Acquired Brain Injury Rehabilitation and Managed Care: Implications for Rehabilitation Administrators

James L. Soldner, Utah State University
Thomas D. Upton, Southern Illinois University Carbondale
Paige N. Dunlap, Winston-Salem State University

Available at: https://works.bepress.com/james_soldner/5/
Acquired Brain Injury
Rehabilitation and Managed Care: Implications for Rehabilitation Administrators

James L. Soldner
Thomas D. Upton
Paige N. Dunlap

Abstract

Brain injury constitutes a major health care concern in the US today. Annual budget costs in the US for brain injury rehabilitation total more than $4 billion dollars. Managed care as a system of organizing and financing health care services to control these costs was formally introduced in the early 1990s. Brain injury rehabilitation service providers and administrators in this managed care era face increased pressure to produce successful clinical outcomes in an abbreviated time frame. These outcomes may include consumer satisfaction, return to competitive employment, and attainment of functional goals and rehabilitation potential. Services such as evidence-based practices, precision teaching, shortened versions of neuropsychological testing, can be possible solutions. Implications for rehabilitation administrators are also discussed including, techniques to maximize service provision potential, assuring consumer satisfaction, and balancing research with practice.

Acquired brain injury (ABI) constitutes a major health care concern in the United States. Every 21 seconds one person in the United States sustains a brain injury (Brain Injury Association of America, 2006). An estimated 5.3 million Americans (2% of the population) are currently living with this debilitating condition (Zinc & McQuillan, 2005). There are two different classifications of brain injury, ABI and traumatic brain injury (TBI). An ABI is the overarching category of TBI. An ABI takes place at the cellular level within the brain resulting from both insult to the brain and congenital or degenerative accidents, instead of just within specific areas, as with TBI (Brain Injury Association of America, 2006). A TBI is caused by an external physical force resulting in damage to specific areas of the brain. ABI is a more comprehensive definition of brain injury than TBI. For the purpose of this study, ABI will be used to encompass all causes of brain injury (Brain Injury Association of America).

Health care costs in the United States for persons recovering from ABI are estimated at $4 billion dollars per year. The estimates of ABI rehabilitation represent a significant portion of the nation’s annual medical care expenditures (Barry & Schafer, 1993; Thurman & Guerrero, 1999) with an average of 80% of these health care costs incurring during the first year post-injury (Schatz, Hughes, & Chute, 2001). The daily cost of acute care for someone with ABI showed almost routine increases, with an average increase of nearly $550 per year (Kruetzer et al., 2001). Not included in these estimates are the economic burdens of ABI to the family and society, such as lost earnings of person injured, family members providing care to those injured, and the cost to health and human service systems (Khan, Khan, & Peys, 2002). To reduce financial costs to consumers, while sustaining high quality service delivery, brain injury rehabilitation administrators must be innovative with their...
service delivery practices. ABI rehabilitation administrators must be competent in the necessary roles and functions of brain injury rehabilitation organizations. These administrators are often involved in most administrative decisions that impact the organization, including the development and supervision of all personnel, program evaluation, strategic financial planning, and overall organizational growth and effectiveness. As a result, ABI administrators must also implement selective approaches in hiring methods which will lead to a more efficient and effective implementation of brain injury rehabilitation protocols.

The purpose of this article is to provide an overview of the typical brain injury rehabilitation protocol and managed care and its impact on service delivery. In particular, the article will focus on innovative strategies rehabilitation administrators can utilize to promote successful clinical outcomes, techniques to maximize service provision potential, assuring consumer satisfaction and balancing research with practice.

