An Industrial Model for Assisting Employers to Comply With the Americans With Disabilities Act of 1990

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Innovative opportunities exist for occupational therapists to expand their role and assume a more active role in helping employers comply with the Americans With Disabilities Act of 1990 (ADA) (Public Law 101–336). This article proposes an industrial model to facilitate earlier employer involvement and compliance with Title I of the ADA. It introduces the process for implementation of the Industrial Model of Rehabilitation Management (developed by the second author), defines the therapist's role, presents a clinical example, and discusses weaknesses and strengths of the model. Therapists are encouraged to familiarize themselves with the Industrial Model proposed to assist the employer's implementation of the ADA.

The Americans With Disabilities Act of 1990 (ADA) (Public Law 101–336) offers exciting challenges for occupational therapists and physical therapists specializing in industrial rehabilitation to involve employers early in the return-to-work process, to use the therapists' advanced skills in functional capacity evaluations and job analyses, and to expand their involvement in the community on behalf of their clients. Although the field of industrial rehabilitation comprises many different professions, the services mentioned above may sometimes be performed not only by occupational therapists but also by physical therapists.

Occupational therapists are encouraged to familiarize themselves with the Industrial Model, proposed to help the employer to comply with the ADA. In particular, specific opportunities for occupational therapists to assist in implementing the ADA will be addressed in this article, with emphasis on assisting employers to comply with Title I of the ADA.

The ADA requires that disabled persons be treated equally with the rest of the nation's citizens. The ADA mandates accessibility in four areas: Title I, Employment; Title II, Public Services and Transportation; Title III, Public Accommodations and Services Operated by Private Entities; and Title IV, Telecommunications. Title I prohibits denial of employment to qualified persons based on the person's disability (e.g., physical, cognitive, mental health) and requires that reasonable accommodations be provided (e.g., modified workstations and equipment) by the employer. Title II addresses public transportation and the removal of physical barriers from state and local government services. Title III focuses on physical barriers in new and existing businesses (e.g., restaurants, hotels, libraries, private schools, day-care centers). Finally, Title IV requires telephone companies to provide telecommunications relay services for hearing- and speech-impaired persons 24 hr per day.

In this article, we propose the Industrial Model of Rehabilitation Management (developed by the second author) to facilitate early employer involvement and compliance with Title I. First, the traditional Medical Management Model, developed by the second author, is outlined and contrasted with the proposed Industrial Model. Second, we highlight the process for implementing the Industrial Model, define the occupational therapist's role in industrial rehabilitation, and provide a clinical example of a therapist assisting an employer to comply with the ADA. Third, we discuss weaknesses and strengths of the proposed Industrial Model.

The Medical Management Model

In the traditional Medical Management Model (see Figure 1), the occupational therapist's discharge assessment at the completion of rehabilitation includes standardized measurements (e.g., range of motion, strength, and sen-
The employee takes the return-to-work form to the appropriate employee health office or supervisor's office. At this point, one of four options is available to the employer to decide for the employee: appropriate return to work of the employee, inappropriate placement of the employee on a no-work status, or termination of the employee. Based on compensation for back injury documentation, 90% of workers with back injury (Deyo, 1987; Laurens Rowe, 1983) improve within 1 month's time regardless of treatment. An assumption can be made that the employee returns to work without complications, with or without restrictions, and is appropriately placed in his or her work setting. The other three options listed result in continuation of the workers’ compensation claim, spiraling costs, and a potentially productive employee being off work. Deyo (1987) and Laurens Rowe (1983) have documented that the remaining 10% of compensable back injury cases account for 80% of the cost in workers’ compensation claims. These 10% require complex decision making by the employer regarding placement of the injured employee, which the employer bases solely on the return-to-work form.

If the employer inappropriately places the employee back in the work environment and the employee is unable to perform the work, the employee may eventually be fired due to the inability to perform the work satisfactorily or may be reinjured. In either case, the employee is eventually off work. If the employer determines that no light or modified work is available, the employee is maintained on a no-work status. Before the ADA, the employer was not obligated to offer alternative work or to modify the previous job to accommodate the worker. Therefore, the fourth alternative for the employer was to terminate employment.

The Medical Management Model is an open-chain process, with three of the four paths leading the employee out of work. Typically, with an industrial injury, the worker would be deemed stationary (i.e., no active medical care is required), impairment ratings would ensue, and the case would be closed. With a personal injury, the financial process may be slightly different, but the return-to-work issues are the same. The employee is left with or without financial compensation for the injury, usually lacks transferable skills, and is without work.

