

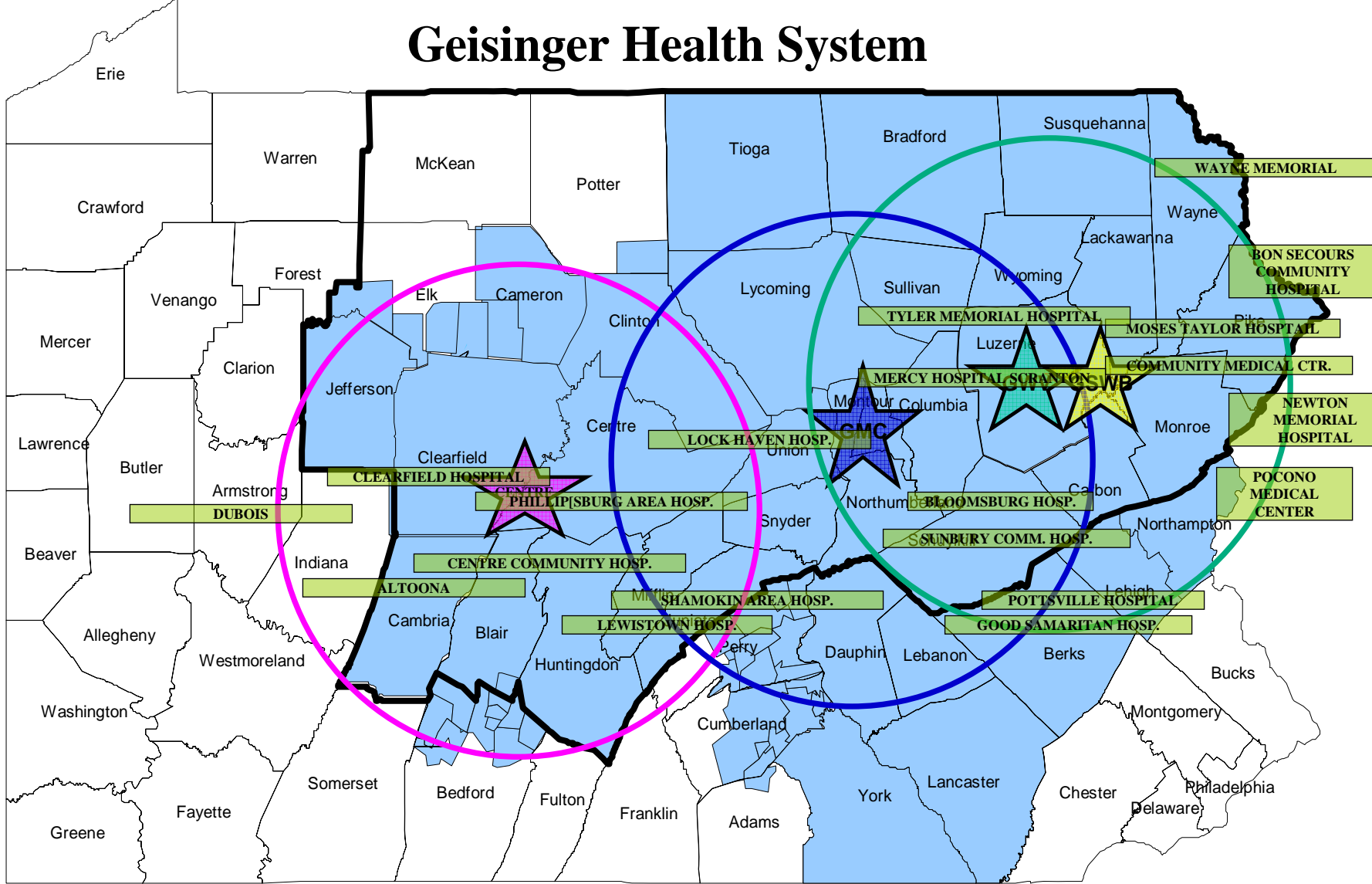


The Heller School for Social Policy and Management
Brandeis University

Delivery System Strategies

Presented by: Glenn Steele Jr., MD, PhD
President and CEO
Geisinger Health System
February 12, 2008

Geisinger Health System



Geisinger Hospitals "Hubs" – Provide Primary/Secondary/Tertiary Care



Geisinger Med. Ctr.



