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# Vocational Rehabilitation of People with Traumatic Brain Injury

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*The role of the vocational rehabilitation counselor in the rehabilitation process for individuals with TBI is explained. The specialized evaluation, team-orientation, and services involved are described. Eight areas involved in vocational evaluation are noted: social support, vocational / educational, independent living, medical, behavioral / psychosocial, financial, legal, and other areas.*

Recent advancements in emergency trauma care and physical rehabilitation offer hope of survival to people who sustain brain injuries. As encouraging as that may be, vocational interests of those with traumatic brain injury (TBI) can not be overlooked. Rehabilitation services are not usually readily available or affordable for most people. It is this unavailability of adequate life-long care programs for persons with chronic impairments that seems to be the major problem facing survivors of TBI.<sup>1</sup> Vocational readjustment can play a major role in optimal medical recovery, psychological adjustment, and long-term quality of life.

A vocational consultant may be added to the treatment team at any point where immediate vocational decisions must be made regarding the patient's employment status or where long-range vocational goals might provide a suitable foundation for psychological adjustment. A vocational evaluation is begun as soon as the individual with TBI is mentally and physically prepared to begin the tasks of

physical and cognitive rehabilitation. This evaluation considers the pre-injury occupation along with a current assessment of skills, interests, and limitations.

When the patient is ready, a return to work program is initiated to begin the process of gradually resuming work-related activities. Through the coordinated efforts of physical therapist and vocational counselor, long-term vocational goals can often serve as a framework or incentive for patient effort. The timing, method, and goals for work-related activities are generally summarized in a document called the "vocational rehabilitation plan".

Because of the complex consequences associated with TBI, vocational assessment and planning require a team effort involving client, family, physician, neuropsychologist, vocational rehabilitation counselor, physical therapist, occupational therapist, and other appropriate parties. The rehabilitation plan serves the purpose of establishing a framework for coordinating team efforts. Patient status is monitored in all crucial phases, and the plan is modified to suit changing contingencies and unforeseen opportunities. Family involvement is recommended in all phases of the rehabilitation process, along with the support, and coordination of all team members. Since research indicates the need for (a) unique evaluation techniques, (b) team-oriented rehabilitation planning, (c) team-oriented therapies, and (d) support services formulated specifically for TBI survivors, it is necessary for case managers (i.e., vocational rehabilitation counselors) working with this population to develop specialized knowledge, skills, and resources.<sup>2</sup>

A team of specialists with a representative from each relevant discipline should be gathered. A team leader is then identified from among the specialists gathered. Treatment goals are prioritized according to the client's needs. A schedule for evaluating treatment is established on the basis of objective outcomes, which are expected at prescribed intervals based on the patient's usual level of functioning. Failure to attain expected outcomes provides a basis for re-evaluating client abilities and re-adjusting the long-term program. The provision of care across all levels of treatment is monitored for continuity. An outcome orientation is promoted; and, ideally, long-term management and support systems are put in place.

Some aspects of vocational rehabilitation, such as vocational evaluation, neuropsychological, and psychological assessment are specific to the vocational rehabilitation component of TBI rehabilitation. Other aspects of TBI rehabilitation, such as cognitive remediation, psychotherapy and social skills training overlap with the vocational rehabilitation process. These aspects of rehabilitation include the assessment of key barriers to employability and community reentry after brain injury, which are the effects of psychological

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and cognitive changes. These changes are often more profound than physical changes.<sup>3</sup> Vocational rehabilitation provides training not only in job skills, but also in appropriate workplace behaviors. It provides an effective means of restoring a sense of identity to a person with a brain injury. In this regard, vocational rehabilitation should be viewed as a major part of the overall rehabilitation process.

