PHLS PopTalk Webinar
Jefferson College of Population Health

QUALITY and SAFETY In Population Health

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No Conflicts of Interest

Boy Who Died From Asthma or Allergies at School Was Not Given Epi, Had Expired Inhaler

A 10-year-old Ontario boy with asthma and food allergies, who died after collapsing in his school's office, was without proper asthma controller medication and didn't have epinephrine administered quickly enough, even though he was carrying an auto-injector, the investigating coroner has revealed. Apr 5 2016

Asthma Caused UConn Student's Death

A former standout Killingly High School running back was found dead in his UConn dorm room over the weekend. Aug 26 2013

Child deaths spark extra asthma training for school nurses

Training in asthma awareness will be offered to 500 school nurses across the North West of England following the deaths of three children from the condition over the past 12 months. Jan 17 2013

Another Philadelphia student dies at a public school with no nurse 05/22/14

In September, a 12-year-old fell ill at her Philadelphia elementary school and later died after suffering an asthma attack. A nurse was assigned to her school just twice a week. The day that she died was not one of those days.

Objectives

- Review the volume to value movement
- Discuss traditional models of quality improvement and patient safety in population health
- Describe the translation of concepts, methods, and tools from organizational improvement to population health management
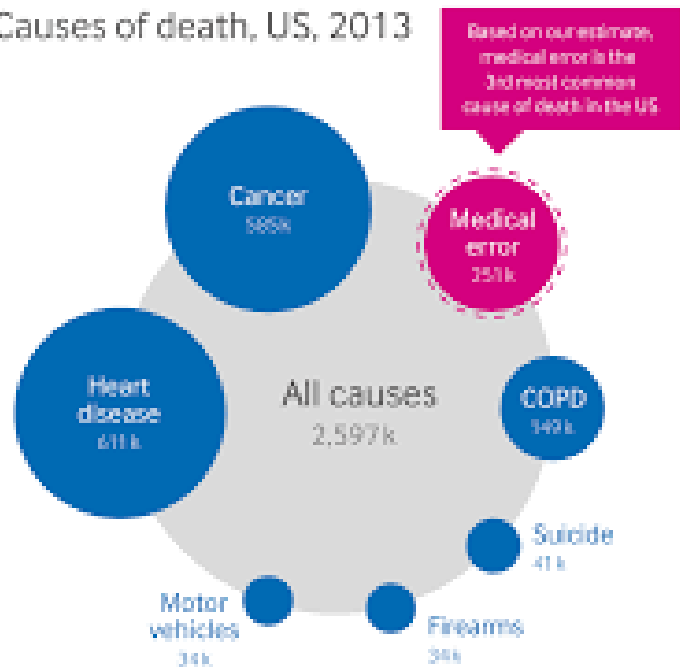- Provide ideas for simple approaches to create results

When you are no longer changing one person's condition, or fixing one organization's opportunities for improvement, what do you do?