Geisinger Wyoming Valley



Geisinger South Wilkes Barre

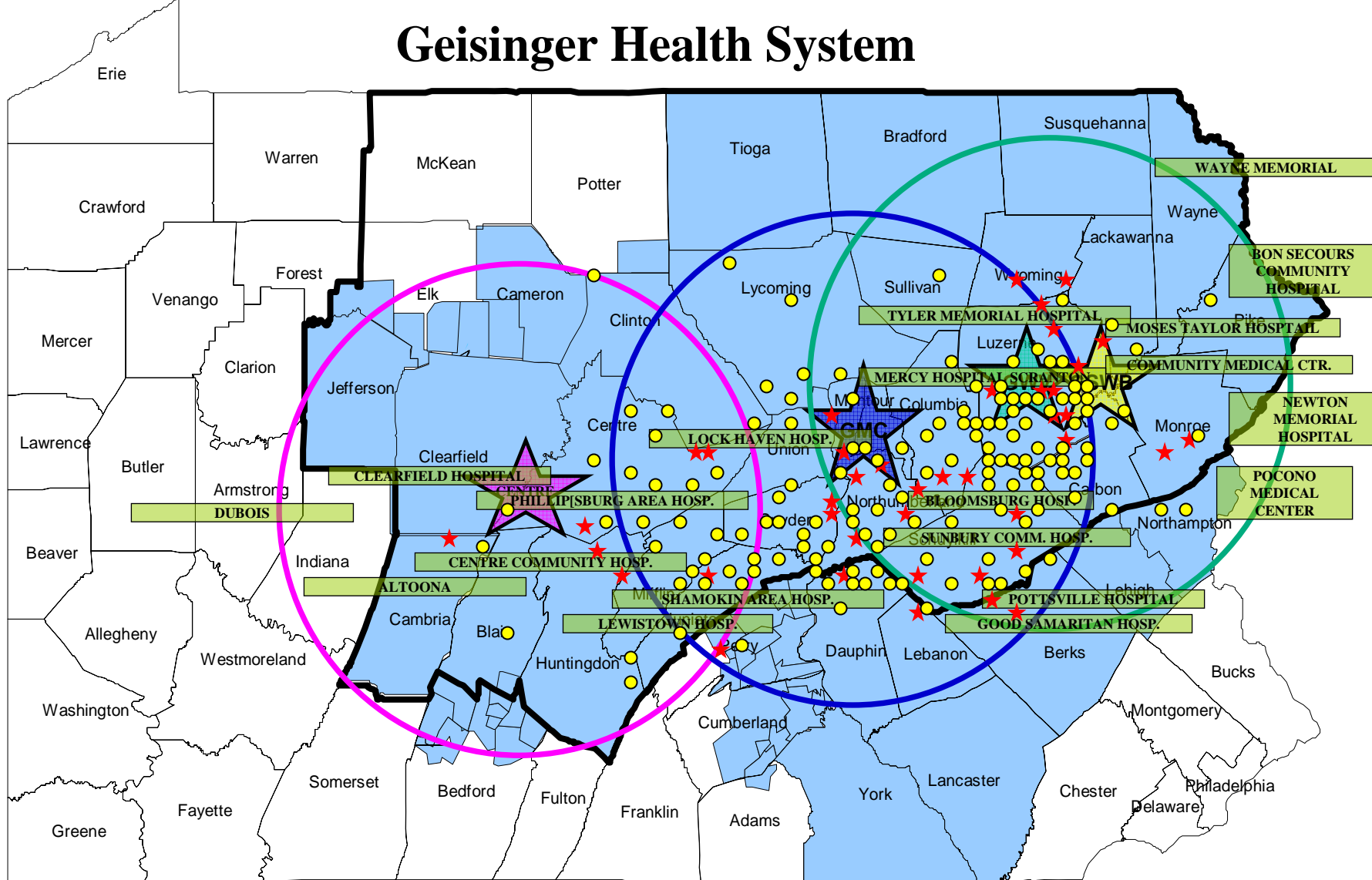


Geisinger Centre

Light blue square icon: GHP Service Area

Thick black outline icon: GHS Service Area

Geisinger Health System



Geisinger Hospitals "Hubs" – Provide Primary/Secondary/Tertiary Care



Geisinger Med. Ctr.



Geisinger Wyoming Valley



Geisinger South Wilkes Barre



Centre

● Non-Geisinger Physicians with EHR access

★ Geisinger Med. Groups

■ GHP Service Area

▭ GHS Service Area

Geisinger Health System

Anatomy

- 2.6 million in service area
- 41 of PA's 67 counties (including Geisinger Health Plan)
- Rural, aging, non-transient
- Medical informatics (strategic commitment)
- > 670 physicians
- 40 community practice sites; ~200 primary care physicians
- Multiple specialty hospitals and ASCs
- Tertiary/quaternary care medical centers and specialty hospitals
- Hub & Spoke “Continuity of Care” design

Geisinger Health Plan

- 211,000 members
 - HMO, PPO, diversified products
 - 35,000 Medicare Advantage
- 7,500 empanelled physicians
- 53 non-Geisinger hospitals
- 41 PA counties

Hedging Strategy

- GHS provision of care
 - 30% GHP payor
 - 70% Non-GHP payors
- GHS insurance companies
 - 50% via Geisinger Clinic

Geisinger Health System

An Integrated Health Service Organization

**Provider
Facilities
\$858M**

**Physician
Practice Group
\$366M**

**Managed Care
Companies
\$835M**

- Geisinger Med. Ctr. (+ Janet Weis Children's Hospital)
- Geisinger Wyoming Valley Med. Ctr. w/ Heart Hosp. & Henry Cancer Ctr.
- Geisinger South Wilkes-Barre Hosp.
- Marworth Drug & Alcohol Treatment Center
- 3 ambulatory surgery centers
- > 30K Admissions, > 800 in-pt beds

- Multispecialty group
- ~ 670 physicians
- 40 community practice sites
- > 1.5 million outpatient visits
- 220 interns and residents

- ~211,000 members
- Diversified products
- 7,500 contracted physicians

Electronic Health Record (EHR)

- Decision to implement Epic®: 1995
- > \$80M invested (hardware, software, manpower, training)
- Running costs: ~ 4.2% of annual revenue of \$2.0B
- Fully-integrated EHR - 40 community practice sites, three hospitals
- > 3 million patient records
 - >90,000 active users of MyGeisinger; goal = 100,000
 - >1,300 non-Geisinger users; secure access (referring physicians)
 - Real-time registries track clinical metrics by dept/physician
 - PACS and web-based image distribution

Why Implement an EHR?

- Phase I
 - Enabler of operational turnaround
- Phase II
 - Enabler of patient care redesign

The Vision for the Second Century The Next Five Years*

“Striving for Perfection”

- Geisinger Quality
- Innovation
- Market Expansion
- Securing the Legacy

**Predicated on maintaining healthy operations*



The Quality of Health Care Delivered To Adults In the United States

McGlynn, Elizabeth A.: Asch, Steven M.: Adams, John: Jeesey, Joan: Hicks, Jennifer:
DeCristofaro, Alison: Kerr, Eve A.

BACKGROUND

We have little systematic information about the extent to which standard processes involved in healthcare—a key element of quality—are delivered in the United States.

METHODS

We telephoned a random sample of adults living in 12 metropolitan areas in the United States and...received written consent to copy their medical records...to evaluate performance on 439 indicators of quality of care for 30 acute and chronic conditions as well as preventative care...