Overview of Acquired Brain Injury Rehabilitation Protocol

To address important rehabilitation protocol following acquired brain injury, the National Institute of Disability and Rehabilitation Research (NIDRR) has established centers providing a comprehensive continuum of rehabilitative care leading to recovery. In these NIDRR sponsored centers, the continuum typically consists of emergency care, acute trauma management, inpatient rehabilitation and long-term interdisciplinary follow-up (Khan et al., 2002). The efficacy of this particular sequence of rehabilitation phases for persons following a brain injury is well known (Cope, 1995). Typical ABI rehabilitation phases include acute medical services, acute rehabilitation services, and post-acute rehabilitation services (Upton, Fontan, Premuda, Lorenzo, & Quinteros, 2002; Vogenthaler, 1987). These phases target preserving life, increasing post-brain injury physical and daily functioning, and facilitating successful community reintegration, respectively. Collectively, these phases of ABI rehabilitation fit well within a broader continuum of care model, designed as an evidence-based disability management tool to assist in the healthcare of a specific injury category (i.e., brain injury). The benefit of these models is the promotion of a consistent, evidence-based approach to the healthcare management of a particular health condition (Rose, 2005). For brain injury rehabilitation professionals, this continuum of care model functions as a guide to address important recovery patterns and benchmarks to make informed decisions regarding assessment and treatment for the person with ABI. The ultimate goal of comprehensive ABI rehabilitation services is to successfully reintegrate each person with ABI into all areas of life (Upton, Fontan et al., 2002).

Although each brain injury case is treated on an individual basis, it is customary that a US brain injury case consists of a person with ABI being taken to a trauma center to receive emergency medical services to preserve life and monitor vital signs while in a coma. At this time medical professionals including physicians, neurologists, and nurses provide comprehensive medical services. After emerging from a coma and vital signs are stable, transfer to an acute rehabilitation facility is appropriate. Acute rehabilitation is typically begun when the person is medically stable enough to be transferred out of acute medical care. At this time, an interdisciplinary team of rehabilitation professionals including a neurologist, physiatrist, physical therapists, occupational therapists, speech language therapists, vocational rehabilitation counselors, social workers, psychologists, psychiatrists, and nurses collaborate to provide comprehensive services to facilitate this person to eliminate (or, at least, negate) brain injury residuals. Commonly targeted residuals during acute rehabilitation include decreased ambulation, coordination, self-care, memory, language abilities, and depression. Once ambulation and consistent self-care is demonstrated, the person with an ABI is typically discharged from the inpatient setting (Upton, Fontan et al., 2002). There is a great deal of variability in the length, type, and intensity of acute rehabilitation services.
Lastly, post-acute rehabilitation services are provided on either an in-patient or out-patient basis. Multidisciplinary rehabilitation services may be continued when the person is medically stable and making progress, and when the team collectively agrees more progress can be made. Post-acute services often include physical, cognitive, and behavioral therapy, assistive technology, brain injury education, and rehabilitation counseling (Khan et al., 2002). Other post-acute rehabilitation services including referral to the state/federal VR system to facilitate successful return to work or independent living services may be appropriate. Other services could include referral to community-based rehabilitation programs designed to facilitate community reintegration of persons with brain injury (Upton & Bordieri, 2001). Overall, these services are provided to achieve an overriding goal of functional independence. Of particular importance, emergency medical treatment and the state/federal VR system are accessible to most persons in the US. The majority of acute and post-acute brain injury rehabilitation services are available on a limited basis, depending on one’s financial resources and the present managed care environment (Upton, Bordieri, & Roberts, 2002).

With many service provisions being restricted due to the availability of consumer funds and time constraints; rehabilitation administrators must ensure consumers’ maximum rehabilitation potential is being achieved by looking within the organization itself to determine what factors may influence the effectiveness of service delivery to produce successful rehabilitation outcomes within the limitations set forth by managed care environment.

Overview of Managed Care

In an effort to reduce the rising costs of health care services, managed care was formally introduced in the United States in the early 1990s. Managed care is the financing and delivery of medical care that is manifested through contracts with selected physicians and hospitals that provide comprehensive services to enrolled members. Essential elements of this strategy are control of utilization, cost, and information (Hunt & Growick, 1997). The history of managed care can be traced back to the passage of the Health Maintenance Organization (HMO) Act by Congress in 1973 (Chan, Lui, Rosenthal, Pruet, & Ferrin, 2002). The original intent of the HMO Act was to stimulate the interest of consumers and providers and allow people to decide for themselves a preferred healthcare provider. As a result of the HMO Act, managed care was introduced as a revised model of health service delivery.