Institute of Medicine Approach to Quality
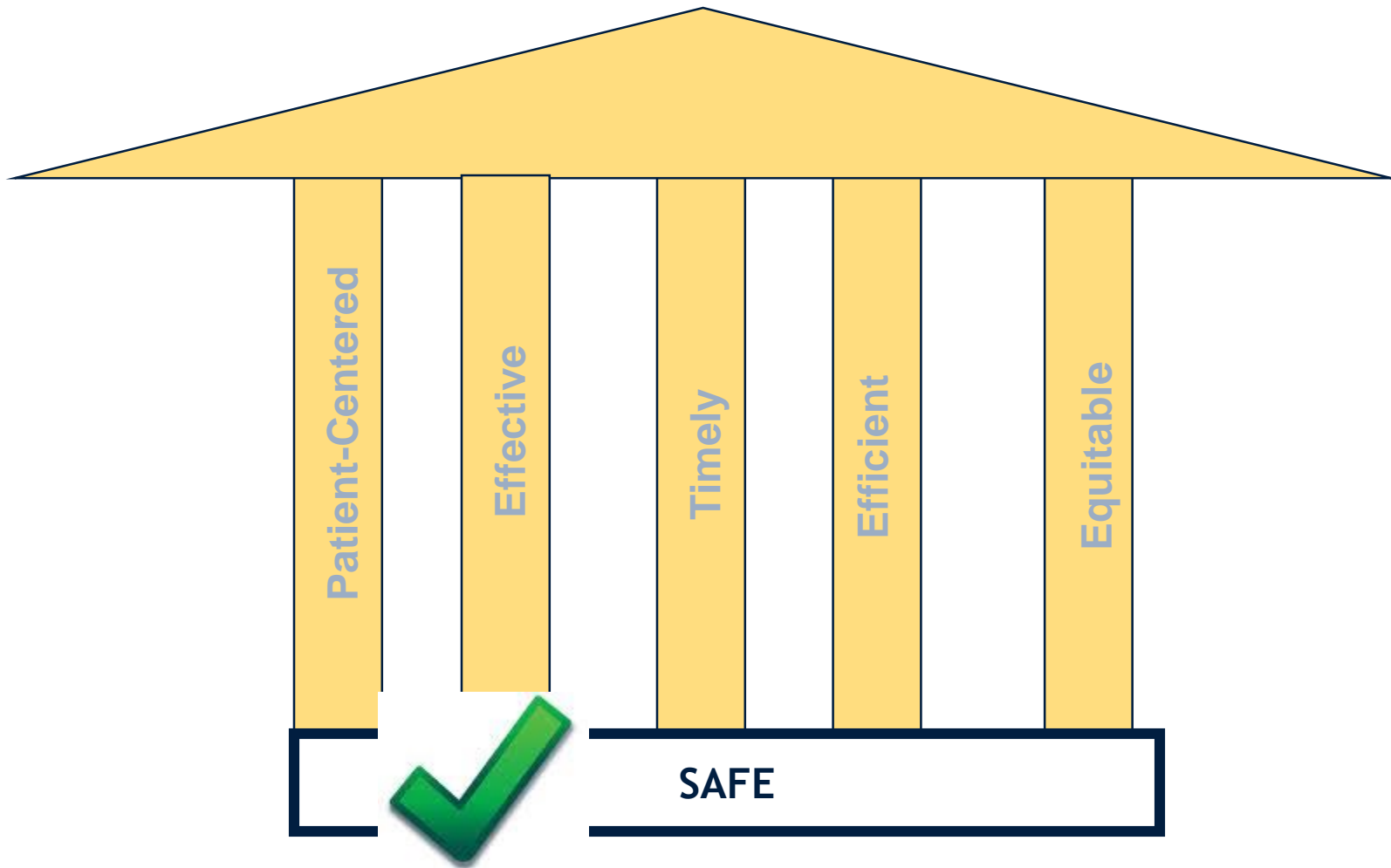
IOM 2001
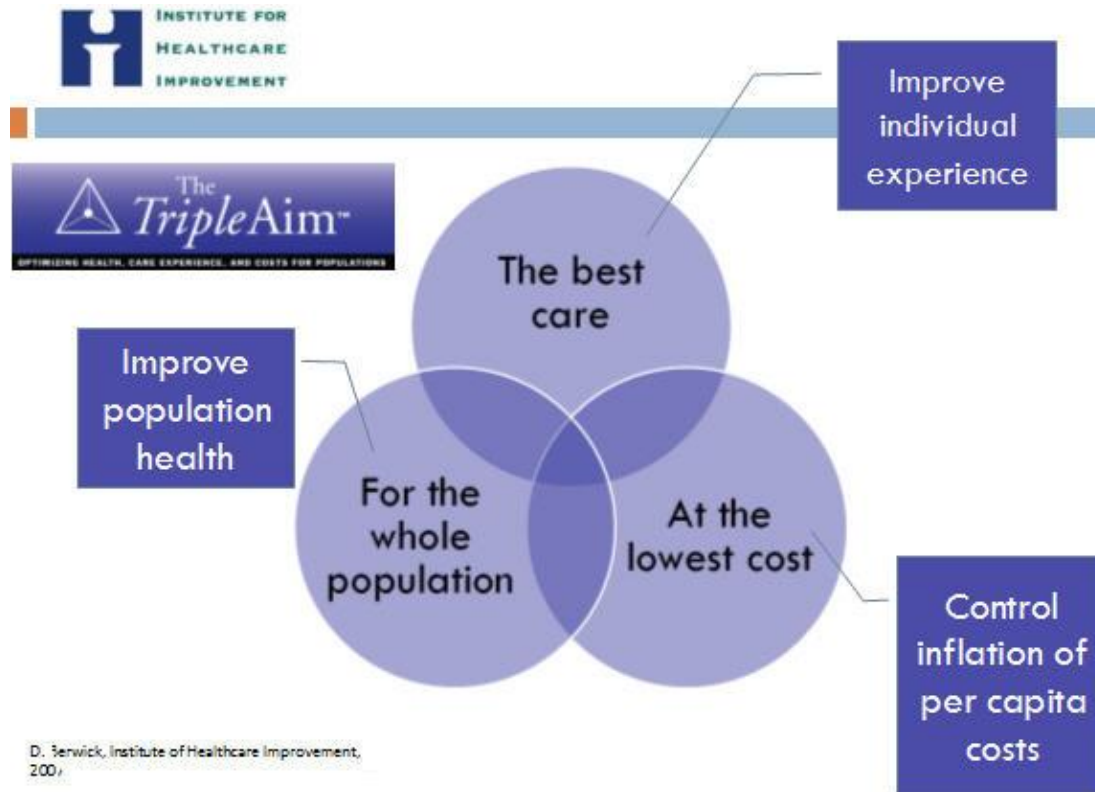Crossing the Quality Chasm

Medical error—the third leading cause of death in the US. Makary et al
BMJ 2016;353:i2139

Safe Care in Population Health

- Infections
- Diagnostic Error
- Delayed Diagnosis
- Falls
- Medication Errors
- Age (un)friendly systems

- Access to care
- Disparities in care and outcomes

Moving from Volume to Value

A Map for the Past...and for the Future

Pay-for-performance (P4P) is a major priority for the current Administrator of the Centers for Medicare & Medicaid Services (CMS) who believes Medicare should seek opportunities to encourage improvements in the quality of care provided to Medicare beneficiaries.

