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Medical College**

at Thomas Jefferson University

From Winners to Losers: The Harsh Reality of BPCI and BPCI-A

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Health Policy & Economics

Are We at the Bottom? BPCI Programs Now Disincentivize Providers Who Maintain Quality Despite Caring for Increasingly Complex Patients



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ABSTRACT

Background: The Bundled Payments for Care Improvement (BPCI) initiative has been successful at reducing Medicare costs after total joint arthroplasty (TJA). Target pricing is based on each institution's historical performance and is periodically reset. The purpose of this study was to examine the performance of our BPCI program accounting for patient complexity, quality, and resource utilization.

Methods: We reviewed a consecutive series of 9195 Medicare patients undergoing primary TJA from 2015 to 2018. Demographics, comorbidities, and readmissions by year were compared. We then examined 90-day episode-of-care costs, changes in target price, and financial margins during the duration of the BPCI program using Medicare claims data.

Results: Patients undergoing TJA in 2018 had a higher prevalence of diabetes and cardiac disease (all $P < .001$) as compared with those in 2015. From 2015 to 2018, there was a decrease in the rate of discharge to rehabilitation facilities (23% vs 14%, $P < .001$) and length of stay (2.1 vs 1.7 days, $P < .001$) with no difference in readmissions (6% vs 6%, $P = .945$). There was a reduction in postacute care costs (\$6076 vs \$4,890, $P < .001$) and 90-day episode-of-care costs (\$19,954 vs \$18,449, $P < .001$). However, the target price also decreased (\$22,280 vs \$18,971, $P < .001$), and the per-patient margin diminished (\$2683 vs \$522, $P < .001$).

Conclusion: Surgeons have maintained quality of care at a reduced cost despite increasing patient complexity. The target price adjustments resulted in declining margins during the course of our BPCI experience. Policy makers should consider changes to target price methodology to encourage participation in these successful cost-saving programs.

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Health Policy & Economics

From Winners to Losers: The Methodology of Bundled Payments for Care Improvement Advanced Disincentivizes Participation in Bundled Payment Programs



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ABSTRACT

Background: The Bundled Payments for Care Improvement (BPCI) initiative improved quality and reduced costs following total hip (THA) and knee arthroplasty (TKA). In October 2018, the BPCI-Advanced program was implemented. The purpose of this study is to compare the quality metrics and performance between our institution's participation in the BPCI program with the BPCI-Advanced initiative.

Methods: We reviewed a consecutive series of Medicare primary THA and TKA patients. Demographics, medical comorbidities, discharge disposition, readmission, and complication rates were compared between BPCI and BPCI-Advanced groups. Medicare claims data were used to compare episode-of-care costs, target price, and margin per patient between the cohorts.

Results: Compared to BPCI patients ($n = 9222$), BPCI-Advanced patients ($n = 2430$) had lower rates of readmission (5.8% vs 3.8%, $P = .001$) and higher rate of discharge to home (72% vs 78%, $P < .001$) with similar rates of complications (4% vs 4%, $P = .216$). Medical comorbidities were similar between groups. BPCI-Advanced patients had higher episode-of-care costs (\$22,044 vs \$18,440, $P < .001$) and a higher mean target price (\$21,154 vs \$20,277, $P < .001$). BPCI-Advanced patients had a reduced per-patient margin compared to BPCI (\$890 loss vs \$1459 gain, $P < .001$), resulting in a \$2,138,670 loss in the first three-quarters of program participation.

Conclusion: Despite marked improvements in quality metrics, our institution suffered a substantial loss through BPCI-Advanced secondary to methodological changes within the program, such as the exclusion of outpatient TKAs, facility-specific target pricing, and the elimination of different risk tracks for institutions. Medicare should consider adjustments to this program to keep surgeons participating in alternative payment models.