A simplistic model of managed care is the application of business principles to the delivery of medical services that are both effective and efficient (Hunt & Growick, 1997). Managed care has been further defined as “the integration of both the financing and the delivery of health care within a system that seeks to manage accessibility, cost, and quality of that cost” (Mullen, 1995, p. 22). Since its inception, both healthcare administrators and clinical practitioners have expressed concern over such issues as changes in practice patterns, access to service providers, inadequate patient treatment, and the direction of the healthcare industry, in general (Tietze, 2003). These emerging managed care practices have resulted in economic challenges for brain injury rehabilitation administrators.

The demand from society for high quality rehabilitation outcomes at reasonable costs in increasingly competitive market conditions has encouraged rehabilitation service providers, administrators, and organizations to re-examine their costs effectiveness (Faraci, Leiter, & Week, 1996). In the managed care era, rehabilitation professionals now have increased pressure to produce significant clinical outcomes in an abbreviated time frame (Kubina, Ward, & Mozzoni, 2000). These clinical outcomes specific to consumers of ABI rehabilitation services can include, but are not limited to, consumer satisfaction, return to competitive employment, and attainment of functional goals and rehabilitation potential. As previously mentioned, some examples of the impact of managed care in ABI rehabilitation include increased emphasis on accountability and data-driven decision making and decreased lengths of stay at all phases of the rehabilitation continuum (Khan et al., 2002).
Other changes include innovative rehabilitation programs that incorporate the most contemporary empirically-validated clinical interventions and evidence-based practices available. For example, effective post-acute, community and evidence-based programs serving individuals with ABI are well documented (Upton & Bordieri, 2001; Upton, Bordieri et al., 2002). Specifically, intensive social skills and work readiness training have been successfully provided to individuals with ABI that were chronically unemployed and were no longer involved in the brain injury rehabilitation service delivery systems. This programming resulted in increased employment and quality of life indicators for participants. These programs also rely upon equally competent and well trained service providers (Guercio et al., 2005). It is with this notion that rehabilitation administrators should keep in mind that effective service provision and supervision, especially at the paraprofessional level (i.e., direct service staff), have been shown to help the promotion of maximizing resources, containing costs, integrating services, and serving more consumers in a rehabilitation organization (Benshoff, Eckert, Riggar, & Taylor, 1995). In addition, evaluation of paraprofessionals by rehabilitation administrators can be a useful technique to help promote quality performance and accountable rehabilitation services. Any evaluation tool must be objective, fair, frequently used, and should provide relevant information for both the administrator and the person being evaluated (Schmidt et al., 1992).

Outcome-oriented rehabilitation relying upon data-based decisions has also become increasingly useful in establishing individualized, clear, measurable short-term objectives and long-term goals for rehabilitation practice that are identified early, drive the rehabilitation process and promote accountability for all parties involved (Lewis, Armstrong, & Karpf, 2002). Interest in clinical outcomes has accelerated because funding sources are mandating service providers to deliver the most effective outcomes for the least amount of money (Kubina et al., 2000; Soldner & Dixon, 2003). Attaining successful clinical outcomes has been found to be an effective method of empirically validating the role of rehabilitation for consumers.

Evidence-based practice, known as the process of applying research to practice, has become increasingly important in rehabilitation to make certain that interventions have been tested, evaluated, scrutinized, and withstood the appropriate scientific rigor to be viewed as efficacious (Lewis et al., 2002). To be proven efficacious, evidence-based practice and treatment must withstand randomized controlled clinical trials or some other form of rigorous scientific research. The emergence of evidence-based practice in all areas of health care, including ABI rehabilitation, is tied to both financial viability and efficiency of staff and resources. As a result, rehabilitation and health care administrators working with a managed care environment must effectively utilize evidence-based practices, as financial constraints and efficiency are critical aspects of service delivery (Chronister, Chan, da Silva Cardoso, Lynch, & Rosenthal, 2008). Significant changes must be made on the part of the rehabilitation administrator in order to adhere to the specificities of the managed care environment, while utilizing service practices necessary to produce successful rehabilitation outcomes for individuals with ABI. Particularly important are the consequences of managed care impacting the rehabilitation practices of these organizations.