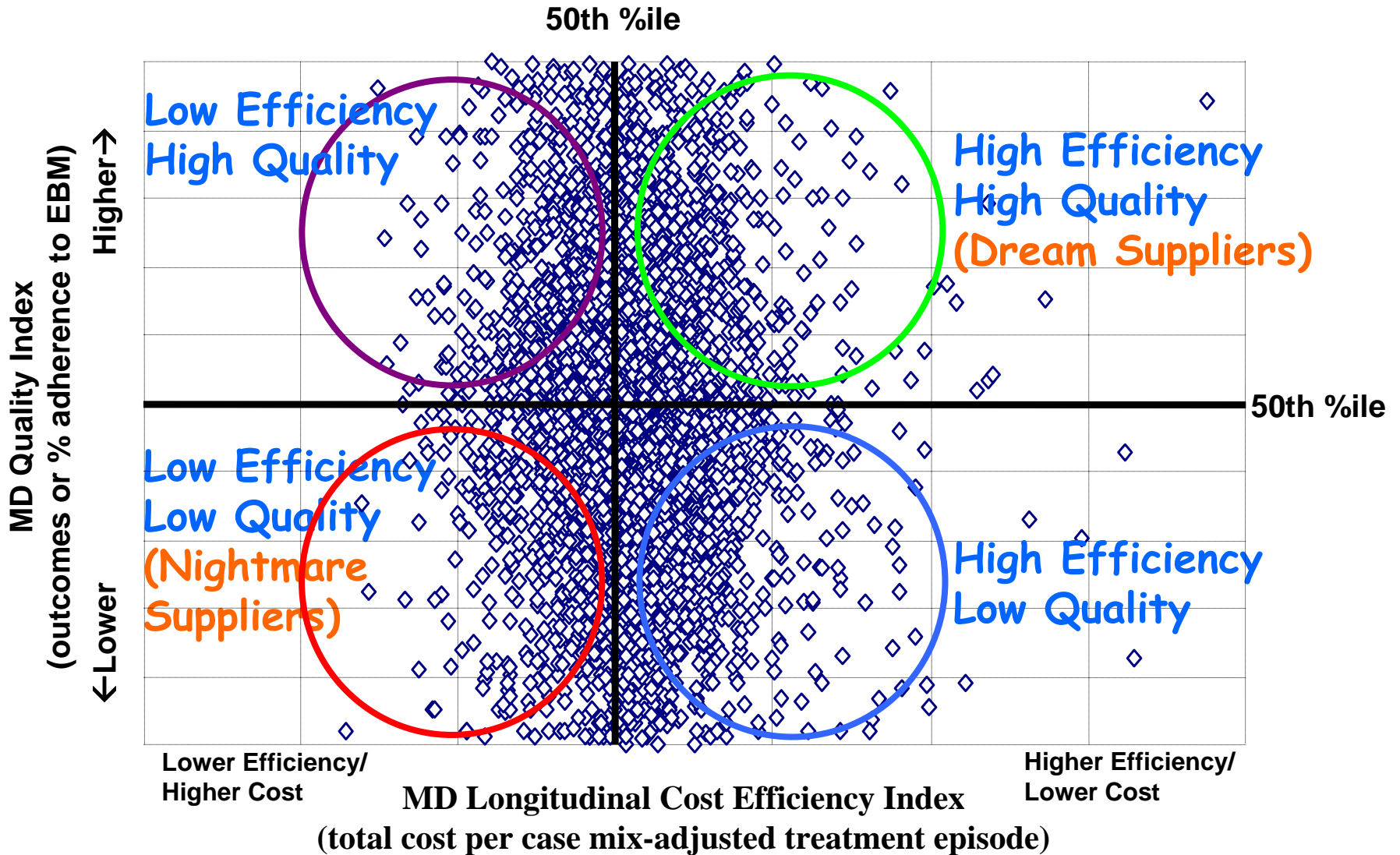
RESULTS

Participants received 54.9 percent of recommended care.

CONCLUSIONS

The deficits we have identified in adherence to recommended processes for basic care pose serious threats to the health of the American public. Strategies to reduce these deficits are warranted.

Cost/Quality “Correlation”



Adapted from Regence Blue Shield; Arnie Milstein, MD - Mercer

Targets for the Geisinger Transformation

- Unjustified variation
- Fragmentation of care-giving
- Perverse payment incentives
 - ↑Units of work
 - Outcome irrelevant

Transformation Initiatives*

- Geisinger Medical Home
- **Chronic Disease Care Optimization**
- Transitions of Care
- **ProvenCareSM for acute episodic care (the “warranty”)**

*Achievable only through innovation

Chronic Disease Care Optimization

Pay-for-Performance Medical Home - Geisinger

PGP Demonstration Project Model - Medicare (Diabetes, CHF, HTN, A-fib, etc.)

- Providers rewarded for coordinating and managing overall healthcare needs
- Explicit incentives for process and outcomes improvement and cost savings
- Bonus from savings produced by successful chronic care management – 80% of savings available for provider incentives

Patient-Centric Focus

- Patient engagement
- Physician endorsement and oversight of care continuum
- Individualized care plans (e.g., diabetic report card, MyGeisinger)
- Automated assessment and triage
- Complete, accurate, searchable data
- Complete, accurate, current registries
- Coordinated care (between patient/family/nurse/physicians)

Chronic Disease Portfolio

- Diabetes
- Congestive Heart Failure
- Coronary Artery Disease
- Hypertension
- Prevention Bundle

Diabetes "Bundle"

Measures	GHS Quality Targets			Standard	CPSL FY07
	Performance Criteria				
HgbA1C measurement	Every 6 months			100%	X
HgbA1C control	< 7	7 to 9	>9	< 7.0	X
LDL measurement	Yearly			100%	X
LDL control	< 100	<130	>=130	< 100	X
Blood pressure control	< 130/80	< 140/90	>=140/90	< 130/80	X
Retinal exam	Yearly			100%	
Urine (protein) exam	Yearly			100%	X
Foot exam	Yearly			100%	
Influenza immunization	Yearly			100%	X
Pneumococcal immunization	Once*			100%	X
Smoking status	Non-smoker			100%	X
Use of ACE/ARB for microalbuminuria/DM nephropathy	Yes			100%	
Use of ACE/ARB for hypertension	Yes			100%	
Patients who receive/achieve ALL of the above	Yearly			100%	X

