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Improving Access to Emerging Lifesaving Drugs: Solving the Disclosure Problem Within the Patent Dance

Michael J. Schellhous

IMPROVING ACCESS TO EMERGING LIFESAVING DRUGS: SOLVING THE DISCLOSURE PROBLEM WITHIN THE PATENT DANCE

ABSTRACT

Biologics are a growing class of pharmaceutical drugs and are associated with a significant portion of major medical breakthroughs over the past fifty years. However, in comparison with traditional small-molecule drugs, biologics are vastly more complex, more difficult to manufacture, and extremely expensive. Congress passed the Biologics Price Competition and Innovation Act (BPCIA) in an effort to increase the availability of biosimilars—the generic versions of biologic drugs—but the BPCIA has been largely ineffective. This is due, in part, to the lack of a standard regarding initial information disclosures required at the outset of the BPCIA process, leading to a cumbersome and inefficient process that is mired in disputes over the adequacy of initial disclosures. Rulings by the Supreme Court in Sandoz Inc. v. Amgen Inc. *and the Federal Circuit in* Amgen Inc. v. Hospira, Inc. *have further complicated the issue and cemented several problematic practices. This article examines the impact of the current lack of a disclosure standard within the BPCIA and proposes that the adoption of the enablement standard from patent law would reduce unnecessary litigation, provide a more streamlined process, and bring some much-needed balance to follow-on competition. Such a change is likely to increase the number of biosimilars entering the market, leading to decreased patient costs and increased accessibility for millions of patients whose lives may depend on access to this critical class of drugs.*

I. INTRODUCTION

Susie Christoff is a fifty-nine-year-old woman who suffers from debilitating psoriatic arthritis.[1] After trying a series of treatments, Christoff finally found one that worked: an expensive, once-a-month injection of Cosentyx, a treatment manufactured by Novartis.[2] Without the treatment, Christoff's fingers swell significantly, and she describes her daily experience as "24/7 constant pain in . . . the ankles and feet . . . I can't sleep, I can't sit still. I cry. I throw pillows. It's just . . . awful."[3] When a disability caused Christoff to switch her insurance to a Medicare Advantage plan, her out-of-pocket costs for the monthly treatment soared to $1,300 a month—more than three times her monthly car payment.[4] As Christoff recounted, "I can't get down on the sand to play with my kids without help. I can't get up without help. . . I'm not ready to stop trying. But I'm also not ready to go through my entire retirement fund to walk."[5] Tragically, Christoff's struggle with climbing drug prices is not unique.

Cosentyx is part of an emerging class of drugs called biologics.[6] As opposed to traditional small-molecule drugs that are synthesized through relatively straightforward chemical reactions, biologics are large, complex molecules derived from living organisms that are often unstable and challenging to replicate.[7] While these biologics are difficult and costly to develop and manufacture, they represent a significant portion of the major medical breakthroughs over the past fifty years.[8] In many ways, biologics represent "the cutting-edge of biomedical research" in a time when some areas of small-molecule drug research and competition are seen as stagnant or exhausted.[9] These biologics are also often the only treatments available for serious chronic diseases and certain cancers.[10] However, due to their complex nature and high cost of development, biologics are some of the most expensive treatments in existence.[11]

1. Sarah Jane Tribble, *Why the U.S. Remains the Most Expensive Market for 'Biologic' Drugs in the World*, NAT'L PUB. RADIO (Dec. 19, 2018, 1:02 PM), https://www.npr.org/sections/health-shots/2018/12/19/676401634/why-the-u-s-remains-the-most-expensive-market-for-biologic-drugs-in-the-world.

2. *Id.*

3. *Id.*

4. *Id.*

5. *Id.*

6. Tribble, *supra* note 1.

7. Michael A. Carrier & Carl J. Minniti III, *Biologics: The New Antitrust Frontier*, 2018 U. ILL. L. REV. 1, 3, 5 (2018).

8. *Id.* at 5.

9. *Id.*

10. *Id.* at 6.

11. Rithika Kulathila, *BPCIA Update: Entropy Is the Price of an Ordered Framework*, 33 BERKELEY TECH. L.J. 1277, 1282 (2018).

For example, in 2019, another Novartis drug, Zolgensma, became the first drug approved by the U.S. Food and Drug Administration (FDA) to have a price tag over two million dollars per treatment.[12] Zolgensma is currently the only known treatment for spinal muscular atrophy, a rare disorder that destroys the nerves that control muscles.[13] Babies born with the most severe form of the disorder generally do not survive past their second birthdays, but the pricey treatment may save these children's lives.[14] While the price of Zolgensma is abnormally high, even for biologics,[15] the reality for millions of Americans is that the battle for access to life-changing treatments continues to be limited by astronomical price tags.

The high prices associated with biologic drugs are not only a byproduct of their complexity but are also due, in part, to various market forces and current intellectual property and regulatory frameworks.[16] One of the traditional ways to lower drug prices is through the introduction of generic versions of drugs into the market.[17] Under the Affordable Care Act, the Biologics Price Competition and Innovation Act (BPCIA) established a framework allowing drug manufacturers to create and gain approval for generic versions of biologics.[18] Congress originally envisioned the BPCIA to be a streamlined patent dispute pathway that would clear the way for generic versions of biologics to reach the market.[19] However, the BPCIA has failed to significantly lower costs or increase access to these lifesaving treatments, as relatively few generic versions of

12. Rob Stein, *At $2.1 Million, New Gene Therapy Is the Most Expensive Drug Ever*, NAT'L PUB. RADIO (May 24, 2019, 3:52 PM), https://www.npr.org/sections/health-shots/2019/05/24/725404168/at-2-125-million-new-gene-therapy-is-the-most-expensive-drug-ever.

