Value-Based Care Environment

The opportunity for Lab 2.0

David Nace, MD | Chief Medical Officer

innovaccer

Agenda

Health

Value

Digital

Opportunity

NOW...Scientific Evidence on Effects of Smoking!

A MEDICAL SPECIALIST in making regular bi-monthly examinations of a group of people from various walks of life. 45 percent of this group have smoked Chesterfield for an average of over ten years.

After ten months, the medical specialist reports that he observed...

no adverse effects on the nose, throat and sinuses of the group from smoking Chesterfield.

First and Only Premium Quality Cigarette in Both Regular and King-Size

MUCH MILDER

CHESTERFIELD IS BEST FOR YOU

APRIL 1953

13

According to a recent Nationwide survey:

MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE

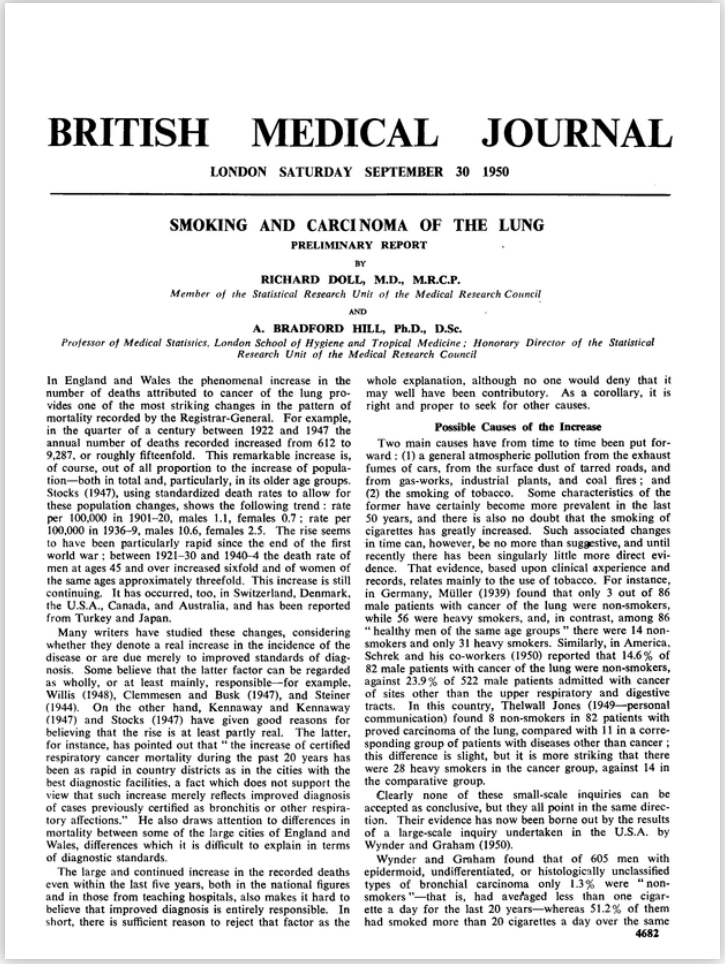
DOCTORS in every branch of medicine—113,597 in all—were queried in this nationwide study of cigarette preference. Three leading research organizations made the survey. The gist of the query was—What cigarette do you smoke, Doctor?

The brand named most was Camel!

The rich, full flavor and cool mildness of Camel's superb blend of costlier tobaccos seem to have the same appeal to the smoking tastes of doctors as to millions of other smokers. If you are a Camel smoker, this preference among doctors will hardly surprise you. If you're not—well, try Camels now.

CAMELS *Costlier Tobaccos*

Change is Slow - The Health Consequences of Smoking



BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 30 1950

SMOKING AND CARCINOMA OF THE LUNG

PRELIMINARY REPORT

BY

RICHARD DOLL, M.D., M.R.C.P.

Member of the Statistical Research Unit of the Medical Research Council

AND

A. BRADFORD HILL, Ph.D., D.Sc.

Professor of Medical Statistics, London School of Hygiene and Tropical Medicine; Honorary Director of the Statistical Research Unit of the Medical Research Council

In England and Wales the phenomenal increase in the number of deaths attributed to cancer of the lung provides one of the most striking changes in the pattern of mortality recorded by the Registrar-General. For example, in the quarter of a century between 1922 and 1947 the annual number of deaths recorded increased from 612 to 9,287, or roughly fifteenfold. This remarkable increase is, of course, out of all proportion to the increase of population—both in total and, particularly, in its older age groups. Stocks (1947), using standardized death rates to allow for these population changes, shows the following trend: rate per 100,000 in 1901–20, males 1.1, females 0.7; rate per 100,000 in 1936–9, males 10.6, females 2.5. The rise seems to have been particularly rapid since the end of the first world war; between 1921–30 and 1940–4 the death rate of men at ages 45 and over increased sixfold and of women of the same ages approximately threefold. This increase is still continuing. It has occurred, too, in Switzerland, Denmark, the U.S.A., Canada, and Australia, and has been reported from Turkey and Japan.

Many writers have studied these changes, considering whether they denote a real increase in the incidence of the disease or are due merely to improved standards of diagnosis. Some believe that the latter factor can be regarded as wholly, or at least mainly, responsible—for example, Willis (1948), Clemmesen and Busk (1947), and Steiner (1944). On the other hand, Kennaway and Kennaway (1947) and Stocks (1947) have given good reasons for believing that the rise is at least partly real. The latter, for instance, has pointed out that "the increase of certified respiratory cancer mortality during the past 20 years has been as rapid in country districts as in the cities with the best diagnostic facilities, a fact which does not support the view that such increase merely reflects improved diagnosis of cases previously certified as bronchitis or other respiratory affections." He also draws attention to differences in mortality between some of the large cities of England and Wales, differences which it is difficult to explain in terms of diagnostic standards.

The large and continued increase in the recorded deaths even within the last five years, both in the national figures and in those from teaching hospitals, also makes it hard to believe that improved diagnosis is entirely responsible. In short, there is sufficient reason to reject that factor as the whole explanation, although no one would deny that it may well have been contributory. As a corollary, it is right and proper to seek for other causes.

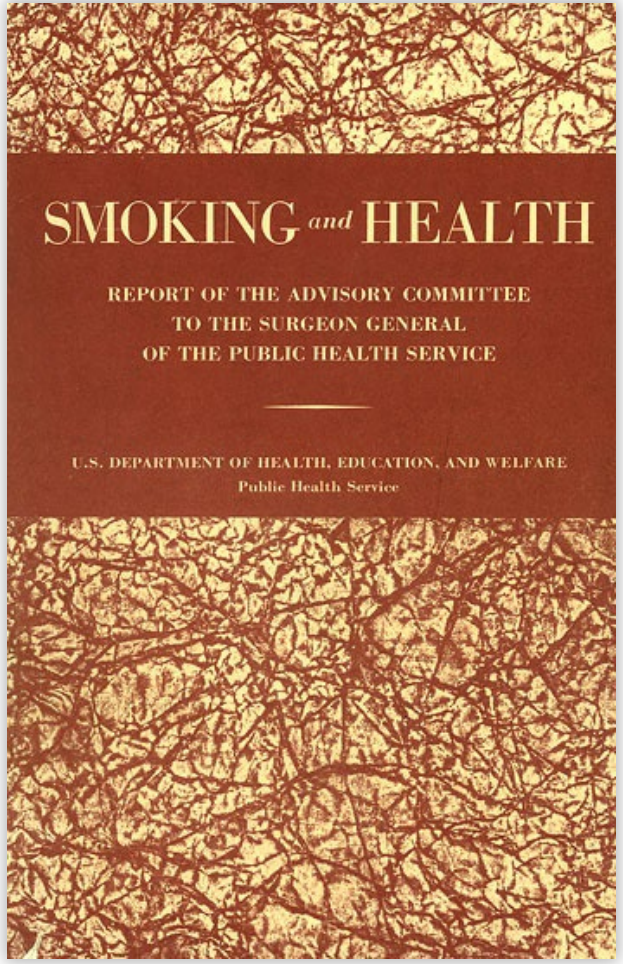
Possible Causes of the Increase

Two main causes have from time to time been put forward: (1) a general atmospheric pollution from the exhaust fumes of cars, from the surface dust of tarred roads, and from gas-works, industrial plants, and coal fires; and (2) the smoking of tobacco. Some characteristics of the former have certainly become more prevalent in the last 50 years, and there is also no doubt that the smoking of cigarettes has greatly increased. Such associated changes in time can, however, be no more than suggestive, and until recently there has been singularly little more direct evidence. That evidence, based upon clinical experience and records, relates mainly to the use of tobacco. For instance, in Germany, Müller (1939) found that only 3 out of 86 male patients with cancer of the lung were non-smokers, while 56 were heavy smokers, and, in contrast, among 86 "healthy men of the same age groups" there were 14 non-smokers and only 31 heavy smokers. Similarly, in America, Schrek and his co-workers (1950) reported that 14.6% of 82 male patients with cancer of the lung were non-smokers, against 23.9% of 522 male patients admitted with cancer of sites other than the upper respiratory and digestive tracts. In this country, Thelwall Jones (1949—personal communication) found 8 non-smokers in 82 patients with proved carcinoma of the lung, compared with 11 in a corresponding group of patients with diseases other than cancer; this difference is slight, but it is more striking that there were 28 heavy smokers in the cancer group, against 14 in the comparative group.