Because of the ADA, the typical medical treatment scenario described above can be changed. The ADA mandates that the employer attempt to return the employee to work if the employee is able to perform the "essential functions of the job" with or without "reasonable accommodations." If the employee cannot return 100% to the previous level of work, it is up to the employer to determine the essential functions of the job and the necessary job-related accommodations. Without functional assessment of the employee’s job-specific abilities and limitations, the employer’s decision is based solely on the return-to-work restrictions seen for the first time (under the Medical Management Model) when provided by the medical treatment team at the end of treatment. The employer’s response can no longer be that the employee be 100% able or no work is available, as is frequently stated to the therapist by the employer upon inquiry.

The Industrial Model of Rehabilitation Management

We propose an Industrial Model of Rehabilitation Management (see Figure 2) to facilitate earlier employer involvement in the qualified employee’s return to work under the ADA. The term qualified employee refers to an employee who meets the requirements for employment with skills, education, or other qualifications. As opposed to the Medical Management Model, the Industrial Model is a closed-chain process with ongoing, continuous assessment of multiple variables within the work environment. Appropriate placement is a result of alternative
choices and decisions made by a team, including the employer. Occupational and physical therapists are the main players in facilitating this chain of events. Additionally, multiple team players assist in the decision-making process. The employer is involved from Day 1 of the subacute phase of the rehabilitation of the individual employee rather than at the conclusion of all medical care, as is seen in the traditional Medical Management Model. The result of early involvement of the employer is that the employee is returned to gainful employment as soon as possible and remains a productive member of society. Through the Industrial Model, if the employee is unable to return to the employer in any capacity, the functional abilities and limitations are established early through functional capacity evaluation and job analysis, and vocational exploration may be pursued.

Vocational exploration can coincide with the rehabilitation of the patient. Vocational exploration does not necessarily have to occur outside of the realm of the employer. Often, the employer’s human resources department may be able to identify vacant positions for which the worker may be qualified.

How does this closed-chain Industrial Model work in the occupational therapist’s clinical practice with acutely injured patients? First, the therapist identifies the team players involved. The players may include any one or all of the following: the patient, the physician, the occupational or physical therapist, the insurance-carrier staff, the employer contact person, the rehabilitation nurse, the vocational specialist, the safety engineer, staff from the human resources department, and the on-line supervisors. Second, during the rehabilitation phase, the occupational therapist makes contact with the key player at the place of employment. In our experience with larger corporations, the key player is usually the occupational health nurse. If no occupational health nurse is available, human resources personnel or on-line supervisors can be contacted. The goal of contact with the key player at the place of employment is to obtain a completed job analysis or schedule a functional on-site job analysis.

A thorough job analysis defines the essential functions required of an employee to perform the job, and employers have become more aware, since the ADA, of having job analyses separate from job descriptions. A job analysis defines the critical physical and mental demands of the job. A job description simply lists work activities or skills required. The employer’s job descriptions (or often those descriptions found in the Dictionary of Occupational Titles [4th ed.], [Deyo, 1977] and the Dictionary of Occupational Titles [4th ed., Suppl., [Deyo, 1986] usually do not provide sufficient specific information to the therapist for the next step to be completed in the clinic—a functional capacity evaluation. The information that the occupational therapist needs for a functional job analysis to be complete and specific may include degree of repetitive work, intensity of material handling, working postures, analysis of the workstation, and the type and nature of the work itself. This must be obtained from an on-site visit with direct observation and measurement of critical factors. The tools and procedures needed to complete a functional job analysis have been documented and are included in the reference list (e.g., Chaffin & Anderson, 1984; Devlin, 1991; Herrfelder & Gwin, 1989; Isenhagen, 1988; Jacobs, 1985, 1991; Langford Johnson, Ogden-Niemeyer, & Matheson, 1988; Putz-Anderson, 1988).

The therapist performs a job-specific functional capacity evaluation in the clinic. The functional capacity evaluation procedure is also documented in the literature (e.g., Blankenship, 1989, 1990; Devlin, 1991; Harrington & O'Shea, 1989; Herrfelder & Gwin, 1989; Isenhagen, 1988; Jacobs, 1985, 1991; Langford Johnson et al., 1988; Ogden-Niemeyer & Jacobs, 1989; Putz-Anderson, 1988). In addition to the baseline information that is obtained for permanent impairment ratings (based on the American Medical Association’s [1990] Guides to the Evaluation of Permanent Impairment), the emphasis of the
evaluation is on function. This is where higher skill and decision-making abilities of the occupational therapist or physical therapist are essential, in contrast to the Medical Management Model. The occupational therapist designs the functional capacity evaluation and subjects the employee in a clinical setting to the critical demands of the work environment. The occupational therapist identifies the employee's functional limitations and tolerances as well as his or her functional abilities. The conclusions that are drawn and the proposed recommendations are now based on both the job analysis and the functional capacity evaluation results.

