Leveraging Technology

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Disclosures

- No Disclosures

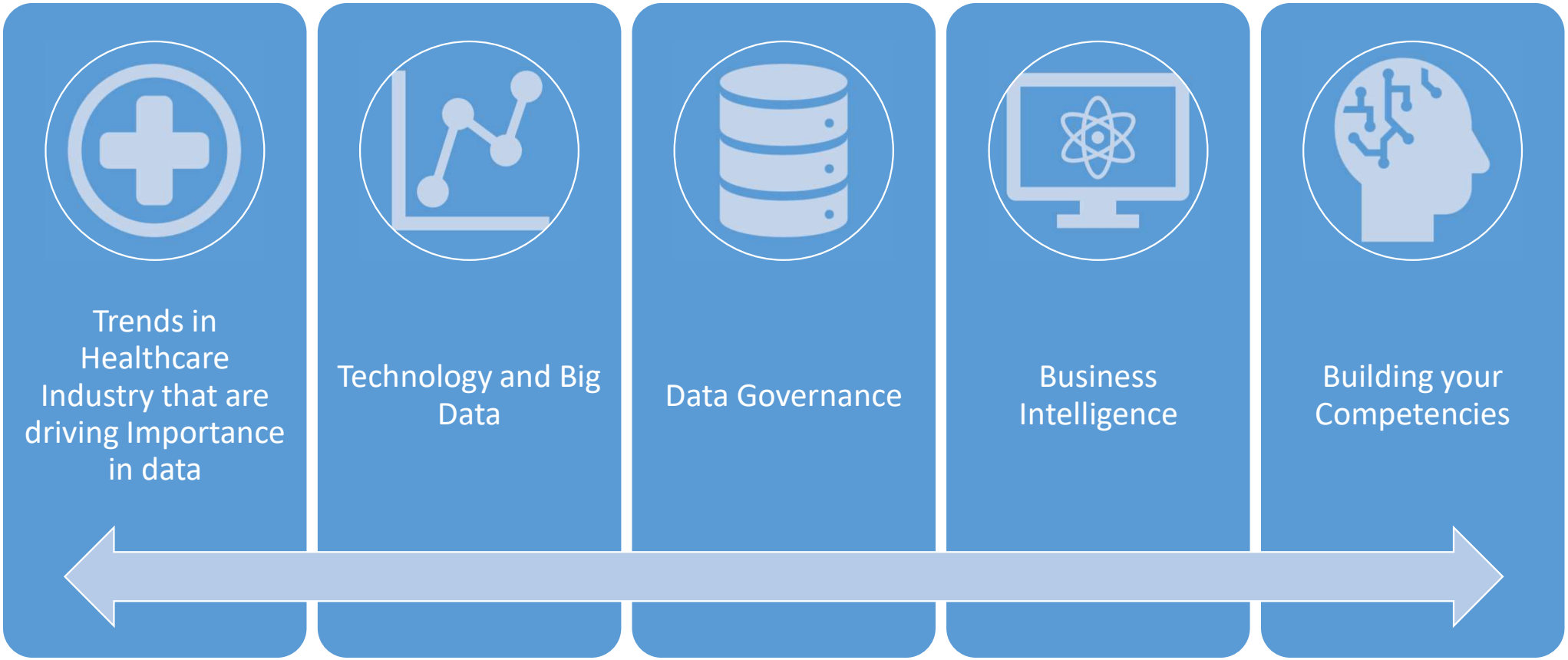
Learning Objective

Understand the chasm of APP clinical contribution and pay for service financial models

Recognize opportunities to make hidden work visible from the EHR

Identify Emerging Technologies to Assist with Clinical Productivity and Billing Accuracy

The Journey


Trends in Healthcare Industry that are driving Importance in data
Technology and Big Data
Data Governance
Business Intelligence
Building your Competencies