An assessment of the client's needs is an elementary component of any initial vocational rehabilitation, case management or life-care planning interview. These needs generally fall into the following inter-related categories: (1) a social support system, (2) vocational and/or educational assistance, (3) independent living, (4) medical, (5) behavioral management / psychosocial, (6) financial, (7) legal, and (8) other areas of concern. In this process of life care planning, nothing should be left to chance; and, everything important in the TBI survivor's life should be considered openly and in depth with active participation by all involved.<sup>4</sup> This list of aspects of life is used to analyze an individual client's needs so that they can be prioritized and included in their vocational rehabilitation plan. The use of this framework simplifies the vast array of complex and overlapping aspects of TBI rehabilitation making them more manageable.

A social support system, or the lack of one, establishes the alternatives available to a TBI survivor upon discharge from acute care. This category may be the most important in terms of promoting optimal rehabilitation for a person with an injury: "people do better and heal faster when they feel that somebody cares about them."<sup>5</sup> Lack of social contact, increased dependence on the family, and a

reduction in close friends, leisure activities and visitors is a frequent concern of post-injury clients.<sup>6</sup>

Without assistance from family, friends, community and/or a competent guide, such as a vocational rehabilitation counselor, the survivor may not receive needed chronic care. Lacking the skills necessary to care for themselves, persons having TBI may become a social burden by becoming homeless, institutionalized, or jailed. Access to the other seven categories on the life-care-planning list above might be impossible without fundamental social support.

As the incidence of brain injury among young people is known to be very high, return to school is often a serious concern after injury. Awareness regarding TBI by educators and school counselors and awareness of students and their parents of services available to them needs to be increased. For most young adults, return to work or school is usually a desirable and potentially attainable goal.

Vocational evaluation as part of the transition from school to work comes under the auspices of the State-Federal vocational rehabilitation program. State counselors use a variety of assessment techniques including simulated job tasks such as standardized job samples, trial work stations or "situational assessments" in addition to neuropsychological evaluations as the basis for an adult rehabilitation plan. Persons who are injured on the job qualify for assistance from counselors who are certified with the workers' compensation program. Finally, some individuals covered by automobile insurance receive vocational counseling assistance under the terms of vocational rehabilitation coverage. However, financial constraints often limit the availability of skilled counseling or other services for persons with chronic disability.

Vocational evaluation involves an assessment of an individual's assets and limitations along with a prediction of the individual's behavior and success on the job. Vocational evaluation encompasses the full repertoire of work behaviors with a focus on the manner in which deficits interfere with vocational functioning. A determination of maximum capabilities and mechanisms to optimize performance is necessary. On-the-job evaluation is preferable to standardized group testing and commercially available work samples for this population.<sup>7</sup>

The vocational counseling component usually involves helping a person with a brain injury develop a realistic vocational outlook. Frequently, people with brain injuries, overestimate their vocational potential, with the consequence that their vocational goals are unrealistic. Further, they typically underestimate the amount of work or the extent of the capabilities needed to achieve their goals because they lack self-awareness and do not accept the consequences of the injury. Vocational rehabilitation counselors work closely with professionals attending to the psychological adjustment. They can recommend work-related activities to help the person with the brain injury become aware of the reality of their relationship to the work environment.

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(erythromycin-benzoyl peroxide topical gel)

Topical gel: erythromycin (3%), benzoyl peroxide (5%)

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**Brief Summary:** See full prescribing information for complete product information.

## INDICATIONS AND USAGE

BENZAMYCIN® Topical Gel is indicated for the topical treatment of acne vulgaris.

## CONTRAINDICATIONS

BENZAMYCIN® Topical Gel is contraindicated in those individuals who have shown hypersensitivity to any of its components.

## WARNINGS

**Pseudomembranous colitis has been reported with nearly all antibacterial agents, including erythromycin, and may range in severity from mild to life-threatening. Therefore, it is important to consider this diagnosis in patients who present with diarrhea subsequent to the administration of antibacterial agents.**

Treatment with antibacterial agents alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of "antibiotic-associated colitis."

