on-call coverage in place at their facilities. These practices were not measured in the 2004 study; however, it is important to continue to track these nuances in the evolution of case management practice and expanded hours of coverage/work.

Analysis of the Survey Data

The data analysis consisted primarily of descriptive statistics—means, frequencies, and standard deviations. Tables 4 and 5 summarize the survey participants' importance ratings and frequency distribution of the essential activities and knowledge statements, respectively. The ratings of CCMs and non-CCMs were combined because of the strength of agreement between the two groups in terms of their ratings of activities and knowledge. To examine whether combining the two groups was appropriate, we used the

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TABLE 4
Mean, Standard Deviation, Importance Rating, and Frequency of Essential Activities

Essential Activities	*N*	Mean	*SD*	Importance,[a] %	Frequency,[a] %	Pass/ Fail/ Borderline
Case finding and intake						
1. Apply information from analytic tools (e.g., screening tools, readmission information, length of stay, predictive modeling, and high-dollar reporting) to the case finding process	6,895	3.09	1.17	75.43	68.28	P
2. Identify cases with high-risk potential for complications	6,892	3.57	0.83	90.35	83.15	P
3. Identify cases that meet criteria for receiving case management services	6,850	3.35	1.09	83.94	77.20	P
4. Review information about patient's condition (e.g., diagnosis, history [language], and prognosis)	6,888	3.81	0.52	97.14	94.37	P
5. Perform patient assessment using established case management processes and standards	6,882	3.52	0.91	89.10	83.93	P
6. Interview patient to gather and validate case management-related information	6,879	3.54	0.94	89.26	82.22	P
7. Assess patient's baseline and ongoing physical, emotional, cognitive, and psychosocial functioning	6,876	3.58	0.85	90.65	84.44	P
8. Assess patient's condition for appropriateness of level of care	6,843	3.59	0.87	90.38	84.96	P
9. Assess the patient's readiness and willingness for case management services	6,887	3.24	1.11	80.89	75.10	P
10. Assess the patient's ability to participate in case management	6,871	3.27	1.09	81.82	75.61	P
11. Assess the patient's relationship with key stakeholders (e.g., referral source, care providers, payers, and employers)	6,817	3.19	1.05	79.73	73.98	P
12. Identify cases that would benefit from additional types of services (e.g., community resources, disease management, physical therapy, durable medical equipment, vocational services, evaluations, counseling, and assistive technology)	6,882	3.60	0.81	91.64	84.55	P
13. Identify and comply with regulatory requirements pertinent to the case (e.g., informed consent, Health Insurance Portability and Accountability Act, and ADA)	6,864	3.66	0.78	91.90	86.99	P
Provision of case management services						
1. Review and verify patient's health history by interviewing patient and health team	6,877	3.47	0.93	88.63	81.01	P
2. Identify patient specific problem list and hierarchy of needs	6,863	3.50	0.87	89.12	82.06	P

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TABLE 4
Mean, Standard Deviation, Importance Rating, and Frequency of Essential Activities *(Continued)*

Essential Activities	*N*	Mean	*SD*	Importance,[a] %	Frequency,[a] %	Pass/ Fail/ Borderline
3. Establish, in collaboration with patient and key stakeholders (e.g., providers, payers, employers), comprehensive case management goals and objectives, interventions, and outcomes including specified timeframes	6,860	3.46	0.92	87.83	80.12	P
4. Coordinate with primary care practitioner	6,874	3.33	1.00	83.28	70.65	P
5. Identify barriers to achieving goals	6,853	3.64	0.75	93.61	87.18	P
6. Ensure adequate patient knowledge regarding medical care choices	6,852	3.52	0.89	90.15	81.83	P
7. Develop a plan for patient's ongoing safety needs	6,831	3.42	0.99	86.33	76.40	P
8. Utilize evidence-based practice guidelines in development of the case management plan	6,851	3.35	0.96	85.05	76.13	P
9. Arrange for social services needs (e.g., housing, transportation, and food/meals)	6,856	3.05	1.16	75.63	56.08	P
10. Engage patients to actively participate in the development of their short- and long-term health goals	6,824	3.33	1.02	84.61	73.48	P
11. Consult with medical, vocational, and other professionals	6,833	3.56	0.77	91.97	83.61	P
12. Establish working relationships with referral sources	6,797	3.51	0.88	89.70	82.59	P
13. Develop goals that identify the patient's health care and safety needs while considering the referral source's obligations and requirements	6,837	3.38	0.98	86.75	78.18	P
14. Advocate for patients (e.g., address health care needs, negotiate extracontractual benefits)	6,832	3.49	0.94	88.33	76.89	P
15. Coordinate services for the patient's safe transition along the continuum of care	6,861	3.50	0.94	89.48	78.89	P
16. Analyze the case management plan for cost-effectiveness including feasibility of implementation	6,843	3.25	1.06	82.45	70.65	P
17. Document and communicate case management assessment findings and plan to patient and key stakeholders (e.g., providers, payers, and employers)	6,849	3.50	0.92	89.43	81.66	P
18. Implement the case management plan	6,846	3.56	0.91	90.67	83.84	P
19. Facilitate development of self-management skills and activities	6,797	3.26	1.05	82.51	70.83	P
20. Coordinate accommodations for persons with disabilities adhering to ADA	6,828	2.90	1.28	69.65	40.80	P
21. Research and coordinate community resources applicable to patient situation	6,829	3.21	1.09	79.94	62.66	P

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TABLE 4
Mean, Standard Deviation, Importance Rating, and Frequency of Essential Activities *(Continued)*

Essential Activities	*N*	Mean	*SD*	Importance,[a] %	Frequency,[a] %	Pass/ Fail/ Borderline
22. Organize resources and integrate the delivery of health care services (e.g., arrange home health, and necessary DME)	6,813	3.45	1.03	87.51	74.90	P
23. Implement cost-effective case management strategies	6,850	3.42	0.96	87.84	78.09	P
24. Initiate referrals to service providers as identified in the case management plan	6,834	3.44	0.97	88.57	78.59	P
25. Maintain ongoing communication with patient and key stakeholders (providers, payers, and employers)	6,833	3.61	0.85	91.83	84.80	P
26. Communicate the patient's related key information (e.g., health status, history, discharge summary, medical regimen/plan of care, allergies, follow-up needed) to key stakeholders (e.g., physician, case managers, social worker, and nurse) at next level of care or setting	6,846	3.51	0.94	89.32	78.87	P
27. Conduct ongoing interviews and evaluations with patients and other members of the health care team (e.g., doctors, nurses, social workers, therapists, and other stakeholders including employer and insurers)	6,853	3.45	0.96	87.70	77.63	P
28. Monitor the patient's progress in achieving the goals, objectives, and outcomes of the case management plan at specified timeframes (e.g., direct observation, interviews, and record reviews)	6,848	3.52	0.92	89.73	81.96	P
29. Evaluate the plan to deliver health care services (e.g., arrange home health, DME)	6,806	3.39	1.06	86.19	74.51	P
30. Communicate the patient's progress in achieving the goals, objectives, and outcomes of the case management plan to the patient and key stakeholders (e.g., providers, payers, and employers)	6,867	3.44	0.95	88.57	79.34	P
31. Document the patient's progress with the case management plan (e.g., goals, objectives, outcomes, and necessary modifications)	6,856	3.51	0.94	89.78	82.10	P
32. Modify the plan to deliver health care services (e.g., arrange home health, DME-durable medical equipment)	6,845	3.34	1.08	85.10	72.18	P
33. Develop life care plan	6,839	2.04	1.51	43.59	18.92	F
34. Protect the patient's privacy and confidentiality	6,845	3.93	0.39	98.57	96.84	P

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TABLE 4
Mean, Standard Deviation, Importance Rating, and Frequency of Essential Activities *(Continued)*

Essential Activities	*N*	Mean	*SD*	Importance,[a] %	Frequency,[a] %	Pass/ Fail/ Borderline
35. Adhere to ethical standards that govern case management practice and other professional licensure or certification	6,870	3.92	0.39	98.60	97.38	P
36. Adhere to legal, regulatory, and accreditation standards that govern case management practice and professional licensure or certification	6,850	3.92	0.39	98.51	97.30	P
Psychosocial and economic issues						
1. Assess the patient's language needs	6,867	3.47	0.96	88.13	70.10	P
2. Coordinate language interpreter services	6,826	3.31	1.11	83.11	43.23	P
3. Assess patient's social, educational, psychological, and financial status (e.g., income, living situation, insurance, benefits, health literacy, and employment)	6,841	3.52	0.90	89.45	79.30	P
4. Assess the patient's social and emotional support system and relationships (e.g., family, friends, significant others, and community groups)	6,859	3.56	0.86	90.96	81.76	P
5. Assess for the presence of multicultural issues and health behaviors that may impact the patient's health status	6,860	3.44	0.92	87.52	71.33	P
6. Incorporate the patient's multicultural issues and health behaviors into the case management plan	6,850	3.40	0.97	86.42	67.27	P
7. Identify ways in which cultural, spiritual, and religious factors might affect service delivery systems	6,840	3.31	1.01	83.42	62.67	P
8. Evaluate the ability and availability of the designated care giver to deliver the needed services	6844	3.47	0.98	88.44	75.93	P
9. Assess for experience of burden by the patient's caregiver	6,783	3.24	1.13	81.66	64.69	P
10. Assess respite needs of patients and their caregivers	6,876	2.90	1.32	71.35	43.54	P
11. Arrange for respite needs of patients and their caregivers	6,825	2.69	1.41	64.86	28.04	P
12. Identify the potential need/eligibility for private- and public-sector funding sources for services (e.g., Medicaid, community resources, charitable funds, and state waiver programs)	6,862	3.00	1.33	73.94	50.83	P
13. Identify formal and informal community resources and support programs	6,879	3.13	1.19	77.26	57.01	P
14. Refer patients to formal and informal community resources and support programs	6,862	3.10	1.21	76.30	54.29	P
15. Educate the patient on private- and public-sector funding sources for services	6,859	2.93	1.30	71.67	47.80	P

