HEALTH SOLUTIONS™
powered by Geisinger

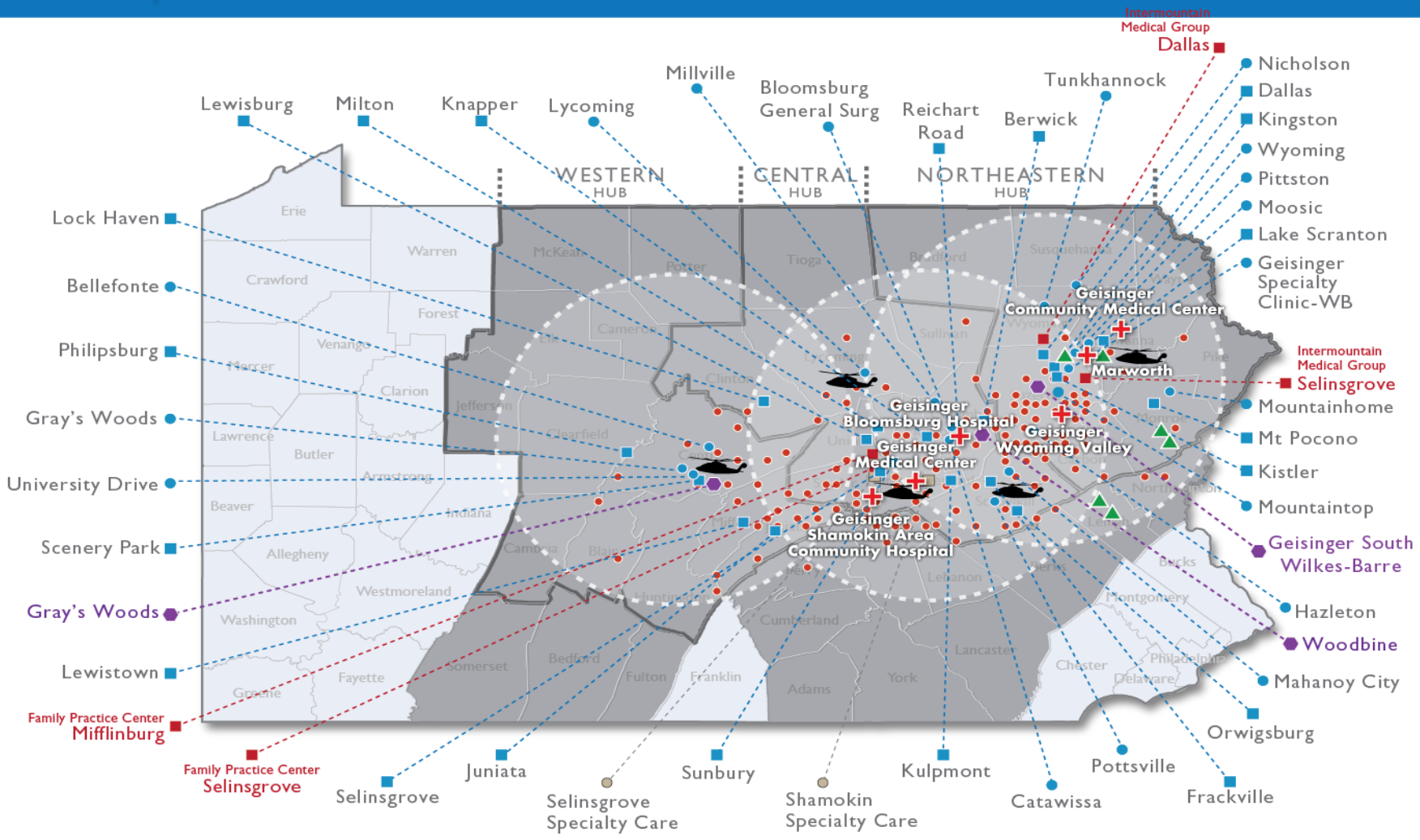
Facilitating the Transition from Volume to Value by Maximal Leverage of Data

State of Reform

Sept. 24, 2014

Gordon Norman, MD, MBA
Chief Medical Officer

Geisinger Health System



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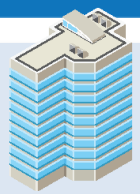
Geisinger Health System Components

