



BERKELEY CENTER  
FOR HEALTH TECHNOLOGY

# Reference Pricing for *in vitro* Laboratory Tests

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# Price Variation in Health Care

- In most sectors, variation in price is due to variation in quality, convenience, performance
- In health care, variation in price also is due to factors on the supply side:
  - Manufacturers: patent protection
  - Providers: market consolidation
- The variation in price is permitted by factors on the demand side
  - Consumers lack incentive to shop, as someone else is paying (insurer, employer)
  - Consumers lack information on prices and quality at the time of making choices



# Laboratory Test Prices Vary Widely

- Freestanding versus hospital laboratories
- Local versus national laboratories
- Geographic variation in market structure



# Price Variation for Common Lab Tests: Barclays Data from Charlotte, North Carolina

FIGURE 6

Range of Average Amount of BCBS Claim per Lab Test

Test (\$)	LH	Labs		Hospitals	
		Low	High	Low	High
Blood Test, TSH	\$10	\$10	\$16	\$35	\$166
Lipid Panel	\$8	\$8	\$13	\$29	\$196
Metabolic Panel	\$5	\$5	\$8	\$20	\$284
Vitamin D-25 Hydroxy	\$19	\$18	\$28	\$37	\$310
Complete CBC Automated	\$5	\$5	\$7	\$14	\$79
Glycosylated Hemoglobin	\$6	\$6	\$9	\$19	\$125
Assay of Parathormone	\$32	\$25	\$39	\$26	\$270
Assay of PSA Total	\$12	\$11	\$17	\$43	\$147
Vitamin B-12	\$9	\$9	\$14	\$32	\$205
Urine Culture/Colony Count	\$12	\$10	\$18	\$19	\$364

Source: Company Documents, Barclays Research



# Price Variation for Common Lab Tests: National Data from Safeway

Lab Test	5th percentile	25th percentile	50th percentile	75th percentile	95th percentile
Basic metabolic panel	\$5.75	\$6.15	\$17.15	\$44.00	\$126.44
General health panel	\$20.58	\$21.88	\$23.88	\$53.66	\$121.86
Comprehensive metabolic panel	\$7.18	\$7.68	\$15.98	\$33.37	\$132.48
Lipid panel	\$8.85	\$9.46	\$11.73	\$30.03	\$74.92
Hepatic function panel	\$5.56	\$5.94	\$11.32	\$24.51	\$85.14
Iron test	\$4.40	\$4.71	\$4.71	\$13.62	\$58.47
Total PSA	\$12.50	\$13.36	\$13.36	\$37.27	\$88.75
Thyroxin free test	\$6.13	\$6.55	\$8.19	\$20.50	\$64.00
TSH	\$11.42	\$12.20	\$28.53	\$55.87	\$101.70
Uric acid test	\$3.07	\$3.28	\$3.47	\$9.63	\$30.60





# What is Reference Pricing?

- Sponsor (employer, insurer) establishes a **maximum contribution** (reference price) it will make towards paying for a particular service or product
  - This limit is set at some point along the observed price range (e.g., minimum, median)
  - Patient must *pay the full difference* between this limit and the actual price charged
  - Patient may reduce cost sharing by switching to low-priced product or provider
- Patient chooses his/her cost sharing by choosing his/her product or provider
  - Patient has good coverage for low priced options but **full responsibility for choice**



# Laboratory Reference Price Initiative

- Safeway, a national grocery and food processing firm, implemented reference pricing for 285 laboratory tests and panels in March 2011
- These tests and panels accounted for 63% of Safeway lab expenditures
- Payment limit set at 60<sup>th</sup> percentile in price distribution
- Lab test prices were made available to employees online via Castlight mobile transparency platform
- Employees selecting lab where test price was at or below reference limit were subject to usual deductible
- Employees selecting lab where test price exceeded reference limit also paid the entire difference between reference limit and price charged



# Exemptions from Reference Pricing

- Focus of initiative was on diagnostic tests where patient had the time and capability for price shopping
- Tests were excluded if they were provided as part of an acute course of care (in hospital, ED, urgent care)
- Tests were excluded if they were for patients suffering from cancer, infertility, renal failure, mental illness
- Genetic tests were excluded
- Unionized employees were excluded as health benefits covered by bargained contract