Diabetes Care

EHR-Based Work Flow Redesign

Order Entry Support

- Order list: *SmartSet*
- Order panels
- Pre-filled referrals

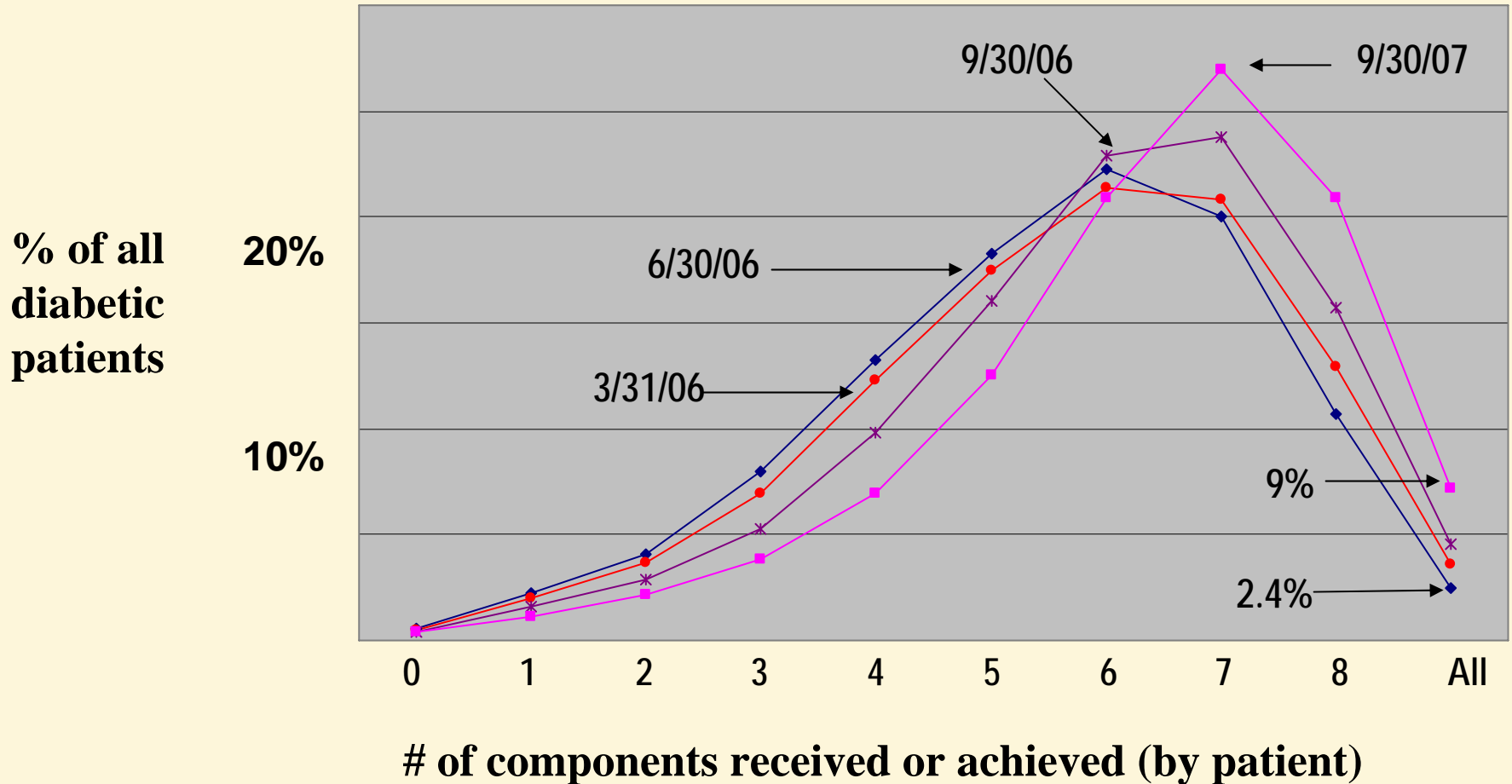
Reports

- Patient-specific Report Card (letter)
- Patient-specific After Visit Summary
- Panel-specific Profile Report (components, composite)

Decision Support

- Patient-specific Health Maintenance Screens (*EpicCare, MyGeisinger*)
- Disease-specific summary screen
- Best practice alerts (*Smart Set* enabled)
- Nurse rooming protocol

Diabetes Bundle Results (System-wide; >20K patients)



Diabetes: MyGeisinger/Report Card

Personal Diabetic Report Card: Abigail L George

7/15/2007

Below is a summary of relevant Diabetes values that we feel could help you manage your health better. Feel free to discuss this with your care provider.

HEMOGLOBIN A1C

Your most recent Hemoglobin A1c values are:	HEMOGLOBIN, A1C(%)			
	Coll	Dt/Tm	Resulted	Value Status
	3/2/06	11:23A	3/2/06	6.6* FINAL
	11/21/05	4:21P	11/22/05	8.7* FINAL

The above values should be **LESS than 7 (<7)**. If these are more than 7 then you have a higher chance of having eye, kidney, and heart problems in the future.

CHOLESTEROL

Your most recent LDL cholesterol (bad cholesterol) results are:	LDL (CALCULATED)(mg/dL)			
	Coll	Dt/Tm	Resulted	Value Status
	11/15/05	8:20A	11/15/05	110 FINAL

The above values should be **LESS than 100 (<100)**. If these are consistently higher than 100, then your chance for heart attack and stroke increases yearly.

BLOOD PRESSURE

Your most recent Blood Pressure readings are:	Last 3 BP Readings:	
	Date:	BP:
	04/28/2006	100/60
	04/25/2006	140/80
	03/02/2006	124/80

The above values should be **LESS than 130/80**. Contact me if your readings at home are consistently higher than this.

Last 2-3 values displayed

LDL values and goals

Last BP readings

DM Best Practice Alerts

Visit Navigator (4/28/2006 visit with GILL) - Viewing

SmartSets Open Orders SmartForms Images Questionnaires Graphs Scans Admin Benefits Print AVS

Epic

Charting

▼ BestPractice

- Chief Complaint
- Episodes
- Vitals
- Nursing Notes
- Progress Notes
- Diagnoses
- Orders
- Pt. Instructions
- LOS & Follow-up
- AVS
- Communication
- Close Encounter
- Comm Mgt

Allergies: Not On File

MRN: 5235276 TEST,TRICIA Sex: F DOB: 4/9/1966 Age: 40 *GILL

[No Coverage] PCP: [Not avail.] Practice: [Not avail.]

Charting

BestPractice Alerts

Action(s)

▼ **Dx of DM. LDL every 12 months, Standard <100.**

Open SmartSet: BPA GHS DIABETES LDL

▼ **Dx of DM. Pneumovax - at least one lifetime vaccine. One time revaccination >64 years old (if vaccine given more than 5 years ago).**

Open SmartSet: BPA_GHS_PNEUMOVAX

▼ **Dx of DM. Flu vaccine - once per flu season is standard.**

Open SmartSet: BPA-GHS_DIABETES_FLU

▼ **Dx of DM. HgbA1c every 3 months, Standard < 7%**

Last HGBA1C: Not on file

Open SmartSet: BPA - GHS DIABETES - HGBA1C Greater than 7.0

▼ **Dx of DM. Microalbumin every 12 month, Standard < 30.**

Open SmartSet: BPA GHS DIABETES MICROALBUMIN

Accept

[Nav Hotkey List](#)

Patient Trend Report

Personal Diabetic Report Card: Abigail L George

4/28/2006

Below is a summary of relevant Diabetes values that we feel could help you manage your health better. Feel free to discuss this with your care provider.

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	11/21/05 4:21P	11/22/05	8.7*	FINAL

Most recent values displayed

The above values should be LESS than 7 (<7). If these are more than 7 then you have a higher chance of having eye, kidney, and heart problems in the future.

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Your most recent LDL cholesterol (bad cholesterol) results are:	LDL (CALCULATED)(mg/dL)		Value	Status
	Coll	Dt/Tm Resulted		
	11/15/05 8:20A	11/15/05	110	FINAL

Therapeutic goals are stated

The above values should be LESS than 100 (<100). If these are consistently higher than 100, then your chance for heart attack and stroke increases yearly.

BLOOD PRESSURE

Your most recent Blood Pressure readings are:	Last 3 BP Readings:	
	Date:	BP:
	04/28/2006	100/60
	04/25/2006	140/80
	03/02/2006	124/80

Clinical consequences are stated

The above values should be LESS than 130/80. Contact me if your readings at home are consistently higher than this.

Prevention Bundle - Adult

- Cancer Screening

- Breast: Mammogram Every 2 yrs (40-49 yo); yearly (50-74 yo)
- Cervical: Pap Every 3 yrs (21-64 yo)
- Colon: Colonoscopy Every 10 yrs (or as indicated)
- Prostate: Discuss screening Yearly (50-74 yo)
- Lung: Non-smoker All ages

- Cardiovascular Disease

- Lipid Screening: Every 5 yrs (males > 35; females >45)
- Non-Smoker (all ages)

- Infectious Disease

- Tetanus/diphtheria/pertussis vaccine TDP once; then every 10 yrs
- Influenza: Yearly (>50 yo)
- Pneumococcal vaccine: Once (>65 yo)
- Chlamydia screening: Yearly (18-25 yo)

- Nutritional Status

- Osteoporosis: Every 3 yrs (>65)
- Diabetes: Every 3 yrs (>45)
- Obesity: BMI in EPIC (all ages)

- Substance Misuse

- Assess alcohol intake Every year

ProvenCareSM for Acute Episodic Care (the “Warranty”)

ProvenCareSM: What is It?