1 Provider Facilities



- **Geisinger Medical Center** Danville Campus: Hospital for Advanced Medicine, Janet Weis Children's Hospital, Women's Health Pavilion, Level I Trauma Center, ASC
- **Geisinger Shamokin Community Hospital**
- **Geisinger-Bloomsburg Hospital**
- **Geisinger Wyoming Valley Medical Center** with Heart Hospital, Henry Cancer Center, and Level II Trauma Center
- **Geisinger South Wilkes-Barre** campus with Urgent Care, Ambulatory Surgery Center and Inpatient Rehabilitation
- **Geisinger Community Medical Center** with specialized medical & surgical services, Level II Trauma and comprehensive cardiac & orthopedic services
- **Geisinger Lewistown Hospital**
- **Marworth Alcohol & Chemical Trtmt Center**
- **Mountain View Care Center**
- **Bloomsburg Health Care Center**

- 1,746 licensed inpatient beds
- 87K admissions/OBS & SORUs

2 Physician Practice Group

Multispecialty group

- ~1,100 physicians
- ~710 advanced practitioners
- ~410 residents & fellows
- ~270 medical students
- 83 primary & specialty clinic sites
- 49 Community Practice Sites all using ProvenHealth Navigator® model of advanced medical home
- 2 ambulatory surgery centers
- 2.5 million outpatient visits/yr

3 Managed Care Companies

- ~470K members (including ~77K Medicare Advantage members, ~120K Medicaid members)
- All LOB; spectrum of products
- ~37,000 contracted providers/facilities
- Operate in 43 PA counties with 2.6M population
- Out of state TPA contracts and MA plan across 5 states

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xG = ex (Latin: “out of”) Geisinger Health System

1995-1999
- Condition Management
- EHR Installation

2000-2006
- Data Warehouse
- Patient Portal
- ProvenCare®
- PGP Demo
- All-or-none Bundles

2007-2010
- ProvenHealth Navigator®
- Practice- based CM
- Clinical decision support

2011-2012
- Robust Care Gap Program
- TOC Bundle
- Specialty integration
- NLP
- Proof of generalizability beyond Central PA

2013
- **Launch of xG Health**

2013+
- Perpetual license to:
  - Geisinger existing IP
  - Geisinger new and improved IP developed until 2023