After the diagnosis of pseudomembranous colitis has been established, therapeutic measures should be initiated. Mild cases of pseudomembranous colitis usually respond to drug discontinuation alone. In moderate to severe cases, consideration should be given to management with fluids and electrolytes, protein supplementation and treatment with an antibacterial drug clinically effective against *C. difficile* colitis.

## PRECAUTIONS

**General:** For topical use only; not for ophthalmic use. Concomitant topical acne therapy should be used with caution because a possible cumulative irritancy effect may occur, especially with the use of peeling, desquamating or abrasive agents. If severe irritation develops, discontinue use and institute appropriate therapy.

The use of antibiotic agents may be associated with the overgrowth of nonsusceptible organisms including fungi. If this occurs, discontinue use and take appropriate measures.

Avoid contact with eyes and all mucous membranes.

**Information for Patients:** Patients using BENZAMYCIN® Topical Gel should receive the following information and instructions:

1. This medication is to be used as directed by the physician. It is for external use only. Avoid contact with the eyes, nose, mouth, and all mucous membranes.

2. This medication should not be used for any disorder other than that for which it was prescribed.

3. Patients should not use any other topical acne preparation unless otherwise directed by physician.

4. Patients should report to their physician any signs of local adverse reactions.

5. BENZAMYCIN® Topical Gel may bleach hair or colored fabric.

6. Keep product refrigerated and discard after 3 months.

## CARCINOGENESIS, MUTAGENESIS AND IMPAIRMENT OF FERTILITY

Data from a study using mice known to be highly susceptible to cancer suggests that benzoyl peroxide acts as a tumor promoter. The clinical significance of this is unknown.

No animal studies have been performed to evaluate the carcinogenic and mutagenic potential or effects on fertility of topical erythromycin. However, long-term (2-year) oral studies in rats with erythromycin ethylsuccinate and erythromycin base did not provide evidence of tumorigenicity. There was no apparent effect on male or female fertility in rats fed erythromycin (base) at levels up to 0.25% of diet.

**Pregnancy: Teratogenic Effects: Pregnancy Category C:** Animal reproduction studies have not been conducted with BENZAMYCIN® Topical Gel or benzoyl peroxide.

There was no evidence of teratogenicity or any other adverse effect on reproduction in female rats fed erythromycin base (up to 0.25% diet) prior to and during mating, during gestation and through weaning of two successive litters.

There are no well-controlled trials in pregnant women with BENZAMYCIN® Topical Gel. It also is not known whether BENZAMYCIN® Topical Gel can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. BENZAMYCIN® Topical Gel should be given to a pregnant woman only if clearly needed.

**Nursing Women:** It is not known whether BENZAMYCIN® Topical Gel is excreted in human milk after topical application.

However, erythromycin is excreted in human milk following oral and parenteral erythromycin administration. Therefore, caution should be exercised when erythromycin is administered to a nursing woman.

**Pediatric Use:** Safety and effectiveness of this product in pediatric patients below the age of 12 have not been established.

## ADVERSE REACTIONS

In controlled clinical trials, the total incidence of adverse reactions associated with the use of BENZAMYCIN® Topical Gel was approximately 3%. These were dryness and urticarial reaction.

The following additional local adverse reactions have been reported occasionally: irritation of the skin including peeling, itching, burning sensation, erythema, inflammation of the face, eyes and nose, and irritation of the eyes. Skin discoloration, oiliness and tenderness of the skin have also been reported.

## DOSAGE AND ADMINISTRATION

BENZAMYCIN® Topical Gel should be applied twice daily, morning and evening, or as directed by a physician, to affected areas after the skin is thoroughly washed, rinsed with warm water and gently patted dry.

