



BERKELEY CENTER  
FOR HEALTH TECHNOLOGY

# **Reference Pricing: Impacts to Date, and Potential Extension to Drugs**



# Overview



- Reference pricing: impacts to date
- The challenge of drug pricing
- Reference pricing impacts on drug selection, prices, cost sharing
- Challenges and opportunities

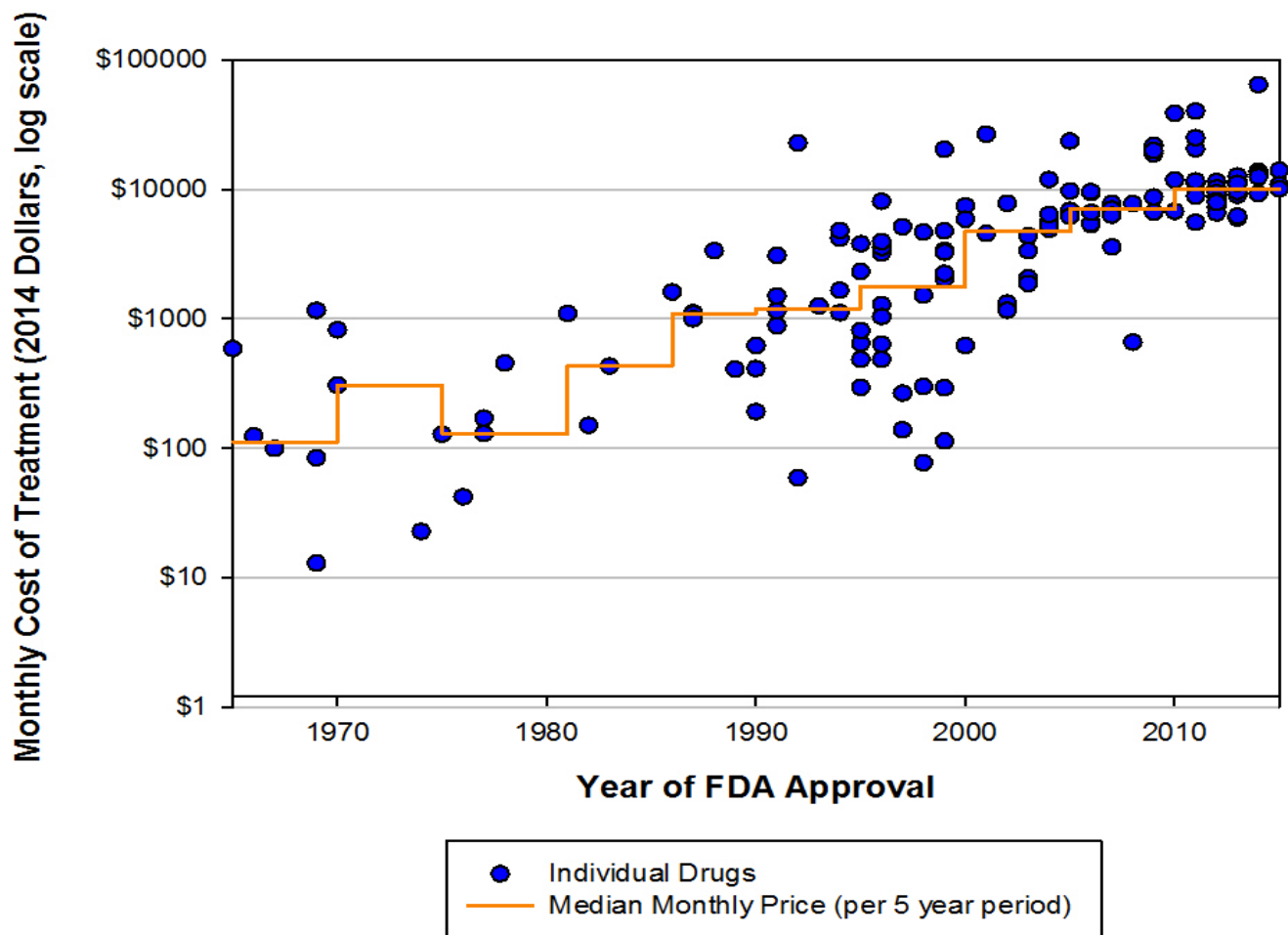


## Impact of Reference Pricing on Consumer Choices, Prices Paid, and Potential Spending Reductions for Commercially Insured Individuals

	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



## Monthly and Median Costs of Cancer Drugs at the Time of FDA Approval 1965-2015



Source: Peter B. Bach, MD, Memorial Sloan-Kettering Cancer Center

## Top selling U.S. drug prices over five years

Prices rose 54 percent to 126 percent.

