

Functional vocational assessment for individuals with spinal cord injury

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1. Introduction

Life saving advances in the medical field are increasing the survival rate of persons who experience a spinal cord injury (SCI). The National Spinal Cord Injury Statistical Center (2000) reported that there are approximately 10,000 SCIs per year, and this figure does not include those individuals who die at the scene. It is estimated that between 183,000 and 230,000 people are living with SCI in the United States. In light of improved survival rates following injury, return to work after SCI becomes an increasingly important issue to consider.

Numerous studies that have examined post-SCI vocational outcomes reveal that employment rates show significant variation. Literature reviews by Trieschmann [33] and Athanasou et al. [1], indicate employment rates ranging from 13 to 48 percent and 13 to 69 percent, respectively. Other studies report similar broad ranges [3,5–8,14,18,20–23,27,28,34]. One reason for this variability may relate to the differing definitions of employment. Some studies define employment only as individuals working for pay or those who are self-employed [16,22,23], while others use broader definitions that include homemakers and students [6, 7]. Another reason for variation may relate to the passage of time since injury, as employment rates tend to improve over time [21,28].

Research indicates that employment rates decrease dramatically when comparing pre-injury to post-injury vocational status. Among those who return to work, more people enter new occupations than those who return to pre-injury jobs [2]. However, those individuals who return to former jobs do so much earlier than those who are seeking new employment [2,18]. Although the return to work rate is low, between 35 and 56 percent of individuals with SCI were employed at some point in time post-injury [12,21,23]. Common occupations included clerical, office, administrative, professional and technical jobs [2,10,12]. The majority of individuals performed work that required the use of a computer and were not employed in occupations that required heavy manual labor [25]. There has been no overall relationship identified between pre-injury and post-injury employment status; however, individuals employed prior to injury spent less time in return to work programs [12]. They also had a higher probability of returning to work post injury when this was accomplished within the first few years post-injury [24].

MacKenzie et al. [26] and Hess et al. [14] reported that gender is not a significant variable when predicting return to work outcomes. However, a significant relationship between gender and the type of work performed has been identified. Men were twice as likely as women to be in paid employment, whereas women were more likely to be engaged in non-paid, but productive, roles [35].

Related to race, Caucasians were more likely to be working than minorities [14,16,22,23,35]. James et

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al. [16] found that African American females were more than twice as likely to obtain employment as African American males; whereas Caucasian men were more likely than Caucasian women to obtain competitive employment. Age and level of education were also predictors of employment for both groups.

Age at injury significantly relates to return to work outcomes [23]. Older age at the time of injury was negatively correlated with post-injury employment [1, 2, 6, 7, 14, 17, 18, 22, 29]. Those 16–30 years old have the highest employment rate [2] and those 51 to 60 years old have the lowest rate [2, 18]. However, the employment rate increases with time post-injury [21, 23].

Level of education has been consistently reported to be positively correlated to return to work [2, 7, 14, 18, 22, 23, 29, 32, 35]. Krause [18] found that nearly 95 percent of all individuals with 16 or more years of education had worked at some point post-injury. Education not only positively impacted socioeconomic status [26], but it also widened the range of occupations that individuals were qualified to work [14].

Prior research indicates that level of injury is a strong predictor of return to work [9, 11, 13, 31]; however, more recent studies do not support this finding [12, 17, 18, 22]. One investigation identified completeness of the injury as a predictor [2]; but others do not concur [12, 18]. However, it has been found that individuals with paraplegia are more likely to return to their pre-injury jobs, than those with tetraplegia [18].

A positive relationship has been identified between life satisfaction and adjustment after SCI and employment status [4, 17, 19, 21, 22]. Those employed were more physically active, had fewer medical treatments, completed more years of education, perceived themselves to have fewer problems, were more satisfied with their lives, and rated their overall adjustment better than those individuals with SCI who were unemployed [17, 19]. The unemployed reported more problems [4]. The most frequently cited reasons for not working included inability to physically perform pre-injury work, (60%), poor health, and stamina or endurance (28%), fear of losing benefits (28%), feeling physically incapable of working (27%), and lack of access in the workplace (23%). People with SCI also reported difficulties related to making vocational decisions due to a lack of information about occupations and employment opportunities, uncertainty about their vocational and educational abilities, and their overall feelings of uncertainty in many other areas of their lives [4].