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TABLE 4
Mean, Standard Deviation, Importance Rating, and Frequency of Essential Activities *(Continued)*

Essential Activities	*N*	Mean	*SD*	Importance,[a] %	Frequency,[a] %	Pass/ Fail/ Borderline
16. Explain services (including limitations) of available resources to patients	6,853	3.20	1.17	79.82	62.79	P
17. Facilitate patient access to programs, services, and funding (e.g., Supplemental Security Income, Social Security Death Index, Medicare, Medicaid, and community resources)	6,847	2.94	1.33	72.21	46.62	P
18. Address the attainment of advance directives	6,848	2.74	1.50	66.49	42.16	P
19. Identify and coordinate the process of health care agents/surrogates, guardians, medical, and financial power of attorney	6,823	2.70	1.48	65.25	37.68	P
Utilization management activities						
1. Review the documentation for determination of medical necessity and benefit exclusions, extra contractual provisions)	6,852	3.30	1.18	82.79	70.26	P
2. Identify patients who would benefit from alternate levels of care (e.g., subacute, skilled nursing, homecare) applying specified eligibility criteria including presence of health insurance benefits	6,849	3.26	1.22	81.57	66.18	P
3. Discuss appropriateness of level of care with the health care team	6,839	3.36	1.11	84.62	71.28	P
4. Educate the health care team about utilization of resources in accordance with established criteria (e.g., clinical, financial) and regulatory requirements	6,833	3.20	1.21	79.95	64.51	P
5. Review requirements for prior approval of services by payer	6,840	3.22	1.25	80.57	67.35	P
6. Provide accurate and comprehensive information to the payer source	6,831	3.34	1.21	83.94	72.40	P
7. Negotiate rates to maximize the utilization of funding and/or benefits for a patient's health care needs	6,808	2.73	1.49	66.23	37.54	P
8. Apply the conditions of the patient's health insurance benefits (e.g., covered treatments, carve-outs) to the case management plan	6,883	3.13	1.32	78.98	65.23	P
9. Perform utilization management activities (e.g., authorization or denial for services, precertification for services, and concurrent/retrospective review)	6,877	3.03	1.42	75.03	57.96	P
10. Monitor utilization management activities (e.g., authorization or denial of services, precertification for services, and concurrent/retrospective review)	6,868	3.10	1.34	77.08	63.10	P
11. Ensure timely and cost-effective use of health care resources	6,872	3.46	1.02	87.79	79.26	P
12. Advocate the provision of health care services in the least restrictive setting	6,845	3.31	1.13	83.89	72.51	P

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TABLE 4
Mean, Standard Deviation, Importance Rating, and Frequency of Essential Activities *(Continued)*

Essential Activities	*N*	Mean	*SD*	Importance,[a] %	Frequency,[a] %	Pass/ Fail/ Borderline
13. Appeal service denial (noncertification) or assist in the appeal process	6,861	2.72	1.49	65.92	37.29	P
14. Educate patients regarding their appeal rights	6,831	3.07	1.31	75.79	51.87	P
Outcomes evaluation and case closure						
1. Collect outcomes data (e.g., clinical, financial, variance, quality/quality of life, patient satisfaction, core measures, HEDIS measures, return to work, and FIM)	6,842	2.70	1.43	65.80	42.73	P
2. Document the patient's response to case management interventions	6,845	3.27	1.13	82.88	71.22	P
3. Analyze outcomes data (e.g., readmissions, clinical, financial, variance, quality/quality of life, patient satisfaction, core measures, HEDIS measures, return to work, and FIM)	6,837	2.75	1.42	66.96	43.30	P
4. Evaluate the availability and timeliness of delivered treatments and services (e.g., variances, delays in care, and avoidable days)	6,844	3.01	1.30	74.88	56.65	P
5. Evaluate the quality of treatments and services	6,822	3.19	1.17	80.42	64.15	P
6. Identify and coordinate referrals for potential quality of care issues	6,824	3.17	1.18	79.56	58.41	P
7. Refer appropriate cases for clinical peer review, that is, physician review, quality review, and risk management review	6,832	3.19	1.20	79.84	57.04	P
8. Evaluate the cost effectiveness of treatments and services	6,777	3.06	1.26	75.84	57.18	P
9. Evaluate the effectiveness of the case management plan as it relates to the identified goals and objectives, interventions, outcomes, and specified timeframes	6,860	3.35	1.06	85.85	73.71	P
10. Evaluate actual patient outcomes in relation to expected outcomes	6,851	3.22	1.14	81.74	67.05	P
11. Prepare reports in compliance with federal, state, and local regulatory requirements	6,836	2.71	1.53	66.21	43.34	P
12. Generate and review reports about key outcome measures (e.g., clinical, financial, productivity, denials, billable hours, and return on investment)	6,849	2.58	1.51	62.10	37.50	P
13. Identify when case management services are no longer required by the patient	6,868	3.26	1.20	82.54	71.22	P
14. Communicate the need to terminate case management services to the patient and stakeholders	6,848	3.13	1.30	78.24	63.21	P

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TABLE 4
Mean, Standard Deviation, Importance Rating, and Frequency of Essential Activities *(Continued)*

Essential Activities	*N*	Mean	*SD*	Importance,[a] %	Frequency,[a] %	Pass/ Fail/ Borderline
15. Prepare and communicate termination of benefit notification to patient and identified stakeholders (providers and payers)	6,849	2.65	1.56	64.55	42.61	P
16. Bring the case manager--patient relationship to closure	6,845	3.23	1.23	81.15	68.13	P
17. Document case closure activities (e.g., discharge summary, transfer summary)	6,823	3.30	1.21	83.34	72.19	P
Vocational rehabilitation						
1. Arrange for vocational assessment and services	6,878	2.22	1.56	51.80	20.28	F
2. Consult with health care providers to clarify restrictions and limitations	6,853	2.86	1.46	70.74	51.67	P
3. Identify the need for specialized services to facilitate achievement of optimal level of wellness or functioning (e.g., work hardening, ergonomics)	6,862	2.55	1.57	62.37	38.99	P
4. Assess the need for environmental modifications to address accessibility barriers (e.g., worksite, home)	6,860	2.66	1.49	64.42	37.70	P
5. Facilitate achievement of optimal wellness, functioning, or productivity (e.g., return to work, school, or other activities)	6,846	2.77	1.51	67.67	46.80	P
6. Refer for or perform job analysis for job modification and accommodation	6,845	2.22	1.66	53.29	24.60	F
7. Recommend modifications and accommodations to training sites and employers	6,840	2.12	1.66	50.25	21.48	F
8. Generate a patient summary report for key stakeholders (e.g., providers, payers, and employers)	6,799	2.20	1.67	51.92	29.61	F

Note. ADA = Americans with Disabilities Act; B = Borderline; DME = Durable medical equipment; F = Fail; P, Pass; FIM = Functional independence measure; HEDIS = Health care effectiveness data and information set.
[a]Importance and frequency % is the sum of 3 and 4 ratings.

Index of Agreement (IOA) test (Tabachnick & Fidel, 2001). The IOA is a statistical test that computes the similarity in judgment between groups and is tailored to the purpose of a role delineation or practice analysis (Tahan et al., 2006b). In this study, the IOA measured the extent to which the CCM and non-CCM groups agreed on which of the essential activities and knowledge areas were important. The IOA for CCMs and non-CCMs was high. On a scale of 0–1, with 1 representing *perfect agreement* and 0 representing *no agreement at all*, the IOA was 0.99 for essential activities and 0.95 for knowledge. Therefore, combining the responses of both groups in the analysis was appropriate as evidenced by the IOA test. Further detailed IOA subgroup analyses are described later in this article and in Table 6.