DRUG (COMPANY)	PRICE*		PRICE GROWTH
	Dec. 31, 2010	Present	
<b>Humira</b> (AbbVie) 40 mg/0.8 ml pre-filled syringes	\$1,676.98	\$3,797.10	126.4%
<b>Enbrel</b> (Amgen) 50 mg/ml subcutaneous sol.	\$427.24	\$932.16	118.2%
<b>Copaxone</b> (Teva) 20 mg/ml subcutaneous sol.	\$3,025.04	\$6,593.00	118.0%
<b>Crestor</b> (AstraZeneca) 10 mg tablets	\$350.17	\$745.41	112.9%
<b>Abilify</b> (Otsuka) 10 mg tablets	\$454.07	\$891.97	96.4%
<b>Lantus Solostar</b> (Sanofi SA) 100 units/ml subcutaneous sol.	\$191.96	\$372.76	94.2%
<b>Advair Diskus</b> (GlaxoSmithKline) 250/50 inhalation discs	\$199.90	\$334.63	67.4%
<b>Remicade</b> (Johnson & Johnson) 100 mg IV powder for solution	\$657.87	\$1,071.48	62.9%
<b>Neulasta</b> (Amgen) 6 mg/0.6 ml subcutaneous sol.	\$3,320.00	\$5,155.65	55.3%
<b>Nexium</b> (AstraZeneca) 10 mg oral packets	\$162.55	\$250.94	54.4%

\* Reflects wholesale acquisition prices before volume-related rebates and other discounts. Prices are based on most commonly prescribed dose.

Source: Truven Health Analytics

S. Culp, 30/03/2016

 REUTERS

# Variation in Drug Prices

Drug Class	Number of Fills	Price of Lowest-Priced Drug in Class	Price of Highest Priced-Drug in Class	Difference Between Highest and Lowest Price Drug (\$)	Share of Lowest Price Drug in Class (%)	Share of Highest Price Drug in Class (%)
HMG CoA Reductase Inhibitors	11,701	\$12.3	\$447.2	\$434.9	0.3%	0.0%
Thyroid Hormones	8,386	\$5.3	\$33.4	\$28.1	0.3%	0.1%
Selective Serotonin Reuptake Inhibitors (SSRIs)	7,287	\$10.3	\$201.0	\$190.7	10.2%	0.1%
ACE Inhibitors	6,601	\$5.9	\$50.4	\$44.5	2.0%	0.1%
Beta Blockers Cardio-Selective	5,490	\$6.1	\$78.0	\$71.9	6.1%	3.9%
Proton Pump Inhibitors	5,345	\$25.7	\$296.1	\$270.4	28.7%	0.5%
Biguanides	4,185	\$11.8	\$525.2	\$513.4	41.0%	0.8%
Hydrocodone Combinations	4,073	\$27.8	\$297.4	\$269.6	7.7%	1.4%
Nonsteroidal Anti-inflammatory Agents (NSAIDs)	4,021	\$9.9	\$521.0	\$511.1	12.3%	0.1%
Calcium Channel Blockers	3,864	\$14.6	\$221.8	\$207.2	3.2%	0.4%
Angiotensin II Receptor Antagonists	3,497	\$11.5	\$166.6	\$155.1	8.6%	0.4%
Benzodiazepines	3,286	\$3.0	\$15.1	\$12.1	0.1%	7.8%
Anticonvulsants - Misc.	3,224	\$17.9	\$292.2	\$274.3	0.2%	0.5%
Nasal Steroids	2,952	\$34.0	\$422.1	\$388.1	60.8%	0.3%
Thiazides and Thiazide-Like Diuretics	2,647	\$4.1	\$69.4	\$65.3	0.3%	0.2%
Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs)	2,644	\$41.5	\$299.7	\$258.2	17.7%	2.6%
Beta Adrenergics	2,379	\$8.0	\$489.4	\$481.3	0.2%	0.0%
Non-Benzodiazepine - GABA-Receptor Modulators	2,233	\$34.3	\$221.4	\$187.1	12.6%	0.1%
Human Insulin	2,070	\$108.9	\$323.2	\$214.3	2.8%	16.0%
Angiotensin II Receptor Antag & Thiazide/Thiazide-Like	1,987	\$16.0	\$139.5	\$123.5	14.0%	6.2%
Antidepressants - Misc.	1,896	\$28.0	\$97.4	\$69.4	2.5%	37.1%