A *vocational assessment* can help clarify future vocational direction for persons with SCI. A *functional*

assessment can assist them with examining their current skills; abilities and support needs and relate this to potential career paths. With this information in hand, the person will be better equipped to either pursue pre-injury or new employment or participate in the training or education necessary to receive the credentials needed to pursue work in a chosen field. This article examines hands-on person driven individualized approaches to vocational assessment. A personalized vocational assessment can offer a person with a SCI a practical first step toward career planning and identifying potential support needs both on and off the job. This paper examines some of the core issues and activities related to implementing this type of approach to vocational assessment and provide case studies to illustrate how this process might benefit individuals with SCI.

2. Basic considerations

One of the first of a series of preliminary considerations in SCI vocational evaluation is who is conducting the assessment. The professional facilitator conducting the evaluation should be knowledgeable about assessment approaches and technology, know how to analyze jobs, understand job trends, and be aware of accommodations, workplace supports, and community resources related to employment. However, perhaps most importantly, the facilitator should understand the physical and psychosocial issues related to spinal cord injury, have a firm grasp on secondary complications and implications on vocational planning and ways to ameliorate these.

The ability of individuals with SCI to reintegrate into the community and employment is often related to their degree of physical impairment and disability. Unfortunately, there are limitations in current guidelines available to quantify individuals with SCI work-readiness, employability or even degree of independence in community functioning. Among the many factors that impact successful employment following SCI, level of impairment or disability appears to play a role along with age, race, level of education and pre-injury employment.

Physical impairments following SCI (weakness, sensory loss, and loss of bladder and bowel control) are often significant and functionally debilitating. Although improvements in medical care have enabled increased life expectancy for SCI individuals, they have not enabled comparable reductions of neurological levels of impairment and functional loss. The determination of

impairment and disability after SCI may be accomplished by categorization of an individual's neurological and functional level.

SCI in the thoracic and lumbosacral regions will result in lower extremity weakness along with loss of voluntary bowel and bladder control. Depending on the completeness of motor and sensory loss, individuals will have difficulty performing mobility functions (i.e., ambulation with or without braces or at the wheelchair level). Loss of bowel and bladder control secondary to SCI will necessitate treatment programs designed to help maximize continence, which will help ensure increased social acceptability in the community and workplace. Cervical SCI will result in upper extremity and hand weakness with associated difficulties performing activities of daily living (i.e., dressing, bathing, grooming and writing).

A comprehensive history and physical examination should allow the examiner to obtain a valid determination of physical impairment and functional ability after SCI. When additional medical complications are present, a more detailed examination of the impact of the SCI on functional autonomy and specific organ systems may become necessary. Specific functional abilities based on levels of neurological preservation are well established, and therefore disability can be approximated from the degree of impairments present. Additionally, disability determination after SCI may be performed in a manner similar to other disability groups, in that specific functional scales determined to be valid for individuals with SCI are available for the vast majority of functional tasks. Although medical complications can arise at any time after SCI, neurological and functional abilities are usually stabilized by 12–18 months post-injury.

Long-term, secondary medical complications play an important role in the continuum of care for individuals with SCI. Complications are a frequent cause of morbidity and mortality and lead to increased rates of re-hospitalizations and cost of care along with loss of employability and decreased quality of life. Secondary complications often occur during the acute and post-acute rehabilitation periods and may include pressure ulcers, deep venous thrombosis (blood clots), pulmonary compromise (such as pneumonia), spasticity, heterotopic ossification (bone growth surrounding muscle), fractures, and neuropathic or musculoskeletal pain syndromes.

In a multicenter study of SCI model systems of care, McKinley et al. noted that pressure ulcers, autonomic dysreflexia, and pneumonia/atelectasis were the most

common long-term secondary medical complications found at annual follow-up visits. Risk factors for medical complications were found to include completeness of injury, tetraplegia, older age, concomitant illness and violent etiology. Adjustment following SCI can also be accompanied by emotional distress and depression, which has been associated with increased morbidity, increased hospitalization, decreased functional improvement and decreased motivation. Management includes counseling, teaching coping skills, routine screening for depression, and pharmacological intervention, if necessary.

An effective facilitator will be aware of SCI medical management and the impact of secondary medical complications on community reintegration and employability along the continuum of care.

3. Orientation

Self-advocacy begins with the individual with the disability determining what services are needed, evaluating possible options, and a timeline for delivery. In order to decide if a vocational assessment would be of value the potential participant will need to be familiarized with the vocational assessment process. A customer orientation can provide this information. The goal of orientation is to provide enough detail to enable the consumer to determine if an evaluation would be helpful and, if it is deemed so, to acquaint the consumer with the process. This is the first step toward facilitating the individual's active participation in the vocational decision making process.