*A provider-driven, evidenced-based
pay-for-performance program*

Traditional Pay-for-Performance

- “Financial incentive or favorable treatment for guideline compliance, process use, infrastructure availability and/or achievement of satisfaction or outcome targets.”
 - Generally imposed by payer
 - Outpatient, primary care focus
 - Chronic disease management or preventative care emphasis
 - Relatively small incentives
 - Few “penalties”

ProvenCare: A Dramatic Change in Status Quo

- Reliably deliver evidence-based, patient-centered and outcome-focused care:
 - Documented appropriateness
 - Systematically applied; “hard wired” evidence-based care
- Enable, nurture and support an activated, partnered patient/family
- Accepting responsibility:
 - Global payment for procedure and all related services
 - “90-day warranty” by including care for any related complications, readmissions or follow-up care for 30 days before and 90 days after intervention
 - Eliminates perverse incentives
 - Complements ambulatory chronic disease programs

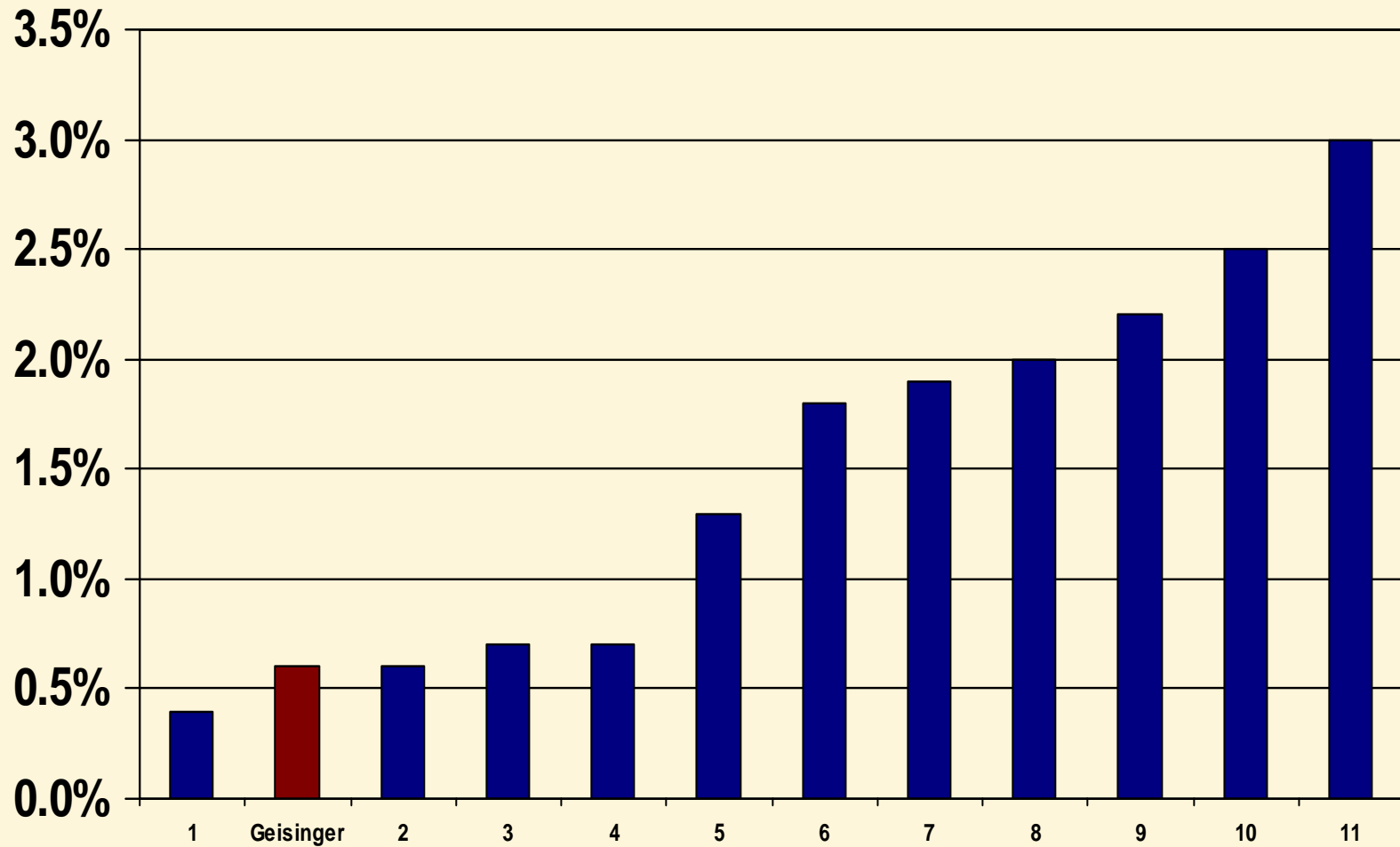
Core Principles

- Approach is patient-centric and outcome-focused including:
 - Documented appropriateness
 - Enabling and supporting an activated patient
 - Systematically applying evidence-based care
 - Driving process efficiency gains (treatment intensity and complication reduction, through-put enhancement)
- Reimbursement incentives:
 - Restructuring to support and enable optimal outcomes

