Trends in Prices of New Systemic Antibiotics Approved by the FDA (1999-2020)

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INTRODUCTION

The able to identify studies assessing long-term of market prices of systemic antibiotics in thintroduction of antibiotics in clinical practice represents one of the most important advances in medicine. Antibiotics are powerful medicines that treat antibacterial diseases. Majorly, they destroy bacteria or inhibit them from multiplying. Thus, it permits the immune system of the human body to remove the pathogens. Historically, antibiotics save lives when they were properly prescribed and applied.

Antibiotic resistance is considered a main public health concern. The price of new antibiotics must be sufficient to recover the investment.

Assessing trends of market prices allow us to understand the factors that might affect availability, affordability and accessibility of systemic antibiotics.

In spite of the clinical and economic importance of systemic antibiotic drugs, we were not e US.

OBJECTIVE

This study assessed trends in the cost per course of therapy of new systemic antibiotics approved by the FDA in the period 1999-2020.

METHOD

A list of new antibiotics marketed in the US in the period 1999-2016 was extracted from the FDA webpage.

Average wholesale prices (AWP) were extracted from the RedBook (Truven Health).

Daily doses and duration of the treatment were extracted from the FDA-approved label.

Prices were adjusted by the consumer price index to 2020 dollars. The AWP cost per course of antibiotic drug therapy were calculated.

The compound annual growth rate (CAGR) was calculated for each price from market entry to December 31, 2020 . Descriptive analysis were done in the study using Excel 2013.

RESULTS

Table 1. Indications and Cost per Course of Drug Therapy. Systemic Antibiotics Approved by the FDA (1999-2016)

Approval Year	Drug Name	Indications	Cost per Course of Drug Therapy	
1999	gatifloxacin	8	$50.09	
1999	moxifloxacin hydrochloride	7	$62.12	
2000	linezolid	5	$992.44	$1,389.42
2001	cefditoren pivoxil	4	$153.89	
2001	ertapenem sodium	6	$64.63	
2003	daptomycin	2	$819.87	$1,639.74
2003	gemifloxacin mesylate	2	$118.93	
2004	telithromycin	1	$98.25	$140.35
2005	tigecycline	3	$1,339.50	$3,750.60
2007	doripenem	2	$792.54	$1,585.08
2009	telavancin hydrochloride	2	$1,305.64	$2,611.27
2010	ceftaroline fosamil	2	$538.75	$754.26
2014	ceftolozane/tazobactam	2	$1,221.64	$2,137.88
2014	dalbavancin	3	$2,180.81	$5,041.45
2014	oritavancin	1	$3,508.89	
2014	tedizolid phosphate	1	$1,703.81	
2015	avibactam/ceftazidime	2	$1,801.10	$5,043.08
2016	obiltoxaximab	1	NA	

The FDA approved a total of 19 new systemic antibiotics in the period 1999-2016.

The systemic antibiotics had a total of 54 indications with an average±standard deviation of 3.0±2.1 indications (range 1-8) (Figure 1).

Price information was available for all drugs with the exception of obiltoxaximab (2016).

The cost of a course of drug therapy at market entry varied by drug, indication and population subgroup.

The median cost per course of drug therapy was $1,305.64

Table 2. Median Cost per Course of Drug Therapy. Systemic Antibiotics Approved by the FDA (1999-2016)

Period	Median	Minimum	Maximum
1999-2004	$136.41	$50.10	$1,639.74
2005-2009	$1,462.29	$792.50	$3,750.60
2010-2016	$1,801.10	$538.80	$5,401.45
2005-2016	$1,703.81	$538.80	$5,401.45
1999-2016	$1,305.64	$50.10	$5,401.45

Gatifloxacin had the lowest CPI-adjusted cost per course of drug therapy at market entry ($50.09 in 1999) and the fixed dose combination avibactam/ceftazidime had the highest cost (range: $1,801.10-$5,043.08 in 2015)

The median cost of a course of drug therapy at market entry was $136.41 (range: $50.09-$1,639.74) in the period 1999-2004, and $1,703.81 ($538.75-$5,401.45) in the period 2005-2016.

The CPI-adjusted median AWRP CARG was 6.91%.

CONCLUSIONS

Prices of antibiotics at market entry increased during the study period. The prices of marketed antibiotics also increased faster than the inflation.

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