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Bundle Payment Programs Are Effective

- Reduced costs
 - Decreasing LOS
 - Decreasing Readmissions
 - Decreasing discharge to SNF/Rehab
-
- Bundle participation
 - Focusing on BPCI



Early Results of Medicare's Bundled Payment Initiative for a 90-Day Total Joint Arthroplasty Episode of Care

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Two-Year Evaluation of Mandatory Bundled Payments for Joint Replacement

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ABSTRACT

BACKGROUND

In 2016, Medicare implemented Comprehensive Care for Joint Replacement (CJR), a national mandatory bundled-payment model for hip or knee replacement in randomly selected metropolitan statistical areas. Hospitals in such areas receive bonuses or pay penalties based on Medicare spending per hip- or knee-replacement episode (defined as the hospitalization plus 90 days after discharge).

METHODS

We conducted difference-in-differences analyses using Medicare claims from 2015 through 2017, encompassing the first 2 years of bundled payments in the CJR program. We evaluated hip- or knee-replacement episodes in 75 metropolitan statistical areas randomly assigned to mandatory participation in the CJR program (bundled-payment metropolitan statistical areas, hereafter referred to as “treatment” areas) as compared with those in 121 control areas, before and after implementation of the CJR model. The primary outcomes were institutional spending per hip- or knee-replacement episode (i.e., Medicare payments to institutions, primarily to hospitals and post-acute care facilities), rates of postsurgical complications, and the percentage of “high-risk” patients (i.e., patients for whom there was an elevated risk of spending — a measure of patient selection). Analyses were adjusted for the hospital and characteristics of the patients and procedures.

RESULTS

From 2015 through 2017, there were 280,161 hip- or knee-replacement procedures in 803 hospitals in treatment areas and 377,278 procedures in 962 hospitals in control areas. After the initiation of the CJR model, there were greater decreases in institu-

But are the sustainable for a practice?

- ‘Race to the bottom’
- What about ‘cherry picking’
- Risk adjustment
- Are we ‘successful’ within our BPCI bundle participation?

Petersen et al JBJS 2021
Humbryd et al JBJS 2021

Lose Revenue & Shared Savings

Targets are being reset and lowered (“Race to the Bottom”) + Downside Risk Models (e.g. payback if above target)



First, looked at BPCI (model 2)

- All Medicare primary THAs and TKAs from July 2015 through September 2018
 - DRG 470 patients only (97.5% of all Medicare TJA patients)
- 38 surgeons, 16 affiliated hospitals
- Used third party convener for Medicare claims data
- Analyzed 90-day costs
- Patient demographics, complications, readmissions

