



IBM 5 in 5 – Doctors will routinely use your DNA to Keep You Well Fact Sheet

Despite tremendous advances in cancer research and treatment, cancer rates have risen 10 percent since 2008, striking more than 14 million patients and claiming the lives of 8.1 million every year around the world, according to the [World Health Organization](#). Cancer also represents about 20 percent of all healthcare costs, placing a heavy burden on governments, health systems, providers and patients.

Unfortunately, initial diagnoses today are sometimes inaccurate, and treatment is often prescribed in a one-size-fits-all manner. We have historically attacked cancer based on symptoms and the location of the disease. This can result in costly treatment that is ineffective and could even be harmful. Improving accuracy in cancer diagnosis and treatment is one of the most promising ways to save lives and curb costs.

The ability to uncover the right information to make the right diagnosis and treatment decisions has never been closer to our grasp. Thanks to breakthroughs in genomic research and testing, doctors are beginning to fight cancer far more effectively. But drawing out insights from this data remains a challenge. [Advances in Big Data analytics](#) and emerging [cognitive systems](#) could soon change that.

In fact, researchers believe that in the next five years, the integration of genetic sequencing with cloud-based cognitive systems will help doctors accurately diagnose cancer and create individualized treatment plans for millions of patients around the world.

Cognitive systems will take the output of genome sequencing and scour huge repositories of medical records and publications. These computers will learn to quickly provide specific and actionable insights on treatment options for oncologists – all via the [cloud](#).

Personalized cancer care has long been on the horizon, but few clinicians have the tools and time required to access the right insights to deliver this level of care. Within five years, cloud-based cognitive systems will make personalized medicine available at a scale and speed that was never previously possible.

Already, researchers at major cancer centers are collaborating with IBM to uncover genetic patterns and develop systems to stream genomic insights to clinicians in real-time.

As biology increasingly becomes an information science, the promise of genomics is finally being realized. In the case of cancer and any disease with a DNA signature, genomic analytics and cloud-based cognitive systems represent a major transformation that will change the standard of care, and improve the lives of millions of patients around the world.

Even better: the system will continually learn and get smarter, so the standard of care for patients with cancer -- and any disease with a DNA link, like heart disease and stroke -- will continue to climb.

Cancer care is driven by knowledge. Genomic information is providing us with vastly different levels of knowledge into what works and what doesn't when treating cancer. As genomic data becomes more accessible and prevalent it will add to the Big Data opportunity to make healthcare smarter.