Functions and Knowledge Domains for Disability Management Practice: A Delphi Study

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The importance of job functions and knowledge domains to the practice of disability management was examined by systematically obtaining the opinions of a panel of 44 recognized experts in disability management. As proposed by Habeck and Kirchner (1999), disability management was conceptualized at two levels of practice. Level I (DM) was defined as administrative and managerial in nature, with an organizational focus. Level II (dm) was conceptualized as human-service oriented, involving the direct provision of services to individual clients. The results indicated that many functions and knowledge domains that appear to be generally important to disability management practice, while others appear to have greater or lesser salience depending on whether services are focused at the organizational or individual level of intervention.

As discussed by, Habeck (1996), the term "disability management" has come to be widely used in rehabilitation, with tens of thousands of practitioners, including many private rehabilitation practitioners, describing their work as "disability management." However, there appears to be little consensus on a definition of the phrase and little empirical basis on which to found such a definition. Rosenthal and Olsheski (1999) have also pointed out the lack of a clear consensus on the definition of the term, stating that it is "difficult for employers and employees to understand how disability management actually differs from mainstream private sector rehabilitation interventions" (p. 32). According to Habeck, disability management may be distinguished from private-sector rehabilitation practice in that disability management is characterized by direct access to the workplace and by intervention at the onset of work-related injury or illness. In addition, disability management tends to be employer-based and proactive, in contrast to the reactive, individual orientation of traditional private-sector rehabilitation practice. The latter tends to emphasize the provision of services to individual workers after work-related injury or illness, when it appears that some disability prevents a return to work.

The economics of human capital support an important role for disability management practice. Employees are often not easily replaced, and there are economic benefits in viewing and treating employees as valued resources (Caldwell, 1996). Work-related disability results in substantial costs to employers (Chelius, Galvin, & Owens, 1992; Davidson, 1994; Robbins, 1993). Resources and interventions are (ideally) invested in managing employee health and disability in order to maintain productivity and to control costs through preventive interventions and disability management programming (Akabas, Gates, & Galvin, 1992).

Some empirical evidence has been provided regarding the value of disability management in industry (Gottlieb, Vandergoot, & Lutsky, 1991). Habeck, Leahy, Hunt, Chan, and Welch (1991) found that an organization's workers'-compensation experience may be affected by organizational factors and behaviors that can be controlled or at least influenced. More specifically, they found a lower incidence of workers'-compensation claims in organizations that were more actively involved in safety, in the prevention and management of work disabilities, and in open and participatory relationships with

employees. In a subsequent study of a larger random sample of employers selected from a wider variety of industries, Habeck and colleagues (Habeck, Hunt, & VanTol, 1998; Habeck, Scully, VanTol, & Hunt, 1998) found fewer incidents resulting in lost work days, fewer lost work days, and fewer workers'-compensation claims in organizations that were more diligent and thorough in their safety efforts, devoted management time and resources to support prevention, took a proactive approach to return to work (beginning early and involving all concerned parties in the process), and created a work climate that values people. Disability management programs offer a mechanism by which business and industry may operationalize such policies, facilitating reductions in injuries and workers' compensation claims.

The needs of employers may not be adequately addressed by traditional rehabilitation services, as traditional services often fail to develop active, equal, and valued partnerships with employers in implementing the rehabilitation process (Berkowitz, 1990; Berkowitz & Berkowitz, 1991; Currier, 1995). A comprehensive disability management program provides a mechanism for developing such partnerships. However, empirical data are critical to understanding the practice of disability management. Such data make it possible to describe the major functions, performance standards, and knowledge domains that are requisite to competent practice (Habeck, 1996; Henderson, 1996). Job functions are related to what disability management professionals do on their jobs; knowledge domains cover what these professionals need to know in order to perform their jobs, and performance relates to how well these professionals do on the job compared to a set of standards.

Habeck and Kirchner (1999) have conceptualized disability management as encompassing two levels of practice: (a) Level I or "big DM" practice is administrative and managerial, focusing on the organization or workplace as a whole and involving little direct service at the individual client level; (b) Level II or "little dm" practice is more human-service oriented, involving the provision of services directly to individual clients. The Certification of Disability Management Specialists Commission (CDMSC), formerly known as the Certification of Insurance Rehabilitation Specialists Commission (CIRSC), has historically played a role in defining credentials and practice in the management of industrial injury and illness through its focus on workers' compensation, vocational rehabilitation, and insurance-related case management (CDMSC, 1996). However, research to empirically define the standards and qualifications requisite to effective practice, along with credentialing criteria, has been limited. Thus, for the professional practice of disability management to advance, the "unique needs relating to specific professional issues such as qualifications and standards for practice in disability management must be addressed within [the] profession" (Habeck, 1996, p. 18)--addressed, that is, by research.

