

Game of Patents -

How the US Government and Big Pharma Protect Pharmaceutical Profits

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The Institute for Health & Socio-Economic Policy (IHSP) is a non-profit policy and research group and is the exclusive research arm of the California Nurses Association/National Nurses United. The IHSP focus is current political/economic policy analysis in health care and other Industries and the constructive engagement of alternative policies with international, national, state and local bodies to enhance promote and defend the quality of life for all.

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SUMMARY

- The enormous profits of the pharmaceutical industry are dependent on government protected monopolies
 - Patent protected drugs only consist of 10% of the prescription drug market, but constitute over 72% of drug spending.
 - When a drug loses its patent, its earning power is reduced by 80%-90%.
 - Patent expirations between 2009 and 2014 were estimated to have cost pharmaceutical corporations \$120 billion in sales. Expected patent expirations over the next 5 years are estimated to put at risk \$215 billion in revenue.

- Drug companies use ever-greening to maintain and prolong their monopolies
 - Ever-greening: Drug companies obtain new patents for existing drugs through minor modifications of the original molecule. Between 1989 and 2000, 65% of Food and Drug Administration approved applications for drugs contained already approved ingredients.
 - Ever-greening through medical devices: Once the ability to minimally change the drug has been tapped out, many pharmaceutical companies turn to the medical devices that administer the drug to uphold and prolong their monopolies.

- Drug companies use pay-to-delay to maintain and prolong their monopolies
 - Pay-to-delay: Pharmaceutical companies pay off generic manufacturers to delay the release of generic versions of their drugs.

Game of Patents: How the US Government and Big Pharma Protect Pharmaceutical Profits by Working Around Patent Policy.

In our previous brief, we discussed the enormous profits which the pharmaceutical industry has reaped in the last few decades. Sales for US drug companies from 1995-2015 totaled over \$4.2 trillion, with profits over \$660 billion.¹ Profits have soared because of high drug prices, but how and why are they so high? This brief looks at the nature of patents and examines some of the many strategies and tactics that drug companies utilize to keep and maintain their sky high prices and soaring profits. The public is reliant on drugs that will improve their lives and, in many cases, save their lives. Pharmaceutical companies realize that government protected monopolies allow them to charge high prices that the public must pay. More specifically, this brief looks at how pharmaceutical companies are gaming the patent process to maintain and prolong their drug monopolies, adding billions to the costs of healthcare every year.

Patenting their Profits

A patent is “the grant of a property right to the inventor”, allowing “the right to exclude others from making, using, offering for sale, or selling” the invention in the United States or importing the invention into the United States.² Patents typically have a 20 year life-span starting from the original filing date.³ Beyond patents, the Food and Drug Administration also has the power to grant pharmaceutical companies exclusive rights to market a drug in the US for up to 7 years.⁴ During this time, drug companies can make huge profits because they are able to charge high prices without fear of competition. In fact, in 2015, patent protected drugs, while only comprising 10% of the entire prescription drug market, constituted over 72% of actual drug spending. Generics saved consumers over \$254 billion in 2014 alone.^{5,6}

When their patents run out, generics enter the market and drastically cut profits. For example, Lipitor, Caduet, Combivir and Solodyn all lost their patent protection in one month in 2011, representing over \$7 billion in sales alone. “According to estimates by Evaluate Pharma, a whopping \$120 billion in sales was lost to patent expirations between 2009 and 2014. Evaluate Pharma also forecasts that \$215 billion in sales will be at risk due to patent expirations between 2015 and 2020.”⁷ Once these drugs lose their patents, the value of the drugs will drop anywhere between 80%-90%.⁸ This immediate drop in revenue is known as a “patent cliff”.⁹ In the last few years there has been a major increase in the

¹ Institute for Health and Socio-Economic Policy (IHSP), *Global Pill-Age: Pharmaceuticals Making a Killing*, Sept 26, 2016

² General Information Concerning Patents. United States Patent and Trademark Office. October, 2015. <http://www.uspto.gov/patents-getting-started/general-information-concerning-patents#heading-2> (Accessed 9/29/16)

³ US Food & Drug Administration – FAQs on Patents and Exclusivity <http://www.fda.gov/Drugs/DevelopmentApprovalProcess/ucm079031.htm> (Accessed on 9/29/16)

⁴ <http://www.fda.gov/Drugs/DevelopmentApprovalProcess/ucm079031.htm#top>

⁵ Generic Pharmaceutical Association. *Generic Drug Savings in the U.S.* Seventh Annual Edition: 2015. http://www.gphaonline.org/media/wysiwyg/PDF/GPhA_Savings_Report_2015.pdf (Accessed on 9/27/16)