Beginning with orientation and throughout the assessment process, attention should be given as to whether or not the facilitator is communicating effectively with the participant. The facilitator should assess whether or not his or her message is being received. If this dialogue is not successful, the facilitator should alter the content and/or communication style. Explaining things in a clear and concise way, avoiding jargon, adjusting word choice to the individual's level and soliciting feedback are examples of ways to help ensure that the listener has understood. Care must be taken that the listener does not perceive the communication as condescending or that he or she is not "talked down to." Whenever possible, visual representations, such as photos or videotaped footage and written materials should be used to complement the presentation.

During orientation the facilitator should educate the potential participant about the program's philosophy,

Table 1
Guiding principles

<ul style="list-style-type: none"> • The vocational assessment process must place emphasis on what the customer wants. • The outcomes should provide insight into the supports needed to explore and/or achieve desired goals. • Standardized tests should only be used when it is required as a prerequisite for a desired occupation and cannot be used to predict subsequent learning, performance, and adjustment on the job. • Assessment of a person's abilities should occur in real work settings whenever feasible, and the power of supports including training, assistive technology, and other workplace supports must be taken into consideration. • Individuals do not have to be "work ready" to seek employment. Consideration should be given to what the person does now and what supports are needed to enhance his or her vocational success. • Career planning is an ongoing process and does not simply end with the attainment of a specific job.

the rights and responsibilities of all parties, and service delivery options. The following section describes possible information to cover during customer orientation, including an overview of the programs philosophy, rights and responsibilities, and assessment approaches.

4. Guiding principles

The program's values and principles along with a rationale for service delivery should be presented. An example of one program's guiding principles is presented in Table 1.

These guidelines can also serve to remind the vocational facilitator of the importance of focusing his or her efforts on methods that promote choice and opportunities for people with disabilities to fulfill their vocational dreams.

5. Customer rights and responsibilities

The rights and responsibilities of both parties should also be reviewed. Consider the following example of a *Customer Bill of Rights* offered in Table 2.

One way to develop a *Customer Bill of Rights and Responsibilities* is to hold forums. The first forum involves bringing together a group of potential service recipients and asking them what they think their rights and responsibilities should be. Later, another session is held and the participants are asked to review this information and provide feedback. Final revisions are then made and a set of standards is available to go to the next step of the organization's approval process. Such standards should be reviewed at least once a year and revised as needed.

6. Assessment approaches

An overview of the assessment process and what can be expected should also be explained to the potential

participant. Since the assessment is customized, the design will depend upon the person's previous work history and any current employment options. If the individual was employed at the time of injury, the assessment may be geared toward examining one of the following options:

- Return to pre-injury employer (includes self employment) and perform pre-injury job (with or without accommodation) or return to pre-injury employer with reassignment to a different position (with or without accommodation).
- If the person does not have the option to return to the pre-injury employer but desires information on whether or not he or she can use a specific skill set in the workplace, a *Residual Skills Assessment* may be warranted.
- If the person has limited or no work history or has been absent from the workplace for an extended period of time then a *Career Exploration Assessment* may be conducted. A brief description of each approach follows.

6.1. Return to work assessment

Workers with SCI returning to work may need to perform their job in a different way or require modified workstations, schedule changes or other accommodations or supports. However, the returning employee and/or employer may need assistance with identifying and implementing accommodations. The vocational assessment can provide ideas on possible accommodations and other useful information related to cost, ease of implementation, and effectiveness. For example, Raymond experienced a SCI while boating on a family vacation eight months ago. His employer is committed to having him return to work; however, both parties are wondering if he will be able to perform his job with or without accommodations and whether or not any physical modifications are needed.

Another situation that may warrant a *Return to Work Assessment* is when an individual with an SCI indepen-

Table 2
Customer bill of rights

<i>The customer has a right to:</i>
<ul style="list-style-type: none"> • The best services available within the mission and capabilities of the provider; • Being treated with courtesy and respect; • Planning the assessment approach; • Having communications and records treated confidentially; • Making decisions or appoint someone to make decisions on their behalf; • Having complaints resolved in a timely manner; • Assistance when they have a communication difficulties or do not speak or understand the language spoken; and • Stopping and withdrawing from the process at any time.
<i>The customer is responsible for:</i>
<ul style="list-style-type: none"> • Providing information on vocational desires; • Following the agreed upon evaluation plan or requesting revision if desired; and • Expressing complaints or problems with services.

dently returns to work and soon afterwards discovers that that he or she is having difficulty performing his or her job. In such an instance, an assessment may be useful to help identify potential accommodations or other on- or off-the-job supports. For example, Elaine returned to work as a clerical aide over a year ago. The workplace was accessible and minimal modifications were needed to her workstation. Since her return she has experienced difficulties with getting to work on time and meeting established deadlines. Recently, her employer has expressed concern with her ability to perform the job. Elaine has requested assistance with determining any types of accommodations that may help her improve her work performance. In either scenario, if possible, the employee should be fully involved in designing the process and future discussions related to modifications.

