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Bundled Payments for Care Improvement: ADLS # 4

What to Pack in your Bundle: Episode Selection, Definition and Clinical Management for Care Improvement

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Weslie Kary, Moderator
March 13, 2012

You Should Know

- Where to find the slides:
<http://cmmi.airprojects.org/BPCI.aspx>
- The views expressed in these presentations are the views of each speaker and do not necessarily reflect the views or policies of the Centers for Medicare and Medicaid Services. The materials provided are intended for educational use and the information contained within has no bearing on participation in any CMS program.

Objectives for Accelerated Development Learning Sessions

- Support practitioners in their efforts to successfully implement bundled payment in support of the three-part aim.
- Share expert knowledge and lessons learned by early adopters.
- Set stage for continued collaborative learning during implementation.

Agenda

- **Presentation:** *Episode Construction*, Robert E. Mechanic, MBA
- **Presentation:** *Preparing for Episode Payment*, Thomas R. Graf, MD
- **Questions & Answers:** Mechanic & Graf

Presenters



Robert E. Mechanic, M.B.A., is Senior Fellow at the Heller School of Social Policy and Management at Brandeis University and Executive Director of the Health Industry Forum, a national program working on strategies for improving the quality and effectiveness of the U.S. healthcare system. Prior to Brandeis, Mr. Mechanic was a Senior Healthcare Analyst with Forrester Research, a Senior Vice President with the Massachusetts Hospital Association, and a Vice President with the Lewin Group. Mr. Mechanic's work has been published in the *New England Journal of Medicine*, *JAMA*, and *Health Affairs*. He is a trustee of Atrius Health, a 900-physician multispecialty group in Eastern Massachusetts. Mr. Mechanic earned an MBA in finance from The Wharton School at the University of Pennsylvania and a BS in economics with distinction from the University of Wisconsin.

Presenters



Thomas Graf, M.D., is Associate Chief Medical Officer for Population Health and Chairman of the Community Practice Service line for Geisinger Health System. Dr. Graf is responsible for the Value Re-Engineering of the Care Continuum and other Population Health initiatives for Geisinger. He has also implemented nearly 40 NCQA Level III accreditation Medical Home sites in the Geisinger ProvenHealth Navigator model. Dr. Graf serves as a content expert for the AHRQ's Patient Centered Medical Homes Project, and AMGA's Caring for Patients with Multiple Chronic Diseases Collaborative. The Value Re-engineering efforts of Geisinger were recently recognized as the AMGA 2011 Acclaim award winner.

Prior to joining Geisinger, Dr. Graf was also the Director of the Southwest Georgia Family Practice Residency.

Episode Construction

Bundled Payment for Care Improvement Initiative
Accelerated Development Learning Session #4
March 13, 2012

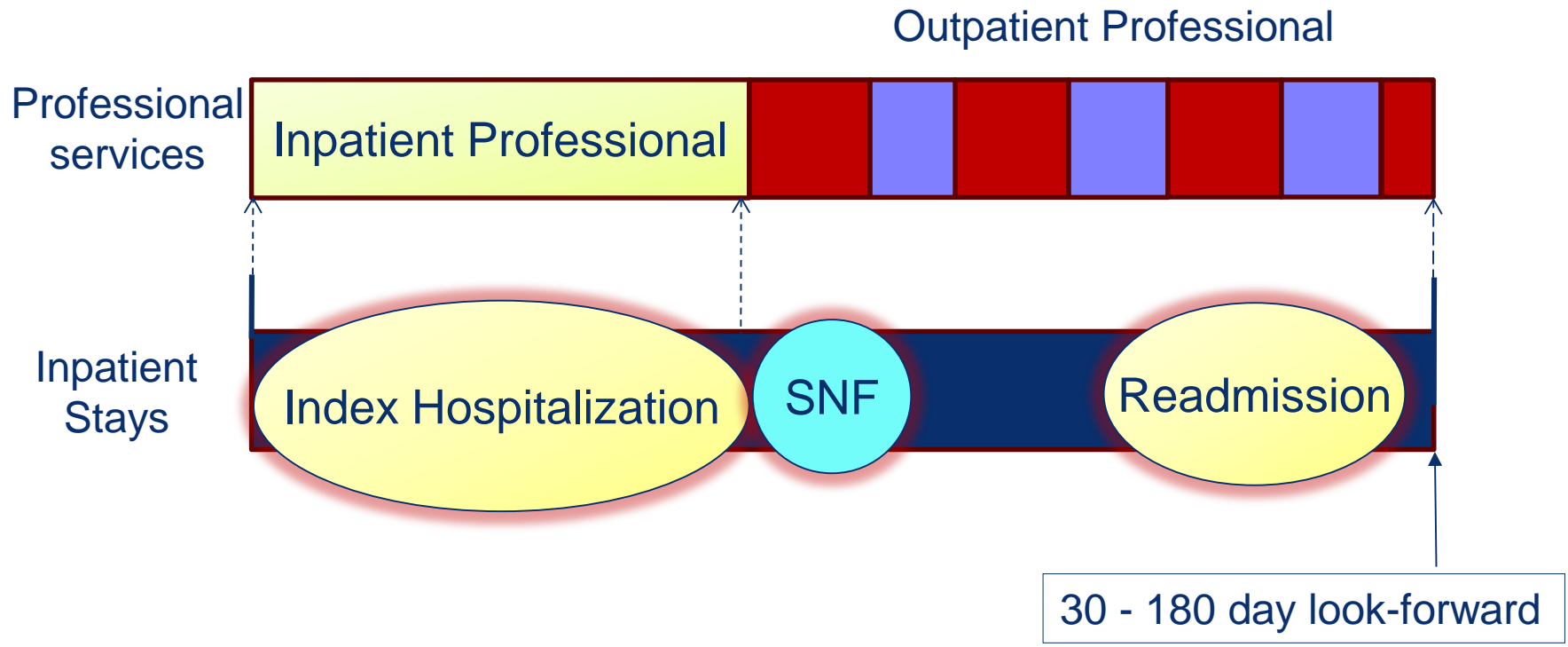
Robert Mechanic
Senior Fellow
Brandeis University



