Experts estimate that by 2020, the universe of health data will expand to 25,000 petabytes, 50x more than existed in 2012. That’s equivalent to 50 million years of streaming music.

Gaining actionable insights requires aggregating data from disparate sources. Some of this data is structured, such as electronic health records, medical claims data, and data from wearable devices. But almost 80% is unstructured, including physicians’ notes, lab and medical image data, and patient reported outcomes (e.g., survey data).

Big data analytics tools are helping healthcare organizations make quality of care improvements for both common and chronic conditions. By reducing unnecessary use of antibiotics, analyzing population data to recognize unnecessary antibiotics usage to treat common colds, cut costs, and limit resistance, and implementing a "performance-based accountability framework" for improving veterans’ care, the future of U.S. healthcare will rest on the ability to derive insights from big data to improve the quality of care.

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**Arkansas Payment Improvement Initiative (APII)**
Arkansas was the first U.S. state to implement health payments reform to incentivize cost-effective care.

**Evidence-Based Medicine at the Department of Veterans Affairs**
The VA is turning to big data analytics to implement a "performance-based accountability framework" for improving veterans’ care.

**Reducing Unnecessary Use of Antibiotics**
Analysis of population data helped doctors recognize unnecessary antibiotics usage to treat common colds, cut costs, and limit resistance.

**Capturing data from any source in any format using low cost, scalable storage and processing framework**

**Correlating disparate data sources and organizing them for analysis**

**Analyzing trends using data mining, visualization, & pattern analysis to develop predictive models**

**Empowering patients & providers at point of care to make informed choices from personalized treatment options**

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**Sources:**
- B.L. Jesse, MD, "Big Data in the Veterans Health Administration," 2013.
- B. McKenna, "What Does a Petabyte Look Like?" 2013.