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HEALTH

The Details...
Connecting The Trends
Health, Value & Digital

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Agenda

Health

Value

Digital

Smart Governance

Clinical Needs Have Changed

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
2050	?	?	?	Prevention Chronic Acute

* Cancer is currently the leading cause of death for certain age groups
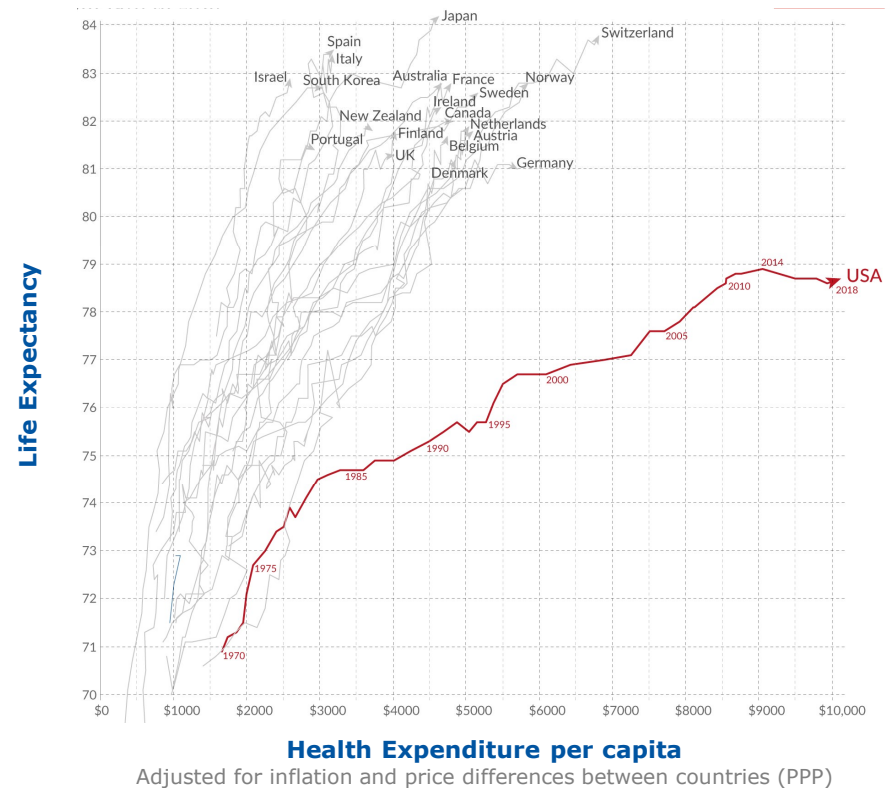
We Have A Systemic Problem

- The U.S. spends nearly twice as much as the average OECD country — yet has the lowest life expectancy

- The U.S. has the highest chronic disease burden and an obesity rate that is two times higher than the OECD average

- Americans had fewer physician visits than peers in most countries

- Americans use expensive technologies, such as MRIs, and specialized procedures

- Compared to peer nations, the U.S. has among the highest number of hospitalizations from preventable causes and the highest rate of avoidable deaths
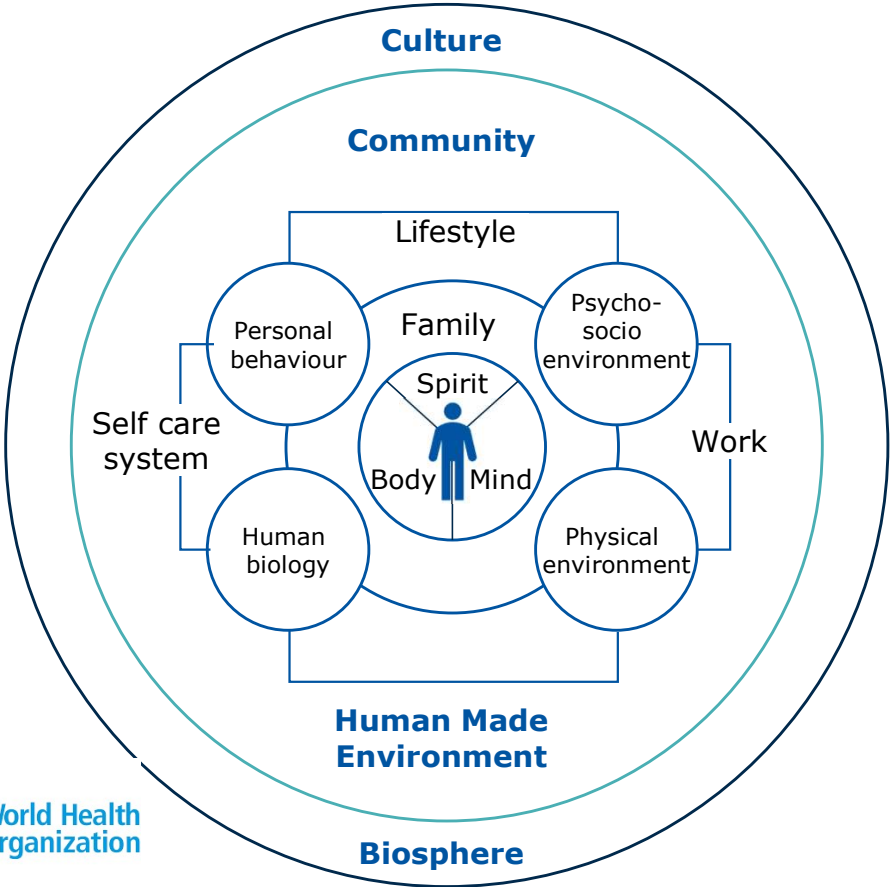
Organization for Economic Co-operation and Development (OECD)