To determine whether the mean importance rating of each of the activity and knowledge statements was acceptable, we applied a criterion for interpretation of mean importance ratings which was developed on the basis of the 5-point rating scale used in the survey similar to the one used in the 2004 study (Tahan et al., 2006a). The criterion would ensure that only validated essential activities and knowledge

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TABLE 5
Mean, Standard Deviation, Mean Importance Rating, and Frequency of Knowledge Statements

Knowledge Areas	*N*	Mean	*SD*	Importance,[a] %	Frequency,[a] %	Pass/Fail/ Borderline
Case management principles and strategies						
1. Accreditation standards and requirements	6,859	3.37	1.01	84.94	73.07	P
2. Case load calculation	6,854	2.77	1.35	67.19	49.63	P
3. Case management models	6,826	2.80	1.25	65.90	48.00	P
4. Case management process and tools	6,833	3.37	0.97	85.63	76.37	P
5. Case recording and documentation	6,842	3.62	0.80	92.21	87.77	P
6. Change theories and stages	6,823	2.55	1.33	57.07	40.62	P
7. Chronic care model	6,812	2.40	1.43	53.68	36.13	B
8. Confidentiality	6,851	3.90	0.41	98.44	97.00	P
9. Conflict resolution strategies	6,808	3.30	1.02	82.92	68.05	P
10. Factors used to identify acuity or severity levels	6,798	3.19	1.14	78.99	66.97	P
11. Ethics (e.g., advocacy, experimental treatments and protocols, end of life, refusal of treatment/ services, and professional conduct)	6,845	3.60	0.85	90.96	81.11	P
12. Goals and objectives of case management practice	6,751	3.56	0.85	90.27	83.29	P
13. Health care and disability-related legislation (e.g., Americans with Disabilities Act, Occupational Safety and Health Administration regulations, and Health Insurance Portability and Accountability Act)	6,716	3.29	1.04	82.53	67.24	P
14. Health coaching	6,844	2.81	1.30	66.73	50.84	P
15. Interpersonal communication (e.g., group dynamics, relationship building)	6,842	3.35	1.02	84.07	75.01	P
16. Interview techniques	6,862	3.41	0.96	86.51	78.79	P
17. Legal and regulatory requirements	6,852	3.49	0.86	88.66	79.40	P
18. Management strategies for clients with multiple comorbidities	6,871	3.42	0.96	86.84	77.27	P
19. Negotiation techniques	6,853	3.04	1.19	74.01	56.51	P
20. Risk management	6,842	3.08	1.15	75.29	58.50	P
21. Standards of practice	6,848	3.56	0.81	90.83	83.88	P
22. Transitions of care	6,769	3.29	1.04	82.30	70.68	P
Health care management and delivery						
1. Alternative care facilities (e.g., assisted living, group homes, and residential treatment facilities)	6,860	3.10	1.23	76.15	58.04	P
2. Assessment of physical functioning	6,863	3.51	0.89	89.67	80.97	P
3. Assistive devices	6,836	3.35	0.98	84.73	71.32	P
4. Continuum of care	6,790	3.45	0.94	87.56	79.10	P
5. Critical pathways, standards of care, practice guidelines including the average duration of treatment associated with various conditions and disabilities	6,850	3.34	1.01	84.01	73.12	P
6. Health care delivery systems	6,833	3.33	0.97	83.84	73.69	P
7. Health care providers including vendors available in the community	6,842	3.52	0.87	89.84	81.91	P
8. Interdisciplinary care team	6,839	3.23	1.11	79.92	67.66	P
9. Levels of care	6,810	3.34	1.03	83.80	73.71	P
10. Management of acute and chronic illness and disability	6,791	3.44	0.95	87.04	77.07	P
11. Medical home model	6,825	2.45	1.39	55.30	36.30	B
12. Medication therapy management and reconciliation	6,851	3.03	1.23	74.41	59.59	P
13. Models of care	6,798	2.58	1.33	58.53	41.62	P
14. Palliative care and symptom management	6,834	2.93	1.28	71.74	52.64	P

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TABLE 5
Mean, Standard Deviation, Mean Importance Rating, and Frequency of Knowledge Statements *(Continued)*

Knowledge Areas	*N*	Mean	*SD*	Importance,[a] %	Frequency,[a] %	Pass/Fail/ Borderline
15. Pay for performance	6,814	1.93	1.54	40.37	23.10	F
16. Predictive modeling concepts	6,799	2.13	1.49	45.58	29.22	F
17. Rehabilitation service delivery systems	6,840	2.89	1.27	69.78	55.95	P
18. Roles and functions of case managers in various settings	6,839	3.10	1.13	75.54	61.73	P
19. Roles and functions of other providers	6,792	3.25	0.99	81.67	70.29	P
Health care reimbursement						
1. Financial resources (e.g., viatical settlements)	6,865	2.56	1.43	60.35	42.17	P
2. Health care insurance principles	6,859	3.03	1.24	73.96	62.01	P
3. Managed care concepts and rules for reimbursement	6,813	3.05	1.26	74.78	62.03	P
4. Military benefit programs (e.g., TRICARE, Veterans Affairs, CHAMPVA, and TRICARE for Life)	6,842	2.16	1.57	48.60	27.71	F
5. Private benefit programs (e.g., pharmacy benefits management, indemnity, employer-sponsored health coverage, individual-purchased insurance, home care benefits, and COBRA)	6,867	2.84	1.36	69.17	53.71	P
6. Prospective payment systems and rules for reimbursement	6,851	2.53	1.48	59.01	42.91	P
7. Public benefit programs (e.g., Supplemental Security Income, Social Security Death Index, Medicare, and Medicaid)	6,845	2.93	1.32	71.12	55.36	P
8. Resources for the uninsured or underinsured	6,852	2.74	1.46	65.88	46.91	P
9. Utilization management	6,847	3.11	1.24	76.33	64.56	P
10. Value-based purchasing methodologies	6,815	1.96	1.53	40.67	22.57	F
11. Workers' compensation	6,803	2.63	1.54	60.90	43.33	P
Vocational concepts and strategies						
1. Absence and productivity management	6,853	2.04	1.55	45.00	26.78	F
2. Disability compensation systems (e.g., workers' compensation, long-term disability)	6,874	2.54	1.54	58.77	41.30	P
3. Ergonomics and assistive technologies	6,863	2.34	1.51	53.36	32.62	F
4. Functional capacity evaluation	6,855	2.39	1.59	56.18	36.62	F
5. Job analysis, job modification, and job accommodation	6,861	2.23	1.63	51.80	31.47	F
6. Job development and placement	6,855	1.97	1.62	44.19	20.94	F
7. Life care planning	6,846	1.85	1.58	39.80	14.97	F
8. Vocational aspects of chronic illness and disability	6,837	2.13	1.57	47.45	24.71	F
9. Vocational assessment	6,822	1.92	1.60	42.19	17.44	F
10. Work adjustment, transitional employment, and work hardening	6,782	2.17	1.64	50.21	29.91	F
Psychosocial and support systems						
1. Abuse and neglect (e.g., emotional, psychological, physical, and financial)	6,847	3.27	1.09	81.23	54.42	P
2. Behavioral health and psychiatric disability concepts	6,823	3.15	1.09	77.90	54.86	P
3. Community resources (e.g., elder care services, fraternal/religious organizations, government programs, meal delivery services, pharmacy assistance programs)	6,826	3.14	1.20	77.38	58.45	P
4. Complementary alternative medicine	6,827	2.12	1.45	44.31	20.17	F
5. Crisis intervention strategies	6,814	2.73	1.36	64.25	34.84	P

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TABLE 5
Mean, Standard Deviation, Mean Importance Rating, and Frequency of Knowledge Statements *(Continued)*

Knowledge Areas	*N*	Mean	*SD*	Importance,[a] %	Frequency,[a] %	Pass/Fail/ Borderline
6. Dual diagnoses	6,799	2.93	1.28	70.50	52.36	P
7. End-of-life issues (e.g., hospice, withdrawal of care, and do not resuscitate)	6,835	2.89	1.46	70.90	49.61	P
8. Family dynamics	6,780	3.31	1.05	82.23	69.70	P
9. Health literacy assessment	6,863	2.69	1.38	63.91	44.67	P
10. Multicultural issues as they relate to health behavior	6,866	3.04	1.13	74.15	53.46	P
11. Psychological and neuropsychological assessment	6,847	3.04	1.17	74.22	53.79	P
12. Psychosocial aspects of chronic illness and disability	6,832	3.17	1.09	79.44	62.78	P
13. Self-care management (e.g., self advocacy, self-directed care, and informed decision making)	6,860	3.18	1.13	79.15	64.22	P
14. Spirituality as it relates to health behavior	6,852	2.83	1.26	66.94	44.15	P
15. Substance use, abuse, and addiction	6,843	3.13	1.11	77.17	53.63	P
16. Support programs (e.g., support groups, pastoral counseling, disease-based organizations, and bereavement counseling)	6,853	2.91	1.26	70.32	47.37	P
17. Wellness and illness prevention concepts and strategies	6,807	3.06	1.20	74.85	56.91	P
Case management concepts						
1. Cost-containment principles	6,881	3.13	1.15	78.96	63.97	P
2. Cost-benefit analysis	6,859	2.81	1.33	67.75	45.07	P
3. Data interpretation and reporting	6,835	2.77	1.34	66.26	45.86	P
4. Program evaluation and research methods (e.g., outcome, satisfaction)	6,835	2.73	1.35	65.02	43.09	P
5. Quality and performance improvement concepts	6,836	2.99	1.23	73.54	54.84	P
6. Quality indicators (e.g., core measures of the Centers for Medicare and Medicaid Services [CMS], Utilization review Accreditation Commission, National Committee for Quality Assurance, National Quality Forum, Agency for Health care Research and Quality)	6,833	2.90	1.36	70.70	52.36	P

Note. P = pass; B = borderline; F = fail.
[a]Importance and frequency % is the sum of 3 and 4 ratings.

statements were used to answer the three research questions. This process of analysis was appropriate because the main purpose of the practice analysis was to develop test specifications for the CCM examination. The criterion for interpretation of the mean importance ratings would act as a cut point or a critical importance value for inclusion in the test specifications. We set the cut point value for accepting or rejecting a statement at 2.50 because it is the midpoint between the moderately important and important ratings. On the basis of this criterion, three categories of statements were then formed: pass, borderline, and fail (Tahan et al., 2006a).

