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SHOULD PHARMACEUTICAL COMPANIES RELINQUISH COVID-19 VACCINE PATENTS? A LEGAL AND ETHICAL ANALYSIS WITH JEWISH PERSPECTIVES

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ABSTRACT

Pharmaceutical companies rely on patent protections to incentivize the development, production, and distribution of innovative products, including COVID-19 vaccines. However, these protections have created a conflict between intellectual property rights and global public health needs during the pandemic. Wealthy nations secured ample vaccine supplies, while low- and middle-income countries faced significant access challenges. Proposals to waive vaccine patents aim to enable broader manufacturing and distribution worldwide. This paper explores the rationale behind patent protections, the implications of patent waivers, and their ethical dimensions, including perspectives from Jewish ethics. It examines how patent systems drive innovation but may limit equitable access, particularly in developing nations, and evaluates the moral obligation to prioritize public health over profit. The analysis integrates legal frameworks, ethical principles like beneficence and justice, and Jewish ethical teachings that balance individual ownership with communal responsibility, offering insights into resolving this complex issue.

Keywords: *COVID-19 vaccine; patent waiver; Jewish ethics; duty theory*

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1. INTRODUCTION: THE COMPLEX LANDSCAPE OF COVID-19 VACCINE ACCESS AND PATENT PROTECTIONS

The global response to the COVID-19 pandemic has brought to the forefront a profound ethical and legal dilemma: the balance between intellectual property rights and the urgent need for equitable access to life-saving vaccines. A poignant quote attributed to Albert Einstein, displayed near his statue at the National Academy of Sciences in Washington, encapsulates this tension: "The right to search for truth implies also a duty; one must not conceal any part of what one has recognized to be true." This statement underscores two contrasting approaches to scientific knowledge—concealment, which prioritizes proprietary control over discoveries, and disclosure, which views knowledge as a shared resource for humanity's benefit (Kurzweil, 2021). In the context of the COVID-19 crisis, this philosophical divide manifests in the debate over whether pharmaceutical companies should retain exclusive patent rights to their vaccines or waive them to facilitate global access, particularly for underserved populations.

Patent laws are designed to incentivize innovation by granting inventors exclusive rights to produce and sell their creations for a limited period, enabling them to recover substantial research and development (R&D) costs and generate profits. This system is particularly critical in the pharmaceutical industry, where the development of new drugs and vaccines entails significant financial investment, rigorous testing, and lengthy regulatory processes. The high fixed and sunk costs associated with creating a new pharmaceutical product—often running into billions of dollars—underscore the industry's reliance on patent protections to ensure financial viability (Davey, 2022). The COVID-19 pandemic, however, has challenged the traditional patent model, as the urgent need for vaccines has highlighted disparities in access between wealthy nations and low- and middle-income countries (LMICs). While patent protections have spurred rapid vaccine development, they have also contributed to inequities in distribution, raising questions about whether these legal mechanisms align with the ethical imperative to prioritize global health.

The unprecedented speed of COVID-19 vaccine development was driven by a combination of government funding, expedited regulatory processes, and private sector innovation. In the United States, for instance, the U.S. Patent and Trademark Office introduced the COVID-19 Prioritized Examination Pilot Program in May 2020, which waived certain fees and accelerated the review of up to 500 patent applications related to COVID-19 technologies (Johnson, 2022). This initiative, coupled with significant public and private investments, created a competitive environment that fueled a race among pharmaceutical companies to develop effective vaccines. The global health crisis provided a unique incentive structure, as large-scale outbreaks often prompt increased funding and market opportunities for private companies to engage in costly R&D (Johnson, 2022). Programs such as Operation Warp Speed in the U.S., which

provided substantial financial support to companies like Moderna, exemplify how public resources were leveraged to accelerate vaccine development (Davey, 2022).

