Smarter Systems at Scale:

A Discussion on How Strong Data and Analytics Can Lead to Better, Personalized Interventions

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Session Presenter

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Prior to serving as CMO of CHESS Health Solutions, Dr. James was the Chief Medical Information Officer at Evolent Health and Senior Medical Officer for Meaningful Use at ONC-HIT. He served as co-chair for the MACRA technical expert panel for the Centers for Medicare and Medicaid Services Quality Measure Development.

Dr. James earned his medical degree at Yale School of Medicine and his MBA at Yale School of Management. He completed his medical residency in Internal and Preventive Medicine at the UNC School of Medicine in Chapel Hill.

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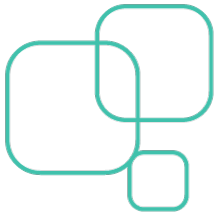
What healthcare data should tell you...



What is happening

What will happen

What actions should we consider

Healthcare data is undergoing a massive transformation..Go Big?

80%

Medical data remains unstructured and untapped after it is created

57%

Healthcare companies think predictive analytics will save them 25%per year

$34B

Healthcare AI-powered tools market will exceed by 2025

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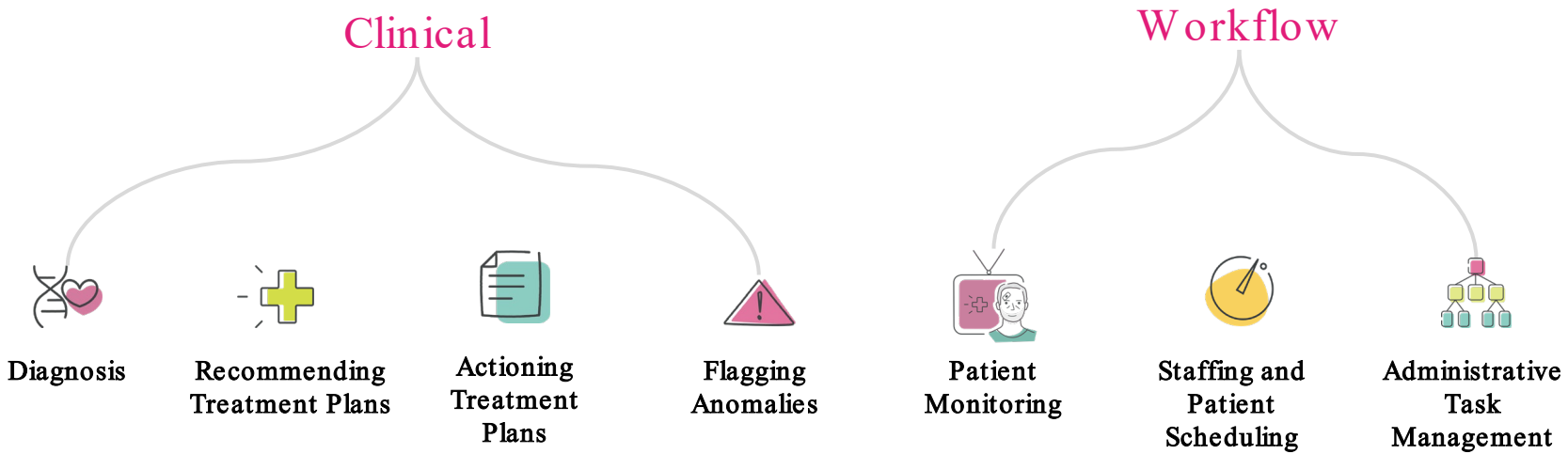
More Than 50% of Providers are Keen to Use AI

Today, healthcare professionals express comfort with using AI for the following:



More comfortable with workflow than clinical

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Base: Total Healthcare Professionals

Source: Phillips Future Health Index 2019

Data structure and data quality are CRITICAL to ACO success

Population Health

Clinical Decision Support

Provider & Patient Engagement

Opportunity: The pandemic is accelerating the amount and types of healthcare data being produced

60%

of patients *want to use technology more* for communicating with providers and managing their conditions