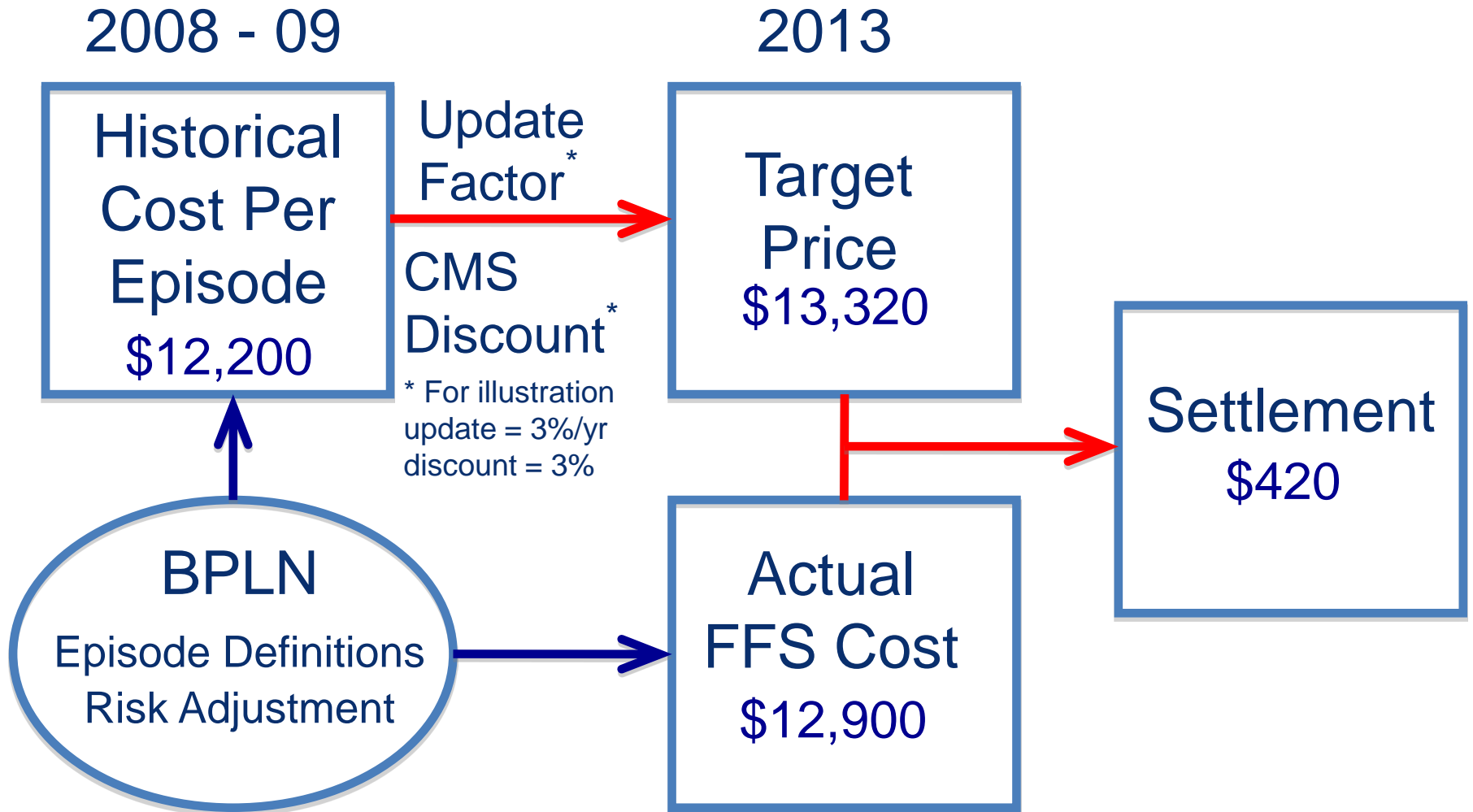
Summary

- Bundled payment overview
- Bundle characteristics
- Elements of bundle design
- Risk assessment and risk adjustment

Bundled Payment



Calculating Medicare Payments Under BP Pilot

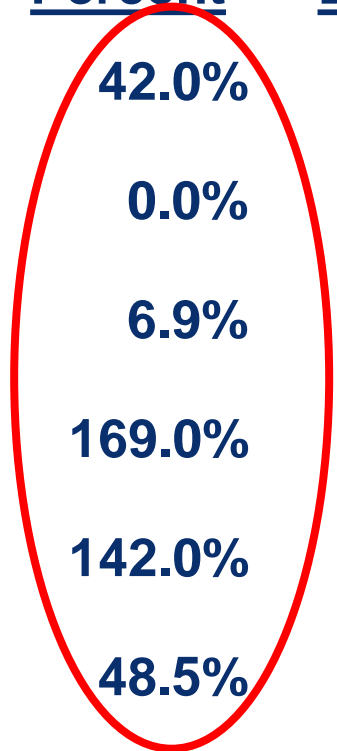


Note: CMS has not announced a method for adjusting between historical and performance period

Comparing Hospitals in Low and High Resource Use Quartiles

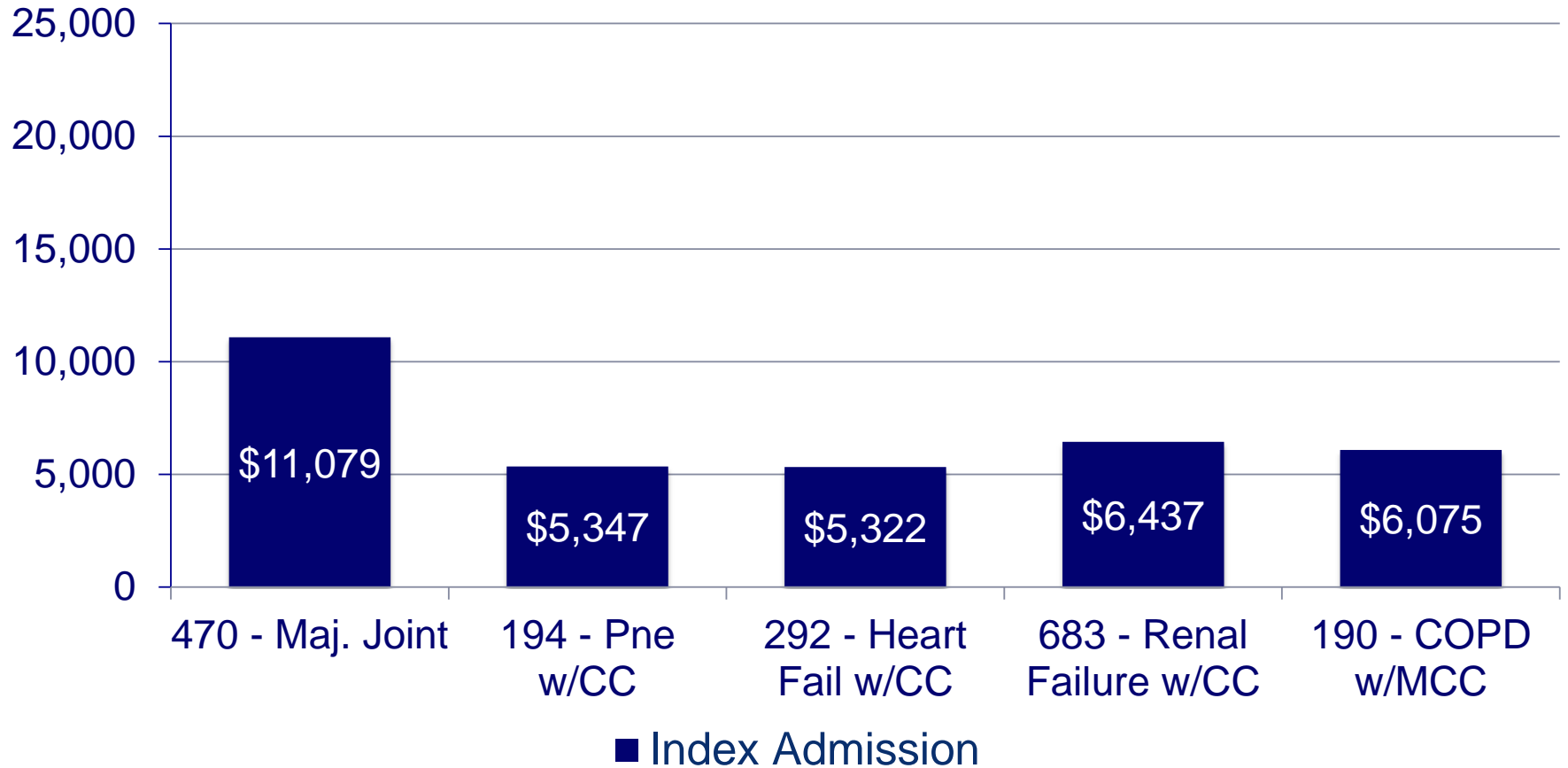
Congestive Heart Failure

<u>Service</u>	<u>Low</u>	<u>Average</u>	<u>High</u>	<u>Percent</u>	<u>Dollars</u>
Total episode	\$7,757	\$9,278	\$11,019	42.0%	\$3,262
Hospital	4,837	4,826	4,824	0.0%	(13)
Physician	612	647	650	6.9%	38
Readmission	1,102	1,986	2,965	169.0%	1,863
Post-acute	842	1,378	2,041	142.0%	1,199
Other	363	441	539	48.5%	176