Beyond national efforts, international initiatives also played a role in addressing the pandemic. The World Health Organization (WHO), in collaboration with organizations like COVAX and the Access to COVID-19 Tools Accelerator (ACT), established partnerships to facilitate vaccine distribution and technology sharing (Chang, 2023). These efforts included Product Development Partnerships and Technology Access Pools, such as those managed by the Medicine Patent Pool, which aimed to bridge gaps in vaccine access. However, the outcomes of these initiatives have been mixed, with significant challenges in ensuring equitable distribution to LMICs (Chang, 2023). While high-income countries secured billions of vaccine doses through preorders, poorer nations struggled to obtain even minimal supplies, highlighting systemic inequities in the global health landscape.

The disparities in vaccine access are stark. By May 2021, only about 2% of Africa's 1.2 billion people had received at least one dose of a COVID-19 vaccine, compared to nearly 80% of the U.S. population and 72% of Israel's population (A Patent Waiver on COVID Vaccines is Right and Fair, 2021; Centers for Disease Control and Prevention, 2022; Mathieu et al., 2021). Even with increased vaccination campaigns in Africa by the summer of 2022, only 21% of the continent's population had received a first dose, rising to 36.69% by May 2023, compared to 75.13% in the European Union and 81% in the United States (Mathieu et al., 2021; WHO Africa, 2022). Africa's reliance on imported vaccines—accounting for 99% of its supply—further exacerbates these challenges, as global supply chains and production capacities are concentrated in a handful of high- and middle-income countries (A Patent Waiver on COVID Vaccines is Right and Fair, 2021). These statistics underscore the urgency of addressing vaccine inequity, as millions in LMICs remain vulnerable to a virus that has claimed over six million lives worldwide.

In response to these disparities, calls for patent waivers have gained traction. In October 2020, India and South Africa proposed a temporary waiver of patent protections under the World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) to enable broader vaccine production (Aquino, 2022). The proposal argued that waiving patents would allow LMICs to manufacture vaccines domestically, reducing dependence on foreign suppliers and mitigating the risk of patent infringement lawsuits. By early 2021, the United States, Russia, and China expressed support for the waiver, recognizing the moral imperative to prioritize global access to vaccines (Aquino, 2022). However, opposition from countries like Japan, South Korea, the United Kingdom, and members of the European Union has highlighted competing priorities. Critics of the waiver argue that it could undermine innovation by allowing competitors to access proprietary technologies without compensating patent holders. They also contend that patent waivers alone would not address supply chain bottlenecks or the lack of manufacturing infrastructure

in LMICs, which can take years to develop (Ouellette, 2021). Additionally, some point to export restrictions, such as those imposed by the U.S., as a primary barrier to equitable distribution, rather than patent protections themselves (Silk, 2021).

Despite these objections, the WTO reached a partial compromise in June 2022 with the Ministerial Decision on the TRIPS Agreement, which allowed member countries to use patented technologies for COVID-19 vaccine production without the patent holder's consent for a period of five years, subject to annual review (WTO, 2022). This decision, however, has been criticized for its limitations. It does not fully address the transfer of technical know-how required to produce complex vaccines like those based on mRNA technology, nor does it extend to diagnostics and therapeutics, which are critical components of the pandemic response (Correa & Syam, 2022; Robbins, 2022). In March 2023, the WTO deferred a decision on expanding the waiver to include diagnostics and therapeutics, leaving unresolved questions about how to address broader access to COVID-19-related medical resources (WTO, 2023). These ongoing debates reflect the complexity of balancing intellectual property rights with the urgent need for global health equity.

The issue of vaccine patent waivers is not merely a legal or economic matter but also a moral and societal one. In many countries, vaccination has become a prerequisite for participation in daily life, shaping social, legal, and even religious obligations (Rashi, 2021b). This dependency on vaccines has granted pharmaceutical companies significant influence over global health outcomes, raising concerns about the concentration of power in the hands of patent holders (Rashi, 2021a). The registration of patents provides companies with a legal monopoly, enabling them to control pricing and distribution, which can exacerbate inequities, particularly in LMICs. However, the absence of patent protections could deter future investment in pharmaceutical R&D, as companies may hesitate to commit resources to developing drugs or vaccines without guaranteed returns (Chaudhuri et al., 2006). This tension is further complicated by economic analyses suggesting that strong intellectual property enforcement encourages foreign companies to enter developing markets but often leads to higher prices, while price regulation may protect consumers but discourage innovation (Chaudhuri et al., 2006).