⁶ Kesselheim, Aaron S. Avorn, Jerry. Sarpatwari, Ameet. *The High Cost of Prescription Drugs in the United States. Origins and Prospects for Reform.* JAMA 2016;316 (8);858-871. <http://jama.jamanetwork.com/article.aspx?articleid=2545691> (Accessed on 8/26/16)

⁷ VanEck. *Drug Patent Expirations: \$190 Billion Is Up for Grabs.* March 3, 2016. <http://marketrealist.com/2016/03/drug-patent-expirations-190-billion-sales-grabs/> (Accessed on 9/27/16)

⁸ Idib

⁹ Patent Cliff. Investopedia. <http://www.investopedia.com/terms/p/patent-cliff.asp> (Accessed on 9/29/16)

number of blockbuster drugs (drugs earning an annual global revenue over \$1 billion¹⁰) that have lost their patents and will face major patent cliffs. This won't slow down until 2018,¹¹ opening up a huge opportunity for generics to enter the market. Fearing lost patents and profits, pharmaceutical companies are more focused than ever on protecting their monopolies by utilizing strategies such as government influence, ever-greening and pay-to-delay.

Government Protected Monopolies

In a recent study conducted by Harvard Medical School and published by the Journal of the American Medical Association (JAMA), researchers found that one of the biggest reasons for high priced drugs is government protected monopolies. In their report, several factors showed how the government helps pharmaceutical companies and protects their monopolies.

- 1. No Negotiations on Price:** The US is one of the few countries in the world that allows companies to set the prices for their drugs. Most developed countries have a public system that negotiates the prices with the pharmaceutical companies. "US lawmakers have succumbed to the absurd argument that direct price negotiations by the government is akin to price controls and have prohibited Medicare from directly negotiating prices."¹² This is a perfect example of why the US should move toward a universal healthcare system.
- 2. Generous Patent Lengths:** The patent system allows for extremely long 20 year patents and then, allows ever-greening strategies to prolong those patents.
- 3. FDA's Delay of Generics:** The Food and Drug Administration (FDA) takes longer to approve generics, preventing producers from getting cheaper drugs on the market.
- 4. Generics Firewall:** There laws make it more difficult to prescribe generics. In 26 states, there are laws that force doctors to get permission from their patients to prescribe a generic alternative.¹³

These methods have allowed the pharmaceutical industry to use the government to help them maintain their monopolies, keep high prices and soaring profits.

The Ever-greening Strategy

*Zombie drugs — those unworthy of patent protection because they are not novel and truly innovative — are being artificially kept alive to the financial detriment of patients and taxpayers...This system is both broken and rigged.*¹⁴

Erich Spangenberg, founder of IP Navigation Group
and the current CEO of nXn Partners

¹⁰ Soong, Chie Hoon. Han, Jeung-Whan. *Patent cliff and strategic switch: exploring strategic design possibilities in the pharmaceutical industry*. Springerplus. V.5(1); 2016.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4899342/> (Accessed on 9/29/16)

¹¹ Idib (accessed on 9/29/16)

¹² Engelberg, Alfred. *How government Policy Promotes High Drug Prices*. HealthAffairsBlog. October 29, 2015.

<http://healthaffairs.org/blog/2015/10/29/how-government-policy-promotes-high-drug-prices/> (Accessed on 9/29/16)

¹³ Lupkin, Sydney. *Government-Protected 'Monopolies' Drive Drug Prices Higher, Study Says*. Kaiser, Health News.

<http://khn.org/news/government-protected-monopolies-drive-drug-prices-higher-study-says/> (Accessed on 9/27/16)

¹⁴ Working to Lower Drug Costs by Challenging Questionable Patents. By GRETCHEN MORGENSON, Nov. 27, 2015. http://www.nytimes.com/2015/11/29/business/working-to-lower-drug-costs-by-challenging-questionable-patents.html?_r=1

Ever-greening is a strategy whereby a drug company files a new patent application, but only makes minor, but innocuous, adjustments to the original patented molecule. This allows the company to claim this to now be a new drug. These minor tweaks are often extremely minimal, but if a new patent is rewarded, the company gains extended exclusivity and monopoly of the drug, preventing competition. This directly allows drug companies to keep prices high.