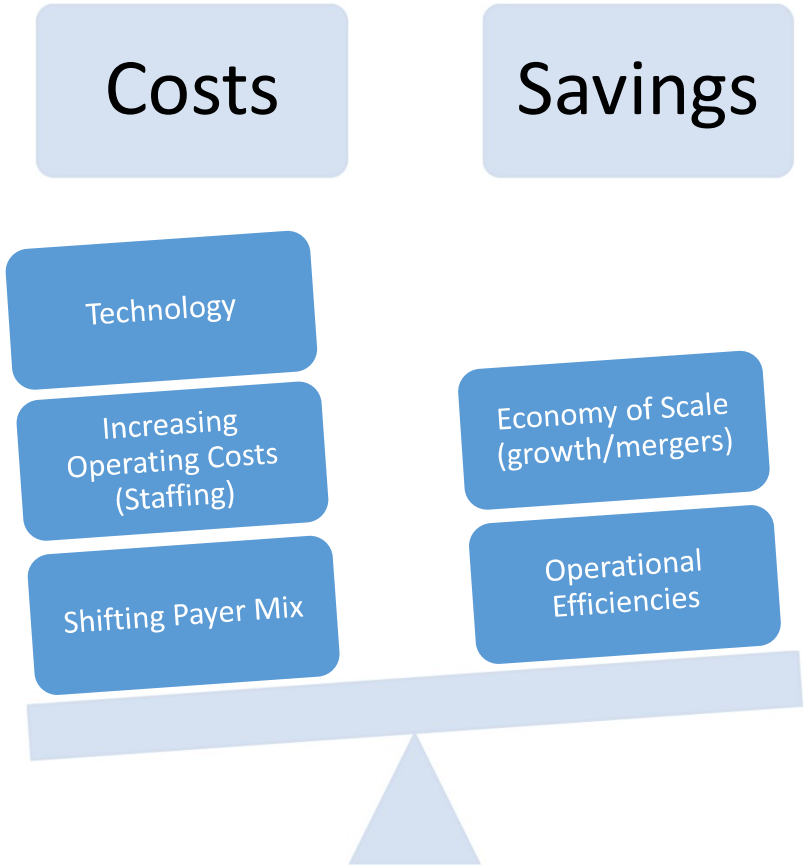
Trends in Healthcare

In 2024, Rural Hospitals in the Red jumped from 43 to 50% [1]

- Reduction in services
- Merge with affiliated systems
- Closure

In 2023, the volume of M&A deals in the healthcare sector has surged 22% [2]

In 2022, half of US hospitals finished the year with a negative margin as they struggled to keep revenue up enough to cover rising expenses



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1 https://www.beckershospitalreview.com/finance/50-of-rural-hospitals-are-operating-in-the-red-7-things-to-know.html
2 https://www.reuters.com/business/healthcare-pharmaceuticals/healthcare-execs-expect-ma-activity-rise-again-2024-survey-2023-11-14/#:~:text=The%20volume%20of%20M%26A%20deals,M%26A%20activity%20across%20most%20industries
3 https://revcycleintelligence.com/news/plagued-by-high-expenses-half-of-hospitals-finish-in-the-red

How do we make the transition from Volume and Financial to Team and Value Based?

Measuring What Matters (Outcomes)