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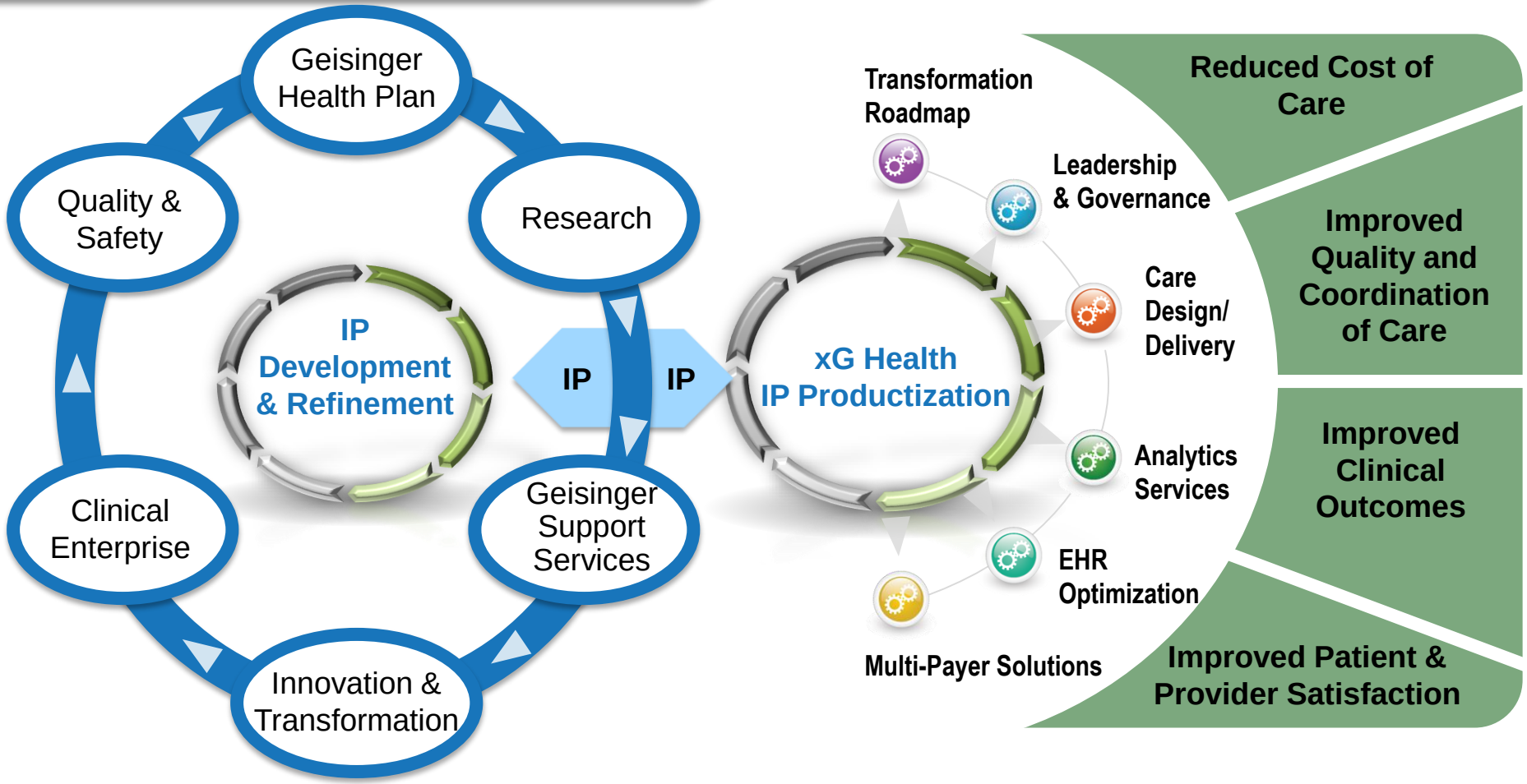
Geisinger – xG Health Relationship

GEISINGER
CORE OPERATIONS
Mission: Execute Core Business / Innovate