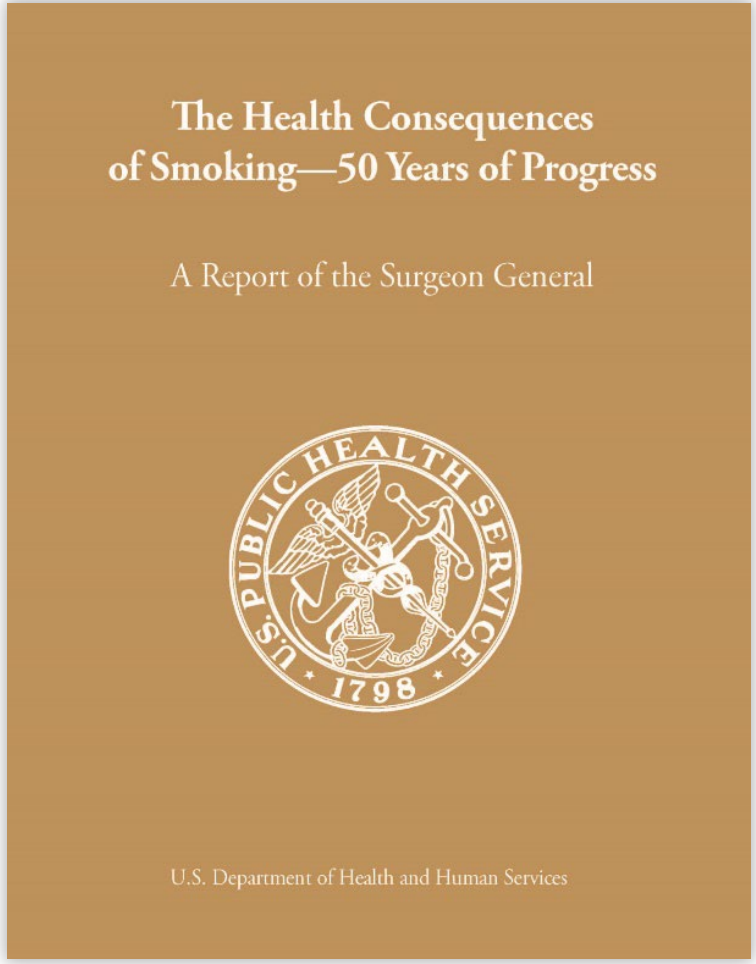
Clearly none of these small-scale inquiries can be accepted as conclusive, but they all point in the same direction. Their evidence has now been borne out by the results of a large-scale inquiry undertaken in the U.S.A. by Wynder and Graham (1950).

Wynder and Graham found that of 605 men with epidermoid, undifferentiated, or histologically unclassified types of bronchial carcinoma only 1.3% were "non-smokers"—that is, had averaged less than one cigarette a day for the last 20 years—whereas 51.2% of them had smoked more than 20 cigarettes a day over the same

1950

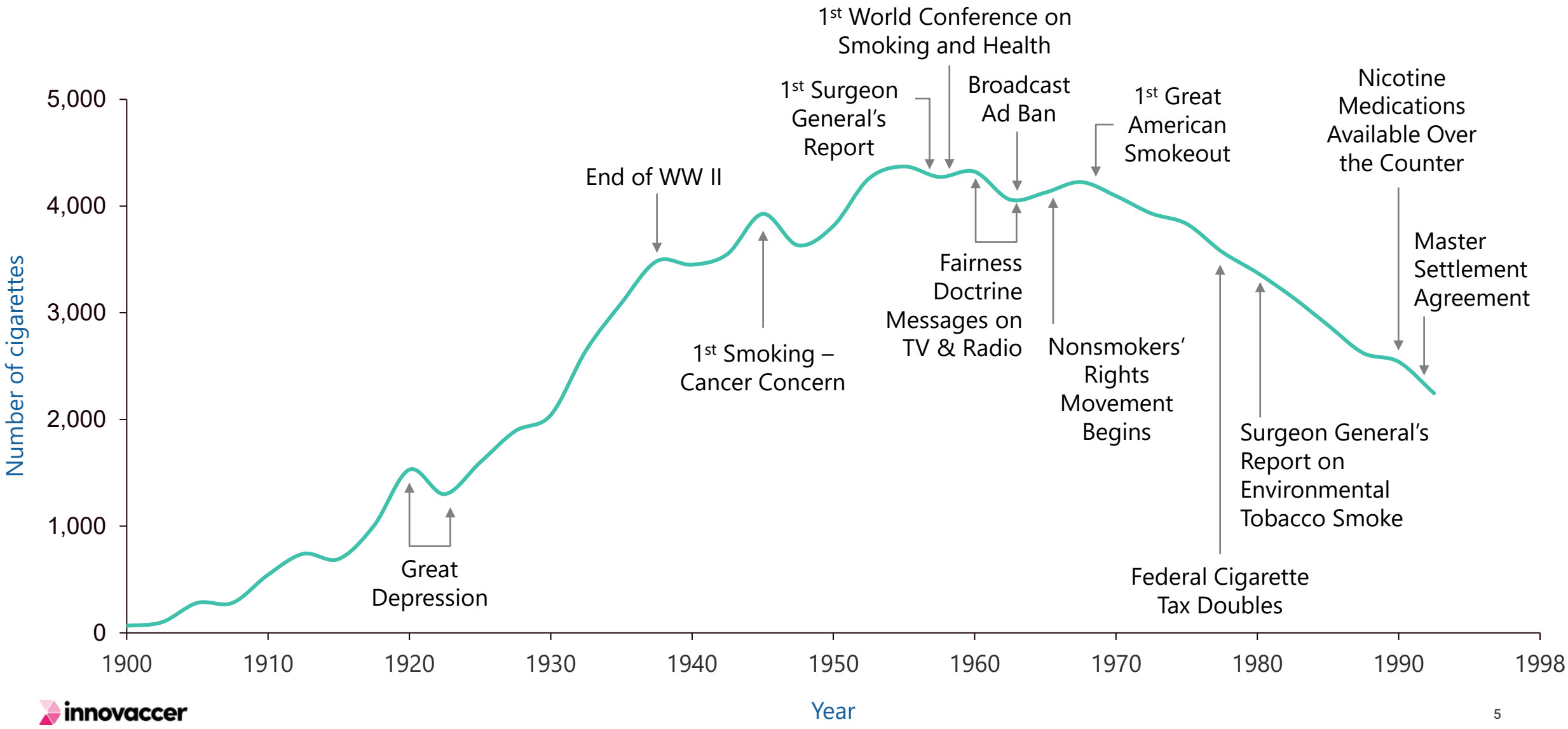


1964



2014

Cigarette Consumption per Capita



Source: Hanson, Venturelli, and Fleckenstein, Drugs and Society, tenth edition. 2009

Clinical Needs Have Changed Over Time

Year	Life Expectancy	Death Rate (per 100,000)	Leading Causes of Death	Clinical Need
1900	47	1,719	Pneumonia Influenza Tuberculosis Diarrhea GI disease	Acute
1950	68	963	Heart Disease Cancer Cerebrovascular	Acute Chronic
2000	77	865	Heart Disease* Cancer* Cerebrovascular	**Chronic** Acute Prevention
2024	?	?	?	**Prevention** Chronic Acute

* Cancer is currently the leading cause of death for certain age groups

Improvements In Disease & Illness Have Come From Public Health

- Vaccination
- Motor-vehicle safety
- Safer workplaces
- Control of infectious diseases
- Decline in deaths from coronary heart disease and stroke
- Safer and healthier foods
- Healthier mothers and babies
- Family planning
- Fluoridation of drinking water
- Recognition of tobacco use as a health hazard