The field of rehabilitation is the framework in which the managed care system operates. Managed care operates best within a predictable framework where treatment protocols are standardized and patient needs are straightforward. This is in direct contrast to service models for persons with disabilities, especially brain injury, who experience multiple medical complications, secondary conditions, and frequent allied services (Hunt & Growick, 1997). Equally of concern, managed care benefit packages are usually based on an acute care model. For example, managed care plans typically cover only 60 days of rehabilitation and sometimes no rehabilitation services at all. Additionally, managed care plans rarely cover home and community-based rehabilitation services and often have annual or lifetime caps for certain conditions or treatments. These consumers are
often denied benefits based on narrow definitions of “medical necessity.” In addition, many plane refuse coverage of necessary medical equipment, and effective drug therapies are often unavailable for some people with disabilities and chronic conditions (Hunt & Growick). These managed care concerns for persons with disabilities, combined with limited access to specialized treatment and incentives to under-serve certain disability populations, make effective rehabilitation service provision and successful outcomes an ongoing challenge.

Within the paradigm of managed care, another obvious and ongoing dilemma is the rehabilitation service provider’s role as facilitator for consumers’ welfare and needs and organizations’ need for cost control (Hunt & Growick, 1997). Prior to the managed care era, health care costs were of little relevance, instead the primary obligation being the best care possible. One major purpose of managed care has been to provide consumers with increased health care decision-making power, especially when deciding their preferred service providers. Choice making, or relinquishing choice-making, among consumers has often been in an effort to lower premiums. One group adversely affected by a consumer’s decision-making opportunities in a managed care system is people with disabilities. Historically, people with disabilities have not had the same autonomy and choice-making ability to decide the services to be provided, a fundamental concept of managed care. Equally troublesome, people with disabilities in a managed care system may be perceived as less desirable patients due to the extent of their service needs which may deplete the resources of a managed care system. Inevitably, this has major implications for special disability populations, like individuals with ABI, in terms of accessibility, affordability, and quality of rehabilitation services available (Hunt & Growick). Therefore, it is to the advantage of both consumers and the rehabilitation organization, as a whole, for rehabilitation administrators to recognize service delivery variables within the organization which may ultimately affect the bottom line – successful, timely, cost efficient, high quality ABI rehabilitation service delivery. Service delivery of this caliber may increase the likelihood of successful rehabilitation in special disability populations, including ABI.

Acquired Brain Injury Rehabilitation and Managed Care

In today’s managed care environment, ABI rehabilitation administrators are continually challenged to oversee quality rehabilitation services with limited funding and personnel and shortened lengths of stay. To account for this, ABI rehabilitation programs and their service providers have experienced an increasing mandate for accountability and outcome-oriented rehabilitation. Outcome-oriented ABI rehabilitation relies upon the systematic and routine use of data to make informed decisions related to who receives the service, utilization patterns, level of consumer satisfaction, the degree to which objective consumer level outcomes are achieved, and improving efficiency in the deployment of lean public rehabilitation funds (Lewis et al., 2002). Not to be confused with evidence-based practice, data-driven decision making in rehabilitation, in general, is a relatively new concept brought about largely due to managed care and involves allowing data to inform decisions made in the context of rehabilitation service programs. Data-driven decision making can be used for consumer outcome measurement and performance management and promotes informed decisions about rehabilitation services that are being offered, consumer satisfaction, and policies and procedures of an organization (Lewis et al.).

A particularly critical concern for rehabilitation practitioners involves having sufficient experience and background related to data activities. To effectively execute data activities among rehabilitation practitioners, Lewis et al. (2002) suggested the following five steps: (1) Understand how the practice works and the function of the practice; (2) Assess the readiness of the practice to be subjected to the scrutiny inherent in data-driven decision making; (3) Design data collection efforts; (4) Develop and implement a specific plan; and (5) Allow the data to inform rehabilitation practice actions. If these
steps are consistently adhered to, ABI rehabilitation practice within a managed care environment will remain accountable and can effective change and growth within an organization.

