## 1

#### Interpretation: Debaters must disclose affirmative frameworks, advocacy texts, and advantage areas thirty minutes before round

#### Violation: They didn’t

Background pattern

Description automatically generated with low confidence

#### Standards:

#### 1] Clash- Not disclosing incentivizes surprise tactics and poorly refined positions that rely on artificial and vague negative engagement to win debates. Their interpretation discourages third- and fourth-line testing by limiting the amount of time we have to prepare and forcing us to enter the debate with zero idea of what the affirmative is. Negatives are forced to rely on generics instead of smart contextual strategies destroying nuanced argumentation.

#### 2] Reciprocity – They get an infinite amount of time to frontline their aff to write the most efficient and effective answers to anything we could say against it while we get only four minutes in round. This gives them a tremendous advantage over us that makes it impossible to win substance.

#### 3] Shiftiness- Not knowing enough about the affirmative coming into round incentivizes 1ar shiftiness about what the aff is and what their framework/advocacy entails. That means even if we could read generics or find prep, they’d just find ways to recontextualize their obscure advocacy in the 1ar.

## 2

#### Interp – affs must specify which jurisdiction facilitates patent claims. To clarify, a nation like the UK, or a new proposal.

#### Patent claims differ across locations and has too many interps – no international consensus makes the round irresolvable since the judge doesn’t know how to compare between types of offense and OW since it’s a side constraint on decision making.

Atkinson and Jones 09 [Jonathan D M Atkinson (degree in chemistry and doctorate in synthetic organic chemistry from Oxford University, Fellow of the Royal Society of Chemistry and a Chartered Scientist, partner and shareholder of Harrison Goddard Foote Limited and is the Head of the Asia Team at Harrison Goddard Foote) and Rachel Jones (Trainee Patent Attornee at Harrison Goddard Foote). “Intellectual property and its role in the pharmaceutical industry”. Future Med. Chem. (2009) 1(9), Pg 1547-1550. Accessed 7/31/21. <https://www.future-science.com/doi/pdfplus/10.4155/fmc.09.138> //Xu]

The patent claims determine the legal monopoly that is provided by a granted pat-ent. It is important to recognize that patent claims are interpreted differently in different jurisdictions. This is because patents are dealt with under national law during infringement proceedings. In some countries, such as the USA, the courts employ a legal rule known as the Doctrine of Equivalents. The effect of this rule is that a third party can be held liable for patent infringement even though the infringing device does not fall within the literal scope of the wording of a patent claim. In other words, the infringing article may be equivalent to the claimed invention. In other jurisdictions, such as the UK, a more literal approach to patent claim interpretation is used. English courts in particular use an approach that relies on the wording chosen by the patentee when draft-ing the application. This means that careful drafting of the patent specification is required at the outset and that it is a job best reserved for skilled patent attorneys.

#### Violation – you don’t.

#### Prefer –

#### 1] Stable Advocacy – they can redefine in the 1AR to wriggle out of DA’s which kills high-quality engagement and becomes two ships passing in the night – triggers presumption since the aff wasn’t subject to well researched scrutiny. We lose access to nuclear deterrence DA’s, Innovation DA’s, basic case turns, and core process counter plans that have different definitions and 1NC pre-round prep.

#### 2] Ground – not defining hurts my strategy since they can shift out as I ask DA questions, so I err on the side of caution and read generics which get destroyed by AC frontlines.

#### 3] Real World – policy makers will always define the entity that they are prohibiting. It also means zero solvency, absent spec, actors circumvent since there’s no specific object of the plan and means their solvency can’t actualize.

#### Jspec isn’t regressive or arbitrary – its core topic lit for what implements the aff and cannot be discounted from policies that require enforcement to function.

#### Fairness is a voter – debate’s a game that needs rules to evaluate it

#### Education is a voter – it’s the reason why schools fund debate

Drop the debater—the abuse has already occurred and my time allocation which leads to severance in the 1ar which ow/s on magnitude b) illogical since we are indicting the entirety of the aff

#### Competing interps – a] reasonability is arbitrary and encourages judge intervention since there’s no clear norm b] it creates a race to the top where we create the best possible norms for debate.

#### No RVIs – a) illogical – you shouldn’t win for being fair – it’s a litmus test for engaging in substance b) norming – I can’t concede the counterinterp if I realize I’m wrong which forces me to argue for bad norms, c) chilling effect – forces you to split your 2AR so you can’t collapse and misconstrue the 2NR, d) topic ed – prevents 1AR blip storm scripts and allows us to get back to substance after resolving theory d) Double Bind – either 1) my Theory shell is unwarranted in which case you shouldn’t have any problem answering it or 2) you’re actually abusive in which case the whole shell stands and outweighs.