Life expectancy vs. health expenditure
From 1970 to 2018

Life Expectancy vs. Health Expenditure per capita, adjusted for inflation and price differences between countries (PPP). Countries shown include Japan, Switzerland, Spain, Italy, Israel, South Korea, Australia, France, Norway, Ireland, Sweden, New Zealand, Canada, Netherlands, Portugal, Finland, Austria, Belgium, Germany, UK, Denmark, and USA. USA data points marked from 1970 to 2018.
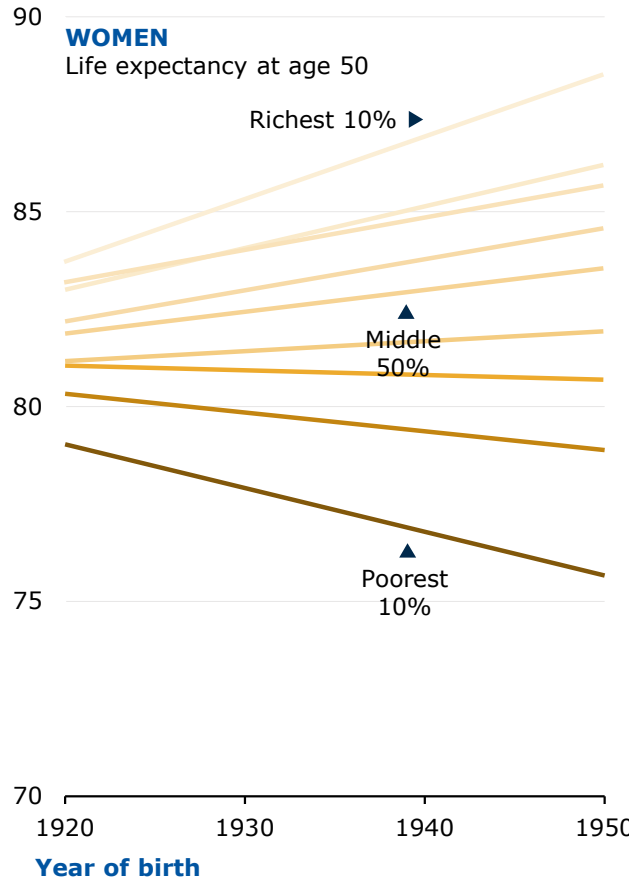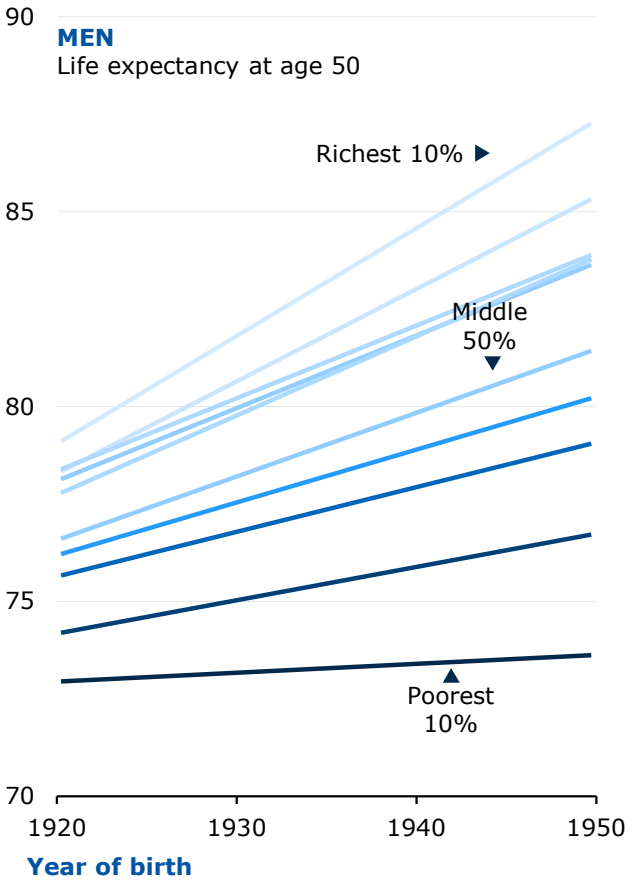
Health is a State of Physical, Mental and Social Well-Being that is Dependent Upon the Social Determinates of Health

Health Equity Is Real

MEN
Life expectancy at age 50

Richest 10% ▶

Middle 50% ▽

Poorest 10% ▲

Year of birth

WOMEN
Life expectancy at age 50

Richest 10% ▶

Middle 50% ▲

Poorest 10% ▲

Year of birth

Adverse Childhood Experiences

Abuse	Neglect	Household Dysfunction	
Physical	Physical	Mental Illness	Incarcerated Relative
Emotional	Emotional	Mother treated violently	Substance Abuse
Sexual		Divorce	