The written functional capacity evaluation report should be written in easy-to-read terms. This report generally has two parts. The first part is the summary, which lists the major functional limitations and abilities of the employee. In addition, the summary should include recommendations needed at the work site for the employer to make reasonable accommodations for the worker. A one-page flow sheet can be used to summarize the results. This flow sheet summary is all that is needed for the employer's key players (whom the occupational therapist identified previously) to follow in reintroducing the worker into the work setting.

The second part of the report is supportive documentation, which is primarily used by the physicians to calculate impairment ratings (with the use of the American Medical Association's [1990] Guides to the Evaluation of Permanent Impairment). The documentation supports the conclusions that the occupational therapist draws in the summary and the recommendations of the functional capacity evaluation report. Supportive documentation of the functional capacity evaluation should include at least the following: range of motion, strength, endurance, sensation, dexterity, function during work simulation activities, and results of maximum voluntary effort testing. Other individualized testing results are also included to provide comprehensive and diagnosis-specific function (e.g., cognitive testing for a patient with a head injury).

The Industrial Model's closed chain encourages direct review of the functional capacity evaluation findings with the team players to ensure clear communication of the recommendations. This may be completed by the written report itself, telephone contact, individual meetings, or a team meeting. The occupational therapist may review the findings with the employee. The employee's limitations are defined for the employee's own health and safety and the health and safety of the employee's coworkers. The employee may actively suggest methods to accommodate his or her limitations in the return-to-work environment. Additional suggestions and recommendations may be amended to the functional capacity evaluation report based on the employee's participation in the post-functional capacity evaluation review. The occupational therapist may review the findings with the physician as needed to ensure delineation of functional return-to-work restrictions on the return-to-work form.

Historically, in the traditional Medical Management Model, the physician might rely solely on his or her own expertise and generic theoretical return-to-work restrictions. Conversely, in the Industrial Model, the physician has been noted, in our experience, to have a significant increased reliance on the occupational therapist's expertise in objective, functional assessment and recommendations for the return-to-work status. Once the physician has received the report and considers the occupational therapist’s functional capacity evaluation recommendations, the employee schedules a follow-up visit with the physician. At this time, the recommendations are clearly finalized in writing on the return-to-work form. The occupational therapist may conduct a telephone consultation or on-site review at this time, with the employer summarizing the employee's functional capacity to perform a specific job and discuss recommendations required of the employer to accommodate the employee. Alternative work, if available, is discussed if it is determined that the employee is unable to return to the previous job with the accommodations.

The ADA encourages the review of the functional capacity evaluation and job analysis findings with team members, as defined in Section 102 of Title I, Employment. This section of the ADA states, "supervisors and managers may be informed regarding necessary restrictions on the work or duties of the employee and necessary accommodations, and first aid and safety personnel may be informed, when appropriate, if the disability might require emergency treatment." The occupational therapist may review the findings with additional key team players as needed, provided the employee has signed the necessary informed consent. The therapist's communication of the employee's restrictions and required work environment accommodations to the supervisors and managers completes the closed chain in this Industrial Model.

As shown in Figure 2, the employer has the opportunity from the initiation of rehabilitation to facilitate the return to work of his or her employee. The occupational therapist's recommendations in the functional capacity evaluation report, the physician's return-to-work restrictions, and the job analysis can be combined by the employer to facilitate the employee for return to work. The occupational therapist assists in the communication with the employer throughout the entire Industrial Model. The essential functions of the job with or without reasonable accommodations are made clear to the employer through this process. At this point, the employer has the information to make an informed decision to facilitate return of the employee to work.

The concept of an open versus a closed chain can be interpreted as interactive decision making. In the open-chain Medical Management Model, the decisions proceed...
successively from the medical team to the employer, whereas in the closed-chain Industrial Model, the decisions of returning to work coincide and are made with the employer.

The ADA requires consideration of alternative work if the person cannot return to the previous job with accommodations. Alternative work placement may include job rotation, part-time work, or reassignment to another job with different physical demands. For example, employees with cumulative trauma disorders working with demands of a high rate of assembly and high force may require rotation to jobs with physical demands defined as low repetition and low force of work.

