Temple Center for Population Health

Healthcare Quality and Safety in the Urban Environment

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Center for Population Health
TEMPLE HEALTH

Case 1: Wrong Site

- An elderly non-English speaking woman was admitted to the ambulatory surgery center for a temporal artery biopsy
- She had been referred to neurology by her primary care physician for evaluation of periodic headaches, primarily left sided
- The neurologist suspected the diagnosis of temporal arteritis and suggested a left temporal artery biopsy (TAB)
- She was referred to an ophthalmologist for the procedure, but his schedule was full so he referred the patient to the Chair of vascular surgery. He told the vascular surgeon the patient needed a right TAB but his office sent the paper work to the OR schedule for a left sided procedure
- The chair asked one of his colleagues to perform the biopsy
- The H&P was done the morning of surgery and laterality was not mentioned
- The consent was obtained without designation of laterality
- The right side was marked and the universal protocol completed with right laterality designated as correct
- The procedure was done without complications. The negative biopsy was communicated to the neurologist, ophthalmologist and two vascular surgeons.
- The patient was seen two weeks later by neurology, at which time the patient's son asked why the biopsy was on the right when the pain was on the left.
- A wrong-site surgery was disclosed, reported and investigated, including a root cause analysis
- The primary care provider had no idea a procedure had been done

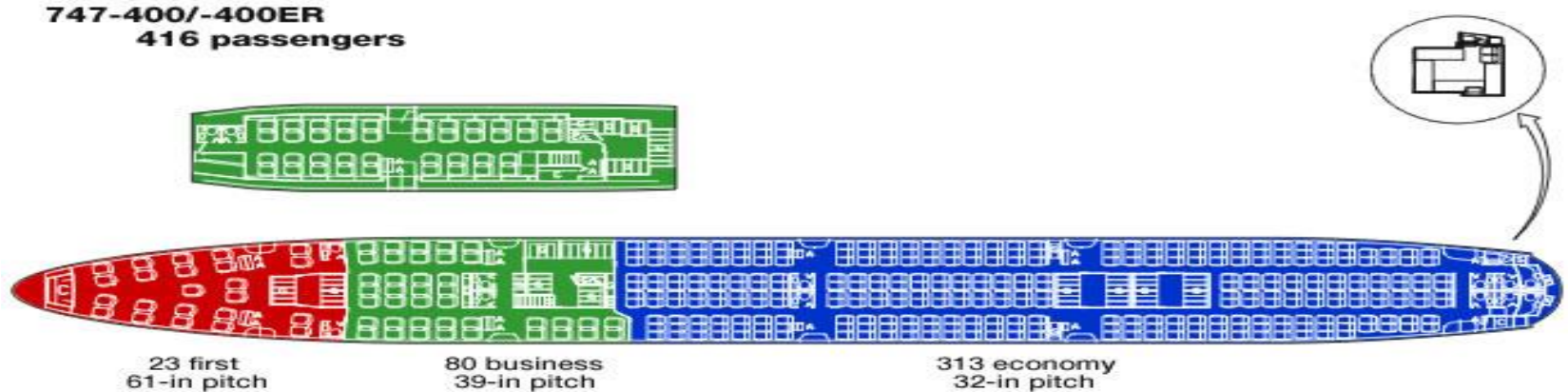# Wrapping Your Head Around the Problem of Medical Errors

To Err is Human – the landmark report of the IOM in 1999 – up to 98,000 people die each year in the U.S. from medical errors.
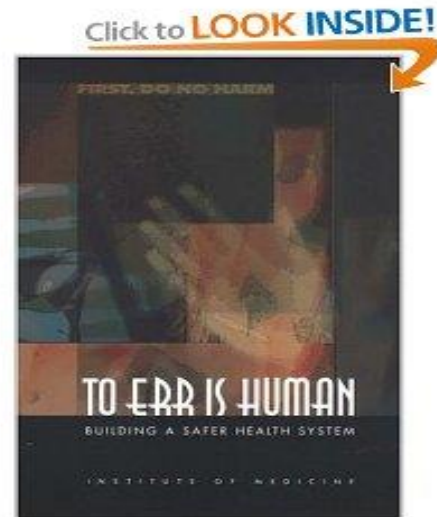
The Numbers: Staggering

Every day and a half a fully loaded 747 would have to fall from the sky before the airline passenger loss of life would surpass that of hospitals

747-400/-400ER
416 passengers

23 first
61-in pitch

80 business
39-in pitch

313 economy
32-in pitch

What happened after the IOM report?

- A change in the conversation
- A shift in the culture of health care
  - Why do humans make mistakes? Can they be prevented?
  - The threats of overuse, underuse and misuse
  - The emphasis on harm
- Identification of methods to change systems combined with individual accountability
- Public reporting of outcomes
- A huge response from public and private agencies
- Reimbursement changes
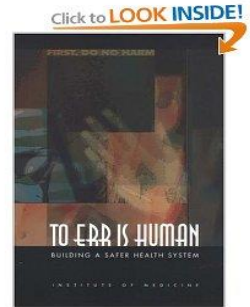
Response to IOM

- Increased government involvement
  - AHRQ (Agency for Health Care Research and Quality) as the federal agency for patient safety under the Department of Health and Human Services
  - Research funds
  - Identification of best practices
  - Patient safety indicators and standard metrics
- A host of non-governmental agencies

Defining Quality in Health Care

Healthcare
QUALITY
begins with
PATIENT SAFETY

Kenneth Kaiser, MD, MPH
National Quality Forum

- Freedom from injury
- Consistent care 24 x 7 x 365
- Seamless transitions/handoffs
- Informed, satisfied patients
- Transparency in care and data
- Open, honest, non- punitive reporting
- A culture obsessed with safety

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The Six Dimensions of Quality

- Patient Safety
- Patient Centeredness
- Timeliness
- Effectiveness
- Efficiency
- Equity

From the IOM: Crossing the Quality Chasm (2001)

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Defining Quality

- No needless deaths
- No needless pain or suffering
- No unwanted waits
- No helplessness
- No waste

ACCELERATING IMPROVEMENT WORLDWIDE

For Anyone….