The purpose of the present study was to contribute to an empirical definition of disability management practice in terms of the two levels of practice identified by Habeck and Kirchner (1999), Level I (DM) practice and Level I! (dm) practice. A Delphi procedure was used to obtain the opinions of experts, which were then used to define the functions comprising disability management practice at each of the two levels and the areas of knowledge requisite to those functions. Performance standards were not studied because they were beyond our scope.

METHOD

Participants

Two groups of experts in disability management participated, a project advisory committee and an expert panel. The authors selected participants for the advisory committee on the basis of expertise in disability management as indicated by exemplary direct service practice in disability management; contributions as facilitators and presenters in continuing education programs; service on certification commissions and in leadership positions within professional associations; and research and scholarship. The following persons, served on the advisory committee:

* Rheta Baron-King, CDMSC Commissioner and rehabilitation practitioner in Pasadena, CA;
* Karen Beauregard, former director of disability management in the Department of Civil Service of the State of Michigan;
* Bruce Flynn, director of disability management, Washington Business Group on Health, Washington, DC;
* Kathryn Mulholland, a disability management consultant, researcher, and trainer in Washington, DC;
* Jerry Olsheski, associate professor, Ohio University, Athens, OH;
* Donald Shrey, owner of Advanced Transitions, Inc., Cincinnati, OH; and
* Chris Wood, managing partner, CDMSC commissioner and practitioner, Injury Management Resources, Chelmsford, MA.

The authors also selected participants for the expert panel, inviting nominations from the advisory committee and using the same indicators of expertise as those used for selecting advisory committee members. A total of 64 individuals were identified and were contacted by phone with an invitation to participate. All 64 agreed to participate, and 44 (68.8%) actually did so. The panel was thus comprised of 44 participants, 19 (43.2%) women and 25 (56.8%) men, with ages ranging from 24 to 64 years (M =. 44.1, SD = 8.9). A total of 33 (75.0%) had completed master's degrees or higher, with rehabilitation counseling (n = 19, 43.2%) and the closely related majors of rehabilitation psychology, vocational rehabilitation, and human rehabilitation (n = 3, 6.8%) being the most common areas of study. Other majors included organizational development/behavior, risk management, occupational therapy, nursing, health care administration, psychology, economics, kinesiology/physiology, counseling, and business administration. In addition, the panel members had participated in a wide variety of other training, including continuing education, seminars, conferences, workshops, and post-graduate education or certificate programs. Participants indicated experience in disability management ranging from 2 to 30 years (M = 11.9, SD = 6.8), with 20 (45.5%) working in external disability management programs, 17 (38.6%) in internal programs, and 7 (15.9%) in academic programs.

Procedures

The project was divided into two phases. Phase I involved development of a questionnaire, using input from the advisory committee. Phase II involved a Delphi procedure, with participants on the expert panel responding to the questionnaire to achieve a consensus in defining the functions and knowledge domains of disability management practice.

Phase I. A preliminary, semistructured questionnaire was developed by the authors, with an initial

draft list of 14 job functions and 30 knowledge domains for each of the two disability management practice levels (DM and dm). This list was generated from a review of disability management literature (e.g., Habeck, 1996; Hursh, 1995; Scully, Habeck, & Leahy, 1999). The preliminary questionnaire was sent to advisory panel members, who were asked for their opinions regarding each item--whether to "retain as is," "delete," or "modify as follows," with space provided to state any recommended modifications. Advisory committee members were also asked to nominate colleagues to serve as members of the expert panel in Phase II.

Items were also included in the first version of the questionnaire to collect information on demographic characteristics of respondents, including education, work experience, major area of study, and highest degree. In addition, respondents were asked to indicate the minimum education and experience that should be required for each of the two levels of disability management practice. Space was also provided for comments, additions, or deletions to any of the function and knowledge items.

Definitions of Level I and Level II practice were included in the questionnaire. Level I was defined as that level of practice where "disability managers, administrators, and program consultants in disability management ... focus on developing, implementing, managing, and analyzing disability management programs, either internally or externally, and [on] consulting with business organizations regarding disability management program planning, development, implementation, and evaluation ... [At Level I there is usually] little or no contact with injured workers." Level II was defined as that level of practice where "specialists who provide direct preventive and remedial services to minimize the impact and cost of disability and to enhance productivity ... [that is,] service providers who have direct contact with injured workers ... [and who] may be internally or externally (community) based ... [and] may report to a Level I disability manager, an organization manager, or administrator ... perform selective interventions for which they should have some knowledge and understanding within the context of a disability management program."