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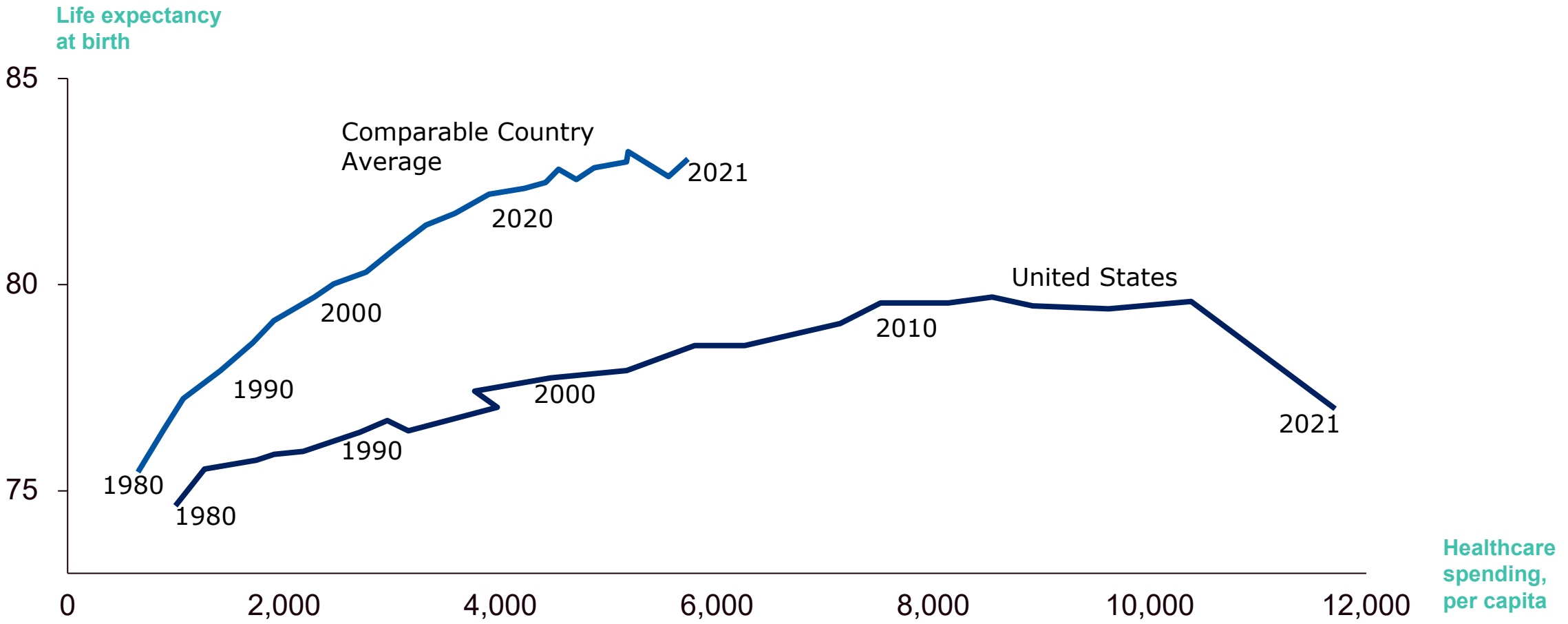
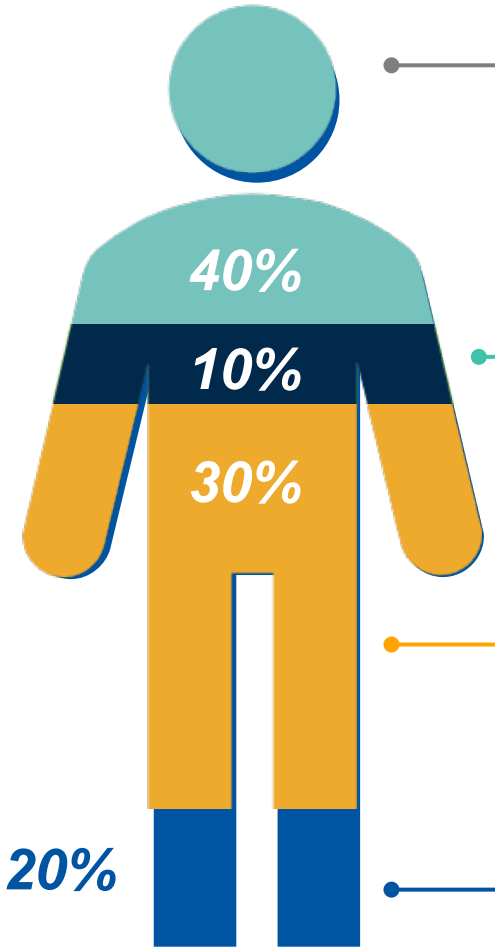
Outcomes Are Concerning And Trending Negative



Source: KFF analysis of CDS, OECD, Japanese Ministry of Health, Labour, and Welfare, Australian Bureau of Statistics, and UK Office for Health Improvement and Disparities data

Improving Health Requires Addressing The Real Issues



Socioeconomic Factors

- Education
- Job status
- Family Social Support
- Income
- Community Safety

Physical Environment

Behavioral Patterns

- Tobacco Use
- Diet & Exercise
- Alcohol Use
- Sexual Activity

Health Care Services

- Access to Care Quality of Care

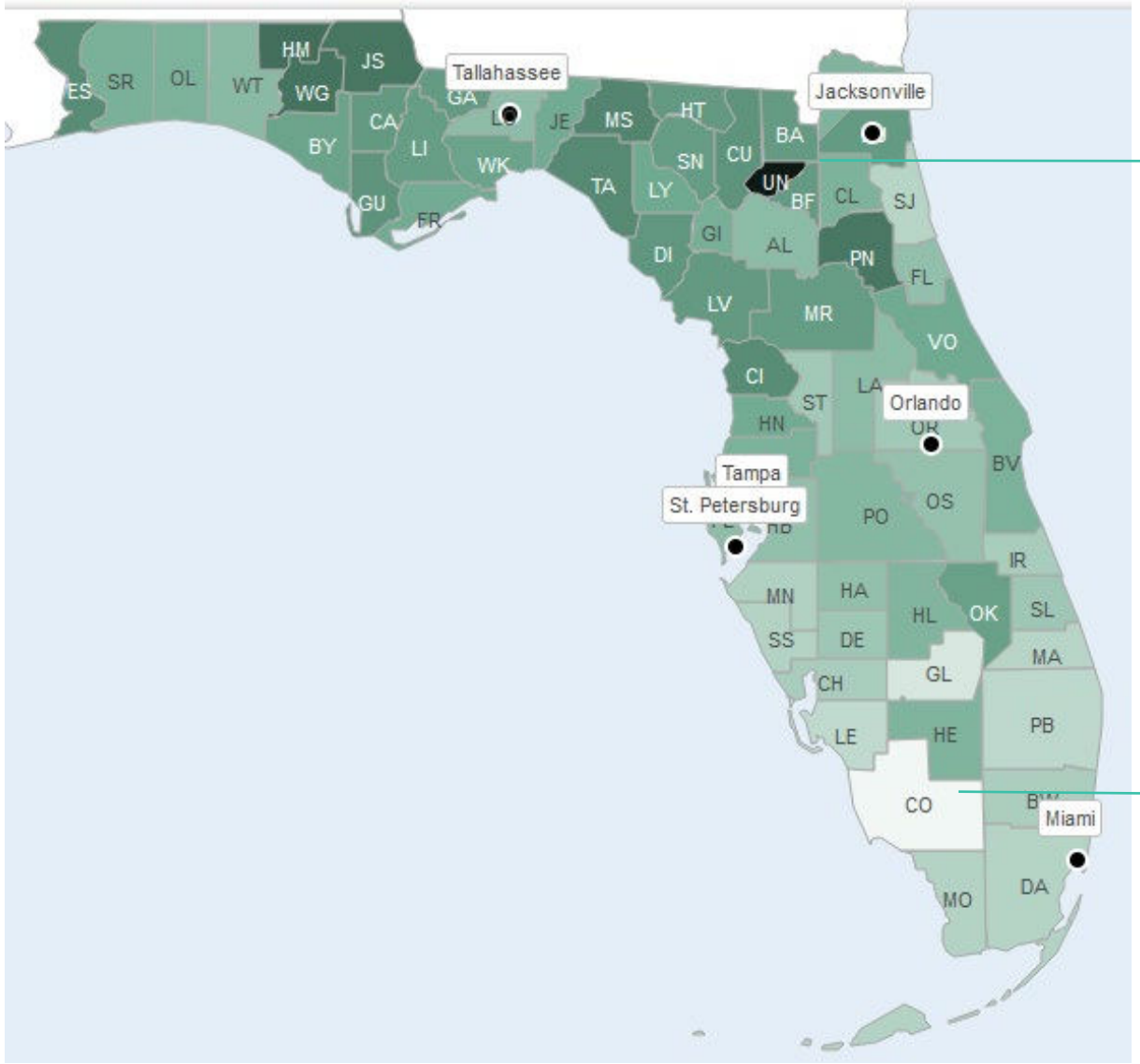
50% can be traced back to your zip code!

Only 20% from interactions in a healthcare environment

Source: Institute for Clinical Systems Improvement, Going Beyond Clinical Walls: Solving Complex Problems

Location Matters

Zip Code – the #1 Predictor of Health Outcomes



67

86

https://www.rwjf.org/en/insights/our-research/interactives/whereyouliveaffectshowlongyoulive.html
https://www.countyhealthrankings.org