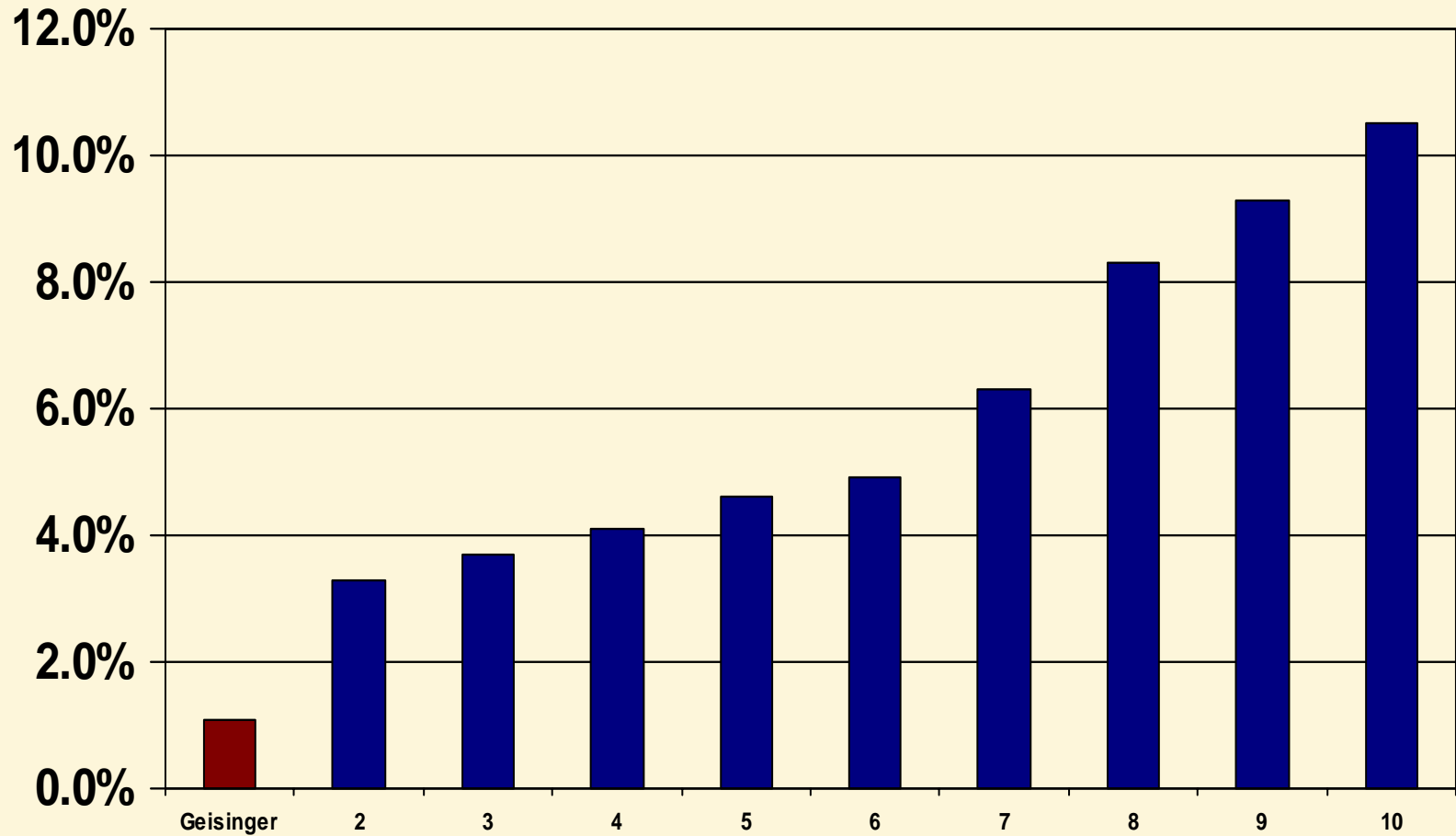
ProvenCare: Why CABG?

- Motivated, collaborative clinicians
- Consensus and evidence-based guidelines
- Established predictive models
- Robust data collecting systems
- Appropriate volumes
- Relevant outcomes and intervention areas
- Financially important to system
- Excellent baseline performance
 - PHC4 data

PA CABG Mortality Rates (2004)



PA Readmission Rates (2004)



Best Practice Design

- Established “Guideline” team
 - Adopted 2004 AHA/ACC Guidelines for CABG
 - Surgeons assigned to each of 12 Class I and 8 Class IIa guidelines
 - Translation to 40 verifiable, actionable behaviors with clear definitions
 - Developed unanimity and “buy-in”
 - Educated all surgeons at all sites
- Clinical Effectiveness professionals defined existing care processes and flows

Document Appropriateness

- Elective CABG based on defined, unambiguous, authoritative medical criteria (ACC/AHA 2004 Guideline Update for CABG Surgery)
 - If documented Class I or Class IIa, proceed to surgery (33 total indications)
 - If documented Class IIb, will have second surgical review and require unanimous agreement (3 indications)
 - If documented Class III or no indication, NO surgery (9 “indications”)

Deliver Evidence-Based Care

- ACC/AHA Class I Recommendations
- Pre-op antibiotics
- Pre-op carotid doppler studies
- Aspirin
- Epiaortic echocardiography to identify atherosclerotic ascending aorta
- Aggressive debridement and revascularization for deep sternal wound infections
- Perioperative beta blockers (or amiodarone) to reduce atrial fibrillation
- Statins
- Smoking cessation education and pharmacotherapy
- Cardiac rehab
- Withholding of clopidogrel for 5 days pre-op
- Left internal mammary artery as graft for the LAD artery
- ACC/AHA Class II Recommendations
- Pre-operative use of a CABG operative mortality risk model
- Anticoagulation for recurrent/persistent postoperative Afib
- Anticoagulation for postoperative anteroapical MI with persistent wall motion abnormality
- Carotid endarterectomy for carotid stenosis that is symptomatic or $>80\%$
- Intra-aortic counter pulsation for low LV ejection fraction
- Blood cardioplegia
- Delay operation for patients with recent inferior MI with significant RV involvement
- Tight peri-operative glucose control

Patient Activation

- Clinical, executive, and legal team developed a “Patient Compact” to engage patients
 - Reflects bilateral commitment to optimize outcomes
- Education work group revised all patient education materials to comply with ProvenCare concepts