The COVID-19 pandemic has thus exposed a fundamental question: Are vaccines a market commodity to be governed by profit-driven principles, or a public good essential to global health? The principle of beneficence acting for the greater good suggests a moral obligation to prioritize equitable access to vaccines, particularly in the face of a global crisis that has caused millions of deaths. Yet, competing principles, such as justice and the right to intellectual property, complicate this calculus. The integration of ethical frameworks, including Jewish ethical perspectives, offers a lens through which to navigate this dilemma. Jewish ethics, rooted in communal responsibility and moral discernment, emphasizes the balance between individual rights and societal needs, providing a nuanced approach to evaluating patent waivers (Dorff,

2003). By examining the interplay of legal protections, economic incentives, and ethical imperatives, this paper seeks to illuminate the multifaceted challenges of ensuring equitable vaccine access while fostering innovation.

2. LEGAL FRAMEWORK GOVERNING PATENT PROTECTIONS AND WAIVERS

The foundation of patent law in the United States is rooted in the Constitution, which empowers Congress to establish laws that "promote the progress of science and useful arts" by granting inventors exclusive rights to their creations for a limited period (U.S. Const. art. 1, § 8, cl. 8). This principle was first codified in the Patent Act of 1790, with significant revisions in 1952 and further updates through the Leahy-Smith America Invents Act of 2011. Under this framework, a patent provides its holder with the authority to prevent others from making, using, selling, or offering the patented invention for sale, thereby safeguarding the inventor's ability to recoup investment and profit from their innovation (Leahy-Smith America Invents Act, 2011).

The United States Patent and Trademark Office (USPTO), operating under the Department of Commerce, is responsible for reviewing and granting patents. To qualify for a patent, an invention must be novel, useful, and non-obvious. In the pharmaceutical industry, patents are particularly critical due to the high costs and lengthy timelines associated with drug development, including research, clinical trials, and regulatory approvals. For drugs, including vaccines, patents typically grant exclusivity for 20 years from the filing date. However, because clinical trials and regulatory reviews can consume a significant portion of this period, extensions of up to five years may be granted to compensate for delays (Beall et al., 2019). This exclusivity allows pharmaceutical companies to recover their substantial R&D investments before generic competitors enter the market, driving down prices. However, some companies employ strategies like "evergreening," where minor modifications to a drug's formulation extend patent life, or "pay-for-delay" agreements, which delay generic competition, raising concerns about market fairness (Davey, 2022).

Beyond exclusive rights, patents can be utilized by non-owners through licensing arrangements, which are particularly relevant in the context of global health crises like COVID-19. One mechanism is a voluntary license, where the patent holder enters a contractual agreement with a third party, such as a manufacturer, to produce a generic version of the patented product. In the case of vaccines, this involves transferring the necessary technology or expertise to produce the vaccine, typically in exchange for royalties or a licensing fee. Voluntary licenses can be exclusive, limiting production to a single licensee, or non-exclusive, allowing multiple manufacturers to produce the product (Sparsh, 2021). While voluntary licenses offer a structured way to expand access, their effectiveness depends on the patent holder's willingness to negotiate, which can be a significant barrier for low- and middle-income countries (LMICs) seeking affordable access to COVID-19 vaccines. The reliance on voluntary agreements often leaves LMICs at a disadvantage, as negotiations prioritize commercial interests over global health needs.

An alternative mechanism is a compulsory license, where a government authorizes a third party to use a patented invention without the patent holder's consent. This approach is designed to address public health emergencies by enabling broader access to critical medicines. In the United States, compulsory licenses are codified, with provisions for reasonable compensation to the patent holder, such as royalties or payments for lost profits (Mitchell, 2007). Globally, the World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) provides a framework for compulsory licensing, particularly through the 2001 Doha Declaration, which emphasized access to medicines as a priority (WTO, 2001). The Doha Declaration allows member countries to issue compulsory licenses to address public health needs, particularly in LMICs, by enabling local production or importation of generic drugs. However, the impact of compulsory licensing is mixed. While some countries have successfully used it to reduce drug costs, others face resistance from pharmaceutical companies, which may limit investment in markets that frequently employ compulsory licenses (Padmanabhan, 2021). Critics argue that compulsory licensing undermines innovation by eroding intellectual property protections, potentially discouraging R&D investment.