Institute for Healthcare Improvement

Temple University **Health** System

Never Events

- Foreign object retained after surgery
- Air embolism
- Blood incompatibility
- Catheter-associated UTI
- Pressure ulcers
- Vascular catheter-associated infections
- Surgical site infections
- Falls with injury
- Deep vein thrombosis and pulmonary embolism after certain orthopedic procedures

CMS, 2013

Human Factors

➤ Humans will always make mistakes regardless of training, experience and determination

➤ Human infallibility is impossible

➤ Those who build systems that depend on the absence of human error will fail

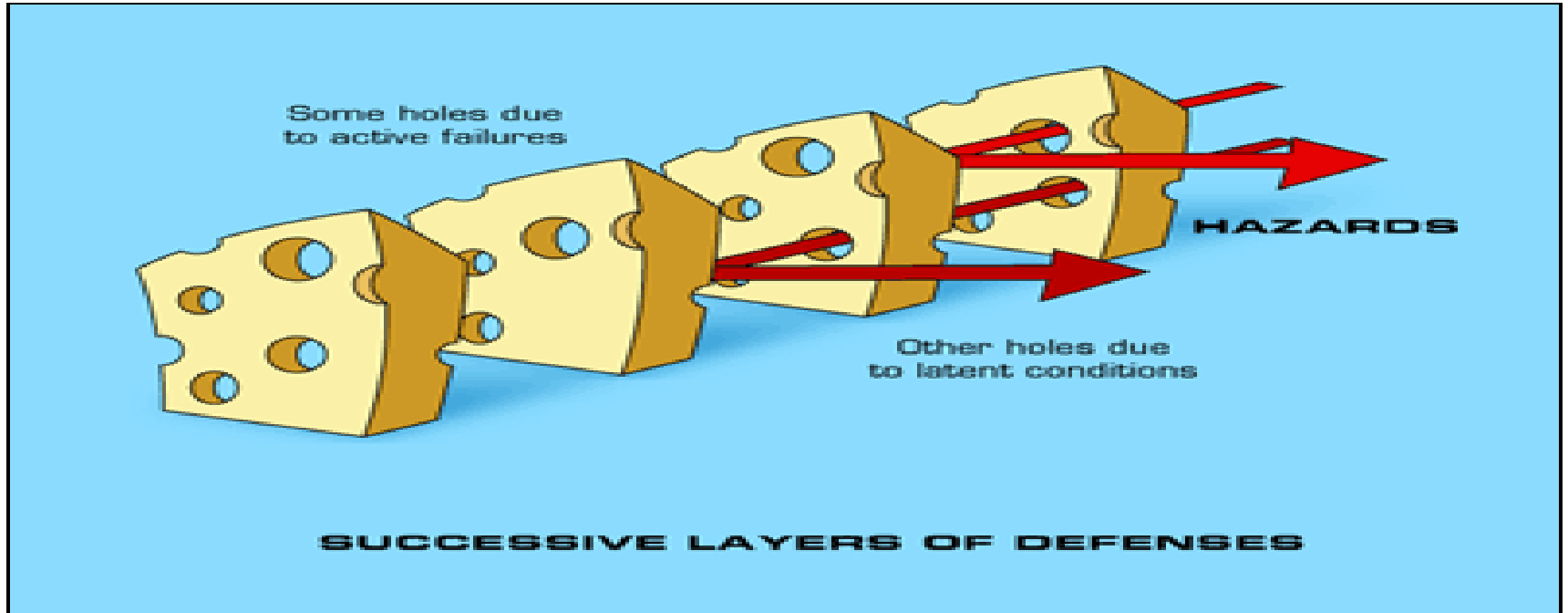John Nance. Why Hospitals Should Fly. 2008, page 45

High Reliability Organizations
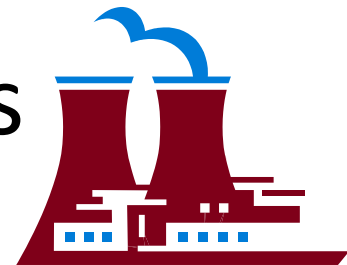
- HRO's have reliable <u>systems</u> designed to prevent errors from reaching the patient (or customer) in potentially highly dangerous environments, like aviation, nuclear plants, health care systems

- What is a <u>system</u>?
  - A series of actions that, when followed, provides for the delivery of safe care to every patient, every time
    - Codified in policies, procedures, standard order sets, check lists
  - A series of redundancies that provides multiple check points
    - An order is written, checked by the pharmacy, checked by the nurse, reconciled with the medication list

Redundant Processes

(James Reason)

