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The slide features a blue background with a network of white dots and lines, and several orange hexagonal shapes. The title "Trends in Health Care: DISRUPTORS AND OPPORTUNITIES" is in large white font. The AMCP Foundation logo is in the top right, and the Pfizer and Xcenda/AmerisourceBergen logos are in the bottom right.



**Moderator**  
**Paula J. Eichenbrenner, MBA, CAE**  
Executive Director  
AMCP Foundation  
[@paulaike](#)

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## AMCP Foundation Research Mission

Facilitate innovative research about the  
evolving health care environment

### Why?

To advance the collective knowledge about how  
managed care pharmacy impacts patient outcomes

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## Resources

“Trends in Health Care” Report

Archived Webinar with “Perspectives On the Changing Health Care  
Landscape: Realizing Comprehensive, Multidisciplinary, and Integrated  
Health and Medical Care.”

Summary Report of 2018 Research Symposium

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Trends in Health Care:  
DISRUPTORS AND OPPORTUNITIES

Pfizer

Xcenda

AMCP

Academy of  
Managed Care  
Pharmacy

FOUNDATION

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## Thank You



*The Trends in Health Care research series is developed in collaboration with Pfizer*

*We are also grateful to our research partner, Xcenda*

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### Tech Findings from AMCP Foundation Environmental Monitoring

Amy Duhig, PhD

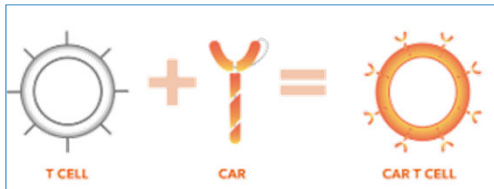
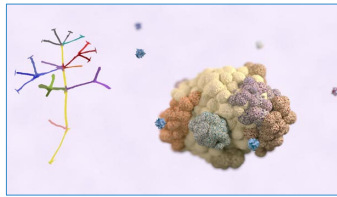
Vice President, Strategic Market Access & Intelligence  
Xcenda

 @Xcenda

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We're at a time of incredible advancements while lacking fundamentals of delivering affordable and accessible care

Amazing  
advancements



*"We have Star Wars science  
and Flintstones delivery. Our  
opportunities are in the space age,  
but our ability to get people the care  
they need, it's in the Stone Age."*

– Physician

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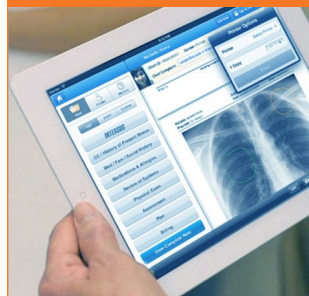
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Big data, healthcare IT, and healthcare AI are bridging the gap between "Star Wars" science and "Stone Age" access to care

Big Data



Healthcare IT



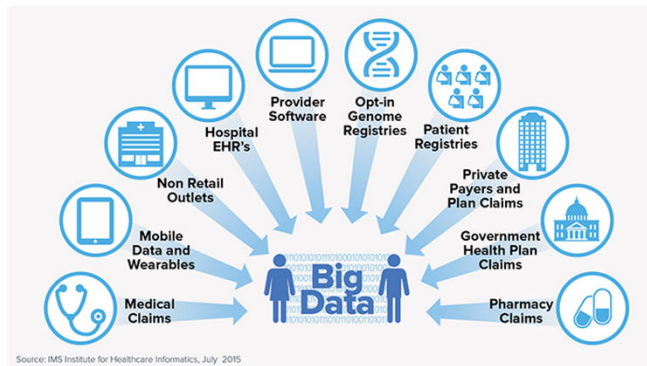
Healthcare AI



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**Big data** synthesizes information from various sources (including wearable devices) to develop insights that improve health and reduce costs



#### Leveraging technology to drive value

*"There is a very important link between big data and successful value-based contracts. You need the ability to track patient outcomes. That's basically the company saying we'll put our money where our mouth is."*

— Health policy advisor

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**Healthcare IT** is the structure for transmitting what becomes big data—it opens up a new world of opportunities to learn about, track, discuss, and improve health