The debate over patent waivers for COVID-19 vaccines represents a more radical approach to addressing access disparities. A temporary waiver of TRIPS patent protections, as proposed by India and South Africa in October 2020, would allow countries to manufacture vaccines without fear of legal repercussions from patent holders (Aquino, 2022). Such a waiver aims to loosen the grip of intellectual property rights to prioritize global health, particularly for LMICs where vaccine access remains limited. Proponents argue that waivers could enable local production, reducing dependency on high-income countries and addressing supply shortages. However, opponents, including some WTO member states, contend that waivers could deter future innovation by diminishing the financial incentives for R&D. They also highlight practical challenges, such as the need for specialized manufacturing infrastructure and technical expertise, which cannot be resolved by patent waivers alone (Ouellette, 2021).

In June 2022, the WTO reached a partial compromise through the Ministerial Decision on the TRIPS Agreement, allowing member countries to use patented technologies for COVID-19 vaccine production without the patent holder's consent for five years, subject to annual review (WTO, 2022). This decision represents a limited relaxation of patent protections but falls short of addressing the full scope of the access problem, as it does not cover the transfer of technical know-how or extend to diagnostics and therapeutics (Correa & Syam, 2022). The ongoing debate over expanding the waiver to include these additional medical resources underscores the complexity of balancing intellectual property rights with public health imperatives (WTO, 2023).

The legal framework for patents, while designed to foster innovation, has significant implications for global health equity. The tension between protecting

intellectual property and ensuring access to life-saving vaccines highlights the need for flexible mechanisms, such as voluntary and compulsory licenses or temporary waivers, to address urgent public health needs. These mechanisms must navigate the competing interests of pharmaceutical companies, which rely on patents to justify their investments, and the global community, which demands equitable access to vaccines during a pandemic. The legal tools available under U.S. and international law provide pathways to mitigate these tensions, but their effectiveness depends on political will, international cooperation, and a commitment to balancing innovation with social responsibility.

3. JEWISH ETHICAL PERSPECTIVES ON INTELLECTUAL PROPERTY

Jewish tradition, rooted in a rich tapestry of religious and legal teachings spanning over three millennia, offers a nuanced framework for addressing modern ethical dilemmas, including the ownership and use of intellectual property. The foundational texts of Jewish law, beginning with the Torah traditionally believed to have been given to Moses at Mount Sinai in the presence of 600,000 adult male Israelites contain 613 commandments that form the basis of Jewish ethical and legal thought. These commandments, collectively known as the Written Law, are supplemented by the Oral Law, a dynamic body of rabbinic discussions and interpretations that evolved over centuries into the halakhah, a praxis-based legal system analogous to English Common Law. The halakhah, codified in texts like the Mishnah in the second century CE and further elaborated in the Talmud and Responsa literature, addresses practical issues arising in daily life through case-specific rulings, known as "shut" (questions and answers). Over the past 1500 years, this vast corpus of legal and ethical discourse has been periodically synthesized by major rabbinic authorities to maintain its relevance and accessibility (Rashi, 2012).

The application of Jewish law to intellectual property, a relatively modern concept, poses unique challenges due to the absence of explicit references to patents or copyrights in ancient texts. Unlike tangible property, which is extensively discussed in Jewish legal sources, intellectual property involves intangible creations of the mind, such as inventions or ideas. However, Rabbi Yitzhak Isaac HaLevi Herzog, the first Chief Rabbi of the State of Israel (1888–1959), argued that Jewish law provides a conceptual foundation for addressing such contemporary issues. In his seminal work on property law, Herzog emphasized that Jewish legal tradition develops through concrete examples rather than abstract definitions, making it adaptable to new contexts like intellectual property. He noted that while the Torah, Mishnah, Talmud, and Responsa literature do not explicitly address patent rights, they contain moral and legal principles that can guide ethical decision-making in this area (Herzog, 1939).