Agenda

Health

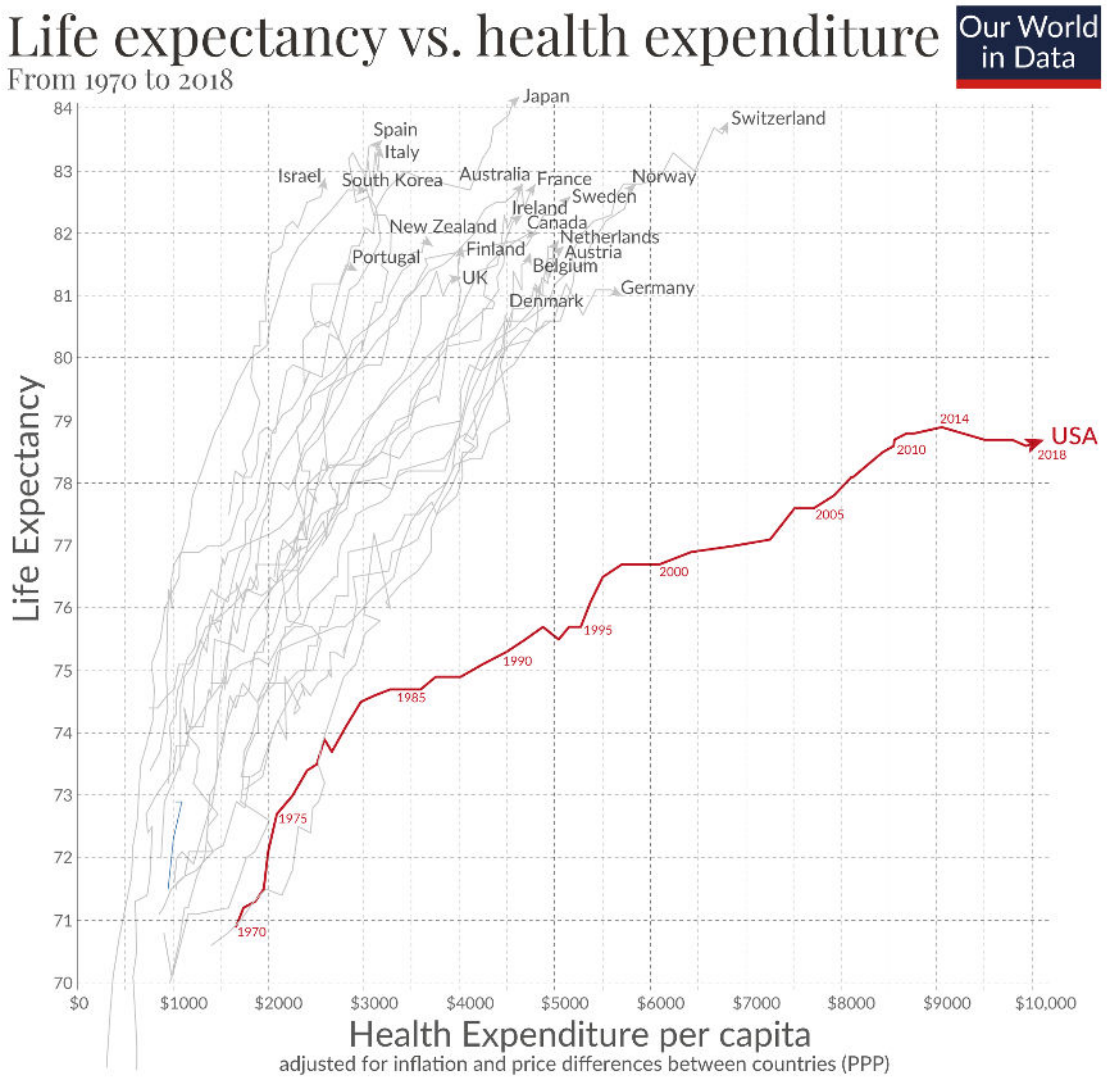
Value

Digital

Smart Governance

We Have A Systemic Problem

- **The U.S. spends nearly twice as much** as the average OECD country — **yet has the lowest life expectancy**
- **U.S. has the highest chronic disease burden** and an obesity rate that is two times higher than the OECD average
- Americans have fewer primary care visits than peers in most countries, and use more expensive technologies, such as MRIs, and specialized procedures
- **The U.S. has among the highest number of hospitalizations from preventable causes *<u>and the highest rate of avoidable deaths</u>***



Organization for Economic Co-operation and Development (OECD)

Much of our Healthcare Costs are “Waste”

Table 2. Cost Estimates by Waste Domain

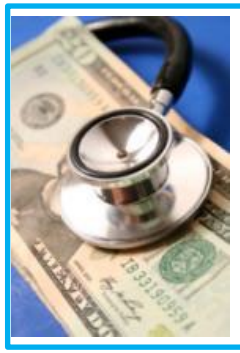
Domain	Costs, $US Billion	
	Annual Estimates	Total Range
Failure of Care Delivery		
Hospital-acquired conditions and adverse events[18-22]	5.7-46.6	102.4-165.7
Clinician-related inefficiency (variability in care, inefficient use of high-cost physicians)[27,28]	8.0	
Lack of adoption of preventive care practices (obesity, vaccines, diabetes, hypertension)[23-26]	88.6-111.1	
Failure of Care Coordination		
Unnecessary admissions and avoidable complications[19,29]	5.9-56.3	27.2-78.2
Readmissions[30,31]	21.25-21.93	
Overtreatment or Low-Value Care		
Low-value medication use[12,32-35]	14.4-29.1	75.7-101.2
Low-value screening, testing, or procedures[14,36,37]	17.2-27.9	
Overuse of end-of-life care[38]	44.1	
Pricing Failure		
Medication pricing failure[8]	169.7	230.7-240.5
Payer-based health services pricing failure[39,40]	31.4-41.2	
Laboratory and ambulatory pricing[41]	29.7	
Fraud and Abuse		
Fraud and abuse in Medicare[42-44]	58.5-83.9	58.5-83.9
Administrative Complexity		
Billing and coding waste[45]	248	265.6
Physician time spent reporting on quality measures[10]	17.6	
Total		760-935

From: Waste in the US Health Care System: Estimated Costs and Potential for Savings

JAMA. 2019;322(15):1501-1509. doi:10.1001/jama.2019.13978

Payments are Slowly Encouraging the Business Model to Shift

Volume of Services Provided



Fee For Service (FFS)

Value Based Payments

- Quality
- Patient Experience
- Cost

Pay for Performance

Bundled Payments

Shared Savings (ACO Model)

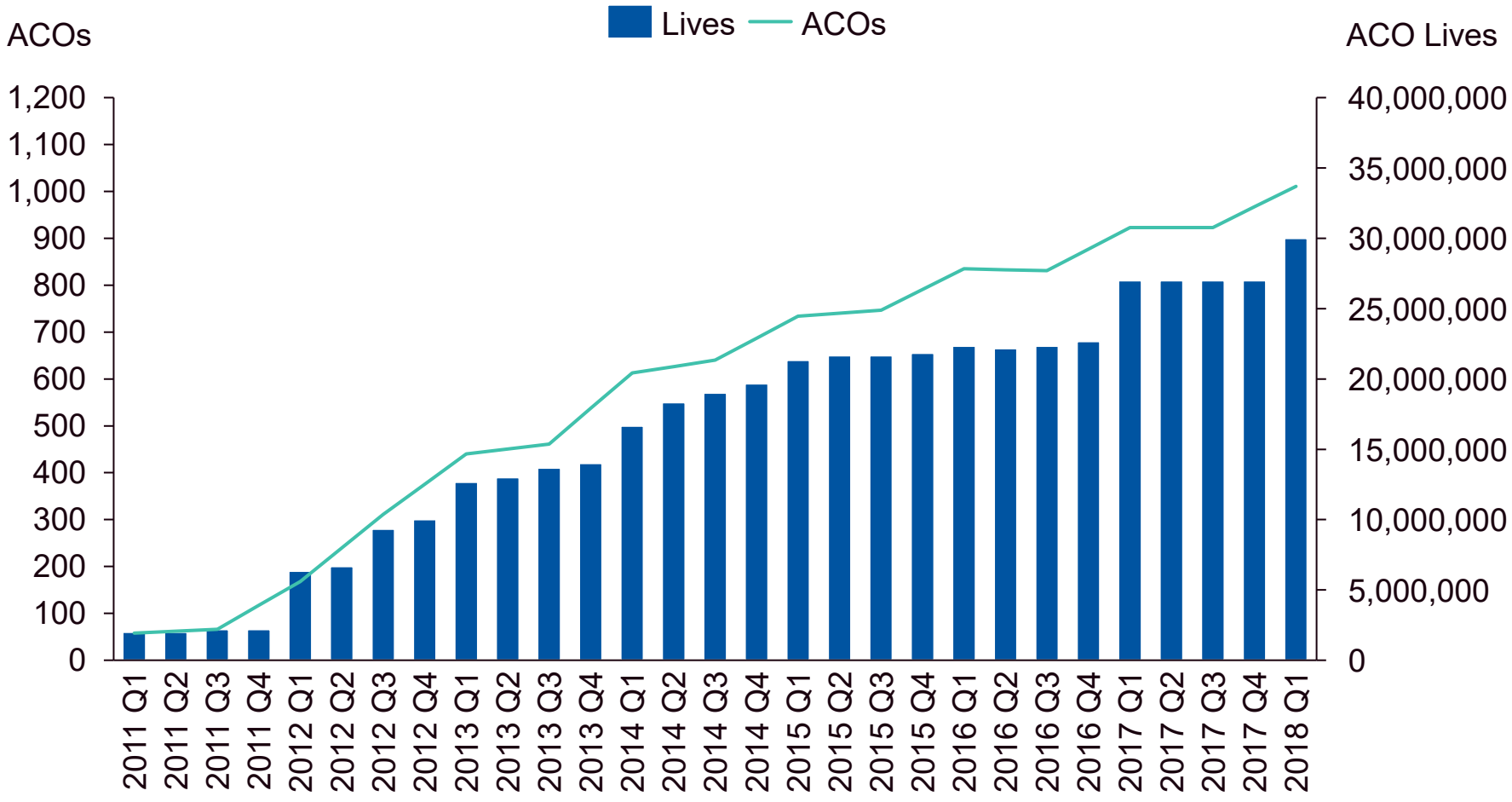
Partial or Full Capitation

	FFS	Link to quality & Value	APMS built on fee-for-service architecture	Population-based payment
CY 2017	41%	25%	30%	4%
CY 2022	39%	19%	32%	10%