ACE-related odds of having a physical health condition

Health condition	0 ACEs	1 ACEs	2 ACEs	3 ACEs	4+ ACEs
Arthritis	100%	130%	145%	155%	**236%**
Asthma	100%	115%	118%	160%	**231%**
Cancer	100%	112%	101%	111%	157%
COPD	100%	120%	161%	**220%**	**399%**
Diabetes	100%	128%	132%	115%	**201%**
Heart Attack	100%	148%	144%	**287%**	**232%**
Heart Disease	100%	123%	149%	**250%**	**285%**
Kidney Disease	100%	83%	164%	179%	**263%**
Stroke	100%	114%	117%	180%	**281%**
Vision	100%	167%	181%	199%	**354%**

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What Is Health

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The Shift To Value

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 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

A Theory to Support The Shift to Value

A transformative financial model that improves quality, reduces cost and ensures sustainability

Health system ACO operating margin

| General investment | Insurance product | Population Health Management |

- ACO startup
- ACO operating costs
- Unit cost concessions
- Volume: Plan steerage
- Volume: New patients
- Utilization
- Shared savings & operating efficiencies
- Volume: Leakage improvement
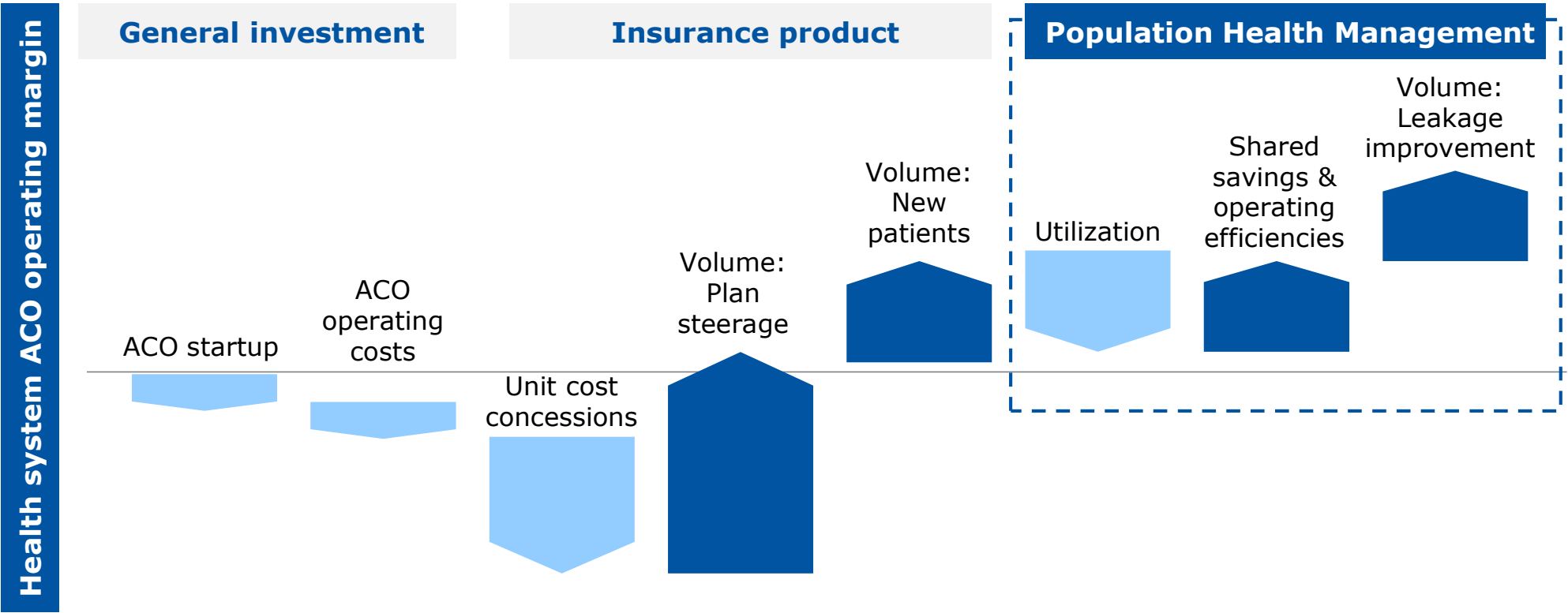
Acute or Specialty Care & Targeted Population models, serving sicker, higher cost beneficiaries, reduced expenditures, admissions, and/or post-acute care with limited improvement in quality.

	Spending		Utilization				Quality	
	Gross	Net	Inpatient admissions	ED visits	Post-acute care	Readmit	Experience of care	Mortality
Bundled Payments for Care Improvement, Model 2 (Final report)	green	red	white	grey	green	grey	red	grey
Bundled Payments for Care Improvement, Model 3 (Final report)	green	red	white	grey	green	grey	grey	grey
BPCI-A Medical episodes (Years 1-2)	green	red	white	white	green	grey	grey	grey
BPCI-A Surgical episodes (Years 1-2)	green	green	white	white	green	green	grey	grey
Comprehensive ESRD Care Model (Final report)	green	grey	green	grey	green	grey	grey	green
Comprehensive Joint Replacement Model (Years 1-4)	green	white	white	grey	green	grey	grey	grey
Home Health Value-Based Purchasing Model (Years 1-5)	green	white	green	grey	green	grey	grey	green
Maryland All-Payer Model (Final report)	green	white	green	green	green	grey	white	green
Medicare Care Choices Model (Years 1-4)	green	green	green	green	green	green	green	white
Oncology Care Model (Years 1-5)	green	red	grey	grey	grey	grey	grey	grey
RSNAT (Final)	green	white	green	green	red	white	grey	grey

Primary Care & Population Management models, serving healthier, lower cost beneficiaries, improved less utilization measures in the short-term with half of models reducing gross spending.