PRODUCT DEVELOPMENT & SERVICE DELIVERY
Mission: Generalize / Adapt / Disseminate



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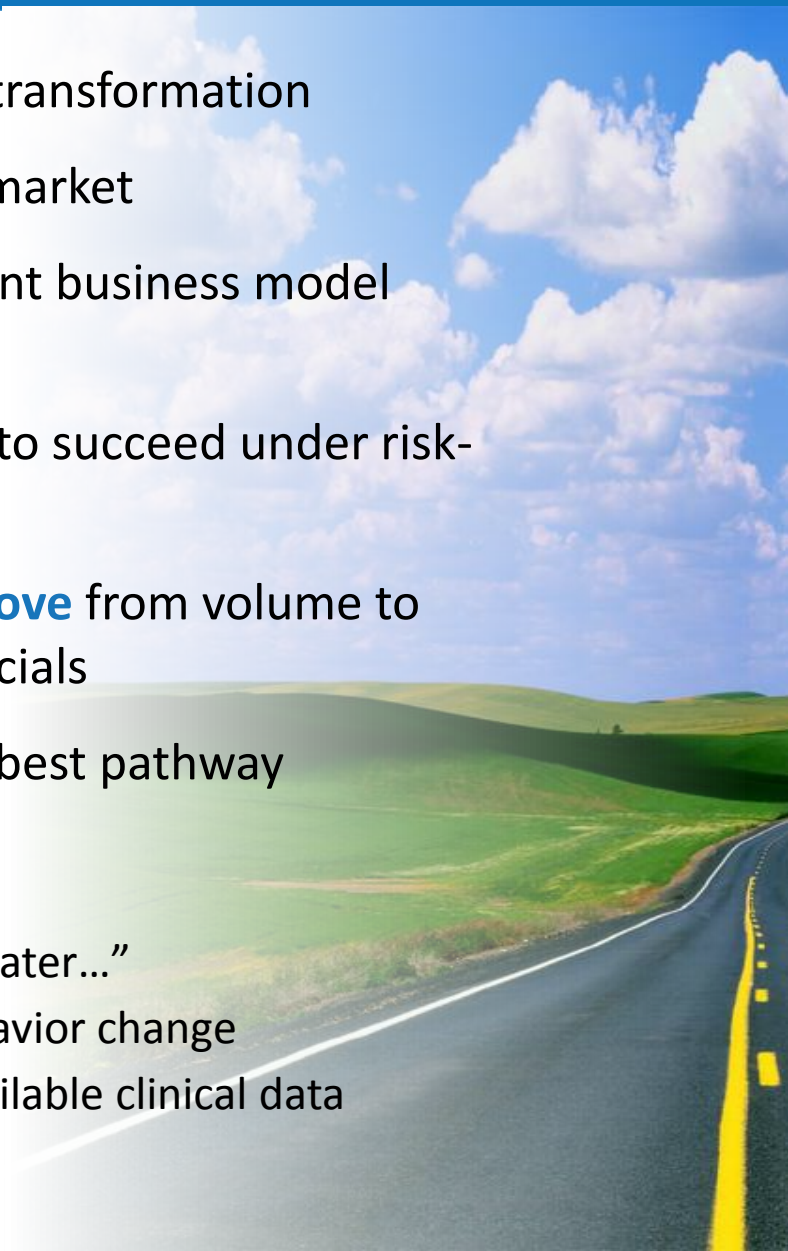
Challenges & Opportunities Providers Are Facing