a. *The Pass* category contained those statements whose mean ratings were at or above 2.50, and were considered eligible for inclusion in the development of test specifications.
b. *The Borderline* category contained those statements whose mean ratings were between 2.40 and 2.49. Those statements were separated from the rest for further analysis and understanding if they were important enough to still be considered for inclusion in the development of the test specifications. It was important for the CCMC's examination and research committee to review each statement and provide a compelling reason why it should be included (if it were to be included) in the test specifications despite its mean importance rating.
c. *The Fail* category contained those statements whose mean importance ratings were less than

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TABLE 6
Index of Agreement in Essential Activities Among Participant Subgroups

Category	1	2	3	4	5	6	7	8	9	10	11	12
Job Title												
1. Care coordinator, care manager, case manager, discharge planner	1.00											
2. Disease manager	0.92	1.00										
3. Administrator/manager/supervisor/director/executive	0.99	0.93	1.00									
4. Consultant	0.96	0.92	0.97	1.00								
5. Admissions liaison, bill auditor, and insurance benefits manager	0.81	0.79	0.82	0.79	1.00							
6. Worker's compensation specialist	0.86	0.81	0.87	0.88	0.80	1.00						
7. Rehabilitation counselor, vocational evaluator, work adjustment specialist	0.55	0.56	0.54	0.57	0.59	0.67	1.00					
8. Utilization reviewer	0.75	0.74	0.74	0.71	0.84	0.67	0.56	1.00				
9. Social worker	0.87	0.93	0.86	0.85	0.78	0.75	0.61	0.75	1.00			
10. Addictions counselor, health coach, medical doctor, nurse practitioner, occupational therapist, physical therapist, staff/clinical nurse, university educator	0.96	0.95	0.97	0.94	0.81	0.86	0.55	0.75	0.89	1.00		
Percentage time in direct case management services												
1. Not involved in direct case management services	1.00											
2. <10%	0.95	1.00										
3. 10%–20%	0.95	0.96	1.00									
4. 21%–30%	0.96	0.97	0.99	1.00								
5. 31%–40%	0.94	0.95	0.99	0.98	1.00							
6. 41%–50%	0.96	0.97	0.99	1.00	0.98	1.00						
7. 51%–60%	0.95	0.96	1.00	0.99	0.99	0.99	1.00					
8. 61%–70%	0.94	0.95	0.99	0.98	0.98	0.99	0.99	1.00				
9. 71%–80%	0.94	0.95	0.99	0.98	0.98	0.98	0.99	1.00	1.00			
10. 81%–90%	0.94	0.95	0.99	0.98	0.98	0.98	0.99	1.00	1.00	1.00		
11. 91%–100%	0.95	0.96	1.00	0.99	0.99	0.99	1.00	0.99	0.99	0.99	1.00	
Work/practice setting												
1. Ambulatory care, wellness organization	1.00											
2. Disease management	0.94	1.00										
3. Government agency, military treatment facility, veterans health administration	0.88	0.92	1.00									
4. Health insurance company, reinsurance	0.90	0.95	0.94	1.00								
5. Home care agency	0.89	0.94	0.95	0.97	1.00							

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TABLE 6
Index of Agreement in Essential Activities Among Participant Subgroups *(Continued)*

Category	1	2	3	4	5	6	7	8	9	10	11	12
6. Hospital	0.91	0.94	0.95	0.99	0.96	1.00						
7. Independent care/case management company, private practice	0.85	0.87	0.93	0.90	0.91	0.91	1.00					
8. Independent rehabilitation company, rehabilitation facility	0.85	0.85	0.93	0.90	0.91	0.91	0.96	1.00				
9. Life/disability insurer	0.55	0.50	0.50	0.45	0.48	0.46	0.53	0.53	1.00			
10. Worker's compensation agency	0.80	0.80	0.87	0.83	0.84	0.84	0.93	0.92	0.60	1.00		
11. Third-party administrator	0.89	0.89	0.95	0.93	0.94	0.94	0.94	0.94	0.51	0.90	1.00	
12. Community residential program, hospice care, long-term acute care, mental health center, skilled nursing facility/long-term care facility	0.92	0.95	0.93	0.98	0.97	0.97	0.88	0.88	0.47	0.81	0.92	1.00
Years of experience in case management												
1. ≤5	1.00											
2. 6–10	1.00	1.00										
3. 11–15	0.99	0.99	1.00									
4. 16–20	0.99	0.99	1.00	1.00								
5. 21–25	0.97	0.97	0.98	0.98	1.00							
6. 26–30	0.92	0.92	0.93	0.93	0.94	1.00						
7. >30	0.93	0.93	0.93	0.93	0.93	0.95	1.00					
Employer requires case management certification												
1. Yes, on-call only	1.00											
2. No	0.97	1.00										
Employer requires work on weekend												
1. Yes	1.00											
2. No	0.97	1.00										
3. On-call only	0.97	1.00	1.00									
CCM certification												
1. Yes	1.00											
2. No	0.99	1.00										
Geographic region												
1. New England: CT, ME, MA, NH, RI, VT	1.00											
2. Middle Atlantic: NJ, NY, PA	1.00	1.00										
3. East North Central: IN, IL, MI, OH, WI	0.98	0.98	1.00									
4. West North Central: IA, KS, MN, MS, NE, ND, SD	0.98	0.98	1.00	1.00								

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TABLE 6
Index of Agreement in Essential Activities Among Participant Subgroups *(Continued)*

Category	1	2	3	4	5	6	7	8	9	10	11	12
5. South Atlantic: DE, DC, FL, GA, MD, NC, SC, VA, WV	0.98	0.98	1.00	1.00	1.00							
6. East South Central: AL, KY, MS, TN	0.98	0.98	1.00	1.00	1.00	1.00						
7. West South Central: AR, LA, OK, TX	0.98	0.98	1.00	1.00	1.00	1.00	1.00					
8. Mountain: AZ, CO, ID, NM, MT, UT, NV, WY	0.98	0.98	0.98	0.98	0.98	1.00	0.98	1.00				
9. Pacific: AK, CA, HI, OR, WA	0.99	0.99	0.97	0.97	0.97	0.97	0.97	0.97	1.00			
Highest academic degree achieved												
1. Associate's degree	1.00											
2. Nursing diploma	1.00	1.00										
3. Bachelor's degree	0.99	0.99	1.00									
4. Master's degree	1.00	1.00	0.99	1.00								
5. Doctoral degree	0.95	0.95	0.94	0.95	1.00							
6. Other	0.97	0.97	0.96	0.97	0.93	1.00						
Age, years												
1. ≤30	1.00											
2. 31–35	0.99	1.00										
3. 36–40	0.99	1.00	1.00									
4. 41–45	0.99	1.00	1.00	1.00								
5. 46–50	0.99	1.00	1.00	1.00	1.00							
6. 51–55	0.98	0.99	0.99	0.99	0.99	1.00						
7. 56–60	0.98	0.99	0.99	0.99	0.99	0.98	1.00					
8. 61–65	0.98	0.99	0.99	0.99	0.99	0.98	1.00	1.00				
9. 66–70	0.97	0.96	0.96	0.96	0.96	0.95	0.95	0.95	1.00			
10. >70	0.97	0.96	0.96	0.96	0.96	0.95	0.95	0.95	0.98	1.00		
Gender												
1. Female	1.00											
2. Male	0.94	1.00										
Ethnicity												
1. American Indian or Alaska Native	1.00											
2. Asian	0.93	1.00										
3. Black or African American	0.93	0.99	1.00									
4. Hispanic or Latino	0.92	0.98	0.97	1.00								
5. White (Non-Hispanic)	0.93	1.00	0.99	0.98	1.00							
6. Other	0.93	0.99	0.98	0.97	0.99	1.00						
7. Multiracial	0.91	0.97	0.96	0.97	0.97	0.96	1.00					

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…the largest age (of case managers) population was 51–55 (27.2%), followed by 56–60 (21.5%). The age demographics for case managers contrast with those of registered nurses. Approximately 9% of RNs are under the age of 30 years and approximately 15% are over the age of 55 years (Gallup Organization, 2004). This indicates that case management is a practice taken by RNs later in their careers.

2.40. Those were to be excluded from the development of test specifications.

Tables 4 and 5 show the results of each item value and the placement of each of the activity and knowledge statements into one of the three categories—pass, borderline, or fail—based on their mean importance ratings. For those statements categorized as borderline, the test specifications committee could later evaluate them and determine whether they should be included in test specifications.

Overall, of the 192 essential activities and knowledge statements, 171 (89.06%) achieved high importance (at or above 2.50), thereby validating their importance for competent performance of case managers. Among essential activities, a total of 107 activities were evaluated; 102 activities were rated "pass," achieving the mean criterion of 2.50 or greater. Of the five activities that failed, one had a mean importance rating of 2.04. This statement addressed life care planning and was the only one of the 36 items in the provision of case management services domain that failed. The remaining four failed items rated between 2.12 and 2.22 and were in the vocational rehabilitation domain that consisted of eight items. None of the activities rated borderline (between 2.40 and 2.49).