	Spending		Utilization				Quality	
	Gross	Net	Inpatient admissions	ED visits	Post-acute care	Readmit	Experience of care	Mortality
ACO Investment Model (Final report)	🟩	🟩	🟩	🟩	🟩	🟩	⬜	⬜
Advance Payment ACO Model (Final report)	🟥	🟥	⬜	⬜	🟥	⬜	⬜	
Comprehensive Primary Care Initiative (Final report)	⬜	⬜	🟩	🟩	⬜	⬜	⬜	
Comprehensive Primary Care Plus (Years 1-4)	⬜	🟥	🟩	⬜	🟥	⬜	⬜	⬜
FAI, Washington (Years 1-6)	🟩	⬜	⬜	⬜	🟩	⬜	⬜	
Independence at Home Demonstration (Years 1-5)	⬜	⬜	⬜	🟩	⬜	⬜	⬜	⬜
Medicare Advantage Value-Based Insurance Design Model (Years 1-3)	⬜	⬜	⬜	⬜	🟩	⬜	⬜	
Million Hearts: Cardiovascular Disease Risk Reduction Model (Years 1-4)	⬜	⬜	🟥	🟥	⬜	⬜		🟩
Next Generation ACO Model (Years 1-4)	🟩	🟥	⬜	⬜	🟩	⬜	⬜	
Part D Enhanced Medication Therapy Management Model (Years 1-3)	⬜	⬜	⬜	🟥	🟩	🟩	⬜	
Pioneer ACO Model (Final)	🟩	🟩	🟩	🟩	⬜	⬜	🟩	
Vermont All-Payer ACO Model (Years 1-2)	🟩	ACO ⬜ / state 🟩		🟩	⬜	ACO only 🟩	State only 🟩	

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Evolution of Electronic Health Records

PAST

PRESENT

FUTURE

GW Bush forms the Office of National Coordination (ONC).
2004

Medicare Access and CHIP Reauthorization Act established a new incentive program, replacing meaningful use
2015

A combination of consumer wearables connect to a patient's smartphone to alert for early signs of illness.
2030

Utilization of health data with predictive modeling to put together a care plan for a current or future issue.
2040

To Improve patient care all practices will use computers by 2000- The Institute of Medicine
1991

The First Electronic Medical Records d system was developed
1972

2017
86% of non-federal acute Healthcare organizations have adopted EHR

2026
Autonomous dictation automatically updates the EHR with concise notes.

1962
The invention of the Electronic Health Record (EHR)

1980'S
The rise of the Master Patient Index

1996
Introduction of Health Insurance Portability and Accountability Act (HIPAA)

2013
Autonomous dictation automatically updates the EHR with concise notes.

2009
Health Information Technology for Economic & Clinical Health Act (HITECH) introduced meaningful use.

2035
Physician decision support could lead to the best possible outcomes based from big data computation

Digital Business Archetypes

Data & platforms	Well-being & care delivery	Care enablement
Data convener	Health products developer	Connectors and intermediaries
Science and insights engine	Consumer-centric health "virtual home + community"	Individualized financer
Data/platform infrastructure builder	Specialty care operator	Regulator
	Localized health hub	

Powered by radically interoperable data for a personalized and seamless consumer experience

AI System Capabilites Have Rapidly Increased
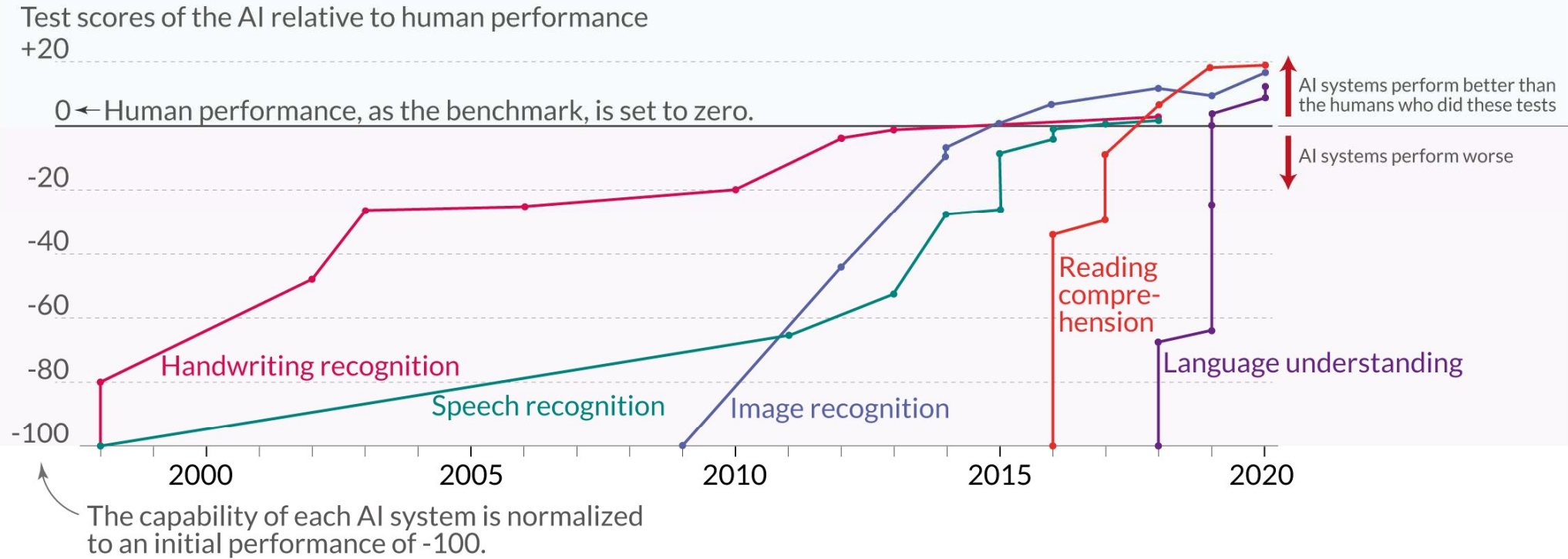
Test scores of the AI relative to human performance