13. *Id.*; AVEXIS, INC., FULL PRESCRIBING INFORMATION: ZOLGENSMA (rev. 2021), https://www.fda.gov/media/126109/download.

14. Stein, *supra* note 12.

15. While individual biologic drug prices vary, Humira, an anti-rheumatoid, has been the world's best-selling drug for several years and presents a reasonable approximation of an average biologic with a price of up to $50,000 a year in the United States. Andrew Pollack, *Makers of Humira and Enbrel Using New Drug Patents to Delay Generic Versions*, N.Y. TIMES (Jul. 15, 2016), https://www.nytimes.com/2016/07/16/business/makers-of-humira-and-enbrel-using-new-drug-patents-to-delay-generic-versions.html.

16. *See* Toon van der Gronde et al., *Addressing the Challenge of High-Priced Prescription Drugs in the Era of Precision Medicine*, PLOS ONE, Aug. 16, 2017, at 1 (discussing the impact of various elements on prescription drug prices, including research and development costs, patent and registration costs, post-registration and reimbursement schemes, and the product lifecycle within the market).

17. *See* Ana Santos Rutschman, *Regulatory Malfunctions in the Drug Patent Ecosystem*, 70 EMORY L.J. 347, 376 (2020).

18. Biologics Price Competition and Innovation Act of 2009, Pub. L. No. 111–148, §§ 7001–03, 124 Stat. 119, 804–21 (2010) (codified at 42 U.S.C. § 262).

19. *See Biologics and Biosimilars: Balancing Incentives for Innovation: Hearing Before the Subcomm. on Cts. & Competition Pol'y of the H. Comm. on the Judiciary*, 111th Cong. 9 (2009) [hereinafter *Hearing*] (statement of Anna G. Eshoo, Representative, Cal.).

biologics have been approved since the BPCIA's passage in 2010.[20] As of June 2021, only nine biologic drugs have had generic versions approved by the FDA.[21] As such, the resulting market competition—and its potential to lower drug prices and increase patient access—is extremely limited.[22] In comparison, in 2019 alone, the FDA approved or tentatively approved 1,014 traditional generic small-molecule drug applications.[23]

The failure of the BPCIA is due, in part, to the lack of a standard regarding initial information disclosures for the generic biological product and its manufacturing process. This has led to the parties involved expending effort in arguments over what constitutes an adequate disclosure of this information and has created a cumbersome and wasteful process. The current state of the BPCIA is severely at odds with Congress' original intent of providing a streamlined pathway to encourage and cultivate the creation of more generics within the market.[24] In order to correct this problem and bring the BPCIA back in line with its original goal, Section 262(l)(2)(A) should be amended to establish a clear disclosure standard of information required of both parties at the start of the BPCIA patent dispute resolution process. In particular, adoption of the enablement standard already in use in patent law will allow the involved parties to enter the BPCIA process on more even footing, reduce unnecessary and expensive litigation, and provide a more streamlined pathway that encourages the development of generics to lower drug costs and increase patient access to these emerging lifesaving drugs.

Part II of this article will examine the differences between traditional small-molecule drugs and biologics and the nature of the generic versions of biologics or biosimilars. Part III will discuss the current statutory landscape surrounding biosimilars, with a particular interest in the BPCIA framework and the statutory language that creates the biosimilar disclosure problem. Part IV will examine how court interpretation of the BPCIA has cemented the biosimilar disclosure problem and led to a widening divide between the interests of the involved parties. Part V will discuss the need for amending the BPCIA to adopt a clear disclosure standard and will propose that the enablement standard from patent law be adopted into the BPCIA.

20. Yaniv Heled, *Follow-On Biologics Are Set Up to Fail*, 2018 U. ILL. L. REV. ONLINE 113, 136 (2018).

21. *Purple Book Database of Licensed Biological Products*, U.S. FOOD & DRUG ADMIN., https://purplebooksearch.fda.gov/advanced-search/ (last updated June 25, 2021) (sorting view by BLA Type and reference product information shows all approved 351(k) biosimilar products are associated with only nine reference products).

22. *See* Heled, *supra* note 20, at 134.

23. OFF. OF GENERIC DRUGS, U.S. FOOD & DRUG ADMIN., 2019 ANNUAL REPORT: ENSURING ACCESS TO SAFE, AFFORDABLE, AND EFFECTIVE GENERIC DRUGS 2 (2020).

24. *See Hearing*, *supra* note 19.

II. BIOLOGICS AND BIOSIMILARS

In general, the pharmaceutical industry consists of two broad classes: small-molecule drugs and biologics.[25] These classes of pharmaceuticals differ in size, complexity, and difficulty in manufacturing.[26]

A. Small-Molecule Drugs and Generics

Most small-molecule drugs consist of only a handful of atoms and are synthesized through relatively straightforward chemical reactions.[27] Aspirin, for example, consists of only twenty-one atoms,[28] and its chemical synthesis is so straightforward that some universities have students synthesize aspirin in their first-year general chemistry courses.[29] For these traditional small-molecule drugs, generic versions of the drug have the exact same active ingredients as the original drug.[30]

B. Biologics

In contrast, biologics consist of thousands, and in some cases millions, of atoms in complex, three-dimensional structures.[31] For example, Humira, a monoclonal antibody protein-based biologic, is the best-selling drug in the United States and consists of over 25,000 atoms contained in 1,330 amino acids.[32] Even among biologics, there can be a vast difference in size and complexity, leading one scholar to note, "if an aspirin were a bicycle, a small biologic would be a Toyota Prius, and a large biologic would be an F-16 fighter jet."[33]

In addition to their already complex structure, a host of alterations can be made to the biologic once the overall structure has been achieved.[34] These alterations may even occur unintentionally due to minute changes in the

25. Carrier & Minniti, *supra* note 7, at 5.

26. W. Nicholson Price II & Arti K. Rai, *Manufacturing Barriers to Biologics Competition and Innovation*, 101 IOWA L. REV. 1023, 1026 (2016).