On the basis of the advisory panel recommendations, a revised 76-item questionnaire was written listing 31 job functions and 45 knowledge items at each practice level, representing major disability management practice domains. A five-point Likert-type scale was utilized for each respondent to rate individual items twice (once for each of the two practice levels) according to degree of importance to job performance: 1 = not important/not essential; 2 = somewhat important/minimally essential; 3 = important/ moderately essential; 4 = very important/clearly essential; and 5 = extremely important/ absolutely essential. Space was also provided for respondents to add comments and to modify, delete, and add function and knowledge items.

Phase II. In Phase II of the study, the Delphi procedure was implemented (Brown, 1968; Linstone & Turoff, 1975) to achieve consensus of expert opinion on the importance of the functions and knowledge domains for both practice levels, Level I and Level II. The revised questionnaire from Phase I was mailed to the 64 participants who originally agreed to serve on the expert panel. Following the initial mailing, nonrespondents were contacted, reminded about the survey, and encouraged to return the questionnaire. Of the 64 Round 1 mailings, 44 usable questionnaires were returned, giving a response rate of 68.8%. These were reviewed and the mean, median, variance, and interquartile range were computed for each of the two sets of ratings (Level I and Level II) on each item. Two new items emerged from the Round 1 responses: one knowledge item, "health care

ethics," and one function item, "training external vendors regarding disability management practices and/or policies." These two items were added to the questionnaire for Round 2, resulting in 32 function items and 46 knowledge items. The original Round 1 responses were retained and a database was created documenting the Round 1 quantitative and qualitative responses.

For Round 2 of the Delphi procedure, the revised questionnaires were mailed to the 44 Round 1 respondents on the expert panel. The questionnaires were individualized, with the participant's ratings on each function and knowledge item from Round 1 provided along with the group median and interquartile range for each item. Medians rather than means were used in reporting back to respondents in order to diminish the effects of outliers. The expert panel members were asked to review their responses by comparing their own response on each item to the overall group median and then reconsidering their own responses as they saw fit. This procedure is typical of the Delphi technique, which seeks to obtain consensus among experts. That consensus is approached through the convergence of variances or standard deviations in subsequent iterations (Brown, 1968; Linstone & Turoff, 1975).

Following Round 2, each of the item means, medians, standard deviations, and interquartile ranges were again computed. These results were compared to those from Round 1, with special attention to changes in standard deviations. Theoretically, the standard deviations for each item should decrease in a new round, demonstrating convergence of the ratings (i.e., increasing consensus on the expert panel). The goal was to reach agreement among the participants on the domains included in the questionnaire (i.e., major job functions and knowledge domains) as measured by the convergence of standard deviations (Brown, 1968; Linstone & Turoff, 1975).

RESULTS

Of the 44 participants on the expert panel who provided usable responses on Round 1, 23 provided usable responses on Round 2 (35.9% of the 64 who had originally agreed to participate). The means of the standard deviations of ratings on functions dropped from 0.92 to 0.70 from Round 1 to Round 2 for Level I practice and from 1.01 to 0.77 for Level II practice. The means of the standard deviations of ratings on knowledge domains dropped from 0.78 to 0.64 from Round 1 to Round 2 for Level I practice and from 1.08 to 0.70 for Level II practice. Thus, the mean standard deviations dropped substantially from Rounds 1 to 2, and all were 0.77 or below after Round 2. In Round 2, standard deviations for individual items ranged from 0.21, indicating a high level of consensus, to 1.06, indicating less consensus. Across all disability management functions and knowledge items, only 16 of the 156 standard deviations were greater than 0.90.

Given the low standard deviations achieved in Round 2 and the drop in the number of respondents from 44 to 23, a decision was made to dispense with additional iterations and to use the Round 2 ratings to estimate the importance of functions and knowledge domains for each of the two levels of disability management practice. In computing the final mean ratings for each item, the Round 2 ratings of the 23 participants who responded to Round 2 and the Round 1 ratings of the remaining 21 participants were used. It was assumed that those who responded to Round 1 but not to Round 2 did not want to change their ratings or did not feel strongly enough about changing their ratings to return the Round 2 questionnaire.

Functions Defining Disability Management Practice

Importance ratings of each of the 32 functions for each of the two levels of disability management practice are summarized in Table 1, including items, ranks, means, and standard deviations, with items listed from highest to lowest mean ratings for Level I practice. (Some items are listed in the table in condensed form, and full versions of all items may be found in Currier, 1998). Correlations between function ranks for the two levels were computed using Spearman's rank correlation. A negative relationship was found (p = -.60), suggesting that the higher a function was ranked for one level of practice, the lower it tended to be ranked for the other. For example, the first function listed in Table 1 (conducting corporate disability analyses to determine impact on costs and performance) was ranked first for Level I practice (the most important of all functions listed), and last for Level II practice (the least important).

