

Building a Modern Transplant Center

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Organ transplantation is currently the standard therapy for end-organ failure in those patients medically suitable for transplant. At present, there are over 80,000 patients listed for transplantation in the United States.¹ The United States organ transplant waiting list grows on average 16-20% per year. In the past 10 years, the number of registrants has increased from 23,901 to over 80,000. In contrast, the number of deceased organ donors available has increased from 4,526 in 1991 to 5,985 in 2001.² Overall mortality for all patients on the waiting list is 7.5% and continues to grow yearly.¹ The number of transplants performed in the United States has also increased from 12,626 in 1988 to over 22,000 in 2000.²

Currently, there are over 300 transplant centers in the United States. While the majority of transplant centers are in academic tertiary care facilities, there are several very successful programs in the private arena. In North Carolina there are three multi-abdominal transplant centers (liver, kidney and pancreas transplants) including Duke University Medical Center, Carolinas Medical Center in Charlotte and UNC Hospitals in Chapel Hill. Both Wake Forest University Baptist Medical Center and Pitt County Memorial Hospital with University Health Systems of Eastern Carolina have abdominal transplant programs that perform pancreas and kidney transplants.

The establishment and maintenance of abdominal transplant programs requires enormous planning and resources. Extensive negotiations must take place to ensure institutional and/or departmental commitments prior to initiation of any program. The recruitment and retention of an expert multidisciplinary team of physicians and nurses follows subsequently. Strategic planning is required to adequately deploy resources, lobby referring physicians, and recruit patients in order to achieve success.³

Infrastructural Support Requirements

Institutional support is paramount to the establishment and maintenance of a successful transplant program. Fiscal investment

is required to establish adequate programmatic infrastructure. Infrastructure is required to not only meet regulatory requirements, but also provides the backbone for provision of excellent clinical care for complex patients. Programmatic infrastructure is required to manage the requirements of data collection and organization that is mandated by the United Network of Organ Sharing (UNOS). Information systems are necessary to capture and organize patient information that is analyzed to determine patient outcome, graft survival and programmatic performance. Required UNOS data are also used regionally and nationally to assess performance of UNOS allocation policies

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to ensure the best patient outcomes and effective utilization of limited resources. Individual programmatic data should be available to assess programmatic performance, not only in terms of clinical outcomes, but in the financial aspects of all phases of transplant as well. Support staff must include not only database managers but also patient contact personnel. Clinical systems must be available to assist in efficient patient access and easy physician referrals. These clinical systems must also facilitate patient throughput once the patient is in the system at the specific transplant center.

Institutions must invest in space and equipment for care of the complex organ failure patient in all of the phases of transplant (pre-operative, peri-operative and post-operative). Clinic space and adequate time in that space must be available for the medical and surgical specialist to see the volume of pre-operative patients necessary to establish a program and assist in the multi-disciplinary management of the post-operative patients. Operating room equipment must be available, and personnel

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must be trained. Call teams should be established for specialized transplant procedures that require a specific level of nursing expertise. Intensive care unit resources must also be available with appropriately trained staff to care for the post-operative and often critically ill transplant recipient. Investment in the clinical enterprise required to support a transplant program can only occur at the institutional level. The incentives for the institution are not only fulfillment of the academic center's mission to provide tertiary levels of care, but also financial gain if the program can achieve a profitable clinical volume.

Personnel Requirements

Personnel recruitment and retention are of foremost importance to achieving success in any transplant program. Medical, surgical and nursing expertise in transplant are required. For example, a kidney transplant program requires a transplant nephrologist, a transplant surgeon, and several nurse coordinators who have specific interest and expertise in the work-up and management of kidney transplant patients. A kidney transplant program also requires a histocompatibility lab, a lab director and lab personnel to support the transplant program. Social work, medical psychology, financial support staff must all be available to assist those patients who may require evaluation prior to transplant and support during all phases of the transplant process. All of these individuals maintain a pivotal role in the daily management of their particular program. Likewise, liver transplant programs require a transplant hepatologist, a specialized anesthesiologist, critical care specialists, transplant infectious disease specialists, radiologists with experience in transplantation, pathologists and nursing personnel that are familiar with care of

the transplant patient. If the transplant center is associated with a medical school and academic center, lab support and time must be made available to the involved physicians who have an interest in research and/or clinical teaching in order to support the academic and educational missions of their individual institutions. Transplantation requires the development of a multi-disciplinary team of experts who are dedicated to providing excellent clinical care for those patients with organ failure.

Relationships with Recipient's Referring Physicians

Finally, in order to assure the success of any program, involvement and recruitment of referring physicians and their patients must occur. While transplant patients are specialized in many aspects of their care, their primary and referring physicians are still involved during all phases of transplant. Resources must be available and deployed to ensure adequate communication between the transplant center and the referring physicians in order to ensure the best possible patient care. Ease of communication and exchange of up-to-date information between physicians ensure excellent patient care and patient outcomes. Access for the patients to the transplant centers must be simple and timely in order to expedite work-up and as is of the patient. If the patient is not a candidate for transplant, an alternative care plan can be quickly developed.

In summary, development of a transplant program requires fiscal investment, recruitment and retention of personnel with clinical expertise and the ability to assess and evaluate resources and their outcomes to deliver the best possible quality of care to those patients most in need.

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