↓

Identifying Key Drivers of Outcomes

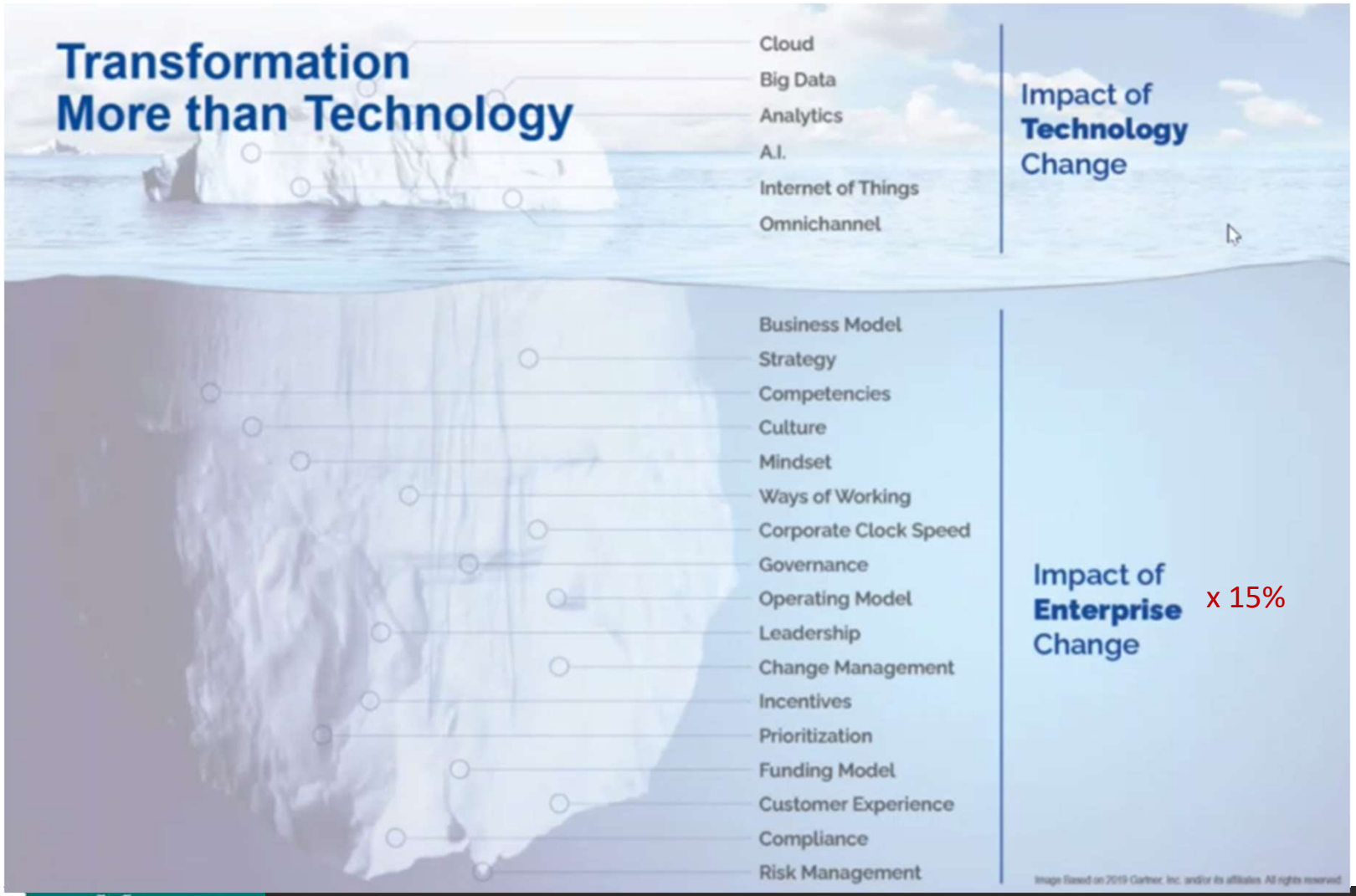
Data Sources

OBSERVATIONAL

EXPERIENTIAL

TIME BASED

OUTPUT METRICS


Transformation
More than Technology
Cloud
Big Data
Analytics
A.I.
Internet of Things
Omnichannel
Impact of
Technology
Change
Business Model
Strategy
Competencies
Culture
Mindset
Ways of Working
Corporate Clock Speed
Governance
Operating Model
Leadership
Change Management
Incentives
Prioritization
Funding Model
Customer Experience
Compliance
Risk Management
Impact of
Enterprise
Change
x 15%

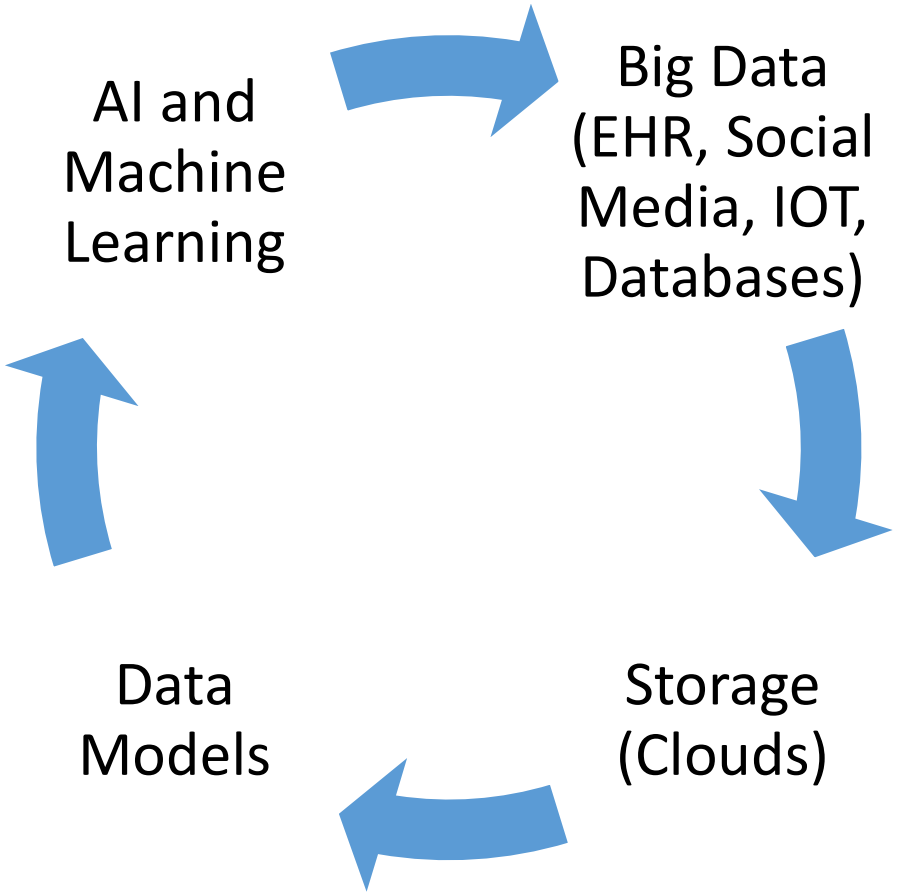
Evolution of Healthcare Data

EHR Data Sources	IOT	AI
• Signal • Epic's Cosmos • Addition of AI to Epic's Slicer Dicer	• Patient Monitoring (Apple Watch) • RFID Tags	• Documentation • Image Reads and Clinical Decision Support • Coding and Billing • Meeting Minutes and Actions