Table 1. Importance Ratings of Job Functions for Levels I (DM) and II (dm) Practice

	Level I (DM)			Level II (dm)		
Function	**Rank**	**M**	**SD**	**Rank**	**M**	**SD**
Conducting corporate disability analyses to determine impact on costs & performance	1	4.95	0.21	32	2.75	0.58
Developing methodology to measure DM outcomes relevant to the organization	2.5	4.93	0.25	29.5	3.07	0.88
Designing DM policies, prgrams, coordinating structures, protocols, RTW plans	2.5	4.93	0.33	25	3.20	0.76
Monitoring & evaluating impact of DM on treatment, RTW, & program outcomes	4	4.89	0.32	16	3.81	0.59
Motivating organization & partners with regard to DM	5.5	4.84	0.57	22	3.45	0.95
Establishing DM goals related to corporate mission, strategies, & goals	5.5	4.84	0.64	31	2.95	0.96
Training labor & management regarding best practices in DM	7.5	4.77	0.52	18	3.72	0.83
Collaborating & negotiating with labor & management	7.5	4.77	0.52	24	3.30	0.83
Engaging in professional development activities to keep abreast of state-of-the-art DM practices	9	4.75	0.53	8	4.68	0.60
Developing capacity within company to conduct early intervention for RTW	10	4.73	0.54	12.5	3.98	0.80
Promoting & marketing the DM program internally	11	4.70	0.67	14	3.93	0.95

Conducting assessments of worksite factors related to DM	12	4.64	0.61	15	3.88	0.86
Training external vendors regarding DM practices & policies	13	4.48	0.87	17	3.76	1.19
Performing administrative & coordination functions related to operation of DM program	14	4.30	0.59	28	3.16	0.86
Contracting, purchasing, monitoring, evaluating case management with external vendors	15	4.16	0.68	26.5	3.19	0.99
Promoting & marketing DM program among external service providers	16	4.02	0.79	12.5	3.98	0.98
Contracting, purchasing, monitoring, & evaluating counseling services with external vendors	17	3.95	0.75	20.5	3.67	0.94
Contracting, purchasing, monitoring, & evaluating RTW services with external vendors	18	3.93	1.00	23	3.38	0.85
Contracting, purchasing, monitoring, & evaluating individual assessment with external vendors	19	3.89	0.75	20.5	3.67	0.81
Providing RTW coordination services	22	3.30	1.04	3.5	4.77	0.60
Conducting job analyses & job accommodation to facilitate prevention	23	2.98	0.74	5	4.75	0.65
Performing RTW functions	24	2.60	1.06	2	4.82	0.50
Evaluating, purchasing, & coordinating assistive technologies for accommodations	25	2.56	1.03	3.5	4.77	0.60
Performing prevention & wellness program functions	26	2.38	0.76	11	4.00	0.76
Performing case management functions	27	2.37	0.90	1	4.86	0.41
Providing forensic rehabilitation services for employers	28	2.33	1.00	26.5	3.19	0.85
Conducting & performing medical case management functions	29	2.26	0.88	6.5	4.73	0.54
Performing job placement and/or outplacement services	30	2.19	0.93	10	4.2	0.85
Performing counseling interventions functions	31	2.07	0.67	9	4.61	0.69
Performing individual assessment functions	32	2.05	0.72	6.5	4.73	0.54

Note. DM = disability management; RTW = return-to-work. Noninteger ranks refer to tie ranks.

Ratings of Importance of Functions to Level I (DM) Practice. Twelve functions were rated in the "extremely important/absolutely essential" range for Level I practice, receiving mean importance ratings higher than 4.50 (i.e., above the midpoint between 4 = very important/clearly essential and 5 = extremely important/ absolutely essential). The functions rated "extremely important/absolutely essential" are ranked 1 through 12 under Level I in Table 1. These tended to be executive functions related to evaluation, planning, research, and development. In addition, ,nine functions were rated in the "very important/clearly essential" range, with mean importance ratings between 3.51 and 4.50 (i. e., above the midpoint between 3 = important/moderately essential and 4 = very important/clearly essential). These nine functions are ranked 13 through 21 under Level I in Table 1. Many of the functions in the "clearly essential" range had to do with the procurement of services from external sources. Overall, the 21 functions in the "clearly essential" to "absolutely essential" ranges tended to be administrative and management functions, as might be expected: operative terms used in the highest-ranking functions were conducting, developing, designing, monitoring, evaluating, motivating, and establishing. The remaining 11 functions had mean ratings less than 3.50 for Level I practice, but no mean rating was lower than 2.05 (2 = somewhat important/minimally essential).