27. *Id.* at 1033.

28. *Id.* at 1026.

29. *E.g.*, John Olmsted III, *Synthesis of Aspirin: A General Chemistry Experiment*, 75 J. CHEM. EDUC. 1261, 1261 (1998).

30. 21 U.S.C. § 355(j)(2)(A)(ii).

31. Robin Feldman, *The Cancer Curse: Regulatory Failure by Success*, 21 COLUM. SCI. & TECH. L. REV. 82, 101 (2019).

32. This total number of atoms is estimated from the known number of amino acids in Humira and the average number of atoms per amino acid. ABBVIE INC., FULL PRESCRIBING INFORMATION: HUMIRA (rev. Feb. 2021), https://www.rxabbvie.com/pdf/humira.pdf; *Amino Acids*, INT'L IMMUNOGENETICS INFO. SYS., http://www.imgt.org/IMGTeducation/Aide-memoire/_UK/amino acids/abbreviation.html (last updated Jan. 20, 2020).

33. Price & Rai, *supra* note 26.

34. *Id.* at 1036.

manufacturing process used to create the biologic.[35] Because biologics are not directly synthesized through predictable chemical reactions but are grown inside living organisms, slight changes in the internal environment of the cells are often unavoidable.[36] Any resulting alterations to the final structure of the biologic may alter how the resulting product interacts with the body and can impact its effectiveness.[37] This inherent risk of potential unwanted modifications presents part of the difficulty in copying known biologics.[38] Further complicating the issue is the inadequacy of current analytical techniques to accurately characterize biologics and identify the presence of any modifications.[39] These complications increase the difficulty, cost, and time required to manufacture biologics and underscore the need for consistency within the manufacturing process, as only slight variations in that process can lead to costly variations in results.

C. Biosimilars

The challenges inherent to biologics are only further intensified when attempting to copy a biologic to create a generic version. Unlike small-molecule generics that have the exact same active ingredients as the original drug, minor differences between the generic copy and the original biologic are unavoidable due to their complexity and sensitivity to minute changes in the manufacturing process.[40] As such, follow-on copies of a biologic are not called generics, but "biosimilars."[41] However, just like a generic small-molecule drug, the introduction of a biosimilar into the market can significantly lower prices for the original biologic and increase treatment accessibility for many patients.[42]

To gain FDA approval for a biosimilar, a manufacturer must demonstrate through a series of tests and human clinical trials that any changes that exist between the biosimilar and the original biologic are not "clinically meaningful," meaning they do not affect its safety, purity, or effectiveness.[43] Because a follow-on biosimilar maker will not have full access to the manufacturing process used by the original biologic maker, the manufacturing process is likely

35. Helen Wang, *Small vs Big: Understanding the Differences Between Small Molecule Drugs and Biologic Drugs*, IMMPRESS MAG. (Aug. 19, 2019), https://www.immpressmagazine.com/small-vs-big-understanding-the-differences-between-small-molecule-drugs-and-biologic-drugs/.

36. *See id.*

37. Price & Rai, *supra* note 26, at 1036.

38. *See* Wang, *supra* note 35.

39. Price & Rai, *supra* note 26, at 1036.

40. Linfong Tzeng, *Follow-On Biologics, Data Exclusivity, and the FDA*, 25 BERKELEY TECH. L.J. 135, 138 (2010).

41. 42 U.S.C. § 262(i)(2).

42. *See* Rutschman, *supra* note 17.

43. 42 U.S.C. § 262(i)(2).

to be different, causing slight changes in the end product.[44] Thus, the need for additional testing and information is required for the FDA to determine that the biosimilar is sufficiently similar to the original biologic in terms of "safety, purity, and potency."[45] This significantly increases both the time and cost of producing a biosimilar over those of a generic small-molecule drug.

III. THE STATUTORY LANDSCAPE SURROUNDING BIOSIMILARS

A. The Original Product Patent

The legal foundation of patent protection lies in the very Constitution which gave to Congress the power to "promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[46] A pharmaceutical inventor seeking patent protection for a novel drug must submit to the U.S. Patent and Trademark Office a patent application that meets the statutory requirements laid out by Congress in Title Thirty-Five of the United States Code.[47] Among these requirements is the obligation for a patent application to disclose sufficient information to allow a person having ordinary skill in the relevant field to reproduce the invention or product without undue experimentation.[48] This obligation is termed the "enablement requirement" and serves to facilitate the dissemination of information into the relevant field as well as prevent the applicant from claiming protection for more than what their invention actually does.[49] As a patent application is made public eighteen months after its submission,[50] the enablement requirement is a crucial disclosure that allows follow-on researchers to improve on the original invention, or in the case of pharmaceutical drugs, it allows follow-on drug makers to create generic versions of those drugs.[51] The introduction of these generics into the market plays an important role in lowering drug costs and increasing access to lifesaving treatments for many patients.[52]

44. *See* 42 U.S.C. § 262(k)(2)(A)(i)(I)(aa); CTR. FOR BIOLOGICS EVALUATION & RSCH., FOOD & DRUG ADMIN., SCIENTIFIC CONSIDERATIONS IN DEMONSTRATING BIOSIMILARITY TO A REFERENCE PRODUCT 5–6 (2015), https://www.fda.gov/media/82647/download.