One example of an important data-driven issue in ABI rehabilitation that has changed substantially since the inception of managed care is the length of stay for inpatient ABI rehabilitation care. For example, Harrison-Felix, Newton, Hall, and Keutzer (1996) reported that the average length of stay at facilities enrolled in the TBI Model of Systems of Care National Database had decreased by 25% between 1989 and 1994. A similar study collected data from 800 consecutive patients enrolled in four NIDRR Model Systems Brain Injury programs over a seven-year period. Acute lengths of stay showed a downward trend, with annual reductions averaging 2.25 days. This same study found admission lengths of stay averaged 22-29 days, between 1990-1994, and fewer than 20 days beginning in 1995. This rise in daily rehabilitation charges were offset by corresponding decreases in lengths of stay averaging 3.65 days or 8% annually (Kreutzer et al., 2001). Another data-driven issue impacting ABI rehabilitation concerns the massive downsizing that has occurred in rehabilitation organizations and healthcare, in general. Service providers are expected to carry higher client case loads and broaden the scope of service provision, with static or declining resources. As a result of managed care practice and downsizing of this kind, specific rehabilitation disciplines (e.g., rehabilitation counseling) must continually demonstrate their cost-efficiency, through the use of data-driven practice and consumer outcomes (Ricker, 1998).

Another emerging issue of ABI rehabilitation and managed care includes the costs of long-term post-acute rehabilitation for individuals in a vegetative or minimally conscious state (Elliott & Walker, 2005). Due to continued positive progress in intensive care medical treatment, many individuals surviving severe brain injury of this kind now survive (Noda, Maeda, & Yoshino, 2004). As a result, significant debate has occurred over the need and timing for effective, evidence-based post-acute ABI rehabilitation services for this population. Included with this ABI population are individuals with ABI considered by their multidisciplinary rehabilitation team to be inappropriate for an independent living setting due to their existing residual deficits. These individuals are considered to have reached their post-acute rehabilitation potential (as evidenced by time since injury, recent functional gains made, and other data-driven techniques) (Ricker, 1998). With the advances in health care and improved survival rate of individuals with ABI, there has become a disproportionate number of individuals with ABI without appropriate placement, beneficial services, and cost effective outcomes. Although complex, this issue is further complicated by many of the paradoxes of managed care (Khan et al., 2002). While disconcerting, the implementation of managed care in rehabilitation organizations has been the cause of numerous changes within the service delivery systems to individuals with disabilities, including individuals with ABI. As rehabilitation administrators adapt to new procedures and limitations, they must determine changes that can be made within their particular organization to enhance rehabilitation potential and consumer outcomes, as well as withstand the economic challenges evident within the organization.

Administrative Implications and Proposed ABI Rehabilitation Practices

Ensuring the delivery of quality care services in a managed care environment can be a complex task. Shorter amounts of time being spent on consumer service delivery due to cost restrictions calls for qualified rehabilitation professionals to produce outcome-oriented results in a timely manner. For example, Upton and Wadsworth (2008) provided a framework for replication of social skills and work readiness training for adults with brain injury. This programming merits increased attention as we are increasingly sensitized to the need for brain injury rehabilitation services. Programming of this kind is especially needed due to the growing percentage of veterans returning to the United States with diagnosed, and many times undiagnosed, brain injuries. Many other innovative examples
of evidence-based ABI rehabilitation services have recently been integrated into rehabilitation service programs.

**Precision teaching.** One proposed method of delivering outcome-oriented, evidence-based ABI rehabilitation services within the managed care system is precision teaching. Precision teaching is a set of procedures for practicing, measuring, monitoring, and evaluating skill performance (e.g., academic, social skills). There are four basic components to precision teaching: (1) Teaching focuses on directly observable behavior; (2) Teachers use frequency of responses to measure performance; (3) Teachers follow the premise that "the learner knows best;" and (4) Data are displayed on standard celebration charts. All of these components of precision teaching are conducive to the managed care practices of objective, measurable, data-based decisions in service delivery and outcome (Kubina et al., 2000). Although the extensive literature of precision teaching has traditionally addressed mainly school-related behaviors, a growing database exists which demonstrates the success clinicians and researchers alike have had applying precision teaching to create dynamic rehabilitation outcomes for people with brain injury (Kubina, Ajo, Mozzoni & Malanga, 1998). With the time constraints placed on service providers, an advantage of precision teaching is its time and cost savings. The attainment of treatment goals at an accelerated rate equals time and cost savings for all parties involved (Kubina et al., 2000).