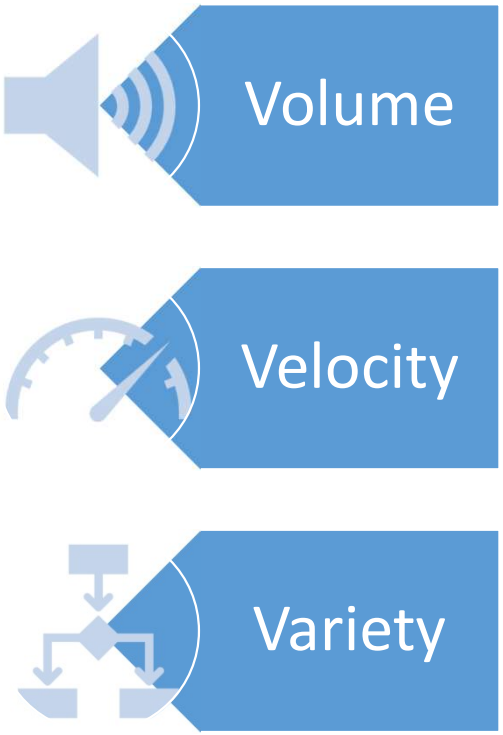
Emerging Technology

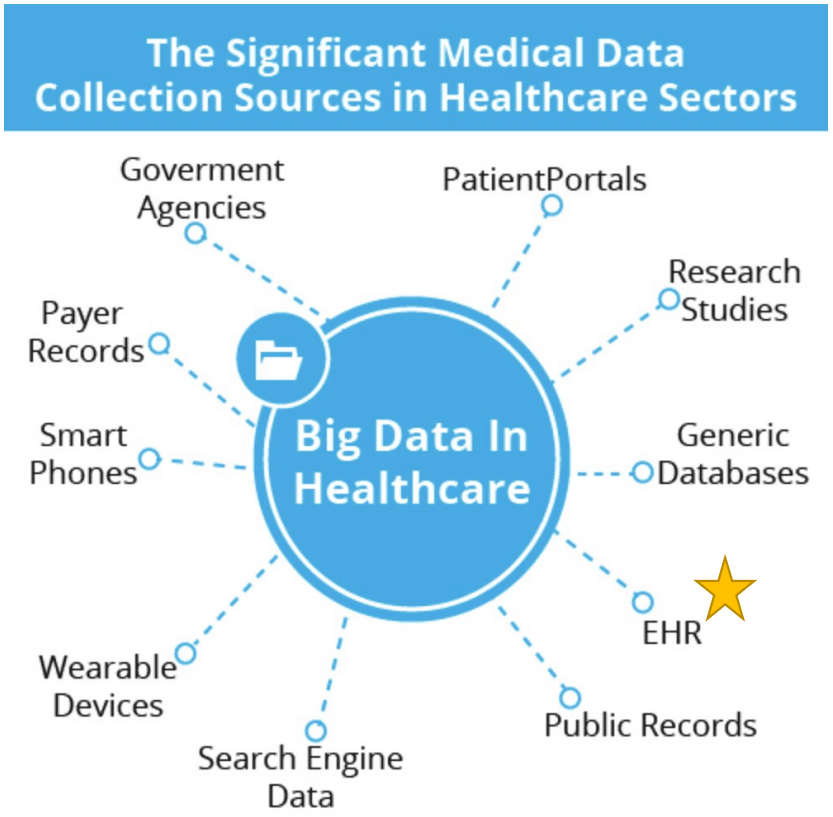
How is it all Connected?

Artificial intelligence and machine learning have thrived because of the contributions of big data, the volume, the velocity and the variety have made the extraordinary developments within these respective fields possible, and that is how big data is still central foundational to the function of all of these elements within the data science world.