A total of 85 knowledge statements were evaluated in six knowledge domains. Sixty-nine knowledge statements (81.18% of the total) rated pass with a mean of 2.50 or above. Two statements—one in case management principles and strategies and one in health care management and delivery—rated borderline with a mean of 2.40 and 2.45, respectively Statements that rated borderline were further evaluated for possible inclusion in the certification examination content. Fourteen knowledge statements were categorized as fail, with a mean less than 2.40. Of the 14, 9 were in the domain of vocational concepts and strategies. Also rated fail were two statements in health care management and delivery, two statements in health care reimbursement, and one in psychosocial and support systems. Ratings of the failed statements ranged between 1.92 and 2.39.

Analysis of Findings by Participant Subgroups

The case manager's role and function study data were also analyzed to determine how similar or different perceptions of the various participants were relevant to their importance ratings of the essential activities and knowledge areas. Stated another way, we further analyzed the data to determine the degree of agreement subgroups of participants (e.g., nurses vs. social workers case managers) exhibited about the importance of the essential activities and knowledge areas to the practice of case management. The test statistic used was the IOA. For example, if the subgroups' mean importance ratings were above the critical importance value (at or above 2.50), there was agreement that the content is important. If the subgroups' ratings were below the critical level (less than 2.50), then the subgroups were in agreement that the content is considered less important. Any differences in mean importance ratings among subgroups indicate that there is disagreement as to whether the content is important or not. The IOA-computed score ranges from 0 to 1. The IOA results among the participant subgroups were then evaluated on the basis of the following criteria:

- Perfect agreement when IOA = 1.00
- High agreement when IOA $\geq$ 0.80 but $<$ 1.00
- Moderate agreement when IOA $<$ 0.80 and $\geq$ 0.70
- Disagreement when IOA $<$ 0.70

The findings of the IOA analyses were examined for any trends that might have occurred on the basis of demographic variables. We determined the participant subgroups for IOA analysis based on job title, percentage of time in direct case management services, work/practice setting, years of experience in case management, certification as job requirement, requirement of work on weekends, CCM certification, geographic region, academic degree, age, gender, and ethnicity. We computed the analysis for essential activities (Table 6) separate from that of knowledge areas (Table 7). The results ranged primarily from moderate to perfect agreement, except in those activities associated with rehabilitation/vocational counseling and life/disability management.

The IOA ranges for essential activities by participant subgroups were as follows:

- Job title: 0.54–0.99
- Percentage of time in direct case management services: 0.94–0.99

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TABLE 7
Index of Agreement in Knowledge Areas Among Participant Subgroups

Category	1	2	3	4	5	6	7	8	9	10	11	12
1. Care coordinator, care manager, case manager, discharge planner	1.00											
2. Disease manager	0.93	1.00										
3. Administrator/manager/supervisor/director/executive	0.95	0.98	1.00									
4. Consultant	0.86	0.88	0.88	1.00								
5. Admissions liaison, bill auditor, benefits manager	0.85	0.82	0.82	0.75	1.00							
6. Worker's compensation specialist	0.76	0.69	0.72	0.81	0.75	1.00						
7. Rehabilitation counselor, vocational evaluator, work adjustment specialist	0.49	0.42	0.45	0.54	0.60	0.71	1.00					
8. Utilization reviewer	0.86	0.84	0.84	0.74	0.92	0.71	0.59	1.00				
9. Social worker	0.87	0.89	0.89	0.80	0.79	0.64	0.51	0.82	1.00			
10. Addictions counselor, health coach, medical doctor, nurse practitioner, occupational therapist, physical therapist, staff/clinical nurse, university educator	0.95	0.95	0.98	0.91	0.85	0.74	0.47	0.84	0.89	1.00		
Percentage time in direct case management services												
1. Not involved in direct case management services	1.00											
2. <10%	0.95	1.00										
3. 10%–20%	0.96	0.99	1.00									
4. 21%–30%	0.93	0.95	0.96	1.00								
5. 31%–40%	0.96	0.94	0.95	0.96	1.00							
6. 41%–50%	0.98	0.98	0.99	0.95	0.96	1.00						
7. 51%–60%	0.96	0.94	0.95	0.96	0.98	0.96	1.00					
8. 61%–70%	0.95	0.93	0.94	0.98	0.99	0.96	0.99	1.00				
9. 71%–80%	0.95	0.95	0.96	0.95	0.94	0.95	0.96	0.95	1.00			
10. 81%–90%	0.94	0.96	0.98	0.99	0.95	0.96	0.95	0.96	0.96	1.00		
11. 91%–100%	0.94	0.94	0.95	0.92	0.93	0.94	0.93	0.92	0.96	0.93	1.00	
Work/practice setting												
1. Ambulatory care, wellness organization	1.00											
2. Disease management	0.94	1.00										
3. Government agency, military treatment facility, veterans health administration	0.92	0.95	1.00									
4. Health insurance company, reinsurance	0.91	0.94	0.94	1.00								
5. Home care agency	0.93	0.94	0.94	0.98	1.00							
6. Hospital	0.89	0.88	0.91	0.92	0.94	1.00						

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TABLE 7
Index of Agreement in Knowledge Areas Among Participant Subgroups *(Continued)*

Category	1	2	3	4	5	6	7	8	9	10	11	12
7. Independent care/case management company, private practice	0.79	0.80	0.82	0.79	0.79	0.80	1.00					
8. Independent rehabilitation company, rehabilitation facility	0.79	0.78	0.78	0.81	0.84	0.80	0.88	1.00				
9. Life/disability insurer	0.51	0.45	0.47	0.44	0.46	0.49	0.65	0.62	1.00			
10. Worker's compensation agency	0.69	0.68	0.71	0.67	0.69	0.71	0.86	0.86	0.76	1.00		
11. Third-party administrator	0.84	0.85	0.85	0.84	0.84	0.85	0.95	0.88	0.60	0.84	1.00	
12. Community residential program, hospice care, long-term acute care, mental health center, skilled nursing facility/long-term care facility	0.91	0.94	0.96	0.98	0.98	0.94	0.79	0.81	0.44	0.67	0.84	1.00
Years of experience in case management												
1. ≤5	1.00											
2. 6–10	0.96	1.00										
3. 11–15	0.95	0.99	1.00									
4. 16–20	0.93	0.96	0.98	1.00								
5. 21–25	0.89	0.93	0.94	0.96	1.00							
6. 26–30	0.84	0.87	0.88	0.91	0.94	1.00						
7. >30	0.82	0.86	0.87	0.89	0.93	0.94	1.00					
Employer requires case management certification												
1. Yes, on-call only	1.00											
2. No	0.93	1.00										
Employer requires work on weekend												
1. Yes	1.00											
2. No	0.93	1.00										
3. On-call only	0.99	0.94	1.00									
CCM certification												
1. Yes	1.00											
2. No	0.95	1.00										
Geographic region												
1. New England: CT, ME, MA, NH, RI, VT	1.00											
2. Middle Atlantic: NJ, NY, PA	0.98	1.00										
3. East North Central: IN, IL, MI, OH, WI	0.98	0.95	1.00									
4. West North Central: IA, KS, MN, MS, NE, ND, SD	0.94	0.96	0.96	1.00								
5. South Atlantic: DE, DC, FL, GA, MD, NC, SC, VA, WV	0.96	0.96	0.99	0.98	1.00							

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TABLE 7
Index of Agreement in Knowledge Areas Among Participant Subgroups *(Continued)*

Category	1	2	3	4	5	6	7	8	9	10	11	12
6. East South Central: AL, KY, MS, TN	0.96	0.94	0.96	0.95	0.95	1.00						
7. West South Central: AR, LA, OK, TX	0.96	0.94	0.96	0.95	0.95	0.98	1.00					
8. Mountain: AZ, CO, ID, NM, MT, UT, NV, WY	0.95	0.98	0.95	0.96	0.96	0.98	0.92	1.00				
9. Pacific: AK, CA, HI, OR, WA	0.96	0.94	0.96	0.93	0.95	0.95	0.93	0.94	1.00			
Highest academic degree achieved												
1. Associate's degree	1.00											
2. Nursing diploma	0.96	1.00										
3. Bachelor's degree	0.96	0.95	1.00									
4. Master's degree	0.98	0.96	0.96	1.00								
5. Doctoral degree	0.93	0.89	0.89	0.93	1.00							
6. Other	0.88	0.89	0.87	0.88	0.88	1.00						
Age, years												
1. ≤30	1.00											
2. 31–35	0.91	1.00										
3. 36–40	0.93	0.98	1.00									
4. 41–45	0.92	0.99	0.99	1.00								
5. 46–50	0.93	0.98	1.00	0.99	1.00							
6. 51–55	0.93	0.98	0.98	0.99	0.98	1.00						
7. 56–60	0.94	0.96	0.99	0.98	0.99	0.96	1.00					
8. 61–65	0.96	0.94	0.96	0.95	0.96	0.96	0.98	1.00				
9. 66–70	0.89	0.92	0.92	0.91	0.92	0.92	0.91	0.91	1.00			
10. >70	0.87	0.85	0.85	0.84	0.85	0.85	0.86	0.88	0.91	1.00		
Gender												
1. Female	1.00											
2. Male	0.94	1.00										
Ethnicity												
1. American Indian or Alaska Native	1.00											
2. Asian	0.82	1.00										
3. Black or African American	0.87	0.95	1.00									
4. Hispanic or Latino	0.81	0.94	0.94	1.00								
5. White (non-Hispanic)	0.88	0.92	0.94	0.93	1.00							
6. Other	0.89	0.91	0.95	0.89	0.94	1.00						
7. Multiracial	78%	0.95	0.91	0.96	0.89	0.86	1.00					

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Regarding job title, the largest segment of participants (65.6%) identified themselves as care coordinators, case/care managers, or discharge planners. …Nearly one-third (29%) of participants reported their primary work setting as a health insurance company, followed by hospital at 22.8%, which were slight increases from the 2004 results.