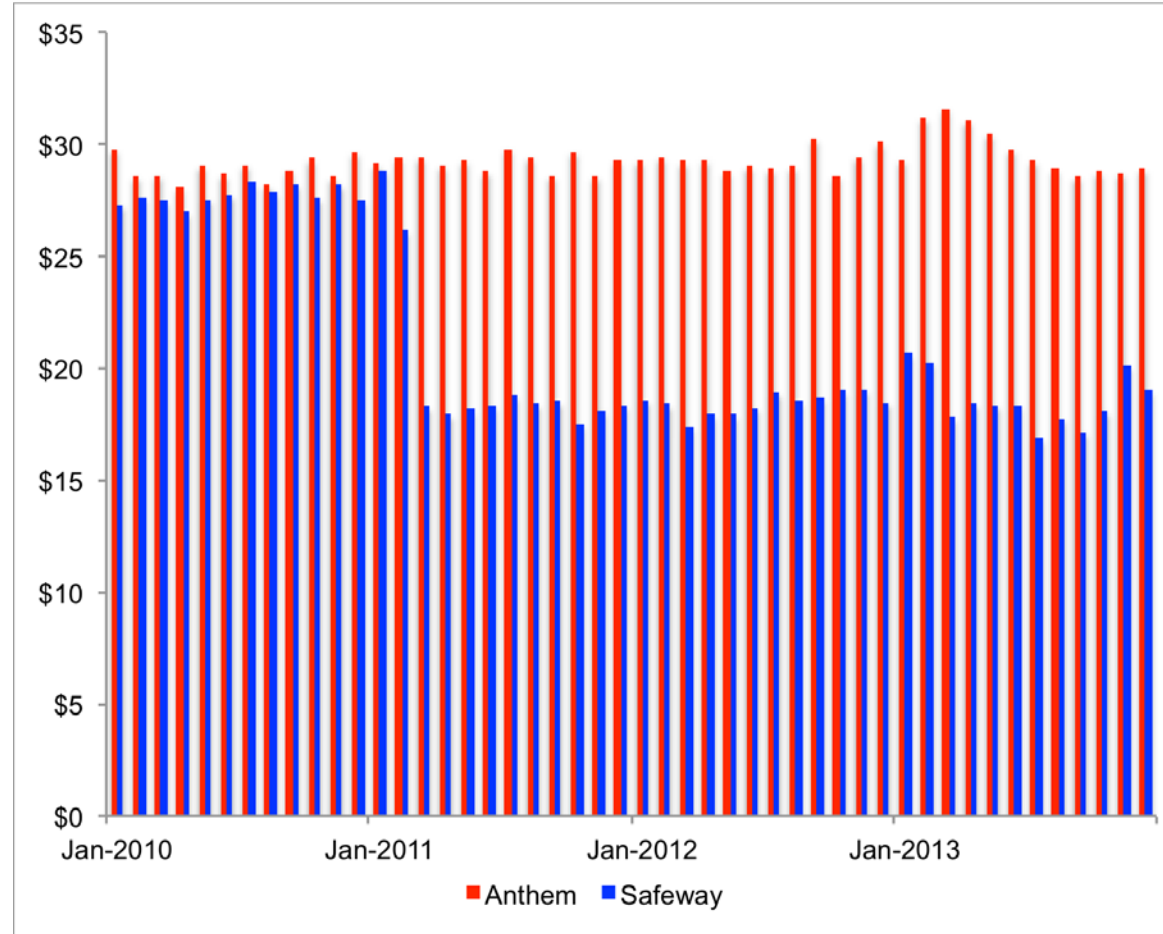


# Data and Methods

- Drug claims from January 2010 to December 2013 were obtained from Safeway (N=344,413 claims)
- Comparison group data obtained from Anthem Inc., which did not implement reference pricing, sampling 5% of total Anthem Blue claims (N=1,781,640 claims)
- Study endpoints:
  - Probability that the patient selects the low-price laboratory (charging less than or equal limit)
  - Average price (allowed charge)
  - Consumer cost sharing
- Difference-in-difference multivariable regressions
- Compare change in lab choice, test price paid, and consumer cost sharing for Safeway, before and after implementation, with changes (if any) by Anthem



# Bivariate Analysis: Reference Pricing Associated with Reduced Prices Paid



# Multivariable Analyses: Impact on Laboratory Choices and Test Prices

- Compared to Anthem enrollees, Safeway employees were 25.2% less likely to select a lab charging above the reference limit in the first year after implementation of reference pricing and 18.6% less likely by third year
- Compared to the prices paid by Anthem, the lab test prices paid by Safeway fell by 29.5% in the first year after implementation and 32.0% by third year
- These changes in prices were due to changes in choice of lab, not reductions in prices charged at any one lab (Safeway was too small a share of any market to influence pricing strategies)



# Multivariable Analyses: Impact on Employer and Employee Spending

- Reference pricing reduced Safeway spending by 30.0% in first year and 31.1% by third year after implementation
- By switching to lower-priced laboratories, Safeway employees reduced their test-related cost sharing by 40.1% in first year and 41.5% by third year

	2011	2012	2013	2011-2013
Total Saved	\$874,496	\$842,755	\$855,624	<b>\$2,572,875</b>
Savings Accruing to Patients	\$320,768	\$361,063	\$364,197	<b>\$1,046,028</b>
Savings Accruing to Employer	\$611,072	\$522,177	\$565,380	<b>\$1,698,629</b>



# Reference Pricing in Context

- Reference pricing has been applied procedures in the US (e.g., surgery, diagnostic)
- It has been applied to drugs in many nations outside the US (e.g., Canada, Europe)
- These applications have been subjected to numerous studies
- In every case, reference pricing has been associated with significant reductions in prices and spending





## Impact of Reference Pricing on Consumer Choices, Prices Paid, and Potential Spending Reductions for Commercially Insured Individuals

	Percentage point increase in use of low-price facilities	Percent reduction in price paid per procedure or test	Total spending by commercially insured individuals in the US (\$Billion)	Potential spending reduction from reference pricing (\$Billion)
Joint replacement	14.2	19.8	17.09	3.38
Arthroscopy of the knee	14.3	17.6	5.70	1.00
Arthroscopy of the shoulder	9.9	17.0	3.80	0.65
Cataract removal	8.6	17.9	1.90	0.34
Colonoscopy	17.6	21.0	11.39	2.39
Laboratory tests	18.6	32.0	23.73	7.59
Imaging: CT scans	9.0	12.5	17.09	2.14
Imaging: MRI procedures	16.0	10.5	19.93	2.09
Total	NA	NA	100.62	19.59





***“Geez Louise—I left the price tag on.”***

## PURCHASING MEDICAL INNOVATION



THE RIGHT TECHNOLOGY, FOR THE  
RIGHT PATIENT, AT THE RIGHT PRICE

JAMES C. ROBINSON