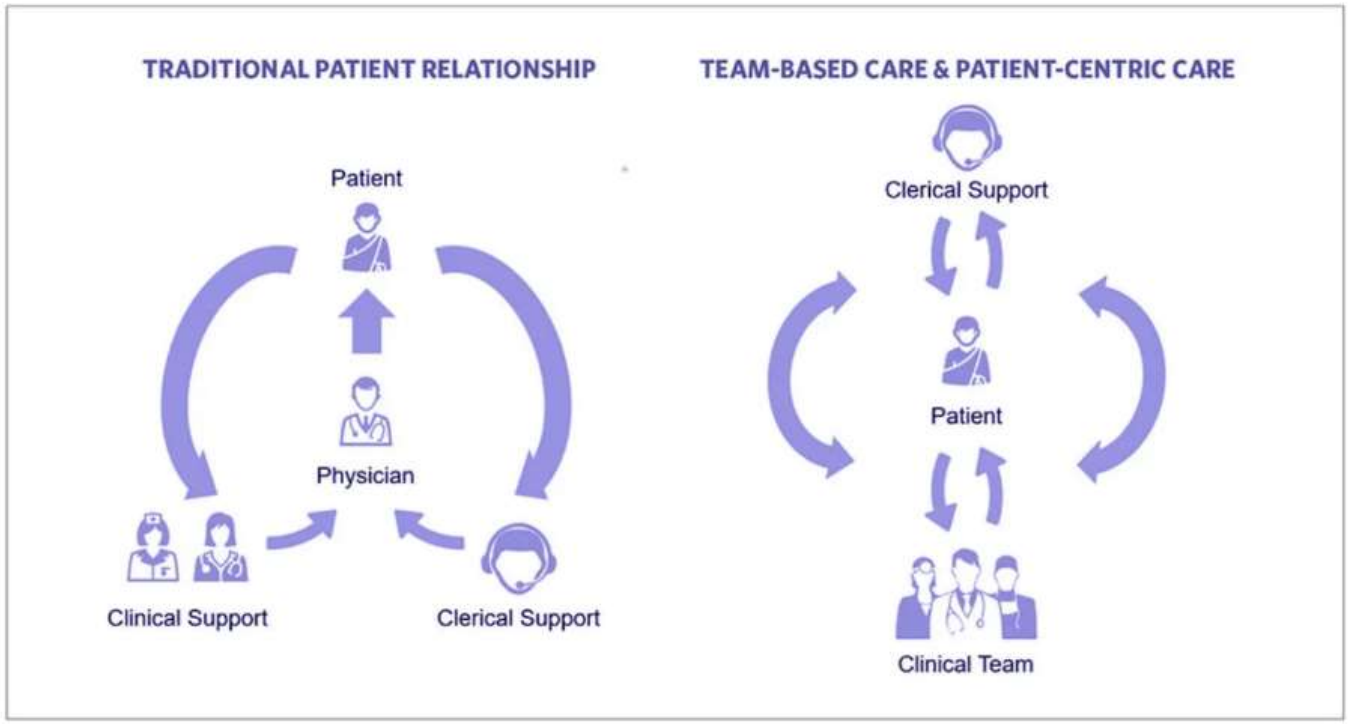
Introducing Big Data in Health Care





Forward-Thinking Strategy.

FIGURE 2. PHYSICIAN-CENTRIC CARE AND TEAM-BASED CARE



1. Develop common workflow activities built around team-based roles and responsibilities.
2. Integrating these new workflows into the EHR using automated or standard tools
   - Communication **routing** supports handoffs,
   - **hard-codes** new processes into the practice and facilitates
   - Greater **consistency** in care team activities

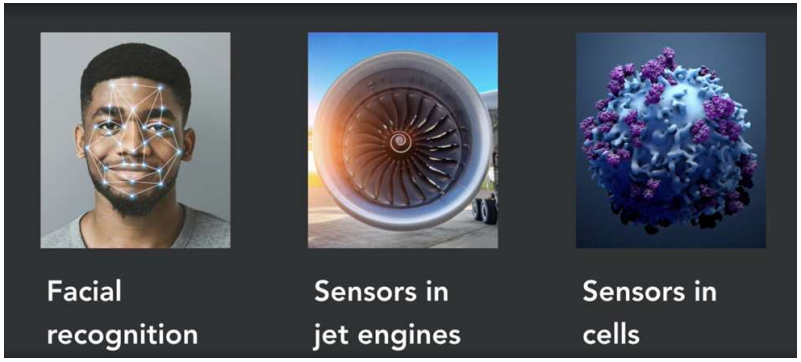
https://www.mgma.com/articles/advancing-to-team-based-care-in-the-ambulatory-enterprise

Harnessing the Power of Data

- Data Warehouse
- Data Lakes
- Cloud

- Machine Learning
- AI

- Next Generation: Edge Computing and Fog



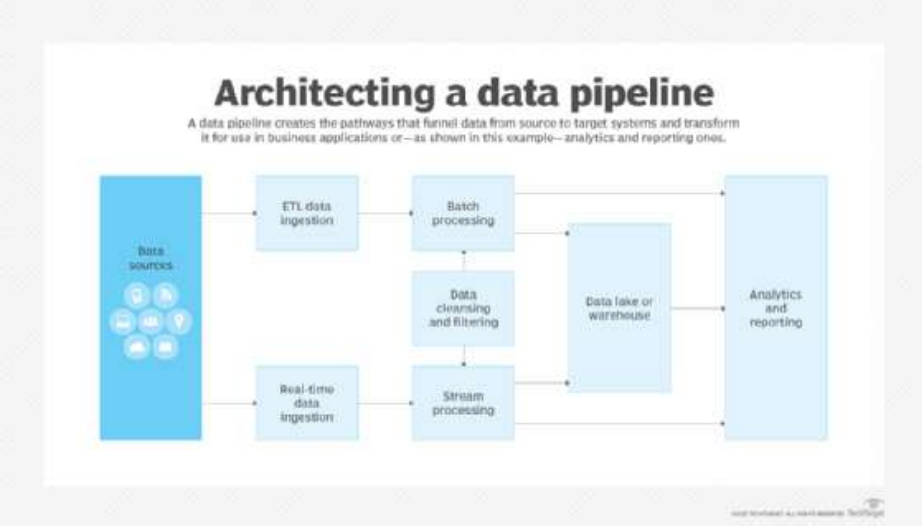
Data Management: Data Model vs Data Architecture