Image from HITInfrastructure

When health data is securely exchanged between patients, payers, and providers, we expect:

- **Reduced healthcare costs** for all parties
- **Reduced medical errors**
- **Improved care coordination**
- Improved care transitions
- **Increased administrative efficiency**
- New understanding of disease processes
- More **appropriate patient routing** to correct healthcare facilities (urgent care vs emergency department)
- Improved access to care

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## Healthcare AI is changing what we consider healthcare and how it's delivered



Smart mirrors detect subtle but clinically relevant changes in appearance



Smart scales track weight, BMI, and hydration, and can alert providers to sudden changes



Fitbits track physiological information such as heart rate, sleep habits, steps taken, and calories consumed



Smart refrigerators track food freshness and what food has been consumed



Virtual assistants in medical offices streamline care for patients and providers

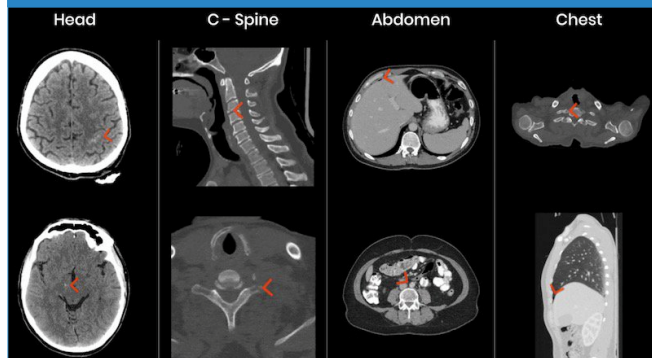
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## The FDA has much to consider regarding the incorporation of AI into the healthcare system



Aidoc's AI-based products help identify potential anomalies in CT scans



Medical scan image from [allaboutcircuits.com/uploads/articles/Aidoc\\_AI\\_in\\_radiology.jpg](https://allaboutcircuits.com/uploads/articles/Aidoc_AI_in_radiology.jpg)

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## AI Case Study: Assistance Publique—Hôpitaux de Paris



10 years' worth of data on  
hospital admission rates

Web program that predicts visits  
and admission rates

High admissions  
anticipated

Increase staffing

Low admissions  
anticipated

Decrease staffing

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Xcenda and AMCP Foundation conducted research to identify key healthcare trends and to understand how the global influencers affect these trends

Trends scan

➤ 30 healthcare trends

Thought leader working group

➤ 6 key healthcare + 3 global influencers trends



Desktop research  
>170 sources  
identified



20 multi-stakeholder  
1:1 interviews



Payer survey  
N=70

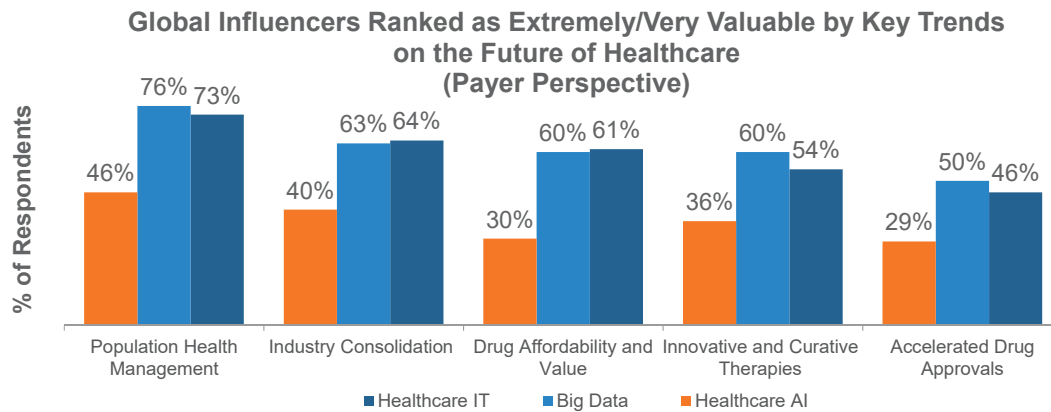
Xcenda/AMCPF Data on file

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The global influencers are expected to affect some of the most important trends in healthcare