In general, patients got more complex

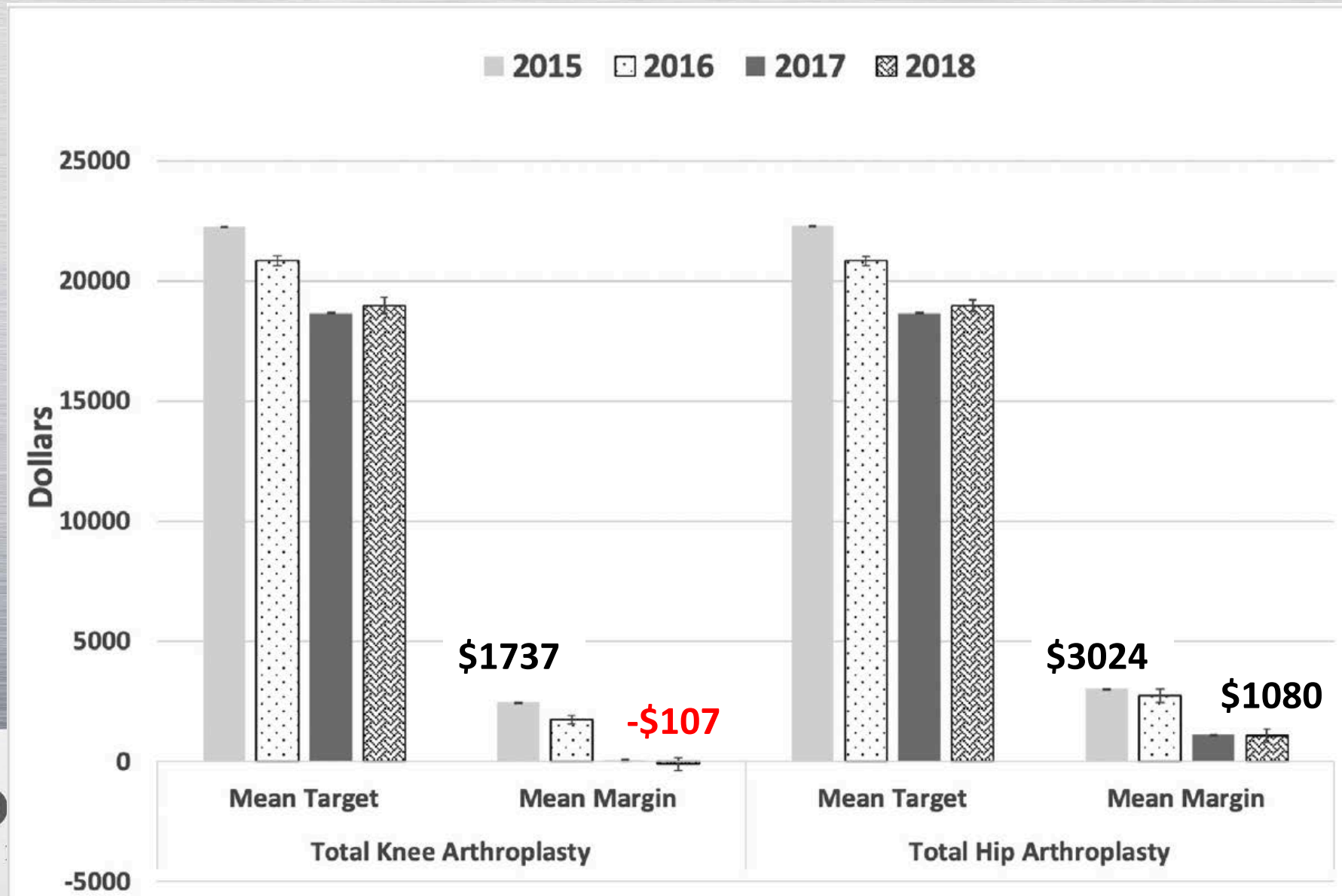
Patient Demographics and Comorbidities for Patients Undergoing a Primary THA or TKA During Our Institution's BPCI.

Variable	2015 N = 2018 (%)	2016 N = 2658 (%)	2017 N = 2650 (%)	2018 N = 1869 (%)	P
Age (y)	72.4 (SD, 6.9)	72.1 (SD, 6.9)	72.4 (SD, 6.7)	72.4 (SD, 6.7)	.032
Gender					.432
Female	1264 (63)	1672 (63)	1647 (62)	1208 (65)	
Male	754 (37)	986 (37)	1003 (38)	661 (35)	
Body mass index (kg/m ²)	29.7 (SD, 5.2)	29.5 (SD, 5.1)	29.4 (SD, 5.0)	29.7 (SD, 5.1)	.016
Joint					<.001
Hip	800 (40)	1116 (42)	1068 (40)	991 (53)	
Knee	1218 (60)	1542 (58)	1582 (60)	878 (47)	
HIV	3 (0)	3 (0)	1 (0)	2 (0)	.276
Congestive heart failure	18 (1)	35 (1)	59 (2)	33 (2)	<.001
Chronic pulmonary disease	104 (5)	55 (2)	109 (4)	109 (6)	<.001
Cerebrovascular disease	51 (2)	75 (3)	131 (5)	89 (5)	<.001
Dementia	13 (1)	13 (1)	19 (1)	15 (1)	.658
Diabetes mellitus	160 (8)	229 (9)	393 (15)	217 (12)	<.001
Cancer	163 (8)	325 (12)	533 (20)	399 (21)	<.001
Myocardial infarction	168 (8)	233 (9)	353 (13)	238 (13)	<.001
Chronic liver disease	14 (1)	30 (1)	66 (2)	48 (3)	<.001
Peripheral vascular disease	27 (1)	42 (2)	80 (3)	46 (2)	<.001
Chronic kidney disease	43 (2)	55 (2)	76 (3)	61 (3)	.061
Connective tissue disease	164 (8)	88 (3)	105 (4)	87 (5)	<.001