Pay-for-Performance / Quality Incentives

Discussion Paper for the MMA §623e Advisory Board Prepared by CMS/ORDI/MDPG

May 24, 2005

From Volume to Value

- Historical system pays for the episode of care
- Outcome of that care is secondary
- Presently we measure either the "steps" in the system or the complications of care (process metrics)
- True outcome is not what we measure
- Patients' needs should define what we should measure

National Health Expenditures

- NHE **grew** 4.3% to $3.3 trillion in 2016, or $10,348 per person, and accounted for 17.9% of Gross Domestic Product (GDP).
- Medicare spending **grew** 3.6% to $672.1 billion in 2016, or 20 percent of total NHE.
- Medicaid spending **grew** 3.9% to $565.5 billion in 2016, or 17 percent of total NHE.
- Private health insurance spending **grew** 5.1% to $1,123.4 billion in 2016, or 34 percent of total NHE.
- Out of pocket spending **grew** 3.9% to $352.5 billion in 2016, or 11 percent of total NHE.
- Hospital expenditures **grew** 4.7% to $1,082.5 billion in 2016, **slower than** the 5.7% growth in 2015.
- Physician and clinical services expenditures **grew** 5.4% to $664.9 billion in 2016, a **slower** growth than the 5.9% in 2015.
- Prescription drug spending **increased** 1.3% to $328.6 billion in 2016, **slower** than the 8.9% growth in 2015.
- The **elderly** were the smallest population group (14%) and accounted for approximately **34% of all spending** in 2012

National Health Expenditures Projected

- National health spending is projected to grow at an average rate of 5.5 percent per year for 2017-26 and to reach $5.7 trillion by 2026
  - 7.3% 1990 to 2007
  - 4.2% 2008 to 2016
- Health spending is projected to grow 1.0 percentage point faster than Gross Domestic Product (GDP) per year over the 2017-26 period; as a result, the health share of GDP is expected to rise from 17.9 percent in 2016 to 19.7 percent by 2026
- Growth in spending for Medicare (7.4 percent per year) and Medicaid (5.8 percent per year) reflect the impact of an aging population

VALUE-BASED PROGRAMS

	2008	2010	2012	2014	2015	2018	2019
LEGISLATION PASSED	MIPPA	ACA		PAMA	MACRA		
PROGRAM IMPLEMENTED			ESRD-QIP / HVBP / HRRP	HAC	VM	SNF-VBP	APMs / MIPS

LEGISLATION

ACA: Affordable Care Act
MACRA: the Medicare Access & CHIP Reauthorization Act of 2015
MIPPA: Medicare Improvements for Patients & Providers Act
PAMA: Protecting Access to Medicare Act

PROGRAM

APMs: Alternative Payment Models
ESRD-QIP: End-Stage Renal Disease Quality Incentive Program
HACRP: Hospital-Acquired Condition Reduction Program
HRRP: Hospital Readmissions Reduction Program
HVBP: Hospital Value-Based Purchasing Program
MIPS: Merit-Based Incentive Payment System
VM: Value Modifier or Physician Value-Based Modifier (PVBM)
SNFVBP: Skilled Nursing Facility Value-Based Purchasing Program

Bundled Payments for Care Improvement (BPCI) Initiative

Source: Centers for Medicare & Medicaid Services

Source: Centers for Medicare & Medicaid Services

Jefferson

PHILADELPHIA UNIVERSITY + THOMAS JEFFERSON UNIVERSITY

JEFFERSON COLLEGE OF POPULATION HEALTH

Alternative Payment Models (APMs)

APMs give us new ways to pay health care providers for the care they give Medicare beneficiaries. For example:

- From 2019-2024, pay some participating health care providers a lump-sum incentive payment.

- Increased transparency of physician-focused payment models.

- Starting in 2026, offers some participating health care providers higher annual payments.

- Accountable Care Organizations (ACOs), Medicare Shared Savings Programs, Patient Centered Medical Homes and bundled payment models are some examples of APMs.

Risk or no risk?