45. 42 U.S.C. § 262(k)(2)(A)(i)(I)(cc).

46. U.S. CONST. art. 1, § 8, cl. 8.

47. *See* 35 U.S.C. § 101.

48. 35 U.S.C. § 112. For a discussion of "undue experimentation" and its application to biological technologies, *see generally* CRAIG ALLEN NARD, THE LAW OF PATENTS 127–30 (Rachel E. Barkow et al. eds., 5th ed. 2020).

49. NARD, *supra* note 48, at 95–96.

50. 35 U.S.C. § 122(b)(1)(A).

51. *See* NARD, *supra* note 48, at 95.

52. *See* Rutschman, *supra* note 17.

B. The Hatch-Waxman Act

In 1984, Congress passed the Hatch-Waxman Act in an effort to increase competition for generic small-molecule drugs and foster pharmaceutical innovation.[53] Under the Hatch-Waxman Act, generic drugs with the same active ingredients, dosage, administration, performance, and safety as patented brand-name drugs can avoid the lengthy and expensive new drug process with the FDA. These generics can instead file an Abbreviated New Drug Application (ANDA) during the period of patent protection for the name brand drug without the required ANDA research and testing being considered patent infringement.[54] In addition, the Hatch-Waxman Act created a patent notice-and-litigation scheme where brand drugs identify the patents they believe would be infringed by the marketing of a generic, and the FDA publishes this list to make it available for all follow-on generic drug makers.[55] A generic drug maker attempting to file an ANDA application during the patent period of the name brand drug must then provide specific certifications regarding each of the patents listed by the brand drug.[56] Overall, the Hatch-Waxman Act has been extremely effective in increasing the number of generics available to health care providers and patients in the United States, with generics only making up nineteen percent of prescriptions in 1984 but eighty-eight percent of prescriptions in 2015.[57] In addition, generics cost, on average, less than one-fifth the price of their brand-name counterparts, simultaneously increasing accessibility and drastically lowering the cost to patients throughout the health care system.[58]

C. The Biologics Price Competition and Innovation Act

In an attempt to recreate this success for biologics, Congress passed the BPCIA as part of the Affordable Care Act in 2010 to allow pharmaceutical companies to develop biosimilars and gain FDA approval before the original biologic's patent protection has expired.[59] Although they have similar goals, the Hatch-Waxman Act and the BPCIA attempt to achieve those goals through very different approaches. While the Hatch-Waxman Act created a patent notice-and litigation scheme where brand drugs must identify up-front the patents that would be implicated by a generic drug maker,[60] the BPCIA only requires the

53. Drug Price Competition and Patent Term Restoration (Hatch-Waxman) Act of 1984, Pub. L. No. 98–417, 98 Stat. 1585 (1984) (codified at 21 U.S.C. § 355); Carrier & Minniti, *supra* note 7, at 11.

54. 21 U.S.C. § 355(j)(1).

55. 21 U.S.C. § 355(b)–(c); Carrier & Minniti, *supra* note 7, at 12.

56. 21 U.S.C. § 355(j)(2).

57. Carrier & Minniti, *supra* note 7, at 13.

58. *Id.*

59. Biologics Price Competition and Innovation Act of 2009, Pub. L. No. 111–148, §§ 7001–03, 124 Stat. 119, § 7002(k), 804, 805 (2010) (codified at 42 U.S.C. § 262).

60. 21 U.S.C. §§ 355(b)–(c).

brand drug to identify asserted patents once the BPCIA process is underway,[61] meaning that a biosimilar maker will have to invest significant amounts of time and effort before they may know exactly what patents are going to be asserted against them.

Within its process, the BPCIA creates an abbreviated pathway for the approval and licensure of two different types of follow-on biologics: biosimilars and interchangeable biologics.[62] Biosimilars must show that they are "highly similar" to the original biologic[63] and that there are "no clinically meaningful differences" between the follow-on biosimilar and the original biologic.[64] Biosimilar applicants must also submit to the FDA specific information regarding any facilities where the biosimilar is produced and the manufacturing processes used.[65] If the above requirements are met, biosimilar applicants may rely on pre-existing, publicly available data establishing the safety, purity, and potency of the original biologic for their biosimilar product, saving them from even more lengthy and expensive additional testing.[66]

Interchangeable biologics must meet all of the above requirements for biosimilars and additionally show that the interchangeable product can be used as a substitute for the original biologic without the intervention of the health care provider who prescribed the original biologic, meaning that the interchangeable product can be expected to produce the same clinical result as the original biologic in any given patient.[67] As this additional showing is accompanied with increased testing and costs, applicants are incentivized and rewarded for achieving interchangeable status by receiving one year of exclusivity for being the first interchangeable version of a biologic before any competing products can receive similar approval.[68] However, as of July 2021, no follow-on biologic has ever been approved as interchangeable.[69]

D. The BPCIA Patent Dance

Unlike the patent notice requirement under the Hatch-Watchman Act, the BPCIA does not require the FDA to maintain a public listing of patents claiming a biologic's subject matter. Instead, the BPCIA provides a complex series of steps to be followed by the applicant seeking approval of a biosimilar (the

61. 42 U.S.C. § 262(l)(3)(A).
62. 42 U.S.C. § 262(k).
63. 42 U.S.C. § 262(i)(2)(A).
64. 42 U.S.C. § 262(i)(2)(B).
65. 42 U.S.C. § 262(k)(2)(A)(i)(V).
66. 42 U.S.C. § 262(k)(2)(A)(iii).
67. 42 U.S.C. § 262(i)(3); *Biosimilar and Interchangeable Products*, U.S. FOOD & DRUG ADMIN., https://www.fda.gov/drugs/biosimilars/biosimilar-and-interchangeable-products #biosimilar (last updated Oct. 23, 2017).
68. 42 U.S.C. § 262(k)(6).
69. *Purple Book Database of Licensed Biological Products*, *supra* note 21.

applicant) and the original biologic patent holder (the sponsor) to identify, resolve, and/or litigate the involved patent issues.[70] This complex series of steps has colloquially become known as the "patent dance."[71] While the legislative history surrounding the BPCIA indicates the patent dance was originally envisioned to "ensure that litigation surrounding relevant patents [would] be resolved expeditiously and prior to the launch of the biosimilar product, [thereby] providing certainty to the applicant, the [original biologic sponsor], and the public at large,"[72] the patent dance of today fails to meet these lofty goals.