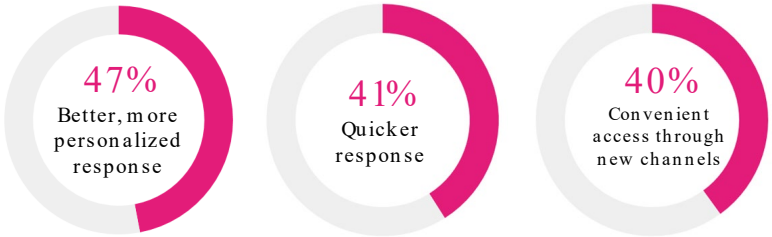
44%

of patients *used new devices* to help manage their conditions remotely during COVID-19

41%

of patients *used video conferencing* to communicate with providers about treatment – for many this was their first-time

- Patients embraced virtual care and this move can result in a greater sense of satisfaction with the care provided
- 9 out of 10 of patients feel that the *care* they received from was *as good or better* than before COVID-19.



Reasons why patients prefer virtual care

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The challenges with healthcare data are legion

Various Sources

Multiple Standards

Missing Context

This is healthcare data and information as well.

Complex

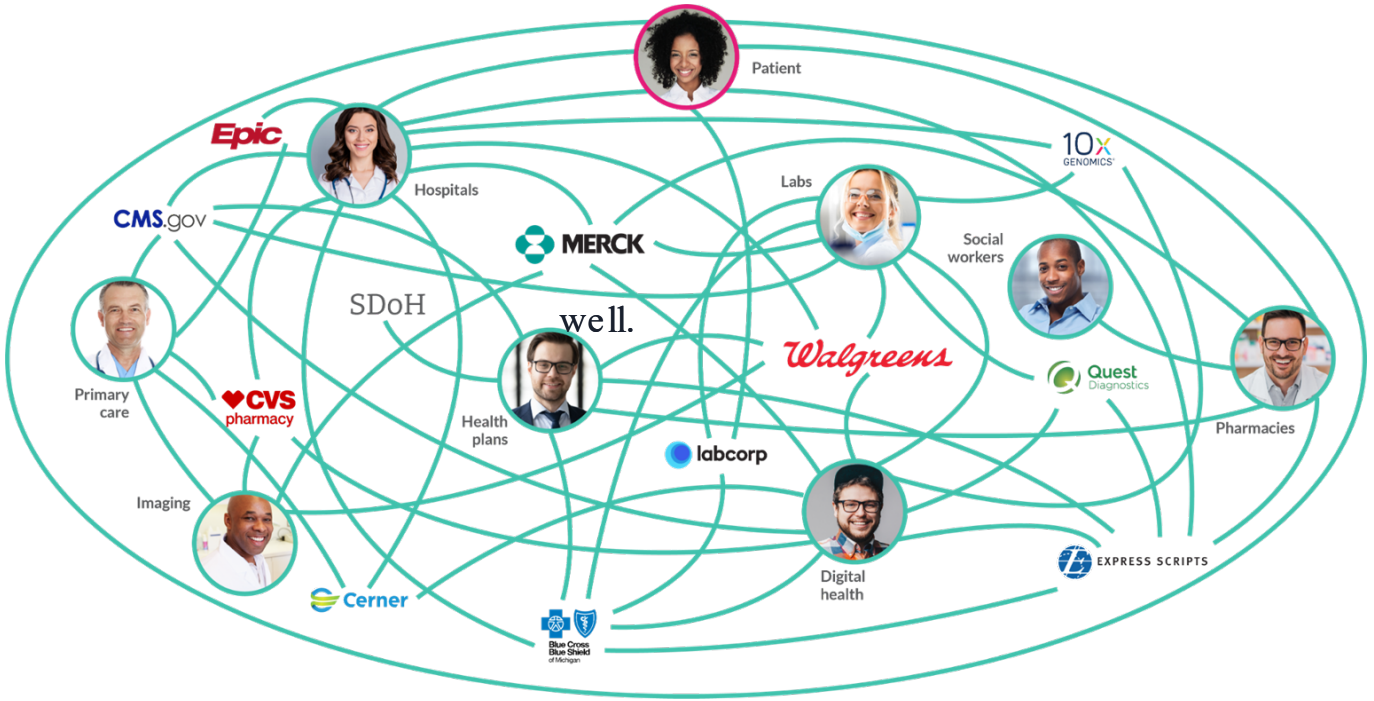
Confusing

Invalid

Nonstandard

Unstructured

Distributed



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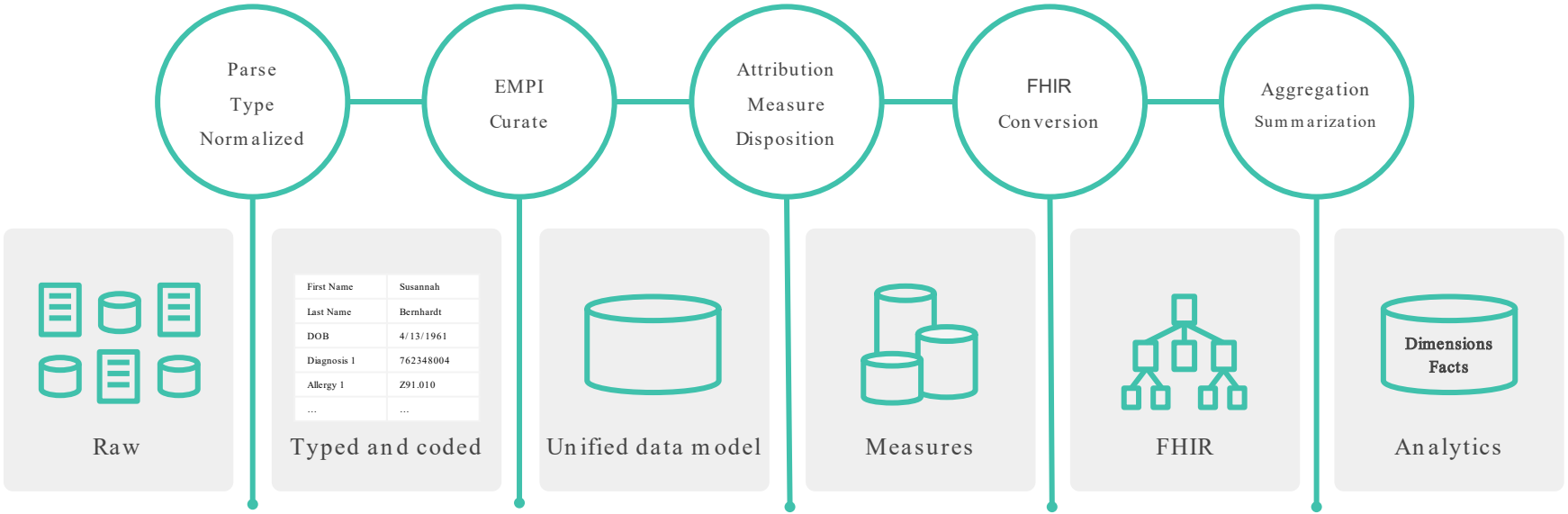
Data must be unified and converted to be made useful.



Distributed, unstandardized, inactive data drives poor outcomes

So Much Data Collected – So Little Intelligence

Experiences

- Care Management
- Patient Engagement
- Provider Engagement
- Virtual Care and Remote Monitoring
- Business Decision Support
- Process Automation

Intelligence

- ETL and Interfaces
- Data Warehouse
- Master Patient Index
- Analytics and Algorithms
- Business Intelligence
- API Management

informatica · REDOX · snowflake · teradata · ORACLE · NEXTGATE · Health Catalyst · IBM Watson · OPTUM · +ableau · Qlik · commure

Records

Core EHR

Clinical Charting + Coding + Revenue Cycle + Clinical Decision Support

Cerner · Epic

Infrastructure

Core Cloud

Server + Virtualization + Networking + Storage

aws · Google Cloud · Azure

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Phases of AI Adoption in Healthcare Systems