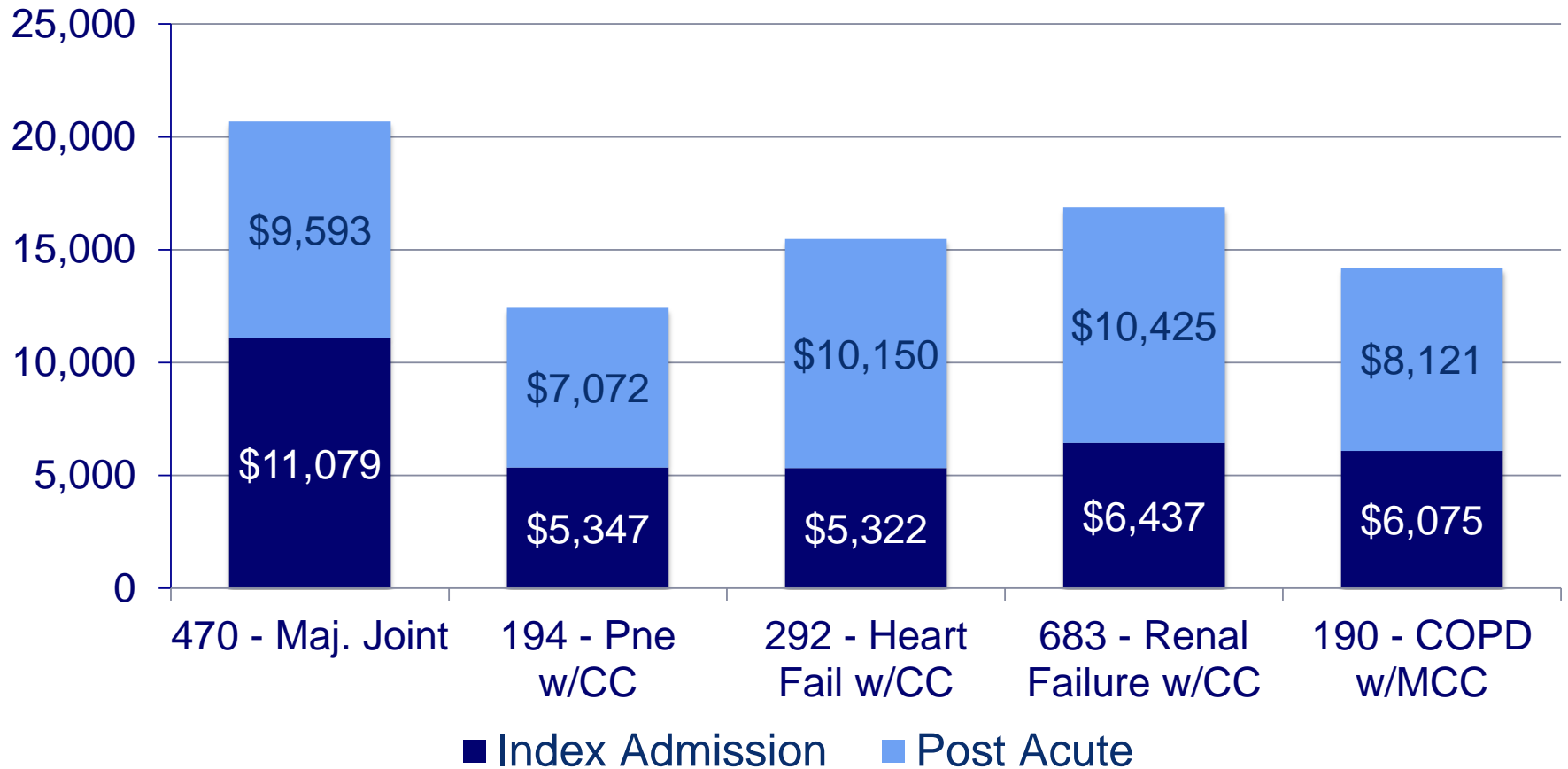
Source: MedPAC

Avg. 2008 Medicare Payment for Select DRGs



Source: RTI Inc, Post-Acute Care Episodes: Expanded Analytic File, June 2011

Avg. 2008 Medicare Payment for Select DRGs



Source: RTI Inc, Post-Acute Care Episodes: Expanded Analytic File, June 2011

2008 Episode Spending By Setting (30 days)

14

DRG 470: Major Joint Replacement w/o CC, MCC

	Percent With Claim	Mean Cost Per Service User
Index Admission	100.0%	\$11,079
Rehab	12.7%	\$13,021
SNF	39.4%	\$9,347
LTAC	0.3%	\$32,298
Home Health	68.6%	\$3,538
Readmission	11.7%	\$12,798

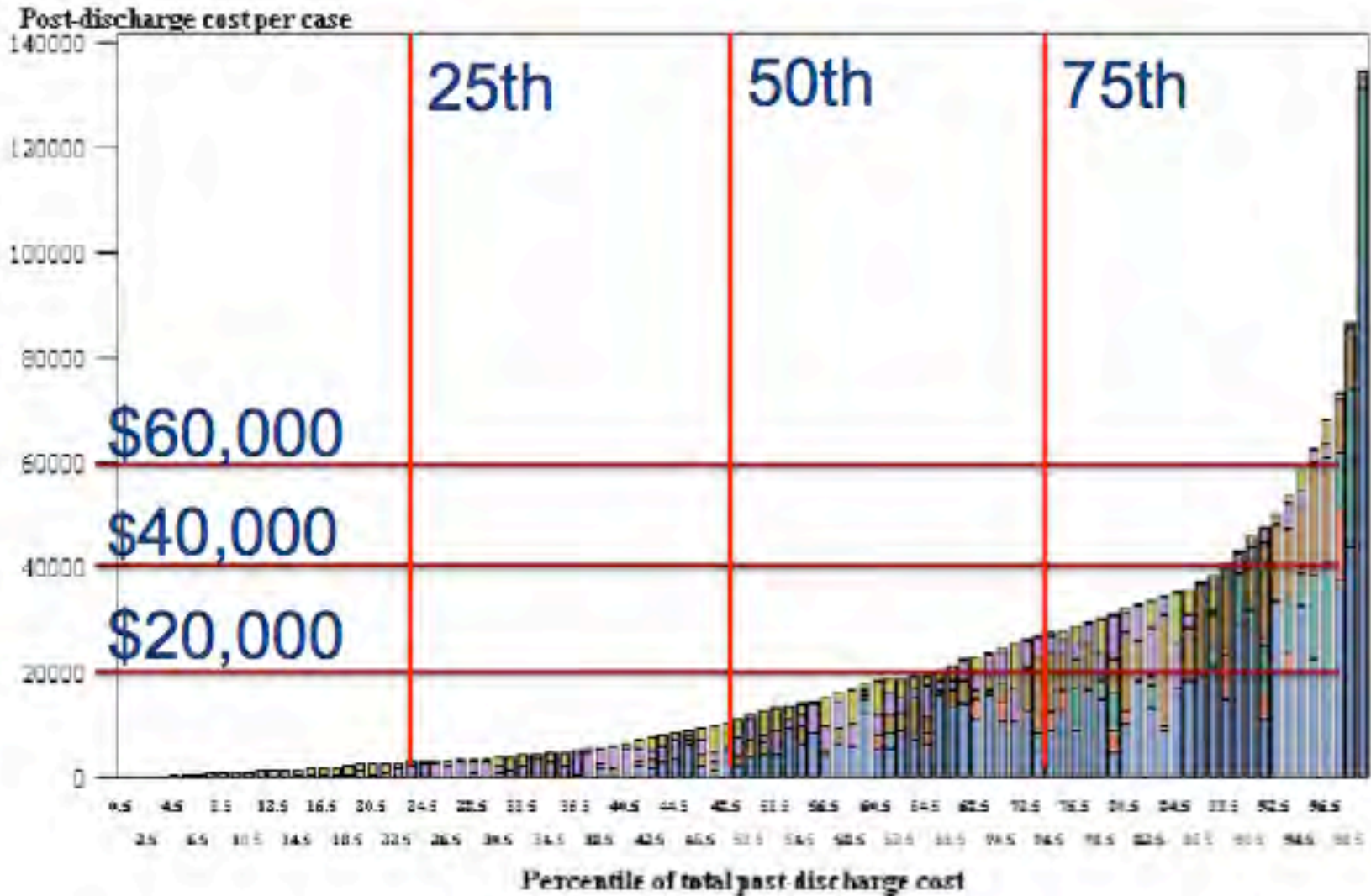
Episode Spending By Setting: Admission Plus 30 Days

