

# Watson Will See You Now: A Supercomputer to Help Clinicians Make Informed Treatment Decisions

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IBM has collaborated with several cancer care providers to develop and train the IBM supercomputer Watson to help clinicians make informed treatment decisions. When a patient is seen in clinic, the oncologist can input all of the clinical information into the computer system. Watson will then review all of the data and recommend treatment options based on the latest evidence and guidelines. Once the oncologist makes the treatment decision, this information can be sent directly to the insurance company for approval. Watson has the ability to standardize care and accelerate the approval process, a benefit to the healthcare provider and the patient.

## At a Glance

- Cognitive technology will increasingly play a role in cancer care.
- Cognitive technology is being used and refined by various comprehensive cancer centers around the United States.
- This new technology has the potential to provide all clinicians working in oncology with the latest practice guidelines and clinical trial availability.

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The two best *Jeopardy!* players the show ever had, Brad Rutter and Ken Jennings, took on a supercomputer named Watson, developed by IBM and named after the company's founder, Thomas Watson. The two contestants lost to Watson in 2011 by a large margin, and Jennings said in his final answer, "I for one welcome our new computer overlords" (Ratzule, 2011).

The supercomputer Watson was not connected to the Internet at the time of the match. Watson generated a response using information that it had accumulated as well as statistical analysis. At the time of the *Jeopardy!* game, Watson was the size of a master bedroom and had to be kept apart from its competitors because of the

noise generated from its cooling system. That same year, IBM executives discussed the possibility of using this same technology in health care (IBM Watson, 2014b).

## What is IBM Watson?

IBM Watson is a cognitive technology that processes information similarly to a human by understanding natural language and analyzing unstructured data. When Watson is asked a question, it relies on hypothesis generation and evaluation to quickly analyze the evidence and, through repeated use, Watson continually gets smarter by tracking the feedback from its users and learning from success and failure (IBM Watson, 2014b). Accord-

ing to Reuters, IBM Watson has shrunk from the size of a master bedroom to the size of three stacked pizza boxes. It has also increased its processing speed by about 240% (Leske, 2014).

## Watson and Oncology

Healthcare providers practicing in the rapidly changing field of oncology must keep up with the latest research findings and guidelines to better manage their patients. With the volume of published research available on an annual basis, this can be very difficult to do. Comprehensive cancer centers typically have oncology teams focusing on a particular cancer type, with the team conducting clinical trials and remaining updated on the latest research and guidelines. This is a different scenario from the community oncologist who manages patients with all types of cancer diagnoses. The ability to remain current on all of the latest cancer studies is a near impossible task. Because of the complexity of cancer treatment, a new technology that can help oncology practices in various locations and settings by choosing appropriate treatment options based on the evidence has the potential to be very beneficial to patients and practitioners.

## IBM Watson and Memorial Sloan Kettering Cancer Center Collaboration

In 2012, IBM partnered with Memorial Sloan Kettering Cancer Center (MSKCC). The goal of this collaboration was to bring the supercomputer to healthcare providers, allowing personalized patient care through computer-generated identification of the most up-to-date,