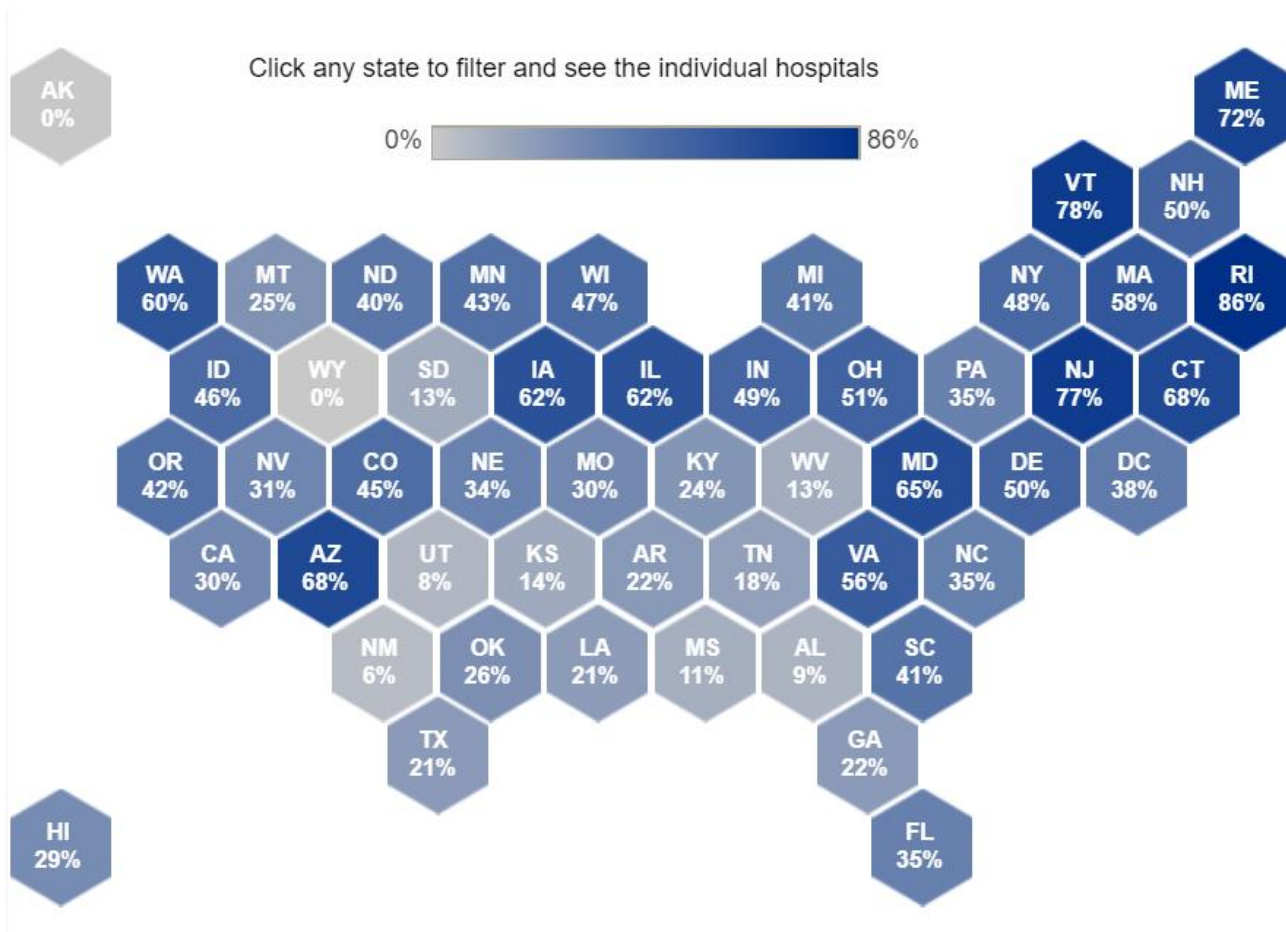## Shared Savings Program ACO Participation Options

The Shared Savings Program offers different participation options (tracks) that allow ACOs to assume various levels of risk.

Track	Financial Risk Arrangement	Description
1	One-sided	Track 1 ACOs do not assume downside risk (shared losses) if they do not lower growth in Medicare expenditures.
Medicare ACO Track 1+ Model*	Two-sided	Medicare ACO Track 1+ Model (Track 1+ Model) ACOs assume limited downside risk (less than Track 2 or Track 3).
2	Two-sided	Track 2 ACOs may share in savings or repay Medicare losses depending on performance. Track 2 ACOs may share in a greater portion of savings than Track 1 ACOs.
3	Two-sided	Track 3 ACOs may share in savings or repay Medicare losses depending on performance. Track 3 ACOs take on the greatest amount of risk, but may share in the greatest portion of savings if successful.