Patient Outcomes and Dispositions

Variable	2015	2016	2017	2018	P
Mean length of stay (d)					<.001
Discharge facility, n (%)					<.001
Home					
Home with home health					
SNF					
Inpatient rehabilitation					
Transfer to another facility					
Complication, n (%)					.381
Readmission, n (%)					.945
Costs (SD)					P
Total episode cost					<.001
Total inpatient cost					<.001
Inpatient rehabilitation cost					.010
SNF cost					<.001
Home health cost					<.001
Readmission cost					.563
Postacute care cost					<.001
BPCI target price					<.001
Per-patient margin					<.001

Average 'margin' per patient



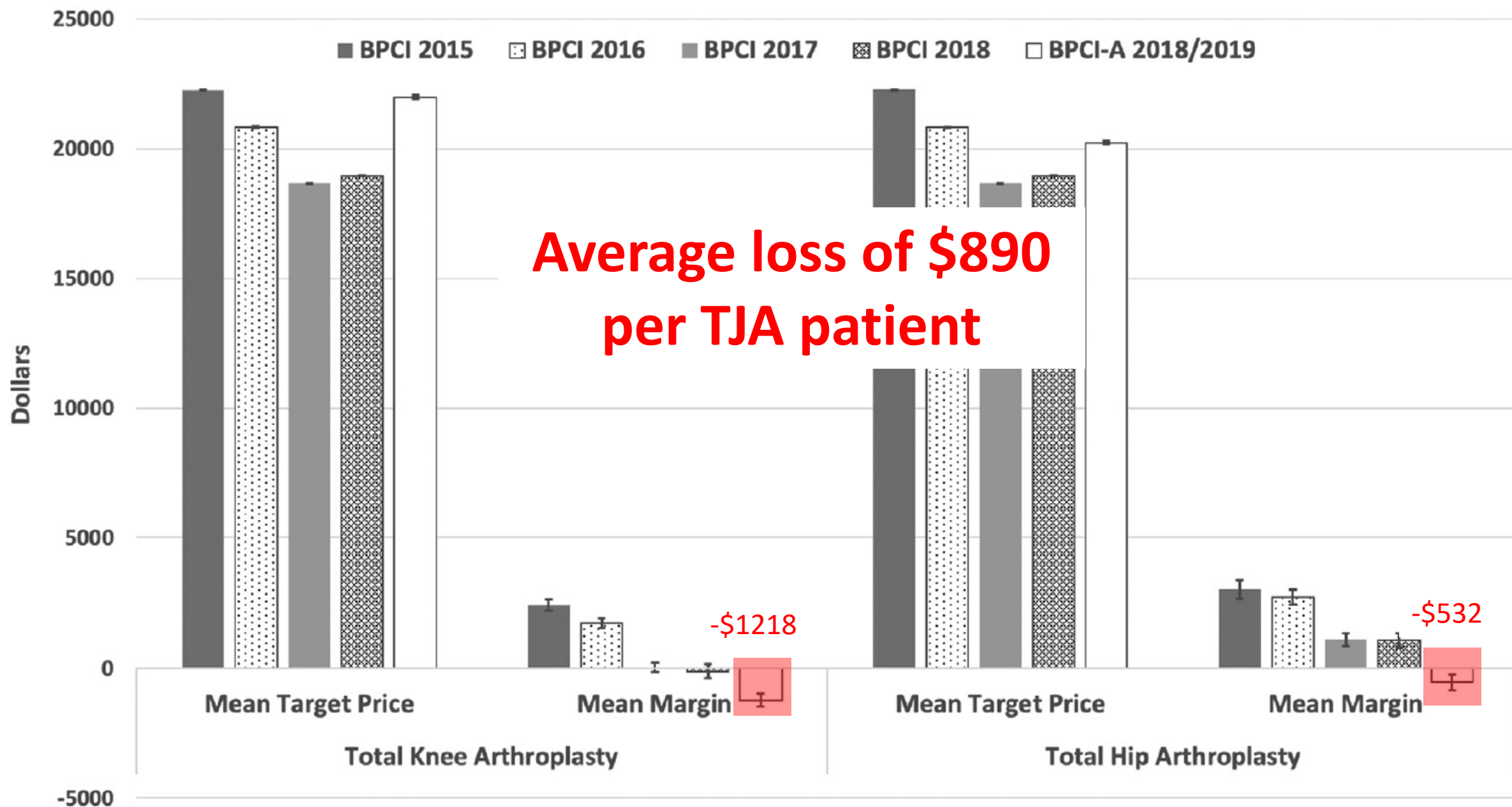
Transition from BPCI to BPCI-A

	BPCI		BPCI-A		P Value
LOS	1.83	SD: 1.10	1.68	SD: 1.16	<.001
Discharge to facility					.137
No	7708	84%	2045	85%	
Yes	1487	16%	358	15%	