Some holes due to active failures

Other holes due to latent conditions

HAZARDS

SUCCESSIVE LAYERS OF DEFENSES
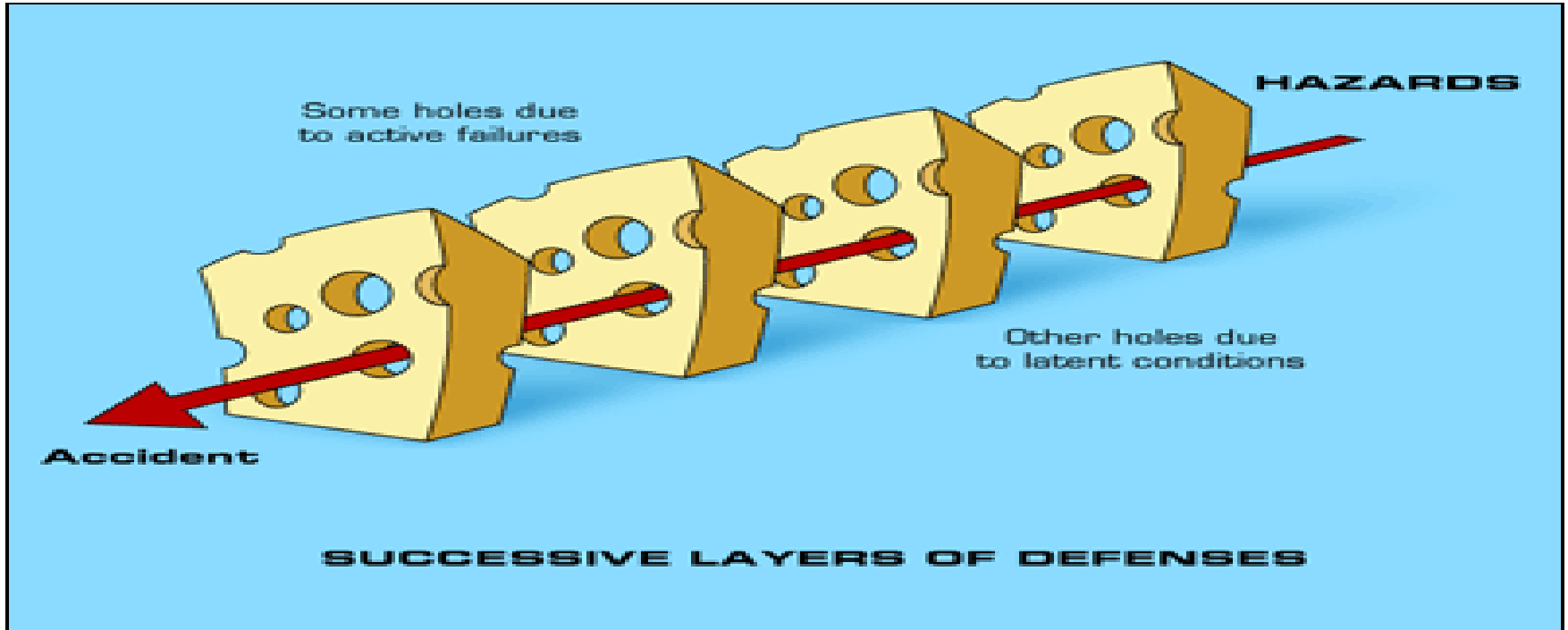
- Each layer is a defense against potential error impacting the outcome

Failure at Every Level

Circumstances in which planned actions fail to achieve the desired outcomes

Culture of Safety

- Shared perceptions and actions around what is good, right, important, valued, supported, rewarded and expected

- Culture is shaped by the alignment of people and systems; attitudes; knowledge; practices; leadership; trust; accountabilities; and a commitment to safety

- Culture is linked to outcomes – strong culture decreases medication errors, hospital acquired UTI's, nurse turnover and absenteeism, nurse satisfaction, malpractice claims, back injuries, patient satisfaction, needle sticks

Halligan, M. and A. Zecevic. Safety culture in healthcare: a review of concepts, dimensions, measures and progress. Qual Saf Health Care/. 2011. doi:101136/bmjqs.2010.040964.

The System

High Value Care, Every Patient, Every Day
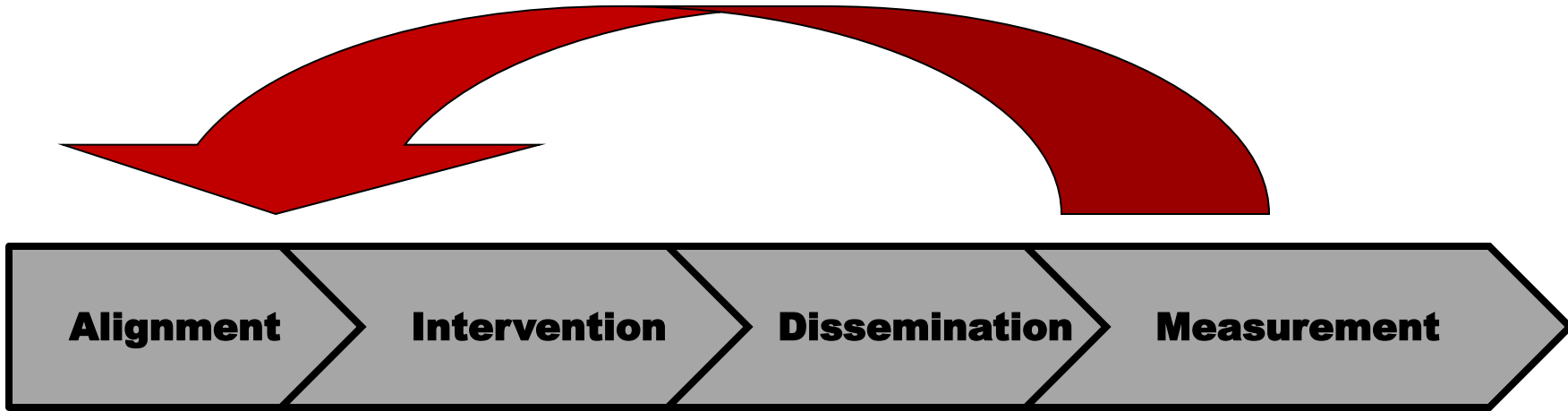
Culture of Safety

Engineering and Design

Execution and Diffusion

Infrastructure: Integrated Care Across The Continuum

Integrated Electronic Medical Record

Value Creation System

| Alignment | Intervention | Dissemination | Measurement |

System Redesign Improvement Methodologies

	PDSA	Six Sigma	Lean
Process	Plan; Do; Study; Act (PDSA)	Design; Measure; Analyze; Improve; Control (DMAIC)	Elimination of non-value added work waste and cost
Improvement Focus	Rapid cycles, often in sequence	Elimination of defects and variation, customer focused, enhanced effectiveness	Enhanced efficiency , flow and cycle time
Ideal Use	Limited time and resources, quick diagnosis and remediation	Major project tied to the strategic goals, resources available	Process redesign
Tools	Small, rapid changes, pilots and testing, quick metrics	Statistical process control charts, analytical tools, expertise	Value stream mapping, value analysis, Kaizen "events"

Correcting the Systems: Effectiveness of Safe Practices

Intervention

- Perioperative antibiotic protocol
- Physician computer order entry
- Pharmacist rounding with the team
- Protocol enforcement
- Rapid response teams
- Medication reconciliation
- Standardized medication practices
- Standardized insulin dosing
- Standardized anticoagulation protocols
- Team training in labor and delivery
- Trigger tools and automation
- Ventilator bundles

Results

- 93% reduction in surgical site infections
- 81% reduction in medication errors
- 66-78% reduction in adverse drug events
- >90% reduction in central line infections
- Cardiac arrests decreased by 15%
- 90% reduction in medication errors
- 60% reduction in adverse drug reactions
- 63% decrease in hypoglycemia/90% wound infs.
- Out-of-range INR declined by 60%
- 50% reduction in adverse outcomes
- Reduced adverse drug events
- Ventilator associated pneumonia decreased 60%

Leape, L. and Berwick, D. Five Years After to Err is Human. JAMA 2005;293(19):2384-90

# Not so Fast: An Epidemic of Harm

A new, evidence-based estimate of patient harms associated with hospital care based on four studies of preventable adverse events estimated that more than 400,000 premature deaths were associated annually with preventable harm to patients

James, John. A new, evidence-based estimate of patient harms associated with hospital care. Journal of Patient Safety. 2013;9(3):122-128.