Question: How valuable are each of the following with regard to <each trend>?? (N=70)  
Xcenda/AMCPF Data on file

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The ways in which global influencers are affecting the future of healthcare and managed care are infinite and only just starting to be imagined

#### Innovative and Curative Therapies



- Healthcare IT promotes even low-income patients to manage their health with a smartphone and internet access
- Use of claims data streamlines assessment of clinical trial design feasibility
- Use of AI speeds up the discovery of biomarker and therapeutic targets

#### Drug Affordability and Value



- Integrating disparate and varied data sets informs legislation and manufacturer/payer policies
- Better use of data—predictive analytics, value-based, real-time, transparent

#### Optimal Health Coverage



- Integration of datasets to evaluate trends, assess benefit design, and outcomes
- Leverage healthcare IT to drive utilization of high-value products

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## The ways in which global influencers are affecting the future of healthcare and managed care are infinite and only just starting to be imagined (cont.)

### Accelerated Drug Approvals



- Big data analyzes genetic data to better identify subpopulations who would best respond to drug candidates
- AI enhances physician-patient interactions and could match patients to drugs candidates that are new to the provider

### Population Health Management



- Insights from big data and healthcare IT can reduce costs overall, making it possible to reallocate funding for population health campaigns
- Healthcare IT can prevent medical errors that are prevalent when treating large populations
- Healthcare AI can alert key factors to population-level health trends to facilitate large-scale solutions

### Industry Consolidation



- Big data provides larger and more diverse, integrated data sets
- Big data and AI produce predictive analytics for identification of at-risk patients

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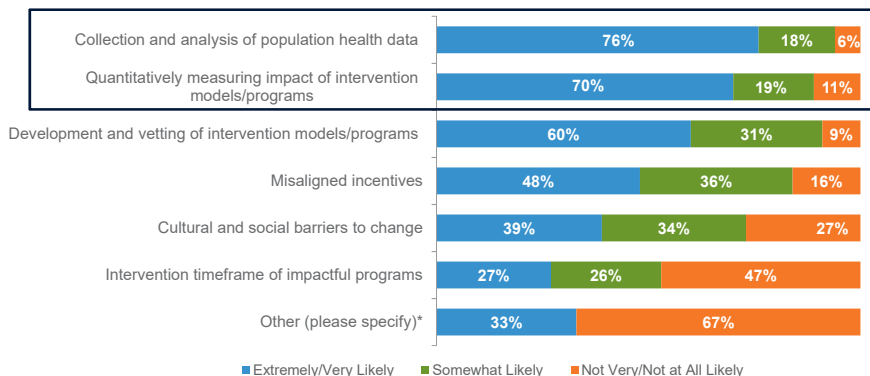
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## There are many challenges facing the global influencers, but payers are optimistic that they will be addressed in the next 5 years

### Likelihood of Addressing Population Health Challenges Within 5 Years

#### Challenges in Healthcare AI, Big Data, and Healthcare IT

- ✓ Data privacy and security
- ✓ Access to critical technologies/financial viability for users
- ✓ Financial viability for providers, payers, and manufacturers
- ✓ Development of core ethics and appropriate regulations
- ✓ Clinical feasibility



\*Other (3 respondents)  
 Base: Total respondents (70)  
 Question: How likely do you think it is that your organization will address the following population health management challenges within the next 5 years?  
 Xcenda/AMCPF Data on file

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## A more organized approach to data privacy is vital

### Data Privacy Initiative Areas

- ✓ Promote affordability
- ✓ Data use
- ✓ End-user license agreements accessibility
- ✓ Technology design
- ✓ Privacy breaches
- ✓ Regulatory policies



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## Improving patient access to healthcare IT and AI technology will accelerate the development of insights

### Improving patient inclusion:

- ✓ Promote affordability
- ✓ Actively recruit
- ✓ Ensure ethical participation
- ✓ Promote technology literacy in general

#### Patient inclusion and feedback is a game-changer

*"[Patients'] continuous presence has allowed the transformation of drug regulation into a patient-centered process, in which patients are experts on the disease and its management and bring the real-life experience perspective into the scientific discussion, thus contributing to a more comprehensive decision-making process."*

– The Importance of Early Access to Medicines for Patients Suffering From Rare Diseases<sup>1</sup>

1. Evers P, Greene L, Ricciari M. The importance of early access to medicines for patients suffering from rare diseases. *Regulatory Rapporteur*. 2016; 13(2) 5-8.