Near-Term

- Ensure the availability of pristine and democratized data
- Accelerate the use of AI in clerical and repetitive operational tasks

Mid-Term

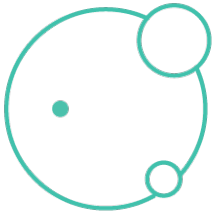
- Leverage clean activated data to generate actionable insights
- Enhance workflows to support the transition from hospital-based to home-based healthcare.
- Enable patients to take active participation in their care journeys

Long-Term

- Drive improvements in quality of care and increasingly use longitudinal data sets
- Deliver insights across episodes of treatment and settings of care
- Incorporate new types of data from wearables and sensors

What healthcare data should tell you…

What is happening



What will happen

What actions should we consider

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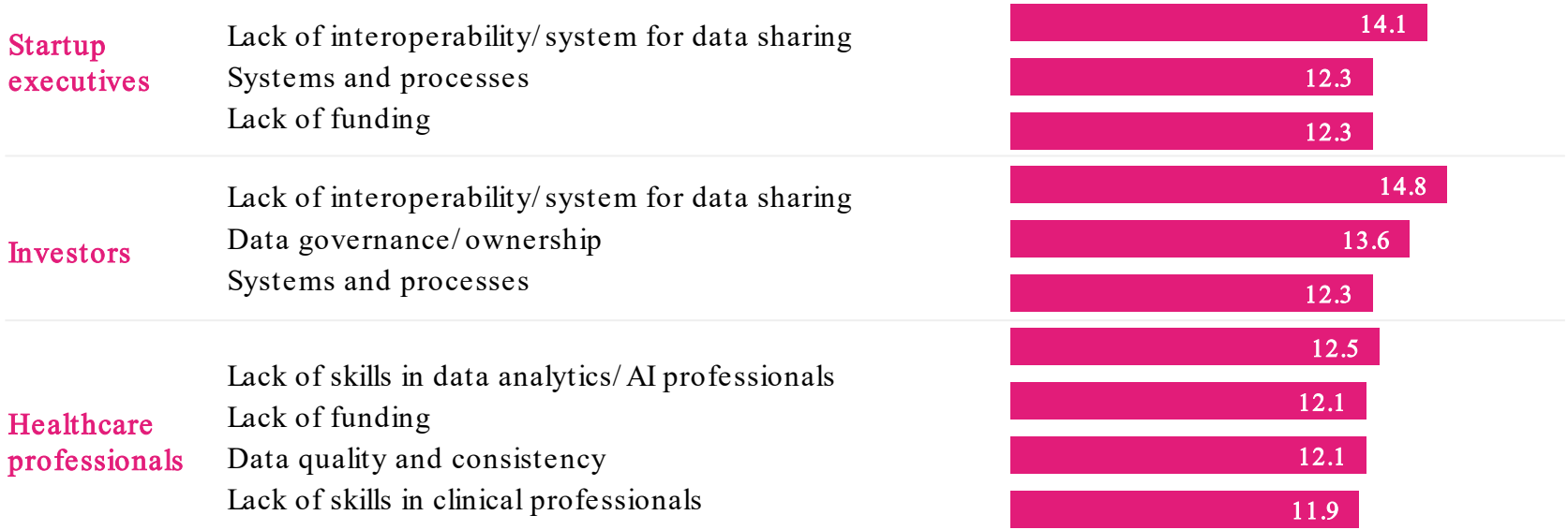
One Step Closer to AI: Resolving Data Challenges

What are the major barriers for introducing or scaling AI in healthcare organizations?

Startup executive, investor and healthcare professional responses



Source: Transforming Healthcare with AI

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How to put data to work...