6.2. Residual skills assessment

While some individuals may have work to return to, others may enter the vocational assessment without this option but with a keen interest in pursuing employment that requires the use of his or her specialized skills, training, or educational background. For example, Roseanna, who had been self-employed as a hair stylist for 10 years prior to an automobile accident 2 years ago. She was looking forward to returning to work as a hair stylist, but is concerned that her physical limitations may prevent her from continuing in that line of work. In order to make an informed decision about whether or not to return to this occupation, she desires information about her current skills, abilities, and possible accommodations. A customized vocational assessment specifically designed to explore her current level of functioning as a hair stylist and support needs may provide the information and instill the confidence she needs to return to work. Sometimes the vocational

assessment may relate to using one's education in the workplace. For example, Joseph, who experienced an SCI in his junior year of high school, went on to complete an undergraduate degree in communications three years ago. He was actively involved as a disc jockey in the university's radio station during his senior year, and he has always wanted to be a radio disc jockey. Since graduation, he has not been able to locate employment in this field and he is in the process of determining whether or not he should continue to pursue a career in radio broadcasting or abandon this idea and change his direction. A customized assessment could help him make this decision.

Depending on the nature and complexity of the occupation in question, a consultant who is actively engaged in such work may be needed to assist with designing and implementing the assessment. The consultant should be someone who could be considered an expert in the field or area that is under exploration. The vocational facilitator takes responsibility for locating and securing the consultant's service, coordinating the effort, assisting with the assessment design and tools, and writing a report. The facilitator also actively participates in the assessment process by making observations and collecting data on the individual's abilities and need for workplace supports.

6.3. Career exploration assessment

Some people with SCI will enter the vocational evaluation process with a desire to switch their career paths; others may have limited or no previous work experience or may have been unemployed for an extended period of time. These individuals may benefit from a chance to explore vocational alternatives to gain a better understanding of themselves and the world of work. A *Career Exploration Assessment* can provide the knowl-

edge the consumer needs to establish a desirable career path.

During this approach, the consumer will examine his or her current abilities, interests and support needs. This information can help develop a career path and provide an initial direction for the job search, or it can help identify the type of education or training that would be necessary to pursue a specific occupation. For example, Ronald, who experienced an SCI when he was 12 years old, will be graduating from high school next year. He has received traditional career guidance and counseling offered by his high school, yet remains confused and unsure of what he can really do. Should he go straight to work or consider postsecondary training? What type of work can he do now with his current skills and abilities? What supports would be needed? What businesses are hiring, and what are their employment needs? If he chooses to attend the local university, what accommodations will he need to live on campus and fully participate in this experience? Or consider Charles, who experienced an SCI over 20 years ago and has never attempted to return to work since the injury. He desires to work but does not know what he can do. Prior to injury he had been employed as a construction worker for 10 years. A *Career Exploration Assessment* can be helpful when a consumer does not know what he or she can do and/or what types of supports may enable him or her to pursue employment.

A review of these various assessment options should draw the orientation near to conclusion; but first there should be time for questions and answers. Individual concerns tend to evolve around the following topics:

- effects of employment on disability benefits and housing;
- service options to assist the consumer with conducting a job search and/or identifying accommodations at work;
- options for attending to personal care needs on the job; and
- off-the-job community support needs related to work, such as personal service assistance or transportation.

The vocational facilitator must be aware of community resources and be well-versed on how to respond to a consumer's concerns about these issues.

After the orientation, the consumer should be able to decide whether or not to participate in a vocational assessment. If the consumer chooses to do so, the next step would involve setting goals and designing the assessment process. It is important to note that, although

an assessment may be the first step toward career planning, it is a process that continues throughout a worker's employment and does not end after the attainment of a particular job.