+20

0 ← Human performance, as the benchmark, is set to zero.

-20

-40

-60

-80

-100

Handwriting recognition

Speech recognition

Image recognition

Reading compre-hension

Language understanding

AI systems perform better than the humans who did these tests

AI systems perform worse

2000   2005   2010   2015   2020

The capability of each AI system is normalized to an initial performance of -100.

AI Has Great Promise For The Future

Rare Disease Diagnostics & Treatment

Virtual Nursing Assistance

Drug Development

Fraud Detection

Medical Diagnosis

Cybersecurity

Dosage Error Reduction

Gene Editing

Cancer Research

AI Robot-Assisted Surgery

Personalized Healthcare Plans

Health Monitoring & Wearables
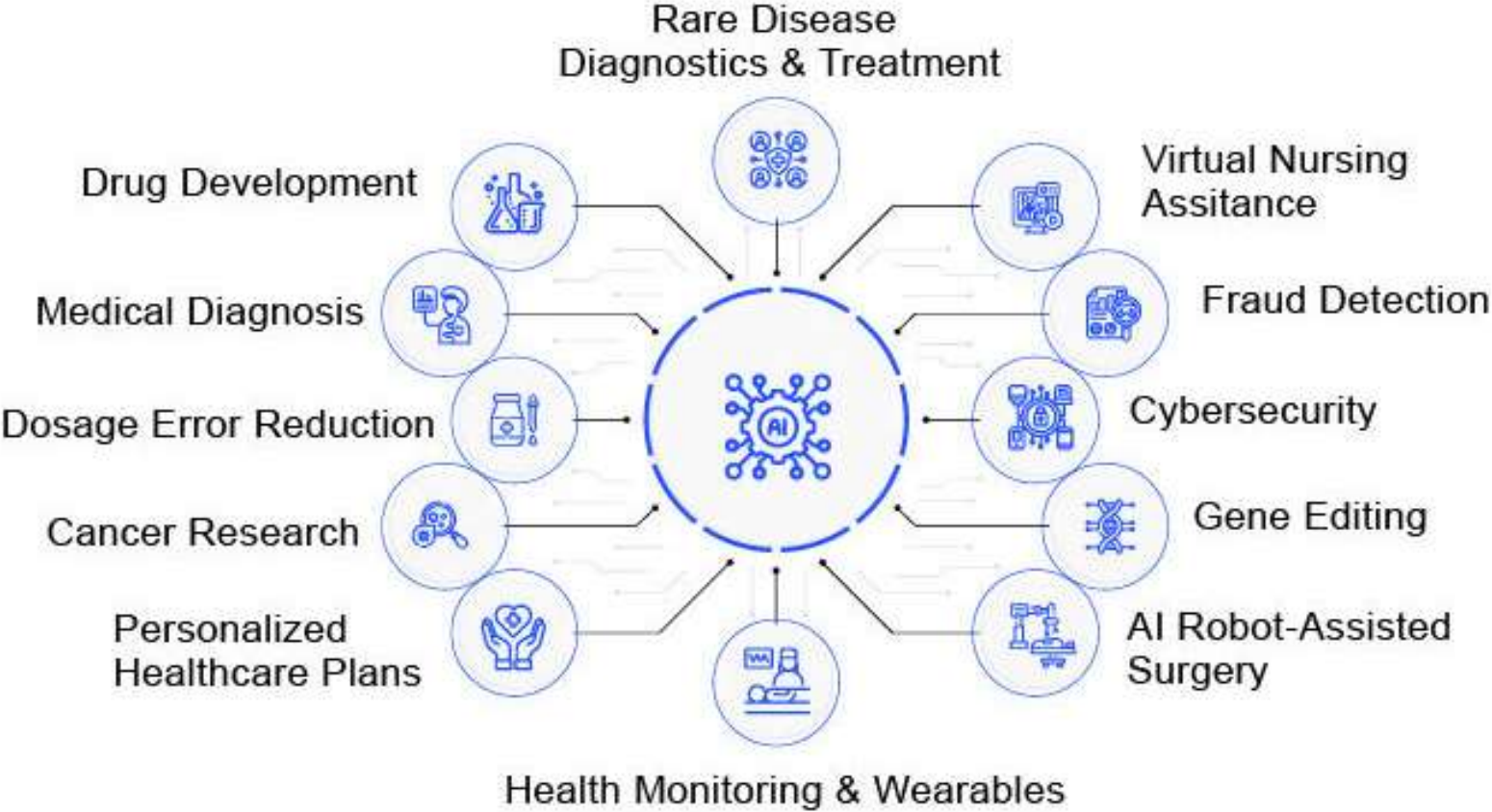
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Governance and Organizational Structure
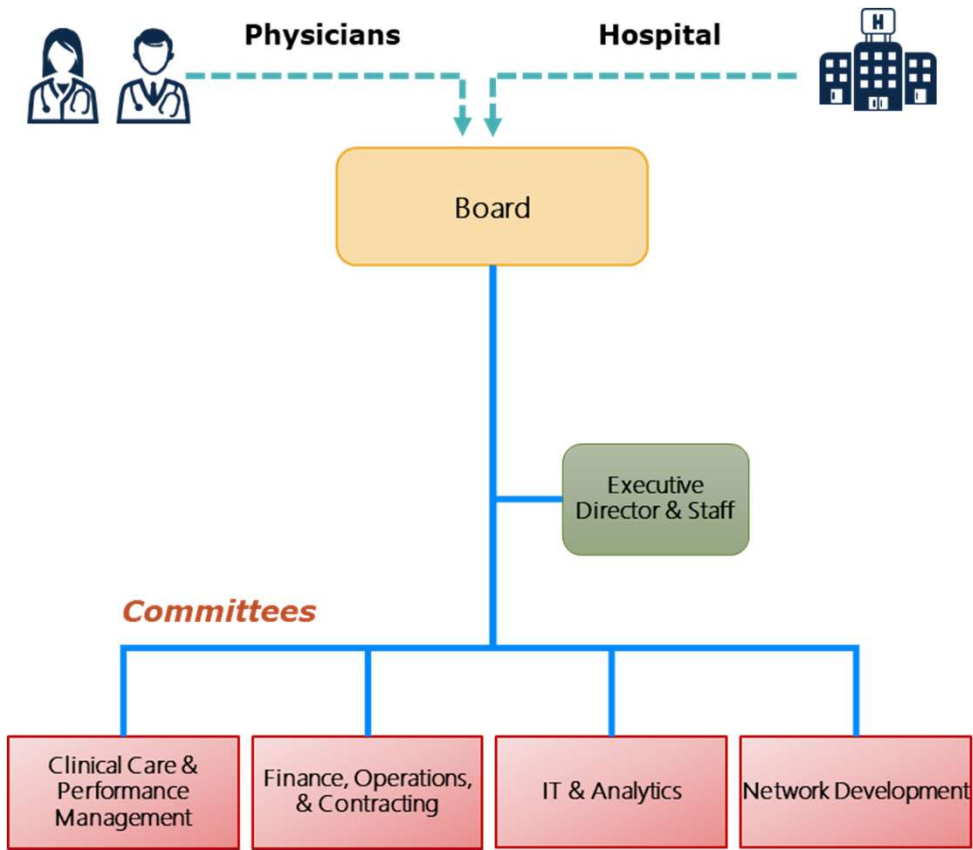
Key Strategic Questions