Discharge disposition					<.001
Home	6631	72%	1866	78%	
Home health	1077	12%	179	7%	
Skilled nursing facility	1302	14%	330	14%	
Inpatient facility	121	1%	18	1%	
Transfer	64	1%	0	0%	
Complication					.216
No	8879	96%	2308	96%	
Yes	313	4%	95	4%	
90-d readmission					<.001
No	8669	94%	2311	96%	
Yes	526	6%	92	4%	

- Decreased readmissions
- Decreased LOS
- Increased discharge to home
- No change in complication rate



Mean Target Price and Margin By Procedure and Year



RACE TO THE BOTTOM



- Differences in methodology
 - 3% CMS discount
 - Facility specific pricing
 - Removal of 'risk tracks'
 - BPCI Model 2: bottom 5% and top 25% underwent winzorization
 - BPCI-A: Forced to adopt top 1% and bottom 1% winzorization
- 2018 TKA removed from IPO list
 - Removed from bundles

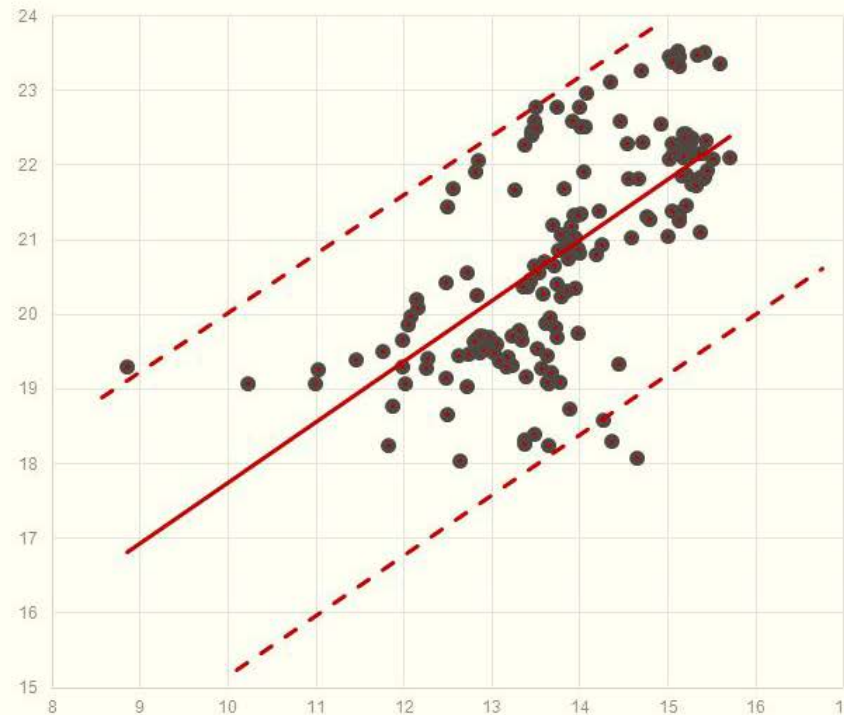
Why did we fail?