*The Track 1+ Model is a time-limited CMS Innovation Center model. An ACO must concurrently participate in Track 1 of the Shared Savings Program in order to be eligible to participate in the Track 1+ Model.
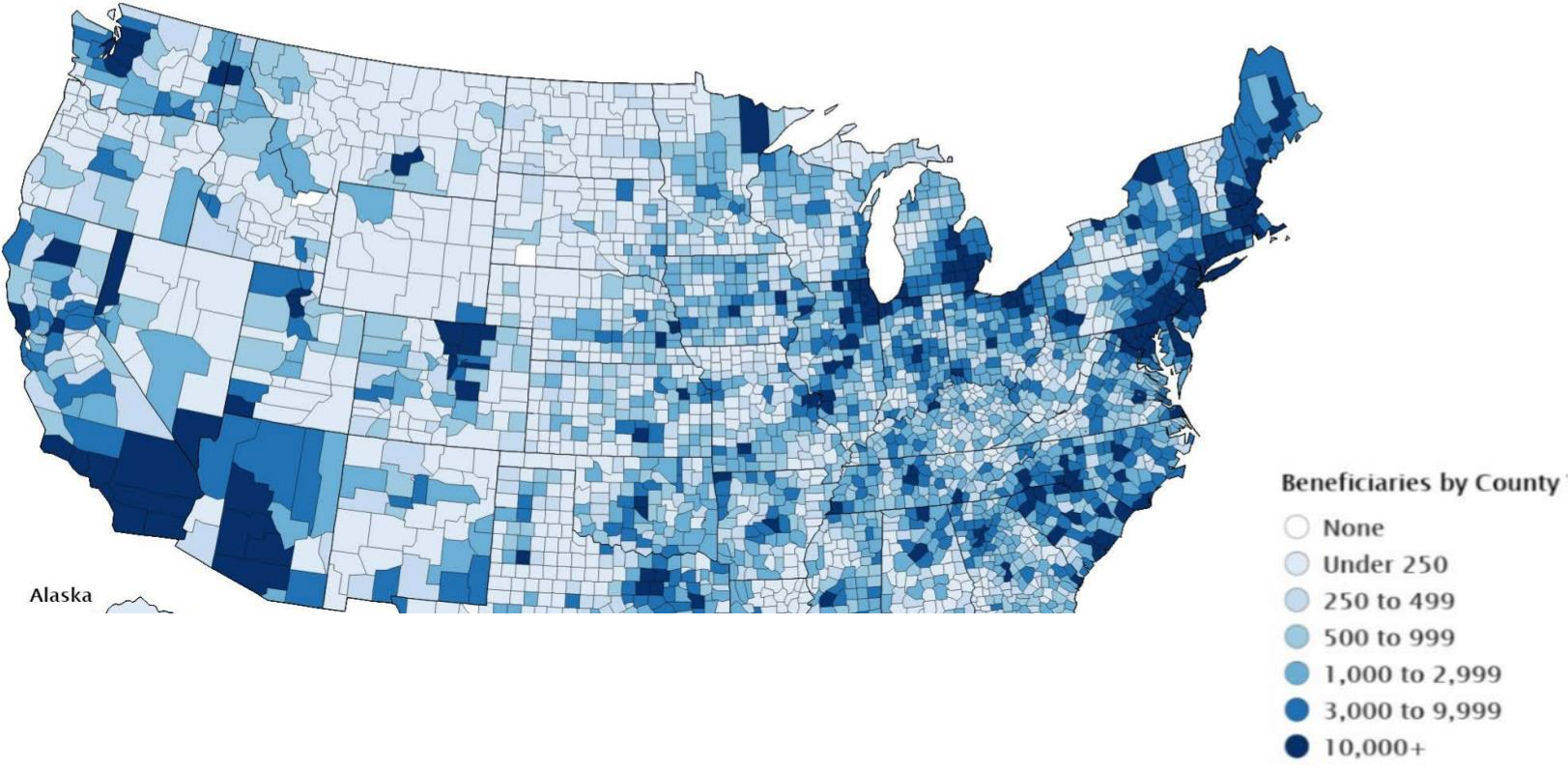
Hospitals in an ACO

1,321 out of 3,607 (37%)

https://www.aha.org/account
able-care-organizations-acos

Medicare Shared Savings Program ACO Assigned Beneficiary Population by County

Beneficiaries by County

- None
- Under 250
- 250 to 499
- 500 to 999
- 1,000 to 2,999
- 3,000 to 9,999
- 10,000+

Alaska

ACO Performance

HISTORICAL PARTICIPATION AND PERFORMANCE

PROGRAM CHARACTERISTICS

Performance Year	ACOs	Assigned Beneficiaries
2018	561	10.5 million
2017	480	9.0 million
2016	433	7.7 million
2015	404	7.3 million
2014	338	4.9 million
2012/2013	220	3.2 million

PERFORMANCE YEAR RESULTS

Performance Year 2016

Total Earned Performance Payments	$700,607,912
Average Overall Quality Score	94.65%

Performance Year 2015

Total Earned Performance Payments	$645,543,866
Average Overall Quality Score	91.44%

Performance Year 2014

Total Earned Performance Payments	$341,246,303
Average Overall Quality Score	83.08%

Performance Year 2012/2013

Total Earned Performance Payments	$315,908,772
Average Overall Quality Score	95.00%

2018 ACCOUNTABLE CARE ORGANIZATION INFORMATION

ACO CHARACTERISTICS

	ACOs	Percent
Non-Risk Based:		
Track 1	460	82%
Risk Based:		
Track 1+ Model	55	10%
SNF 3-Day Rule Waiver	31	--
Track 2	8	1%
Track 3	38	7%
SNF 3-Day Rule Waiver	30	--

ACO COMPOSITION

	ACOs	Percent
Physicians Only	171	30%
Physicians, Hospitals, & Other Facilities	324	58%
FQHCs / RHCs	66	12%

ACO PARTICIPANT LIST COMPOSITION

Participant TINs	20,690
Physicians, PAs, NPs, CNSs	377,515
Hospitals	1,517
Federally Qualified Health Centers	2,560
Rural Health Centers	1,210
Critical Access Hospitals	421

SNF AFFILIATES (SNF 3-DAY RULE WAIVER)

SNFs	868

Why Does Population Health Need Healthcare Quality and Safety?