- Work/practice setting: 0.45–0.99
- Years of experience in case management: 0.92–1.00
- Certification as a job requirement: 0.97
- Requirement of work on weekends: 0.97–1.00
- Presence of CCM certification: 0.99
- Geographic region: 0.97–1.00
- Academic degree achieved: 0.93–1.00
- Age: 0.95–1.00
- Gender: 0.94
- Ethnicity: 0.91–0.99

The IOA ranges for knowledge areas by participant subgroups were as follows:

- Job title: 0.42–0.98
- Percentage of time in direct case management services: 0.92–0.99
- Work/practice setting: 0.44–0.98
- Years of experience in case management: 0.82–0.99
- Certification as job requirement: 0.93
- Requirement of work on weekends: 0.93–0.99
- Presence of CCM certification: 0.95
- Geographic region: 0.92–0.99
- Academic degree achieved: 0.87–0.98
- Age: 0.84–1.00
- Gender: 0.94
- Ethnicity: 0.81–0.96

As noted earlier and shown in Tables 6 and 7, the findings of the IOA analysis demonstrated primarily high level of agreement among the participant subgroups based on all demographic variables, except for those by job title. In this subgroup analysis, of concern were the results associated with rehabilitation counselor and vocational evaluator subgroup that demonstrated IOAs that ranged between 0.5 and 0.67 for essential activities and 0.42 and 0.60 for knowledge areas. Another finding of concern pertained to the life care planner/disability manager of the practice setting subgroups analysis. This practice setting showed IOAs that ranged between 0.45 and 0.5 for essential activities and 0.44 and 0.62 for knowledge areas. These findings indicated disagreement among the subgroups. Such disagreement did not exist in the 2004 study findings. One may then conclude that perhaps the practice of these subgroups of case management professionals and practice settings may be changing and warrants careful examination today and in future studies before final conclusions can be certainly made that these subgroups are different from the others.

Although the rest of the subgroups demonstrated acceptable IOAs, it was important to make some valuable observations although these would not impact the decisions made about the CCMC's certification examination. Although there were varied degrees of agreement among the subgroups, their degrees of agreement were still acceptable. For the essential activities, individuals with the job title of utilization reviewer differed with all other subgroups, with the exception of admissions, bill auditor, and insurance benefits manager. On knowledge ratings, the utilization reviewer differed from consultant, workers' compensation specialist, rehabilitation counselor, vocational evaluator, and work adjustment specialist. For knowledge statements, individuals who work for a workers' compensation agency differed from many subgroups with the exception of independent care/case management company, private practice, independent rehabilitation company, rehabilitation facility, and third party administrator.

Comprehensiveness of the Survey Instrument

Survey participants were asked to indicate how well the statements within each essential activity and knowledge domain covered aspects of that area, using a 5-point rating scale (1 = *very poorly representative* to 5 = *very well representative*). This measure was important to examine the construct and content of the survey instrument. For essential activity domains, mean ratings ranged from 4.22 to 4.46, whereas the mean ratings for the knowledge domains ranged from 4.19 to 4.34. These findings were favorable and demonstrated that the survey instrument was comprehensive in structure and content.

Test Specifications of the CCM Certification Examination

After results from the case manager's role and function study were analyzed, a test specifications meeting for the CCM certification examination was conducted. Steps taken at the meeting included presentation of the survey results, determination of essential activities and knowledge statements to be included in the CCM test specifications, determination of the content organization for the essential activities and

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knowledge statements, and development of the test content weights by knowledge domain. On the basis of the analysis of the study data, the test specifications committee determined that a large majority of the essential activities and knowledge statements were frequently used in the practice of case management and should be included in the certification examination blueprint.

Among essential activities, 102 of the 107 statements achieved mean importance ratings at, or above, 2.50 (pass category), and were included on the CCM test specifications. Of the five other statements, four were included and one was excluded. A decision was made to include the four statements because, when their ratings were examined in conjunction of the frequency of performance, it was found that they had high performance frequency and slightly above moderate importance. In addition, two essential activities were added at the meeting on the basis of the content coverage comments submitted by survey respondents. As a result, a total of 108 activity statements composed the essential activities of case management practice.

For the knowledge statements, a total of 69 out of 85 knowledge statements achieved mean important ratings of 2.50 or above (pass category) and were included on the CCM test specifications. Of 16 remaining statements, 8 were included on the CCM test specifications, whereas 8 were excluded. Those included also demonstrated high frequency of utilization by participants in addition to the moderate importance rating. As a result, a total of 77 knowledge statements were included on the test specifications.

Factor analysis was performed to examine the validity and appropriateness of the initial six essential activity and six knowledge domains that composed the case manager's role and function survey instrument. Factor analysis is also known as principal component or domain analysis. It is a mathematical method and statistical technique designed to reduce data by categorizing variables into thematic components or clusters (Tabachnick & Fidel, 2001; Tahan et al., 2006b). In this study, we applied the factor analysis method to the essential activities as one set and the knowledge statements as another set to identify, on the basis of the mean importance ratings, which variables in the set form coherent subsets that are relatively independent of one another. Variables that were correlated with one another but largely independent of other subsets of variables were combined into factors.

Two factor analyses were completed. The first was a forced factor analysis that evaluated the initial theoretical subsets (domains); the second analysis was exploratory in nature, independent of the theoretical domains, and aimed to identify the appropriate number of domains based on statistical analysis. The exploratory method included testing of three- and six-factor solution. These analyses allowed the CCM test specifications committee to ensure that the essential activities and knowledge statements were organized in optimally logical and concise groupings and that each group was independent of the others. Results demonstrated that the exploratory method of the six-factor solution was most favorable. The reliability coefficient (Chronbach's α), a measure of homogeneity or internal consistency of each factor, was calculated to assess the degree to which the factor analysis results best represented the data. Findings are shown in Table 8. The overall reliability coefficients for both the activity and the knowledge domains/factors were at 0.98 with a range of 0.75–0.98 for activity domains and 0.82–0.96 for the knowledge domains.

The exploratory factor analysis results yielded more logically similar groupings, and therefore it was appropriate for the test specifications committee to accept the results of the exploratory factor analysis. The CCM test specifications committee considered these outcomes as a preliminary step in its deliberation regarding the restructuring of the essential

TABLE 8
Results of Empirical Factor Analysis

Component/ factor/domain	Cronbach's α	No. of Items
Essential activities		
Case management process and services	.98	51
Resource utilization and management	.95	19
Psychosocial and economic support	.96	14
Rehabilitation	.95	8
Outcomes	.89	6
Ethical and legal practices	.75	8
Total	.98	106
Knowledge areas		
Case management concepts	.92	16
Health care management and delivery	.94	16
Principles of practice	.82	8
Psychosocial aspects	.96	18
Health care reimbursement	.92	9
Rehabilitation	.94	10
Total	.98	77

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Thirty-six (36%) of participants reported that their employer required case management certification as a job qualification. This shows a rise of 10 percentage points when compared to the 2004's study finding.

activities and knowledge statements into logical and concise groupings.

Although factor analysis provides a statistical solution regarding the groupings of activity and knowledge statements, it does not label or identify the group name for the factors that are based on the empirically grouped statements beyond calling them Factor 1, 2, 3, and so on. Expertise in case management practice is still needed to provide the logical nomenclature that represents the content of each factor. As noted by Tabachnick and Fidel (2001), "interpretation and naming of factors depend on the meaning of the particular combination of observed groupings that correlate highly with each factor" (p. 582). The test specifications committee reviewed the results of the exploratory factor analysis, and after thoughtful discussion they agreed on the best name for the six essential activity factors and six knowledge domains as described earlier in Table 8. Tables 9 and 10 provide the content of each empirical activity and knowledge domain, respectively, by listing the group of statements for each domain.

Using the results of the empirical factor analysis conducted, the test specifications committee determined the number of examination items per knowledge domain that would appear on a given CCM examination. Members of the test specifications committee reviewed the recommendations made by the survey participants when they completed the survey. They then recommended the content of the examination per knowledge domain. Their decisions were made following an exercise that required each member of the test specifications committee to individually assign a percentage weight to the six new and empirically derived knowledge domains/content areas that in total equaled to 100%. Members were advised to consider the findings from the survey as they made their decisions. The weights given by each test specification committee member were then averaged to calculate the final percentage by knowledge domain. This resulted in the delineation of a new blueprint for the CCM examination that was based on research evidence. Table 11 lists the specifications for the CCM examination based on the practice analysis completed using the national case manager's role and function survey. The CCMC incorporated these test specifications into the CCM Certification Guidebook and were implemented beginning with the July 2010 administration of the CCM certification examination.