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## Trends in Health Care: DISRUPTORS AND OPPORTUNITIES

AMCP Academy of Managed Care Pharmacy  
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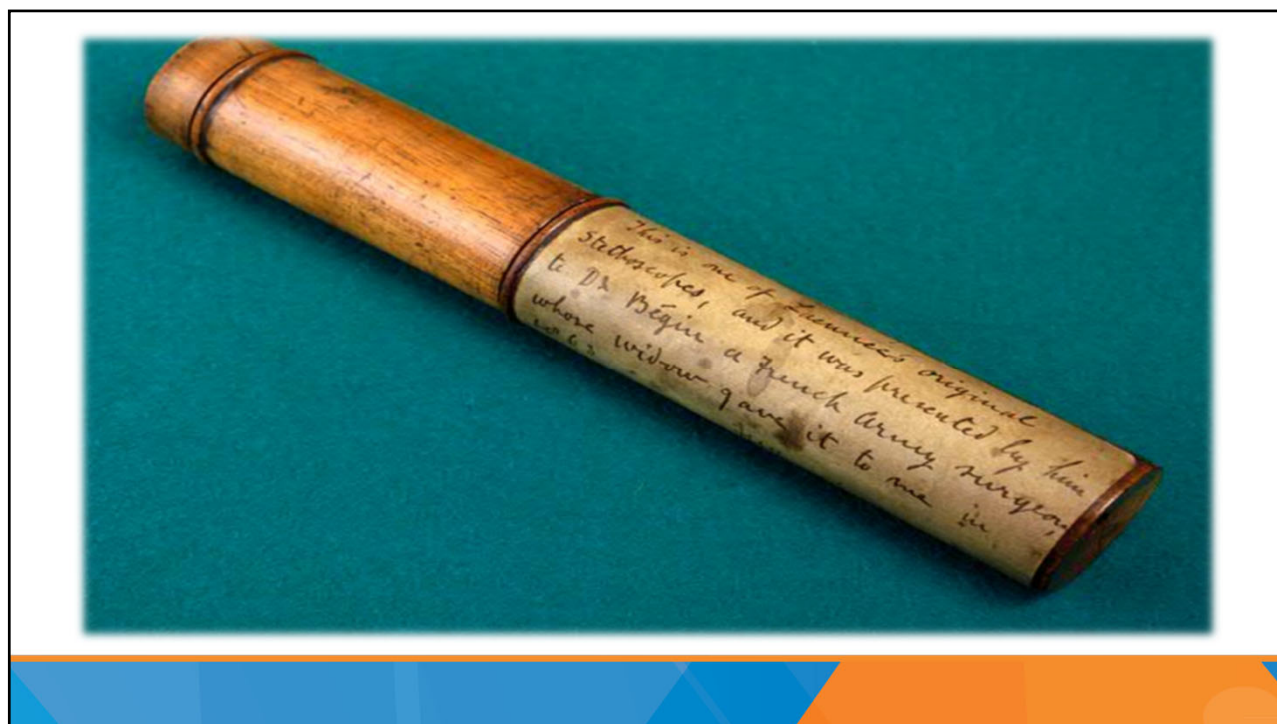
Pfizer Xcenda AmerisourceBergen