Time to Take Quality and Safety to the Next Level

- Efforts at managing systems and the general themes of performance improvement must continue
- We need to continue to address underuse and misuse
- Substantial changes must be made in <u>identification and management of overuse</u> caused by lack of communication, inadequate transitions and chaotic systems of care
- How? Population Health and Population Health Management
- The promotion of health and the prevention of disease to create an epidemic of health and wellness

Chassin, M. Improving the quality of health care: what's taking so long? Health Affairs. 2013;32(10):176165.
Pracilio, et.al. The Population Health Mandate, from Population Health (Nash, et.al. eds.) 2011. Page

National Agenda: The Triple Aim
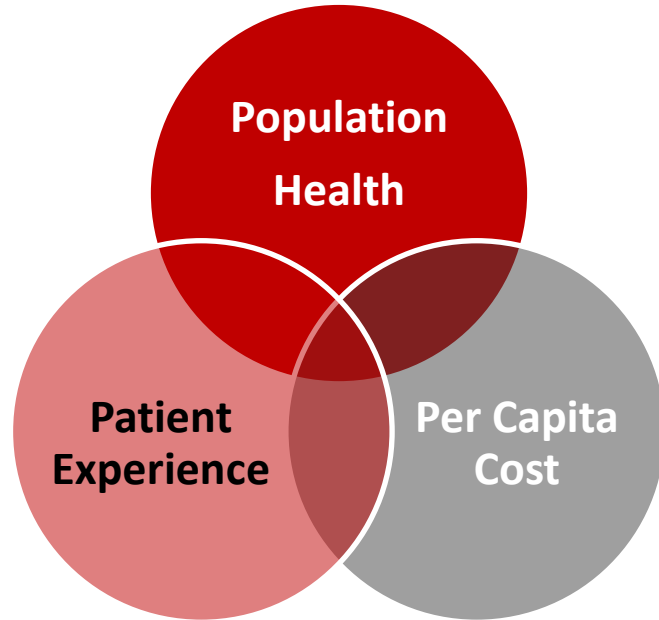
Berwick, et.al. The Triple Aim: Care, Health and Cost. Health Affairs. 2008;27:3(759-69)

FY 2015 Finalized Domains and Measures/Dimensions

12 Clinical Process of Care Measures

1. AMI-7a Fibrinolytic Therapy Received within 30 Minutes of Hospital Arrival
2. AMI-8 Primary PCI Received within 90 Minutes of Hospital Arrival
3. HF-1 Discharge Instructions
4. PN-3b Blood Cultures Performed in the ED Prior to Initial Antibiotic Received in Hospital
5. PN-6 Initial Antibiotic Selection for CAP in Immunocompetent Patient
6. SCIP-Inf-1 Prophylactic Antibiotic Received within One Hour Prior to Surgical Incision
7. SCIP-Inf-2 Prophylactic Antibiotic Selection for Surgical Patients
8. SCIP-Inf-3 Prophylactic Antibiotics Discontinued within 24 Hours After Surgery
9. SCIP-Inf-4 Cardiac Surgery Patients with Controlled 6 a.m. Postoperative Serum Glucose
10. SCIP—Inf—9 Postoperative Urinary Catheter Removal on Postoperative Day 1 or 2
11. SCIP-Card-2 Surgery Patients on a Beta Blocker Prior to Arrival That Received a Beta Blocker During the Perioperative Period
12. SCIP-VTE-2 Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis within 24 Hours

Domain Weights

- Efficiency 20%
- Clinical Process of Care 20%
- Outcome 30%
- Patient Experience of Care 30%
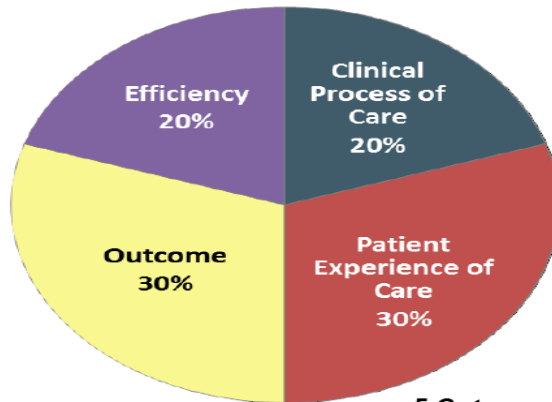
8 Patient Experience of Care Dimensions

1. Nurse Communication
2. Doctor Communication
3. Hospital Staff Responsiveness
4. Pain Management
5. Medicine Communication
6. Hospital Cleanliness & Quietness
7. Discharge Information
8. Overall Hospital Rating

5 Outcome Measures

1. MORT-30-AMI — Acute Myocardial Infarction (AMI) 30-day mortality rate
2. MORT-30-HF — Heart Failure (HF) 30-day mortality rate
3. MORT-30-PN — Pneumonia (PN) 30-day mortality rate
4. **PSI-90 — Patient safety for selected indicators (composite)** ★
5. **CLABSI — Central Line-Associated Bloodstream Infection** ★

1 Efficiency Measure

1. MSPB-1 Medicare Spending per Beneficiary measure ★

★ **Represents a new measure for the FY 2015 program that was not in the FY 2014 program.**

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$$Value = \frac{Quality}{Cost}$$

Population Health Model for Rankings

- Health Outcomes
- Health Factors – if improved have a significant impact on making communities healthier