Herzog suggested that the "spirit and trend" of Jewish law could support the concept of patent rights through legislative enactments, or *takkanoth*, rooted in Talmudic analogies. He posited that, had intellectual property disputes been prevalent in earlier eras, they would have been addressed in the halakhic literature, and patent

protections would likely have been established to some degree. This perspective reflects the adaptability of Jewish law, which evolves to address emerging societal needs while remaining grounded in its foundational texts. Herzog's approach highlights the potential to derive principles for intellectual property from existing legal and ethical frameworks, even in the absence of direct precedents.

A key source for understanding intellectual property in Jewish law comes from Rabbi Shimon Shkop (1860–1939), a prominent scholar and head of the Grodno Yeshiva in Lithuania. In his commentary on the Babylonian Talmud's Tractate Baba Kama, which addresses damages, Shkop explored the concept of ownership through the lens of a "pit" (a public hazard causing damage). He questioned why someone who digs a pit in a public domain is held liable for resulting harm, given that the act of digging does not directly cause the damage. Shkop argued that the person who creates the pit, by preparing the conditions for harm, is considered its "owner" under Jewish law. He extended this principle to assert that "whoever creates something new in the world is the owner of it for every right" (Novellae of Rabbi Shimon Shkop, Baba Kama, Section 1). This reasoning establishes a foundational Jewish legal principle: creation confers ownership, whether the creation is physical or intellectual.

Shkop further elaborated this concept in his commentary on Tractate Gittin, discussing ownership through intellectual effort. He argued that an invention resulting from human wisdom grants the creator a right to ownership, akin to acquiring property through physical labor. The act of bringing a new idea or invention into existence through thought and effort establishes a proprietary claim, as the creator's intellectual labor is an extension of their physical self (Novellae of Rabbi Shimon Shkop, Gittin, Section 4). This principle aligns with modern patent law, which rewards inventors with exclusive rights to their creations, recognizing the value of intellectual labor in driving innovation.

Contemporary rabbinic authority Rabbi Asher Weiss, a leading figure in Ultra-Orthodox Judaism, builds on this logic to affirm intellectual property rights. Weiss argued that it is a matter of "simple logic" that the fruits of a person's intellectual creation belong to them, just as the produce of a tree belongs to its owner without requiring formal acquisition. He likened intellectual creations to physical property, asserting that no additional legal act is needed to establish ownership over an idea or invention. In a legal ruling, Weiss declared that using a registered patent without permission violates Torah law, reinforcing the legitimacy of intellectual property protections within a Jewish ethical framework (Weiss, 2006).

However, Jewish ethics does not grant unlimited rights to intellectual property. The tradition also emphasizes the public interest, particularly in contexts where withholding knowledge could harm society. A striking example appears in the Mishnah, Tractate Yoma, which criticizes artisans who refused to share their specialized knowledge related to Temple practices in Jerusalem. The text lists the House of Garmo, which withheld the method for preparing showbread; the House of Avtinas, which kept secret

the technique for making incense; Hugras ben Levi, who did not teach his unique singing method; and Ben Kamtzar, who guarded his calligraphy technique. The Mishnah condemns these families, stating, "the name of the evil ones will rot" (Mishnah, Yoma 3:11). The Babylonian Talmud explains that these artisans were expected to disclose their skills because their work served a sacred purpose, and withholding knowledge was seen as contrary to the divine principle that "everything that God created was created for His own honor" (Yoma 38a). This suggests that resources, particularly those with significant societal benefit, should not be exclusively controlled by individuals or groups (Hendel, 2016).

A compelling narrative in the Babylonian Talmud's Tractate Avoda Zara further illustrates this tension between individual ownership and public good. The story recounts Rabbi Yoḥanan, who suffered from a severe dental condition known as *tzafdina*. He sought treatment from a gentile healer who prepared a remedy but demanded an oath that he not reveal its composition. Rabbi Yoḥanan swore, "To the God of the Jews, I will not reveal it," but subsequently taught the remedy publicly. The remedy, a simple mixture of barley, olive oil, and salt, could save lives from a potentially fatal disease. The Jerusalem Talmud offers two conflicting outcomes: one suggests the healer committed suicide, protesting Rabbi Yoḥanan's breach of trust, while another claims she converted to Judaism, possibly recognizing the moral weight of his actions (Jerusalem Talmud, Shabbat 76b). These divergent endings reflect an unresolved ethical dilemma: whether prioritizing the public good justifies overriding individual property rights (Kurzweil, 2021).