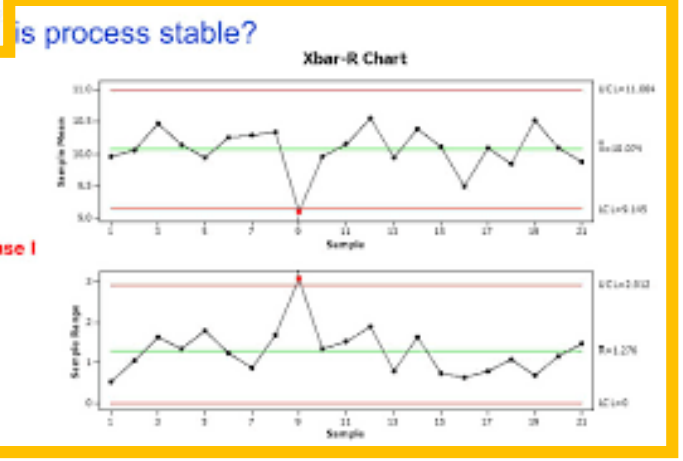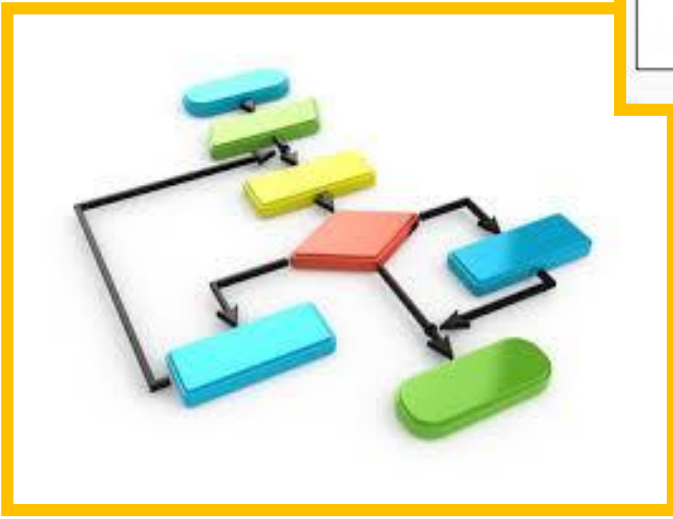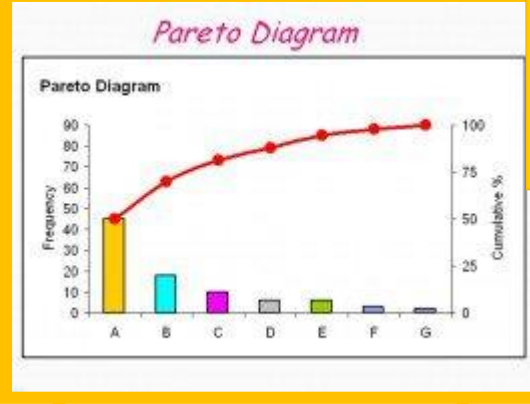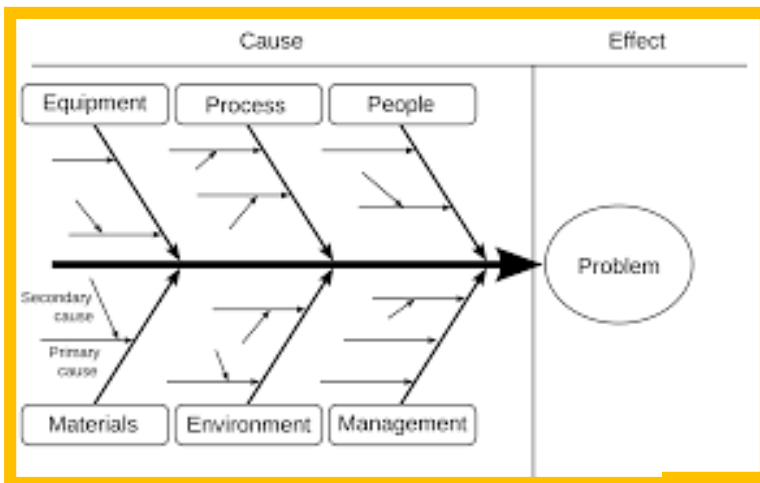# How Do We Change Healthcare?

❑ Primary Care: One Patient at a Time

❑ Hospitals and Health Systems: Groups of Patients

❑ States and Regions: Large Groups of Patients

❑ ACOs, Bundled Payments, APMs: Large Groups of Patients with Financial Risk

…But the Technique is the Same

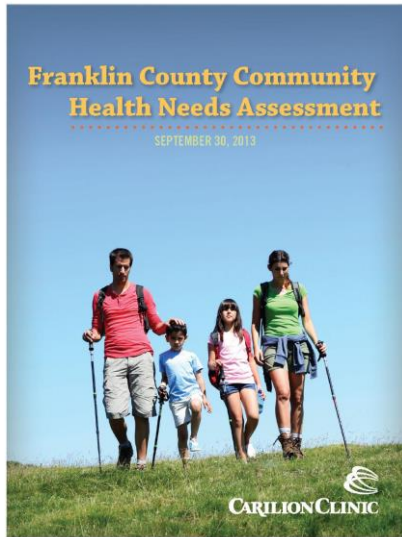# Some of the tools have already been in your armamentarium.

Tools

5 Why's

Pareto Diagram

is process stable?
Xbar-R Chart
Phase I

Community health needs assessment and profiles

Geocoding and hotspotting

Benchmarking Data Sets

Registries

https://www.carevive.com/why-cancer-registries-matter-for-survivorship-care-programs/

Donabedian Model

- Structure
- Process
- Outcomes

What is Healthcare Quality?

Healthcare Quality is defined as:

The level that healthcare systems, services and supplies increase the likelihood for positive health outcomes for patients, and are consistent with current state of the art knowledge and practices.

