



Insulins: Prices, Rebates, and Other Factors Influencing Costs

May 2018

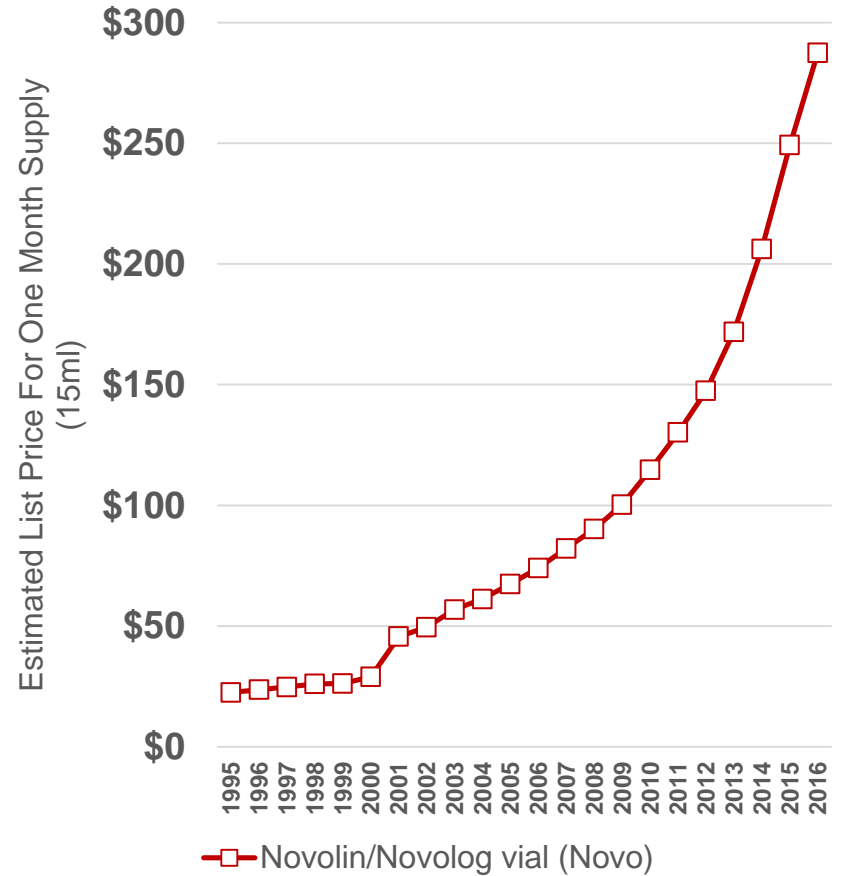
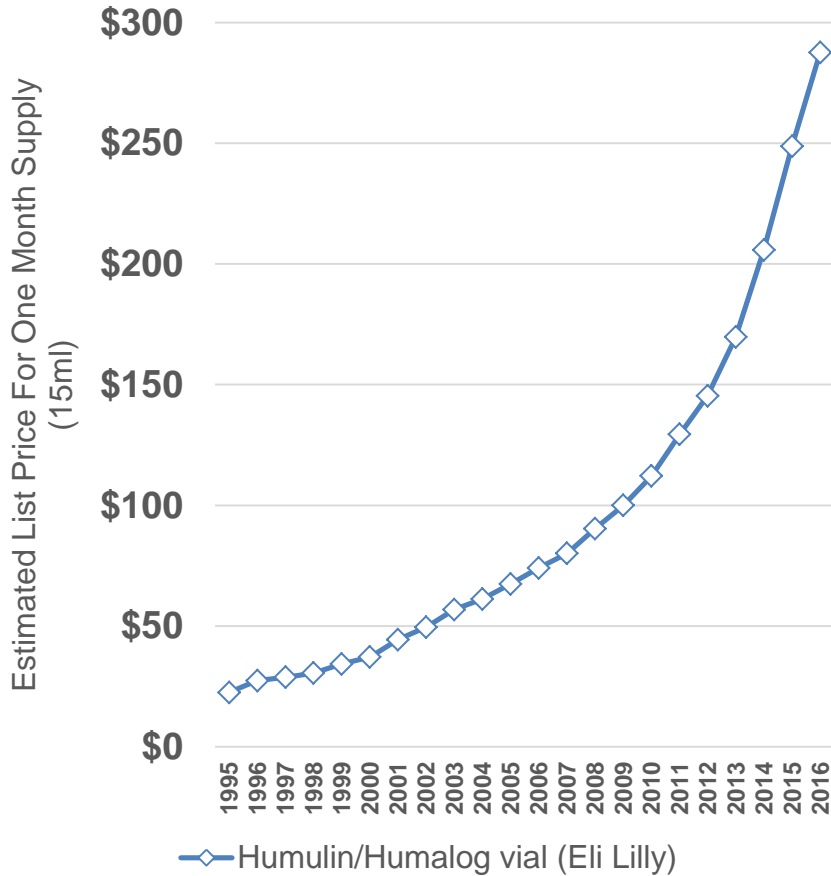
Introduction: Types of Insulin