	Description	Inputs	Outcomes
Risk Stratification	▪ Leverage ML techniques to predict a patient's future total cost of care ▪ Identify high-risk patients to target for interventions	▪ Demographics ▪ Clinical data ▪ Claims data ▪ SDoH data by ZIP code	▪ Lower costs of care ▪ Targeted interventions
Social Vulnerability Index	▪ Assess social vulnerability associated with a patient's ZIP code ▪ Understand patients' social risk to optimize patient care	▪ Socioeconomic status ▪ Disability ▪ Demographics/ language ▪ Housing/ transportation ▪ Food security	▪ Connecting with community members and resources
Chronic Conditions	▪ Identify onset of chronic conditions prior to clinical diagnosis	▪ Clinical data ▪ Claims data	▪ Tailor care through automated prescriptive protocols

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Descriptive Predictive Prescriptive

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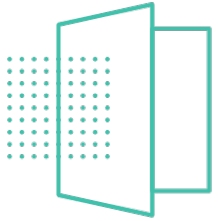

What actions should we consider

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How data makes a difference in her life

1. Self-schedules via email reminder for annual exam
2. Diagnosed with high blood pressure
3. Further tests reveal high risk for heart disease and referred to in-network specialist
4. Enrolls in diabetes management program and given RPM device
5. Specialist recommends heart surgery
6. Care manager assigned to due to high risk
7. Post surgery, actively monitored by care manager
8. Receives call for HCAHPS survey
9. Receives coaching on diet and exercise on app
10. Receives call from care manager when glucose levels are elevated
11. Joins diabetes buddy community program

- Acute
- Ambulatory
- Ongoing

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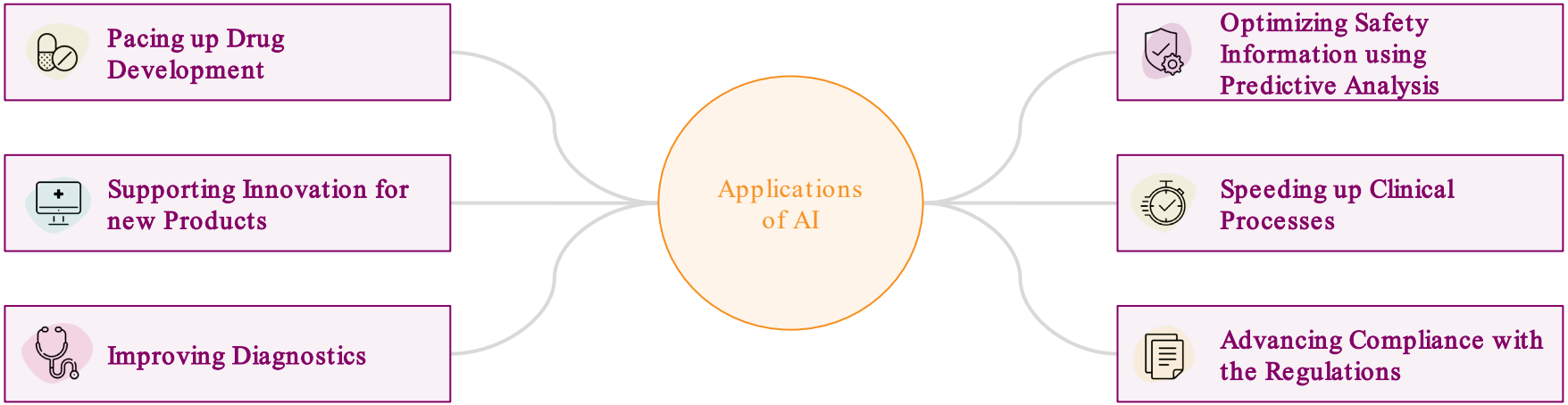
AI Improves Health Care Outcomes