NATIONAL ACADEMY OF MEDICINE

Population health has been defined as the health outcomes of a group of individuals, including the distribution of such outcomes within the group

- Kindig D, Stoddart G. What is population health? *American Journal of Public Health* 2003 Mar;93(3):380–3. Retrieved 2008-10-12

A Systems Approach to Health Care Quality

- ❑ Quality efforts should focus on health care systems and the outcomes they produce
- ❑ To evaluate the effectiveness of a health care delivery system in achieving such outcomes, a strategic improvement model should be used
- ❑ Avedis Donabedian's health care quality model
  - ❑ Provides a requisite framework using the following:
    - ▪ Structure
    - ▪ Process
    - ▪ Outcome
  - ❑ Improvement in structure leads to process improvement which results in improved outcomes

IOM Health Outcome Logic Model

Reflects the definition of quality in population (public) health

Toward Quality Measures for Population Health and the Leading Health Indicators

Toward Quality Measures for Population Health and the Leading Health Indicators
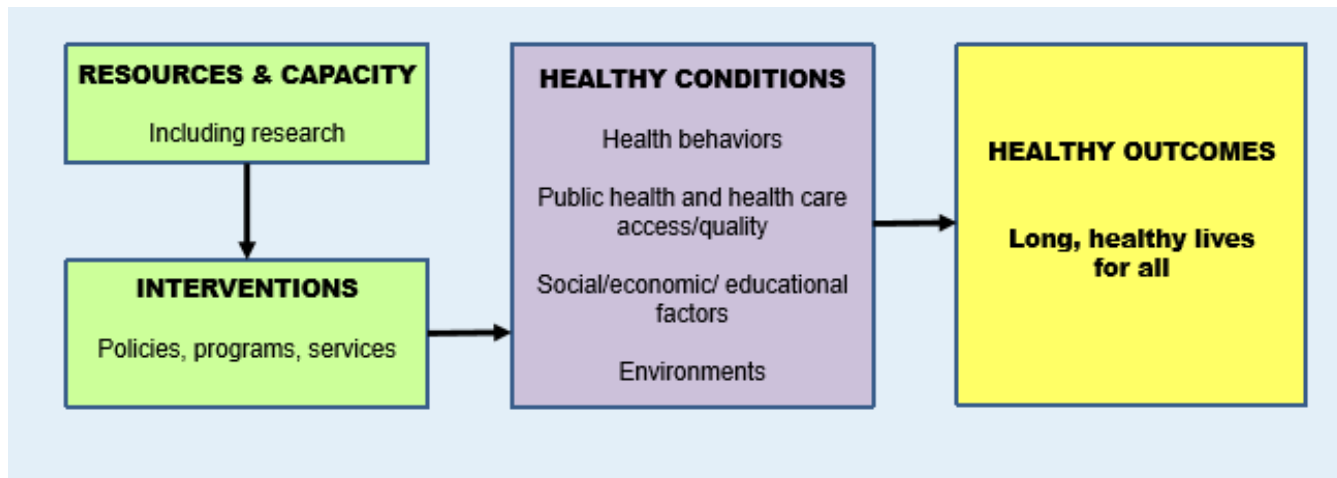
The social determinants of health are the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels. The social determinants of health are mostly responsible for health inequities - the unfair and avoidable differences in health status seen within and between countries.

Figure 2

Social Determinants of Health

Economic Stability	Neighborhood and Physical Environment	Education	Food	Community and Social Context	Health Care System
Employment	Housing	Literacy	Hunger	Social integration	Health coverage
Income	Transportation	Language	Access to healthy options	Support systems	Provider availability
Expenses	Safety	Early childhood education		Community engagement	Provider linguistic and cultural competency
Debt	Parks	Vocational training		Discrimination	
Medical bills	Playgrounds	Higher education			Quality of care
Support	Walkability				

Health Outcomes
Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations

Association between household food insecurity and annual health care costs

Tarasuk et al.   Canadian Medical Association Journal 2015. 67,033 patients surveyed in Ontario

Compared with total annual health care costs in food-secure households, adjusted annual costs were 16% ($235) higher in households with marginal food insecurity (95% confidence interval [CI] 10%-23% [$141-$334]), 32% ($455) higher in households with moderate food insecurity (95% CI 25%-39% [$361-$553]) and 76% ($1092) higher in households with severe food insecurity (95% CI 65%-88% [$934-$1260]). When costs of prescription drugs covered by the Ontario Drug Benefit Program were included, the adjusted annual costs were 23% higher in households with marginal food insecurity (95% CI 16%-31%), 49% higher in those with moderate food insecurity (95% CI 41%-57%) and 121% higher in those with severe food insecurity (95% CI 107%-136%).

https://www.ncbi.nlm.nih.gov/pubmed/26261199

Where Do The Data Come From?

The Promised Land?