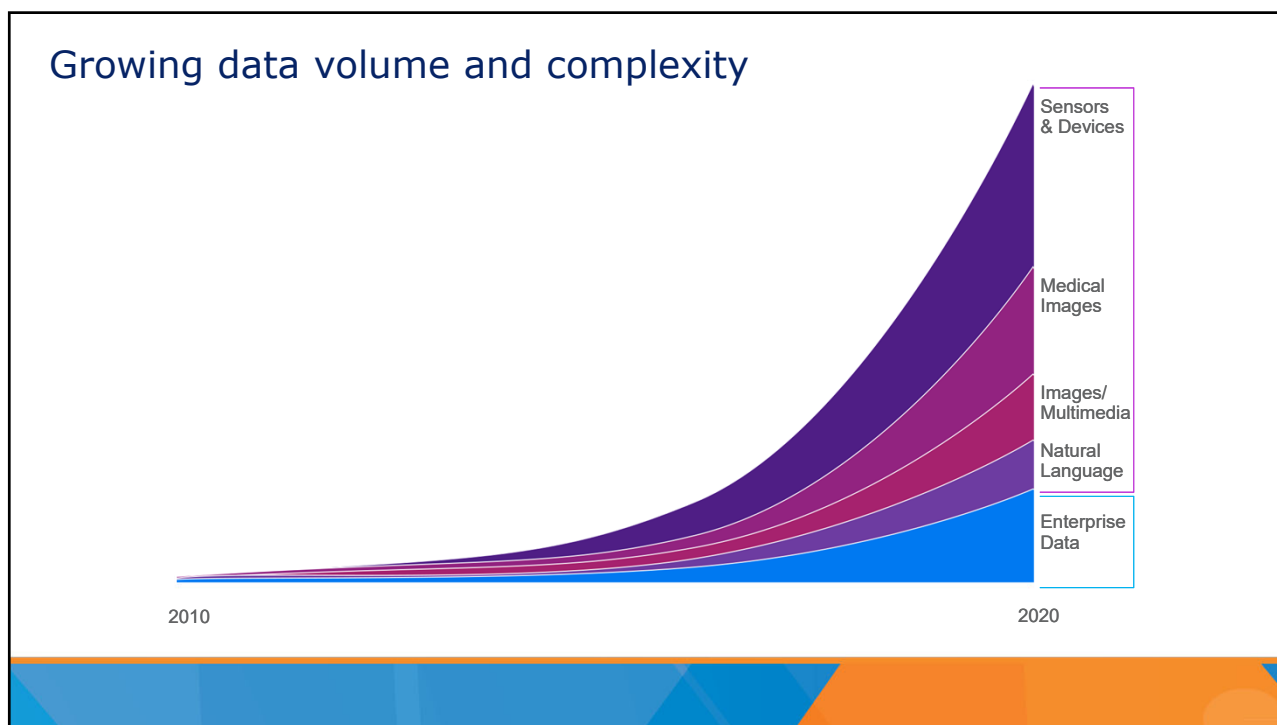
### Impact of AI on the Future of Health Care

**Tina Moen, PharmD**  
Senior Deputy Chief Health Officer & Chief Pharmacy Officer  
IBM Watson Health  
[@TinaMoenPharmD](#)

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## By The Numbers



### Every 73 days<sup>1</sup>

The rate medical data is expected to double every by 2020

### 2 billion<sup>2</sup>

The number of people over the age of 60 by 2050

### \$47 trillion<sup>3</sup>

Cumulative estimated global economic impact of chronic disease between 2011 and 2030

### 12.9 million<sup>4</sup>

Global shortage of health-care workers by 2035

1. <https://www-03.ibm.com/press/us/en/photo/46588.wss>

2. [http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015\\_Report.pdf](http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Report.pdf)

3. [http://www3.weforum.org/docs/WEF\\_Harvard\\_HE\\_GlobalEconomicBurdenNonCommunicableDiseases\\_2011.pdf](http://www3.weforum.org/docs/WEF_Harvard_HE_GlobalEconomicBurdenNonCommunicableDiseases_2011.pdf)

4. <http://www.who.int/mediacentre/news/releases/2013/health-workforce-shortage/en/>

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## Challenges with delivering effective care