Modeling

- Visual representation of the Data on **Microlevel**
- Give structure to data captured in different component IT systems and define how individual data elements fit into the larger system. Thus, in healthcare applications, a data model refers to a structure for storing critical information about patient health, health systems operations, patient billing, and planning

Architecture

- Documents Data Assets
- Maps Blueprint on Data flow through system at a **Macro level**



Data Modeling (Mapping)

- Identify all data fields and sources that must be mapped
- Standardize naming conventions across sources
- Create data transformation rules and schema logic
- Test your logic
- Complete the migration, integration, or transformation

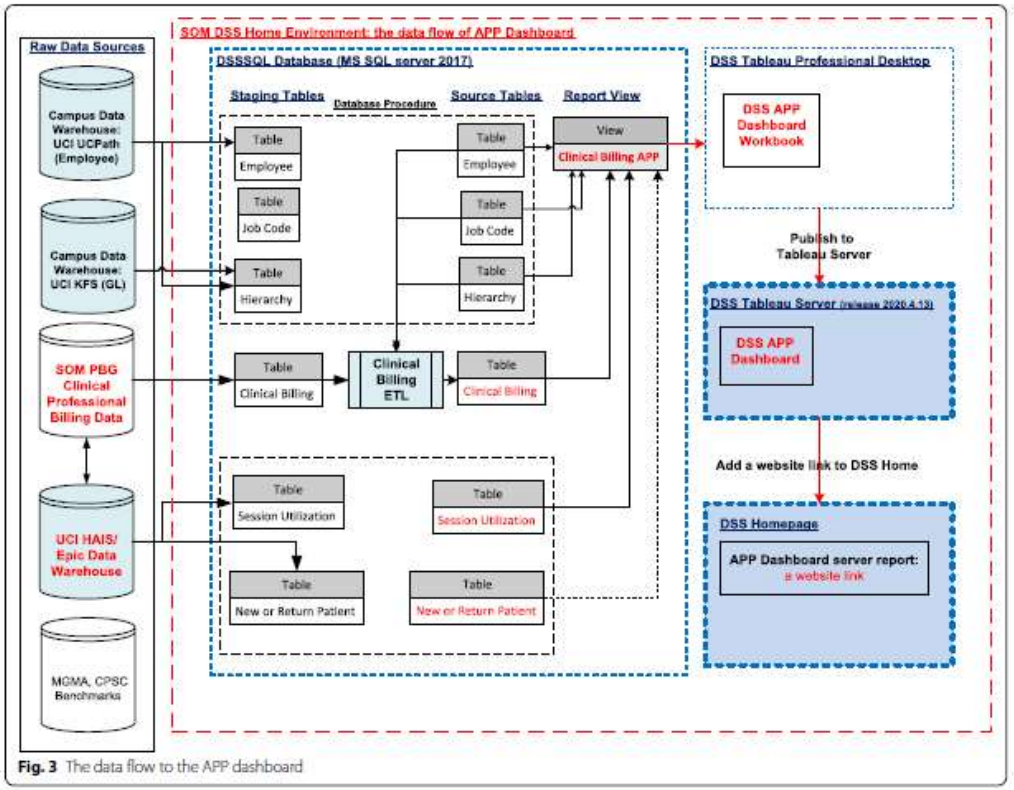
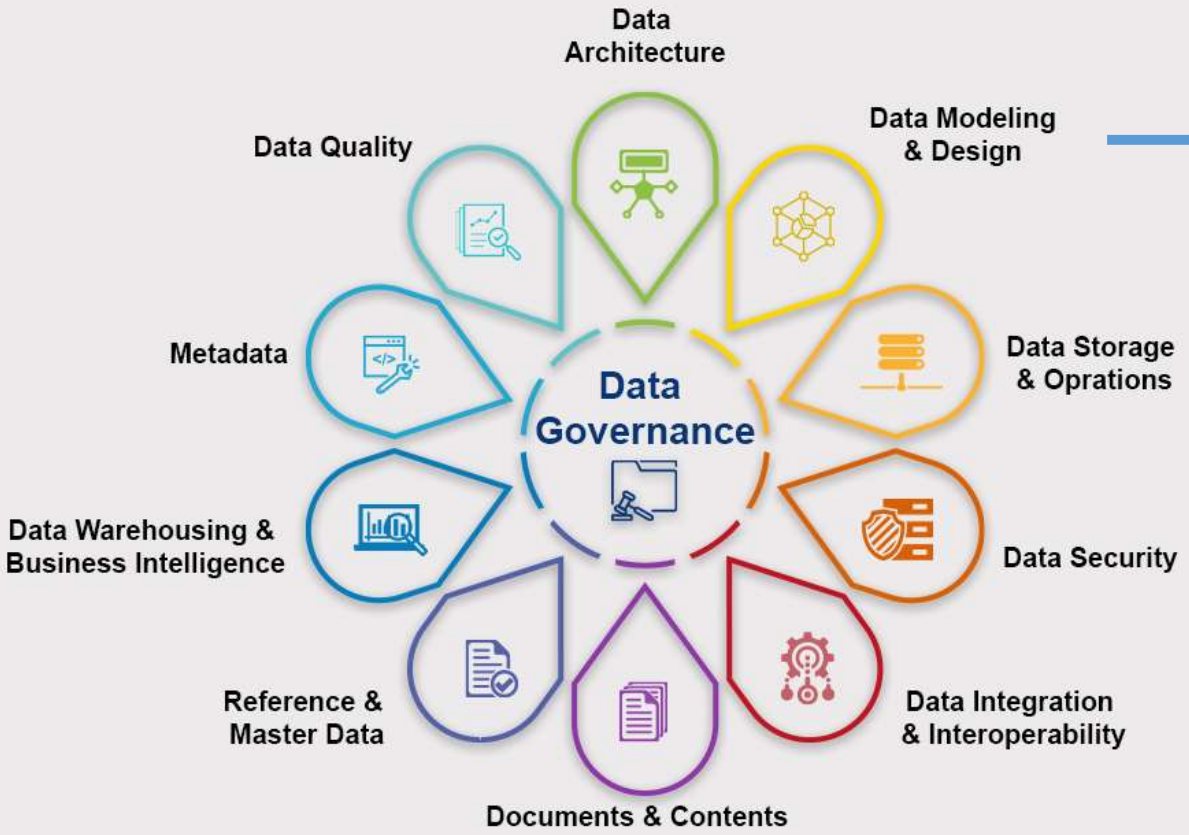