## How Supplied and Compounding Directions:

Size (Net Weight)	NDC 0066-	Benzoyl Peroxide Gel	Active Erythromycin Powder (In Plastic Vial)	Ethyl Alcohol (70%) To Be Added
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11.65 grams (as dispensed)	0510-05	10 grams	0.4 grams	1.5 mL
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## SAMPLE

23.3 grams (as dispensed)	0510-23	20 grams	0.8 grams	3 mL
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46.6 grams (as dispensed)	0510-46	40 grams	1.6 grams	6 mL
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**Prior to dispensing, tap vial until powder flows freely. Add indicated amount of ethyl alcohol (70%) to vial (to the mark) and immediately shake to completely dissolve erythromycin. Add this solution to gel and stir until homogeneous in appearance (1 to 1½ minutes). BENZAMYCIN® Topical Gel should then be stored under refrigeration. Do not freeze. Place a 3-month expiration date on the label.**

**NOTE: Prior to reconstitution, store at room temperature between 15° and 30°C (59° - 86°F).**

**After reconstitution, store under refrigeration between 2° and 8°C (36° - 46°F).**

Do not freeze. Keep tightly closed. Keep out of the reach of children.

**Caution:** Federal (U.S.A.) law prohibits dispensing without prescription.

U.S. Patent Nos. 4,387,107 and 4,497,794.

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Vocational training focuses on job performance tasks and behaviors. This includes skill proficiency, rate, quality and endurance. It includes equally the development of appropriate on-the-job behavior. A flexible training program using behavioral techniques with presentation of tasks in small, sequential steps along with a gradual shift to self-monitoring is recommended.<sup>8</sup>

Job development and job placement approaches vary according to job readiness and severity of injury. A client may start with volunteer work, move to supported employment with a job coach and finally hold a job independently. "Supported employment" is so named because special trainers called "job coaches" assist individuals with handicaps as they learn complex tasks on the job site; or, co-workers are trained to assist the person to keep on track or to assume those job tasks that are beyond the TBI worker's competency. Return to work options are as broad as the labor market, but are defined by the person's work and educational history, physical and mental abilities, aptitudes, interests, and needs.

Research has consistently shown a decrease in employment rates after brain injury in relation to pre-injury employment rates; furthermore, unemployment is often a long-term problem due to relatively minor behavior-cognitive deficits.<sup>9</sup> With special and intensive forms of intervention, however, employment outcomes can range from 50% to 80% for clients with even a severe TBI. Although job placement is possible, sustained job retention is a lingering concern.<sup>10</sup> Follow-up after job placement is, thus, important with this population. Monitoring of activities and assistance with situations may be necessary for some time after placement to insure work skills and behaviors are appropriate. Typically, six months to one year is suggested.

Before return to work is possible, basic supports may be needed. The support services for independent living most needed by persons with moderate to severe TBI are: (a) personal assistance services, (b) homemaker/chore support, (c) home health services, (d) respite services, (e) housing, (f) case management or resource coordination, (g) transportation, and (h) advocacy. The three obvious barriers that impede the delivery and utilization of these needed supports are funding, attitudes, and housing. If lack of funding is a problem, a case manager can help direct the person with TBI and their family to sources other than individual insurance like Social Security and Medicaid. Where an attitudinal barrier is a problem; the widely held opinion that persons with disabilities cannot or should not live independently often means a more restrictive lifestyle in a "safer environment" than is needed or desired by the individual. When there is no affordable housing, it is often less expensive to place individuals in nursing homes instead of in more appropriate community based independent living arrangements.<sup>11</sup>

Most medical insurance policies cover only hospital-based rehabilitation, and not chronic care. The hospital team must, therefore, deliver the most comprehensive, high-quality treatment before the person is discharged from the hospital. In order to obtain this goal, Howard calls for an inter-disciplinary approach rather than a multi-disciplinary approach. A few significant differences between the inter-disciplinary model and the multi-disciplinary model are: a behavioral-learning treatment model, not a medical treatment model; an emphasis on mental, not physical treatment; chronic care, not an acute care model; group control with a democratic team leader, not centralized control with an autocratic team leader; a common goal among the disciplines, not separate goals; a focus on the whole

patient, not on rehabilitating parts of the patient; and group problem solving in staff meetings instead of individual reporting.<sup>12</sup>