**45% of medicine**  
not evidence based<sup>1</sup>



**29 hours**  
Approximate amount of time Doctors  
would have to read each workday to  
keep up with new professional insights<sup>2</sup>



**4.25 billion**  
Estimated number of retail  
prescriptions that will be filled in the  
U.S. in 2019<sup>3</sup>

Sources:

1) <http://www.nejm.org/doi/full/10.1056/NEJMs022615#t=abstract>

2) J Med Libr Assoc. 2004 Oct; 92(4): 429-437. How much effort is needed to keep up with the literature relevant for primary care? Available at:

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC521514>

3. <https://www.statista.com/statistics/261303/total-number-of-retail-prescriptions-filled-annually-in-the-us/>

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## We must merge HEALTH + Healthcare data

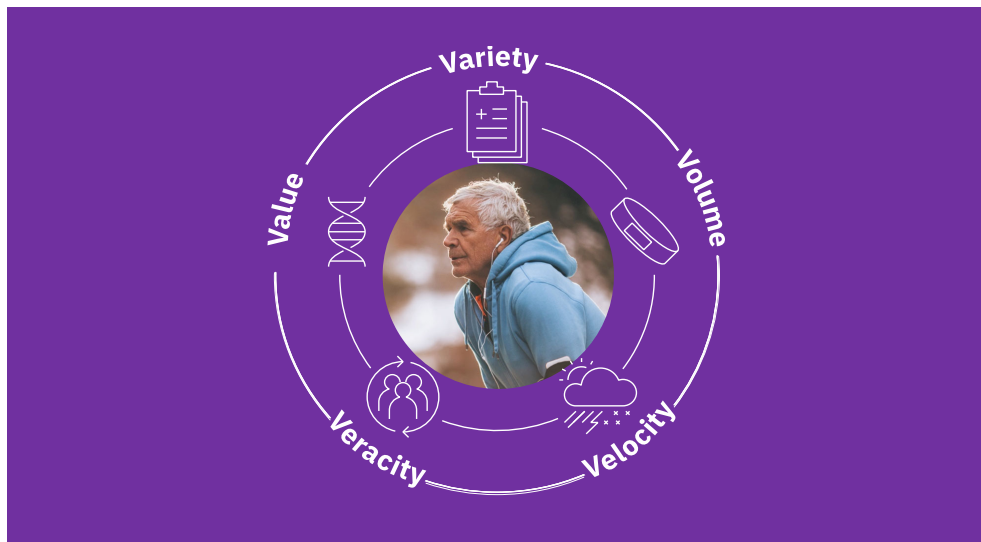


Source: Adapted from Health Policy Brief, "The Relative Contribution of Multiple Determinants to Health Outcomes," Health Affairs, August 21, 2014.

HealthAffairs

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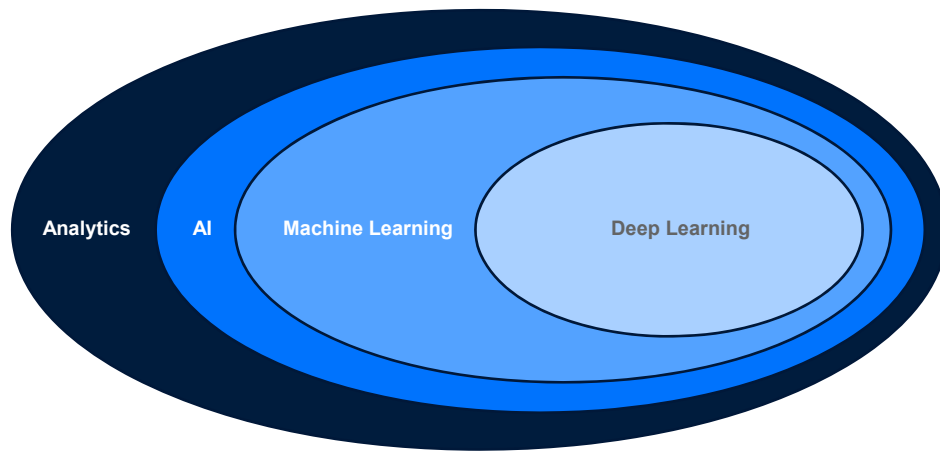
## Translating Big Data into Value