The BPCIA's patent dance can be broken down into two phases. Phase One begins with the parties identifying which patents will be litigated and culminates with an initial round of litigation.[73] Phase Two consists of a second round of litigation wherein the biologic sponsor may assert patent claims against the biosimilar applicant for any patents identified at the beginning of Phase One but not included in the first round of litigation.[74] Thus, the initial identification of patents that will be included throughout the patent dance plays a critical role from the very outset of the BPCIA framework.

Phase One of the patent dance is triggered once the FDA accepts a biosimilar application.[75] The applicant then has twenty days to provide to the original biologic sponsor a copy of the FDA application and "such other information that describes the process or processes used to manufacture the biological product that is the subject of such application."[76] Using this initial disclosure, the sponsor has sixty days to provide to the applicant a list of patents the sponsor believes "could reasonably be asserted" against the applicant.[77] The applicant is then given sixty days to respond to the sponsor and provide a list of patents that the applicant concedes could be asserted against it, as well as a detailed statement declaring invalidity, noninfringement, or unenforceability for any patents the applicant claims cannot be asserted against it.[78] The sponsor then responds with its own detailed statement regarding the applicant's assertions for invalidity, noninfringement, and unenforceability of the relevant patents.[79]

Following this exchange of assertions, the patent dance requires "good faith negotiations" to occur between the parties to determine the patents to be

70. 42 U.S.C. § 262(l).
71. Carrier & Minniti, *supra* note 7, at 17.
72. *Hearing*, *supra* note 19.
73. 42 U.S.C. § 262(l)(2)–(6).
74. 42 U.S.C. § 262(l)(7)–(8).
75. 42 U.S.C. § 262(l)(2).
76. 42 U.S.C. § 262(l)(2)(A).
77. 42 U.S.C. § 262(l)(3)(A)(i).
78. 42 U.S.C. § 262(l)(3)(B).
79. 42 U.S.C. § 262(l)(3)(C).

litigated.[80] If the parties cannot reach an agreement on the patents for litigation, a final exchange of lists occurs.[81] The applicant provides to the sponsor the number of patents that will be included on the final Phase One list, and on a designated date, both parties simultaneously exchange a final list of patents for litigation.[82] The sponsor cannot list more patents than the total number identified by the applicant but may include different patents than those listed by the applicant.[83] Once these final lists have been exchanged, the sponsor has thirty days to initiate patent infringement litigation regarding the patents included on either of the party's final lists.[84]

Phase Two of the patent dance occurs once the biosimilar applicant provides notice of commercial marketing to the biologic sponsor. This must occur no later than 180 days before the date of the first commercial marketing of the biosimilar product, even if this is years after the patent dance initially began.[85] In Phase Two, the sponsor may bring further patent infringement suits, but only for those patents that were included in the initial list at the very beginning of the patent dance.[86] Thus, the entirety of the patent dance framework depends on correctly identifying which patents are at issue from the very beginning of the process.

IV. FURTHERING THE DISCLOSURE DIVIDE: *SANDOZ* AND *AMGEN*

While the framework set out by the BPCIA is complex and burdensome under the best circumstances, ambiguities in the statute's language have added significant challenges to the statute's effectiveness. Under Section 262(l)(2)(A), the BPCIA requires a biosimilar applicant to provide to the original biologic sponsor at the outset of the patent dance a copy of the biosimilar FDA application and "such other information that describes the process or processes used to manufacture the biological product that is the subject of such application."[87] However, the statute does not define what "such other information that describes the process" includes or what constitutes an adequate disclosure of such information.[88]

80. 42 U.S.C. § 262(l)(4)(A).

81. 42 U.S.C. § 262(l)(4)(B).

82. 42 U.S.C. § 262(l)(5).

83. 42 U.S.C. § 262(l)(5)(B)(ii). However, an exception to this rule applies if the applicant does not list any patents, in which case the sponsor may list one patent. 42 U.S.C. § 262(l)(5)(B)(ii)(II).

84. 42 U.S.C. § 262(l)(6).

85. 42 U.S.C. § 262(l)(8)(A).

86. 42 U.S.C. § 262(l)(8)(B). An exception to this rule is provided for cases of newly issued or licensed patents obtained by the biologic sponsor while the patent dance was proceeding. 42 U.S.C. § 262(l)(7).

87. 42 U.S.C. § 262(l)(2)(A).

88. *See* 42 U.S.C. § 262(l)(2)(A).

This often leads to disagreement between the biosimilar applicant and the original biologic sponsor over whether any particular disclosure meets the requirements of the BPCIA.[89] On one side of the disclosure argument, the biosimilar applicant will want to disclose as little information as possible because many of the processes used in the manufacturing process are not protected by patent but as trade secrets.[90] A trade secret may be any information, including a formula, pattern, compilation, program, device, method, technique, or process that "derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable" by others, and for which the secret holder makes "efforts that are reasonable under the circumstances to maintain its secrecy."[91] Thus, the "economic value" of the applicant's manufacturing process is only protected so long as he maintains reasonable efforts to keep it a secret. This creates a significant incentive for the biosimilar applicant to withhold as much information as possible, despite the confidential nature of BPCIA disclosures,[92] and to only disclose what is statutorily *required* of the applicant.