6.4. Assessment plan

In order to move forward and plan the assessment, the facilitator must formulate an understanding of what the participant hopes to gain from the process, set goals and begin to develop the assessment plan. Typically, the plan is designed to supply the answer to the following questions:

- What does the individual or other interested parties desire and/or need to learn from this experience?
- What approach will be used?
- How will we know when to conclude the assessment?

An intake interview can be conducted to learn more about what the person with SCI wants to gain from this experience.

6.5. Initial interview

The purpose of the initial interview is to determine what questions should be addressed during the assessment. Following the interview, a plan or course of action should be recommended. This is also the time to establish trust by building rapport with the participant. A special set of dynamics will be operating here: The consumer's fears and hopes, expectations and reservations and awareness and lack of awareness will all be present.

During the interview, a number of questions will be asked to help establish the assessment approach. Some examples of questions that may be asked are offered below in Table 3. Throughout the assessment the facilitator should also create a dialogue with the customer that promotes choice and involvement. This is important from the onset, as initial conversations between the participant and facilitator can positively or negatively impact the relationship and the assessment results. During the interview, the facilitator can enhance the dialogue by helping the consumer to feel comfortable and by promoting the individual's active involvement in the planning process. The facilitator should refrain from talking and should listen carefully to the consumer's concerns and wishes. In order to do this effectively, the facilitator must set aside any preconceived notions about the individual.

Table 3
Initial interview

<i>Motivation</i>
<ul style="list-style-type: none"> • What brings you here today? • What would you like to learn from this experience?
<i>Strengths and Interests</i>
<ul style="list-style-type: none"> • Tell me about yourself? • What do you do well? • What do others tell you that you do well? • What do you like the most about yourself? • What would you like to do better? • What do you enjoy doing in your spare time? • Describe the ideal job for you.
<i>Education and Volunteer and/or Work Experience</i>
<ul style="list-style-type: none"> • Tell me about your school experience. • What extra curricular activities did you participate in? • What types of work have you performed and how long were you employed? • What did you like most about each experience/job? • What are the reasons why you left each jobs? • What were the hardest problems faced at work in the past? How were they handled?
<i>Self Perception</i>
<ul style="list-style-type: none"> • Aside from some obvious difficulties related to getting around, how are you limited from doing what you want to do? • How does your disability limit you from going to work? • What have you tried to do to overcome these barriers?
<i>Support Systems</i>
<ul style="list-style-type: none"> • How does your family feel about your going to work? • Who assists you when you have a problem? • How do you get to various places? • How is your housing paid for? • Do you receive any disability benefits; and if so, are you familiar with how earnings will affect this and the use of work incentives? • Do you have any regularly scheduled appointments; and if so, can those be rearranged around your work schedule if required? • What types of assistive technology do you use? • Does anyone assist you with personal care activities; and if so, do you feel you will need a personal assistant at work? • What supports do you need to work?

Allowing the participant to choose where to conduct the interview is another way to put the person at ease and in the driver's seat from the start. The opportunity to visit the person in his or her home can also offer a wealth of information about personal interests and abilities. Effective listeners create an atmosphere that will put the person at ease, wherever the interview takes place. The outcome of the intake interview should be a recommendation for a customized approach to the personalized vocational assessment.

6.6. Return to work or residual skills assessment

The vocational facilitator must be able to recommend activities that will help define the participant's vocational expectations. In addition, the results of the activities should provide beneficial information for the job search process if the individual is not returning to a pre-injury employer. All assessments may begin with a review of records. However, records must be current and should not be taken at face value, since this may lead to forming preconceived notions about the individ-

ual's abilities or disabilities. The facilitator must take the time to determine the usefulness of the records relative to the individual's vocational goal and assessment design. Table 4 provides an outline of the basic steps followed by one program when providing a *Return to Work or a Residual Skills Assessment*.

Please note that both approaches are conducted in a real workplace; the *Return to Work Assessment* at the employee's job site and the *Residual Skills Assessment* is usually developed at a place of business that has positions related to the occupation of interest. Also, either approach may require an expert to assist with the assessment process. The *Return to Work Assessment* will require working closely with the employer and having familiarity with the American's with Disabilities Act and/or Worker's Compensation laws, whereas the *Residual Skills Assessment* will require familiarity with the labor laws. The following case study illustrates a *Residual Skills Assessment*.

