



# A Vision for Research in the Age of "Data Science"

The Paradox:

Capacity for Good vs. Risk of Harm

#### Current Reality and Future Potential

- Digital age: data storage and computation to answer new scientific questions.
- Traditional research design and methods are now enhanced by the vast capabilities of using "data science"
- Global collaboration in real time
- Greater interoperability across systems (future)

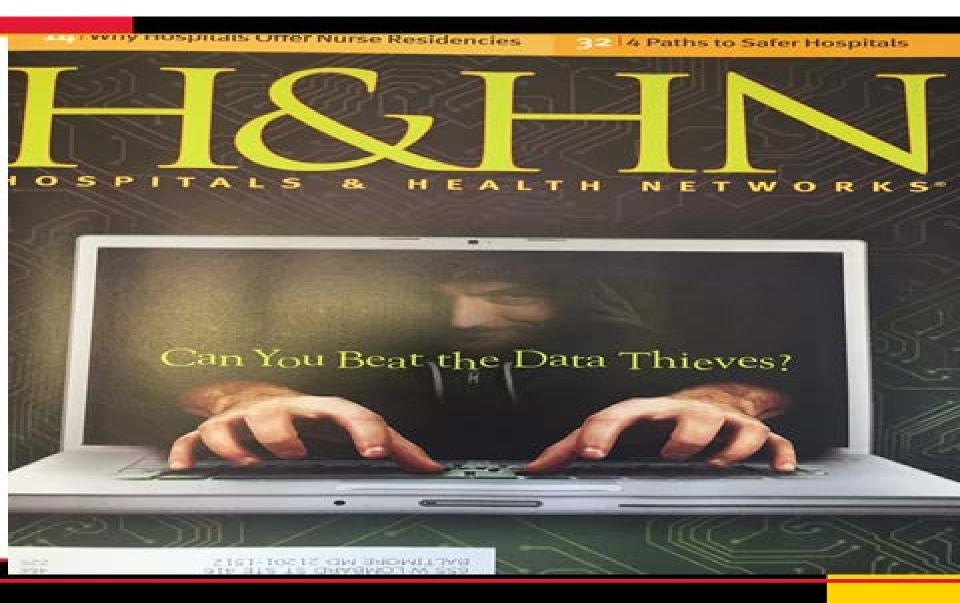
#### **Results in:**

- Actionable wisdom (John Halamka)
- Rapid learning (Lynn Etheredge)

#### Vision

- Achieve an agile capacity to study important health care questions, expand discovery, dissemination, translation and knowledge utilization.
- Improve clinical decision making and achieving better outcomes for patients and population health.

#### The Paradox: Benefits vs. Risk



#### The Paradox:

- Compliance vs. Security
- Legal vs. ethical
- Personal vs. Societal Value
- Data driven clinical decision vs.
  Personal Choice

## **Building Trust & Assuring Security**

- Balanced information obtained from advanced analytics with analysis of human impact.
- Commitment to advancing security, building trust
- Value the power of transparency
- Value rapid learning and actionable wisdom

### Thank You

#### References

- Etheredge, L. (2014) Rapid Learning: a breakthrough agenda. *Health Affairs*, 33(7), 1155-1161.
- Halamka, J. (2014) Early experiences with big data at an academic medical center. Health Affairs, 33(7), 1132-1138.
- Perakslis, E.D., & Stanley, M. (2016) A Cybersecurity primer for translational research. Science Translational Medicine, 8(322) 1-4.
- Schneier, B. (2012) Securing Medical Research: a cybersecurity point of view. *Science*, 336 1527-1529.
- Weol, A. (2014) Big data in health: a new ear for research and patient care. Health Affairs, 33(7), 1110.