On the other side of the disclosure argument is the original biological sponsor. The sponsor will contend that minimal or nonexistent disclosures under Section 262(l)(2)(A) are insufficient because the biologic sponsor needs this information to be able to create the initial list of patents that may be infringed by the biosimilar applicant's manufacturing process and product.[93] If the sponsor is not provided with any information or with largely insufficient information, the sponsor will be unable to adequately gauge which of their patents may be implicated for dispute, and the entire framework of the BPCIA is therefore undermined right from the first step.[94] As courts have interpreted the BPCIA, they have failed to address this issue directly, and several court rulings have furthered the divide between applicant and sponsor interests.[95]

A. Sandoz Inc. v. Amgen Inc.

The Supreme Court's decision in *Sandoz Inc. v. Amgen Inc.* further complicated the issue when they held that participation in the patent resolution process outlined in the BPCIA is made voluntary through the framework of the BPCIA itself. In *Sandoz*, a biosimilar applicant notified the original biologic sponsor that the applicant had submitted an FDA application but that it would not provide the sponsor with a copy of the application or any information about

89. *See, e.g.*, Complaint for Patent Infringement and Declaratory Judgment at 52–53, Genentech, Inc. v. Amgen Inc., No. 1:17-cv-01471-GMS (D. Del. Oct. 18, 2017).

90. Carrier & Minniti, *supra* note 7, at 24.

91. UNIF. TRADE SECRETS ACT § 1(4) (NAT'L CONF. OF COMM'RS ON UNIF. STATE L. 1985).

92. 42 U.S.C. § 262(l)(1).

93. *See, e.g.*, Complaint, *supra* note 89, at 4–5.

94. *See id.* at 11.

95. *See infra* Sections IV.A. and IV.B.

the applicant's manufacturing process.[96] The sponsor sued for patent infringement and sought injunctions to enforce both disclosure requirements of Section 262(l)(2)(A). The applicant counterclaimed for declaratory judgments that the asserted patent was invalid and that the applicant had not violated the BPCIA by withholding the disclosures.[97]

In analyzing the issue, the Supreme Court found that within the BPCIA, the remedies available for a party's non-compliance are limited by Section 262(l)(9)(C), which shifts control of the patent dance away from the applicant and allows the sponsor to initiate patent litigation without being constrained by the BPCIA's rules and timings.[98] In essence, this terminates the patent dance and allows the sponsor to initiate a normal patent litigation. Thus, for a non-compliant applicant, the worst repercussion they may face is simply a normal patent suit.

While there are definite advantages for the biosimilar applicant to keep the patent dispute within the confines of the BPCIA as it grants the applicant significant control over the pacing and scope of the litigation throughout the patent dance, the loss of those advantages is not catastrophic to the applicant's cause. If the applicant decides that these benefits are outweighed by the potential loss of trade secret protection through the BPCIA disclosures, the applicant is free to push the envelope on adequate disclosures and know that the worst-case scenario they face is simply a run-of-the-mill patent litigation. This may account for why arguments over adequate disclosures under Section 262(l)(2)(A) continue to appear within BPCIA patent litigation.[99] Future applicants may continue to become ever more emboldened to test the limit of disclosure adequacy.

B. Amgen Inc. v. Hospira, Inc.

Further compounding the issue is the case of *Amgen Inc. v. Hospira, Inc.* In that case, the biosimilar applicant only provided to the biologic sponsor a copy of the FDA application, claiming that the application contained sufficient information regarding the applicant's manufacturing process as to meet the disclosure requirement of Section 262(l)(2)(A).[100] The sponsor responded in a letter to the applicant asserting that the applicant had failed to "fully disclose the specific composition of the cell-culture medium used in the manufacture" of the biosimilar.[101] The applicant replied that the components used were

96. Sandoz Inc. v. Amgen Inc., 137 S. Ct. 1664, 1673 (2017).
97. *Id.*
98. *Id.* at 1675.
99. *See, e.g.*, Complaint, *supra* note 89.
100. Amgen Inc. v. Hospira, Inc., 866 F.3d 1355, 1357 (Fed. Cir. 2017).
101. *Id.*

"commercially-available raw materials" and that sufficient information had been provided.[102]

The two parties continued into the patent dance outlined in the BPCIA, but the biologic sponsor was faced with a dilemma.[103] Could the sponsor reasonably assert patents they held for certain processes for culturing cells when they had received no actual information regarding what processes the applicant was using?[104] The sponsor decided that without any information at all, they could not reasonably assert those patents, and the patents pertaining to the cell-culture medium were left off of the initial patent lists exchanged with the applicant.[105]

Subsequently, as the parties moved into the first stage of litigation under the patent dance, the sponsor attempted to force disclosure of the applicant's cell-culture medium composition during discovery.[106] The district court denied the sponsor's motion to compel discovery, stating that the cell-culture information held no relevance to the patents that had been asserted and were at issue in the current litigation.[107] On appeal, the court found that due to *Sandoz*'s holding regarding the limited remedies available for disclosure non-compliance, the only way the sponsor could compel disclosure of the information was if the patent pertaining to the cell-culture medium had been included on the initial patent list or was being directly asserted in the litigation.[108]