- The U.S. is in the **early stages** of health care transformation
- Forces for change **vary markedly** market by market
- Providers are aware of waste, but their current business model **depends on volume**
- Most providers **lack the capabilities** needed to succeed under risk- and/or performance-based payment
- Most providers **don't know how/when to move** from volume to value orientation without undermining financials
- Some are already **making risky decisions** on best pathway
  - Building vs. partnering
  - Confusing tools with competencies
  - "We'll worry about getting the needed data later…"
  - Assuming reports turn data directly into behavior change
  - Failing to integrate multi-payer data with available clinical data



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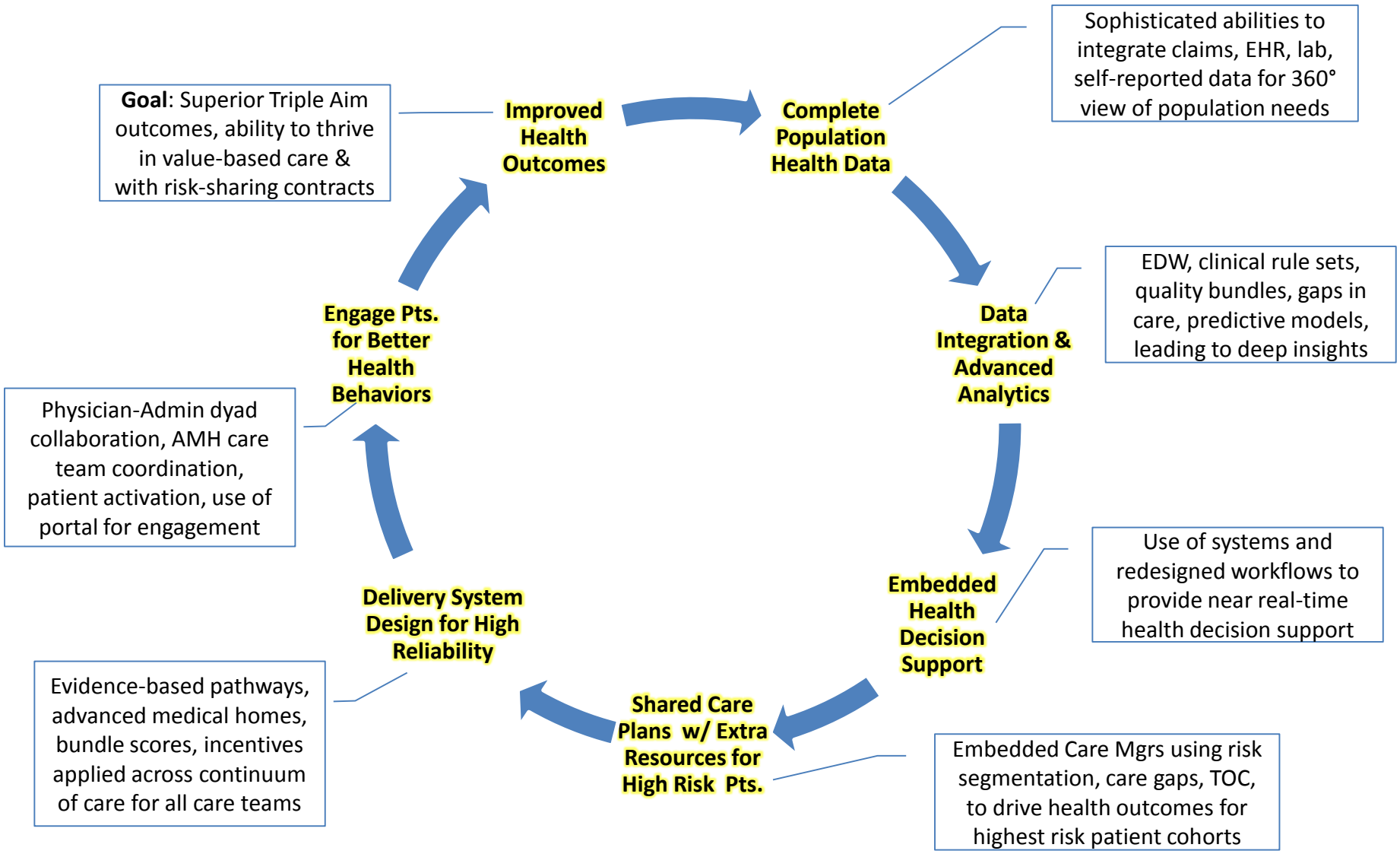
Value Chain Elements for Transformation



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Data ⇨ Analytics ⇨ Insights ⇨ Actions ⇨ Results

Clinical and analytical teams partner to drive insights and action

REQUIRED ANALYTICS SERVICES

Value Based Reimbursement success through transformational decision support

Cost and utilization analytics	Clinical quality analytics	Provider performance analytics	Bundled payment analytics	Multi-payer analytics
Provide insights into financial performance and target areas for improvement	Monitor care quality and drive patient interventions	Understand variations in provider quality and efficiency and enable improvement	Encourage care coordination, reduce costs, and drive financial success	Simplify provider operations and strengthen insights for payer negotiations

Data integration and business intelligence tools

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Overwhelming Complexity of Claims Data

Local market insurance carriers

- Express Scripts
- CVS Caremark
- aetna
- Cigna
- Soundpath Health
- Regence
- Premera Blue Cross
- GroupHealth
- Centene Corporation
- Molina Healthcare
- UnitedHealthcare
- Community Health Plan of Washington
- LifeWise
- Asuris Northwest Health
- KPS health plans
- bridgespan
- First Choice Health

Complexity for Providers

Data Sources

Blue Cross – Blue Card multiple sources: 29 single state and 7 multi-state options

22 HMOs, more TPAs, 40+ Benefit Administrators create connectivity challenges for carriers and providers

Carriers/TPAs have multiple claims systems, data warehouses – legacy from M+A, lines of business adding data complexity for providers

Single Patient - multiple sources including Rx, Behavioral Health and patients changing carriers

State of Washington:

- **98 hospitals**
- **17,796 physicians**
- **100's of Groups, groups of groups and affiliations**

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Reducing Complexity Through Partnering

Local market insurance carriers

- Express Scripts
- CVS Caremark
- aetna
- Cigna
- Soundpath Health
- Regence
- Premera Blue Cross
- GroupHealth
- Centene Corporation
- Molina Healthcare
- UnitedHealthcare
- Community Health Plan of Washington
- LifeWise
- Asuris Northwest Health
- KPS health plans
- bridgespan
- First Choice Health