ACO Contracts And Lives Covered Over Time

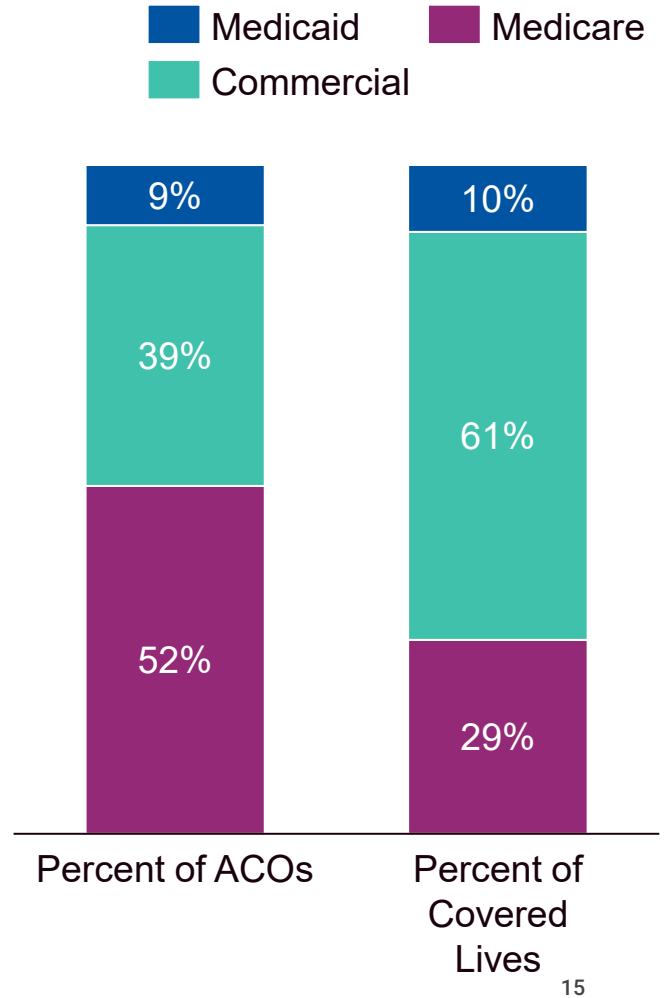
Q1 2011 – Q1 2018

ACO Growth Has Been Significant Both in the Medicare and the Commercial Space



Estimated ACO Lives, by Payer

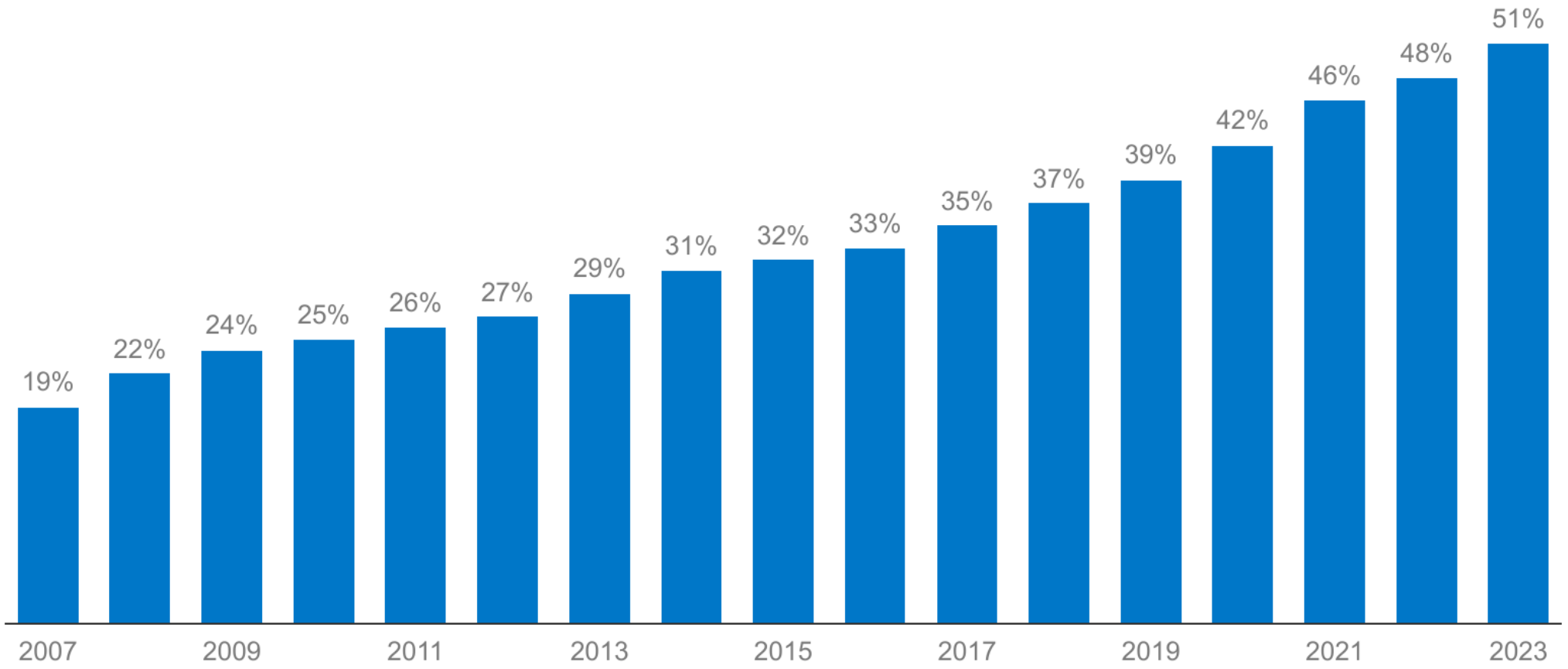
Total ACO Lives: 28.4m



Note: Medicaid ACO lives known but number of Medicaid ACOs unknown

Source: Growth Of ACOs And Value-Based Payment Models In 2018, Health Affairs 8/2018. (R) Chartis estimate based on Muhlestein et al plus CMS data. Note that while 54% of ACOs are estimated to participate in a Medicare program, they may also have commercial ACO programs.

Patients Are Choosing Value - MA Enrollment Increasing



NOTE: Enrollment data are from March of each year. Includes Medicare Advantage plans: HMOs, PPOs (local and regional), PFFS, and MSAs. About 60.0 million people are enrolled in Medicare Parts A and B in 2023.
SOURCE: KFF analysis of CMS Medicare Advantage Enrollment Files, 2010-2023; Medicare Chronic Conditions (CCW) Data Warehouse from 5 percent of beneficiaries, 2010-2016; CCW data from 20 percent of beneficiaries, 2017-2020; and Medicare Enrollment Dashboard 2021-2023.

KFF

Population Health Is A Different Business

	Fee-for-Service	Population Health
Customer	People who are admitted (or use outpatient services)	Everyone who pays for coverage or is enrolled in a plan/program
Revenue	Paid per unit of service	Monthly fixed amount
Expenses	Primarily labor and facilities	Healthcare services
Data Systems	Foundation EHR Cost accounting and billing	Predictive models and care management Segmentation and workflow
Key to Success	Keep occupance high and expences low	Increase management and monitoring to reduce reactive care

Population Health is a Different Business

Requires a Purpose-Built Infrastructure

Traditional Care		Value-based Care
Complicated healthcare system confuses and frustrate consumers	**Consumer experience**	**Consumers are at the center of the healthcare system, empowered with more information and support**
Reactive, transactional care delivered in response to an injury or illness	**Care delivery**	Proactive, preventive care, with **an emphasis on keeping people healthy**
Lack of technology and incentives for physicians to coordinate patient care	**Care coordination**	**Physicians are empowered by new technology, data and financial incentives to coordinate care**
Data trapped inside massive repositories; lack of sophisticated analytics	**Data and information**	Data can be mined to identify patient health risks, improve care coordination and enhance efficiency
Costs climb without corresponding health improvements	**Costs**	Insurance companies and care providers are paid based on quality and patient health improvements