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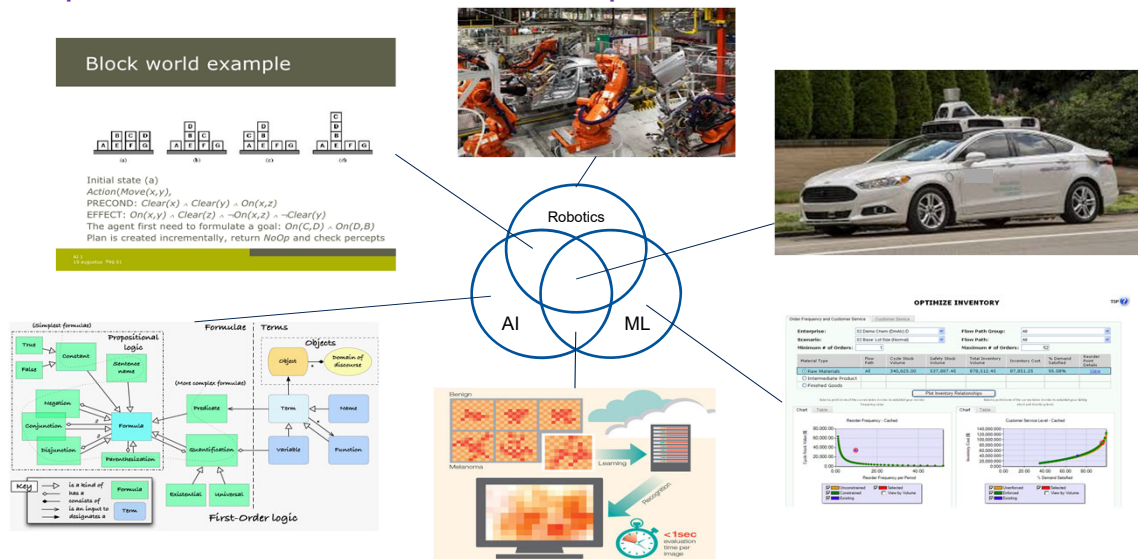


## The AI Landscape



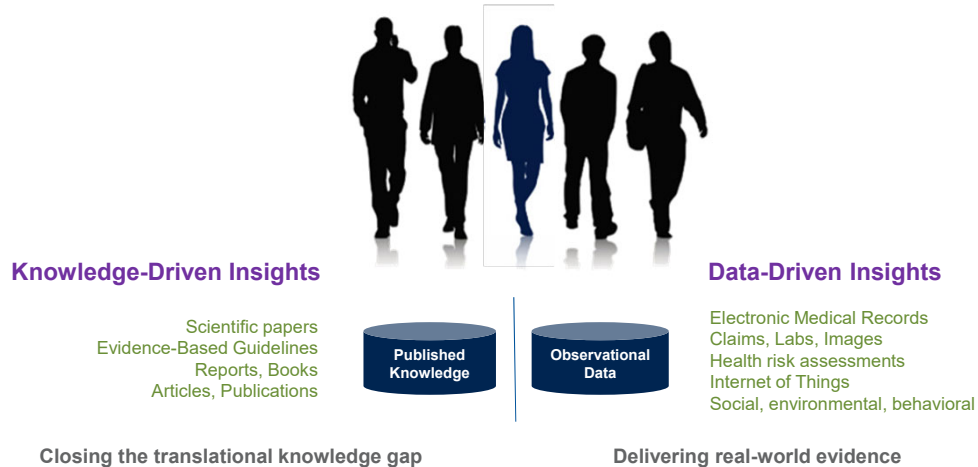
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## AI capabilities in combination are plentiful



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## Healthcare Opportunity: Knowledge + Data-Driven Insights

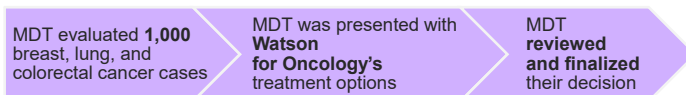


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### A Prospective Blinded Study of 1000 Cases Analyzing Role of Artificial Intelligence. Watson for Oncology in Change of Decision Making of a Multidisciplinary Tumor Board (MDT) From a Tertiary Care Cancer Centre

| Somashekhar SP et al. ASCO 2019.