Patient Agreement

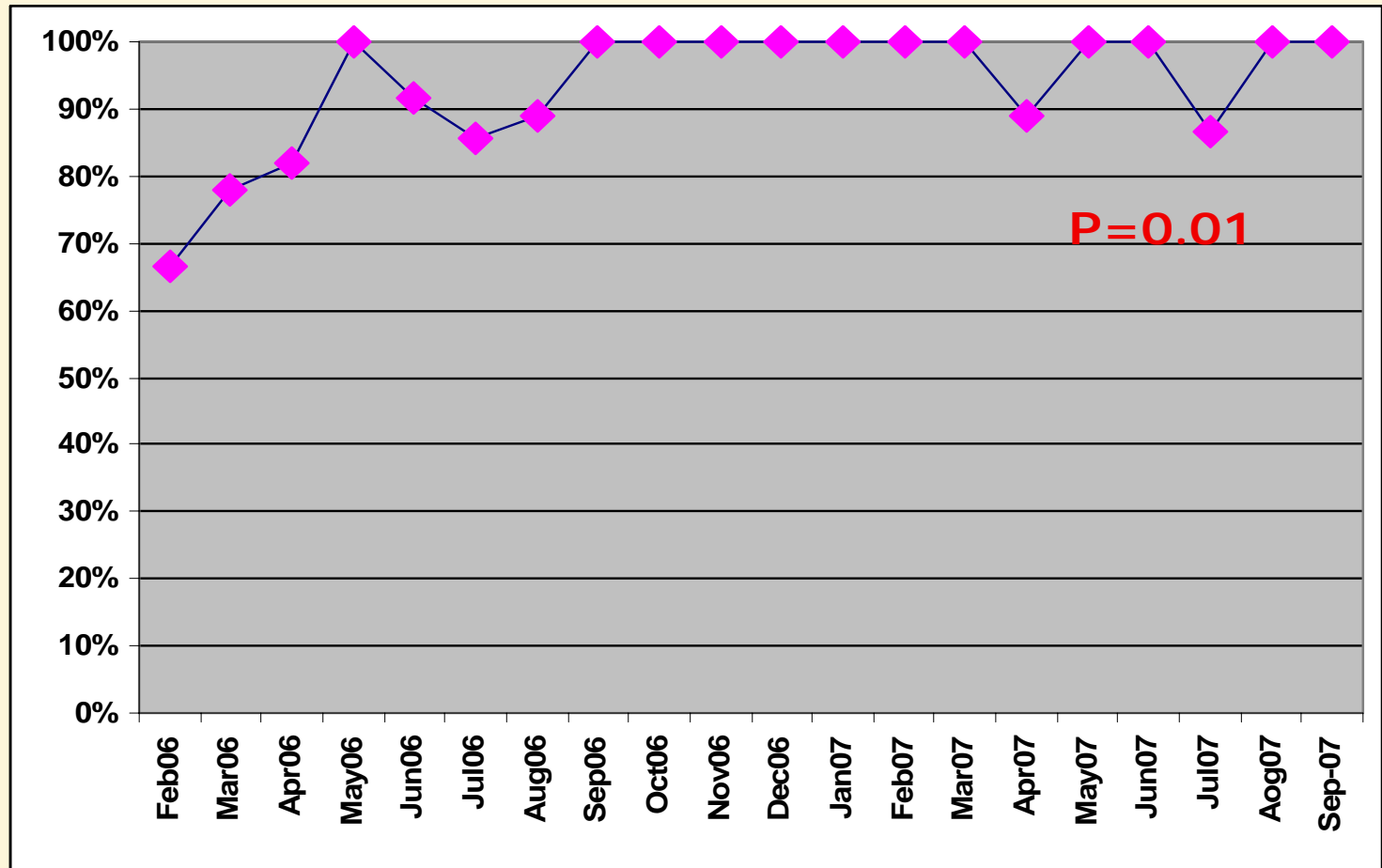
- Engage as a “partner” in care process
- Make preferences known (facilitated)
- Ask questions, expect answers
- Comply with recommended medications
- Complete cardiac rehabilitation
- Stop smoking (best efforts)
- Manage weight (best efforts)

Financial Terms

- Packaged price for entire “Episode of Care”
 - GHS will not charge for *related care* within 30 days prior or 90 days post provided by a Geisinger clinician or at a Geisinger facility
- Related and unrelated examples:
 - Related: Sternal wound infection, CHF from perioperative infarct
 - Not related: auto accident, diverticulitis, hip fracture, pre-existing CHF
- Global fee includes variable discount with “locked-in” savings on historical readmissions

ProvenCareSM CABG: Reliability

% of patients who received all components of care



Quality

Clinical Outcomes - (18. mos)

	<i>Before ProvenCareSM (n=132)</i>	<i>With ProvenCareSM (n=181)</i>	% Improvement/ (Reduction)
In-hospital mortality	1.5 %	0 %	
Patients with <u>any</u> complication (STS)	38 %	30 %	21 %
Patients with >1 complication	7.6 %	5.5 %	28 %
Atrial fibrillation	23 %	19 %	17 %
Neurologic complication	1.5 %	0.6 %	60 %
Any pulmonary complication	7 %	4 %	43 %
Blood products used	23 %	18 %	22 %
Re-operation for bleeding	3.8 %	1.7 %	55 %
Deep sternal wound infection	0.8 %	0.6 %	25 %
Readmission within 30 days	6.9 %	3.8 %	44 %

Value

Financial Outcomes - (18 months)

- Average total LOS fell 0.5 days (6.2 vs 5.7)
- Hospital net revenue grew 7.8%
- Contribution margin of index hospitalization grew 16.9%
- 30 day readmission rate fell 44%

“ProvenCareSM”

A Provider-Driven Pay-for-Performance Program for Acute Episodic Cardiac Surgical Care

Alfred S. Casale, MD, Ronald A. Paulus, MD, Mark J. Selna, MD, Michael C. Doll, PA-C, Albert E. Bothe, Jr., MD, Karen E. McKinley, RN, Scott A. Berry, MS, Duane E. Davis, MD, Richard J. Gilfillan, MD, Bruce H. Hamory, MD, and Glenn D. Steele, Jr., MD

Objective: To test whether an integrated delivery system could successfully implement an evidence-based pay-for-performance program for coronary artery bypass graft (CABG) surgery.

Methods: The program consisted of 3 components: (1) establishing implementable best practices; (2) developing risk-based pricing; (3) establishing a mechanism for patient engagement. Surgeons reviewed all class I and IIa “2004 American Heart Association/American College of Cardiology Guidelines for CABG Surgery” and translated them into 40 verifiable behaviors. These were imbedded within a new ProvenCareSM program and “hardwired” within the electronic health record system, including order sets, templates, and “time outs”. Concurrently preoperative, inpatient, and postoperative care within 90 days was packaged into a fixed price. A Patient Compact was developed to highlight the importance of patient activation. All elective CABG patients treated between February 2, 2006 and February 2, 2007 were included (ProvenCareSM Group) and compared with 137 patients treated in 2005 (Conventional Care Group).

Results: Initially, only 59% of patients received all 40 best practice components. At 3 months, program compliance reached 100%, but fell transiently to 86% over the next 3 months. Reliability subsequently increased to 100% and was sustained for the remainder of the study period. The overall trend in reliability was significant at $P = 0.001$. Thirty-day clinical outcomes showed improved trends (Table 1) but only the likelihood of discharge to home reached statistical significance. Length of stay decreased by 16% and mean hospital charges fell 5.2%.

Healthcare delivery in the United States faces significant quality and cost problems. Medical care is often inappropriate when judged against accepted standards with numerous examples of excess utilization and conversely, appropriately indicated care is frequently not provided.¹ This inconsistency leads to wide, unexplained variation in rates of procedures, expenditures, and outcomes.² Landmark publications by the Institute of Medicine and the Rand Corporation^{3–5} have focused increased professional and public attention on these issues. Nevertheless, healthcare providers continue to be paid for units of care delivered independent of quality or results achieved. Poor outcomes, such as postoperative complications that require reoperation, often result in more payment.

Care reliability is inconsistent. Best practice guidelines are sometimes based on equivocal evidence, and are often ignored or poorly applied.⁶ Translation of even the best guidelines into actual behavior is difficult and slow-paced. The fragmentation of our delivery systems⁷ and the influence of diverse and often opposing economic factors can overwhelm the influence of science and well-meaning intentions in determining acceptance and dissemination of best practices.⁸

Strategies to improve this system have included mandates from regulators, federal and state agencies, and payers. Public reports of outcome measures are often derived from administrative databases and have typically had only modest

May 17, 2007

In Bid for Better Care, Surgery With a Warranty

By [REED ABELSON](#)

What if medical care came with a 90-day warranty?

That is what a hospital group in central Pennsylvania is trying to learn in an experiment that some experts say is a radically new way to encourage hospitals and doctors to provide high-quality care that can avoid costly mistakes.