Neutral data integrator

xG Health Solutions powered by Geisinger

- Standard reports
- Clean, compatible raw data
- Standard measurements
- 1 set of rules (The Rules)

+ Committed Analytic Support Services

"Virtual single payer view" for consistent decision making for each patient

Dr. Jones | Dr. Smith | Dr. Martin | Other Providers

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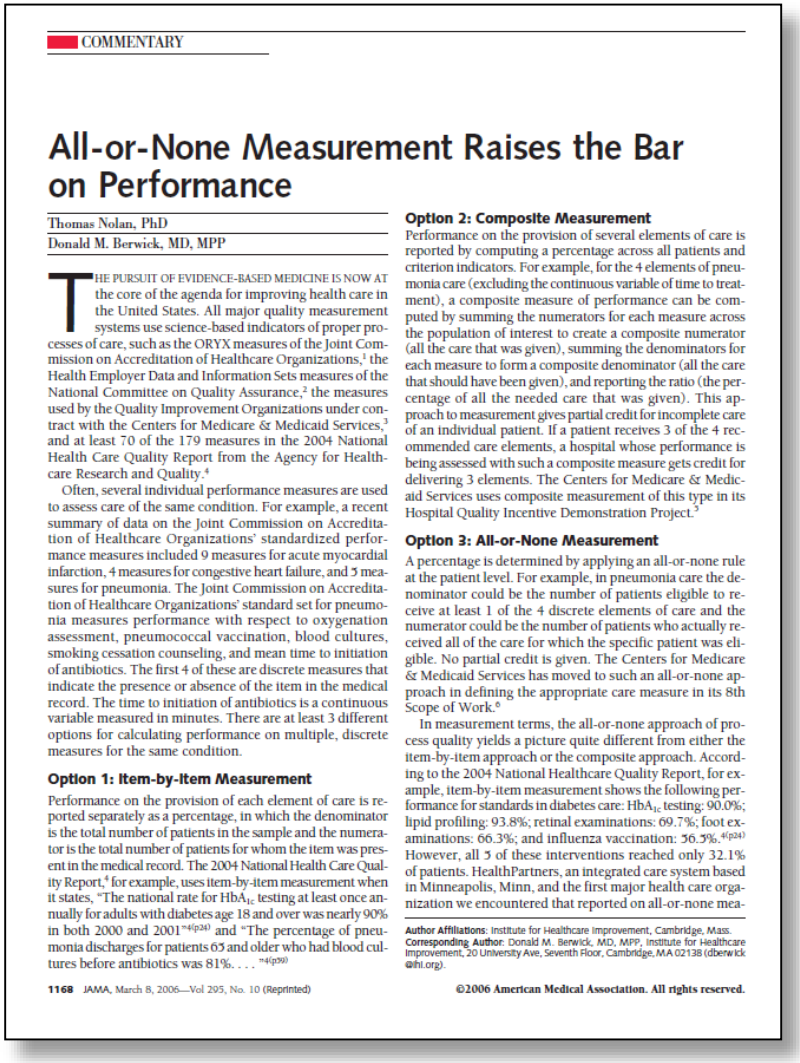
Patient-Centric Quality Measurement

Don Berwick, JAMA, 2006

- 3 alternative QI methods
  - Item-by-item measurement
  - Composite measurement
  - All-or-None measurement
- Benefits of All-or-None
  - More closely reflect the interests and desires of patients
  - Foster a system approach to achieving all goals
  - Provide a more sensitive scale for assessing improvements
- Geisinger committed to All-or-None Bundles for care outcomes measures where feasible



COMMENTARY

All-or-None Measurement Raises the Bar on Performance

Thomas Nolan, PhD
Donald M. Berwick, MD, MPP

THE PURSUIT OF EVIDENCE-BASED MEDICINE IS NOW AT the core of the agenda for improving health care in the United States. All major quality measurement systems use science-based indicators of proper processes of care, such as the ORYX measures of the Joint Commission on Accreditation of Healthcare Organizations,[1] the Health Employer Data and Information Sets measures of the National Committee on Quality Assurance,[2] the measures used by the Quality Improvement Organizations under contract with the Centers for Medicare & Medicaid Services,[3] and at least 70 of the 179 measures in the 2004 National Health Care Quality Report from the Agency for Healthcare Research and Quality.[4]

