

**PHYSICAL CAPACITY EVALUATION AND WORK
HARDENING PROGRAMMING: THE CARLE
CLINIC ASSOCIATION MODEL**

VIRGIL ROBERT MAY

ABSTRACT: This paper describes the industrial rehabilitation system currently housed at Carle Clinic Association, and demonstrates the utility of the system's vocational evaluation and work hardening/adjustment programs.

The private-for-profit rehabilitation industry has been described as a system offering services analogous to those provided by state and federal systems (Diamond & Petkas, 1979; Lewin, Ramseur & Sink, 1979; Organist, 1979). However, unlike the public sector, the private sector service delivery system is placement oriented (McMahon, 1979), emphasizing short term vocational evaluations of transferable skills, court testimony, coordination of medical services and job placement (Diamond & Petkas, 1979; Lewin et al., 1979). Matkin (1982) concurred that the results of his survey of 174 members of the National Association of Practitioners in the Private Sector (NARPPS) demonstrated that the private sector emphasis is greatest in areas of vocationally oriented evaluation and job placement. Such an emphasis can be expected when considering the clientele served by the private sector (i.e., industrially injured, chronic low back or other orthopedic problem) and the objective of services offered; to return the patient to work in the most expedient way while operating within the appropriate legal framework (Workman, 1983).

The private sector is diversified in its work settings unique to the individual practitioner. For example, Workman (1983) noted the following as current work settings reported by members of NARPPS:

1. Cottage Industry: a counselor who operates from his or her own home or shared office space, utilizing an answering service for telephone messages and a clerical pool for typing services.
2. Regional Firm: A firm with as many as 50 counselors working in a region or state, with one to six offices within the region. This setting usually employs specialized employees, such as job placement specialists, marketing and administration staff.
3. National Firm: A large corpor-

ation with 100 to 1000 professional staff members, operating in major areas of the United States.

4. Insurance (in-house) Firm: A vocational unit established by the insurance company.
5. Ancillary Firm: Firms that provide ancillary services, such as work evaluations and job development services, to private rehabilitation vendors.

One setting that has been omitted and is unique to the private as well as to the public sector is the multi-medical facility (i.e., private-non-profit hospital or the private-for-profit medical clinic). Several hospitals and clinics have established rehabilitation programs modeling those in the for-profit sector, integrating an industrial rehabilitation package with the standard medical care system.

Process

Carle's industrial rehabilitation concept is predicated on the philosophy of vocational evaluation and work adjustment services. Lynch (1983) described the vocational evaluation process as a formal attempt to collect occupational information in order to describe and predict an individual's vocational functioning level. In the private sector, this translates into determining the degree of limitation imposed by an event (work accident), and its implications for future vocational potential (Sink & King, 1983). Techniques employed to determine this degree of limitation usually involve a) interviewing, b) psychometric testing, c) work samples, d) situational assessment, e) job sample (site) evaluation, f) computer/electronics evaluation, and g) the Vocational Evaluation and Assessment of Residual Employability profile (Lesnik, 1983; Mason, 1983; Sink & King, 1983). Finally, Chandler (1983) noted the objectives of vocational evaluation to include:

1. Identifying an optimal outcome for the individual being served.
2. Identifying the functional competencies and functional disabilities of the individual, especially in terms of the optimal outcome for the individual.
3. Identifying the services necessary to overcome the functional disabilities which prevent attainment of the optimal outcome.
4. Reducing or eliminating the functional disabilities of the individual.

Work adjustment services emphasize treatment more than evaluation, and thus focus on improving an individual's ability to work and to relate to the demands of the work environment (Baker, 1983; Lassiter, 1983). These services emphasize behavior change through planning, delivering, and monitoring those services needed to facilitate such behavior changes necessary for the patient to return to work. Baker (1983) suggested that a work adjustment plan should include:

1. A description of the specific behaviors to be dealt with.
2. An identification of the specific work assignment or other environment to be used.
3. An identification of the specific treatment techniques to be used.
4. An identification of the specific persons or agencies who will be carrying out the plan.
5. Specific provisions for reviewing the plan and modifying it when necessary.

