Major Cancer Research Center

IBM Watson helps a major cancer center accelerate knowledge transfer from research to practice

Overview

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Solution components

- IBM Watson™ Oncology Research Advisor
- IBM® POWER7® systems

The Watson solution gives researchers a head start in discovery and validation of new evidence on life-saving treatments that might otherwise take much longer to bring to patients who desperately need them.
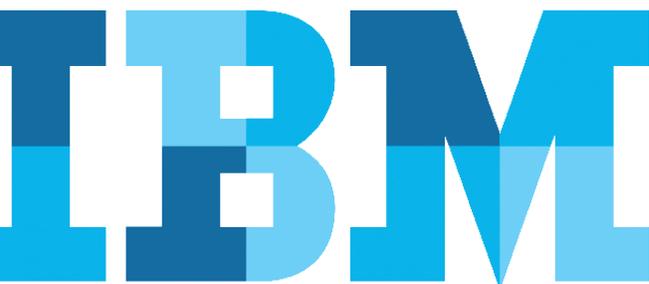
In the United States alone, $95 billion is spent on medical research every year, yet only 6 percent of clinical trials are completed on time. According to a report by the Institute of Medicine, inefficiency causes 40 percent of late-stage cancer treatment trials funded by the U.S. government to be abandoned before completion. "Improved treatments for cancer will be delayed and patient lives will be lost unnecessarily unless the efficiency and effectiveness of the clinical trials system improves," the report says.[1]

Research underway at one of the nation's major cancer centers holds the promise of increasing treatment efficacy, improving patient outcomes and redefining the ways in which research is brought into practice. The center teamed up with IBM® to accelerate both cancer treatment research and the transfer of research findings into use by practitioners.

The need

The cancer research center was looking for ways to improve its ability to incorporate patient-specific factors into its research—for example, matching clinical trials with patient profiles and improving visibility into relevant patient data, therapy evaluation and patient prognosis.

The organization was also looking to improve aspects of its operational research, such as monitoring and tracking adverse events caused by treatments and anticipating responses. It wanted to extract greater insights from the data to dramatically shorten the time it takes to bring effective treatment options out of the labs and into care providers' hands.

The solution

The cancer center is working with IBM to train IBM Watson™ on discovery of new insights into the most effective treatments for patients in a variety of clinical situations. Watson will use hypothesis generation and evaluation to analyze massive volumes of medical data to understand which treatments drive desired responses in patients with particular attributes.

The system's natural language processing capabilities enable it to analyze unstructured data alongside structured data, so it will evaluate information ranging from established treatment options and clinical trial data to adverse event documentation, notes from grand rounds, patient outcomes and clinical feedback, as well as newly developed treatment methods and protocols usually used with other forms of cancer. The findings will be documented in the medical literature and incorporated into clinical best practices. Machine learning will enable the system to improve iteratively over time as it's used.

The project has begun with a focus on Myelodysplastic Syndrome (MDS), which will be followed by other forms of leukemia and then cancers in general. The Watson solution gives researchers a head start in discovery and validation of new evidence on life-saving treatments that might otherwise take much longer to bring to patients who desperately need them

The benefit

- Provides evidence-based insights to help researchers understand effects of therapies on certain patient cohorts
- Includes unstructured data in analyses using natural language processing
- Continues to improve iteratively over time through machine learning

[1] Institute of Medicine of the National Academies. April 2010. "A National Cancer Clinical Trials System for the 21st Century: Reinvigorating the NCI Cooperative Group Program." Washington, D.C.

For more information

To learn more about IBM Watson, please contact your IBM representative or IBM Business Partner, or visit the following website:
ibm.com/watson