The problem is, these modified drugs don't offer enough of an advantage over generic versions of the original molecules, says Jim Keon, president of the Canadian Generic Pharmaceutical Association. So the sophisticated lifecycle plans brand-name companies have for their products – rolling out new versions when patents near expiry – are created primarily to help bottom lines rather than patients. And the argument that this is necessary to earn enough money to reinvest in new R&D doesn't hold much weight suggests Keon, if that research only result in more "me-too" drugs.¹⁵

With ever-greening, once a new patent is awarded, the sales and marketing departments aggressively promote the 'new' drug directly to doctors so that they prescribe it, instead of the cheaper generic.¹⁶

A 2016 analysis by ProPublica showed that the more money that doctors received from pharmaceutical and medical device companies correlated with more prescription of brand name drugs.¹⁷ This exemplifies why pharmaceutical companies desperately try to evergreen their patents, to maintain their profit margins within their brand name drugs.

A 2002 study conducted by the National Institute for Health Care Management (NIHCM) found that in a 12 year period, between 1989-2000, the FDA approved 1,035 new drug applications. Out of all the new drugs, only 361 were classified as New Molecular Entities (NMEs) (drugs that have a new active ingredients). The other 674 (65%) had active ingredients that had already been approved.¹⁸ Ever-greening has existed for some time now, successfully extending government protected monopolies for many prescription drugs.

¹⁵ Idib

¹⁶ Lukose, Lisa P. *Patent Ever Greening: Law and Ethics*. 7th International Conference on Information Law and Ethics. ICIL 2016.

¹⁷ Ornstein, Charles. Jones, Ryann. And Tigas, Mike. *Now There's Proof: Docs Who Get Company Cash Tend to Prescribe More Brand-Name Meds*. Dollars for Doctors – How Industry Money Reaches Physicians. ProPublica. March 17th, 2016. <https://www.propublica.org/article/doctors-who-take-company-cash-tend-to-prescribe-more-brand-name-drugs#> (Accessed on 9/27/16)

¹⁸ The National Institute for Health Care Management Research and Educational Foundation. *Changing Patterns of Pharmaceutical Innovation*. May 2002. http://www.nihcm.org/index.php?option=com_content&view=article&id=1127 (Accessed on 9/28/16)

Examples of Ever-Greening

Original drug	New drug resulting from ever-greening	Drug Company
Prilosec	Nexium	AstraZeneca
Claritin	Clarinex	Schering-Plough (now part of Merck)
Efexor-XR	Pristiq	Pfizer ¹⁹
Celexa	Lexapro	Forest Laboratories (now part of Actavis)
Suprenza	Suprenza	Citius Pharms ²⁰

The Case of OxyContin

OxyContin produced by Purdue Pharma is a commonly used pain relief drug that is constructed in a way so there is a gradual release of the ingredients. However, drug abusers were crushing the pills which allowed for a quicker release and unfortunately some experiences were fatal. Purdue then redeveloped the drug so that it had a new physical formulation making it slightly harder for abusers to utilize. However, the Food and Drug Administration (FDA) ruled the day before the original patent was about to expire that generics that were in line for approval would not be approved and thus allowing an extended patent protection period for Purdue. This allowed Purdue to maintain their exclusivity and monopoly over this important pain relief drug and prevent the cost of the drug from going down.

- Glyn Moody, *OxyContin and the Art of 'Evergreening'*. 2013

¹⁹ <https://theconversation.com/explainer-evergreening-and-how-big-pharma-keeps-drug-prices-high-33623>

²⁰ Working to Lower Drug Costs by Challenging Questionable Patents. By GRETCHEN MORGENSON, Nov. 27, 2015. http://www.nytimes.com/2015/11/29/business/working-to-lower-drug-costs-by-challenging-questionable-patents.html?_r=1

Another version of Ever-greening. Change the device.

Once the ability to minimally change the drug has been tapped out, many pharmaceutical companies turn to the medical devices that administer the drug in order to uphold and prolong their patents. This treats the drug and the device exclusively as a pair, making it possible to extend the exclusivity of the drug.²¹ This strategy also effectively delays the entrance of generics into the market, decreasing access and increasing costs of many drugs.

“What may not be obvious is that in these combinations, the medicine and the device are separately patentable. Thus, even after all the patents on the medicine expire, remaining patents on the associated device or parts thereof, can prevent generic competitors from emerging. In other words, medicine patents and device patents are not coextensive, but synergistic – a relationship companies can use strategically to prolong market exclusivity. “

–Reed F. Beall Et al... “Is Patent “Evergreening” Restricting Access to Medicine/Device Combination Products? Feb. 2016

The argument for this strategy depends on if an improvement of the medical devices constitutes a breakthrough invention and, consequently, an additional 20 year patent award. A recent study by PLoS One closely looked at the whether or not patent awards were granted based on the drug or the actual device. Their study closely looked at all patents that pertained to device products that administered insulin or epinephrine. Out of all the combination products, 90% had listed at least one patent on the delivery device while 55% were based entirely on the devices.²² The ability to prolong a drug’s patent because it is paired with a modified device prevents generics from entering into the market, guaranteeing high prices and minimizing access.