1. What are the goals for our PHM initiative?
2. Do you need a separate organization to organize and manage population health management?
3. Do you want/need an independent or advisory board for this organization?
4. How engaged are physicians and providers?
5. What is the right composition for the board?
6. What committees should be created?
7. What best practices and systems for monitoring progress?

Risk Best Practices

✓ Include representatives from relevant provider segments in the planning
✓ Provider lead, professionally managed
✓ Education and mentorship programs for providers in management and governance
✓ Competency based roles
✓ Clear conflict of interest policy
✓ Governance structure should balance provider leadership and involvement in decision making with owners' reserve powers
✓ Aligned incentives

Functions of Governing Bodies

Physicians   Hospital

Board

Executive Director & Staff

Committees

| Clinical Care & Performance Management | Finance, Operations, & Contracting | IT & Analytics | Network Development |

Important Guiding Principles

- ✓ To enhance physician participation, committee members <u>need not be members of the board</u>

- ✓ <u>Ad-hoc work groups</u> will be necessary and used as a method to <u>broaden physician involvement</u>

Contracting & Financial Modeling
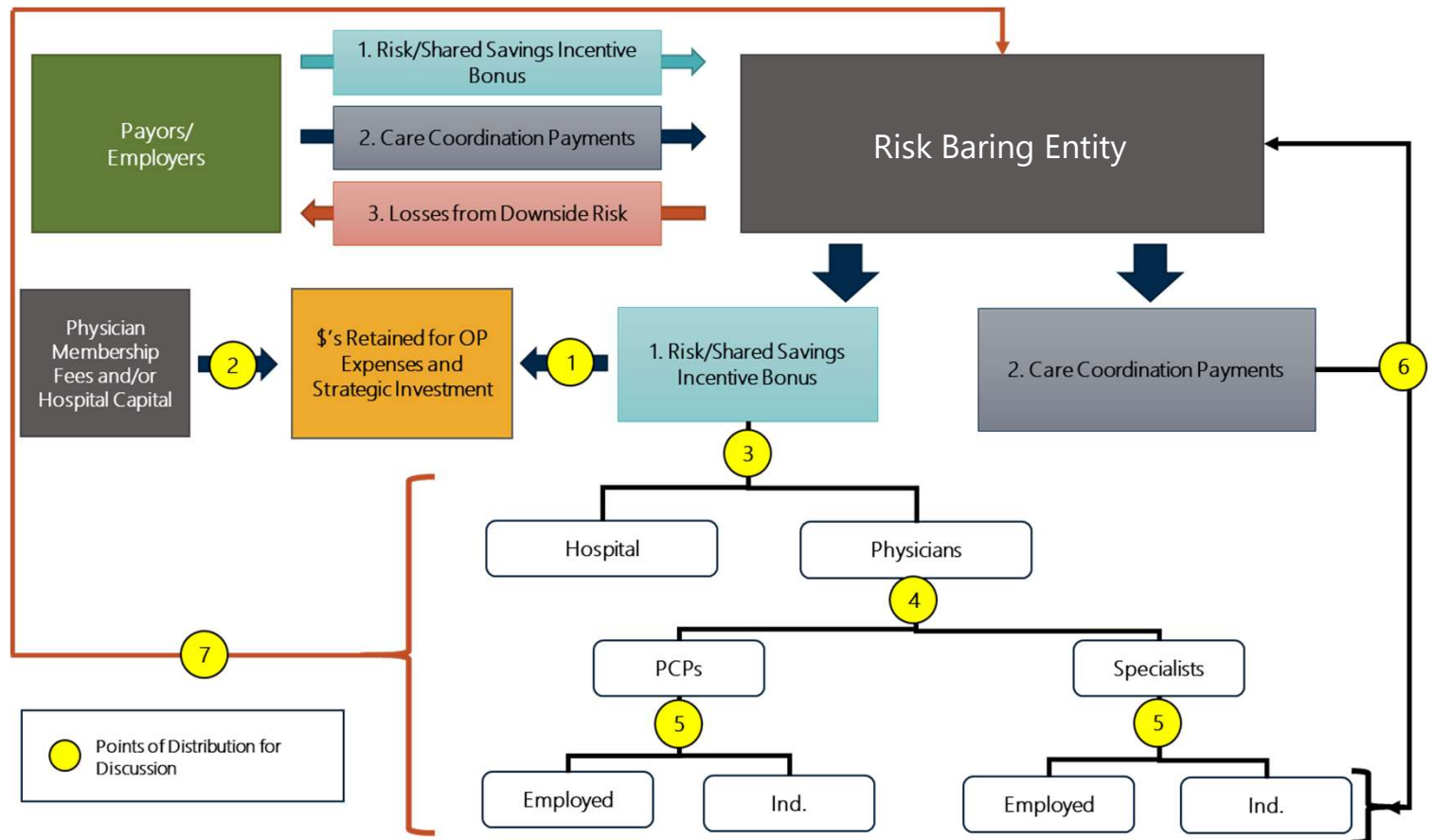
Key Strategic Questions

1. What is the availability of value-based products in your market today?
2. What is your price/cost position relative to the market?
3. Does your payor strategy and/or product portfolio capitalize on the enterprise's distinct value proposition to advance the mission, vision, and strategic objectives?
4. What is the role of primary care and specialists in your organization?
5. How are physician incentives aligned with organizational goals?

Risk Best Practices

✓ Proactively develop a contracting strategy and product portfolio approach
✓ Aligned incentive model to overall clinical strategy
✓ Continues to refine incentive and risk distribution based on experience
✓ Real-time monitoring of financial performance of risk contracts

High Level Funds Flow for Incentive Distribution

Network Configuration & Management

Key Strategic Questions

1. What processes are in place to develop and sustain a requisite physician and delivery network?