The group, Geisinger Health System, has overhauled its approach to surgery. And taking a cue from the makers of television sets, washing machines and consumer products, Geisinger essentially guarantees its workmanship, charging a flat fee that includes 90 days of follow-up treatment.

Bypass by the Book

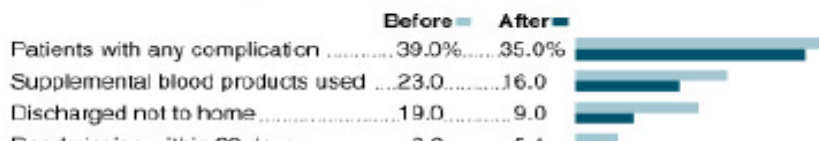
Geisinger Health System has devised an approach to elective heart bypass surgery, which it calls ProvenCare, that includes a 40-item checklist to ensure that patients get recommended treatments. A Geisinger study of the first-year results of the program found that fewer patients returned to the intensive care unit and that they were more likely to go directly home from the hospital rather than to a nursing home.

ProvenCare checklist for heart bypass surgery

- 1 Before admission**
12 checks, including screening for stroke risk.
- 2 Just before and during surgery**
8 checks, including confirming that the patient received the correct doses of medications and was screened for hyperglycemia.
- 3 After surgery**
10 checks, including tobacco screening and counseling.
- 4 Before being discharged**

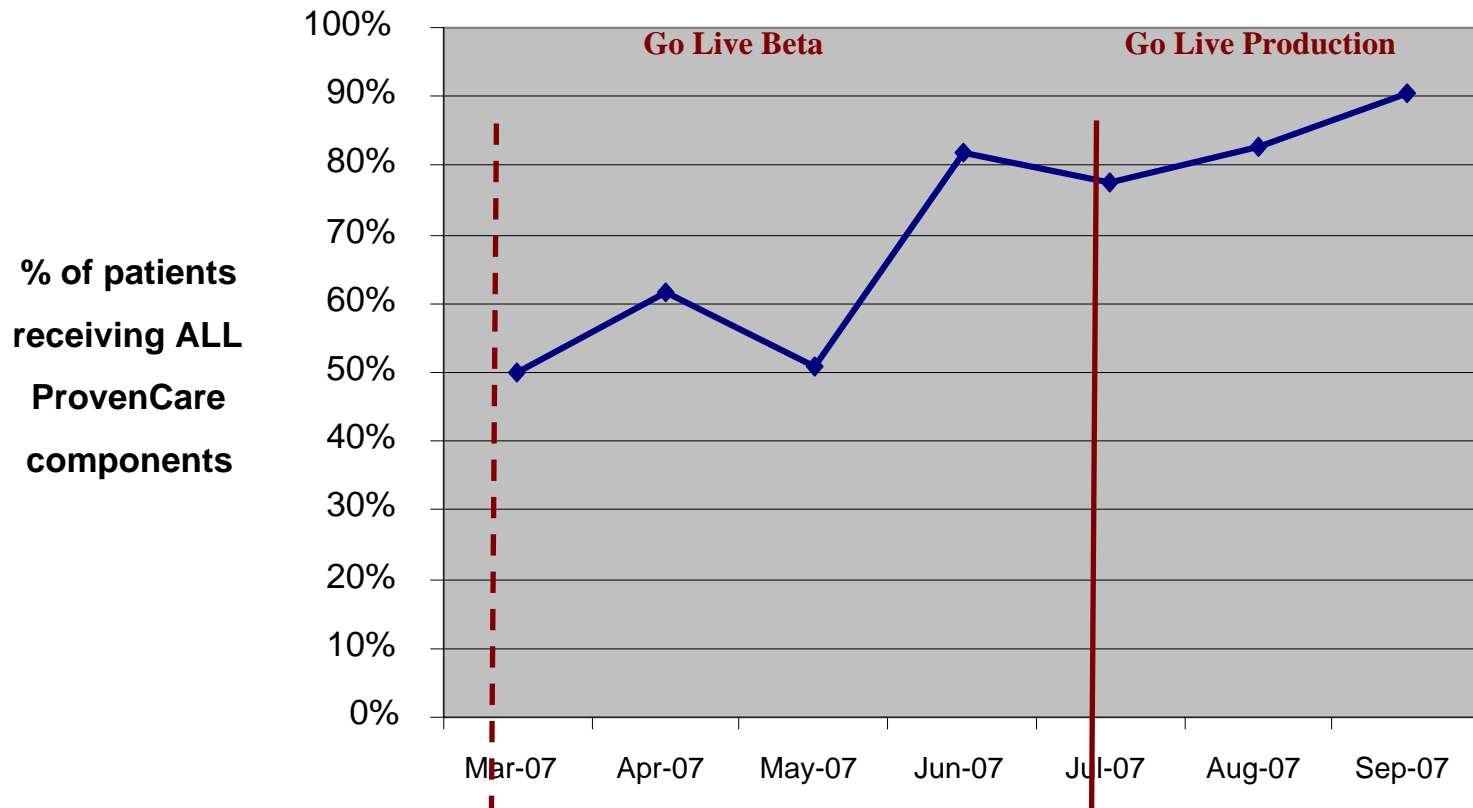


Some results of using ProvenCare



Not Just CABG...

ProvenCare Cataract



Not Just Surgery...

Epo CKD (n=62)

Control (n=74)

Median days to goal = 47.5 days	Median days to goal = 62.5 days
% Time in goal = 69.8%	% Time in goal = 43.9%
% Time below goal = 13.7%	% Time below goal = 39.7%
% Time above goal = 16.5%	% Time above goal = 16.4%
Avg Epo Units/week = 6,698*	Avg Epo Units/week = 12,000
Home/Clinic = 58.1%/41.9%	Home/Clinic = 39.2%/60.8%
Expanded Dose Utilization = 40%	Expanded Dose Utilization = 16%
Avg Hgb at start = 9.6 mg/dl	Avg Hgb at start = 10.0 mg/dl
Avg T-Sat at start = 18%	Avg T-Sat at start = 18%

***Savings \$3,860/pt/year @\$0.014/unit of Epo (p<.001)**

ProvenCareSM Portfolio

- **ProvenCare:**
 - CABG
 - Angioplasty
 - Angioplasty + AMI
 - Hip replacement
 - Knee
 - Cataract
 - EPO
 - Perinatal
 - Bariatric surgery

Limitations/Caveats

- Scalable?
- Applicable to non-IDS?
- Applicable in absence of real-time EHR?
- Applicable in fee-for-service settings?
- Pending wider use in marketplace

Potential Markets

- Business (direct or modified TPA)
- Other providers (re-engineering care)
- Other insurers (quality/value stratification)
- Integrated health system market expansion



GEISINGER

REDEFINING BOUNDARIES

Thank You

GEISINGER

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