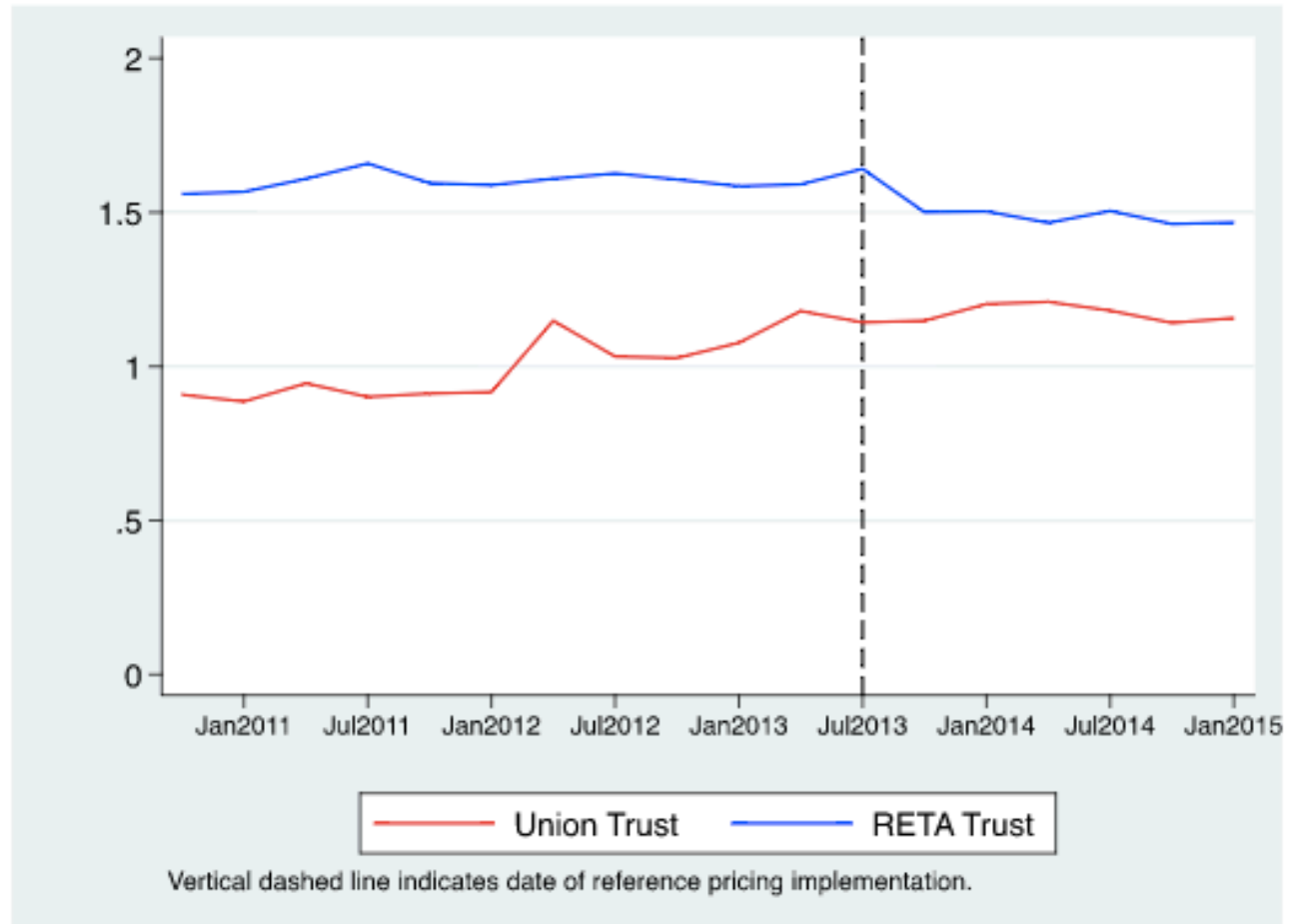


# Data and Methods

- Drug claims from July 2010 to December 2014 were obtained from RETA Trust (N=573,456) and from comparison labor union trust (N=549,285)
- RETA Trust implemented reference pricing July 2013
- Difference-in-difference multivariable regressions
- Compare change in drug choice and price paid for RETA, before and after implementation, with changes (if any) over same period for comparison group
- Endpoints:
  - Rate of utilization: prescriptions per employee
  - Probability that the patient selects the low-price drug within its therapeutic class
  - Average price paid per prescription