Private sector vocational evaluation and work adjustment services typically sustain one another such that one service is used in conjunction with the other. For example, Lassiter

(1983) noted that when a patient is being evaluated, that person is also undergoing adjustment. Similarly, when a patient undergoes adjustment, evaluation is also taking place. Baker (1983) added that functioning deficits should not be confirmed and neglected, but adjustment services should be implemented to define the major functioning problems and outline ways to resolve them, thus facilitating the return to work process.

The Carle Clinic Model

Vocational Evaluation

The evaluation phase consists of two basic steps: a) the initial interview (plan development) and b) implementation of the plan (Physical Capacity Evaluation and any other technique that may be suggested).

The initial interview consists of gathering and synthesizing medical and vocational data. Based on the patient's data input and the medical reports presented, rehabilitation plan goals are discussed and time lines given for obtaining specific goals. Additionally, a residual skills analysis with adjusted worker profiles is generated through the computer based Ability Information System. This system utilizes the Handbook for Analyzing Jobs technology to translate worker traits associated with jobs performed in the patient's work history to skill patterns which can be matched to other suitable jobs (Fry, 1982). The final report not only lists suitable jobs for the patient, but adjusted work profiles that account for any physical restrictions suggested by the physician.

A complete vocational evaluation may be recommended in the initial report, suggesting psychometric testing, work samples, or work site evaluations. Because this service is on an individual basis, not all patients will need an evaluation battery. However, all patients with work-related orthopedic injuries are required to undergo a

Physical Capacity Evaluation (PCE), scheduled as soon after the initial interview as possible. This is due in part to the type of patient served by the program. Often, discrepancies exist between what the physician says a patient can do and what the patient says he or she can do (Lichtenstein, 1983). It is common to not have objective medical evidence to substantiate the patient's physical discomfort. The PCE is one attempt to add some level of objectivity when evaluating the patients complaints.

The PCE evaluation procedure interprets the patient's medical findings and physical functioning ability into performance potential for vocational development and placement activities (Harrand, 1982). More specifically, the PCE assesses the patient's total range of motion in all upper and lower extremities, to include active and passive flexion and extension ranges. The evaluation is administered by a physical therapist trained in this evaluation procedure, and performance outcomes are staffed by the rehabilitation team (physical therapist, occupational therapist, and the rehabilitation specialist).

It is essential that the PCE objectives remain consistent with the total evaluation program's goal and objectives (Harrand, 1982). Carle's PCE model notes the following objectives:

1. To assist the staff in making appropriate vocational recommendations in accord with the patient's physical potential.
2. To explore the patient's current functioning level and to determine if it is consistent with the medical findings.
3. To make recommendations for additional services if a need is identified (i.e., pain management programs, work hardening, physical therapy, or additional medical intervention).
4. To suggest the use of additional

evaluation techniques to assess questionable levels of physical capacity.

Resources

Components of the PCE that assist the evaluating therapist in drawing conclusion from patient performance outcomes are referred to as resources. One primary resource is the job analysis. A job analysis in this setting can provide information regarding the tasks performed by the patient in his or her previous job, the work environment, and the tools used to complete all job tasks (Pati & Adkins, 1981). Such information can provide direction for the therapist when deciding what specific functional performance should be stressed, and answer specific referral questions posed by the rehabilitation specialist (Harrand, 1982).

Additional resources of the Carle Clinic PCE Model include:

1. Initial Vocational Rehabilitation Assessment Report: This report contains a total medical history listing current diagnoses, physician imposed restrictions, medications, vocational work history with an analysis of the patient's current job, and a summary of the rehabilitation specialist's recommendations. This information assists the evaluator with determining what the appropriate functioning level will be for each task evaluated.
2. Subjective Activity History: This involves the evaluator noting the patient's discomfort and pain symptoms as reported by the patient. Also, activities of daily living are discussed. This information allows the therapist to point out consistencies or inconsistencies with other findings (Harrand, 1982).
3. Performance of Tasks: The evaluator synthesizes information obtained as a result of perfor-

mance following the Department of Labor's outline of physical performance demands. Specific activities assessed include lifting, carrying, sitting, kneeling, general mobility (crawling, reaching, climbing, and reclining), walking, balancing, running, jumping, repetitive stooping, reaching, and stacking while squatting. Each of these tasks are assessed with the use of work samples, as suggested by Harrand (1982).