Ratings of Importance of Functions to Level II (dm) Practice. Ten functions were rated in the "extremely important/absolutely essential" range for Level II practice, with mean ratings above 4.50. The functions rated in the "extremely important/absolutely essential" range are ranked 1 through 10 under Level II in Table 1. These tended to focus on direct vocational and clinical services such as case management, assessment, job analysis, counseling, and job placement. In addition, 11 functions were rated in the "very important/clearly essential" range, with mean ratings between 3.51 and 4.50; these are ranked 11 through 20.5 under Level II in Table 1. As with the 10 highest-ranking functions, these tended to relate to the provision of direct services but also included some evaluative and employer-based coordination functions. Overall, the 21 functions in the "clearly essential" to "absolutely essential" ranges tended to be clinical assessment, counseling, case management, and return-to-work functions. Operative terms used in the highest ranking functions were performing, providing, evaluating, purchasing, coordinating, and conducting. Eleven functions had mean ratings below 3.50 for Level II practice, but no mean ratings were lower than 2.75 (3 = important/moderately essential).

Functions Common to Levels I (DM) Practice and Level II (dm) Practice. To define functions that appeared to be common to the two levels of disability management practice, those items with mean ratings higher than 3.50 on both Level I and Level II--that is, items falling into the "clearly essential" to "absolutely essential" ranges--were identified. The following 11 functions were identified as common to both levels of practice:

1. monitoring and evaluating the impact of disability management on treatment, return-to-work (RTW), and program outcomes;
2. training labor and management regarding best practices in disability management;
3. professional development to keep abreast of state-of-the-art disability management practices;
4. developing the capacity within the company to conduct early intervention for return-to-work;
5. promoting and marketing the disability management program internally;
6. conducting assessments of worksite factors related to disability management;
7. training external vendors regarding disability management practices and policies;
8. promoting and marketing the disability management program among external service providers;

9. contracting, purchasing, monitoring, and evaluating counseling services with external vendors;
10. contracting, purchasing, monitoring, and evaluating individual assessment services with external vendors; and
11. coordinating and facilitating health promotion, disability prevention, and safety education.

Functions More Important to Level I (DM Practice. Functions that appeared to be more important to Level I practice were defined as those with mean importance ratings above 3.50 on Level I but not on Level II Ten functions appeared to be more important to Level I:

1. conducting corporate analyses to determine the impact of disabilities on costs and performance;
2. developing a methodology to measure disability management outcomes relevant to the organization;
3. designing disability management policies, programs, coordinating structures, protocols, and return-to-work plans;
4. motivating the organization and partners with regard to disability management;
5. establishing disability management goals related to corporate mission, strategies, and goals;
6. collaborating and negotiating with labor and management;
7. performing administrative and coordination functions related to operation of disability management programs;
8. contracting, purchasing, monitoring, and evaluating case management services with external vendors;
9. contracting, purchasing, monitoring, and evaluating return-to-work services with external vendors; and
10. conducting alternative case resolution functions (e.g., reviewing settlement proposals).

Functions More Important to Level II (dm) Practice. Functions that appeared to be more important to Level II practice were defined as those with mean ratings above 3.50 on Level II practice but not on Level I. Ten functions were identified as unique to Level II:

1. performing case management functions;
2. performing return-to-work functions;
3. providing return-to-work coordination services;
4. evaluating, purchasing, and coordinating assistive technologies for accommodations;
5. conducting job analyses and job accommodation to facilitate prevention;
6. performing medical case-management functions;
7. performing individual assessment functions;
8. performing counseling intervention functions;
9. performing job placement and outplacement services; and
10. performing prevention and wellness program functions.

Knowledge Domains Defining Disability Management Practice

Importance ratings of each of the 46 knowledge domains for each of the two levels of disability management practice are summarized in Table 2, including items, ranks, means, and standard deviations. Ratings are ordered by mean ratings for Level I practice, highest to lowest. Some items

are listed in the table in condensed form; full versions of all items may be found in Currier (1998). Correlations between knowledge domain ranks for the two levels were computed using Spearman's rank correlation. A negative relationship was found (p = -0.47). Thus, as for ranks of functions across the two levels of practice, those knowledge domains that tended to rank higher in importance for one level of practice tended to rank lower in importance for the other.