**Neuropsychology.** One specialty service area of ABI rehabilitation significantly affected by managed care is neuropsychology. The primary goals of standardized neuropsychological evaluations includes gathering information and gaining insights concerning type of cognitive, behavioral, and neurological problems experienced by persons after a brain injury (Hogg, Johnstone, Weinher, & Petroski, 2001). Neuropsychologists in the managed care must accurately diagnose and demonstrate that their assessments and interventions that make a functional difference in a short period of time. As an example, the Category Test, notable for its extended length, has been the subject of many proposed shorter versions. The pressure to utilize short forms of various neuropsychological tests with clinical populations in the past few years has increased dramatically. Overall, managed care systems have forced a number of neuropsychologists to become more efficient and responsive to consumer and third party payer concerns (Hogg et al., 2001).

**Applied behavior analysis.** Another specialty service area of ABI rehabilitation, applied behavior analysis (ABA), has contributed to evidence-based practice in ABI rehabilitation. The hallmark of ABA is data collection, data-based treatment decision making, and functional analysis methodology. Functional analysis methodology is a systematic, data-driven method of assessment and intervention for problem behavior occurrence. For example, functional analysis methodology may be used to evaluate and treat problematic verbal behavior in individuals with ABI. Dixon et al. (2004) conducted separate functional analyses on four adults with ABI who regularly displayed instances of inappropriate verbal behavior including depressive, aggressive, suicidal, profane, and sexually inappropriate utterances. Each functional analysis was able to indicate a maintaining variable for each participant. A subsequent function-based intervention (e.g., differential reinforcement of alternative verbal behavior) was implemented for each participant to reduce the occurrence of problematic verbal behavior. Functional analysis methodology has been shown to be effective for the assessment and treatment of other problem behavior for persons with ABI (Fyffe, Kahng, Fittro, & Russel, 2004).

**Naturalistic functional analysis.** Naturalistic functional analysis methodology to assess and treat individuals with ABI is an especially effective tool for trained service providers working within a managed care environment. Naturalistic functional analyses are attempts to determine environmental contingencies for problem behavior as they occur "in the moment" in the natural environment as opposed to analogue functional analyses, which are conducted during scheduled times, for longer.
periods, and in a contrived environment (e.g., treatment room with two-way glass for direct behavioral observations to take place). It has been suggested that naturalistic functional analysis may be more conducive to the behavioral repertoire of individuals with ABI who often display low-rate, high intensity behavior that may not become evident during standard 20-30 minute analogue functional analysis sessions. Other benefits of naturalistic functional analysis methodology include its abbreviated time frame for assessment, especially important for managed care rehabilitation practice. The time constraints of service provision as a result of managed care serve is another reason rehabilitation administrators need to hire quality paraprofessionals to assist in the timely delivery of rehabilitation services for individuals with ABI. This hiring practice is an additional example of a method of changing the in-house system in order to deliver the best services possible in a managed care environment.