4. Gross Muscle Strength Tests, Range of Motion Tests: These tests rely on the Cybex Evaluation System. This particular unit has the ability to test all lower and upper extremities, providing objective EMG readings comparing the impaired muscle group with the unimpaired muscle group. Deficits in one group vs. the other are demonstrated and mathematically confirmed. Cross confirmation of muscle function may be obtained through five tests measuring strength, power, power-endurance, isometric strength and fatigue. There is also a test that confirms malingering. Needless to say, all patients with chronic symptoms and having no confirmed medical findings are evaluated on the Cybex. Other patients may be evaluated at the discretion of the evaluator and rehabilitation specialist (Farmer, 1982).

Work Hardening

During the weekly rehabilitation team staffings of individual patient's PCE results, a decision is made regarding what should comprise the patient's next event in the rehabilitation program. Usually, the patient is recommended physical therapy for specific muscle groups, to be administered

in conjunction with a work hardening program. However, not all patients qualify for this program because of individual patient characteristics that may include type of injury, previous work and medical history, elapsed time post injury, etc.

Work hardening is used to assist a patient with developing a sufficient amount of physical stamina such that an 8 hour work day can be achieved with minimal discomfort and pain (Gregory, Whitlow, Levine & Wasmuth, 1982). This process involves simulating the patient's work activities of a job he or she is expected to return to, or of a job in an occupational category in which the patient has shown a strong interest. This program is administered by occupational therapists who are qualified to supervise patients in posture correction, strength and endurance development. The key to success in work hardening is the ability of the therapist to tailor the program to the physical restrictions of the patient. At Carle Clinic, this involves structuring the program to comply with the PCE results. Proper structuring will assure maximum output potential from the patient who in turn will receive the maximum benefits of the program through total compliance with the various instructional activities.

The program length usually encompasses a 40 hour, four week period. However, this time frame may vary across patients, with some requiring more weeks for completion. During the contracted period, weekly rehabilitation team staffings are held to discuss the patient's progress, and to discuss alternatives should progress be minimal. At the conclusion of the program, each patient undergoes a second PCE to assess changes in baseline performance scores. This information is submitted to the treating physician for release-to-return-to-work considerations. The rehabilitation specialist also uses the data to develop final return-to-work strategies regarding work setting and job type.

Resources

Carle Clinic's work hardening model utilizes various work adjustment techniques cited by Gregory et al. (1982). These techniques include:

1. Job/Task Analysis: Similar to its role in the PCE, the job analysis is essential in developing a sound work hardening program that is accurate in simulating the patient's expected employment setting. With the analysis in hand, the occupational therapist can structure the work place to offer a controlled setting.
2. Disciplinary Action: Because the work hardening program is simulated work for the patient, the patient responsibilities to the program mirror those in the actual work place. An unexcused absence results in docked benefits for the period missed. However, cooperation and support must be solicited from the compensating source. Usually, these sources are more than willing to cooperate.
3. Client Observation: The purpose of work hardening is two fold: a) to develop strength and b) to develop endurance. This is accomplished through increasing the weight load of objects involved in each task, or the number of repetitions required of each task. The occupational therapist observes the patient's physical behavior as the patient completes each task, and adjusts the weights and number of repetitions so that the patients continue to achieve maximum benefits from the physical activity exerted in each task.
4. Productivity Rate Feedback: The therapist will consistently provide the patient with progress reports as a means

for supporting and encouraging the patient to continue with his or her efforts. Physical change is not immediate, and the patient should be kept informed of his or her daily progress.

Other techniques cited by Gregory et al. (1982) may be employed on an individual basis. The four cited above are standard in the Carle model.

Summary and Conclusion

Industrial rehabilitation programs are breaking new ground as more medical facilities accept these programs into their respective service delivery systems. Such settings offer the advantages of in-house referral sources, better case coordination through the centralization of services, the development of a team approach, and the availability of physical and occupational therapeutic services.

Physical capacity evaluations and work hardening programs are new entries in the milieu of the private rehabilitation sector. Ideally situated in the medical setting, these services offer a means to objectively evaluate the chronically injured patient in terms of physical abilities, and to develop a therapeutic treatment plan that utilizes standard work adjustment techniques proven to be effective in preparing handicapped persons for employment. Because the goal in industrial rehabilitation is to return the patient to work the market for PCE and work hardening programs will continue to grow and expand.