Often, several individual performance measures are used to assess care of the same condition. For example, a recent summary of data on the Joint Commission on Accreditation of Healthcare Organizations' standardized performance measures included 9 measures for acute myocardial infarction, 4 measures for congestive heart failure, and 5 measures for pneumonia. The Joint Commission on Accreditation of Healthcare Organizations' standard set for pneumonia measures performance with respect to oxygenation assessment, pneumococcal vaccination, blood cultures, smoking cessation counseling, and mean time to initiation of antibiotics. The first 4 of these are discrete measures that indicate the presence or absence of the item in the medical record. The time to initiation of antibiotics is a continuous variable measured in minutes. There are at least 3 different options for calculating performance on multiple, discrete measures for the same condition.

Option 1: Item-by-Item Measurement

Performance on the provision of each element of care is reported separately as a percentage, in which the denominator is the total number of patients in the sample and the numerator is the total number of patients for whom the item was present in the medical record. The 2004 National Health Care Quality Report,[4] for example, uses item-by-item measurement when it states, "The national rate for HbA_{1c} testing at least once annually for adults with diabetes age 18 and over was nearly 90% in both 2000 and 2001"[4(p24)] and "The percentage of pneumonia discharges for patients 65 and older who had blood cultures before antibiotics was 81%. . . ."[4(p59)]

Option 2: Composite Measurement

Performance on the provision of several elements of care is reported by computing a percentage across all patients and criterion indicators. For example, for the 4 elements of pneumonia care (excluding the continuous variable of time to treatment), a composite measure of performance can be computed by summing the numerators for each measure across the population of interest to create a composite numerator (all the care that was given), summing the denominators for each measure to form a composite denominator (all the care that should have been given), and reporting the ratio (the percentage of all the needed care that was given). This approach to measurement gives partial credit for incomplete care of an individual patient. If a patient receives 3 of the 4 recommended care elements, a hospital whose performance is being assessed with such a composite measure gets credit for delivering 3 elements. The Centers for Medicare & Medicaid Services uses composite measurement of this type in its Hospital Quality Incentive Demonstration Project.[5]

Option 3: All-or-None Measurement

A percentage is determined by applying an all-or-none rule at the patient level. For example, in pneumonia care the denominator could be the number of patients eligible to receive at least 1 of the 4 discrete elements of care and the numerator could be the number of patients who actually received all of the care for which the specific patient was eligible. No partial credit is given. The Centers for Medicare & Medicaid Services has moved to such an all-or-none approach in defining the appropriate care measure in its 8th Scope of Work.[6]

In measurement terms, the all-or-none approach of process quality yields a picture quite different from either the item-by-item approach or the composite approach. According to the 2004 National Healthcare Quality Report, for example, item-by-item measurement shows the following performance for standards in diabetes care: HbA_{1c} testing: 90.0%; lipid profiling: 93.8%; retinal examinations: 69.7%; foot examinations: 66.3%; and influenza vaccination: 56.5%.[4(p24)] However, all 5 of these interventions reached only 32.1% of patients. HealthPartners, an integrated care system based in Minneapolis, Minn, and the first major health care organization we encountered that reported on all-or-none mea-

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Nolan T, Berwick DM. All-or-none measurement raises the bar on performance. JAMA 2006;295:1168-70

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Six-fold Increase For Diabetes Bundle Score

	3/06	3/07	4/14
Diabetes Bundle Score (All or Nothing)	2.4%	7.2%	13.9%
% Influenza Vaccination	57%	73%	76%
% Pneumococcal Vaccination	59%	83%	79%
% Microalbumin Result	58%	87%	78%
% HgbA1C at Goal	33%	37%	47%
% LDL at Goal	50%	52%	60%
% BP < 140/80	39%	44%	65%
% Documented Non-Smokers	74%	84%	85%