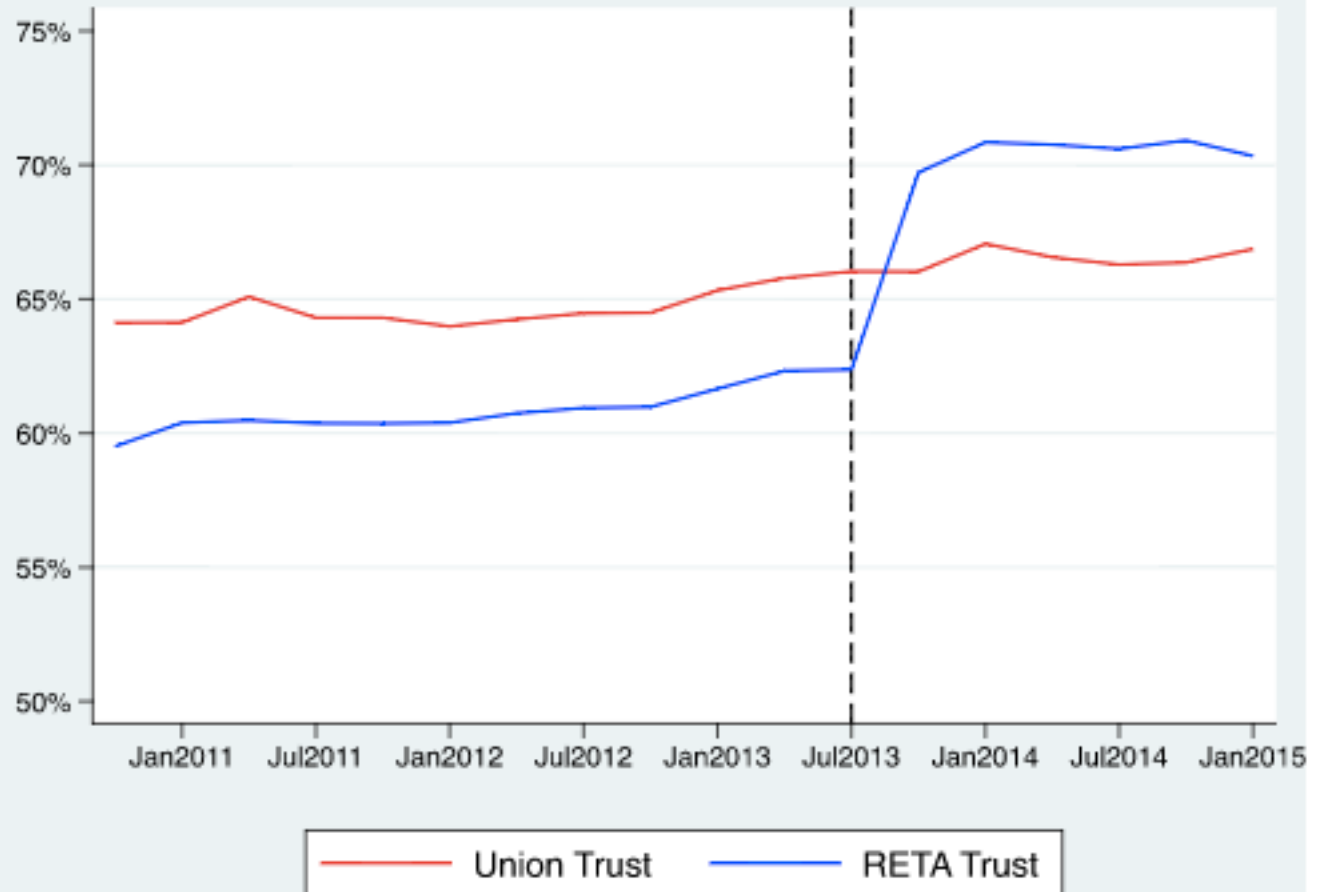


# Reference Pricing: No Effect on Rate of Drug Utilization



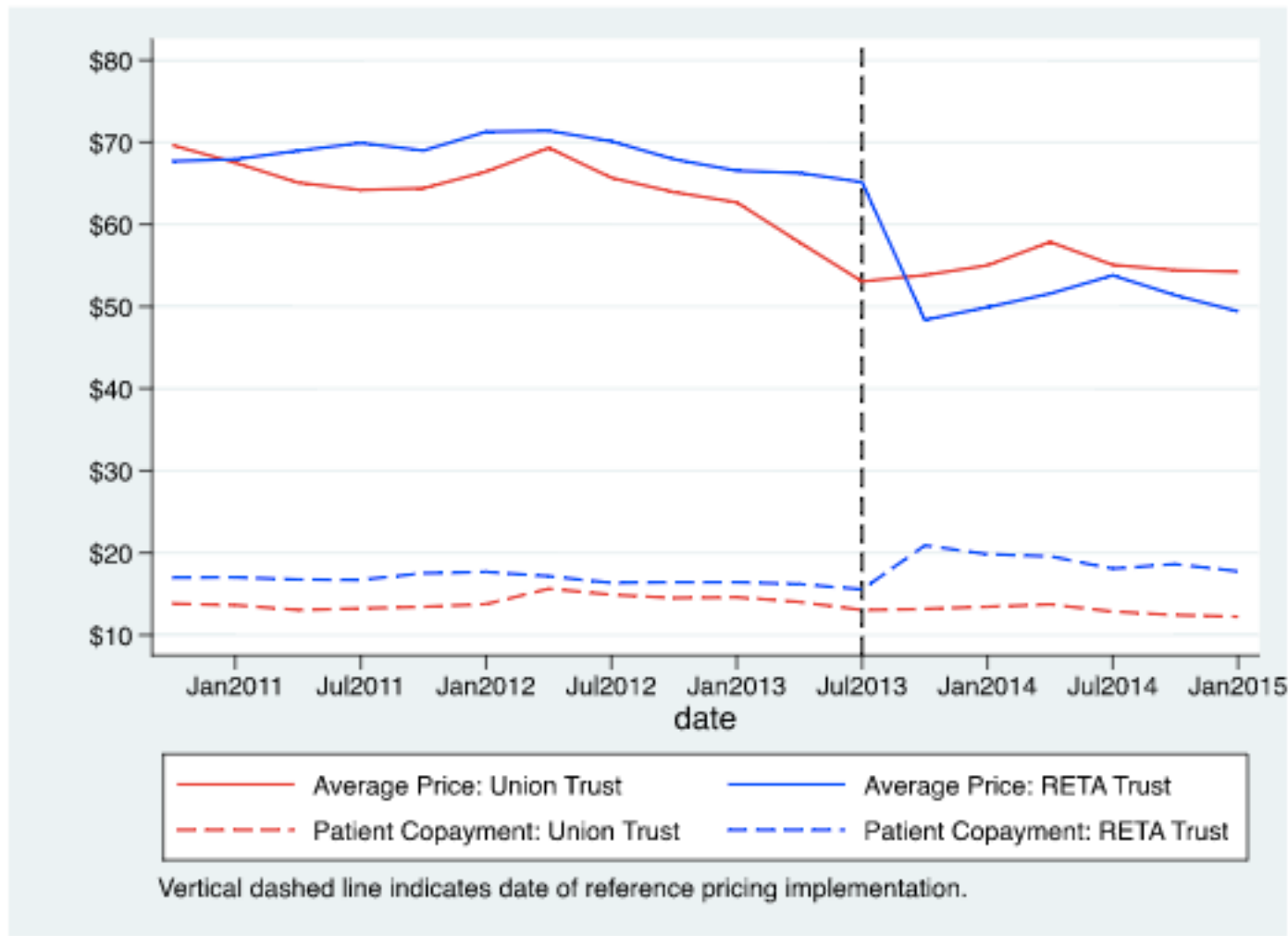


# Reference Pricing: Increased Share for Low-Price Drug with Each Class



Vertical dashed line indicates date of reference pricing implementation.