Rabbi Yoḥanan's actions highlight a key principle in Jewish ethics: when a creation has life-saving potential, the public's right to access it may supersede the creator's claim to exclusivity. The simplicity of the remedy in the story underscores the immorality of withholding accessible, life-saving knowledge for profit. Rabbi Yoḥanan's decision to break his oath reflects a moral calculus that prioritizes societal welfare over individual rights, a principle that resonates with the contemporary debate over COVID-19 vaccine patents. The dual outcomes in the Jerusalem Talmud—suicide or conversion—illustrate the complexity of this issue, as they represent conflicting perspectives on whether public interest can ethically override private ownership.

This Jewish ethical framework has significant implications for the COVID-19 vaccine patent debate. The recognition of intellectual property rights, as articulated by Rabbis Shkop, Herzog, and Weiss, supports the argument that pharmaceutical companies deserve to benefit from their innovations, particularly given the substantial investments in R&D. However, the Talmudic emphasis on public welfare, as seen in the Yoma and Avoda Zara narratives, suggests that these rights are not absolute. In a global health crisis, where vaccines are critical to saving millions of lives, Jewish ethics leans toward prioritizing access over exclusivity, particularly when withholding knowledge exacerbates inequities in LMICs.

The adaptability of Jewish law, as noted by historian and legal scholar Edward Fram, ensures its relevance across changing economic and technological landscapes. Rabbis have historically addressed marketplace needs to maintain the integrity of Jewish life, applying halakhic principles to new contexts (Fram, 1997). In the case of intellectual property, Jewish ethics balances the creator's right to their invention with the communal obligation to protect public health. This perspective aligns with modern ethical theories, such as beneficence and justice, which prioritize the greater good and equitable access to resources. By integrating these principles, Jewish ethics offers a robust framework for navigating the complex interplay of innovation, profit, and social responsibility in the context of global health crises.

4. THE COVID-19 VACCINE PATENT CONTROVERSY

The global effort to combat the COVID-19 pandemic has spotlighted the contentious issue of vaccine patent protections, highlighting the tension between pharmaceutical companies' intellectual property rights and the urgent need for equitable access to life-saving vaccines, particularly in low- and middle-income countries (LMICs). In March 2022, Moderna, a pioneer in mRNA vaccine technology, announced that it expected high-income countries to respect its intellectual property rights and would offer licenses for its COVID-19 vaccine patents on commercially reasonable terms (Loftus, 2022). Moderna's CEO, Stephane Bancel, emphasized the company's right to be rewarded for its innovations, arguing that, in a post-pandemic setting with adequate vaccine supply, there was no justification for unauthorized use of their technology (Loftus, 2022). However, Moderna pledged not to enforce its patents in the 92 countries participating in the COVAX program or against efforts by Afrigen Biologics and Vaccines to replicate its vaccine for African use, signaling a partial commitment to global health equity (Loftus, 2022).

Despite this pledge, significant barriers to vaccine access persist, particularly in regions like Africa, where manufacturing capacity and technical expertise remain limited. Producing mRNA vaccines requires sophisticated infrastructure and know-how, a challenge likened to expecting someone accustomed to basic cooking to prepare a complex molecular dish to Michelin-star standards (Sulcas & Malan, 2021). The World Health Organization's Dr. Martin Friede noted Moderna's reluctance to engage in discussions about licensing its patents, further complicating efforts to transfer technology to LMICs (Prasad, 2021). This hesitation underscores a broader issue: patent waivers alone do not address the full spectrum of barriers to vaccine production, including supply chain constraints and the need for specialized manufacturing processes.

