Advancing the Diagnostic Cockpit (DxCP) of the Future: An Opportunity to Improve Diagnostic Accuracy & Efficiency

An Academy Initiative in collaboration with societies, industry, academia, and government.

The Academy's "Diagnostic Cockpit of the Future" initiative is a collaborative effort to improve diagnostic accuracy and efficiency. The DxCP initiative will empower precision medicine by bringing together cutting-edge diagnostic technology and advanced artificial intelligence-based computing to better match patients with the best treatments and create the optimal working environment for radiologists and other clinicians. Ultimately, this inititave will lead to the development of tools that would leverage advances in artificial intelligence and machine learning to aggregate and synthesize medical data to improve patient care.

The Academy's role in this initiative is to continue to facilitate successful collaboration among academia, industry and across government agencies to maintain the momentum created by the establishment of the Interagency Working Group on Medical Imaging (IWGMI) in the White House, which was supported by the National Science and Technology Council (NSTC) at the Office of Science and Technology Policy (OSTP).

What is the history of the DxCP initiative?
In 2015, the Academy successfully advocated for the need to establish collaboration within the White House and federal agencies to accelerate imaging research, which lead to Congress establishing the IWGMI. The IWGMI was created to coordinate federal investments in imaging research and develop a roadmap for the full scope of medical imaging research and development. The roadmap was expected to: detail methods for enhancing federal efforts to advance research and improve fundamental understanding of medical imaging, accelerate technology advancement to combat disease, and support the development of a highly-skilled workforce.

The IWGMI released the ***ROADMAP FOR MEDICAL IMAGING RESEARCH AND DEVELOPMENT*** (Roadmap) report in December 2017. It was in this roadmap that the term diagnostic cockpit (DxCP) was coined. With the release of the Roadmap, the IWGMI Charter terminated as the group had fulfilled its purpose and scope.

The Academy, in collaboration with our membership, other physician subspecialties and various federal agencies will utilize the Roadmap as a guide to facilitate further initiatives that will accelerate innovative medical imaging research. A task force led by Academy Vice President Mitch Schnall, MD PhD has begun to identify clear, impactful steps this community should consider. The members of this task force represent academia, industry, National Institute of Standards and Technology (NIST), the

> **DxCP Task Force Mission:**
> This task force was appointed and empowered by Academy President Dr. Hedi Hricak, to provide an implementation plan, and in doing so, identify relevant stake holders that can execute the recommendations within the Academy's most recent white paper stemming from the Academy NIST Workshop in May 2018: Advancing the Diagnostic Cockpit of the Future: An Opportunity to Improve Diagnostic Accuracy and Efficiency. Additionally, we will aim to also create new initiatives and collaborations among and between agencies or leverage existing ones.

National Cancer Institute (NCI), and the National Institute of Biomedical Imaging and Bioengineering (NIBIB). Additional information about the task force, including a roster of current members, can be found at www.acadrad.org/dxcp.

What has been accomplished?
First, the Academy hosted a **scientific symposium (September 2017)** to identify practical recommendations for the DxCP within the framework of feasible medical and business models to improve patient outcomes. A large component of improving patient outcomes stems from creating a way for clinicians to get the most essential patient data in the most effective and efficient way. Second, as a continuation of the symposium, the Academy hosted a **workshop with the National Institute of Standards and Technology (NIST) (May 2018)** to convene domain experts from government, industry and academia to discuss the development and implementation of standards, which culminated in a white paper: *Advancing the Diagnostic Cockpit of the Future: An Opportunity to Improve Diagnostic Accuracy and Efficiency.*

A full chronological history of the DxCP and related work is available on the Academy Website.

What is the Academy doing to move the DxCP initiative forward?
In addition to supporting the Task Force, the Academy will continue to advocate for NIBIB funding to financially support the development and implementation of the DxCP of the Future.

The task force's next focus is further defining the concept of what the DxCP could look like. This will require the task force establish best practices of what industry, academics and government are doing today and how this collaboration can improve moving forward. Additionally, value and policy statements will be crafted.

Auditing our own community to identify current efforts and initiatives taking place will help avoid duplication and ensure collaboration. Academy will create a central webpage to house information such as: society logos, points of contact, and details about the initiatives they're working on to enable anyone to search for (and easily find) this information.

To engage in this effort please contact the Academy's Executive Director, Renee Cruea, MPA, at RCruea@acadrad.org.

Vision for the DxCP:

"The DxCP will empower precision medicine by bringing together the latest diagnostic sensor technology with advanced artificial intelligence-based computing to better match patients to the best treatments. The academy is proud to be able to convene stakeholders and experts to outline the pathway of research needed to make the DxCP a reality." – Dr. Mitch Schnall, Task Force Chair