William is a 29-year-old man who has C-5 incomplete tetraplegia secondary to an automobile accident in 1999. As a result of the injury he uses a manual

Table 4
Return to employment assessment (This occurs at the customer's place of employment)

<ul style="list-style-type: none"> ● Meet with customer to determine interest and willingness to participate in return to work assessment. ● Obtain permission to contact employer and agreement to participate in the assessment. ● Contact employer. ● Review relevant information from referring agency. ● Obtain assessment data (i.e., physical restrictions, cognitive, and communication skills) from rehabilitation team (if applicable) ● Perform job analysis ● Interview with customer. <ul style="list-style-type: none"> ● Interview with supervisor and workers. ● Obtain existing job description and performance evaluation. ● Observe personnel on the job. ● Review job analysis with employer and make revisions. ● Review job analysis with rehabilitation team (if applicable). ● Design assessment process. ● Review assessment process and coordinate scheduling with employer. ● Revise assessment tools. ● Perform assessment. <ul style="list-style-type: none"> ● Verbal (if applicable). ● Observational ● Write report. ● Review outcome with customer and rehabilitation team. ● Determine next course of action.

Other Scenario
May be brought in after the person has returned and difficulties arise on the job.

Residual Skills & Ability Assessment (The site is developed as needed)

- Meet with the customer and referral source to determine area of vocational interest.
- Obtain previous work history and job descriptions if possible.
- Obtain medical release if needed.
- Develop an assessment site(s).
- May require hiring an expert consultant.
- Design assessment tools.
- Perform the assessment.
- Obtain feedback from expert (written report).
- Write report.
- Review outcome with customer and referral source.
- Determine next course of action.

wheelchair for mobility, has difficulty with strength and endurance for long distance wheelchair usage, has limited range of motion, experiences difficulty handling small objects and is dependent on his wife or family members for transportation and personal care. Prior to the accident, William had completed seven years of service in the military. While there, he received training and worked as an emergency medical technician and cardiac catheterization laboratory technician.

6.7. Case study

Approximately 18 months post-injury, William was referred by his vocational rehabilitation counselor for a vocational assessment to assess his vocational strengths, interests, barriers to employment and vocational training needs. William and his wife attended orientation, which was followed by the initial interview in his home. During the interview William stated that

he enjoyed working with things and helping others and that his interests included woodwork, installation of car stereos, and fishing. He also expressed an interest in some type of work that required the use of a computer. Further discussions related to his pre-injury work experience revealed that his first preference was to return to work in the medical field as a cardiac lab tech if possible. He indicated that he had been dissuaded from pursuing this type of work due to his physical limitations. He also stated that he wanted to work full-time to return to being the primary breadwinner for his family of four. Based on this information, William and the vocational facilitator began to design the assessment.

Because William had extensive training and work experience as a cardiac tech while in the military, it was determined that he and the facilitator would initially explore the possibility of returning to this type of occupation in the civilian setting. If necessary, they would follow this by exploring alternative health careers. The facilitator contacted three area hospitals to arrange a

time to meet with the heads of cardiology to learn more about the qualifications for a cardiac lab tech, accessibility of the workplace and work station, and possible accommodations. The directors of the cardiac units from two of the hospitals agreed to meet with the vocational facilitator. During these initial meetings, the facilitator had the opportunity to interview the supervisor, receive a detailed explanation of how the work is performed, observe the workstation, obtain a written job description and receive information on hiring trends, criteria and procedures. Both meetings were very valuable and served to confirm the minimum qualifications for the position; as well as offer a better understanding of some of the accommodations that might be required to complete the work.

Afterwards, an assessment was arranged at one of the hospitals, chosen because the director expressed an interest in helping a fellow veteran and felt he would be able to obtain the necessary approval from hospital administration. The consultant had over 20 years experience in cardiac care. The first phase of the assessment involved an interview between William and the cardiac lab supervisor. During the assessment, William described in detail his previous work experiences and answered questions related to his current skills, knowledge and abilities. William then visited the cardiac catheterization lab to review his knowledge of equipment use and explore accessibility or accommodation needs.

The assessment revealed that William was highly qualified, but prior to being allowed to perform direct patient care he would first need to obtain either a licensed practical nurse or certified nursing assistant certification. This standard had not been required in the military. However, the consultant felt that he did have the qualifications for pursuing non-direct patient care functions in the lab. This type of work would require reading the monitors and printouts, making manual adjustments to equipment functions as needed and communicating with the physician via intercom during the procedure. It appeared to William, to the evaluator and the consultant that accommodations could be made to this particular workplace that would create access to the workstation and equipment.