BPCI: bottom 5% and top 25% underwent winzorization

BPCI-A: Forced to adopt top 1% and bottom 1% winzorization

Winsorizing

- Objective: to diminish the effect of the outlier (*Yale and Forsythe 1976*).
- Method: redefining the most extreme values (possible outliers) to the next most extreme values (*Yale and Forsythe 1976*)



RO Hip & Knee Distribution For One Region

Hip

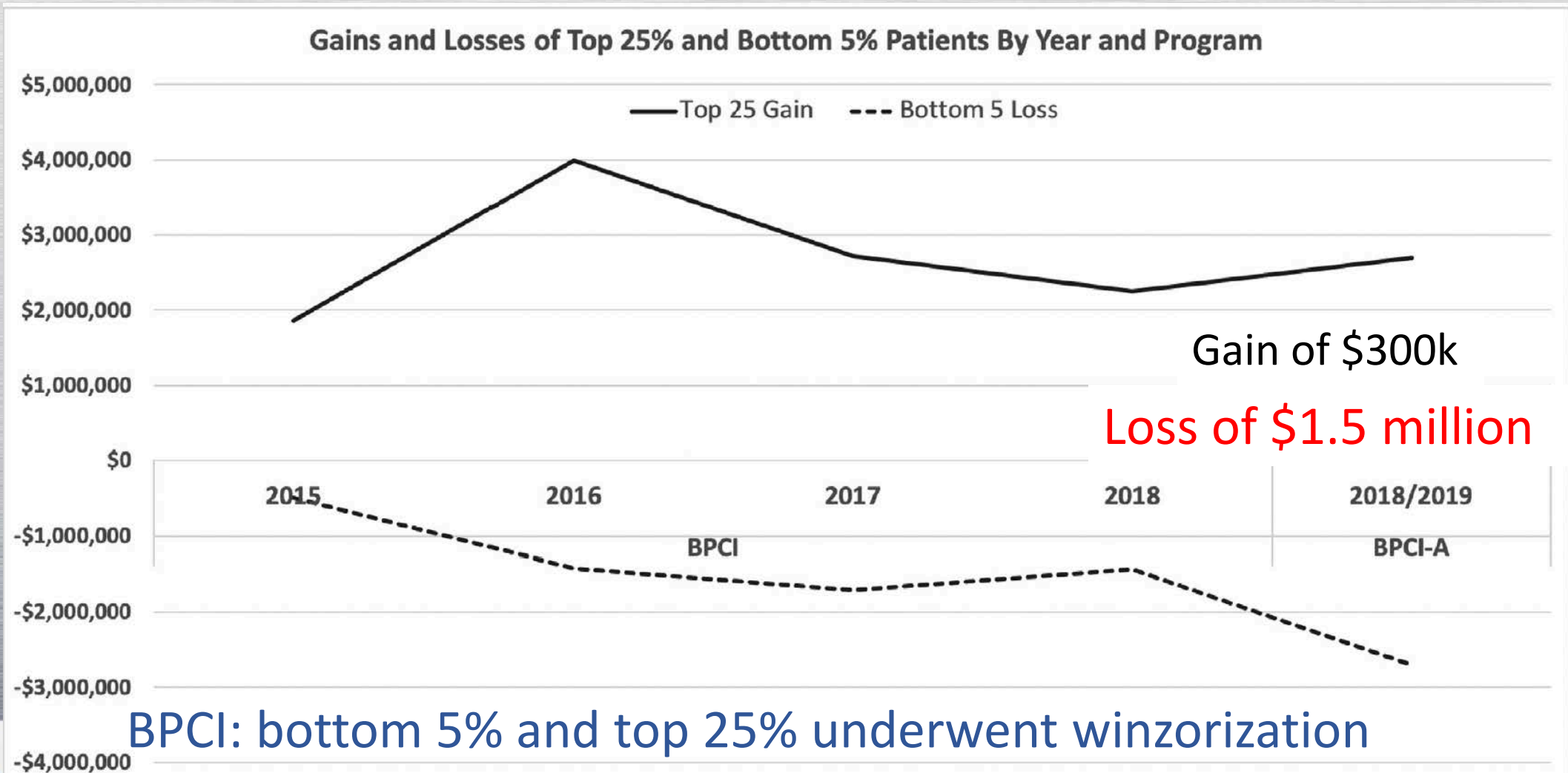
<u>HIPRPLWOREV</u>	<u>Episodes</u>	<u>Avg Cost</u>	<u>Min Cost</u>	<u>Max Cost</u>
IN-PATIENT TOTAL	260	\$ 29,752	\$ 9,051	\$ 55,200
Facility A	117	\$ 40,711	\$ 11,912	\$ 55,200
Facility B	63	\$ 14,314	\$ 9,051	\$ 27,685
Facility C	56	\$ 22,122	\$ 16,515	\$ 44,034
Facility D	19	\$ 31,804	\$ 23,407	\$ 38,949
Other	5	\$ 45,468	\$ 32,277	\$ 54,034
OUT-PATIENT TOTAL	66	\$ 18,656	\$ 6,947	\$ 46,545
Facility A	25	\$ 15,522	\$ 12,078	\$ 20,714
Facility B	22	\$ 17,248	\$ 7,253	\$ 27,249
Facility C	6	\$ 8,509	\$ 6,947	\$ 14,909
Facility D	3	\$ 15,456	\$ 12,556	\$ 17,003
Other	10	\$ 36,638	\$ 10,996	\$ 46,545