TABLE 2. Importance Ratings of Job Knowledge Domains for Levels I (DM) and II (dm) Practice

	Level I (DM)			Level II (dm)		
Knowledge Domain	Rank	M	SD	Rank	M	SD
Rationale for DM	1	4.95	0.30	9.5	4.74	0.59
Business practices & operations	2.5	4.93	0.25	27	3.86	0.78
Program evaluation & research	2.5	4.93	0.26	39	3.17	0.70
Definition & components of DM & of DM models	4	4.91	0.36	16.5	4.52	0.77
Employment & disability-related legislation, compliance strategies, & program interventions	5	4.89	0.32	23.5	4.10	0.58
Corporate lexicon	6	4.86	0.41	32	3.64	0.82
Basic interpersonal communication skills	7	4.84	0.37	1.5	4.91	0.29
Integrated benefit systems design	8	4.82	0.39	46	2.81	0.83
Cost containment procedures, strategies, & analysis	9	4.77	0.52	33	3.42	0.85
Teaching, training, & presentation techniques	10.5	4.75	0.58	31	3.74	0.82
Negotiation & conflict resolution strategies	10.5	4.75	0.61	16.5	4.52	0.80
Integrated benefit systems	12	4.73	0.45	37	3.24	0.88
Human resource management principles	13.5	4.70	0.55	42.5	3.12	0.59
Legal & forensic aspects of business, disability, & rehabilitation	13.5	4.70	0.67	26	3.95	0.55
Labor & management collaboration & negotiations	15.5	4.66	0.57	29.5	3.81	0.83
Organizational consulting intervention skills	15.5	4.66	0.61	40.5	3.16	0.97

Risk management & insurance principles	18	4.64	0.61	40.5	3.16	0.72
Vendor selection criteria	18	4.64	0.65	35.5	3.26	0.95
Union work rules & regulations	18	4.64	0.72	23.5	4.10	0.66
Organizational behavior concepts & principles	21.5	4.61	0.65	35.5	3.26	0.90
Provider network evaluation procedures & concepts	21.5	4.61	0.65	38	3.21	0.80
Managed health care, behavioral health care, and workers' compensation system	21.5	4.61	0.69	29.5	3.81	0.67
Organizational training & development	21.5	4.61	0.72	45	2.93	0.67
Health care ethics	24	4.52	0.81	15	4.57	0.60
Employee assistance programs, resources, & principles	25.5	4.20	0.70	28	3.84	0.75
Marketing strategies & techniques	25.5	4.20	0.76	44	3.10	0.76
Managed Care Information Systems	27	4.07	0.89	42.53.12	0.78	
Public benefit programs	28	3.93	0.79	25	3.98	0.83
Psychosocial aspects of chronic illness & disability	29	3.86	0.82	1.5	4.91	0.29
Wellness & prevention concepts & strategies	30.5	3.82	0.62	34	3.37	0.79
Rehabilitation service delivery systems	30.5	3.82	0.76	20	4.23	0.65
Theory & techniques of case management	32	3.80	0.90	13	4.65	0.61
Job analysis, modification, & accommodation	33	3.77	0.71	3	4.86	0.47
Mental health & psychiatric disability concepts	34	3.73	0.82	19	4.28	0.55
Clinical practice guidelines for health & disability care management	35	3.61	0.75	21.5	4.21	0.56
Medical aspects of acute & chronic illness & disability	36	3.36	0.81	4	4.83	0.44

Community resources & support programs	37	3.34	0.81	12	4.70	0.67
Ergonomics	38	3.30	0.88	14	4.60	0.62
Medical case management	39	3.28	0.88	8	4.76	0.58
Work-adjustment, work-transition, 7 work-hardening resources & strategies	40.5	3.23	0.64	6.5	4.77	0.53
Job placement & job development	40.5	3.23	0.80	11	4.72	0.63
Labor market information	42	3.09	0.96	18	4.44	1.01
Vocational/career assessment & evaluation	43.5	3.07	0.55	6.5	4.77	0.53
Substance use/abuse/ addiction & pharmacology	43.5	3.07	0.79	21.5	4.21	0.56
Vocational/career counseling	45.5	3.05	0.65	5	4.79	0.47
Counseling theories, techniques, & skills	45.5	3.05	0.68	9.5	4.74	0.49

Note. DM = disability management.Noninteger ranks refer to tie ranks.