The employer may choose to reassign the employee to another position if accommodation cannot be reasonably made. The occupational therapist is frequently called on to ascertain if accommodations are needed at the new position. Additional job analyses may be required to further clarify the employee's ability to perform the essential functions of the new position.

Finally, the occupational therapist may conduct an on-site post-discharge follow-up of the employee, observing the employee performing the job, identifying any problems not previously addressed or anticipated, and recommending further accommodations, if necessary. Thus, the closed-chain process continuously loops the ongoing assessments of multiple variables with informed decision making of the key players. Communication occurs between the therapist and the key players until appropriate work placement is achieved.

Clearly, the ADA requires thorough and functional job descriptions or analyses to ensure the employer's compliance with Title I and accommodation of the employee's early return to work. The Equal Employment Opportunity Commission enforces the employer's compliance with the ADA. The employer is responsible for the identification of the essential job functions outlined in the job description. The employer relies on the occupational therapist's expertise in objectively documenting these job functions; identifying the employee's abilities and limitations; and suggesting innovative recommendations, supplier sources for equipment, and costs.

**Clinical Example**

A clinical example of the Industrial Model highlights the involvement of the occupational therapist in this process. A 34-year-old right-hand-dominant woman developed carpal tunnel syndrome in her right hand while working as a production operator at an electronics company. Carpal tunnel release surgery was performed, and the client was referred to occupational therapy for acute hand care. Eight weeks after surgery, the employer's key player was identified by the team and contacted by the therapist. The employer was a medium-sized company and did not employ an occupational health nurse. Therefore, the therapist contacted the human resources department and was provided with the name and number of the second-shift supervisor, who would oversee the client's return to work. A functional on-site job analysis was scheduled at the company and performed. During the job analysis, the supervisor expressed concern about the safety of the client and colleagues and the client's return to the workplace.

According to the job analysis, the essential functions of the job consisted of simulating a variety of pinching patterns and occasional lifting in the postures assumed at work. Several of the workstations evaluated required repetitive finger or thumb resistance to push buttons. One workstation required the operator to lift a horizontal lever from the shoulder to the overhead position with the right hand, while the left hand pushed a button with the thumb and disengaged a clamp. The force to lift the lever was measured to be 35 lb when lifted on an occasional basis (i.e., approximately once every 2 hr).

A job-specific functional capacity evaluation was performed at the Arizona Industrial Rehabilitation Specialists clinic in Mesa, Arizona. The results of the functional capacity evaluation revealed that repetitive lateral pinching for more than 2 hr and with forces through the thumb tip increased the client's complaints of pain in the right thenar eminence. She could lift 20 lb with the right upper extremity from shoulder level to the overhead position. Additional standardized assessments revealed information from which the physician could make an informed permanent impairment rating based on observed abilities throughout the functional capacity evaluation.

The written functional capacity evaluation consisted of two parts. The first portion summarized the client's functional abilities and limitations, and the second portion outlined the recommendations for her return to work. The language used was simplified, and specific references were made to the workstations previously evaluated. In the client's case, the recommendations were that she be rotated every 2 hr from workstations requiring thumb-engaged buttons to workstations that did not require repetitive thumb force. The employer, however, was provided with a second recommendation that if the buttons were changed from thumb-engaged to palm-engaged, the client could work significantly longer (i.e., 4 to 8 hr longer) at the palmar-engaged workstation. In the therapist's opinion, the client's performance posed no safety risk or threat in any of the eight workstations at which she was evaluated.

Job rotation and workstation modification are both examples of reasonable accommodations required under the ADA. The recommendations outlined would not cause, in the therapist's opinion, a decrease in productivity nor a major expense if the company chose to alter the buttons on the machinery.

The therapist had been instructed to send the job analysis and the first part of the functional capacity evalu-
The Functional Capacity Evaluation in its entirety and the job analysis were sent to the physician. The client was scheduled to be evaluated by the physician for her ability to return to work. The physician signed a release to work with restrictions referencing the functional capacity evaluation. The therapist contacted the supervisor to determine if there were questions about the functional capacity evaluation or job analysis. The supervisor did not have questions, but was waiting for the written final restrictions from the physician. The supervisor indicated that the employer would try the accommodation of job rotation for the workstations requiring repetitive thumb force. If this accommodation resulted in decreased productivity, then the supervisor would change the buttons to palmar controlled. The supervisor planned to discuss this workstation modification with persons in the engineering department of the company, because that department designed most of the machinery at the workstations. The supervisor was further encouraged to contact the therapist if questions arose in the future as related to this case.

