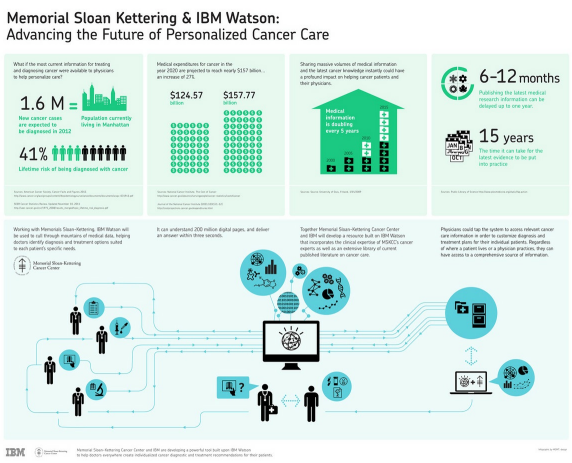
The initiative will combine the computational power of IBM Watson and its natural language processing ability with MSKCC's clinical knowledge, existing molecular and genomic data and vast repository of cancer case histories, in order to create an outcome and evidence-based decision support system. The goal is to give oncologists located anywhere the ability to obtain detailed diagnostic and treatment options based on updated research that will help them decide how best to care for an individual patient.

The IBM Watson system gained fame by beating human contestants on the television quiz show *Jeopardy!* It can interpret queries in natural language and uses statistical analysis, advanced analytics and a powerful array of processors to search millions of pages in seconds and deliver evidence-based statistically-ranked responses.

MSKCC's world-renowned oncologists will assist in developing IBM Watson to use a patient's medical information and synthesize a vast array of continuously updated and vetted treatment guidelines, published research and insights gleaned from the deep experience of MSKCC clinicians to provide an individualized recommendation to physicians. The tool will also provide users with a detailed record of the data and evidence used to reach the recommendations.

The need for such an advanced technology arises from the steadily increasing complexity of oncology treatment. Cancers are the second most common cause of death in the U.S., second only to heart disease, and the American Cancer Society projects that 1.6 million new cancer cases will be diagnosed in the U.S. this year* with outcomes varying widely across the country. Cancer is not one disease but some hundreds of sub-types, each with a different genetic fingerprint. Significant discoveries in molecular biology and genetics in the past two decades have delivered new insights into cancer biology and strategies for targeting specific molecular alterations in tumors, but these advances have also ratcheted up the complexity of diagnosing and treating each case. Oncologists and physicians who do not specialize in specific sub-types of cancer face a significant challenge in keeping up with the magnitude of rapidly changing information.

"The combination of transformational technologies found in Watson with our cancer analytics and decision-making process has the potential to revolutionize the accessibility of information for the treatment of cancer in communities across the country and around the world," said MSKCC President and CEO Craig B. Thompson . "Consistent with our mission, the vision is to help better identify and personalize cancer therapies for each individual patient, no matter where that patient may be receiving care. We also expect tremendous new research opportunities to emerge from this collaboration."



Infographic: Advancing the Future of Personalized Cancer Care

“Memorial Sloan Kettering’s evidence-based clinical approach, scientific acumen, and vast database make it the ideal partner in this ambitious project,” said Dr. Martin Kohn, chief medical scientist, IBM. “Cancer care is profoundly complex with continuous clinical and scientific advancements to consider. This field of clinical information, given its importance on both a human and economic level, is exactly the type of grand challenge IBM Watson can help address.”

“This comprehensive, evidence-based approach will profoundly enhance cancer care by accelerating the dissemination of practice-changing research at an unprecedented pace,” said Dr. Mark G. Kris , Chief, Thoracic Oncology Service at MSKCC and one of the clinicians leading the development effort. He noted that 85% of patients with cancer are not treated at specialized medical centers and it can take years for the latest developments in oncology to reach all practice settings.

Development work is already underway for the first applications, which include lung, breast and prostate cancers . The objective is to begin piloting the solutions to a select group of oncologists in late 2012, with wider distribution planned for late 2013. This collaboration complements an earlier announcement by IBM and WellPoint that the parties will focus on putting Watson to work on oncology solutions.

*American Cancer Society, Cancer Facts and Figures 2012 .