The consultant also recommended that William consider other career options in the medical field, such as film processing, pace makers clinic assistant, monitor technician positions on a cardiac unit, or echocardiography in a physician's office. He stated that few cardiac catheterization tech lab positions existed in his facility and turn over was slow. He also indicated that they

were generally in need of monitor techs and he felt that this would be a good way for William to "get his foot in the door" at some medical facility. William initially indicated that he was not interested in pursuing a career in any of these other areas.

After this assessment, William and the evaluator searched for hospitals that were within a 40- to 50-mile radius of his home. With this information in hand they began to contact all other area hospitals to get information on whether or not they hired personnel to perform non-direct patient care functions in the cardiac catheterization lab and to obtain data on their recent hiring trends. This research revealed that most of the other hospitals required their cardiac catheterization lab techs to perform both direct and indirect patient care; additionally one of the facilities had major accessibility problems; and another had major concerns about hiring someone who was not able to perform cardiopulmonary resuscitation; (and reportedly required all employees to be certified in CPR). Additional conversations revealed that the requirement to perform CPR, although listed as an essential job function, could possibly be changed to a marginal duty if someone else was around to perform that function, if necessary.

While conducting these investigations an advertisement appeared in a local newspaper for a Cardiac Catheterization Technician at one of the hospitals. Further inquiries revealed that their cardiac catheterization lab was housed in a trailer, which presented some major accessibility issues, and that both direct and indirect patient care was required. William and the facilitator met with a Human Resources representative and learned that the hospital was also hiring a telemetry monitor for the intensive care unit. William indicated an interest in pursuing the job and submitted an application. In the meantime he and the facilitator were allowed to visit the worksite so they could identify any need for accommodation. They determined that some accommodations would be needed to improve access to the workstation, and this information was presented at the time of the job interview. William interviewed for the job and was hired initially to work part-time. While on the job, he had the assistance of a job coach who helped put accommodations in place. Some of these are presented in Table 5. Today he works full-time and has been employed for over one year.

6.8. Career exploration

If the consumer has limited or no work history or has not been unemployed for an extended period of

time, he or she may benefit from participating in a *Career Exploration Assessment*. There are a number of techniques that may be useful here. The reader should keep in mind that what we offer here is not intended to be an all-inclusive list of techniques. Instead, it is hoped that these possibilities will stimulate ideas on the creative ways to approach a vocational assessment.

6.9. *Situational assessment*

Situational assessments allow individuals to explore interests and abilities in a variety of employment settings. The actual worksites selected should offer the person a range of experiences and diverse information about various occupations that he or she currently is qualified for. In order to individualize the process and maximize personal involvement, the facilitator should encourage the person to select sites and choose what he or she would like to learn from the experience. Thus the final site selection should be based upon the person's preferences. A worksite may relate to specific vocational goal; or if the person does not have a vocational goal, the assessment can enhance vocational knowledge. Table 5 outlines the basic steps in setting up a Situational Assessment.

Situational assessment gives the person an opportunity to explore interests, different types of work environments, preferences for instructional/training strategies, and support needs.

6.10. *Person-centered career planning*

Person-Centered Planning involves planning the best future for a person based on his or her strengths, preferences and dreams for a quality life-style. During this process, a team works with the individual to decide on a schedule of events and supports that will organize available resources to move toward the desired future [30].

This team approach involves other people who play a significant role in the person's life. They come together and share their views about the person's strengths, abilities, and support needs. The reader is referred to Inge 1996 for more information on conducting a PATH strictly for vocational purposes only.

6.11. *Home visit*

During a home visit, the facilitator has an opportunity to learn about the individual's daily life, and observe family interactions. It is useful to have some questions in hand to ask during a home visit that will allow the person to share his or her current abilities, work interests, and values. Questions might include:

- Would you describe a typical day?
- What is your favorite and what is your least favorite thing to do?
- Would you describe how you spend your leisure time?
- What do you like best and what other types of things would you like to do during your leisure time?
- Would you describe your past accomplishments and what you have done that made you or someone close to you proud?
- Would you describe your current abilities, what you are good at, and what you do better than others?

In some cases, it may be beneficial to interview other people who spend time with the person. The customer may choose to provide names of people to contact who might have useful information related to their skills and abilities. The interviews may be one to one, group, informal, or structured. Potential sources of information might include teachers, previous employers, physicians, friends, rehabilitation professionals, and significant others.