15

DRG 292: Heart Failure with CC

	Percent With Claim	Mean Cost Per Service User
Index Admission	100.0%	\$5,322
Rehab	2.9%	\$16,744
SNF	48.6%	\$13,222
LTAC	1.6%	\$35,233
Home Health	66.2%	\$4,422
Readmission	41.8%	\$17,682

Distribution of Post-Discharge Cost for CHF Episode



Bundle Building Activities

- DRG selection
 - Individual versus pooled DRG bundles
 - Frequency, cost variation within DRG over time
 - Alignment with desired clinical strategies
- Exclusions
 - Applicants must take all patients in selected DRGs
 - Readmission DRGs
 - Part B services
- Episode length
- Risk adjustment

Considerations for Choosing Episodes

- Case volume
- Cost profiles
- Risk factors
- Opportunities
- Preparedness

Prometheus Episodes by DRG: CABG & PCI

DRG Code	Episode: CABG
228	Other cardiothoracic procedures w MCC
229	Other cardiothoracic procedures w CC
230	Other cardiothoracic procedures w/o CC/MCC
231	Coronary bypass w PTCA w MCC
233	Coronary bypass w cardiac cath w MCC
234	Coronary bypass w cardiac cath w/o MCC
235	Coronary bypass w/o cardiac cath w MCC
236	Coronary bypass w/o cardiac cath w/o MCC
DRG Code	Episode: PCI
246	Perc cardiovasc proc w drug-eluting stent w MCC or 4+ vessels/stents
247	Perc cardiovasc proc w drug-eluting stent w/o MCC
248	Perc cardiovasc proc w non-drug-eluting stent w MCC or 4+ ves/stents
249	Perc cardiovasc proc w non-drug-eluting stent w/o MCC
250	Perc cardiovasc proc w/o coronary artery stent or AMI w MCC
251	Perc cardiovasc proc w/o coronary artery stent or AMI w/o MCC

Prometheus Episodes by DRG: CHF and COPD

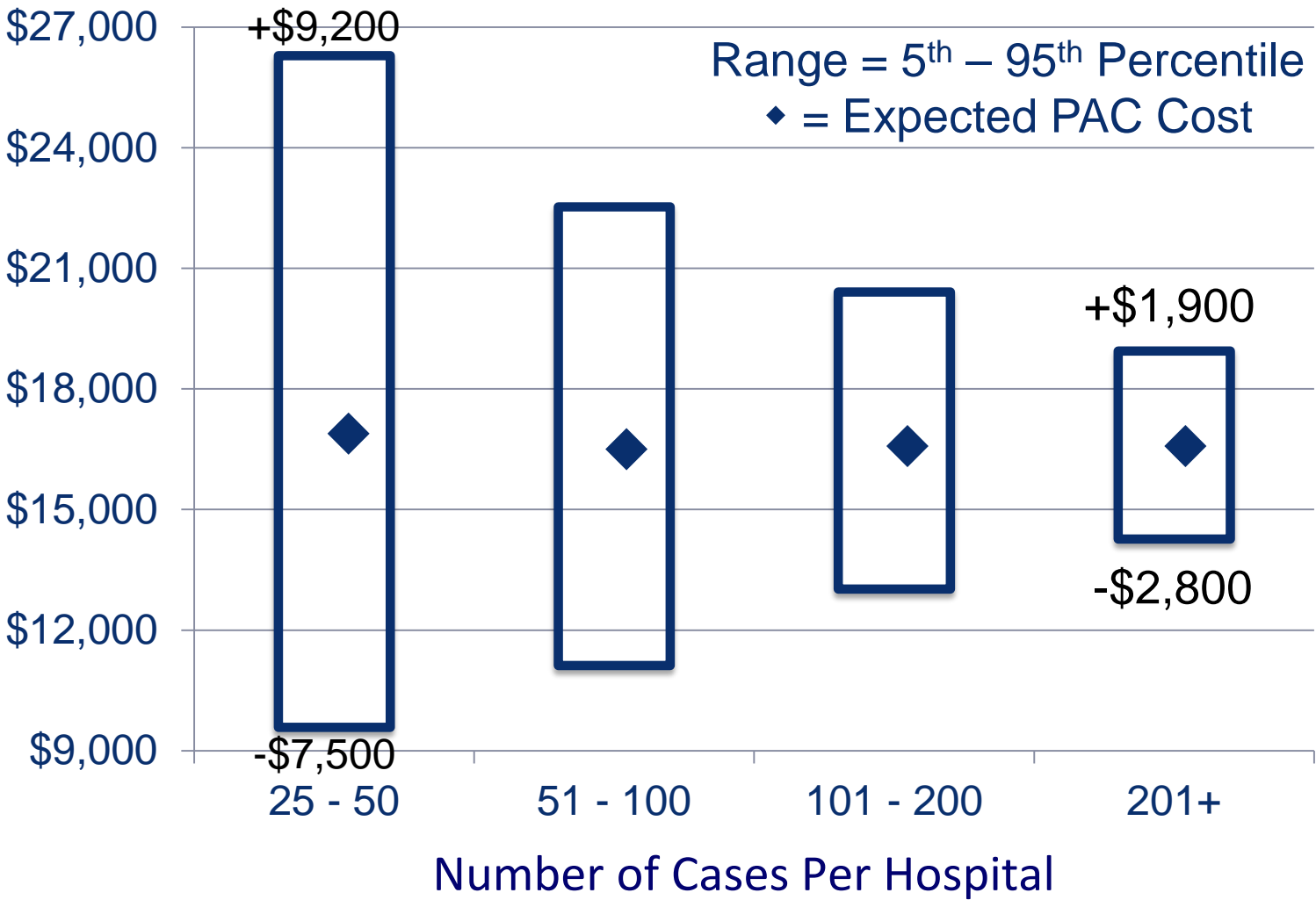
DRG Code	Episode: CHF HOSPITALIZATIONS
291	Heart failure & shock w MCC
292	Heart failure & shock w CC
293	Heart failure & shock w/o CC/MCC
DRG Code	Episode: ASTHMA & COPD HOSPITALIZATIONS
202	Bronchitis & asthma w CC/MCC
203	Bronchitis & asthma w/o CC/MCC
190	Chronic obstructive pulmonary disease w MCC
191	Chronic obstructive pulmonary disease w CC
192	Chronic obstructive pulmonary disease w/o CC/MCC

Sources of Risk

- Low case volume -> random variation
- Catastrophic cases, outliers
- Heterogeneity within an episode (DRG) or within DRGs (diagnosis)
- Changes in case mix over time
 - Systematic trends in who is referred or admitted
- Complications (POA vs. HAC)
- Failure to follow care-redesign protocols