The court stated that in addition to asserting patents actually shown to be infringed by an applicant's disclosure, the biologic sponsor is required by statute to include all "patents that it 'believes . . . *could* reasonably be asserted'" if additional information were provided.[109] Thus, actual evidence of infringement is not needed, merely the possibility that infringement could theoretically occur. Therefore, a complete lack of evidence or information indicating infringement does not preclude inclusion of the patent on the initial list.[110]

Further, the court noted that for every patent asserted on the initial list, even those asserted without any evidence of infringement, the applicant is obligated to respond with detailed statements concerning whether the patent is invalid, unenforceable, or will not be infringed, and must include the factual and legal basis upon which that determination is made.[111] The court reasoned that the

102. *Id.*
103. *See id.* at 1358.
104. *See id.*
105. *Amgen*, 866 F.3d at 1358.
106. *Id.*
107. *Id.*
108. *Id.* at 1360–61.
109. *Id.* at 1362.
110. *See Amgen*, 866 F.3d at 1362 (detailing the low bar for the inclusion of patents on the initial list and explaining that a sponsor can assert a patent even if the applicant provided no information regarding its processes).
111. *Id.*

additional disclosures required by these mandatory responses would allow a sponsor to gauge whether the listed patents could "reasonably be asserted" in truth before litigation was filed, and thus the "reasonableness" requirement of the statute would be met.[112] However, because the patents concerning the cell-culture medium were not asserted in the initial list of patents, the applicant had no such obligation to provide further disclosures, and the sponsor could not compel the disclosure after the fact.[113]

V. CORRECTING THE FALLOUT FROM *SANDOZ* AND *AMGEN*

A. The Disclosure Problem

The holdings in *Sandoz* and *Amgen* have entrenched the problematic practices on both sides of the disclosure issue. Through *Sandoz*, participation in the patent dance is voluntary, with biosimilar applicants who push the legal envelope on disclosure not risking the validity of their products or claims but merely risking the advantages they gain from the BPCIA framework in controlling the scope and pace of the patent litigation. While this undoubtedly has value, that value must be weighed against the potential losses the applicant may face through possible disclosure of trade secrets regarding manufacturing processes. Thus, *Sandoz* works to push biosimilar applicants to withhold as much information as possible as they enter the initial steps of the patent dance.

On the opposite end, *Amgen* pushes the idea that if biologic sponsors wish to preserve their ability to assert their patent rights, they must be overzealous in asserting on the initial patent list any patent that may be even remotely related in the most tenuous manner to the biosimilar product, whether there is actual evidence of infringement or not. While the BPCIA still requires any such patent assertions to be reasonable,[114] the court's interpretation of reasonable in *Amgen* appears to make this limit almost nonexistent.

The impact these two practices have on the framework of the BPCIA's patent dance is potentially catastrophic. Rather than provide the intended streamlined process to expeditiously resolve biosimilar patent issues,[115] the process has become an overly complex system mired down in superfluous arguments and litigation over unrelated patents, resulting in decreased follow-on biosimilar competition and innovation that fails to competitively lower drug prices or increase accessibility for patients.[116] Both of these practices—that of applicants pushing the limit on minimally disclosing information regarding the manufacturing process and sponsors using a "kitchen sink" approach to include

112. *Id.*
113. *Id.* at 1361–62.
114. 42 U.S.C. § 262(l)(2)(A)(i).
115. *Hearing*, *supra* note 19.
116. *See* Heled, *supra* note 20, at 115–19.

every patent possible in the initial listing—need to be curtailed in order to move the BPCIA back toward its original goal.

B. Adopting the Enablement Standard for Disclosures Within the BPCIA

To achieve this goal, Section 262(l)(2)(A) needs to be amended to provide clear guidance to both the biosimilar applicant and the biologic sponsor on the degree of information required in the initial disclosure. To that end, I propose the BPCIA should adopt the previously discussed enablement standard already in use for patent applications—that is, the applicant would be required to disclose sufficient information regarding the manufacturing process to enable a person having ordinary skill in the field of biologic drug development to make and use the biologic product without undue experimentation.[117] Under this proposal, the patent dance becomes more equitable, and the parties lose much of the incentive for unnecessary posturing and excessive litigation at the outset of the process, therefore bringing some much needed balance to follow-on competition. This, in turn, will increase the prospect of access to, and affordability of, critical biologic therapies for patients in need.

This proposal also offers four further advantages: (1) it allows sponsors to accurately assess which patents are at issue; (2) it provides courts with a ready-made standard for implementation; (3) it equalizes the relationship between the parties engaging in the patent dance; and (4) it allows applicants to gauge any potential risk to trade secrets posed by the BPCIA disclosures. First, such a disclosure would enable the sponsor to assess more accurately which of their patents may in fact be infringed by the applicant's manufacturing and development processes. As the very purpose of the patent dance is ostensibly to provide an efficient pathway for the relevant parties to resolve this very question,[118] the importance of this point cannot be overstated. An increase in clarity at the outset of the process regarding which patents are actually at issue will result in significant reductions in time and cost for both sides, and significant reductions of judicial cost, as the most tenuous and superfluous patent assertions are ruled out of the patent dance right from the beginning. With such a disclosure standard in place, the broad reading of what a sponsor may "reasonably" assert, adopted by the court in *Amgen,*[119] would be unnecessary. The disclosure itself would narrow the reasonableness of "kitchen sink" assertions and lead to a more efficient process for all involved.

Second, the proposal provides courts with a ready-made standard. Issues of adequate disclosure are not new to patent law, and by adopting the enablement

117. *See supra* Section III.A.

118. *See* 42 U.S.C. § 262(l) (establishing the framework of the patent dance wherein every step is centered around resolving the fundamental question of potential patent infringement by the biosimilar product).

