I am pleased to announce that the National Heart, Lung, and Blood Institute (NHLBI) will reestablish its intramural cardiac surgery program this year.

Before I explain our rationale for reinstituting the program, let me briefly review the history of the previous cardiac surgery program at the NHLBI and that program’s termination. As some of the readership may recall, in 1990, the NHLBI found itself in the regrettable position of having to dismantle its highly regarded intramural cardiac surgery program. At that time, however, we had little choice. Our decision was thoroughly considered and carefully based on several key factors.

The first of these factors was the changing nature of the cardiology research program. The NHLBI’s Cardiac Surgery Branch had made outstanding contributions to the fields of clinical surgery and surgery research, especially in the areas of valve replacement procedures and treatment of hypertrophic cardiomyopathy. However, the field of cardiology and cardiac surgery soon progressed to the point that many of these once-innovative techniques had become accepted as standard clinical practice. At that point, the NHLBI was no longer driving cutting-edge research in cardiac surgery. In fact, we had made the decision to emphasize and pursue newer, molecular biology approaches for the treatment of cardiac disease.

The second factor influencing our decision to discontinue the program was an inability to recruit and maintain a permanent cadre of surgeons. One reason for this was the perception that the program was not a professional challenge because of the limited volume and nature of the surgery being performed. Compounding this situation was our inability to offer sufficiently attractive financial incentives. Quite frankly, few dynamic, highly trained surgeons were interested in receiving low pay to perform a small number of routine procedures.

The final factor in our 1990 decision was based on program priorities and budget constraints. Given the shift toward molecular biology research, the changing nature of the cardiac research program, the relatively small number of patients benefiting from the program, the limited surgeries being performed, and the resources needed to support our other intramural research efforts, the Institute could no longer justify continuing the program.

Much has changed in the last 10 years. Since 1990, major innovations have occurred in the field of cardiothoracic surgery, including mechanical circulatory assist devices, minimally invasive surgery, and novel treatments for refractory arrhythmias. In addition to these advances, we foresee that the progressive understanding derived from in vitro and animal research models in such areas as cardiac myocyte transplantation will require innovative surgical techniques in its application. In addition, in the last 10 years, the landscape of health care has changed sufficiently that the NHLBI can now commit to reimplementing the cardiothoracic surgery program. Key to this renaissance is the fact that, thanks to some recent changes in policies and regulations, the NHLBI now has the leadership, funding, and flexibility it needs to redevelop a top-notch research and training program.

This past April, the NHLBI convened a meeting to discuss developing the cardiothoracic surgery program anew. We invited ~60 of the nation’s preeminent cardiac surgeons, physicians, and researchers and charged them with the task of focusing on the concepts and technologies that will be at the cutting edge of cardiac surgery research and training for the next 20 to 30 years and then providing their recommendations to the Institute. I am extremely grateful to those whose critical input has been invaluable in helping us set our goals and priorities.

One important discussion point that influenced the tone of the entire meeting was that the interaction between laboratory and clinical research has historically been the basis for all of the most important achievements in cardiothoracic surgery over the past 80 years. The scientific frontiers in cardiothoracic surgery for the 21st century arise from the many achievements made possible by the cumulative knowledge base in cardiology research.

During this meeting, several areas were explored as representative of the research that will be of greatest importance to cardiothoracic surgery over the next 2 to 3 decades. These developing areas include myocyte cell transplantation, bioengineering, minimally invasive surgery and cardiac robotics, left ventricular assist devices, new approaches to valvular surgery, therapeutic angiogenesis, and cardiac transplantation, including xenotransplantation. The NHLBI plans to apply these newly developed methods to address high-priority research themes. With this set of core goals in place,
we plan first to establish clinical excellence and then to follow-up by pursuing mutually beneficial collaborations.

Key to reestablishing the cardiothoracic surgery program is the NHLBI’s ability to offer several institutionally unique advantages and capabilities. Included among these are the links between basic science and clinical investigations, the relative swiftness with which the translation of basic research findings into clinical applications can be achieved, the access to state-of-the-art animal facilities, the presence of multidisciplinary research teams, the capability to focus on selected science and health problems, the support of a centralized coordinating facility, the organization of a center of excellence in clinical research, and the ability to provide integrated service delivery.

Another essential element in reestablishing the cardiothoracic surgery program is to have a vital cardiology program. The NHLBI plans to reinvigorate the cardiology program by broadening its clinical activities and expanding its research portfolio. We view the successful integration of the cardiothoracic surgery program with the cardiology program as necessary for progress in cardiovascular medicine and science and as a requisite to more fully achieving our research and training goals.

Using this wide array of resources at our disposal, the NHLBI finds itself in the enviable position of being able to help train the next generation of research-oriented cardiac surgeons effectively by providing them with a rigorous, demanding, combined research and clinical experience that will be suited to enhance their ability to conduct new and promising research independently. One dividend of this broad training approach is that those completing the NHLBI program will be able to pass their experience along, becoming the teachers and mentors of future researchers and clinicians.

One of our training goals will be to draw high-caliber cardiac surgeons and researchers to the Institute and provide them with a training opportunity second to none. We can also now offer better compensation to promising individuals. This, combined with some of the pronounced trends in managed care, which restrict access to patients and discourage non-standard surgical procedures, should help in our effort to recruit exceptional individuals who are eager to be at the forefront of their discipline.

We also realize that to attract the best and brightest research trainees, we must provide them with first-rate leaders and mentors and we must develop an infrastructure centered around multidisciplinary core programs and specific research projects. We envision an interdisciplinary training program—one consisting of broad-based training in clinical research methods and performance, which could include, for example, instruction in molecular biology, experimental design, and statistics. Additionally, 2 years of laboratory work would be included in the program to encourage the trainee to become more familiar with those research tools reflecting the leading edge of investigational methodology, to absorb the vast body of knowledge, and to develop interest in, and the motivation to conduct, clinical research of the highest quality.

I must stress that this program is not meant to compete with the extramural program of research sponsored by the NHLBI. Rather, as we revive and revitalize the intramural program in cardiothoracic surgery, we envision that it will become a resource tool and a catalyst for the extramural program.

We are neither starting where we left off 10 years ago nor designing and building a program from its foundation. Instead, we find ourselves with the unique opportunity to integrate the lessons learned from our past with the knowledge we currently possess to push forward our understanding and advance into the new millennium, promising a brighter, healthier future for generations to come.
National Heart, Lung, and Blood Institute Cardiothoracic Surgery Program: Drawing
from Our Past, Building for Our Future
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