The financial dynamics of vaccine development add another layer of complexity. Moderna, founded in 2010, invested over $2.5 billion in developing its mRNA platform before achieving profitability, relying heavily on external funding to conduct clinical trials (Kapczynski, 2021). The U.S. government provided nearly $1 billion through Operation Warp Speed to support Moderna's COVID-19 vaccine development, in

collaboration with the National Institutes of Health (NIH) (Davey, 2022). Despite this public investment, Moderna has resisted listing NIH researchers as co-inventors on its vaccine patents, limiting the government's ability to influence manufacturing and distribution decisions (Davey, 2022). This stance has sparked debate about the ethics of private companies restricting access to technologies developed with taxpayer support (Kapczynski, 2021).

In contrast, Pfizer, which developed its COVID-19 vaccine in partnership with BioNTech, did not accept U.S. government funding for development but agreed to supply doses at a not-for-profit price for donation to LMICs (Prasad, 2021). Pfizer's CEO, Albert Bourla, highlighted the potential constraints of accepting public funds, noting that such support often comes with obligations that could limit corporate autonomy (Biden's Moderna Vaccine Double-Cross, 2021). However, BioNTech received funding from the German government, complicating the narrative of independence (Prasad, 2021). Both companies have recently announced plans to price their updated vaccines at approximately $130 per dose, a significant increase from the prices paid by the U.S. government, raising concerns about affordability as the pandemic transitions to a commercial market (Kates et al., 2023).

Patent disputes have further intensified the controversy. Moderna has initiated lawsuits against Pfizer and BioNTech in U.S. and German courts, alleging that their vaccine infringes on patents filed between 2010 and 2016 for mRNA technology (Murphy, 2023). This legal action, despite Moderna's earlier pledge not to enforce patents in certain contexts, highlights the competitive nature of the pharmaceutical industry, where intellectual property is fiercely guarded. Similarly, Arbutus and Alnylam Pharmaceuticals have filed patent infringement lawsuits against Moderna and Pfizer/BioNTech, claiming their vaccines rely on proprietary technologies (Arbutus Files Patent Lawsuit against Pfizer/BioNTech over COVID Vaccines, 2023). These disputes underscore the high financial stakes, with Pfizer's vaccine generating over $36 billion in global sales in 2021 and an estimated $33 billion in 2022, while Moderna reported $17.6 billion in 2021 revenue, with projections exceeding $21 billion in 2022 (Murphy, 2023).

The reliance on patent protections is a cornerstone of the pharmaceutical industry's business model, incentivizing the development of new drugs by ensuring companies can recover R&D costs and generate profits. Without such protections, companies might prioritize drugs with large market potential, potentially neglecting treatments for rare diseases or conditions affecting smaller populations (Chua et al., 2021). The U.S. government addresses this concern through incentives for developing "orphan drugs" for rare conditions affecting fewer than 200,000 people (Chua et al., 2021). However, the global scale of the COVID-19 pandemic has exposed the limitations of this model, as the urgent need for vaccines clashes with the industry's profit-driven approach. The concentration of vaccine production in high-income countries and the resulting disparities in access—particularly in Africa, where only 36.69% of the population had

received a first dose by May 2023 compared to 81% in the U.S.—highlight the ethical imperative to reconsider patent protections in a public health crisis (Mathieu et al., 2021).

Balancing the needs of pharmaceutical companies with global health demands requires careful policy consideration. Governments and companies could explore alternatives to patent waivers, such as increasing production capacity, offering lower-cost vaccines for LMICs, or collaborating with local manufacturers to transfer technology (Loftus, 2022). The COVAX initiative and partnerships like the Medicine Patent Pool aim to facilitate such solutions, but their mixed success underscores the need for more robust mechanisms (Chang, 2023). The ethical question remains: should vaccines be treated as a market commodity, subject to the same profit motives as other goods, or as a public good essential to global health? The unprecedented scale of the COVID-19 crisis, with over six million deaths worldwide, suggests that prioritizing equitable access may outweigh the traditional reliance on patent protections, at least temporarily, to address immediate global needs.