Impact of Case Volume on PAC Cost Variation by Hospital

Illustrative Analysis of Variation in PAC Cost for CHF Episodes



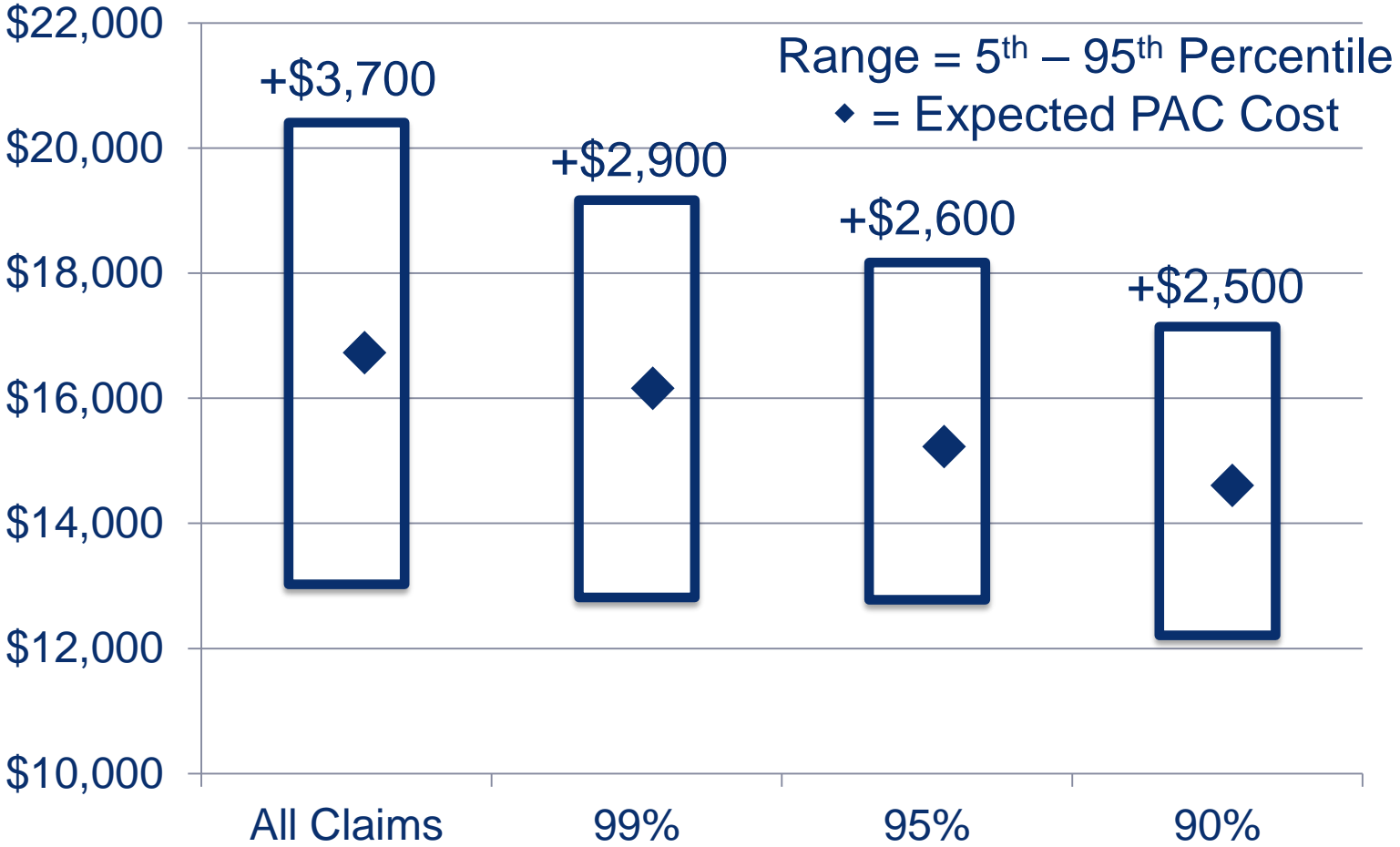
Source: Illustrative analysis based on prior knowledge of data characteristics and and statistical properties.

Risk Mitigation

- Appropriate fidelity to strong clinical interventions
- Bundle design
 - Select high volume DRGs or large number of DRGs to spread out the impact of random variation
 - Narrow clinical focus/single DRG
 - Exclusions
- Risk and severity adjustment
- Reinsurance

Impact of Reinsurance to Reduce Impact of High Cost Cases

Illustrative Analysis of Variation in PAC Cost for CHF Episodes Hospitals With 101 – 200 Cases



Source: Illustrative analysis based on prior knowledge of data characteristics and and statistical properties.

Adjusting for Risk

1. DRG case mix

- Adjust for the specific DRG that triggered the bundle

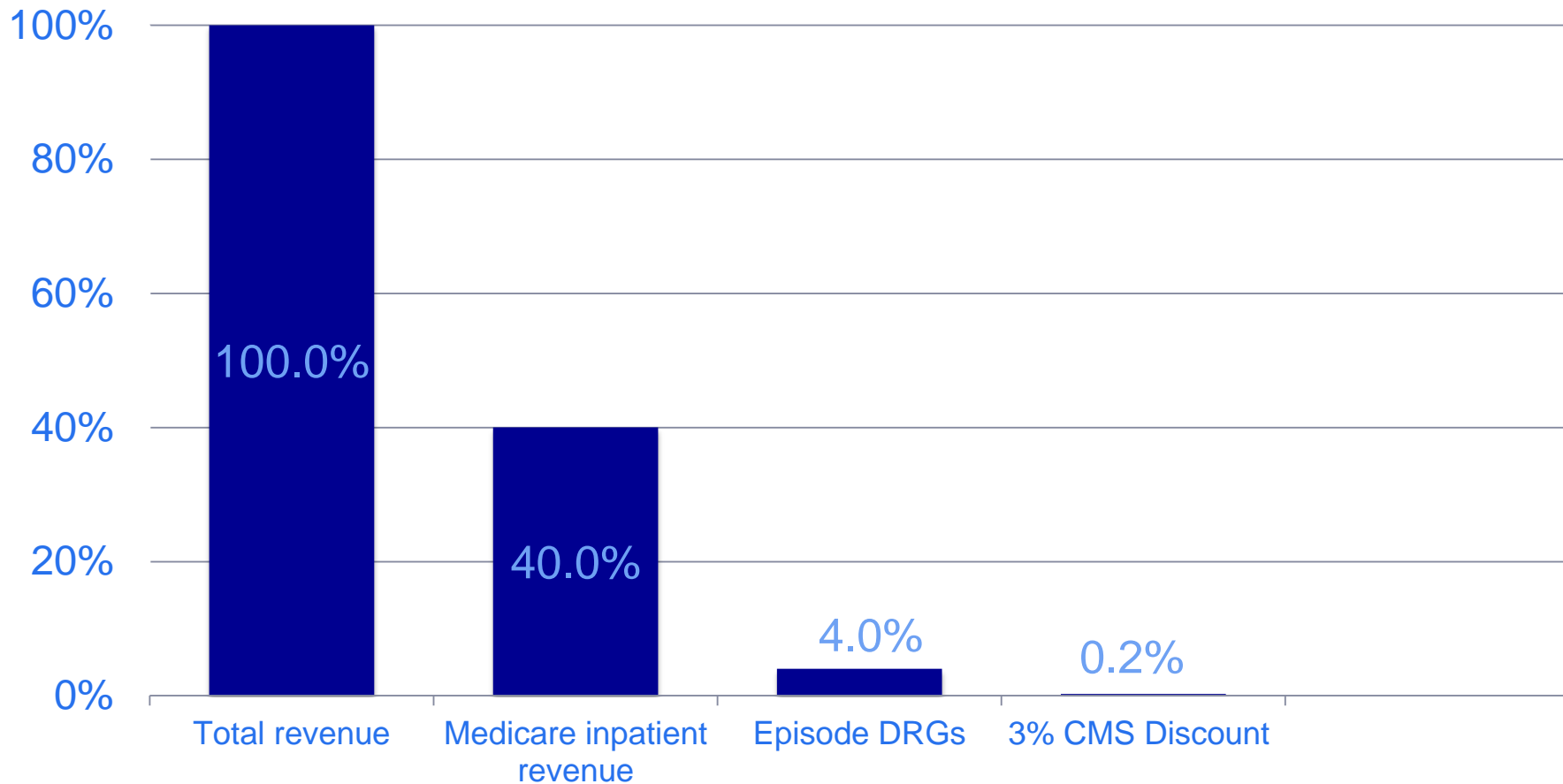
2. Clinical events during stay

- Principal diagnosis
- Other diagnoses that 'appear' on hospital record
- Adjust for severity indicators within the inpatient stay (e.g., hemorrhage)

3. Patient risk prior to admissions

- Risk adjustment model such as the CMS HCC model that predicts future costs based on diagnoses observed prior to admission, e.g., 6 months

Another View of Risk in The CMS Pilot



Source: RTI Inc, Post-Acute Care Episodes: Expanded Analytic File, June 2011

What's Next?