# Reference Pricing: Reduced Prices Paid and Increased Consumer Cost Sharing



# Multivariable Analyses: Impact on Drug Choices, Prices, Copayments

- The Figures present unadjusted trends in use, choice, prices, and cost sharing but impact should be assessed after adjusting for market and demographic changes
- Multivariable (difference-in-difference) analyses indicate that reference pricing was associated with:
  - 11.3% growth in probability that a RETA patient selects the low-priced drug within its class
  - 13.9% reduction in average price paid
  - 5.2% increase in employee cost sharing



# Multivariable Analyses: Impact on Employer and Employee Spending

- RETA paid for 144,520 prescriptions in the 18 months after implementation of reference pricing.
- The reduction in prices due to reference pricing led to savings for the Trust of \$1.34 Million
- The increase in cost sharing due to reference pricing led to increased employee spending of \$0.12 Million



# The American Question

- Reference pricing seems to offer substantial benefits to purchasers. Why has it not be adopted more broadly?
- Perhaps purchasers (employers, insurers) are preoccupied with HDHP and narrow networks, and will consider reference pricing as the limitations of those strategies become evident
- Perhaps purchasers simply have not heard about reference pricing
- Perhaps reference pricing has real limitations...



# Challenge: Breadth of Applicability

- **Problem**
- Reference pricing is only applicable to ‘shoppable’ tests and treatments, where consumers have the time and the information to compare price with performance
- **Answer**
- These acute, non-emergency services account for a very large share of health spending
- Comparison information on price and quality is improving, supplemented with decision supports
- Provider organizations (e.g., ACO) paid on per-capita basis need consumer cost sharing incentives to help them steer their patients to low-price and cooperative referral specialists, facilities, and drugs





# Challenge: Administrative Burden

- **Problem**
- Reference pricing requires that a payment limit be identified for each procedure in each market and for each drug within each therapeutic class
- **Answer**
- A consumer-driven health system must help the consumer make intelligent choices. Sponsors (insurers, employers, advocates) cannot avoid the task of identifying opportunities for saving money by moving to cheaper but high-quality options
- Reference creates the incentive for consumers to consider price, but needs to be supplemented by information on options and the creation of new options



# Challenge: Insufficient Competition

- **Problem**

- Reference pricing requires there be multiple providers in each market, but many geographic markets have been consolidated

- **Answer**

- Reference pricing may offer the best response to consolidation, driving patient volume from hospital-based for free-standing ASCs, from ASC to physician offices, from physician offices to the home
- It is compatible with Center of Excellence (COE) contracting, which expand the geographic scope, and hence competitiveness, of markets for high-cost surgical and diagnostic procedures



# Challenge: Managing Innovation

- **Problem**

- Reference pricing for drugs requires there be multiple therapeutically-equivalent products in each class. It does not offer solutions for classes benefitting from innovative drugs without substitutes

- **Answer**

- Health technology assessment (HTA) methods are used by ex-US payers to compare relative clinical benefits for drugs within therapeutic classes. These benefit comparisons serve as the basis for negotiations over price
- The reference price serves as the default price for new drugs that cannot prove superiority to existing drugs



# Can Reference Pricing Be Applied to Specialty Drugs?

- Much of the increases and variability in drug prices have been for specialty products, which are more complex and expensive than traditional medications
- The innovation pipeline is producing large numbers of therapeutic equivalents in specialty drug classes, including equivalent brands, generic specialty drugs, and biosimilars
- Examples: Rheumatoid arthritis, multiple sclerosis, Hepatitis C, lung and breast cancer
- This is the frontier for all forms of drug assessment, purchasing, and appropriate use
- When combined with HTA, patient support programs, and exceptions policies for patients with unique needs, reference pricing could increase price competition within these classes





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