From UWPHI, 2014

Pennsylvania Health Outcomes Ranks by County

67/67

| Rank 1-17 | Rank 18-34 | Rank 35-50 | Rank 51-67 |

Pennsylvania Health Factors Rankings by County

67/67

Rank 1-17 | Rank 18-34 | Rank 35-50 | Rank 51-67

www.countyhealthrankings.org – RWJF and UWPHI
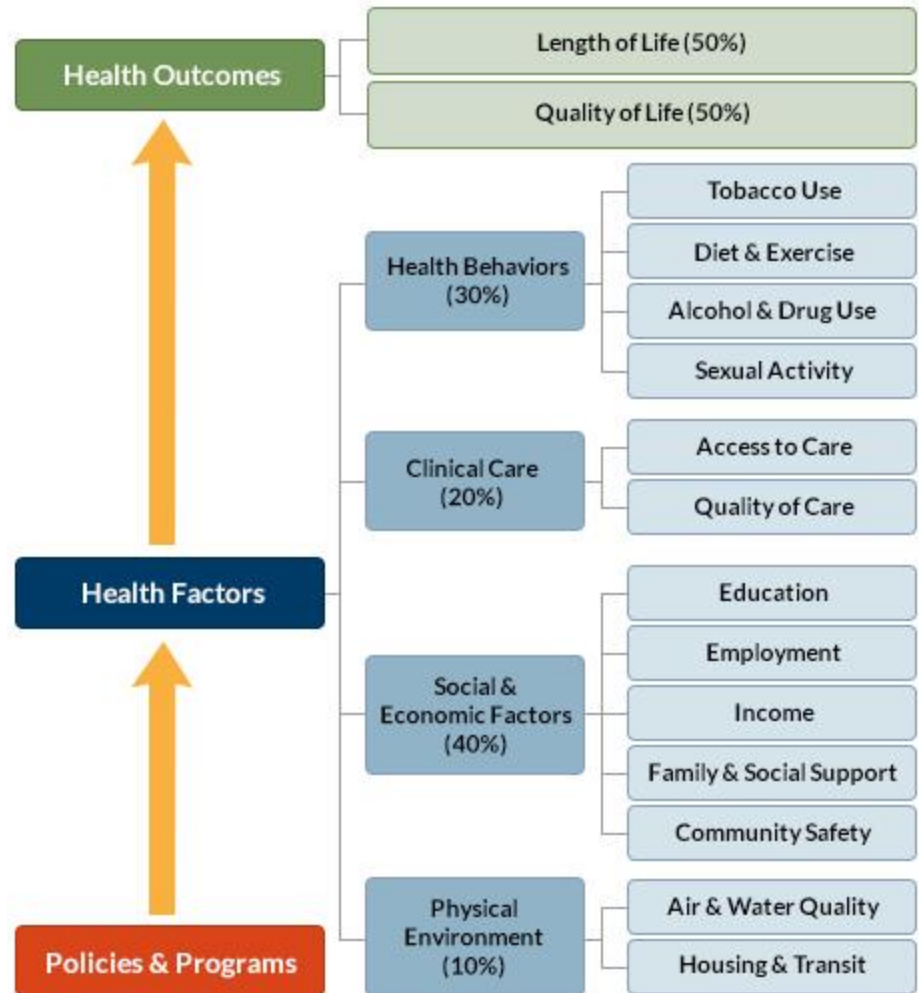
Population Health

- 80.7% of the population lives in urban areas (about 250M people)
- Philadelphia County population = 1.55M; 134 square miles
- 12.4% >65; 7.0% <5 years old
- White 45%; Black 44%; Hispanic 13%
- Language other than English: 21%
- Education: HS grad 80%; Bachelor's 23%
- Average income: $37,000
- Persons below the poverty level: 26% (13% in PA)

2013 United States Census Bureau

# Philadelphia County

- 23% of adults smoke
- 31% are obese (BMI greater or equal to 30)
- 29% are inactive (adults with no exercise)
- 17% drink heavily or binge
- Chlamydia rate 1332/100,000 adults (3x national rate)
- Teen births 56/1000 females age 15-19 (2x national rate)
- Children living in single parent households 59%
- Housing issues (overcrowding, high cost, lack of kitchen or plumbing) 24%

Population Health Influences

Community:
- Determinants of Health
- Health Outcomes
- Access
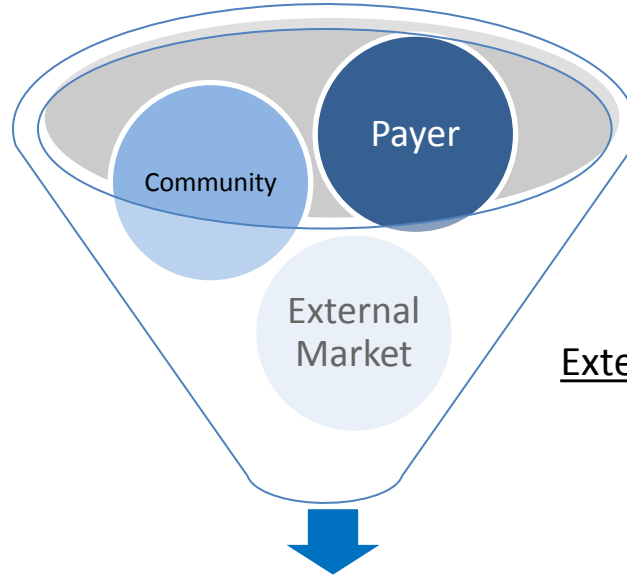
Payer
- Value Based Purchasing
- P4P Contracts
- Risk Sharing