The client was contacted 2 weeks after her return to work. She indicated that with the workstation rotation every 2 to 3 hours, her symptoms were well controlled. Due to the inability to lift the 35 lb lever during the functional capacity evaluation, the lifting of the lever was being completed by a co-worker and did not affect productivity.

Weaknesses of the Industrial Model

The Industrial Model is not without its weaknesses, three of which are especially apparent. The model requires flexibility in scheduling, is labor intensive, and may not be as cost-effective as treatment in a rehabilitation department (e.g., work hardening, acute treatment). In our clinic, approximately 35% of the therapist's time is spent outside the clinic, 15% on report writing and follow-up, and 50% on performing functional capacity evaluations or in the work-conditioning or work-hardening program. The therapists establish their own schedule, which, at times, may require them to accommodate the employer's shift work. One therapist for each injured employee performs all of the components within the Industrial Model to ensure continuity of decision making and accessibility if questions arise from the key players. Compared with the Medical Management Model, the Industrial Model may not be as cost-effective due to the occupational therapist's time required for telephone consultations, travel, extended report writing, and inability to dovetail multiple clients when out of the clinic.

We have also had difficulty, on occasion, reproducing the working environment in our clinic during a functional capacity evaluation. This has occurred primarily when specifically designed equipment is used in the work environment. At such times, we have had the opportunity to do an on-site functional capacity evaluation with the employee actually working in the work environment for a given length of time. During an on-site functional capacity evaluation, the therapist monitors the effects of the work on the employee. We would expect that more of these on-site evaluations will be performed in the future, because they provide more specific information about the employee's abilities and the reasonable accommodations that may need to be made. This procedure may be viewed as a weakness of the Industrial Model, because it is conducted outside of the clinic, thus equipment and forms must be transported to and from the work site.

Strengths of the Industrial Model

Although there are noticeable weaknesses in the Industrial Model, the rewards of returning workers safely back to the work site far outweigh the disadvantages. The model has five specific strengths over the Medical Model. Ideally, there will be an improved ability of the team to return clients to their former jobs. The decision-making responsibilities of the occupational therapists using this approach are more challenging, extending their skills beyond the traditional therapeutic intervention noted in the Medical Management Model. The therapist's referral base may expand beyond the medical referrals, with employers and insurance carriers directly contracting for job analyses and functional capacity evaluations. The therapist facilitates early transition of the worker from the rehabilitation clinic to the work environment, while directly communicating with the employer throughout the entire process. In our experience, workers have shown reduced fear of the workplace and fear of reinjury following functional capacity evaluation and job analysis measurements of their own abilities specific to their job. Improved employee relations have been documented, as we have used this Industrial Model to facilitate communication between the employer, employee, and key players. In contrast, the Medical Management Model does not encourage employee or employer contact. In our experience using the Industrial Model, employers have demonstrated less fear of persons with disabilities, especially their own injured employees. Appropriately placed workers can result in decreased reinjury incidents, employment termination, and off-work status. Overall, the Industrial Model introduced in this article has facilitated early employer involvement in compliance with Title I of the ADA.

Conclusion

The Industrial Model of rehabilitation management coincides well with the requirements put forth by the ADA. The services provided by the occupational and physical therapists assist all of the key players in the decision-making process to facilitate returning the employee to
work. The information generated by the occupational therapist is objective and job specific. This information includes rehabilitation assessments, job analyses, functional capacity evaluations, and ongoing assessment until appropriate return to work is achieved. Occupational therapists using the Industrial Model may help alleviate the fears of the worker (e.g., fears of reinjury) and the employer while meeting the mandates of the ADA's Title I.

The ADA offers innovative opportunities for occupational therapists to implement an Industrial Model and assist employers to comply with Title I, Employment. The Industrial Model intervention and direct involvement with the ADA presents challenges to both occupational therapists and physical therapists. As a result of the ADA, potential demand of employers for on-site job analyses and functional capacity evaluations may result in shortages of occupational therapists qualified to perform job-specific evaluations. Specialized training is crucial for those occupational therapists who do not currently incorporate a functional and job-specific focus in their evaluations, treatment plans, and treatment implementation. This demand must also be met with appropriate fee for service in order to override the tendency for non-revenue-producing time of the occupational therapist. Case management issues open wider involvement of occupational therapists at levels beyond the traditional medical rehabilitation roles.

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References