Fig. 3 The data flow to the APP dashboard

Kidd *et al. BMC Health Services Research (2022) 22:882*
https://doi.org/10.1186/s12913-022-08216-7

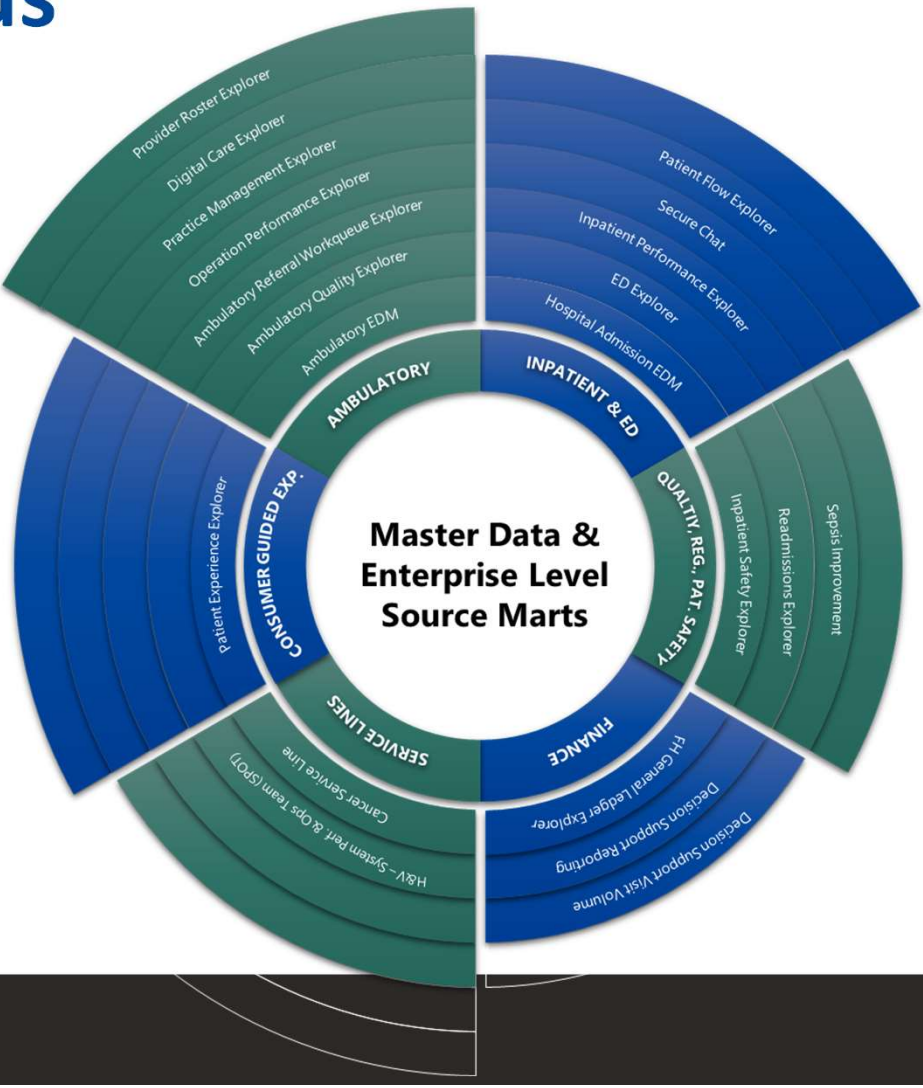
Data Governance

TOOLBOX



Artificial Intelligence

Governance Drives Standards



How to Use Data/Why is Data Important?