Payer

Community

External Market

External Market
- ACA
- ACO
- Medical Neighborhoods
- Mergers and Alignment

Population Health Management
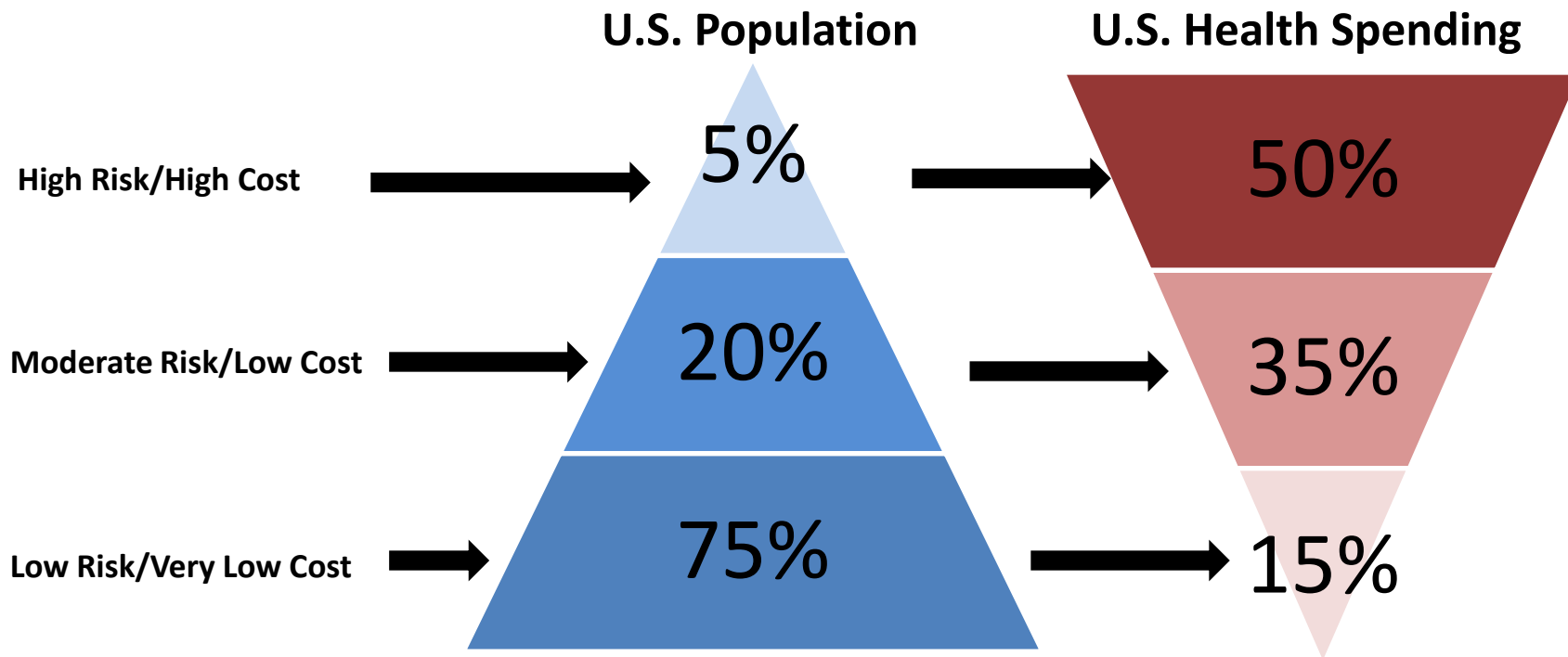
Goals of Quality and Safety in Population Health

Attain a sustainable, coordinated model of health care delivery through clinical and business integration, community engagement and a balance of medical and nonmedical interventions to promote high value care and healthy populations

Partnerships and Effective Strategies for Care Delivery

Building the High-Performing Care Management Network

High Risk
- Special teams
- Disease management
- Physician and Behavioral Health

Potential Risk
- Early identification and intervention
- Patient Centered Specialty Practice (PCSP)

Low Risk
- Patient Centered Medical Home (PCMH)
- Access
- Preventive care
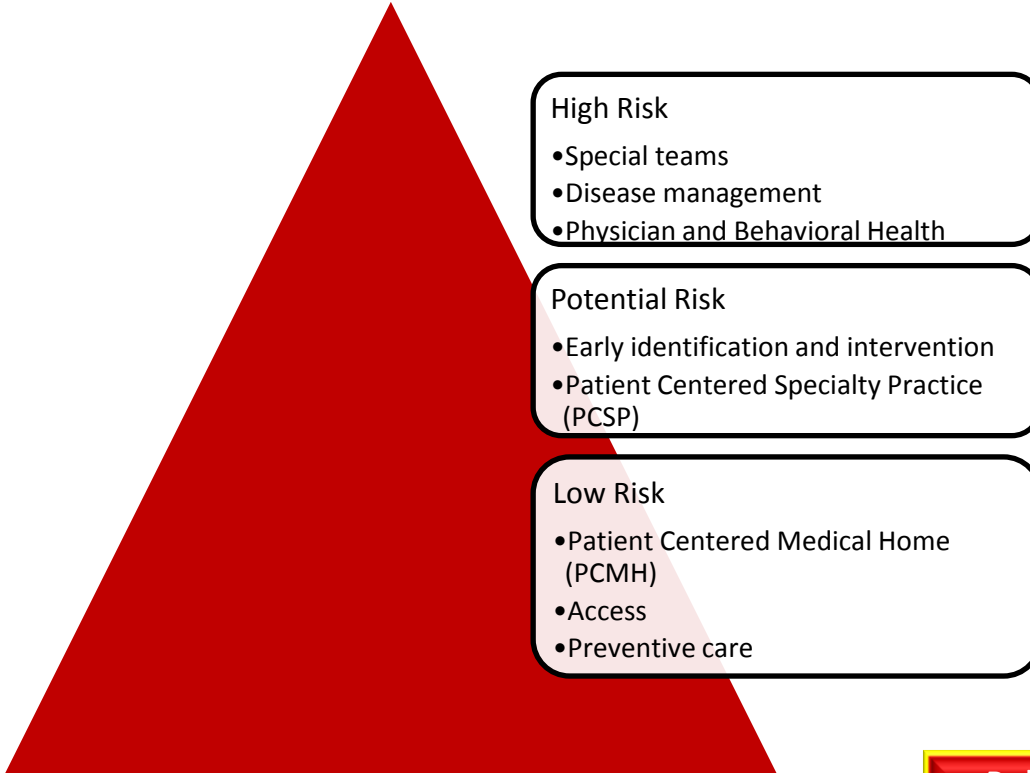
Robust Care Management