- Assess the opportunities
- Assess your capabilities and readiness
- Develop clinical & administrative strategies

Preparing for Episode Payment

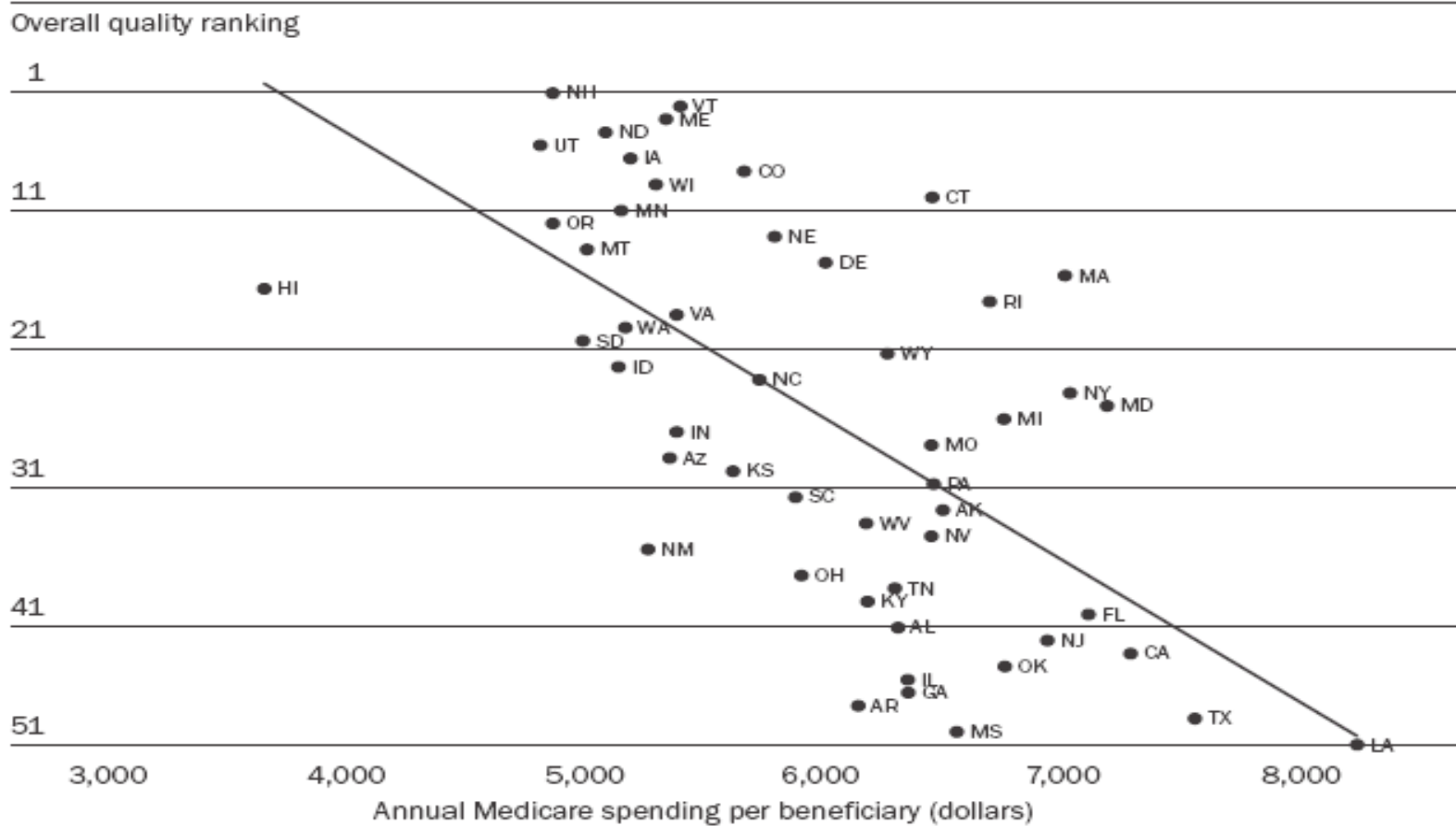
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Tom Graf, MD
Geisinger Health System

- Understanding targets
- Developing redesign strategy
- Clinical areas of redesign

Higher Cost Associated with Lower Quality

Relationship Between Quality And Medicare Spending, As Expressed By Overall Quality Ranking, 2000-2001



Baicker K, Chandra A. Health Affairs Web Exclusive, April 7, 2004: W4 184-97.

Leveraging Quality to Reduce Cost

- Hospital
- Post Acute
- Physician

Leveraging Quality to Reduce Cost

	DRG 292 (HF) Percent With Claim	DRG 470 (Joint) Percent With Claim
Index Admission	100.0%	100.0%
Rehab	2.9%	12.7%
SNF	48.6%	39.4%
LTAC	1.6%	0.3%
Home Health	66.2%	68.6%
Readmission	41.8%	11.7%

Leveraging Quality to Reduce Cost

	DRG 292 (HF) Mean Cost Per Service User	DRG 470 (Joint) Mean Cost Per Service User
Index Admission	\$5,322	\$11,079
Rehab	\$16,744	\$13,021
SNF	\$13,222	\$9,347
LTAC	\$35,233	\$32,298
Home Health	\$4,422	\$3,538
Readmission	\$17,682	\$12,798

- Hospital
 - Supply chain
 - Standardization
 - Clinical
 - Operational
 - Transitions of Care

- Post Acute
 - Modality of Choice
 - Facility of Choice
 - Care Connectivity
 - Advanced Care opportunities

- Physician
 - Primary Care
 - Medical Home
 - Transitions of Care
 - Targeted, Proactive Care – emerging exacerbation management
 - IT accelerators
 - Specialty care
 - Defined best practice standards
 - IT accelerators

- Eliminate any care steps that can be.
- Automate any work that can be.
- Delegate work that must be done to appropriately trained non-physician staff when possible.
- Incorporate into standard practice by using tools to enhance the reliability and efficiency of the care provided.
- Activate and engage the patient.

- Motivated clinicians with enthusiastic leadership
- Good baseline performance (external data)
- Consensus and evidence based guidelines available
- Established models with benchmarks
- Robust clinical informatics system