Types of Insulin	Brand Names
Rapid-acting: Usually taken before a meal to cover the blood glucose elevation from eating. This type of insulin is used with longer-acting insulin.	Humalog Novolog Apidra
Short-acting: Usually taken about 30 minutes before a meal to cover the blood glucose elevation from eating. This type of insulin is used with longer-acting insulin.	Humulin R (regular) Novolin R (regular)
Intermediate-acting: Covers the blood glucose elevations when rapid-acting insulins stop working. This type of insulin is often combined with rapid- or short-acting insulin and is usually taken twice a day.	Humulin N (NPH) Novolin N (NPH)
Long-acting: This type of insulin is often combined, when needed, with rapid- or short-acting insulin. It lowers blood glucose levels when rapid-acting insulins stop working. It is taken once or twice a day.	Lantus Levemir Toujeo Tresiba Basaglar (Lantus follow on)

Cost Driver: Manufacturer Price Increases

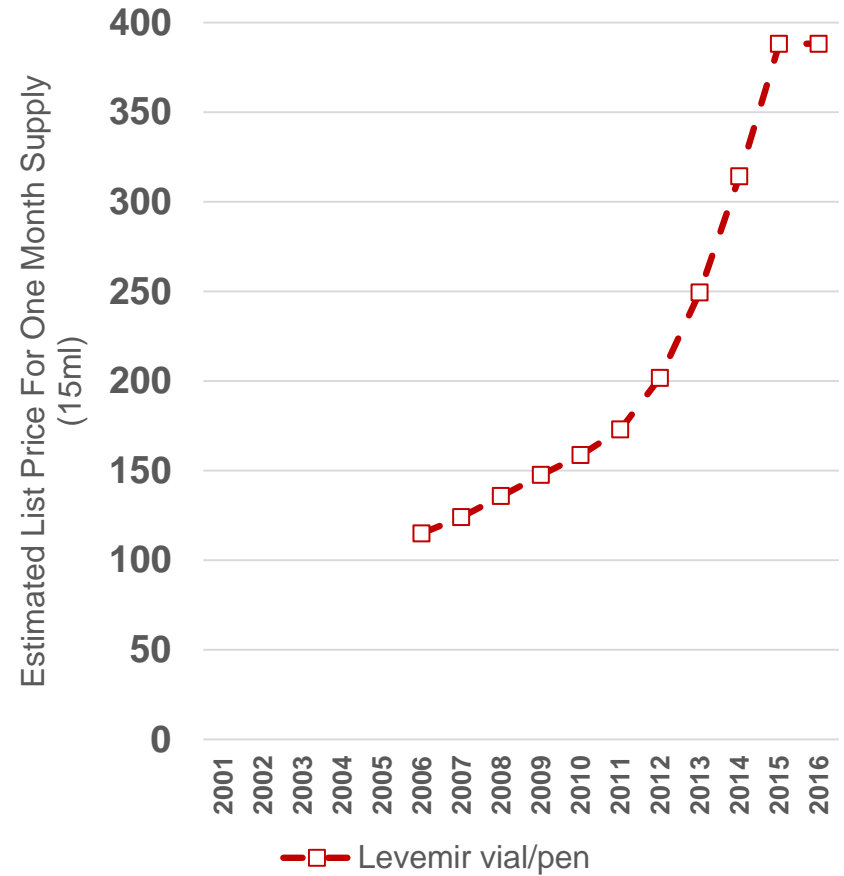
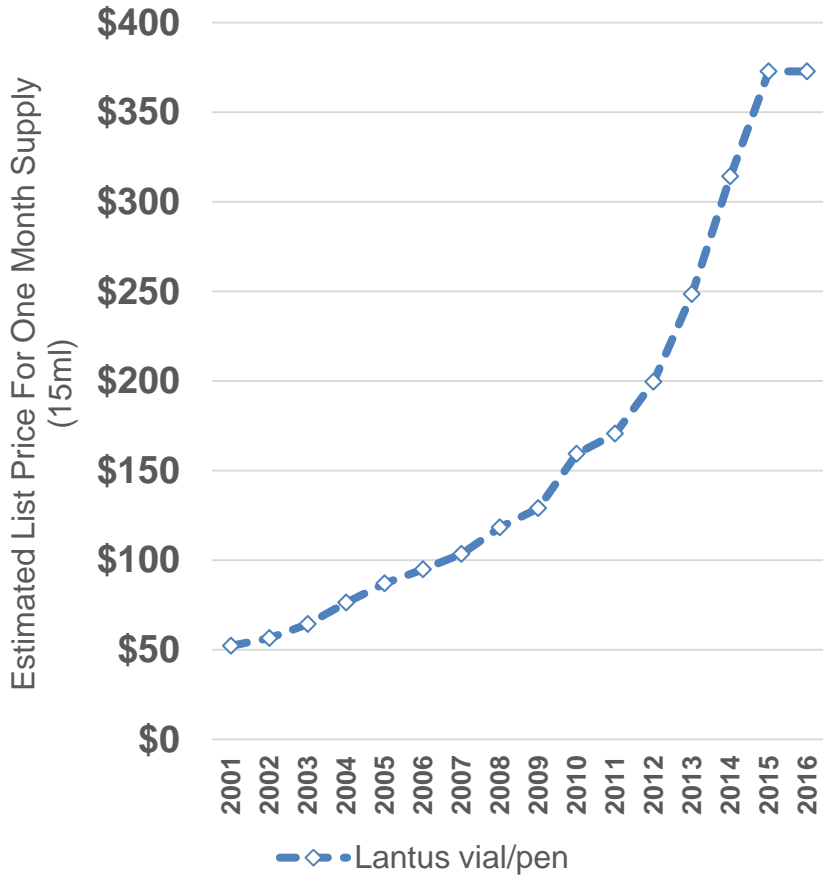
- Insulin prices have increased more than 10-fold since 1985. Prices have escalated more dramatically during the past 10 years.
- Prices for Humulin/Novolin have increased from approximately \$25 per prescription in 1985 to nearly \$300 in 2016.
- Prices for long-acting insulins have increased from about \$100 per prescription in 2007 to nearly \$400 in 2016.
- During the past 20 years, new insulin competitors have entered the market, but always at higher prices than the existing market. The only exception was Basaglar, introduced in December 2016. It is the first follow-on long-acting insulin.
- During the past 10 years, gross sales for insulins have increased significantly due entirely to price increases, while overall utilization/prescription volume has remained flat.