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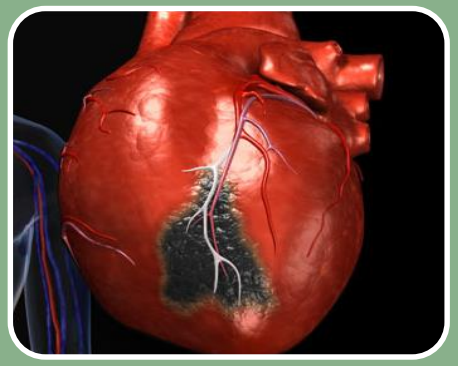
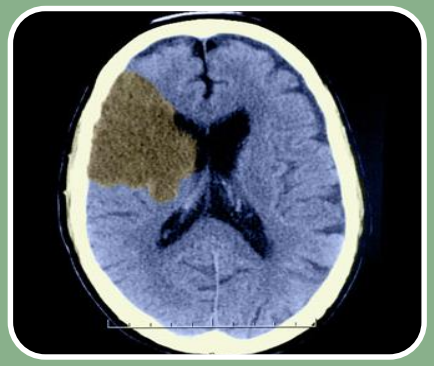
Proven 3 Year Results for 25,000 Diabetes Patients





305 MI's Prevented	140 Strokes Prevented	166 Cases of Retinopathy Prevented
NNT to prevent 1 MI	NNT to prevent 1 Stroke	NNT to prevent 1 Retinopathy case
82 patients	170 patients	152 patients

Am J Manag Care. 2014;20(6):e175-e182

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Tripling CAD Bundle Score

	9/06	3/07	8/13
CAD Bundle Score	8%	11%	25%
% LDL <100 or <70 if High Risk	38%	37%	60%
% ACE/ARB in LVSD,DM, HTN	65%	66%	78%
% BMI measured	79%	86%	99%
% BP < 140/90	74%	74%	81%
% Antiplatelet Therapy	89%	91%	95%
% Beta Blocker use S/P MI	97%	97%	97%
% Documented Non-Smokers	86%	86%	86%
% Pneumococcal Vaccination	80%	80%	80%
% Influenza Vaccination	60%	74%	76%

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Doubling Preventive Care Adult Bundle Score

	11/07	11/12	8/13
Adult Preventive Bundle Score	9.2%	33%	18%
Breast Cancer Screening (q 2 40-49, q 1 50-74)	46%	64%	61%
Cervical Cancer Screening (q 3 yr Age 21-64)	64%	68%	76%
Colon Cancer Screening (Age 50-79)	44%	67%	66%
Lipid Screening (Every 5 yr M > 35, F > 45)	75%	88%	87%
Diabetes Screening (Every 3 yr > 45)	85%	91%	91%
Obesity Screening (BMI in Epic)	77%	98%	98%
Documented Non-Smokers	75%	79%	79%
Tetanus Diphtheria Immunization (every 10 yr)	35%	75%	76%
Pneumococcal Immunization (Once Age >65)	84%	86%	84%
Influenza Immunization (Yearly Age >18)	47%	59%	45%
Chlamydia Screening (Yearly Age 18-25)	22%	35%	39%
Osteoporosis Screening (every 3 yr Age >65)	52%	70%	79%
Alcohol Intake Assessment	84%	95%	96%
Zoster Vaccine (Age >60)			33%

Learnings from Geisinger's 18 Year Transition

- **Improving patients' health/experience while reducing costs is possible**
  - Must understand, build, & refine value chain for accountable care
- **Requires significant change in primary care delivery model**
  - Needs active, engaged providers working in empowered teams with embedded case managers who leverage healing relationship, trust, engagement
- **Transitions of care create specific gaps and opportunities**
  - Advanced Medical Homes are foundational, but an integrated, connected Medical Neighborhood also needed to optimize care across the continuum
- **System-driven pathways assure consistent best practice**
  - Financial incentives can focus attention, but connected HIT-enabled systems of care support consistent behavior over time for high reliability care
- **Robust data analyses drives innovation, supports incremental progress**
  - Administrative and clinical data required for 360^{o} view of population; payer claims data must be integrated with EHR data for "virtual single payer" view
- **Transformation to value-based care is not a project**
  - It's a continuous process, requiring culture change and long-term commitment

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