Editorial **Comments**

JAMIA

Focusing Energy on Biomedical Engineering, Imaging, and Informatics Research

In his viewpoint paper,[1] Dr. Hendee asserts that research in biomedical engineering, imaging, and informatics is "relatively" underfunded. Progress in key well-funded research areas—such as genetics, structural biology, and neuroscience—critically depends on progress in biomedical engineering, imaging, and informatics. Hendee concludes that the NIH should create a new institute or center to nurture these three domains. Such an institute would support fundamental research, coordinate activities throughout the federal government, educate and train investigators, and diffuse tools and techniques into research efforts of other institutes.

I agree that the future success of the biomedical research enterprise depends on optimized interaction among the biomedical sciences, engineering, biomedical informatics, and the foundation provided by mathematics, computer science, and information science. Dr. Hendee is correct in drawing attention to the importance of work both at the intersection of these disciplines and in each discipline individually.

The case for a new institute or center that combines support for biomedical engineering, imaging, and informatics is not as well established. Although there is

Correspondence and reprints: William W. Stead, MD, Associate Vice Chancellor for Health Affairs, 416 Eskind Biomedical Library, 2209 Garland Avenue, Nashville, TN 37232-8340. e-mail: ⟨bill.stead@mcmail.vanderbilt.edu⟩.

much synergism among these domains, the people who work in them have had much less in common (training, research interests) than readers of Dr. Hendee's viewpoint might expect. For example, while biomedical engineers often take the position that biomedical informatics is a part of their discipline, and it is, the discipline of biomedical informatics also involves significant input and understanding from disciplines outside biomedicine and engineering, such as information sciences, cognitive sciences, and decision sciences. Because the cultures and histories of the various disciplines contrast with, as well as complement, one another, the goal of forming a new overarching institute or center will not be widely or uniformly supported by individuals who agree with Dr. Hendee's basic objectives.

More progress might be made by identifying a key set of messages that promote support for important, directed work in the participating domains and emphasize coordination among them. For example, researchers in genetics think of bioinformatics as a core service that supports their work. They may not realize that advances in informatics knowledge are often required before techniques or tools can meet their objectives in areas such as population genetics. As previously demonstrated in developing informatics support for clinical practice, advances are most likely to come when someone working on a genetics research problem is working side by side with someone working on related informatics research problems. These workers are at their best in the disciplines that they bring to the intersection, when they are also part of the larger genetics or informatics intellectual community.

Instead of creating a new monolithic organization, I would recommend a strategy similar to that followed by the High Performance Computing and Communication (HPCC) initiative over the last decade. Basic research goals should be cast in the form of grand challenges that can be met through targeted achievements in research and technology. This approach can

effectively garner economic support, foster cross-institutional collaboration, and specify what must be accomplished. A coordinating office can bring people from the diverse institutions and agencies together to figure out how to get the work done. Through such a process, we might discover that we need some combination of new institutes or an augmentation of existing structures. It is my view that a change in organizational structure should not be the starting point, per se, for accomplishing these goals. Rather, organizational structure should naturally follow from lessons learned about how to work together to meet objectives.—WILLIAM W. STEAD

Reference ■

1. Hendee WR. Informatics at the National Institutes of Health: a call to action. J Am Med Inform Assoc. 1999;6(4):267–271.

■ **JAMIA.** 1999;6:334–335.

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