Partnerships: Aligning the Population Health Network

Creating the Medical Neighborhood

Physician Practices

Access
- Urgent Care
- Access Center
- Transport
- Pharmacy

Hospitals
- Tertiary Care
- Specialty Care
- Community Care
- Behavioral Health

Post-acute care
- SNF's
- Home Health

Independent Practices

Data Management and Analysis

FQHC's and City Health Centers
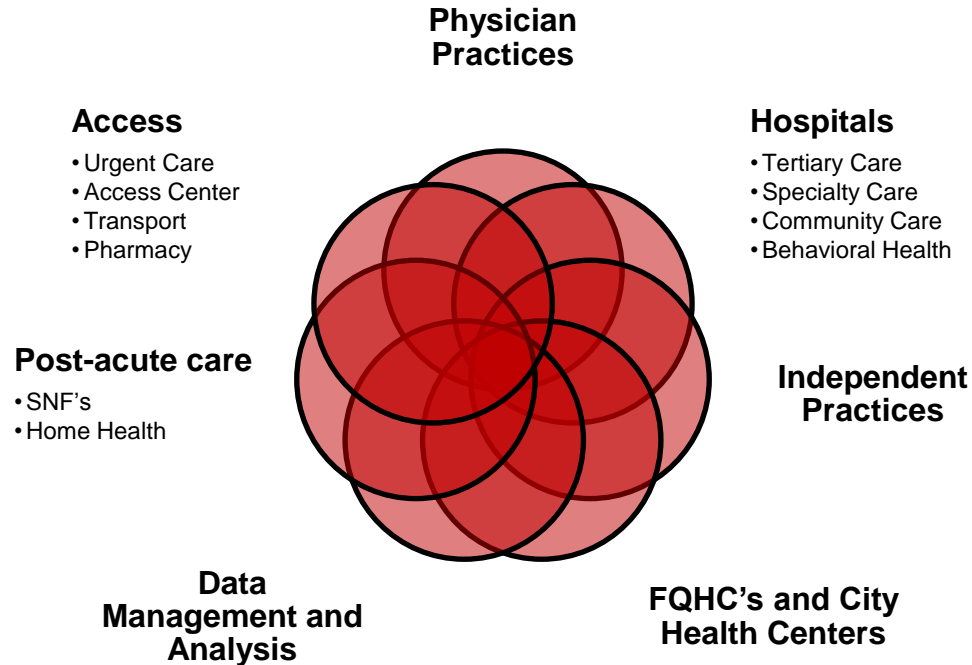
Partnerships and Alignment of Network

Creating Value

High Value Care Delivery

- Patient Value Council
  - Effectiveness
  - Efficiency
  - Safety
  - Survival
  - Satisfaction
  - Equity
- Data-driven care delivery
  - (UHC, NSQIP, Integrated data warehouse)
- Cultural competencies
- Value-based purchasing, pay-for-performance

EQUALITY   EQUITY

Value

Characteristics of Best in Class

Goal: Attain a sustainable, coordinated model of health care delivery through clinical and business integration, community engagement and a balance of medical and nonmedical interventions to promote high value care and healthy populations
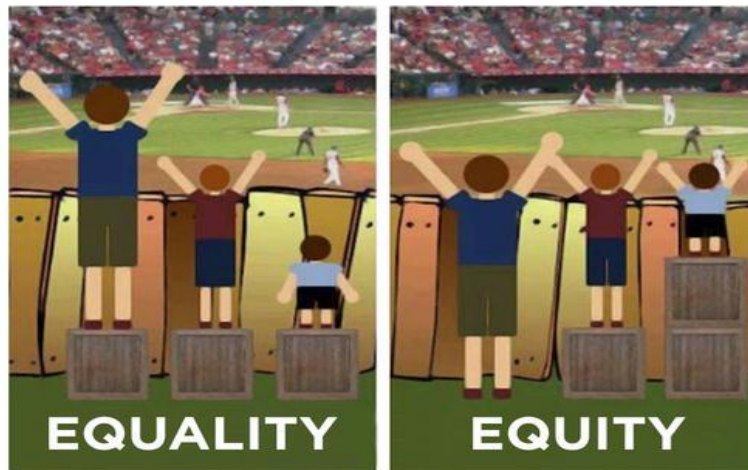
Risk-Based Contracts	Robust Care Management Infrastructure and Risk Stratification	Strong Primary Care
Network of Alliances and Partnerships	Connected and Cohesive Care Delivery/Transitions of Care	Financial Investment and Success
Community Engagement	Employer Engagement	Electronic Health Information Exchange

Adapted from the Advisory Board, 2014

Teamwork is Vital: It Takes a Village

- Lessons from Aviation: Crew resource management (CRM) developed in the late 70's in response to a number of fatal plane crashes

- CRM is based on a team approach which empowers any team member to interrupt a process if an error is detected: "Stop the Line"

- CRM utilizes team training and team effectiveness
  - Leadership
  - Mutual performance monitoring
  - Standard communication
  - Back-up behavior
  - Adaptability
  - Shared mental models
  - Mutual trust
  - Team orientation

Case 2: Care Management in Quality Care

78 year old with hypertension, hypothyroidism, atrial fibrillation, congestive heart failure, chronic pain, chronic renal failure.

Live alone, no transportation, no support, multiple and frequent readmissions via the ED

General distrust of outsiders

Referred to the population health team

A community health worker was assigned

On the first home visit, she asked no questions

On the second home visit she asked to see the patient's medications

When I feel poorly, I take a pill

Post Medication Reconciliation

Patient-Centered Medical Home (PCMH)

- A well accepted primary care delivery model
- Defined in March, 2007 (by the ACP, AAFP, AAP, AOA) as a series of principles to promote health care delivery for all patients through all stages of life, characterized by the following features:
  - Personal physician
  - Physician-directed medical practice
  - Whole-person orientation
  - Care is coordinated or integrated across all elements of the system
  - Quality and safety
  - Enhanced access to care

PCMH Recognition

- National Committee for Quality Assurance (NCQA) has recognized 27,000 clinicians at >5000 sites in the PCMH program

- Primary care services account for only 6% of total health care spending

Standards for the PCMH

Recognition occurs at three levels
1=35-59 points; 2=60-84 points; 3=85-100 points + 50% of "must-pass" elements

Access and continuity (20)
- Access during office hours
- Access after hours
- Electronic access
- Continuity
- Medical home responsibilities
- Culturally and linguistically appropriate services
- Practice team

