IBM Watson Health Oncology Solutions

Implement a more patient-centric cancer care model

Watson's Capabilities
- Easily integrates with existing clinical systems
- Understands, reasons, learns and interacts
- Extracts and derives meaning from structured and unstructured content – at scale
- Provides analyses across vast arrays of criteria to facilitate decision-making
- Dynamically updates hypotheses based on variable chains of evidence
- Harnesses entire bodies of knowledge

The oncology landscape is changing. As approaches to treating and understanding cancer progress and evolve, care providers face an increasing challenge of keeping up with the associated information. To help provide quality care and enhance confidence in every decision, cancer care teams spend much of their valuable time searching through the EMR, journal articles detailing treatment options, new clinical research, and a rising tide of genomic and other molecular data to find information relevant to each unique patient.

What if you could search through millions of pages of published literature, clinical trial protocols, genomic data and a patient's medical record in minutes to help identify personalized treatment options for your patients? What if you could spend less time searching for information, and more time caring for patients?

Watson Health has developed cognitive solutions to help oncologists in an increasingly complex environment. Cognitive tools that understand, reason and learn are helping people expand their knowledge base, improve their productivity and deepen their expertise. Collaborating with Watson Health can give you access to information that can help your organization provide quality cancer care.

Leveraging Cognitive Systems to Help Physicians in the Fight Against Cancer

The ability to treat cancer may hinge on the medical community's ability to make sense of vast, complex and ever-changing information. IBM Watson Health is working to working to enhance the ability of cancer care specialists to make sense of this information with three powerful cognitive solutions:

- **Watson for Oncology**
- **Watson for Clinical Trial Matching**
- **Watson for Genomics**

These solutions allow clinicians to efficiently navigate through massive amounts of information and help deliver personalized care.

Watson Health™

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Watson for Clinical Trial Matching

Watson for Clinical Trial Matching can help quickly identify clinical trials for a patient's consideration.

– Reduce the time it takes care teams to find eligible trials for a patient
– Summarize longitudinal medical records in a standard format
– Enhance physicians' ability to offer patients the option of clinical trials for treatment
– Provide rationale for patient ineligibility
– Maintain knowledge of trials across departments or networks
– Enable clinician collaboration on clinical trials and patient care
– Rank trials by potential eligibility and relevance to help meet accrual targets

"By matching clinical trials to more patients with a high degree of precision, we believe Watson will help us fulfill our mission to advance the health of our community through scientific discovery."

James Thomas, MD, PhD
Oncologist and Medical Director
Froedtert & MCW Cancer Clinical Trials
Office and Translational Research Unit

Challenge

Clinical trials are critical to the advancement of medical science. For patients, clinical trials can provide access to promising new approaches often not available outside the clinical trial setting and to treatment options that may be potentially more effective than the standard approach. However, matching patients to trials is a time-consuming process that often involves manual review of a patient's medical record and comparison with long lists of complex eligibility criteria. The difficulty posed by this process can result in poorly populated studies and fewer patients being provided the option of a potentially beneficial trial. Today, only 16 percent of cancer patients are aware that clinical trials are a treatment option, and nationally less than 3 percent of cancer patients are enrolled in a clinical trial.[1] Poor patient recruitment is the number one reason that clinical trials fail.

Solution

Watson for Clinical Trial Matching can help identify candidate clinical trials and efficiently provide clinicians with ranked lists of potentially eligible trials for them to consider with their patients.

Watson analyzes the data in a patient's longitudinal medical record to automatically extract the relevant health characteristics and summarize them in a standard format, eliminating the need to manually comb through the EMR. Watson then reads and understands the inclusion and exclusion criteria of the protocols in the system, evaluating the patient's potential eligibility for each trial. Watson provides a list of trials ranked by relevance along with a detailed evaluation of the patient against each trial. By knowing why a patient did or didn't meet specific enrollment criteria, care teams can determine eligibility faster. This can help increase the number of patients receiving trials as a treatment option and potentially reduce the time to fill trials, while helping to advance the discovery of beneficial new cancer treatments.

1. National Institutes of Health. Cancer Clinical Trials. Available at: https://accrualnet.cancer.gov/sites/accrualnet.cancer.gov/files/BasicsWorkbook_m.pdf

Core Capabilities

Domain Knowledge
Understands the language of oncology, key entities (i.e., cancer types, patient attributes, drugs, etc.) and the relationships between them

Scalability
– Combines infrastructure, big data, and machine learning at enterprise scale
– Easily integrates with existing clinical systems (e.g. EHRs)

Aggregated, Diverse Content
Synthesizes massive public and published datasets combined with the ability to analyze institution-specific content

Agility/Speed
– Watson can read over 200 million pages in 3 seconds
– Adaptive and agile architecture that can change rapidly and iteratively

Cognitive Technology
– Leverages machine learning and natural language processing to detect connections and patterns that humans may not necessarily see
– Evaluates unstructured or previously inaccessible data in medical literature, guidelines, and patient records

What will you do with Watson Health?
Schedule a briefing with your local IBM Watson Health representative today to learn how our solutions can help you solve your oncology challenges and enrich your capacity for care.

Visit ibm.biz/watsononcology to watch a demo and start your cognitive journey.

We work with leading organizations from around the world, including:

Watson for Oncology
– Memorial Sloan Kettering*
– Manipal Hospitals (India)
– Bumrungrad (Thailand)
– MRDM (Netherlands

Watson for Clinical Trial Matching
– Mayo Clinic*
– Best Doctors
– Froedtert & Medical College of Wisconsin

Watson for Genomics
– Quest Diagnostics*
– University of North Carolina
– U.S. Department of Veterans Affairs

*Indicates an organization that is helping us develop or deliver our solutions

WWB12354USEN-01

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