2. What physicians and delivery network would be necessary to effectively manage the health of target populations?

3. What evidence-based best practices and systems for monitoring provider adherence has the health system put in place?

Risk Best Practices

✓ Advanced approaches to attracting strategic network targets

✓ Optimizes network of owned and contracted services for full access across the continuum

✓ Primary care network is aligned and integrated for target populations

Participant Characteristics and Network Adequacy

Desired Participant Characteristics

- Dedicated to the vision of improving children's health and the delivery of care

- Collaborative and communicative with other providers and supporting staff to better coordinate care

- Supportive of the transition to value-based care

- Willing to take accountability for performance and to work with others to continuously improve overall performance

- Willing to utilize consensus-driven care pathways in pursuit of enhanced quality of care and lower cost

Network Adequacy Example

County \ Provider Type	Hospital	Allergy and Immunology	Cardiology	Cardiothoracic Surgery	Chiropractor	Dermatology	Endocrinology	ENT/Otolaryngology	Gastroenterology	General Surgery	Gynecology, OB/GYN	Infectious Diseases	Nephrology	Neurology	Neurosurgery	Oncology - Medical/Surgical	Oncology - Radiation	Ophthalmology	Orthopedic Surgery	Pediatrics	Rehabilitative Medicine	Plastic Surgery	Podiatry	Primary Care	Psychiatry	Pulmonology	Rheumatology	Urology	Vascular Surgery
County A	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓			✓	✓	✓		✓	✓	✓
County B		✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓				
County C	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓				
County D		✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓				
County E	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓				
County F	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓				
County G		✓	✓	✓		✓		✓				✓	✓	✓	✓	✓	✓	✓						✓	✓			✓	✓	✓
County H		✓														✓								✓					✓
County I		✓														✓						✓		✓					✓
County J		✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓			✓	✓			✓	✓	✓	✓	✓
County K		✓														✓		✓						✓					✓
County L		✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓			✓	✓		✓	✓	✓
County M		✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓			✓	✓		✓	✓	✓