Comparing the essential activities and knowledge determined in the 2009 role and function study with the previous findings from the 2004 survey, we see an evolution in the practice of case management. The most significant change was in the essential activity and knowledge area, identified in the 2004 study, of vocational rehabilitation. After careful study and consideration of the activity and knowledge domains associated with vocational rehabilitation and the results of the factor analysis, we were able to determine that the general practice of case managers includes rehabilitation in the broader sense and not necessarily limited to vocational rehabilitation and counseling. We also recognized that the degree of involvement in rehabilitation-type activities and use of rehabilitation-related knowledge varies based on the professional background, specialty, and work setting of the case manager. For example, rehabilitation will be addressed in relation to patients who become ill and require rehabilitation, as opposed to those who require rehabilitation as a function of work. Therefore, the test specifications committee decided to broaden the rehabilitation domain at this time and continue to examine this domain going forward.

Forecasting Future Trends in Case Management

Although the purpose of the case manager's role and function study was to primarily identify the essential activities and knowledge areas relevant to current and common case management practice, the survey also identified potential changes in the profession participants' thought that might happen over the next few years. Participants' input indicated that significant changes would continue to impact the field of case management and its importance across the continuum of health and human services and care delivery. Some of these changes are summarized below.

- Increased visibility and accountability of case management is anticipated in the years ahead. Case management program executives will continue to be asked to demonstrate the value of their programs and the frontline case managers.

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TABLE 9
Factor Analysis—Activity Domains

Case management process and services

1. Implement the case management plan
2. Document the patient's progress with the case management plan (e.g., goals, objectives, outcomes, and necessary modifications)
3. Communicate the patient's progress in achieving the goals, objectives, and outcomes of the case management plan to the patient and key stakeholders (e.g., providers, payers, and employers)
4. Monitor the patient's progress in achieving the goals, objectives, and outcomes of the case management plan at specified timeframes (e.g., direct observation, interviews, and record reviews)
5. Ensure adequate patient knowledge regarding medical care choices
6. Identify barriers to achieving goals
7. Conduct ongoing interviews and evaluations with patients and other members of the health care team (e.g., doctors, nurses, social workers, therapists, other stakeholders including employer and insurers)
8. Maintain ongoing communication with patient and key stakeholders (providers, payers, and employers)
9. Establish, in collaboration with patient and key stakeholders (e.g., providers, payers, employers), comprehensive case management goals and objectives, interventions, and outcomes including specified timeframes
10. Coordinate services for the patient's safe transition along the continuum of care
11. Modify the plan to deliver health care services (e.g., arrange home health, DME)
12. Document and communicate case management assessment findings and plan to patient and key stakeholders (e.g., providers, payers, and employers)
13. Engage patients to actively participate in the development of their short- and long-term health goals
14. Initiate referrals to service providers as identified in the case management plan
15. Evaluate the plan to deliver health care services (e.g., arrange home health, DME)
16. Review and verify patient's health history by interviewing patient and health team
17. Interview patient to gather and validate case management related information
18. Develop goals that identify the patient's health care and safety needs while considering the referral source's obligations and requirements
19. Communicate the patient's related key information (e.g., health status, history, discharge summary, medical regimen/plan of care, allergies, and follow-up needed) to key stakeholders (e.g., physician, case managers, social worker, and nurse) at next level of care or setting
20. Organize resources and integrate the delivery of health care services (e.g., arrange home health, necessary DME)
21. Develop a plan for the patient's ongoing safety needs
22. Facilitate development of self-management skills and activities
23. Identify patient specific problem list and hierarchy of needs
24. Implement cost-effective case management strategies
25. Assess the patient's baseline and ongoing physical, emotional, cognitive, and psychosocial functioning
26. Perform patient assessment, using established case management processes and standards
27. Advocate for patients (e.g., address health care needs, negotiate extracontractual benefits)
28. Assess the patient's ability to participate in case management
29. Assess the patient's readiness and willingness for case management services
30. Coordinate with the primary care practitioner
31. Assess the patient's language needs
32. Consult with medical, vocational, and other professionals
33. Analyze the case management plan for cost-effectiveness including feasibility of implementation
34. Utilize evidence-based practice guidelines in development of the case management plan
35. Identify cases that would benefit from additional types of services (e.g., community resources, disease management, physical therapy, durable medical equipment, vocational services, evaluations, counseling, and assistive technology)
36. Assess the patient's relationship with key stakeholders (e.g., referral source, care providers, payers, and employers)
37. Apply information from analytic tools (e.g., screening tools, readmission information, length of stay, predictive modeling, and high-dollar reporting) to the case finding process
38. Identify cases with high-risk potential for complications
39. Identify cases that meet criteria for receiving case management services
40. Generate a patient summary report for key stakeholders (e.g., providers, payers, and employers)
41. Review information about the patient's condition (e.g., diagnosis, history [language], and prognosis)

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TABLE 9
Factor Analysis—Activity Domains *(Continued)*

42. Incorporate the patient's multicultural issues and health behaviors into the case management plan
43. Assess for the presence of multicultural issues and health behaviors that may impact the patient's health status
44. Obtain consent for case management services
45. Coordinate the process of health care agents/surrogates, guardians, medical and financial power of attorney
46. Coordinate language interpreter services
47. Document case closure activities (e.g., discharge summary, transfer summary)
48. Bring the case manager--patient relationship to closure
49. Document the patient's response to case management interventions
50. Identify when case management services are no longer required by the patient
51. Communicate the need to terminate case management services to the patient and stakeholders
52. Assess the patient's social, educational, psychological, and financial status (e.g., income, living situation, insurance, benefits, health literacy, and employment)
53. Arrange for social services needs (e.g., housing, transportation, and food/meals)

Resource utilization and management

1. Monitor utilization management activities (e.g., authorization or denial of services, precertification for services, and concurrent/retrospective review)
2. Perform utilization management activities (e.g., authorization or denial for services, precertification for services, and concurrent/retrospective review)
3. Review requirements for prior approval of services by payer
4. Educate the health care team about utilization of resources in accordance with established criteria (e.g., clinical, financial) and regulatory requirements
5. Identify patients who would benefit from alternate levels of care (e.g., subacute, skilled nursing, and homecare) applying specified eligibility criteria including presence of health insurance benefits
6. Review the documentation for determination of medical necessity and benefit coverage (e.g., coverage, exclusions, and extracontractual provisions)
7. Ensure timely and cost-effective use of health care resources
8. Discuss appropriateness of level of care with the health care team
9. Provide accurate and comprehensive information to the payer source
10. Advocate the provision of health care services in the least restrictive setting
11. Appeal service denial (noncertification) or assist in the appeal process
12. Apply the conditions of the patient's health insurance benefits (e.g., covered treatments, carve-outs) to the case management plan
13. Negotiate rates to maximize the utilization of funding and/or benefits for a patient's health care needs
14. Educate patients regarding their appeal rights
15. Evaluate the cost-effectiveness of treatments and services
16. Refer appropriate cases for clinical peer review, that is, physician review, quality review, and risk management review
17. Evaluate the availability and timeliness of delivered treatments and services (e.g., variances, delays in care, and avoidable days)
18. Assess the patient's condition for appropriateness of level of care
19. Prepare and communicate termination of benefit notification to patient and identified stakeholders (providers and payers)

Psychosocial and economic support

1. Assess caregiver burden
2. Arrange for respite needs of patients and their care givers
3. Explain services (including limitations) of available resources to patients
4. Assess respite needs of patients and their caregivers
5. Facilitate patient access to programs, services, and funding (e.g., Supplemental Security Income, Social Security Death Index, Medicare, Medicaid, and community resources)
6. Identify the potential need/eligibility for private- and public-sector funding sources for services (e.g., Medicaid, community resources, charitable funds, and state waiver programs)
7. Educate the patient on private- and public- sector funding sources for services
8. Refer the patient to formal and informal community resources and support programs
9. Identify formal and informal community resources and support programs
10. Establish working relationships with referral sources

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TABLE 9
Factor Analysis—Activity Domains *(Continued)*

11. Assess the patient's social and emotional support system and relationships (e.g., family, friends, significant others, and community groups)
12. Evaluate the ability and availability of the designated caregiver to deliver the needed services
13. Identify ways in which cultural, spiritual, and religious factors might affect service delivery systems
14. Research and coordinate community resources applicable to patient situation

Rehabilitation

1. Refer for or perform job analysis for job modification and accommodation
2. Recommend modifications and accommodations to training sites and employers
3. Identify the need for specialized services to facilitate achievement of optimal level of wellness or functioning (e.g., work hardening, and ergonomics)
4. Facilitate achievement of optimal wellness, functioning, or productivity (e.g., return to work, school, and other activities)
5. Assess the need for environmental modifications to address accessibility barriers (e.g., worksite, home)
6. Arrange for vocational assessment and services
7. Consult with health care providers to clarify restrictions and limitations
8. Coordinate accommodations for persons with disabilities adhering to ADA

Outcomes

1. Evaluate actual patient outcomes in relation to expected outcomes
2. Analyze outcomes data (e.g., readmissions, clinical, financial, variance, quality/quality of life, patient satisfaction, core measures, HEDIS measures, return to work, and FIM)
3. Collect outcomes data (e.g., clinical, financial, variance, quality/quality of life, patient satisfaction, core measures, HEDIS measures, return to work, and FIM)
4. Evaluate the quality of treatments and services
5. Generate and review reports about key outcome measures (e.g., clinical, financial, productivity, denials, billable hours, and return on investment)
6. Evaluate the effectiveness of the case management plan as it relates to the identified goals and objectives, interventions, outcomes, and specified timeframes

Ethical and legal practices

1. Protect patient's privacy and confidentiality
2. Adhere to legal, regulatory, and accreditation standards that govern case management practice and professional licensure or certification
3. Adhere to ethical standards that govern case management practice and other professional licensure or certification
4. Identify and comply with regulatory requirements pertinent to the case (e.g., informed consent, Health Insurance Portability and Accountability Act, and ADA)
5. Identify the process of health care agents/surrogates, guardians, and medical and financial power of attorney
6. Address the attainment of advance directives
7. Identify and coordinate referrals for potential quality of care issues
8. Prepare reports in compliance with federal, state, and local regulatory requirements

Note. ADA = Americans with Disabilities act; DME = durable medical equipment; FIM = functional independence measure.