Applications of AI in Life Sciences and Healthcare Industry



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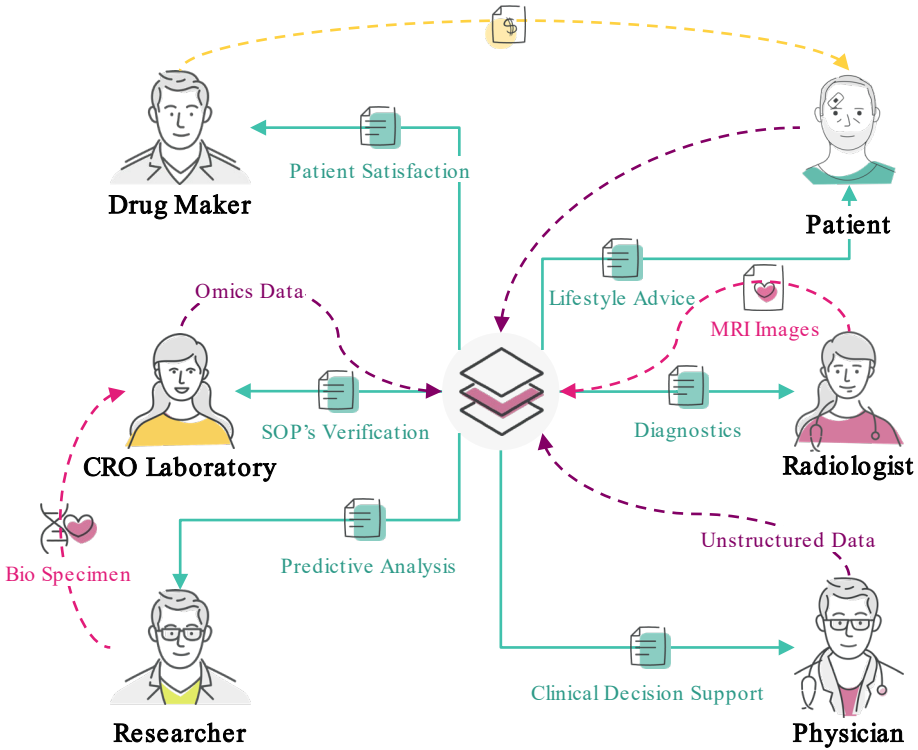
Interoperability and AI

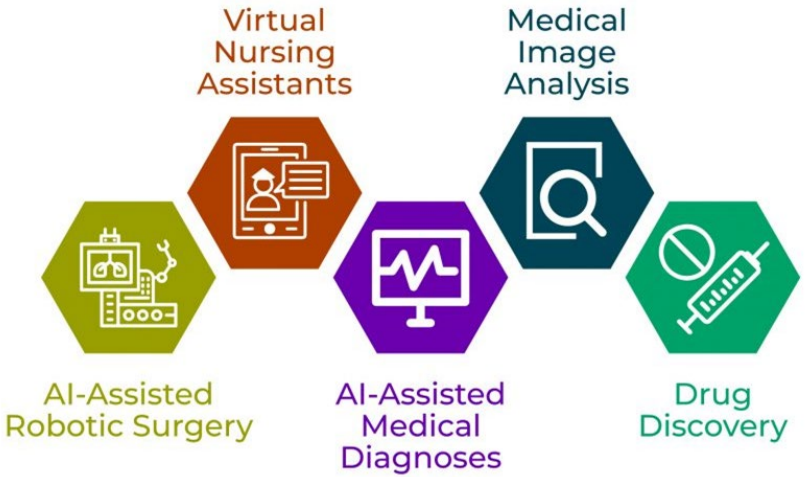
- Today, we have disparate data (low interoperability)
- AI can enable rapid aggregation of data, permitting innovative use case solutioning
- Some possible applications:
  - Precision Medicine
  - Population Health Management
  - Biomedical Machine Reading



Use of predictive analytics in Healthcare

- **Improved patient outcomes.** By integrating patient records with other health data, healthcare organizations can detect warning signs of serious medical events and proactively prevent their occurrence.
- **Holistic health support.** Evolving patient-centric models focus on the person as a whole rather than on outcomes in isolation. Predictive tools make it possible to collect and integrate lifestyle, symptom and treatment data to produce holistic treatment plans.
- **Enhanced operations.** Predictive tools can be applied to internal healthcare processes such as equipment provision or staffing requirements to help lower overall costs.
- **Personalized service provision.** Care personalization has taken center stage as pandemic pressures evolve. Predictive tools make it possible to create truly personalized treatment plans tailored to unique patient needs.