Agenda

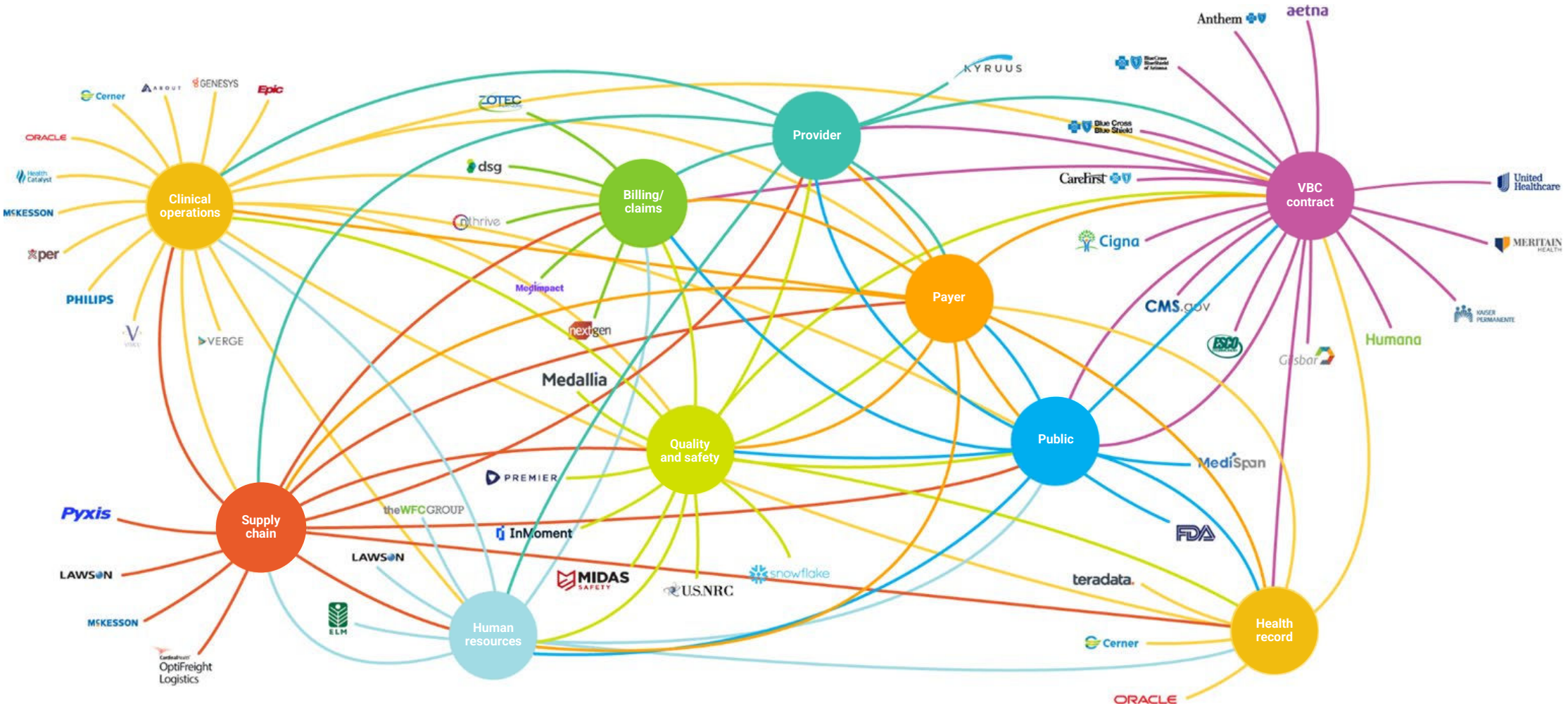
Health

Value

Digital

Opportunity

Current Infrastructure Is Optimized For Transactions



EHR Consequences

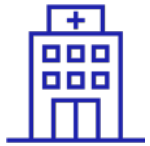
The Impact of Clinician Burnout

Clinician Burnout

- Loss of joy, passion, motivation for career and “calling”
- Disengagement in daily patient care activities and practice operations
- Increase in apathy and erosion of professionalism
- Risk to physician’s own care and safety (suicide rates)
- Depression and other mental health concerns

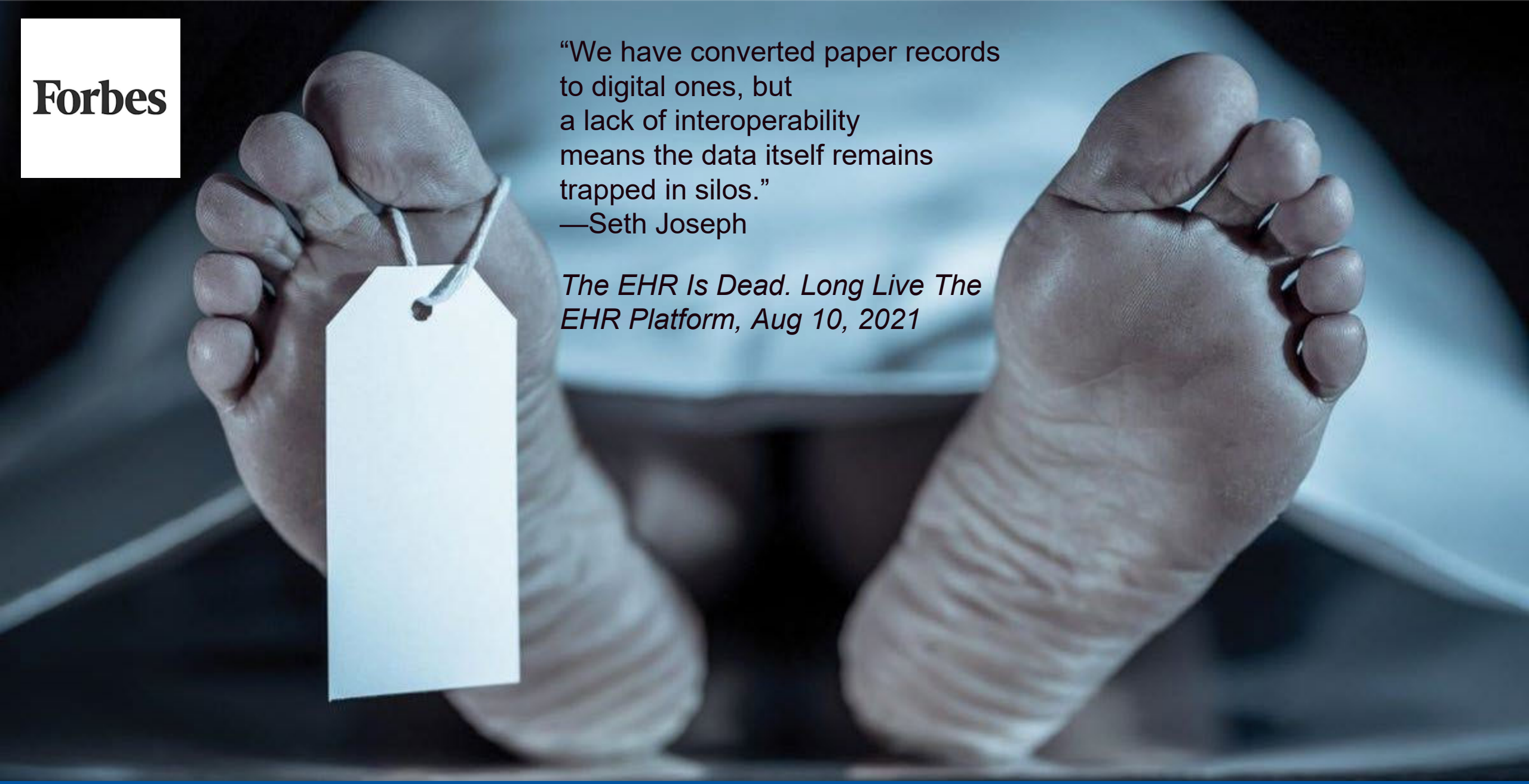
Patient

- Reduction in time and attention to patients
- Significant negative impact on quality of care and patient outcomes
- Significant rise in patient dis-satisfaction



Hospital / Health System

- Erosion of physician community, and clinician collaboration
- Permeating sense of negativity and dissatisfaction within the health system
- Increase in clinician turnover and staffing challenges
- Drop in patient loyalty, and loss of patient volumes
- Brand damage



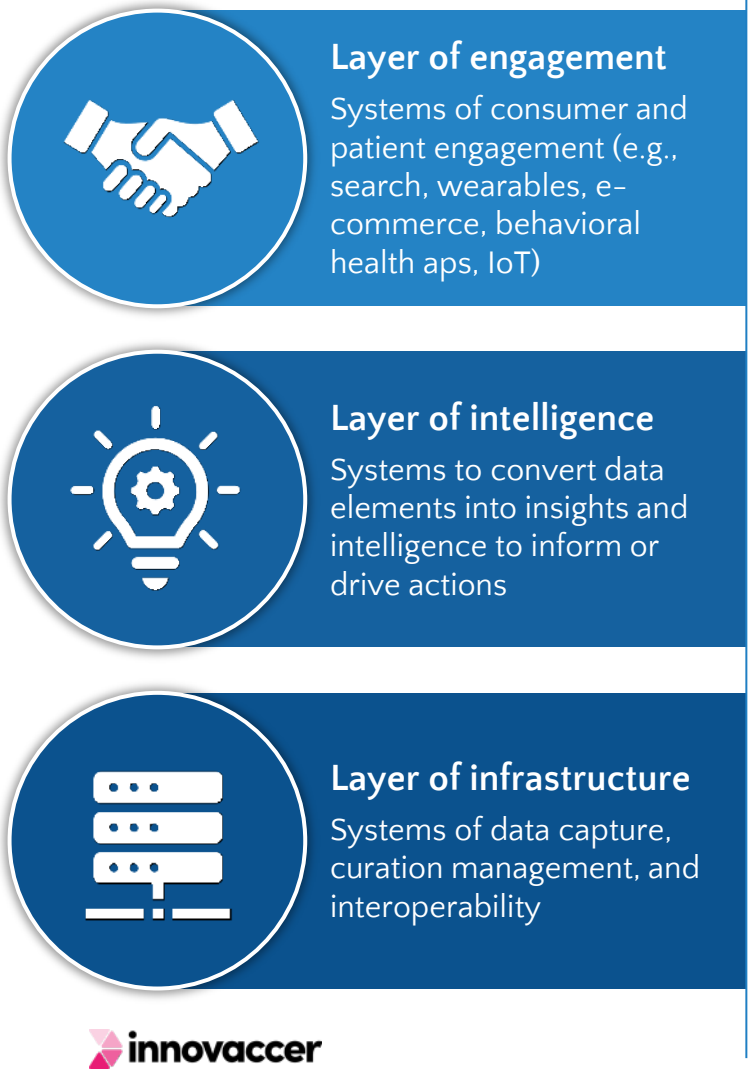
The EHR Is Dead. Long Live The Health Platform