2009 Focused Update: ACCF/AHA Guidelines for the Diagnosis and Management of Heart Failure in Adults

Jessup et al 2009 Guideline Focused Update on Heart Failure 1997

Table 5. Recommendations for the Hospitalized Patient

2009 Focused Update Recommendations		Comments
Class I		
1. The diagnosis of HF is primarily based on signs and symptoms derived from a thorough history and physical examination. Clinicians should determine the following:		New recommendation
a. adequacy of systemic perfusion;		
b. volume status;		
c. the contribution of precipitating factors and/or comorbidities;		
d. if the heart failure is new onset or an exacerbation of chronic disease; and		
e. whether it is associated with preserved ejection fraction.		
Chest radiographs, electrocardiogram, and echocardiography are key tests in this assessment. (Level of Evidence: C)		
2. Concentrations of B-type natriuretic peptide (BNP) or N-terminal pro-B-type natriuretic peptide (NT-proBNP) should be measured in patients being evaluated for dyspnea in which the contribution of HF is not known. Final diagnosis requires interpreting these results in the context of all available clinical data and ought not to be considered a stand alone test. ^{225,226} (Level of Evidence: A)		New recommendation
3. Acute coronary syndrome precipitating HF hospitalization should be promptly identified by electrocardiogram and cardiac troponin testing, and treated, as appropriate to the overall condition and prognosis of the patient. (Level of Evidence: C)		New recommendation
4. It is recommended that the following common potential precipitating factors for acute HF be identified as recognition of these comorbidities is critical to guide therapy:		New recommendation
• acute coronary syndromes/coronary ischemia;		
• severe hypertension;		
• atrial and ventricular arrhythmias;		
• infections;		
• pulmonary emboli;		
• renal failure; and		
• medical or dietary noncompliance. (Level of Evidence: C)		
5. Oxygen therapy should be administered to relieve symptoms related to hypoxemia. (Level of Evidence: C)		New recommendation
6. Whether the diagnosis of HF is new or chronic, patients who present with rapid decompensation and hypoperfusion associated with decreasing urine output and other manifestations of shock are critically ill and rapid intervention should be used to improve systemic perfusion. (Level of Evidence: C)		New recommendation
7. Patients admitted with HF and with evidence of significant fluid overload should be treated with intravenous loop diuretics. Therapy should begin in the emergency department or outpatient clinic without delay, as early intervention may be associated with better outcomes for patients hospitalized with decompensated HF. ^{217,218,228} (Level of Evidence: B) If patients are already receiving loop diuretic therapy, the initial intravenous dose should equal or exceed their chronic oral daily dose. Urine output and signs and symptoms of congestion should be serially assessed, and diuretic dose should be titrated accordingly to relieve symptoms and to reduce extracellular fluid volume excess. (Level of Evidence: C)		New recommendation
8. Effect of HF treatment should be monitored with careful measurement of fluid intake and output; vital signs; body weight, determined at the same time each day; clinical signs (supine and standing) and symptoms of systemic perturbation and congestion. Daily serum electrolytes, urea nitrogen, and creatinine concentrations should be measured during the use of IV diuretics or active titration of HF medications. (Level of Evidence: C)		New recommendation
9. When diuresis is inadequate to relieve congestion, as evidenced by clinical evaluation, the diuretic regimen should be intensified using either:		New recommendation
a. higher doses of loop diuretics;		
b. addition of a second diuretic (such as metolazone, spironolactone or intravenous chlorothiazide); or		
c. continuous infusion of a loop diuretic. (Level of Evidence: C)		
10. Patients with clinical evidence of hypotension associated with hypoperfusion and obvious evidence of elevated cardiac filling pressures (e.g., elevated jugular venous pressure, elevated pulmonary artery wedge pressure), intravenous inotropic or vasopressor drugs should be administered to maintain systemic perfusion and preserve end-organ performance while more definitive therapy is considered. (Level of Evidence: C)		New recommendation
11. Invasive hemodynamic monitoring should be performed to guide therapy in patients who are in respiratory distress or with clinical evidence of impaired perfusion in whom the adequacy or excess of intracardiac filling pressures cannot be determined from clinical assessment. (Level of Evidence: C)		New recommendation
12. Medications should be reconciled in every patient and adjusted as appropriate on admission to and discharge from the hospital. (Level of Evidence: C)		New recommendation
13. In patients with reduced ejection fraction experiencing a symptomatic exacerbation of HF requiring hospitalization during chronic maintenance treatment with oral therapies known to improve outcomes, particularly ACE inhibitors or ARBs and beta-blocker therapy, it is recommended that these therapies be continued in most patients in the absence of hemodynamic instability or contraindications. (Level of Evidence: C)		New recommendation

1998 Circulation April 14, 2009

Table 5. Continued

2009 Focused Update Recommendations		Comments
Class I (Continued)		
14. In patients hospitalized with HF with reduced ejection fraction not treated with oral therapies known to improve outcomes, particularly ACE inhibitors or ARBs and beta-blocker therapy, initiation of these therapies is recommended in stable patients prior to hospital discharge. ^{225,226} (Level of Evidence: B)		New recommendation
15. Initiation of beta-blocker therapy is recommended after optimization of volume status and successful discontinuation of intravenous diuretics, vasodilators, and inotropic agents. Beta-blocker therapy should be initiated at a low dose and only in stable patients. Particular caution should be used when initiating beta blockers in patients who have required inotropes during their hospital course. ^{225,226} (Level of Evidence: B)		New recommendation
16. In all patients hospitalized with HF, both with preserved (see Section 4.3.2., Patients With HF and Normal LVEF, in the full-text guideline) and low EF, transition should be made from intravenous to oral diuretic therapy with careful attention to oral diuretic dosing and monitoring of electrolytes. With all medication changes, the patient should be monitored for supine and upright hypotension, worsening renal function and HF signs/symptoms. (Level of Evidence: C)		New recommendation
17. Comprehensive written discharge instructions for all patients with a hospitalization for HF and their caregivers is strongly recommended, with special emphasis on the following 6 aspects of care: diet, discharge medications, with a special focus on adherence, persistence, and up-titration to recommended doses of ACE inhibitors/ARBs and beta-blocker medication, activity level, follow-up appointments, daily weight monitoring, and what to do if HF symptoms worsen. (Level of Evidence: C)		New recommendation
18. Postdischarge systems of care, if available, should be used to facilitate the transition to effective outpatient care for patients hospitalized with HF. ^{112,241-243} (Level of Evidence: B)		New recommendation
Class IIa		
1. When patients present with acute HF and known or suspected acute myocardial ischemia due to occlusive coronary disease, especially when there are signs and symptoms of inadequate systemic perfusion, urgent cardiac catheterization and revascularization is reasonable where it is likely to prolong meaningful survival. (Level of Evidence: C)		New recommendation
2. In patients with evidence of severely symptomatic fluid overload in the absence of systemic hypotension, vasodilators such as intravenous nitroglycerin, nitroprusside or nesiritide can be beneficial when added to diuretics and/or in those who do not respond to diuretics alone. (Level of Evidence: C)		New recommendation
3. Invasive hemodynamic monitoring can be useful for carefully selected patients with acute HF who have persistent symptoms despite empiric adjustment of standard therapies, and		New recommendation
a. whose fluid status, perfusion, or systemic or pulmonary vascular resistances are uncertain,		
b. whose systolic pressure remains low, or is associated with symptoms, despite initial therapy,		
c. whose renal function is worsening with therapy		
d. who require parenteral vasoactive agents or		
e. who may need consideration for advanced device therapy or transplantation. (Level of Evidence: C)		
4. Ultrafiltration is reasonable for patients with refractory congestion not responding to medical therapy. ²⁴⁴ (Level of Evidence: B)		New recommendation
Class IIb		
1. Intravenous inotropic drugs such as dopamine, dobutamine or milrinone might be reasonable for those patients presenting with documented severe systolic dysfunction, low blood pressure and evidence of low cardiac output, with or without congestion, to maintain systemic perfusion and preserve end-organ performance. (Level of Evidence: C)		New recommendation
Class III		
1. Use of parenteral inotropes in normotensive patients with acute decompensated HF without evidence of decreased organ perfusion is not recommended. ²⁴⁵ (Level of Evidence: B)		New recommendation
2. Routine use of invasive hemodynamic monitoring in normotensive patients with acute decompensated HF and congestion with symptomatic response to diuretics and vasodilators is not recommended. ²²⁵ (Level of Evidence: B)		New recommendation

evidence from the few available randomized trials evaluating management strategies in the acute decompensated HF patient.^{248-250,257,258} analyses of large registries, and consensus opinion. Additional and more comprehensive information on this subject may be found in the guidelines from the Heart Failure Society of America and the European Society of Cardiology.^{259,260,269a}

4.5.1. Diagnostic Strategies

The diagnosis of HF in the hospitalized patient should be based primarily on signs and symptoms, as discussed in Section 3.1., Initial Evaluation of Patients. Clinicians need to

volume status of the patient, 2) the adequacy of circulatory support or perfusion, and 3) the role or presence of precipitating factors and/or comorbidities. In the patient with previously established HF, efforts should likewise be directed toward understanding what has caused the apparent acute worsening of clinical symptoms. Many of the steps in this investigation are identical to those used in the initial evaluation of HF (see Sections 3.1.3., Evaluation of the Cause of Heart Failure and 3.2., Ongoing Evaluation of Patients, in the full-text guideline). When the diagnosis of HF is uncertain, determination of plasma BNP or NT-proBNP concentration

14. In patients hospitalized with HF with reduced ejection fraction not treated with oral therapies known to improve outcomes, particularly ACE inhibitors or ARBs and beta-blocker therapy, initiation of these therapies is recommended in stable patients prior to hospital discharge.^{239,240} (*Level of Evidence: B*)

- What are the appropriate agents?
- What are the appropriate dosages?
- Who is responsible for ensuring they are started/re-started?
- How is the process “hard-wired?”
- How will we measure compliance?
- How will we report success?
- What is the feedback/CQI process to improve if not 100%?