The business outlook for the traditional private rehabilitation sector may suggest a state of flux as more medical facilities accept the industrial rehabilitation model. More specifically, it can be expected that these medical programs will offer job placement and development services as well as the evaluation and therapeutic services now being developed, thus becoming aggressive competitors for

the insurance and legal markets. The private practitioner is now challenged to address this potentially new competitor in a way that all parties will work cohesively for the benefit of the patient.

REFERENCES

- Baker, R.J. (1983). From evaluation to adjustment: Programmatic and client centered considerations. In R. Lassiter, M. Lassiter, R. Hardy, J.W. Underwood, & J. Cull (Eds.), Vocational evaluation, work adjustment, and independent living for severely disabled people (pp. 126-134). Springfield, Illinois: Charles C. Thomas.
- Chandler, A.L. (1983). Selected concerns in vocational evaluation. In R. Lassiter, M. Lassiter, R. Hardy, J.W. Underwood, & J. Cull (Eds.), Vocational evaluation, work adjustment, and independent living for severely disabled people (pp. 18-29). Springfield, Illinois: Charles C. Thomas.
- Diamond, C.R. & Petkas, E.J. (1979). A state agency's view of private for profit rehabilitation. Journal of Rehabilitation, 45(3), 30-31.
- Farmer, M.R. (1982). Measurement of physical impairment in personal injury. American Health: Fitness of Body and Mind, May 11.
- Fry, R. (1982). Abilities information system's computerized occupational information system. Vocational Evaluation and Work Adjustment Bulletin, 15(3), 120-121.
- Gregory, R.J., Whitlow, C.B., Milton, L., & Wasmuth, W. (1982). The techniques of work adjustment. Vocational Evaluation and Work Adjustment Bulletin, 15(1), 6-10.
- Harrand, G. (1982). The Harrand Guide for Developing Physical Capacity Evaluations. (Available from the Materials Development Center, Stout Vocational Rehabilitation Institute, University of Wisconsin-Stout, Menomonie, Wisconsin 54751.
- Lassiter, R. (1983). Techniques

- of work adjustment. In R. Lassiter, M. Lassiter, R. Hardy, J.W. Underwood, & J. Cull (Eds.), Vocational evaluation, work adjustment, and independent living for severely disabled people (pp. 135-140). Springfield, Illinois: Charles C. Thomas.
- Lesnik, M.J. (1983). Techniques of vocational evaluation. In R. Lassiter, M. Lassiter, R. Hardy, J.W. Underwood, & J. Cull (Eds.), Vocational evaluation, work adjustment, and independent living for severely disabled people (pp. 30-39). Springfield, IL: Charles C. Thomas.
- Lewin, S.S., Ramseur, J.H., & Sink, J. (1979). The role of private rehabilitation: Founder, catalyst, and competitor. Journal of Rehabilitation, 45(3), 16-19.
- Lichtenstein, J. (1983). Vocational evaluation and the industrially injured. Vocational Evaluation and Work Adjustment Bulletin, 16(3), 92-95.
- Lynch, R.K. (1983). The vocational expert. Rehabilitation Counseling Bulletin, 27(1), 18-24.
- Mason, J. (1983). Work evaluation and work adjustment: An industrial perspective. Vocational Evaluation and Work Adjustment Bulletin, 16(3), 85-91.
- Matkin, R.E. (1982). Rehabilitation services offered in the private sector: A pilot investigation. Journal of Rehabilitation, 48(4), 31-33.
- McMahon, B. (1979). Private sector rehabilitation: Benefits, dangers, and implications for education. Journal of Rehabilitation, 45(3), 56-58.
- Organist, J. (1979). Private sector rehabilitation practitioners organize within NRA. Journal of Rehabilitation, 45(3), 52-55.
- Pati, G.C. & Adkins, J. (1981). Managing and employing the handicapped. Lake forest, Illinois: Brace Park.
- Sink, J., & King, W. (1983). Evaluation services in the private sector. Vocational Evaluation and Work Adjustment Bulletin, 16(3), 96-99.

Workman, E.L. (1983). Vocational rehabilitation in the private profitmaking sector. In E. Pan, T. Backer, & C. Vash (Eds.), Annual review of rehabilitation (pp. 292-320). New York: Springer Publishing Company.

Author

Virgil Robert May
Carle Clinic Association
Urbana, IL