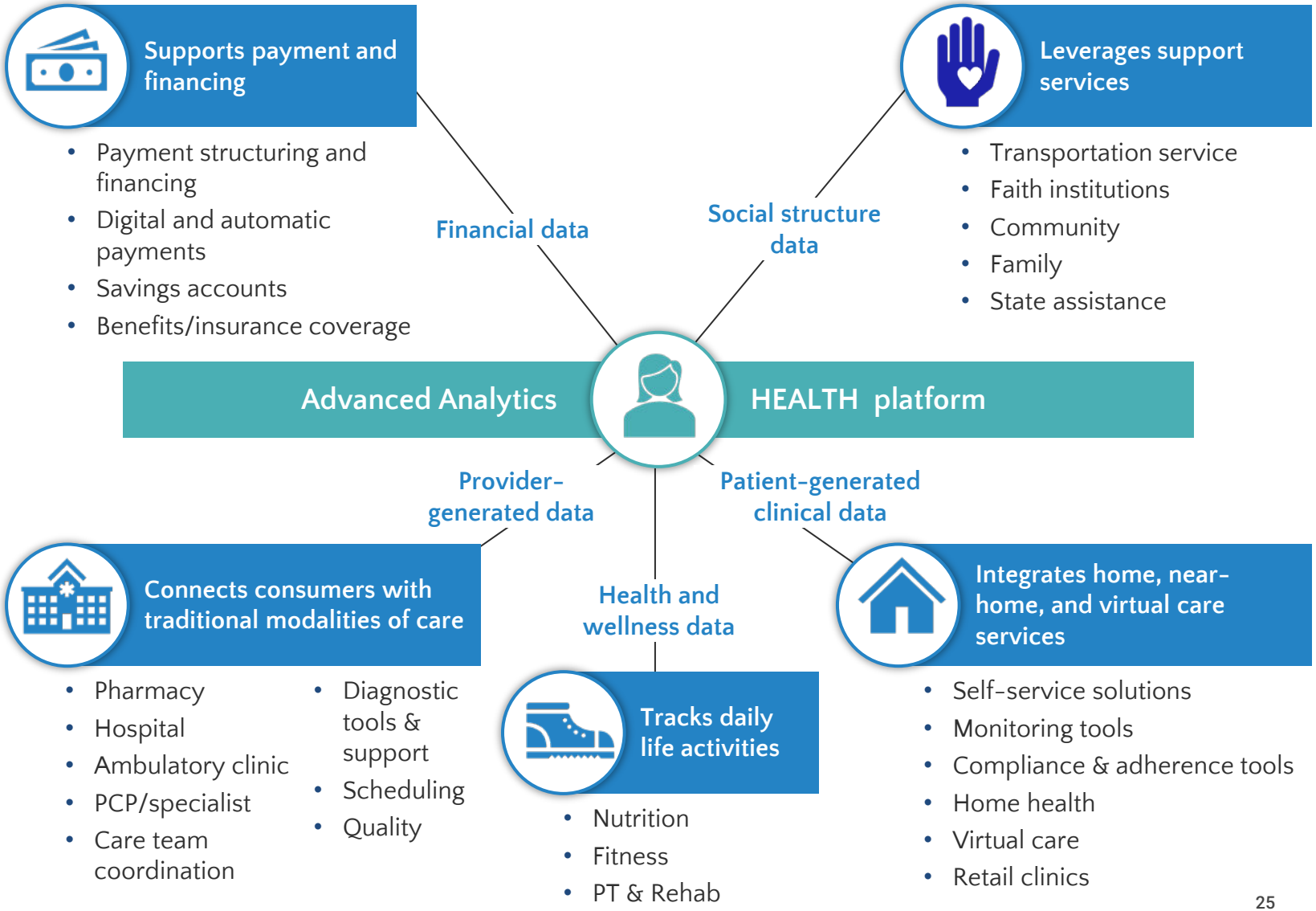
Focused Clinics Built Their Technology NOT Around the EHR

Focusing on the Right Goals

Source: 2020-2025 Federal Health IT Strategic Plan

Digital Health Requires Significant Data and Analytic Capabilities





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Source: McKinsey, The Next Wave of Healthcare Innovation, June 2021

Digital Health Transformation

Purpose-Built Infrastructure is Key

Data aggregation

Ingest, clean, and curate high quality data from multiple clinical and non-clinical sources.

Analytics

Generate insight for effective risk management, quality, and performance of end-to-end value-based delivery chain.

Scalable infrastructure

Deploy infrastructure that scales as per business needs and generate insights at speed of now.

Digital Health Transformation
Challenges Today

A chronic lack of data-readiness impedes digital transformation efforts

Disparate systems creating complexities

Multiple IT and analytics vendors created complexities to connect one system to another and increased costs.

Poor data quality

The lack of a common standard for aggregating and standardizing high quality data due to data silos.

Lack of insights at the point of care

Missing analytical capabilities to activate data and generate insights into risk, quality, cost, and utilization.

Limited scalability

Infrastructure limitations to manage the scale of data operations required to manage existing and future clinical and operational needs.

Digital Health Transformation

Challenges Today

Resulting in a limited scope to track, assess, and improve outcomes

Ineffective risk management

Lack of actionable insights on dropped codes and suspected codes across risk models

Inefficient workflows

Providers couldn't exchange information securely in real-time leading to disconnected care journeys and low productivity.

Low ROI

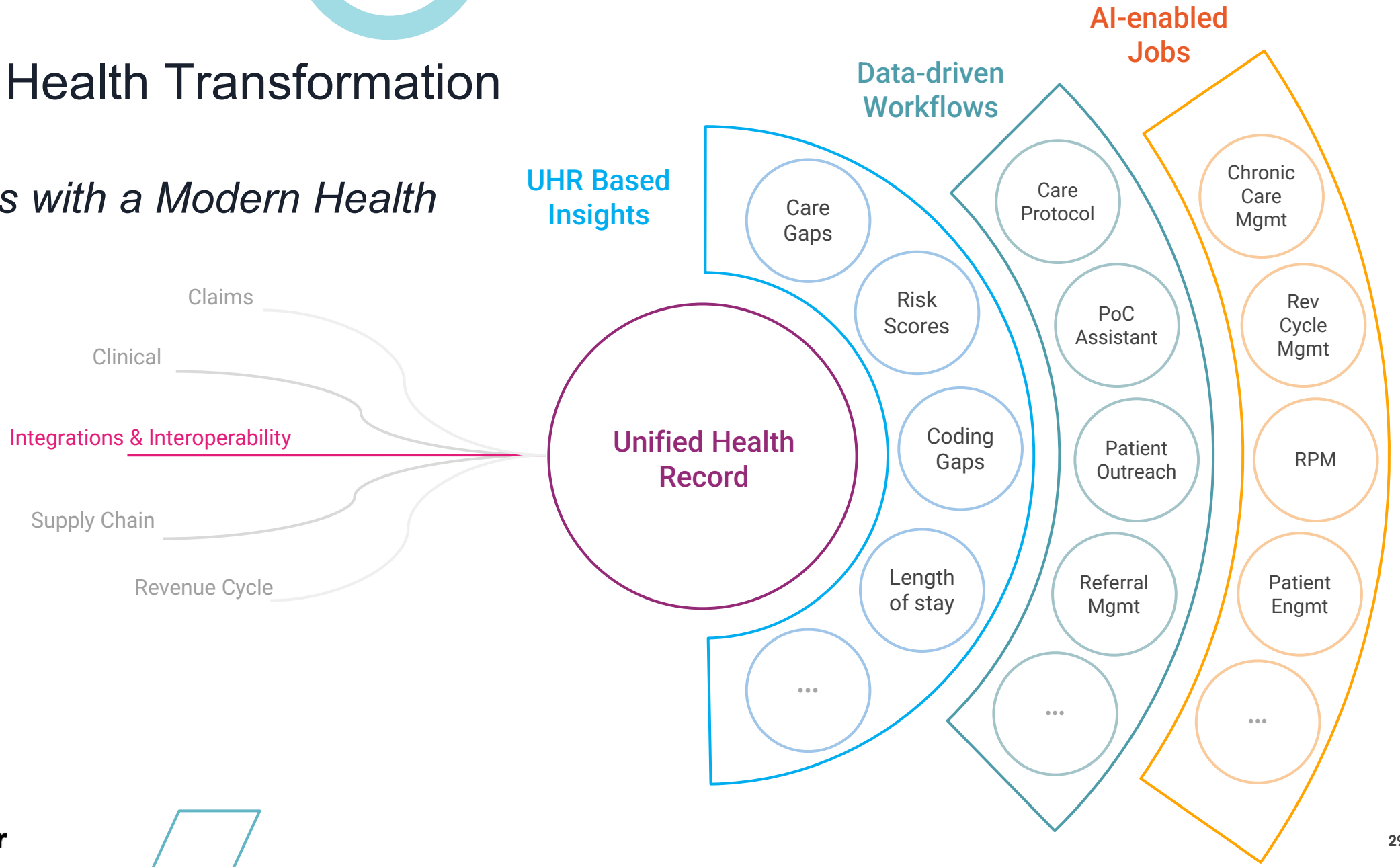
Existing population health and analytics vendors increased IT costs and produced limited ROI