Humulin and Novolin: Large Manufacturer Price Increases



Source: Visante analysis of Medispan data.

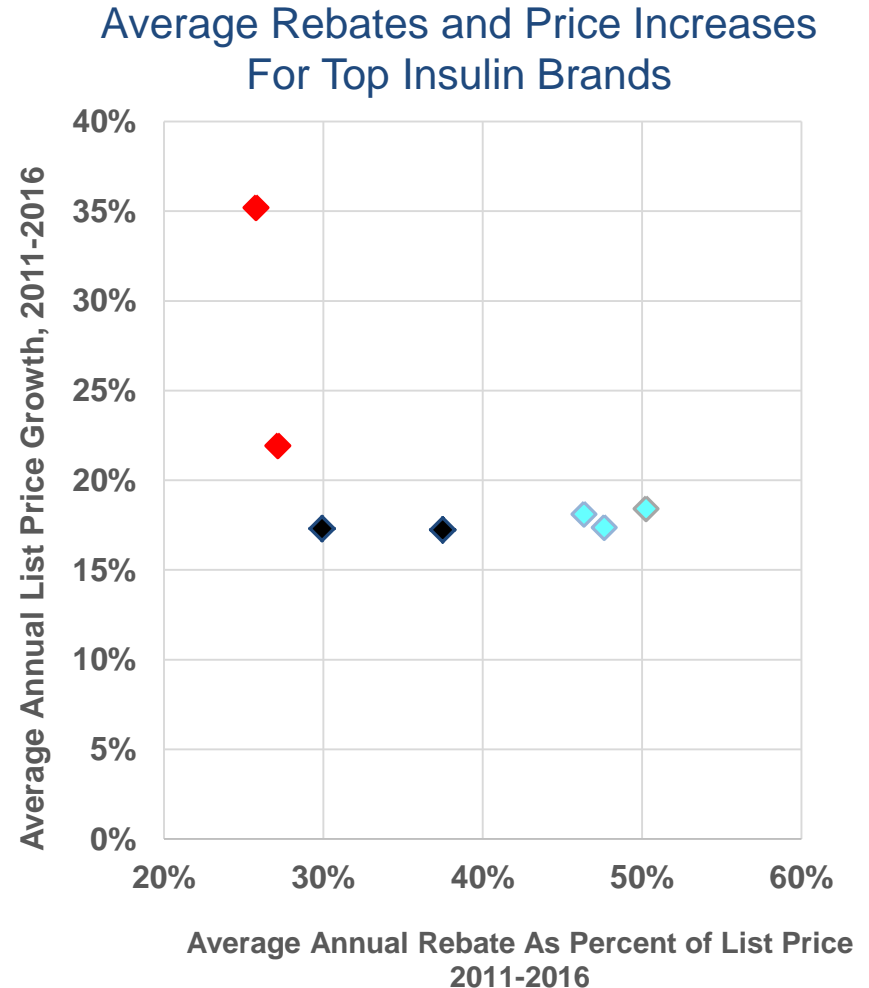
Lantus and Levemir: Large Manufacturer List Price Increases