Pay-to-delay takes on a whole new strategy.

Generics have played a huge role in the affordability of prescription drugs. The Hatch-Waxman Act, passed in 1984, created a way to incentivize manufacturers to create and release generics faster into the market. Only about 1/3 of all brand name drugs before Hatch-Waxman had generics; now, almost every new drug will face a generic copycat.²³ Since then, drug companies have worked to keep generics out of the market for as long as possible and the strategies of pay-to-delay have taken on increasing importance.

Pay-to-delay or ‘reverse payments’ simply put is: when pharmaceutical companies’ patents run out, they will pay off a competitor, who is about to release a generic version of their drug, in exchange for the delay of the release of the product. This allows the brand name manufacturer to keep a monopoly on the high pricing of the drug until an agreed upon date in the deal. Drug companies often bump up against legal limits when trying to pay competitors to stay out of the market, causing the Federal Trade Commission (FTC) and the courts to take action. Below is a chart that shows the number of potential Pay-For-Delay cases as well as Potential Pay-for-Delay cases for First Time Filers. Since

²¹ Beall, Reed F. Nickerson, Jason W. Kaplan, Warren A. Attaran, Amir. *Is Patent “Evergreening” Restricting Access to Medicine/Device Combination Products?* PLOS ONE. February 24, 2016.

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0148939> (Accessed on 9/26/16)

²² Idib

²³ Baltazar, Amanda. *The Hatch-Waxman Act – How it Changed the Pharma Industry – Changing the Playing Field for Branded and Generic Drugs.* May 15, 2016. <https://www.thebalance.com/the-hatch-waxman-act-how-it-changed-the-pharma-industry-2663817> (Accessed on 9/25/16)

2004, there has been a steady increase in the number of Pay-for Delay cases as well as Final Settlements. In 2010, the FTC estimated that the pay-for-delay strategy costs consumers over \$3.5 billion a year, mainly in the form of increased costs of the original brand name prescription drug.²⁴

Potential Pay-for-Delay Cases from 2004-2014²⁵

	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014
Final Settlements	14	11	28	33	66	68	113	156	140	145	160
Potential Pay for Delay	-	3	14	14	16	19	31	28	40	29	21
Potential Pay for Delay Involving First Filers	-	2	9	11	13	15	26	18	23	13	11

In 2013, the US Supreme Court made a land mark decision in the case of *FTC v. Actavis Inc.* in which they ruled that “courts examining pay-for-delay settlements should apply rule of reason analysis to determine whether a particular settlement unreasonably diminishes competition.”²⁶ This meant that the typical form of pay-to-delay would be under much stricter scrutiny under antitrust law. In a recent article written for the Harvard Journal on Legislation, Feldman and Frondorf argue that pay-to-delay has morphed into 2 newer phases of delaying generics from entering the market. What they call as Generation 2.0 is a tactic that has already been in use for some time, but it is the method in which:

*Agreements include patterns of multiple side deals, where two companies settle a number of Hatch-Waxman disputes at once, resulting in a net benefit for the generic firm but without any large, conspicuous payment. Other instruments include overvalued agreements wherein the generic delays entry, but it is paid handsomely to promote, manufacture, or otherwise assist the brand-name company with the sale of its drug. Finally, Generation 2.0 includes “boy scout clauses” – agreements to behave honorably that actually mask anticompetitive collusion.*²⁷

One such recent case has been with the FTC filing charges against Endo Pharmaceuticals Plc. Endo worked with multiple generic producers to ensure the longevity of the monopoly of their patent. They also worked with two different labs, Impax Laboratories and Watson Laboratories Inc., to create a perfect storm where each entity would receive high payouts for their delays, and give the final generic exclusivity for a set amount of time – allowing the generic producer to charge a much higher price.^{28,29}

²⁴ Idib

²⁵ Federal Trade Commission-Bureau of Competition. *Agreements Filed with the Federal Trade Commission under the Medicare Prescription Drug, Improvement, and Modernization Act of 2003. Overview of Agreements Filed in FY 2014.* <https://www.ftc.gov/system/files/documents/reports/agreements-filled-federal-trade-commission-under-medicare-prescription-drug-improvement/160113mmafy14rpt.pdf> (Accessed on 9/28/16)