6.12. *Career information interviews*

This approach provides a valuable means for learning more about consumer interest and ability, as well as an occupation, industry or employer. The facilitator should assist the person with determining a list of employees to interview, formulate questions to ask, and coordinate the visits. The individual should be encouraged to help arrange and perform the interviews. The facilitator should assist with arrangements as needed, take notes and observe the consumer's social and communication skills. Exploratory interviews can help the person obtain information about the job qualifications, education or training needed, and how this career choice might influence his or her future earnings and lifestyle.

After the assessment, a report should be generated. It is important that the information be presented in useful format, like a vocational profile. The profile might include information related to the following areas:

Table 5
Workplace supports

Presenting issue	Possible solutions
Research and tear test tapes	<ul style="list-style-type: none"> • Reposition equipment for easy access and Velcro down to prevent slippage. • Install shelves for new monitors to expand work area.
Push buttons on older monitors	<ul style="list-style-type: none"> • Fit cutter to output source. • Rearrange work area so equipment is positioned in front of desk cut out.
Organize “good” strips	<ul style="list-style-type: none"> • Install keyboard trays.
Trim top and end of strips	<ul style="list-style-type: none"> • Position trash can to catch “trash tapes” from monitor.
Change tape roll	<ul style="list-style-type: none"> • Fabricate a pushing cutting device. • Ask for coworker assistance when threading tape.
Contact nursing station	<ul style="list-style-type: none"> • Contact Rehabilitation Engineer for ideas. • Reposition telephone for easy access. • Install large button phone.
Use intercom	<ul style="list-style-type: none"> • Install intercoms.
Write notes.	<ul style="list-style-type: none"> • Reposition equipment for easy access. • Use large pens or pen grips. • Use large/medium notebooks.
Record patient information and admission sticker in notebook.	<ul style="list-style-type: none"> • Use large stickers. • Ask the secretary delivering information to stick into notebook. • Store stickers for coworker to enter.
Enter door code to access ICU	<ul style="list-style-type: none"> • Use nurse call button for access.

Table 6
Situational assessment

<ul style="list-style-type: none"> • Identify businesses in the community. • Contact the personnel director by telephone to schedule an appointment to visit the company. During the visit, describe the purpose of situational assessment, and responsibilities of the employer, facilitator, and individual with SCI. When the company approves participation, schedule an appointment to meet with department supervisors. • Meet with supervisors and identify positions for situational assessment. • Arrange to observe workers performing the targeted jobs and perform a job analyses. • Develop a position description, including a checklist that identifies the variables to be assessed. • Determine standards and develop tools for measuring skill acquisition and production levels. • Determine types of adaptive equipment or compensating strategies that could be used. • Take pictures or get video footage of sites to share with customers. • Determine protocol to follow for setting up an assessment, such as what times of day or days s/he is available, contact person, and length of advance notice needed. • Schedule the Assessment. • Obtain needed releases and /or insurance coverage. • Conduct the Assessment. • Thank Employer. • Write report and share outcomes with participant.

- Customer assets (skills and interest);
- Customer personal experiences (in terms of daily life, education, work, and other activities);
- Customer work values or rewards expected;
- Customer on and off the job support preferences and needs;
- A determination of how the above relates to career choice; and
- Lists of jobs and employers.

7. Conclusion

Good vocational assessment and rehabilitation programs must place their customers at the center of the employment process and allow them to choose their

own vocational direction. This requires that vocational rehabilitation professionals view a person with a disability not as someone who needs help, but as an individual who requires access to resources, guidance, instruction and/or advocacy to determine their vocational path. Vocational services that adopt a “customer service culture” that listens to, values and involves its customers in service planning and delivery are first steps involved in making this a common practice. This paper described an approach to vocational assessment that empowers individuals with SCI to take control of the vocational assessment process.

Customer friendly and three individualized approaches to vocational assessment were reviewed; return to work, residual skills, and career exploration. There are a number of commonalities in these three

approaches. First each is customized and specifically geared toward the persons' circumstances and future desires. Second, all involve a functional or "hands on" approach to assessment and examine skills, knowledge and abilities in the context of real work environments rather than in simulated work settings or by using work samples. Third, future success in a vocation is considered in light of an array of possible supports in the workplace, including specialized vocational services like Supported Employment. Next, it is recognized that the level, intensity and types of supports needed is not static and may change over time. Fifth supports needed outside the workplace that impact employment are taken into consideration and recommendations of supports are made. And finally, due to the highly individualized nature of the assessment and involvement of the customer in the process, these approaches will generally require more time to implement than traditional evaluation procedures. Nevertheless, if we are going to empower persons with disabilities to take control of their lives then assessment services must customize its approach to be responsive to the persons served needs and desires.

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