• **Beta Blockade**

• **People**

• **Process**

• **Tools**

ProvenCare® & Process Reliability

Did patient stop clopidogrel(PLAVIX) as instructed?

Yes No N/A

Did patient stop warfarin(COUMADIN) as instructed?

Yes No N/A

If no to either of the two previous questions, document decision to proceed with surgery.

Surgeon aware, w ... N/A

Was appropriate antibiotic ordered for administration pre-op?

Yes No-Order Antibiotic

Is patient on a Beta-Blocker?

Yes No No - Beta Blocke ... Allergy to Beta ...

NOTES

PATIENT INSTRUCTIONS (multiple)

- Discontinue Plavix 5 days
- Smoking Cessation

ORDERS

MEDICATIONS (single)

- ATENOLOL 12.5 MG PO TABS
- ATENOLOL 25 MG PO TABS
- METOPROLOL TARTRATE 12.5 MG TABS
- METOPROLOL TARTRATE 25 MG PO TABS
- LOPRESSOR 50 MG PO TABS
- TOPROL XL 25 MG PO TB24
- TOPROL XL 50 MG PO TB24

PROCEDURES/LABS (multiple)

- DUPLEX CAROTID BILAT

DEVICES:

Foley: Yes, reason: fluid monitoring

Chest Tubes/Blake Drains: Yes: no air leak

Central Line(s): Yes, reason: Hemodynamic monitoring

Pacer Wires: yes

CURRENT HOSPITAL MEDICATIONS:

Beta Blocker: yes

ASA: yes

Statin: yes

ACE-Inhibitor / ARB: no, explain -- nl LVEF

Note that discontinued and completed medications (per the MAR) continue to display for 24 hours. Ordered medications to be given in the future also display.

Current hospital medications

Medication	Dose	Route	Frequency	Provider
• DISCONTD: vancomycin	1000 mg	IV	Q24H	PAOLUCCI,

Automated Prevention for all Patients

Non Office
Based

High Tech

Enhanced Systems for Chronic Disease

Proactive
Monitoring

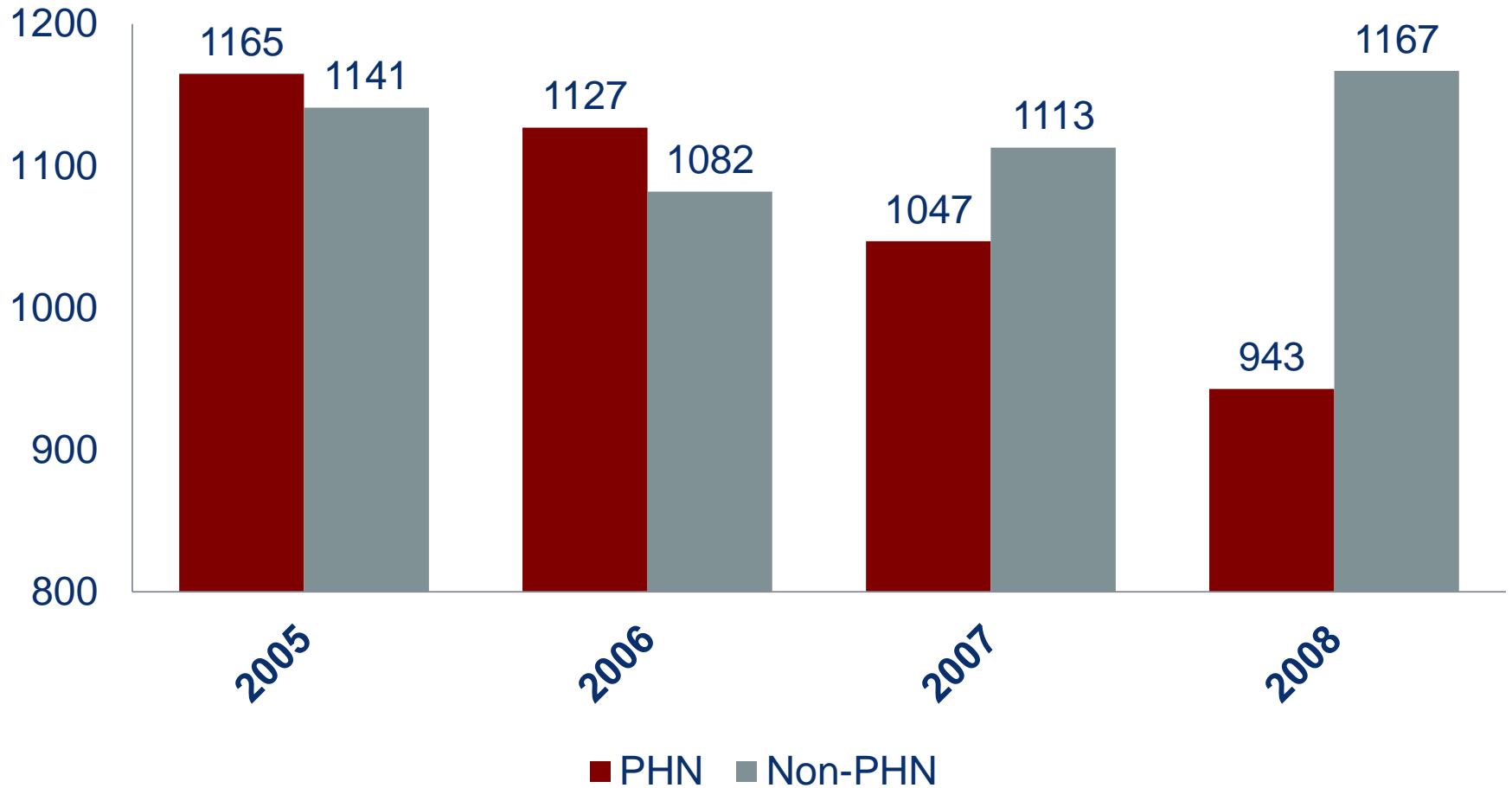
High Tech
High Touch

Commando Care Management for Multi-Morbid

Technology Enabled
RN Navigator

High Touch
High Tech

ProvenHealth Navigator[®] Impacts CHF



Patient's Name: MRN #:



Blood Pressure monitoring schedule:

Blood pressure goal:

"Eating Right" Plan:

- No added salt; choose products with < 300 mg of sodium per serving:
- Low fat, low cholesterol; choose products with 3 grams or $<$ of Saturated fat per serving. Cholesterol intake should be < 300 mg per day:

Monitoring the Symptoms of Heart Failure:

- Weight gain – weight gain of more than 2 lbs in one day or 5 lbs in 5 days
- Increased shortness of breath
- Increased swelling in feet, ankles or legs
- Chest pain or discomfort
- Increased cough – especially at night

Heart Failure Action Plan:



- Weigh yourself daily in the morning after emptying your bladder
- Record your weight daily
- Take all your medications as directed
- Call your health care provider if you experience any of the above listed symptoms of heart failure
- Diuretic titration protocol - Taking an extra dose of your diuretic (water pill) for one or two days when you experience weight gain or the above symptoms can be very helpful in the management of heart failure

Questions for Presenters

1. Ask a question of one of today's speakers by using the chat function.
2. Direct a question about CMS Innovation Center Bundled Payment for Care Improvement Initiative to: BundledPayments@cms.hhs.gov.

What's Next—Upcoming Sessions

*Contractual and Governance Issues
among Providers in Bundled Payment*

March 22, 3:30 - 4:30 pm ET

Announcements, slides and transcripts:
<http://cmmi.airprojects.org/bpci.aspx>

Remember

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