Care Management & Clinical Collaboration

Key Strategic Questions

1. What care management systems are in place to create a seamless care process for patients?

2. How does the system manage transitions of care?

3. How will the health system manage or coordinate services over the full continuum of care?

4. What tools are in place to engage patients and their caregivers in their own care?

Risk Best Practices

✓ Advances evidence-based systems of care based on specific target populations

✓ Strong measurement of performance with performance improvement embedded in operations

✓ Proactive deployment of care management for at-risk individuals

# Business Intelligence/Analytics & Connectivity

Key Strategic Questions

1. What capabilities do the EHR and other IT systems have to support population health management?

2. How robust is the health system's ability to aggregate data and share information across the care continuum?

3. Can the health system segment and stratify its patient population?

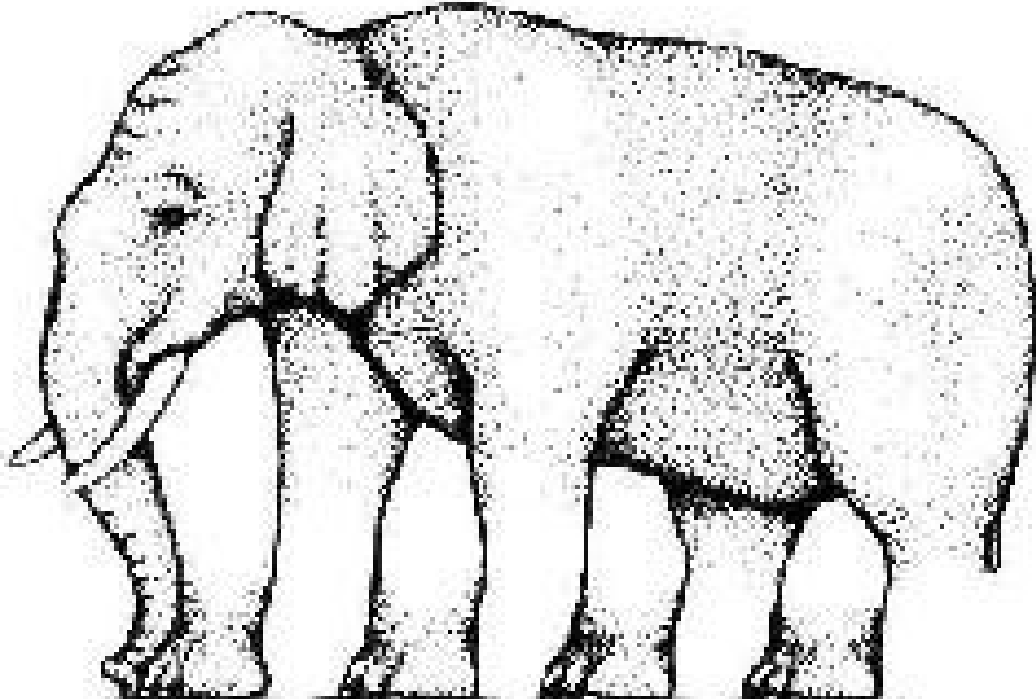4. What is the best way to ensure data governance?

Risk Best Practices

✓ Single, comprehensive data warehouse with robust policies and procedures for governance

✓ Ability to risk stratify with consistent population attribution

✓ Uses predictive modeling to anticipate the community needs

✓ Integrates other data types to refine risk adjustment

Lots of Different Perspectives
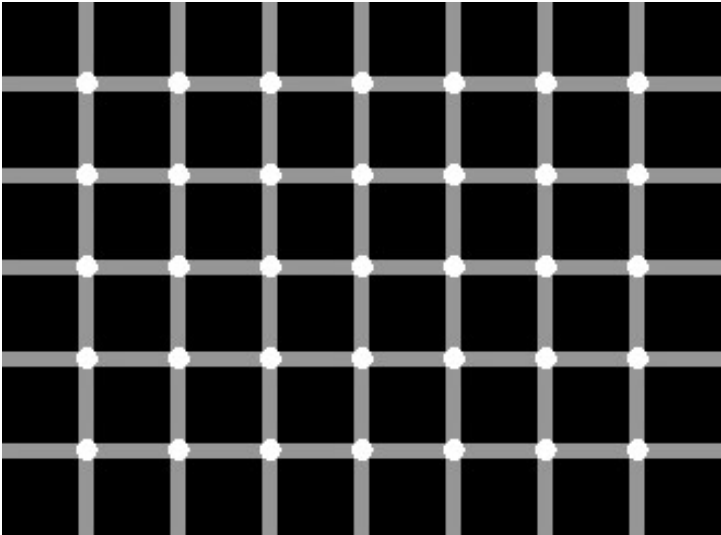
How many black dots?

How many white dots?

THANK YOU