AI Capabilities: Applications for ACOs and Healthcare



Source: 10 Ways Artificial Intelligence is Transforming Healthcare

AI Benefits: Potential Cost Savings

$17B	Fraud Detection
$20B	Virtual Nursing Assistants
$18B	Administrative Workflow Assistance
$40B	Robot-Assisted Surgery
$16B	Dosage Error Reduction
$14B	Connected Machines
$13B	Clinical Trial Participant Identifier
$5B	Preliminary Diagnosis
$3B	Automated Image Diagnosis
$2B	Cybersecurity

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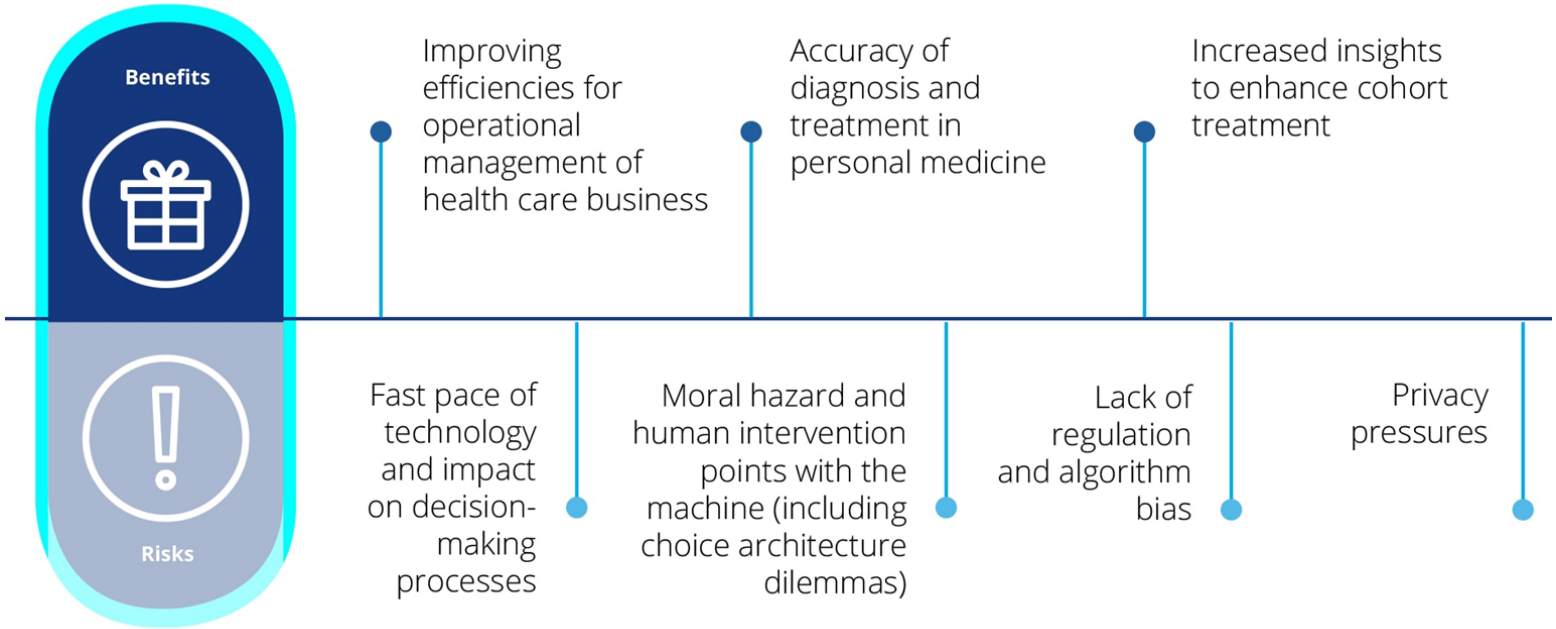
Source: The Impact of Artificial Intelligence in Healthcare

What are the benefits and risks associated with predictive analytics?



Source: Deloitte analysis.

How are advanced analytics making healthcare smarter?

Meaningful Information

Longevity

Operational efficiency

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Thank you