Increased role of paraprofessionals. The aforementioned advances in the areas of precision teaching, neuropsychology, and functional analysis methodology are just a few of the many ways in which ABI rehabilitation has adapted and changed since the inception of managed care. These examples are also evidence of the increased emphasis placed on achieving successful data-driven clinical outcomes in an abbreviated time frame. An additional cost-saving resource for ABI rehabilitation programs to utilize in an effort to promote successful consumer outcomes are paraprofessional service providers. Paraprofessionals, as direct service providers, play diverse roles and functions that are often underutilized in brain injury rehabilitation. Historically, one of the most important predictors of successful consumer outcomes in brain injury rehabilitation settings is the work performance of direct care staff (Guercio et al., 2005). Enrolling direct service staff participation in ABI treatment programs is crucial to promote quality consumer outcomes. The success of discipline-specific ABI service delivery depends heavily on the degree to which direct care staff can understand protocols, implement clinical programs, and evaluate their performance (Guercio et al.). Considering the typical features of most residential ABI rehabilitation programs, professional rehabilitation personnel are only present for a relatively small portion of the day leaving the direct service providers with the largest proportion of daily interaction with consumers. One needs to understand the impact of perspective on functional outcomes following brain injury and subsequent rehabilitation. Upton, Wadsworth, and Sattley (2008) clearly showed differential functioning when comparing overall reports of persons with brain injury and significant others. This research supported how imperative using multiple points of data (person with brain injury and significant others) to develop and provide timely rehabilitation services to persons with brain injury. In the aggregate, it is therefore crucial to the success of any ABI organization to monitor and promote effective work behavior of paraprofessional staff members.

Human resource management and supervision. A number of staff training techniques have been implemented with paraprofessionals to increase performance (e.g., adherence to clinical programming, quality social interactions with consumers). For example, the behavioral technique of providing systematic performance feedback and public posting of desired work behavior, such as a graphical depiction of employee work behavior in a publically displayed work location (e.g., message board of break room) has been shown to be effective in completion of behavioral programs for persons with ABI. This strategy usually consists of in-service training and weekly public posting of behavior program completion as a form of performance feedback. Results showed the staff training techniques to positively impact compliance with clinical programming within each phase of the performance feedback intervention (Guercio et al., 2005).

Strategic supervision and training of rehabilitation personnel, in general, has been shown to be another critically important element of effective service provision and cost-effectiveness for rehabilitation organizations. Benshoff et al. (1995) emphasized the need to conduct ongoing in-service programs, continuing education, and supervision to train paraprofessionals in skill
development, effective therapeutic strategies, and overall delivery of quality rehabilitation services. Chan et al. (2003) addressed the importance of training needs for another service provider population, certified rehabilitation counselors, for contemporary rehabilitation practice. In particular, the knowledge areas of training needs were identified and perceived by this sample of rehabilitation counselors as a critically important component of effective employment preparation. Both of these studies called attention to the ongoing need for training and supervision for practice, pre-service preparation, and professional development among rehabilitation service providers in an effort to cut costs and promote quality consumer outcomes. Rehabilitation administrators are responsible for establishing effective and efficient patterns of high quality service delivery within the constraints established by the managed care organization. In order to accomplish this task, the successful use of paraprofessionals is necessary, as well as the need to make other important in-house changes. These changes may include, but are not limited to, hiring qualified paraprofessional personnel who are able to work with their supervisors in an effective manner, balancing research and practice, and adhering to ethical standards set forth by governing bodies of professional regulation.

ABI rehabilitation administrators in a managed care system must be cognizant of the need to hire and train competent and properly credentialed professional rehabilitation service providers. To accomplish this, one proposed consumer satisfaction and quality control measure is to strictly employ certified rehabilitation professionals (e.g., Certified Rehabilitation Counselors, Board Certified Behavior Analysts, Licensed Professional Counselors), as opposed to non-certified professional rehabilitation service providers. Additionally, by hiring credentialed rehabilitation service providers, organizations can use this policy as an attractive marketing tool for potential funding sources and consumers of services. Administrators must assure that rehabilitation professionals have access to ongoing continuing education opportunities within their respective fields. These opportunities could include either in-house continuing education or off-site (e.g., attendance at professional conferences) professional development. Also, rehabilitation accrediting agencies, such as the Commission on Accreditation of Rehabilitation Facilities (CARF), inevitably take into consideration the credentialing and continuing education of rehabilitation personnel when conducting a review.

The activities consuming time and costs associated with hiring a new employee after turnover may include the following: position advertising, processing applications, screening interviewees, medical examinations, and training (Tziner & Birati, 1996). Minimum costs of these activities may amount to a loss greater than 5% of the annual operating budget of an organization (Waldman, Kelly, Arora, & Smith, 2004). Building high quality relationships between administrators and counselors increases the retention rates of and organization, thereby saving time and monetary amounts on hiring a new employee. It is beneficial for the organization for administrators to build these quality relationships for the sake of the quality and quantity of consumer service delivery.