Identify and manage populations (16)
- Patient information
- Clinical data
- Comprehensive health assessment
- Use day for population management

Plan and manage Care (17)
- Implement evidence-based guidelines
- Identify high risk patients

Self care support and community resources (9)
- Self care process
- Referrals to community resources

Track and coordinate care (18)
- Test tracking and follow-up
- Referral tracking and follow-up

Measure and improve performance (20)
- Measure performance
- Measure patient and family experience
- Implement CQI
- Demonstrate CQI
- Report performance
- Report data externally
- Use certified EHR technology

Beyond the PCMH

- There is an expanded concept of patient-centered care called the ***"medical neighborhood"*** in which the PCMH is the ***hub/integrator*** surrounded by supporting players, including specialty services
- The specialty analog to the PCMH is the Patient-Centered Specialty Practice (PCSP)
- Ideally the medical neighborhood is the alignment between the medical home and its neighbors to create goals for the shared patient population

Standards for the PCSP

Recognition occurs at three levels
1=25-49 points; 2=50-74 points; 3=75-100 points + 50% of "must-pass" elements

Track and coordinate referrals (22)
- Referral process and agreements
- Referral content
- Referral response

Provide access and communication (18)
- Access
- Electronic access
- Specialty practice responsibilities
- Culturally and linguistically appropriate services
- The practice team

Identify and coordinate patient populations (10)
- Patient information
- Clinical data
- Coordinate patient populations

Plan and manage Care (18)
- Care planning and support self-care
- Medication management
- Use electronic prescribing

Track and coordinate care (16)
- Test tracking and follow up
- Referral tracking and follow up
- Coordinate care transitions

Measure and improve performance (16)
- Measure performance
- Measure patient and family experience
- Implement and demonstrate continuous quality improvement
- Report performance

Patient Centered Medical Neighborhood
The status quo is no longer an option
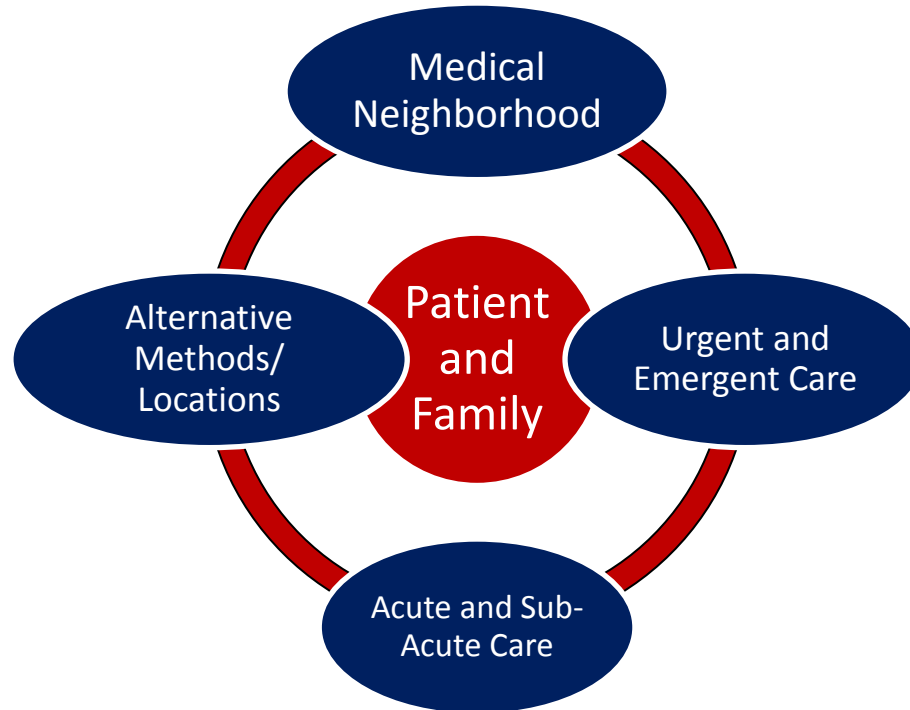
The Interface: Primary and Specialty Care

- Paradigm shift – the care is no longer "transferred" to the specialist, but is shared through a referral
- This decreases fragmentation and provides continuity
- Scope of specialty care is not uniform, but depends on the specialty
- Shared payment models require shared accountability across an episode of care
- Payment models are aligned with care and include bundled payments or risk contracts

Clinical and Business Integration:
Evolution of Payment Models and Care Management

Greater Risk Demands Greater Care Management Expansion

Level of Engagement

STAGE 1:
Pay for Performance

- **Quality Improvement Metrics**
- **Inpatient**
  -Core Measures
  -Patient Experience
  -HAC's
- **Ambulatory Physician Practices (PCMH)**
  -P4P
  -HEDIS
  -Cost Management
- **Reimbursement Model**
  -Provider Centric

STAGE 2:
Gain Sharing Models

- **Cost Management** (Efficiency and Effectiveness)
  -Utilization; Formulary; Specialists
  -Readmissions
  -Inpatient alternatives
- **Quality and Outcomes Management**
  -Core Measures
  -Patient Experience
  -HEDIS
  -Other outcomes measures
- **Reimbursement Model**
- **Shared Savings Model**
  -Physician Practice (PCMH, PCSP)
  -Hospital

STAGE 3:
Risk Contracts

- **Cost Management** (Efficiency and Effectiveness)
- **Quality and Outcomes Management**
- **Care Management**
  -Home Care
  -Community-Based Care and Services
  -Transitions of Care
- **Third Party Administrator**
  - Claims
  - Delegated UM
  - Physician Credentialing
- **Reimbursement Model**
- **Shared Savings Model**
  -Physician Practice (PCMH, PCSP)
  -Hospital

Acceptance of Risk

Adopted from The Advisory Board, 2014

Get Involved in Quality and Safety
Get Involved with Population Health

STUDENT and RESIDENT INTEGRATION INTO QUALITY

Individual Accountability
System Design and Redesign
HRO
Teamwork
Standard Protocols

Population Health and Care Management
Transitions of Care
Medication Reconciliation
Access
Equity

Patient Satisfaction
High Value Care
Innovation
Alignment of Payment and Quality

THANK YOU