Knee

<u>KNRPLWOREV</u>	<u>Episodes</u>	<u>Avg Cost</u>	<u>Min Cost</u>	<u>Max Cost</u>
IN-PATIENT TOTAL	344	\$ 31,368	\$ 8,152	\$ 61,940
Facility A	176	\$ 38,463	\$ 18,334	\$ 61,940
Facility B	85	\$ 14,779	\$ 8,152	\$ 53,813
Facility C	37	\$ 40,875	\$ 15,784	\$ 59,366
Facility D	34	\$ 23,446	\$ 19,306	\$ 33,076
Other	12	\$ 37,965	\$ 18,336	\$ 56,510
OUT-PATIENT TOTAL	89	\$ 30,380	\$ 7,516	\$ 57,572
Facility A	38	\$ 42,970	\$ 14,431	\$ 57,572
Facility B	15	\$ 18,955	\$ 9,295	\$ 26,241
Facility C	12	\$ 10,409	\$ 7,516	\$ 19,835
Facility D	4	\$ 16,181	\$ 14,545	\$ 17,853
Other	20	\$ 29,853	\$ 7,995	\$ 51,675

Most expensive patient: \$183,000

Why did we fail?



BPCI: bottom 5% and top 25% underwent winzorization

BPCI-A: Forced to adopt top 1% and bottom 1% winzorization

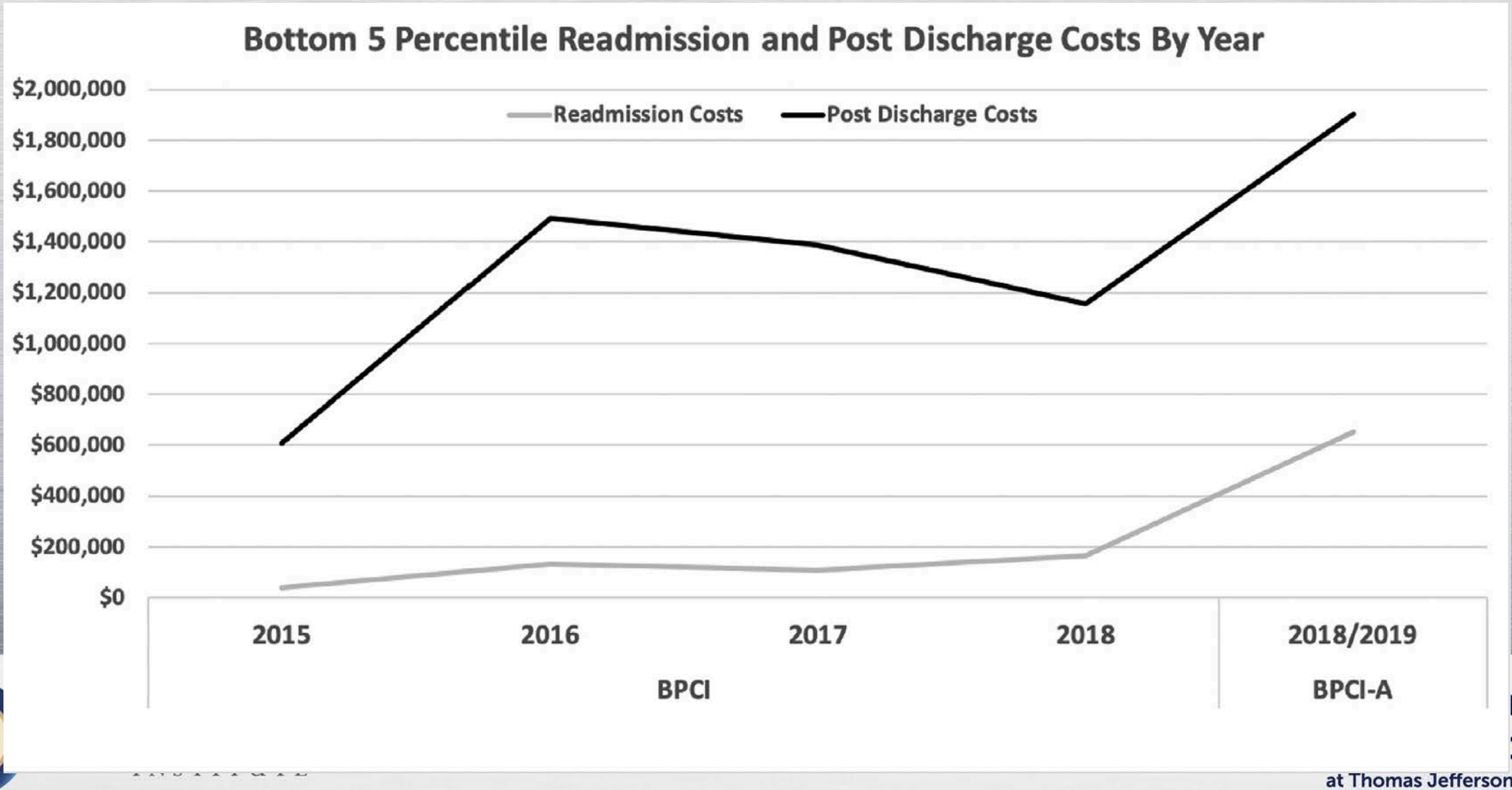


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The most expensive complications added up



We took a bath

- Millions of dollars in losses for the 1 year we participated in BPCI-A
 - Race into the negative
- Despite decreases in costs and improved outcome measures
- Increased physician work
- Downstream effects
 - Nurse Navigator Programs



What Does This All Mean?

- When you compete against yourself, you lose
 - Only so much
- The positive effects of these programs persist
 - Decreases costs
 - Increased efficiencies
- Large increase in drop out of bundle payment programs
- Need to be changes in the methodology





THANK YOU.



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