Ratings of Importance of Knowledge Domains to Level I (DM) Practice. Twenty-four of the 46 knowledge domains were rated in the "extremely important/absolutely essential" range for Level I practice, that is, received mean ratings higher than 4.50 (see knowledge domains ranked 1 through 24 for Level I practice in Table 2). In addition, 11 knowledge domains had mean ratings in the "very important/clearly essential" range for Level I practice, with mean ratings between 3.51 and 4.50 (see knowledge domains ranked 25.5 through 35 for Level I practice in Table 2). In examining the 35 knowledge domains that were rated as clearly to absolutely essential, the range of content areas seems clearly broad. Only 11 knowledge domains had mean ratings of 3.50 or below, and none had a mean rating lower than 3.05 (3 = important/moderately essential).

Ratings of Importance of Knowledge Domains to Level II (dm) Practice. Seventeen knowledge domains were rated in the "extremely important/ absolutely essential" range for Level II practice, that is, received mean ratings above 4.50 (see knowledge domains ranked 1 through 16.5 for Level II practice in Table 2). In addition, 15 knowledge domains had mean ratings in the "very important/ clearly essential" range for Level II practice, with mean ratings between 3.51 and 4.50 (see knowledge domains ranked 18 through 32 under Level II in Table 2). As for the knowledge domains that appeared particularly important to Level I practice, those rated clearly to absolutely essential to Level II practice included a diverse array of content areas. Fourteen knowledge domains had mean ratings of 3.50 or below, but no mean ratings were lower than 2.81 (3 = important/moderately essential).

Knowledge Areas Common to Level I (DM) Practice and Level II (dm) Practice. A total of 21

knowledge domains had mean ratings above 3.50 for both Level I and Level II practice. Following are the 21 knowledge domains common to the two levels:

1. rationale for disability management;
2. business practices and operations;
3. definition and components of disability management and disability management models;
4. employment and disability-related legislation, compliance strategies, and program interventions;
5. corporate lexicon;
6. basic interpersonal communication skills;
7. teaching, training, and presentation techniques;
8. negotiation and conflict-resolution strategies;
9. legal and forensic aspects of business, disability, and rehabilitation;
10. labor and management collaboration and negotiations;
11. union work rules and regulations;
12. managed health care, behavioral health care, and workers' compensation systems;
13. health care ethics;
14. employee assistance programs, resources, and principles;
15. public benefit programs;
16. psychosocial aspects of chronic illness and disability;
17. rehabilitation service delivery systems;
18. theory and techniques of case management;
19. job analysis, modification, accommodation;
20. mental health and psychiatric disability concepts; and
21. clinical practice guidelines for health and disability care management.

Knowledge Domains More Important to Level I (DM) Practice. Fourteen knowledge domains had mean importance ratings above 3.50 for Level I practice but not for Level II. These 14 knowledge domains, defined as more important to Level I (DM), were as follows:

1. program evaluation and research;
2. integrated benefits systems and design;
3. cost containment procedures, strategies, and analysis;
4. integrated benefit systems;
5. human resource management principles;
6. organizational consulting intervention skills;
7. risk management and insurance principles;
8. vendor selection criteria;
9. organizational behavior concepts and principles;
10. provider network evaluation procedures and concepts;
11. organizational training and development;
12. marketing strategies and techniques;
13. managed-care information systems; and
14. wellness and prevention concepts and strategies.

Knowledge Domains More Important to Level II (dm) Practice. Eleven knowledge domains had mean ratings above 3.50 for Level II practice but not for Level I practice. These 11 knowledge domains,

defined as more important to Level II (dm), were as follows:

1. medical aspects of acute and chronic illness and disability;
2. vocational/career counseling;
3. work adjustment, work transition, and work hardening resources and strategies;
4. vocational/career assessment and evaluation;
5. medical case management;
6. counseling theories, techniques, and skills;
7. job placement and job development;
8. community resources and support programs;
9. ergonomics;
10. labor market information; and
11. substance use, abuse, and addiction and pharmacology.

Education Requirements

In Round 1, expert panel members were asked to indicate the minimum education that disability management professionals should possess for competent practice at each of the two levels. For Level I practice, a master's degree was predominantly viewed as the minimum level of education, with 27 panel members (61.4%) indicating a master's degree and 12 (27.3%) indicating a bachelor's degree. Seven major areas of study received at least 50% endorsement from the panel: rehabilitation counseling (77.3%); industrial and organizational psychology (59.1%); risk management and insurance (59.1%); human resource management (56.8%); medicine, with an occupational health specialty (54.5%); business administration (52.3%); and nursing, with an occupational health specialty (50.0%).

For Level II practice, 20 panel members (45.5%) indicated that a master's degree should be the minimum educational level while 19 (43.2%) indicated a bachelor's degree. Three major areas of study received at least 50% endorsement from the experts: rehabilitation counseling (86.4%), occupational health nursing (68.2%), and rehabilitation psychology (59.1%). In addition, four majors received at least 40% endorsement from the panel: nursing, in any specialty (45.5%); occupational therapy (43.2%); social work (43.2%); and physical therapy (40.9%).