119. *Amgen Inc.*, 866 F.3d 1361–62.

standard here, Congress could allow courts to consider the vast backdrop of common law precedent in interpreting the enablement standard. Thus, courts would have a ready-made standard with which they are already familiar and that they could implement immediately.

Third, the proposal equalizes the relationship between the parties engaging in the patent dance. The enablement standard is at the heart of the disclosure requirement for the biologic sponsor to obtain the patent in the first place. This disclosure, as contained in the biologic sponsor's patent application, is not confidential but it is published by the U.S. Patent and Trademark Office eighteen months after the patent application is filed,[120] making it available to the biosimilar applicant. By adopting the enablement standard within the BPCIA, the biosimilar applicant will merely be required to disclose to the sponsor the same degree of information that the applicant already has access to regarding the sponsor's processes. Any such disclosure would retain the same high level of confidentiality that currently exists within the BPCIA,[121] but it would allow the two parties to enter the patent dance on more equal footing.

Finally, with a clear disclosure standard in place, biosimilar applicants would be able to gauge more accurately any potential risk to their trade secrets that the BPCIA disclosure would present. The standard would provide applicants a clear guideline regarding what information could be withheld and what information must be disclosed. Under *Sandoz*, applicants who decide that the advantages gained from the BPCIA framework are outweighed by any potential risk to their trade secrets may still opt-out of the patent dance and avoid the disclosure entirely, unless the disclosure is later obligated during a normal patent suit.

C. Opposition to the Adoption of a Disclosure Standard

Despite these benefits, biosimilar applicants are almost sure to oppose the adoption of such a standard. Many will likely argue that adopting the enablement standard within the BPCIA is unjustified and requires a degree of disclosure that is too high. For a patent applicant, the tradeoff and reward for this level of disclosure is the protection gained from the patent,[122] making the disclosure worthwhile. However, for a biosimilar applicant, there is no such protection; they simply get to sell the biosimilar product.[123] The disclosure requirement may then disincentivize drug makers from producing biosimilars, further exacerbating the current need for these critical drugs. However, through the BPCIA framework, biosimilar applicants may develop and gain approval for the

120. 35 U.S.C. § 122(b).

121. 42 U.S.C. § 262(l)(1).

122. *See* 35 U.S.C. §§ 101, 112.

123. *See* 42 U.S.C. § 262(k) (granting limited exclusivity rights for the first approved interchangeable biologic product, but no such rights for biosimilar products).

biosimilar *during* the original biologic's period of patent protection.[124] Thus, while the applicants are not granted the rights of exclusivity that come with a patent, they are allowed to infringe the patent rights of another in order to develop a competing drug. If we are to allow biosimilar makers to freely infringe on the patent protection of another for their own personal gain by developing a competing biosimilar, while having access to the biologic sponsor's disclosure of the sponsor's manufacturing process through their patent application, then it is not unreasonable that the biosimilar applicant be required to disclose the same degree of information to ensure that other patents the sponsor holds are not also being infringed without approval.

Opponents of the proposal are also likely to argue that adopting the enablement standard would constitute a substantial increase in the disclosure requirement that unjustly shifts the balance of the BPCIA toward the interests of the biologic sponsor. This may be true to a degree, insofar as adopting *any* standard would be an increase over the current state of *no* standard within the BPCIA, and any increase in burden on one party would inevitably shift the balance of interest. However, the current balance, with no disclosure standard whatsoever, likely was not Congress' original intention. The current state of the BPCIA, with no disclosure standard, a "kitchen sink" approach to the initial asserted patents suggested by *Amgen*, and the optional nature of participation confirmed in *Sandoz*, has created a cumbersome, inefficient process at direct odds with the original intent of Congress for the BPCIA. Adoption of the enablement standard, while shifting the balance of interest between the parties, would create a more efficient patent dispute resolution pathway that, on balance, would better further Congress' original intention of fostering more follow-on competition and improving access to lifesaving biologic therapies.

VI. CONCLUSION

The patent dance framework is a lengthy and complex process at the best of times. Unfortunately, due to ambiguities in the language of the statute that have led to counterproductive practices from biosimilar applicants and biologic sponsors at the very outset of the patent dance, the BPCIA has become overly burdensome and excessive. This, in turn, has led to the BPCIA being relatively ineffective in increasing the number of lifesaving biosimilars available to patients in the marketplace or in significantly lowering the extreme cost of these drugs.[125]

124. Although the term of patent protection is twenty years, 35 U.S.C. § 154(a)(2), a follow-on biologic developer may submit an application to the FDA for a biosimilar product only four years after the original patented biologic product was first approved, 42 U.S.C. § 262(k)(7)(B), and can receive approval for the biosimilar product twelve years after the original biologic product was first approved, 42 U.S.C. § 262(k)(7)(A).

125. Heled, *supra* note 20.

In order to start correcting the issues that currently exist within the BPCIA and to bring the statute back in line with its original intent, the statutory language in Section 262(l)(2)(A), describing the initial disclosures required of the biosimilar applicant at the start of the patent dance, must be amended to establish a clear standard of what constitutes an adequate disclosure. Adoption of the enablement standard from patent law into the BPCIA would provide clear guidance on the amount of information required in the initial applicant disclosures and allow both parties to enter the patent dance on more even footing, reduce unnecessary and expensive litigation, and streamline the entirety of the patent dance. As this process becomes more efficient, both in terms of time and money, it is likely that we will see a rise in the number of biosimilars submitted and approved within the U.S. market. Such a rise would mean decreased costs and increased accessibility for millions of patients—like Susie Christoff—whose lives may depend on access to this critical class of lifesaving drugs.

MICHAEL J. SCHELLHOUS*

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