The Atlantic

Electronic Medical Records: A Way to Jack up Billings, Put Patients in Control, or Both? JAMES FALLOWS
MAR 30, 2014

Claims-Based Data

Table 3 Top 20 diagnostic categories associated with inappropriate PPI utilization

Diagnosis categories (ICD-10 codes)	Patient count (%)
Hypertensive diseases – includes essential hypertension, hypertensive heart and renal disease, and secondary hypertension (I10–I15)	2,274 (51.6%)
Malignant neoplasms of ill-defined, secondary, and unspecified sites (C76–C80)	1,553 (35.2%)
Diabetes mellitus – includes type 1 diabetes mellitus, type 2 diabetes mellitus, and malnutrition-related diabetes mellitus (E10–E14)	1,273 (28.9%)
Malignant neoplasms of digestive organs (C15–C26)	1,186 (26.9%)
Ischemic heart diseases – includes angina pectoris, acute myocardial infarction, subsequent myocardial infarction, acute ischemic heart disease, and chronic ischemic heart disease (I20–I25)	669 (15.2%)
Benign neoplasms (D10–D36)	514 (11.7%)
Other diseases of the upper respiratory tract – includes rhinitis, nasopharyngitis, pharyngitis, sinusitis, laryngitis, and laryngotracheitis (J30–J39)	506 (11.5%)
Cerebrovascular diseases – includes subarachnoid hemorrhage, intracerebral hemorrhage, cerebral infarction, stroke, and occlusion and stenosis of the cerebral arteries (I60–I69)	463 (10.5%)
Diseases of the liver – includes alcoholic liver disease, toxic liver disease, hepatic failure, chronic hepatitis, and fibrosis and cirrhosis of the liver (K70–K77)	414 (9.4%)
Renal failure – includes acute renal failure and chronic kidney disease (N17–N19)	392 (8.9%)
Influenza and pneumonia (J09–J18)	302 (6.8%)
Other forms of heart disease – includes pericarditis, endocarditis, nonrheumatic valve disorders, myocarditis, cardiomyopathy, conduction disorders, cardiac arrest, arrhythmias, and heart failure (I30–I52)	298 (6.8%)
Malignant neoplasms of respiratory and intrathoracic organs (C30–C39)	292 (6.6%)
Chronic lower respiratory diseases – includes bronchitis, emphysema, chronic obstructive pulmonary disease, asthma, and bronchiectasis (J40–J47)	277 (6.3%)
Arthrosis (M15–M19)	269 (6.1%)
Metabolic disorders – includes disorders of amino acid metabolism, carbohydrate metabolism, lipoprotein metabolism, volume depletion and disorders of fluid, electrolyte, and acid–base balance (E70–E90)	263 (6.0%)
Spondylopathies (M45–M49)	234 (5.3%)
Disorders of the gallbladder, biliary tract, and pancreas (K80–K87)	227 (5.1%)
Other soft tissue disorders – includes bursopathies, fibroblastic disorders, shoulder lesions, and enthesopathies (M70–M79)	191 (4.3%)
Malignant neoplasms, stated or resumed to be primary, of lymphoid, hematopoietic, and related tissue (C81–C96)	191 (4.3%)

Note: Total patient number =4,410.
Abbreviations: PPI, proton pump inhibitor; ICD-10, International Classification of Diseases, Tenth Revision.

Long Term Care Minimum Data Set (MDS)

Medicare Provider Analysis and Review (MEDPAR) File

Medicare Claims Public Use Files

Health Of Populations Is The Product Of The Intersecting Influences From These Different Domains

- ❑ Genetic and gestational endowments
- ❑ Social circumstances
- ❑ Environmental conditions
- ❑ Behavioral choices
- ❑ Medical care

J.M. McGinnis, "United States," in *Critical Issues in Global Health*, ed. C.E. Koop(San Francisco: Jossey-Bass, 2001), 80-90.

The Case For More Active Policy Attention To Health Promotion
J. Michael McGinnis, Pamela Williams-Russo and James R. Knickman *Health Affairs*, 21, no.2 (2002):78-93

Example

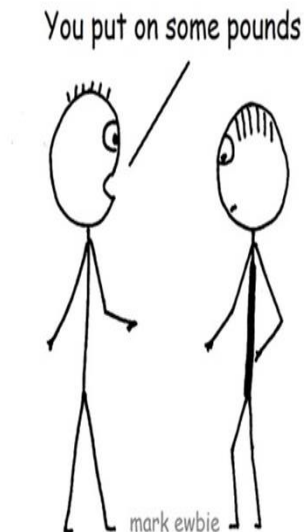Your area has a high incidence of asthma.

What are you going to design to improve the health of asthma patients?

How will you pay for it?

How will you measure it?

The Transtheoretical Model of Health Behavior Change

Change is Simple.
Maintaining Change?

You put on some pounds

mark ewbie

- Precontemplation
- Contemplation
- Preparation
- Action
- Maintenance
- Termination

Prochaska and Velicer, Am J Health Promot September 1997vol. 12 no. 1 38-48

Population Health:

- **Health outcomes and their distribution within a population**
  - **Health determinants that influence distribution**
    - **Policies and interventions that impact these determinants**

- ❑ We sometimes blur the distinction between strategies that help people achieve/sustain good "health" and strategies we implement to improve "healthcare" outcomes.

- ❑ Implementing strategies to improve population health is a pivotal issue in the transformation of healthcare, in large part because it integrates patient outcomes, quality of care and payment models.

- ❑ Developing the initiatives that promote the "systems" changes are needed to eliminate variations in care related to cost, quality and outcomes – so that specific populations can be cared for in a high-quality, cost effective setting.

Questions?

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