

identification, and an early evaluation of potential barriers to discharge.² This holistic attention toward functional recovery empowers patients to achieve their highest level of function and quality of life and maximizes the chance for home and community reintegration.

Less intense care models, such as subacute rehabilitation, do not provide comparable intensity or value. They are typically staffed by primary care physicians without specialized rehabilitation expertise and lack a full complement of medical specialty consultants to assist in managing complex patients with multiple comorbidities. Patients in such facilities may not have access to all rehabilitation therapy disciplines, and the total hours of rehabilitation therapies provided are typically substantially less than those provided in an IRF, a fundamental deficiency that goes against evidence-based rehabilitation. Importantly, such facilities lack an integrated team structure for treatment planning, problem solving, and care coordination. Finally, the reimbursement structure of these lower intensity facilities makes it infeasible to concentrate a volume of complex patients with similar problems, which would foster more expert care and provide the optimal setting for education and research opportunities.

Threats to the IRF Are Framed by a World Population That Is Increasingly Becoming More Disabled

Healthcare is rapidly evolving; the IRF, a model of intensive multidisciplinary team-based rehabilitation care, is no exception and therefore at risk. The pressures to reduce length of stay and to divert care to other care settings are intense. Threats from payment sources (Medicare Advantage was demonstrated to approve only one third of the cases, during preadmission review, that are routinely admitted under Medicare³) are expected to continue. In addition, there is the threat of loss of critical mass of patients, due to diversion to other care settings, which threatens the ability to maintain adequate resources to properly treat complex cases. As greater numbers of patients are channeled by audits and preadmission reviews to less intensive settings, there is the ultimate threat of elimination of the IRF—even as the number of patients with complex medical and rehabilitation needs increases worldwide.⁴⁻⁷ Furthermore, the elimination of provider-reported functional data as a severity indicator (as suggested by the Medicare Payment Advisory Commission)⁸ would be a destabilizing force as it would remove the data needed to identify the more complex rehabilitation cases requiring IRF care. There is also ongoing debate about which patients qualify for IRF-level care; for example, for patients with severe brain injury, McKesson's InterQual Criteria,⁴ which hospitals use to determine "medical necessity," propose that most patients with disorders of consciousness are not appropriate for IRF admission (and therefore should go home or to subacute facilities), but the recently published evidence-based clinical guideline entitled Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology; the American Congress of Rehabilitation Medicine; and the National Institute on Disability, Independent Living, and Rehabilitation Research⁵ documents that these same patients need high-intensity multidisciplinary care setting with the availability of multiple specialty consultant providers—a model that is only achieved in the IRF.

The threats to the IRF should be viewed alongside the evidence that the world's population is aging and becoming progressively more disabled; there are increasing numbers of

persons surviving acute critical illness and many others aging with the consequences of chronic diseases.^{6,7,9} In addition, the prevalence of health conditions associated with severe disability has recently increased by more than 20%.¹⁰ The World Health Organization has declared that in light of these impressive global health and demographic trends, an increasing demand for rehabilitation services is emerging. The World Health Organization underscores that rehabilitation is an "essential" part of the continuum of healthcare. "Rehabilitation is relevant to the needs of people with many health conditions and those experiencing disability across the lifespan and across all levels of health care."¹¹ Globally, the World Health Organization has stated that a major barrier to comprehensive rehabilitation is the "absence of rehabilitation facilities and equipment" citing that there is an urgent need to size-up comprehensive rehabilitation to meet the needs of the population.

The Clinical Benefits of IRF Care Are Well Demonstrated Although Controversy Remains Around the Margins of This Model

Studies indicate that even with their complex problems, patients have the capacity to improve their participation in life with appropriate rehabilitation treatment that addresses the full continuum of their problems.¹²⁻¹⁹ These studies describe the need to address, in the rehabilitation setting, all of the multiple limitations and medical problems these patients experience through the use of experts from multiple disciplines. Some studies show that increased intensity of rehabilitation treatment, even greater than that available in the IRF as described by the Centers for Medicare and Medicaid Services, results in better outcomes.^{5,20} Panels of experts have developed evidence-based guidelines for the treatment of complex conditions.⁷ Guidelines identify the need for intensive medical oversight, high-intensity levels of therapy treatments, the availability of the full spectrum of rehabilitation professionals, and a team-based structure. Expert panels developing accreditation standards also identify the need to provide appropriate intensity and breadth of rehabilitation and medical treatment to these patients at the complex end of the medical rehabilitation continuum.²¹ The National Institute on Disability, Independent Living and Rehabilitation Research has recognized the need for specialized care for those with spinal cord injuries, brain injuries, and severe burns by developing its model system programs for these patient groups.²²

The current IRF structure hosts interdisciplinary care for individuals with acute complex disabling conditions. Key characteristics of this structure (ie, intensive, multidisciplinary, team based) are critical to an effective model of rehabilitation care, medical education, and clinical research and should be maintained and optimized in the evolving healthcare environment. From a global perspective, such a service delivery model is an "investment in human capital that contributes to health, economic and social development."²⁴ More research is needed to determine the optimal organization of intensive inpatient rehabilitation programs and the types of patients whose outcomes depend most heavily on this system of care, but the evidence for their importance in the rehabilitation arena is clear.