Building Your Data Literacy

- Data Literacy Training Program
  - Employer Sponsored
  - Data Literacy Project
- Statistics Courses
- Dive in
  - Dashboards
  - Reports
- Find a Mentor
  - Data Analysts can be your best friend!

Data Literacy Will Be the Most Critical Skill for the Workforce in 2030

What is Data Literacy in Healthcare?

- Data literacy is the ability to understand data and data practices sufficiently to meaningfully interpret data and effectively communicate that meaning. As such, it involves understanding where data came from, how to draw meaning or conclusions from it, how to read charts appropriately and make inferences from visualizations, and how to recognize when data are being used to mislead. Data literacy is inclusive of a broad range of data skills including data management, cleaning, analysis, and visualization. Most importantly it requires understanding the meaning of data, how it fits into a broader context, and what conclusions can and can't be derived from that data

https://www.nnlm.gov/guides/data-glossary/data-literacy#:~:text=Data%20literacy%20is%20inclusive%20of,be%20derived%20from%20that%20data.

How to Apply Data literacy to APP Workforce

- Source Familarization
- Data Definition
- Signal in the Noise (Statistical Significance)
- Data Displays

3 C's of Data Literacy

Be curious	Be creativity	Think critically

3 C's: Be Curious

What is the Source of the Data?

What validation process was used?

How consistent is the data collection process or how do you ensure data quality?

"Review of Nation Healthcare Surveys varied with respect to applicability to PA and NP care.

Features limiting applicability included:

(1) Sampling schemes that inconsistently capture nonphysician practice

(2) Inaccurate identification of provider type

(3) Data structure that does not support analysis of team practice."

~ 2007

Health Serv Res. 2007 Oct; 42(5): 2022–2037.
doi: 10.1111/j.1475-6773.2007.00700.x

3 C's: Get Creative

Measures of PA Productivity

Productivity Component	Examples of Measurement
Direct Measures of Productivity	Work RVUs, Total RVUs, actual collections/revenue generated
Indirect Measures of Productivity	Number of patients treated, number of documentation entries in EHR, portions of global services performed
Clinical Measures of Productivity	Hours worked, hours on-call, time spent providing patient education (when not separately payable), contribution to research, participation in quality improvement activities

https://www.aapa.org/news-central/2020/05/quantifying-pa-productivity-can-be-challenging/

Chasm for PAs and NPs

Clarify Production vs Value

Value Component	Examples of Measurement	Value Benefit
Productivity	*See table below*	Revenue, practice sustainability
Quality & Outcomes	Attainment of quality measures (e.g. BP or Hgb AIC), percentage of patients receiving guideline-directed prevention, hospital lengths of stay, readmission rates, post-operative infection rates.	Improved care and outcomes, value-based payments
Patient Satisfaction	Average patient satisfaction scores, percentage of scores in top quartile, subset of overall scores (e.g. provider and care delivery components)	Patient engagement, improved adherence
Access to Care	Average time delay until available appointment, percent of patients that can be seen within a certain timeframe from requesting an appointment	Improved care and outcomes, patient satisfaction
Care Coordination	Timely responses to patient enquiries via portal or phone, ordering of prescriptions	Patient satisfaction and engagement, improved adherence and outcomes

https://www.aapa.org/news-central/2020/05/quantifying-pa-productivity-can-be-challenging/

Chasm for PAs and NPs

- Attribution
  - Service Provider vs Billing Provider
  - Shared Encounters and Panel
  - Impact no Non-RVU Generated work on Cost of care delivery

3 C's: Think Critically - Data Tools and Visual Products

Analysis

- Excel
- JMP
- R
- Squeal

Visualization

- Scatter Plot
- Trend Lines
- Bar Graphs
- Waterfall

Report Software

- Qlik
- Tableau
- Power BI

Reporting Software/Dashboards

Charts

Alerts

Filters

The Flip Side of Data

Common Problems with Data

- Poor Quality Data
- Lack of Understanding
- Data overload
- Insufficient Data Storage
- Data Analysis (Assumptions)
- Data Communication (clear, compelling visual)
- Inconsistent Data Definitions

Take Aways

- Understand the Technology and Workflows in your Organization
  - Helps you understand the Data and add context
  - Making Hidden Work Visible

- Understand Data Governance and Tools at your organization
- Partner with Data Analyst and Strategist
  - Often the question you are trying to answer is more powerful