In interpreting the results on minimum education requirements, it is important to consider that 75% of the expert panel had master's degrees or higher, with 50% in rehabilitation counseling or closely related majors, and that these persons might tend to advocate for educational backgrounds similar to their own. A majority of the expert panel believed that a master's degree should be required for Level I practice, but less than half believed that a master's degree should be required for Level II practice. In addition, rehabilitation counseling was most frequently indicated as a major for both levels of practice, but many other majors were frequently indicated as well.

DISCUSSION

The questionnaire that was developed appeared to include functions and knowledge domains that were viewed by respondents as important in disability management practice. The lowest mean

importance rating for any function for either Level I or Level II practice was 2.05 (2 = somewhat important/minimally essential) and the lowest mean importance rating for any knowledge domain was 2.81 (3 = important/moderately essential). Further, with the exception of one function (providing forensic rehabilitation services for employers), all functions had mean ratings above 3.50 (i.e., in the clearly to absolutely essential range) for at least one of the two levels of practice, and all knowledge domains had mean importance ratings above 3.50 for at least one of the two levels.

These results suggest that it may be possible to differentiate two levels of disability management practice, as suggested by Habeck and Kirchner (1999). It appears that there is a core of common functions and knowledge domains cutting across Level I and Level II practice. However, there are also functions and knowledge domains that appear to be more salient to one level or the other. Level I practitioners provide services that are more focused on the employing organization and less on the individual and require knowledge consistent with those functions. The Level I practitioner might design, develop, supervise, purchase, or contract a menu of services in collaboration with internally based Level II practitioners or outside vendors employing Level II practitioners, who would in turn require a knowledge base consistent with those functions. The Level I practitioner would coordinate Level II services within the context of a broad disability management program. In addition, Level I practitioners could also provide integrated planning and development, interventions, and prevention services on a fee-for-service basis, by contractual arrangement, or through a managed care organization, with remuneration through capitation fees. Fundamental to the marketing of such services would be the ability of the provider to demonstrate an attractive return on investment to management and other key stakeholders.

Level II practitioners may provide proactive, preventative, or response services that would include, but not be limited to, traditional vocational rehabilitation and clinical services. However, the functions and knowledge domains common to both levels of practice indicate a need to operate within an overall disability management umbrella established with the employer and the workplace. The "most essential" functions that emphasize internal analysis, planning, implementation, marketing, and evaluation indicate that Level II practitioners have a significant role to play within disability management, albeit one requiring additional preparation in management and business administration. Important additional content areas would include business concepts, organizational behavior, risk management, human resource management, insurance and benefit principles, accounting, business management, and information systems.

There appears to be a variety of practice models, accommodating the needs, resources, and management philosophies of various workplaces (see the discussion of the "make or buy" model of disability management provided by Akabas et al., 1992). The service structure could range from a unit wholly run within the organization, providing all necessary components and contracting minimally with external providers, to the historic method of referring all disability management and worker compensation functions to external providers. However, the historic model may not fully correspond in its structure to the concept of disability management (Habeck, 1996; Leclair & Mitchell, 1993; Mitchell & Leclair, 1996). An examination of the functions and knowledge domains common to Level I and Level II indicates a clear differentiation between traditional private-sector rehabilitation interventions and the context of the disability management model.

Practically speaking, disability management practice appears to be setting- and resource-dependent

and can be conceptualized as a hierarchical set of functions that depend on organizational needs and resources, including the availability of staff who are competent in the functions identified in the present study. Regardless of the program model, the services that rehabilitation counselors currently can provide can be marketable within the context of an employer-formulated disability management program. Additional preparation to fulfill critical functions at the organizational level appears to open another venue for the profession.

This study has sought to contribute to a valid description of disability management practice by providing a basis for establishing professional standards, well-defined performance domains, and curriculum guidelines to disseminate knowledge regarding best practices, and by informing further research efforts. On the basis of the collective expert opinions obtained in the present study, it appears that the content of professional education and training and credentialing requirements should depend on the practice level of the practitioner being credentialed. As advances occur in the empirical definition of disability management functions and requisite knowledge, a stronger empirical base will be provided for credentialing examinations (Henderson, 1996; Knapp & Knapp, 1995). Further research on a broader, national level is needed, with a larger sample that would seek to further test the concept of disability management practice domains and provide a stronger empirical basis for professional education and training as well as for credentialing requirements and examinations.

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AUTHORS' NOTES

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