

SVS Research Council Summary of NHLBI Strategic Vision

Over a year ago, Dr. Gary Gibbons, M.D., Director of the National Heart, Lung, and Blood Institute (NHLBI) at the National Institutes of Health (NIH) reached out to a broad circle of partners (patients, study participants, patient advocates, scientists, medical professionals, professional societies, advisory groups, policy makers, and interested members of the public) with a goal to develop a strategic vision for the NHLBI. The Society for Vascular Surgery (SVS) was not only included in this process but was a critical advocate for the development of the new strategic vision. The NHLBI was compelled to rethink its strategy in recognition of transformational scientific advances that are emerging at an accelerating pace driven by new scientific tools, the logarithmic expansion of data management and analysis, and the realization of cost containment. Dr. Gibbons asked for us to “pause and imagine a world where we are able to prevent or cure heart, lung, and blood diseases and the enormous burdens associated with them; a world where we are able to capture the promise of predictive health, preventive care, and precision medicine.” This assignment served to inform the NHLBI on what constitutes the most compelling research questions in our field and what are the critical challenges we need to overcome to advance science and reduce the burden of Heart, Lung, Blood and Sleep (HLBS) diseases over the next 10 years.

In May of 2015, the SVS, spearheaded by Dr. Alan Dardik and the Research Council, contributed 19 compelling questions and critical challenges. Many vascular surgeon scientists also contributed independently of the SVS response. The NHLBI collected more than 1,200 ideas (from more than 4,000 registered participants, and more than 40,000 votes) and a draft report was released in summer 2015. The Research Council offered feedback on the draft report in September 2015. The SVS delivered a key message that “it is essential to prioritize disease processes which challenge vascular surgeons and vascular physicians.” The Society’s involvement was critical because the Strategic Vision will define “those areas of research that are currently deemed to be the most important, timely, and feasible for the NHLBI to address in its targeted/solicited research in the next decade.”

On Aug. 11, the [NHLBI Strategic Vision](#) was released and focused on four mission-driven goals (below). The goals, aimed to cut across the Institute’s HLBS research portfolio, are rooted in a desire to understand and promote health and resilience, stimulate discoveries in the causes of disease, enable the translation of discoveries from basic research to clinical practice, and foster training and mentoring of emerging scientists and physicians.

The four strategic goals are:

1. Understand Human Biology
2. Reduce Human Disease
3. Advance Translational Research
4. Develop Workforce and Resources

While the four goals serve as the foundation, there are eight objectives which provide an organizing framework for the NHLBI Research Priorities. The objectives reflect one or more of the strategic goals and serve as the guide for moving HLBS science forward, exploring research opportunities and making investment decisions. While these objectives were not developed to embody the NHLBI’s entire research portfolio, the strategic Research Priorities will play a substantial role in helping the NHLBI to establish, and periodically refine, a research agenda for the next decade.

The eight objectives are:

1. Understand normal biological function and resilience
2. Investigate newly discovered pathobiological mechanisms important to the onset and progression of HLBS diseases
3. Investigate factors that account for differences in health among populations
4. Identify factors that account for individual differences in pathobiology and in responses to treatments
5. Develop and optimize novel diagnostic and therapeutic strategies to prevent, treat and cure HLBS diseases
6. Optimize clinical and implementation research to improve health and reduce disease
7. Leverage emerging opportunities in data science to open new frontiers in HLBS research
8. Further develop, diversify and sustain a scientific workforce capable of accomplishing the NHLBI's mission

From the array of Compelling Questions (CQs) and Critical Challenges (CCs) submitted during the development process, 132 Research Priorities were refined. The Research Priorities identify important opportunities in science that will shape the development of future Funding Opportunity Announcements (FOAs). The Institute plans to catalyze extramural investigations that focuses on closing the knowledge gaps associated with the Research Priorities. A complete list of the Research Priorities and the associated Strategic Objective can be found [here](#). Good examples of Critical Challenges that are present in part due to the SVS advocacy are:

- In patients with an aortic aneurysm, better tools are needed to determine which patient phenotypes and disease characteristics could best predict who would benefit from a repair. Examples of such tools include animal models that reflect human pathology and biomarkers/molecular imaging tools that are predictive of rupture or dissection.(4.CC.02)
- New materials and constructs that are electrically, chemically, and mechanically active are needed to enable the development of self-adjusting bioengineered implants (e.g., self-regenerating protective layers, biologics like vein grafts, glucose-responsive polymers that release insulin).(5.CC.05)

The Institute's ultimate goal is for the Strategic Vision to align with the mission of stimulating basic discoveries about the causes of HLBS diseases; enabling the translation of basic discoveries into clinical practice for disease prevention and treatment; training and mentoring emerging scientists and physicians; and communicating research advances to the public. The Strategic Vision process is intended to be a "living" endeavor, with the Institute continuing to engage stakeholders through workshops, think tanks and other consultative activities to allow the adaptation needed for changes in public health priorities and the research landscape.

The Society for Vascular Surgery has always been committed to advancing excellence and innovation in vascular health and our members are leaders in vascular research. By helping to formulate the new NHLBI Strategic Vision, the SVS successfully advocated for prioritization of disease processes which challenge vascular surgeons. With this strong advocacy, we can better position our members for successful NIH funding in the future.