Advancing the ‘Diagnostic Cockpit’:
Moving Forward to Improve Patient Care

Academy for Radiology & Biomedical Imaging Research Workshop on
High-Value Imaging and Artificial Intelligence Identifies
Challenges, Opportunities in Improving Patient Care

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GAITHERSBURG, MD - A world where a patient’s medical history, images and data are available to healthcare providers at the touch of a button, and where the data are automatically integrated and analyzed by sophisticated artificial intelligence (AI) tools, may be a reality sooner than we think.

This week, the Academy for Radiology & Biomedical Imaging Research convened experts from the medical imaging, pathology, cardiology, AI communities and government agencies for a one-of-a-kind collaboration focused on advancing the concept of a “diagnostic cockpit,” through which technical advances in imaging technology and data analysis would enable superior medical diagnoses, patient care, and outcomes.

“Technical advances in high-value imaging and artificial intelligence are extremely exciting, but bringing those advances to widespread use by healthcare providers requires effective collaboration between government, industry, and academia,” said Academy Executive Director Renee Cruea. “Only through such partnerships and consistent collaborative opportunities can we ensure these advances result in better diagnostics, patient care, and outcomes.”

The two-day workshop on the campus of the National Institute of Standards and Technology (NIST) in Gaithersburg, Maryland convened experts from academia, hospitals and other medical
providers, and industry. The brainstorming and consensus-building efforts used the Interagency Working Group on Medical Imaging Roadmap for Medical Imaging Research and Development as a guide.

The amount of medical data required for accurate diagnoses and high-quality care is voluminous. It includes, among other things, a patient’s medical history, genetic information, and high-resolution imaging data such as CT scans and mammograms. AI opens the door to powerful tools for quickly synthesizing these disparate data sources and helping providers make better decisions more quickly.

According to the Academy for Radiology & Biomedical Imaging Research, improving the ways imaging and other medical data are accessed, analyzed, synthesized and presented to the healthcare team and patient stands to greatly improve diagnostics, patient care, and outcomes for a range of diseases and conditions that can be deadly or debilitating, including metastatic cancer, circulatory disorders, neurodegenerative disorders, and cardiovascular emergencies.

“When physicians have quick access to high-quality imaging data, medical history, and other relevant information, they are capable of better decisions and better patient care,” said Renee Cruea. “A diagnostic cockpit could have profound implications for identifying and treating countless deadly and debilitating diseases and conditions.”

The workshop featured presentations from renowned researchers, academics, industry partners, and representatives from federal agencies, including the White House, Centers for Medicare and Medicaid Services (CMS), and the Food and Drug Administration (FDA). Smaller working groups identified and addressed separate and distinct challenges and opportunities for making the diagnostic cockpit a reality for health care providers. Topics covered included: defining the scope of the product (what data do we have now and what can we do with it); moving from qualitative to quantitative findings and the need for standardization; and environmental factors (workflow, billing, patient and provider perspectives).

This was a very productive and exciting event with considerable participation and interaction among attendees. After a full day of brainstorming on the three topic areas, day 2 resulted in some very clear recommendations to move forward. A set of suitable use case scenarios was decided upon. The type of framework/platform being envisioned was laid out, as was a set of standards that would be required to effectively enable such a platform. Funding opportunities and mechanisms were discussed as well. The full report will contain the details of the final summary recommendations and objectives.

The location for this week’s workshop at NIST was fitting, as one of the first steps in developing the diagnostic cockpit is to develop uniform standards. For instance, imaging devices from different manufacturers must be able to acquire uniform physical measurements and present the resulting data in a standardized format that is usable for physicians and AI tools and interoperable across health care providers.
The Academy has been at the forefront of advocacy and policy on behalf of the medical imaging community for more than 20 years, campaigning tenaciously for federal research funding, pushing for changes in policy issues critical to imaging researchers, and promoting technical advances that can improve diagnostics and patient care. The Academy also serves as a bridge to more than 100 patient advocacy groups that share an interest in high-value imaging research.

“This week’s workshop was a great step on the road to making the diagnostic cockpit a reality,” said Renee Cruea. “I look forward to continuing this engagement with all our partners, and ensuring policymakers know the great promise that these advances hold for improving patient care.”