Any discussion of the support system, the vocational/educational rehabilitation, the activities of daily living of the person with TBI, or the medical aspects of the person with TBI must deal with managing the behavior of the person with TBI. The rebuilding of social skills is often necessary to allow the human contact vital to all other concerns. The behavioral and cognitive aspects of TBI are not physically obvious, yet they are often most severely effected by TBI and are tied to every element of social and familial support and cohesion for the recovering individual.

It is critical that accurate assessment of an individual's strengths and limitations followed by appropriate interventions to improve behavior take place from the beginning of treatment. A person with TBI often suffers memory and personality impairments. These impairments threaten social relationships and can lead to social isolation, frustration and substance abuse. Given an opportunity to become involved and learn in a challenging environment, these socially challenged individuals often achieve a new sense of identity and self-esteem.<sup>13</sup> As the high incidence of vocational and academic failures can be attributed partially to substance abuse, in order to more effectively overcome obstacles to educational and vocational outcomes, professionals can become more knowledgeable about and can educate their clients about substance abuse risk factors, assessments, and interventions while stressing the need for continuing education, family involvement, and increased monitoring with increased independence.<sup>14</sup>

Private insurance rarely pays for anything other than acute care, and the co-payments on that care are beyond the financial reach of most individuals. The health-care crisis of the 1990's has forced a move toward managed care in medical treatment. This poses a new danger to rehabilitation, especially in treatment of brain injury. Insurance companies are increasingly intervening in treatment planning, while control of patient care is moving out of the hands of clinicians and facility managers into the hands of the payers for services.<sup>15</sup>

An important first step in financial planning for a person with TBI is determining eligibility for government benefits. The next step involves looking beyond government benefits, which generally pay only basic room and board expenses, and calculating the remaining financial needs of the person with TBI. A financial strategy can be devised once these basic costs are determined. Experts in financial, investment and estate planning as well as insurance specialists should be consulted for help in determining long-term costs.<sup>16</sup>

Whether acquiring knowledge of legislation impacting people with TBI or selecting a competent plaintiff's attorney when a personal injury suit is involved, a person with TBI and their caregivers may require expert legal advice. If the event that caused the TBI may become the subject of civil litigation, it is important to select the right lawyer as soon as possible. Money obtained through litigation is used for compensation for lost income, pain and suffering, and to pay for treatment and rehabilitation programs.

The "other" category in the life-care list is designed to include planning for any individual aspect that may not fit conveniently anywhere else in the life-care-planning list. These may include religious, leisure or other activities that are of particular interest to the individual. Special diets, equipment, and clothing, treatments that work, and personal preferences should be considered here.

The only cure for TBI is prevention. Use of seat belts and air bags in cars, use of helmets by riders on motorcycles and bicycles, along with efforts to eliminate drunken and unsafe driving can reduce the incidence of TBI. Gun control, awareness and reporting of child abuse, stricter regulations governing contact sports, and the prevention of secondary injury through prompt identification and diagnosis of TBI are also ways to reduce the incidence of TBI. Considering the extent of the intellectual and personal loss caused by TBI as well as the enormous financial burden placed upon families and society as a whole, the little effort directed at prevention is woefully inadequate.<sup>17</sup>

In spite of the best efforts at prevention some individuals will become injured; and they will need effective rehabilitation services. Only a comprehensive program of professional services can mitigate the mental, physical, emotional, spiritual, and financial costs paid for by survivors of TBI, their families, and the larger community. With an understanding of the unique processes of vocational evaluation, team oriented planning and therapy, and special support services specifically directed at re-training people with TBI to re-enter the community and the workforce, professionals, and the public alike, can assist survivors of TBI to achieve meaningful and rewarding lives.

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