Source: Visante analysis of Medispan data.

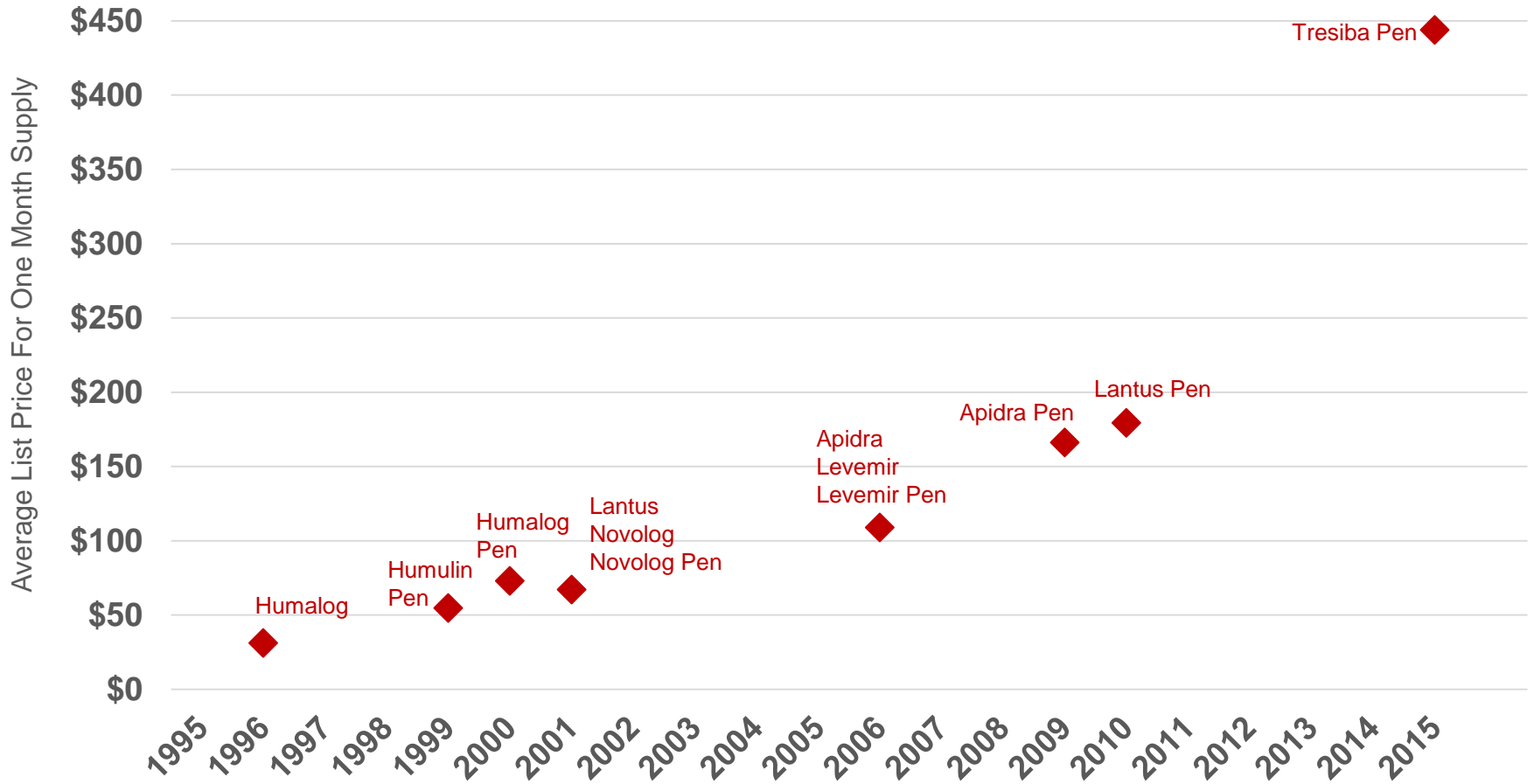
Top Insulin Brands: No Correlation Between Rebates and Price Increases