- In the current era of health care reform, the government will play a bigger and more involved role in setting standards for the provision and delivery of care. These standards are expected to emphasize the importance of case management approaches to care delivery. The government may also have special regulations in place relevant to case management.
- Measuring and tracking outcomes and being transparent about the results will be paramount. It will be expected to demonstrate cost-effectiveness of health care services and resources along with continuity of care. Although challenging, these developments will provide an opportunity for case managers to demonstrate their value.
- Wellness, prevention, and management of chronic and complex illnesses will take on greater importance because part of an overall drive to reduce cost and consumption of limited health care resources in

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TABLE 10
Factor Analysis—Knowledge Domains

Case management concepts

1. Goals and objectives of case management practice
2. Interpersonal communication (e.g., group dynamics; relationship building)
3. Interview techniques
4. Management strategies for clients with multiple comorbidities
5. Roles and functions of case managers in various settings
6. Negotiation techniques
7. Cost–benefit analysis
8. Data interpretation and reporting
9. Program evaluation and research methods (e.g., outcome, satisfaction)
10. Case recording and documentation
11. Quality and performance improvement concepts
12. Conflict resolution strategies
13. Factors used to identify acuity or severity levels
14. Case load calculation
15. Case management models
16. Case management process and tools

Health care management and delivery

1. Alternative care facilities (e.g., assisted living, group homes, and residential treatment facilities)
2. Management of acute and chronic illness and disability
3. Medical home model
4. Medication therapy management and reconciliation
5. Models of care
6. Palliative care and symptom management
7. Rehabilitation service delivery systems
8. Roles and functions of other providers
9. Transitions of care
10. Continuum of care
11. Critical pathways, standards of care, practice guidelines including the average duration of treatment associated with various conditions and disabilities
12. Health care delivery systems
13. Chronic care model
14. Health care providers including vendors available in the community
15. Interdisciplinary care team
16. Levels of care

Principles of practice

1. Accreditation standards and requirements (move to factor)
2. Ethics (e.g., advocacy, experimental treatments and protocols, end of life, refusal of treatment/services, and professional conduct)
3. Health care and disability related legislation (e.g., Americans with Disabilities Act, Occupational Safety and Health Administration regulations, Health Insurance Portability and Accountability Act)
4. Legal and regulatory requirements
5. Risk management
6. Standards of practice
7. Quality indicators (e.g., core measures of the Centers for Medicare & Medicaid Services, Utilization review Accreditation Commission, National Committee for Quality Assurance, National Quality Forum, Agency for Healthcare Research and Quality
8. Confidentiality

Psychosocial aspects

1. Abuse and neglect (e.g., emotional, psychological, physical, and financial)
2. Multicultural issues as they relate to health behavior
3. Psychological and neuropsychological assessment

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TABLE 10
Factor Analysis—Knowledge Domains *(Continued)*

4. Psychosocial aspects of chronic illness and disability
5. Self-care management (e.g., self advocacy, self-directed care, and informed decision making)
6. Health coaching
7. Spirituality as it relates to health behavior
8. Substance use, abuse, and addiction
9. Support programs (e.g., support groups, pastoral counseling, disease-based organizations, and bereavement counseling)
10. Wellness and illness prevention concepts and strategies
11. Behavioral health and psychiatric disability concepts
12. Community resources (e.g., elder care services, fraternal/religious organizations, government programs, meal delivery services, and pharmacy assistance programs)
13. Crisis intervention strategies
14. Change theories and stages
15. Dual diagnoses
16. End of life issues (e.g., hospice, withdrawal of care, and do not resuscitate)
17. Family dynamics
18. Health literacy assessment

Health care reimbursement

1. Cost-containment principles
2. Financial resources (e.g., viatical settlements)
3. Health care insurance principles
4. Managed care concepts and rules for reimbursement
5. Private benefit programs (e.g., pharmacy benefits management; indemnity; employer-sponsored health coverage; individual-purchased insurance; home care benefits, and COBRA)
6. Prospective payment systems and rules for reimbursement
7. Public benefit programs (e.g., Supplemental Security Income, Social Security Death Index, Medicare, Medicaid, TRICARE, and CHAMPVA)
8. Resources for the uninsured or underinsured
9. Utilization management
10. Work adjustment, transitional employment, and work hardening

Rehabilitation

1. Workers' compensation
2. Assessment of physical functioning
3. Disability compensation systems (e.g., workers' compensation, long-term disability)
4. Assistive devices
5. Ergonomics and assistive technologies
6. Functional capacity evaluation
7. Job analysis, job modification, and job accommodation
8. Job development and placement
9. Vocational aspects of chronic illness and disability

light of the percentage of people with multiple chronic and complex illnesses will continue to rise.

- New forms of client-centered care will emerge, including the medical home model, with case managers interacting with clients/patients and their support systems who receive services in a variety of care settings and by multiple health care providers.
- Evidence-based care, both clinical and method of delivery, will continue to be emphasized as a case management best practice.
- Technology will make further inroads into health care, with greater use of health information technology (health IT/HIT) from case managers using electronic mechanisms (e.g., telecommunication devices) to connect with patients to a greater push toward use of electronic medical records in hospitals, physicians' offices, and other care settings. Use of remote technology systems will be more common and clients will expect to have access to their case managers anytime and anywhere.

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TABLE 11
Test Specifications of the CCM Certification Examination

	% of Items on the Examination	Number of Questions on the Examination	Range of Questions on the Examination
Case management concepts	25	37	35–39
Health care management and delivery	20	30	28–32
Principles of practice	15	23	21–25
Psychosocial aspects	20	30	28–32
Health care reimbursement	15	23	21–25
Rehabilitation	5	7	5–9
Total	100	150	

- With the aging of the population and a greater number of people becoming insured under health care reform, case managers can anticipate increased caseloads and workloads. Greater emphasis will be placed on transitions of care and a higher degree of collaboration across care settings and providers. Registered nurses and social workers as case managers will see increased blending of their roles.
- The limitation of resources across the health care continuum will mean doing more with less, which will further elevate the importance of care coordination and case management. Case managers will find themselves at the hub of these changes, continuing to advocate for clients and their support systems while, at the same time, balancing competing interests among the many stakeholders.

Conclusion

During this time of change and uncertainty, the CCMC will continue to monitor practice trends. Fortunately, the case manager's role and function study has established a valuable baseline to capture the current state of case management practice, including the essential activities and knowledge areas required for effective and competent practice. As we move forward, the activities and required knowledge will put case managers in an excellent position to distinguish themselves through certification as competent professionals who are able to contribute to the health and well-being of clients/patients, and the overall efficiency and efficacy of the health care system. Similar to the CCMC's past role and function research, this study was also invaluable in describing the current practice of case managers and ensuring that CCMC continues to be a leader in case management certifications. Moreover, findings of this study can be used for further research in case management and for developing training and education curricula.

References

Bodenheimer, T., & Berry-Millett, R. (2009, December). *Care management of patients with complex health care needs*. The Robert Wood Johnson Foundation Research report No. 19. Princeton, NJ: The Robert Wood Johnson Foundation.

Brown, R. (2009, March). *The promise of care coordination*. New York, NY: The National Coalition on Care Coordination (N3C).

Commission for Case Manager Certification. (2010). Philosophy of case management. Retrieved March 25, 2010, from http://www.ccmcertification.org/secondary.php?section=Case_Management

Gallup Organization. (2004, March). National nursing survey, sponsored by the Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services. Unpublished report.

National Commission for Certifying Agencies. (2007). *Standards for the Accreditation of Certification programs*. Washington, DC: Institute for Credentialing Excellence.

National Quality Forum. (2010). Care coordination practices & measures, overview, 2010. Retrieved May 20, 2010, from http://www.qualityforum.org/projects/care_coordination.aspx?section=PublicandMemberComment2009-10-26

Tabachnick, B. G., & Fidel, L. S. (2001). *Using multivariate statistics* (4th ed.). Needham, MA: Allyn and Bacon.

Tahan, H. A., Huber, D. L., & Downey, W. T. (2006a). Case managers' roles and functions: Commission for case manager certification's 2004 research, part I. *Lippincott Case Management*, *11*(1) 4–22.

Tahan, H. A., Downey, W. T., & Huber, D. L. (2006b). Case managers' roles and functions: Commission for case manager certification's 2004 research, part II. *Lippincott Case Management, 11*(2), 71–87.

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