The MDT changed their decision in **13.6%** of the cases.



| Reason for Treatment Change                     | Percent |
|-------------------------------------------------|---------|
| Evidence for newer treatment(s)                 | 55%     |
| More personalized treatment alternatives        | 30%     |
| New genotypic, phenotypic and clinical insights | 15%     |

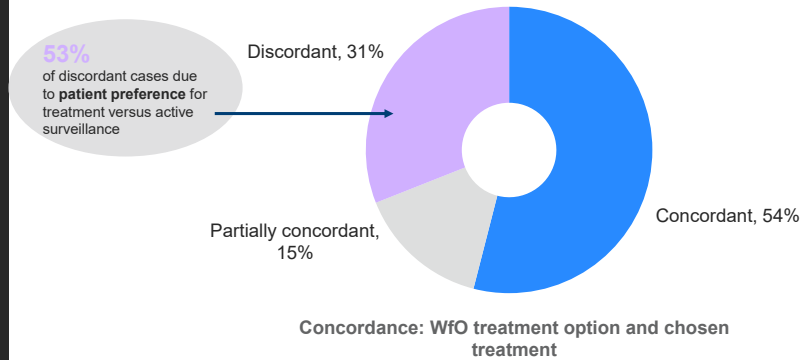
"The study suggest[s] that cognitive computing decision support system[s] holds substantial promise to reduce cognitive burden on oncologist[s] by providing expert, updated, recent evidence-based [evidence-informed] insights for treatment-related decisions making."

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## Shared-decision Making in Prostate Cancer with Clinical Decision-support

Clinical decision-support systems may play a role in facilitating shared decision making when a single standard of care is lacking.

Watson for Oncology facilitated a **shared decision-making** process for **48 patients** in Brazil.



"Variation in prostate cancer treatment exists. CDSS [clinical decisions-support systems] therapy options may be useful in quantifying and modifying unwarranted variations in prostate cancer treatment."

\* Excerpt from abstract

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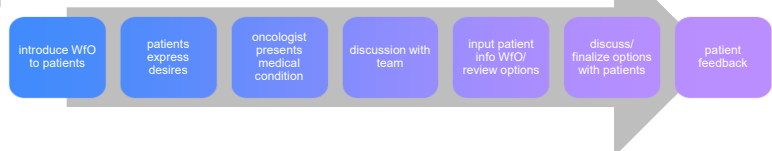


## Artificial Intelligence-based Clinical Decision-support System Improves Cancer Treatment and Patient Satisfaction

| Zonghe ZW et al. ASCO 2019.

Enhanced patient knowledge around disease and treatment options can increase confidence in achieving positive outcomes. A new model of cancer care consultation assisted by Watson for Oncology was evaluated.

New **7-step model** assisted by Watson for Oncology compared to non-CDS system method (n = 70; new = 50; traditional = 20)



Patients in 7-step process indicated higher satisfaction in treatment options, confidence in health care workers, and willingness to follow treatment regimen.

"...patients build stronger confidence with their health care team and are willing to believe they will benefit from the treatment plans."

\* Excerpt from abstract

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## Humans + Machine = "AI" or "Augmented Intelligence"

### People excel at:



Common sense



Dilemmas



Morals



Compassion



Imagination



Dreaming



Abstraction



Generalization

### AI systems excel at:



Natural Language



Pattern Identification



Locating Knowledge



Machine Learning



Minimize Bias



Endless Capacity

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Thank You!

**"Wherever the art of Medicine is loved, there is also a love of Humanity."**  
~Hippocrates



@TinaMoenPharmD

@IBMWatsonHealth



Tina Moen – LinkedIn

IBM Watson Health

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## Q&A with Speakers



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