5. THE MORAL IMPERATIVE TO ENSURE VACCINE ACCESS

The global debate over waiving patent protections for COVID-19 vaccines underscores a profound ethical challenge: balancing the rights of creators with the urgent need to protect public health. Jewish ethical teachings provide a compelling lens for navigating this dilemma, emphasizing that intellectual property rights, while legitimate, are not absolute when lives are at stake. Drawing from Talmudic sources, Jewish scholars argue that the act of creation confers ownership, akin to the fruits of physical labor belonging to the laborer. Rabbi Yitzhak Isaac Herzog, a prominent 20th-century Jewish legal authority, highlighted that Jewish ethics supports the recognition of intellectual property but condemns withholding life-saving innovations from the public without reasonable limits (Herzog, 1939). This perspective suggests that while inventors deserve compensation for their work, the public good—particularly in a health crisis—takes precedence.

The Talmudic narrative of Rabbi Yoḥanan, who publicly shared a simple, life-saving remedy despite a promise of secrecy, illustrates this principle. By prioritizing the lives of those suffering from a fatal disease over the healer's proprietary rights, Rabbi Yoḥanan demonstrated that Jewish ethics places societal welfare above individual profit in matters of public health (Kurzweil, 2021). This story resonates with the COVID-19 vaccine debate, where millions of lives depend on access to vaccines, particularly in low- and middle-income countries (LMICs) where vaccination rates remain critically low. The ethical tension lies in reconciling the creator's right to benefit from their innovation with the moral obligation to ensure equitable access to life-saving technologies.

This principle aligns with secular ethical frameworks, such as Peter Singer's philosophy of effective altruism. Singer's analogy of a child drowning in a shallow pond posits that individuals have a moral duty to act when they can prevent harm at a

reasonable cost to themselves (Wolfe, 2015). Applied to the COVID-19 pandemic, this suggests that pharmaceutical companies, governments, and individuals share a responsibility to facilitate vaccine distribution globally. Singer's argument extends to advocating significant personal sacrifice, such as donating a substantial portion of one's income, to address global crises like famine or pandemics (Wolfe, 2015). In the context of COVID-19, this translates to an obligation for those with the means whether companies holding patents or governments controlling resources to prioritize vaccine access for vulnerable populations.

Pharmaceutical companies, as key stakeholders, bear a significant moral burden but are not limited to waiving patents as the sole solution. Alternative approaches include reducing profit margins, expanding production capacity through investments in new facilities, or collaborating with local governments and NGOs to provide affordable vaccines to LMICs (Loftus, 2022). Governments could also contribute by donating surplus vaccine supplies or offering tax incentives to encourage corporate generosity. These strategies reflect the Jewish ethical emphasis on communal responsibility and the secular principle of beneficence, which prioritize actions that maximize societal well-being.

The insights of Jewish law, as articulated by scholars like Rabbi Shimon Shkop, Rabbi Herzog, and Rabbi Asher Weiss, reflect an evolving understanding of intellectual property across centuries of technological advancement (Fram, 1997). These scholars affirm the creator's rights but underscore that public health crises demand flexibility. The unprecedented scale of the COVID-19 pandemic, with over six million deaths worldwide, reinforces the urgency of prioritizing equitable access. By integrating Jewish ethical principles with modern moral frameworks, we recognize a shared duty to address global health inequities, ensuring that vaccines reach those in greatest need without delay.

6. CONCLUSIONS

The global pharmaceutical industry holds a critical responsibility to address disparities in access to essential health resources, particularly during crises like COVID-19. While companies are morally obligated to act, waiving patents is not the only path to equity. Alternatives include reducing profit margins, scaling up production through strategic investments, or collaborating with governments and NGOs to offer affordable vaccines to low- and middle-income countries. Governments can further support these efforts by redistributing surplus vaccine stocks or providing tax incentives to encourage corporate contributions. These measures align with the ethical principle of justice, which demands that those controlling vital resources pharmaceutical companies and world leaders prioritize equitable access to public health solutions. The moral weight of this responsibility is shared, but it falls most heavily on patent holders who developed the vaccines. While patent waivers may not be the sole answer, the ongoing global health crisis, with millions of lives lost, underscores the urgency of ensuring fair access. If alternative strategies fail to bridge the gap, temporarily

suspending patents may become necessary to meet this moral imperative, ensuring vaccines reach underserved populations and mitigate the pandemic's devastating impact.

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