ADVOCACY FOR THE IRF: PATIENT CARE

The IRF Fosters Functional Recovery for Patients With a Wide Variety of Disabling Conditions, Facilitates Patient Throughput From Acute Care Facilities, and Optimizes Postacute

Care Transitions, Including Patient Reintegration Into the Home, Workplace, and Community

As noted previously, patients with complex and long-term disabling conditions are those that most clearly benefit from intensive team-based multidisciplinary rehabilitation care. Research in a range of medical conditions supports the benefit of centralizing care for those with complex conditions, so that clinicians caring for them have substantial experience, care paths can be developed, and “learning healthcare systems” are feasible.²³ Similarly, there is considerable research demonstrating the benefit of integrated team care in complex conditions.^{24,25} In addition, centralizing patients with complex disabling conditions facilitates development of the clinical infrastructure for optimizing outcomes, such as the appropriate complement of medical specialties and diagnostic and therapeutic technology.

ADVOCACY FOR THE IRF: MEDICAL EDUCATION

The IRF Provides the Ideal Setting for Interprofessional Medical Education, With Residents, Medical Students and Rehabilitation Team Members Effecting Interdisciplinary Care for Patients With Complex Rehabilitation Needs

In addition to providing an ideal setting for the care of patients with highly complex, often catastrophic disabilities, IRFs play a crucial role in teaching team-based care, the care of uncommon and/or complex disabling conditions, and the principles of functional restoration, and they expose all trainees to this intensive model of interdisciplinary team care that, no matter their ultimate specialty choice, will be relevant to their postacute care discharge planning and coordination. To provide competent rehabilitation care for the expanding numbers of patients with complex disabilities, clinicians need the opportunity to train in an environment with a concentrated volume of patients. Hence, IRFs are critical training settings for the next generation of healthcare providers including medical students, residents, fellows, and allied health students. Interprofessional education, still in development in other areas of medicine, is modeled in the IRF: trainees in occupational therapy, physical therapy, speech therapy, nutrition, psychology, nursing and medicine, among others, all colocate in a single unit/facility, and therefore have the unique opportunity to coeducate, exemplified by collaborative rehabilitation plan generation, collaborative electronic medical record documentation, frequent care team meetings, and coordinated discharge planning. Interprofessional education, a current focus of medical education reform, is meant to prepare physicians to meet the challenges of complex and evolving healthcare systems.

ADVOCACY FOR THE IRF: RESEARCH

The IRF Provides the Necessary Infrastructure for Originating Research on Complex and Long-Term Disabling Conditions, Allows for the Longitudinal Study of Patients' Evolving Healthcare Needs, and Allows for the Impact of Rehabilitation Interventions

“Rehabilitation research explores the intricate biology of disabilities and looks for ways to help restore lost function and to help people with disabilities reach their full potential.”²⁶ More than 62 million people in the United States, or 1 in 4 Americans, have a disability,²⁷ and an additional 43 million Americans²⁸ are caregivers to someone with a disability; hence, research related to disability, rehabilitation, and functional restoration

is exceedingly relevant. In view of the size of the affected population, rehabilitation research should rank as a top national research focus. This level of importance and relevance has led to the development of the National Center for Medical Rehabilitation Research, with goals to foster the development of scientific knowledge to enhance the quality of life with people with physical disabilities, to help restore lost function, and to help people with disabilities reach their full potential.²⁹ Through the National Institutes of Health, the National Center for Medical Rehabilitation Research funds the development of new mobility devices, rehabilitation techniques and interventions, and sponsors studies that help understand and harness the body's self-repair mechanisms. The National Institute on Disability, Independent Living, and Rehabilitation Research, the Department of Defense, the Patient-Centered Outcomes Research Institute, and the Veterans Affairs system all sponsor research funding and prioritize the advancement of scientific knowledge aimed at improving the lives of individuals with disabilities.

Meaningful rehabilitation research requires a robust clinical arm, including strong patient recruitment and solid research infrastructure. Research on common single impairments or transient disabilities can often be conducted in outpatient settings. Research on complex and long-term disabilities, however, requires large samples to control for the many social and medical factors that moderate functional recovery. Such programs of research are best originated in an intensive multidisciplinary rehabilitation environment. It is there that patients with particular serious disabling conditions are first concentrated and available for research enrollment. It offers the opportunity for multidisciplinary collaborative research, with similar benefits to team-based clinical care. Such environments offer the administrative and technical infrastructure to manage ambitious research programs. In addition, the intensive inpatient rehabilitation setting is likely the last facility where individuals will be concentrated with respect to their disabling condition. They can be followed longitudinally from such a facility but are very difficult to identify and recruit thereafter. As noted, this type of research model is exemplified by the National Institute on Disability, Independent Living, and Rehabilitation Research-funded “model systems” in Traumatic Brain Injury, Spinal Cord Injury, and Burn.

CONCLUSIONS

Intensive multidisciplinary team-based rehabilitation care is an essential component of the rehabilitation service system. This model of care is critical to the optimal functional recovery of patient groups with serious and complex disability. Accordingly, rehabilitation professionals need to be trained in such environments to provide high-quality care to patients with complex disabling conditions. Research on the long-term outcomes of such patients, their ongoing rehabilitation needs, and the treatments and services that may benefit them, is best originated in such intensive rehabilitation settings where patients with similar problems are concentrated. Although further research is needed to identify the specific features of such clinical environments that confer the greatest functional benefits and to define the characteristics of patients that stand to gain the most from intensive rehabilitation, it is overwhelmingly clear that the IRF is an essential part of the continuum of healthcare. Given the tremendous expansion

in the numbers of patients experiencing disability, especially severe disability, across the lifespan and across all levels of health care, ongoing support for the IRF is crucial. A truly unique healthcare setting that exemplifies team-based intense medical rehabilitation for individuals with devastating injury or illness and significant disability, the IRF is one of the precious lynchpins of comprehensive coordinated healthcare.

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