- Among insulin products ranked within the top 200 brand drugs by 2016 sales, there is no correlation between the growing prices set by drugmakers and the average rebate levels that they negotiate with PBMs.
- Top Insulins with lower average rebates (in red) have actually had *higher* annual price growth during the 2011-2016 period.
- Top insulins with higher average rebates (in blue) have had only average price increases.
- A similar analysis across all top 200 drugs also shows no correlation between rebate levels and list price growth.*



* "Increasing Prices Set by Drugmakers Not Correlated with Rebates," Visante, 2017.
Source: Visante estimates and analysis of SSR Health data, 2017.

Cost Driver: Higher Launch Prices for New Insulins



Cost Driver: Manufacturers Raise Prices and Extend Patents by Delivering Product in Pens

Brand	Year Pen Launched	Estimated Monthly Price (15ml) In Year Pen Was Launched		Increased Price With Pen
		Vial	Pen	
Humulin	1999	\$28	\$55	96%
Humalog	2000	\$44	\$73	66%
Novolog	2001	\$60	\$75	25%
Levemir	2006	\$100	\$129	29%
Apidra	2009	\$129	\$166	29%
Lantus	2009	\$139	\$179	29%

Source: Visante analysis of Medispan data

Cost Driver: Manufacturers Develop New Brands that are Combinations of Older Drugs

- Pharmaceutical manufacturers have long used multi-drug combination products as an effective strategy to extend the life of older brand drugs.
- Two new insulin combination products launched in 2017:
 - Soliqua: A combination of insulin glargine and lixisenatide launched in January 2017.
 - Xultrophy: A combination of insulin degludec and liraglutide launched in May 2017.

Cost Driver: No Generic Insulins Have Been Available to Compete With Brands

- Unlike most other therapeutic classes, no generic insulins have been developed.
- Humulin and Novolin have been on the market since the 1980's. All other traditional drugs from the 1980's have gone generic long ago, and are now selling for pennies on the dollar.
- Tale of Two Diabetes Drugs:
 - Monthly prescriptions for two market leading diabetes drugs, Glucophage and Humulin/Novolin, each cost roughly the same amount in 2002: \$50.
 - Glucophage was an oral diabetes drug that went generic in 2002, the generic rapidly gained more than 90% of the market, and the price for generic Glucophage (metformin) today is only \$4 per prescription.
 - With no generics, the price for a monthly Humulin/Novolin prescription has increased to almost \$300 today.

New Cost Moderator: Follow-On Insulin Products

Basaglar is a “follow-on” to the Lantus brand of long-acting insulin

- Basaglar was approved by FDA in December 2015, and launched in December 2016.
- Basaglar is similar to the insulin glargine injection Lantus, and the approval of Basaglar relied in part on the FDA’s finding of safety and effectiveness for Lantus.
- FDA refers to Basaglar as a “follow-on” insulin.
- More “follow-on” insulins are in development.
- Basaglar was the first new insulin launched with a lower list price than the insulins it competes with in the market.
- The introduction of additional follow-on insulins in development promises to further enhance competition.

Access to Insulins: Formularies

Background on Formularies

- To create and manage formularies, payers and PBMs rely on panels of experts called Pharmacy and Therapeutics (P&T) Committees. These committees, made up of physicians, pharmacists, and other clinicians, evaluate clinical and medical literature to select the most appropriate medications for individual disease states and conditions.
- A number of cost-saving elements are then factored in, such as formulary tiers and step therapy, to encourage the most clinically appropriate and economically sound therapies. The effective use of formularies can minimize overall medical costs, improve patient access to more affordable care, and provide patients with an improved quality of life.

Specific to Insulins

- Generally accepted clinical guidelines for treatment of both type 1 and type 2 diabetes suggest when and how to use insulins, but do NOT favor one brand over another.
- P&T Committees for PBMs, health plans, hospitals and health systems have universally determined:
 - Humulin/Humalog and Novolin/Novolog are therapeutically equivalent and can compete for preferred status on formularies.
 - Likewise, long-acting insulins are therapeutically equivalent and can compete for preferred status on formularies.