Additional Issues

Balancing research and clinical practices is another important issue that rehabilitation administrators must make clinical and organizational decisions regarding how to allocate funding and personnel resources. Decisions such as whether to focus predominantly on clinical practice in an effort to promote successful outcomes must be balanced with the need to develop new and innovative clinical techniques using empirical research methods and designs. ABI rehabilitation-related research endeavors conducted within an organization can and should continue address issues related to maximizing service provision within a managed care environment.

Incorporating evidence-based practices in the rehabilitation organizations can be useful in solving the problem of equitability between empirical research and clinical practice. According to Chan, Rosenthal, and Pruett (2008) there is an increasing demand for objective empirical evidence to
validate the services being provided to rehabilitation consumers due to the rising cost for providing medical services and decreasing provider profit potential. Evidence-based practice helps make successful transition from research to clinical practice (Chronister et al., 2008). Specifically, invoking evidence-based practice entails asking pertinent questions and applying research to gain a useful response (Chen et al.; Chronister et al.; Pruett, Swett, Chan, Rosenthal, & Lee, 2008). The most useful responses must then be taken into consideration by the rehabilitation administrator in an effort to provide effective individualized rehabilitation services for consumers (Pruett et al.). When evidence-based practices are infused into the managed care environment it is logical to consider that administrators reap the benefits of having both cost and quality consumer care taking precedence within the rehabilitation organization. The interventions established through research represent the most cost-efficient quality care practices (Bennett, 1993). These interventions can then be utilized to benefit the organization financially, as well as increasing the quality of services consumers receive in a managed care environment. Effective use of evidence-based practice may potentially reduce the likelihood of ethical violations within the organization.

Ethical violations may also be a growing concern for rehabilitation administrators as the managed care environment continues to grow. The arrival of managed care has brought on issues of ethics within service delivery to consumers (Kontosh, 2000). Kontosh recounted the ethical issues from the beginning of the managed care era. Throughout the past three decades, rehabilitation service providers and administrators have had to address many ethical concerns as they pertain to managed care. In particular, ABI rehabilitation administrators have had to deal with concerns of new sources of service payment, determination as to if the client was actually a consumer or the payer of services, and limited consumer decision making in their choices within the vocational rehabilitation process (Kontosh; Rother, 1996). The influence of the managed care environment has led to rehabilitation service providers and administrators having to choose between “legal behavior versus ethical action” (Kontosh, p. 10). There is a balance to be found between the two. Moreover, it is suggested that rehabilitation service providers and administrators gain knowledge of how to provide ethical services while simultaneously lowering costs, understanding the limitations of service delivery within the managed care environment, informing consumers of the service delivery limits from the beginning, have a readily available list of alternate services should an individual cap their managed care limit, advocating for more presence of rehabilitation professionals within the health care industry, and “above all do no harm . . . [and] aid consumers to further their interests” (Kontosh, p. 12).

Summary and Conclusion
The increasing number of individuals currently living in the US with a brain injury has resulted in a growing need for effective ABI rehabilitation services. Due to ongoing economic challenges in both health and human service organizations, managed care has become increasingly prevalent. Therefore, managed care will continue to have a significant impact on rehabilitation and health care, in general. Subsequently, ABI rehabilitation administrators must continue to make accountable, evidence-based decisions that will promote quality consumer outcomes. It is suggested that all organizational practices, both clinical and financial, be data-driven and measurable. For example, the utilization of abbreviated versions of neuropsychological assessment, applied behavior analysis techniques, including functional analysis methodology have all been shown to be effective data-based ABI rehabilitation practices. The aforementioned proposed practices are excellent examples of how effective ABI rehabilitation services can be provided in a managed care environment. These practices, combined with strategic supervision and training, systematic hiring and professional development of appropriately credentialed rehabilitation personnel may increase the quality of service delivery while addressing important personnel and ethical issues.
References