²⁶ Fialkoff, Michael L. *Pay-For-Delay Settlements in the Wake of Actavis.* Michigan Telecommunications and Technology Law Review. Volume 20, Issue 2. 2014. <http://repository.law.umich.edu/cgi/viewcontent.cgi?article=1196&context=mttlr> (Accessed on 9/27/16)

²⁷ Feldman, Robin. Frondorf, Evan. *Drug Wars: A New Generation of Generic Pharmaceutical Delay.* Harvard Journal on Legislation. Vol. 53, 2016. UC Hastings Research Paper No. 155. http://harvardjol.com/wp-content/uploads/2016/05/HLL202_crop.pdf (Accessed on 9/28/16)

²⁸ Grover, Natalie. *FTC sues drugmaker Endo over ‘pay-for-delay’ deals.* Reuters. <http://www.reuters.com/article/us-endo-intl-ftc-idUSKCN0WX1U2> (Accessed on 9/27/16)

The final pay-to-delay strategy (or Generation 3.0) is even more complex. This could mean...

delay mechanisms including labeling changes, using FDA safety restrictions as an excuse for delay, and sham litigation, as well as “multiplicity tactics,” in which a number of these mechanisms are exploited at once. Some of these strategies have been part of recent schemes to restrict generic substitution while simultaneously raising prices of the brand-name drug.³⁰

Despite that the Supreme Court ruled against Actavis, the drug companies were already pursuing various tactics to ensure profits while the case was being heard. The strategy of pay-to-delay will only get more complex as the government will try to create new laws and policies to limit the dealings of these abusive negotiation tactics.

With all these different strategies being successfully employed – government protected monopolies, ever-greening, and pay-to-delay – the pharmaceutical industry is now looking at ways to take these strategies to the rest of the world.

The Trans Pacific Partnership (TPP) – A Partner for Big Pharma

The recent debate over the TPP has been under the spotlight, with pharmaceutical companies being one of the biggest supporters of the trade bill. Pharmaceutical companies have pumped a lot of resources into making sure that the TPP is a huge win for them. If it passes, it could affect drug pricing around the world.

The TPP would allow the extension of monopoly protection to pharmaceutical firms not only in the US, but all over the world. This would create a huge challenge for public health as access to lower cost generics will be much more difficult to come by.³¹ The current abusive strategies of ever-greening will now occur at an international level. Another provision in the TPP is “Data Exclusivity”. This will allow drug companies, that collect data on clinical trials, to keep this information as intellectual property and, therefore, secretive as long as possible. This, in essence, is even worse than patents because smaller generic drug companies do not have the resources to do as many clinical trials and, at the same time, apply for applications in all the countries they wish to enter.³² The TPP is being used as a political and policy tool for big pharmaceutical companies. It’s vital that we take steps to go after pricing here in the US, so that we can be a trend setter in going after these abusive companies.

A Bold Step... Proposition 61

Pharmaceutical companies have successfully gamed the patent system leading to enormous profits and unsustainable drug costs. California needs to take steps to help prevent the abusive powers of pharmaceutical companies. Proposition 61, the California Drug Price Relief Act, will be an important

²⁹ Schencker, Lisa. *Endo sued over pay-for-delay deals in first-of-its-kind FTC challenge*. Modern Healthcare. March 31, 2016. <http://www.modernhealthcare.com/article/20160331/NEWS/160339986> (Accessed on 9/27/16)

³⁰ Idib

³¹ Schiff, Jaclyn. *Patently perturbed: Trans-Pacific Partnership trade deals raises fears about drug patent periods, higher costs*. Modern Healthcare. June 4th, 2016. <http://www.modernhealthcare.com/article/20160604/MAGAZINE/306049978> (Accessed on 9/28/16)

³² Weisman, Jonathan. *Patent Protection for Drugs Puts Pressure on U.S. in Trade Talks*. The New York Times. July 30th, 2015. http://www.nytimes.com/2015/07/31/business/international/pacific-trade-deal-drugs-patent-protection.html?_r=0 (Accessed on 9/28/16)

first step to help reign in pricing by taking some of the power away from pharmaceutical companies to cap the pricing on prescription drugs. Big Pharmaceutical companies have become one of the most powerful special interests in our country. Their influence over the regulations that watch over their industry has allowed them to run wild with sky rocketing prices and soaring profits. With strategies such as ever-greening, pay-to-delay and government protected monopolies, they have been able to control the vitality of our public health. Much is needed to be done to rein in this industry. Proposition 61 is a bold first step.