No centralized reporting

Ad-hoc data reporting on multiple applications was time-consuming

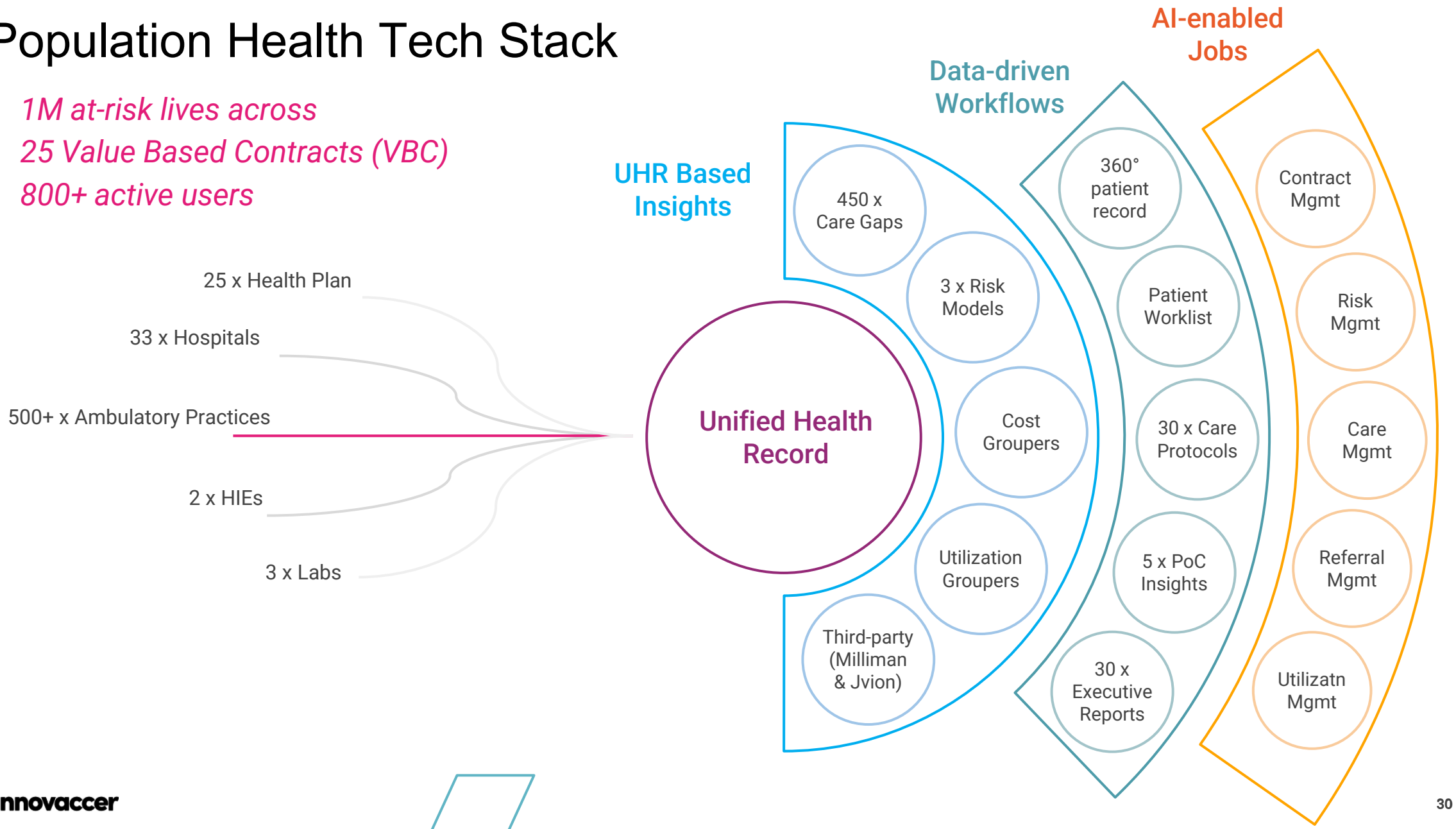
Digital Health Transformation

It Begins with a Modern Health Stack



Population Health Tech Stack

1M at-risk lives across
25 Value Based Contracts (VBC)
800+ active users



The 3 big aspects of this transformation

Value

AWAY FROM

Fee for service

TOWARDS

Value-based care

100% of Medicare $2 Trillion is going to become value based by 2030

Experience

AWAY FROM

Encounter based care

TOWARDS

Experience driven

Amazon, Walgreens, CVS, Best Buy, Costco, Kroger are all entering healthcare

Productivity

AWAY FROM

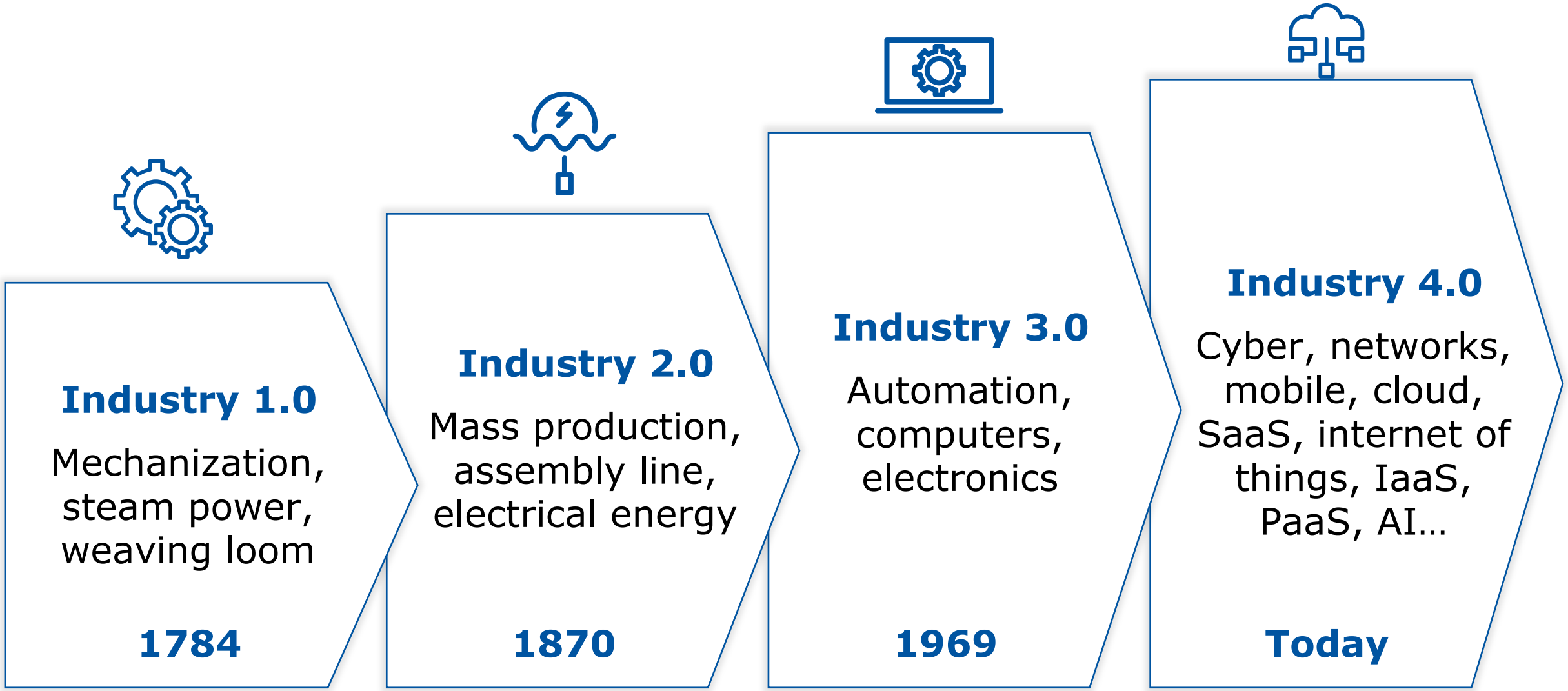
Burn out

TOWARDS

AI-driven productivity

We just saw the largest strike in the history of American healthcare

We Are In The Midst of A Digital Industrial Revolution



https://oig.hhs.gov/oei/reports/oei-02-15-00451.pdf

Trends Play Out Over Decades, but then …..

The Blockbuster store in Bend, Ore., has 4,000 account holders and adds a few new ones every day.
Ryan Brennecke/The Bulletin, via Associated Press

The World's Last Blockbuster Has No Plans to Close

With the closing of a Blockbuster store in Australia, the one in Bend, Ore, will be the last to survive changes in technology and shopping that reshaped the way people watch movies at home

The first Blockbuster store opened October 19, 1985, in Dallas, Texas, with an inventory of 8,000 VHS and 2,000 Beta tapes

	2004	2010	2020
# Of Stores	9,094	6,500	1
# Of Employees	84,300	25,000	3+

Agenda

Health

Value

Digital

Opportunity

Key Questions

We are 10 years into a transition cycle that could be 20+ years:

- What is the future role of the clinical lab in population health?
- How can the clinical lab optimize diagnostic accuracy? Timeliness?
- What partnerships can be forged to redesign workflows and responsibilities in the evolving environment?
- How can the clinical lab provide and measure value? Manage performance risk?
- How can laboratory professionals step up to lead?

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THANK YOU

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Population Health Tech Stack at a Glance

Data Infrastructure

- 1Mn at-risk lives across all 25 owned / VBC contract
- 10+ EMR data including Cerner & HIE
- 90+ Supplemental data feeds

Analytical Infrastructure

- 450 quality measures
- 3 risk models (CMS-HHS, CHS-HCC, CDPS)
- Cost & utilization groupers
- 30 executive and operational dashboards

Workflow Applications

- **Patient360**: Longitudinal patient view for care team to look at one place
- **InCare**: Care management with 30 care protocols, 20 assessments, and 11 automated assignment strategies with 100+ active users
- **InNote**: Point of care assistant for employed and affiliated providers with 700+ active users
- **InConnect**: Patient outreach & engagement workflows
- **InRef**: Referral management workflows with provider rankings