## 3

#### The ROB is to determine the truth of falsity of the resolution –

#### 1] Textuality – five dictionaries[[1]](#footnote-1) define to negate as to deny the truth of and affirm[[2]](#footnote-2) as to prove true.

#### That OW –

#### a] Jurisdiction – judges are constrained through their constitutive purpose and proves it’s a side constraint on what arguments they can vote on.

#### b] Predictability – people base prep off the pregiven terms in the resolution.

#### 2] Isomorphism – alternative ROBs aren’t binary truth/false because of topic lit biases which increases intervention and takes the debate out of the hands of debaters.

#### 3] Inclusion – any offense functions under it as long as debaters implicate their positions to prove the truth or falsity of the resolution which maximizes substantive clash through ground and is a sequencing question for engaging in debate.

#### 4] Logic – any statement relies on a conception of truth to function – for example, I’m hungry is the same as its true that I’m hungry – logic is a litmus test for any argument and proves your ROB collapse since it relies on truth.

#### Negate –

#### 1] member[[3]](#footnote-3) is “a part or organ of the body, especially a limb” but an organ can’t have obligations

#### 2] of[[4]](#footnote-4) is to “expressing an age” but the rez doesn’t delineate a length of time

#### 3] the[[5]](#footnote-5) is “denoting a disease or affliction” but the WTO isn’t a disease

#### 4] to[[6]](#footnote-6) is to “expressing motion in the direction of (a particular location)” but the rez doesn’t have a location

#### 5] reduce[[7]](#footnote-7) is to “(of a person) lose weight, typically by dieting” but IP doesn’t have a body to lose weight.

#### 6] for[[8]](#footnote-8) is “in place of” but medicines aren’t replacing IP.

#### 7] medicine[[9]](#footnote-9) is “(especially among some North American Indian peoples) a spell, charm, or fetish believed to have healing, protective, or other power” but you can’t have IP for a spell.

#### 8] Every reason is equally as violent in its creation.

**Derrida,** Jacques Derrida, “Force of Law: The Mystical Foundation of Authority” //Massa

But **justice,** however unpresentable it may be, doesn't wait.· It **is that which must not wait.** To be direct, simple and brief, let us say this: **a just decision is always required immediately, "right away." It cannot furnish itself with** infinite information and the **unlimited knowledge of conditions,** rules or hypothetical imperatives **that could justify it.** And **even if it did** have all that at its disposal, even if it did give itself the time, all the time and all the necessary facts about the matter, **the moment of decision,** as such, **always remains a finite moment of urgency** and precipitation, since it must not be the consequence or the effectof this theoretical or historical knowledge, of this reflection or this deliberation, **since it always marks the interruption of the** juridico- or ethico- or politico-**cognitive deliberation that precedes it,** that must precede it. The instant of decision is a madness, says Kierkegaard. This is particularly true of the instant of the just decision that must rend time and defy dialectics. It is a madness. **Even if time** and prudence,the patience of knowledge and the mastery of conditions **were** hypothetically **unlimited, the decision would be structurally finite,** however late it came, decision of urgency and precipitation, **acting in** the night of **non-knowledge and non-rule.**

#### 9] Good Samaritan Paradox – If I want to fix a certain problem, you must say that you want that problem to exist, because it requires the problem exist to solve. This makes any moral attempts inherently immoral.

## 4

#### Climate Patents and Innovation high now and solving Warming but COVID waiver sets a dangerous precedent for appropriations - the mere threat is sufficient is enough to kill investment.

Brand 5-26, Melissa. “Trips Ip Waiver Could Establish Dangerous Precedent for Climate Change and Other Biotech Sectors.” IPWatchdog.com | Patents & Patent Law, 26 May 2021, www.ipwatchdog.com/2021/05/26/trips-ip-waiver-establish-dangerous-precedent-climate-change-biotech-sectors/id=133964/. //sid

The **biotech** industry is making remarkable **advances towards climate change solutions**, and it is precisely for this reason that it can expect to be in the crosshairs of potential IP waiver discussions. President Biden is correct to refer to climate change as an existential crisis. Yet it does not take too much effort to connect the dots between President Biden’s focus on climate change and his Administration’s recent commitment to waive global IP rights for Covid vaccines (TRIPS IP Waiver). “This is a global health crisis, and the extraordinary circumstances of the COVID-19 pandemic call for extraordinary measures.” If an IP waiver is purportedly necessary to solve the COVID-19 global health crisis (and of course [we dispute this notion](https://www.ipwatchdog.com/2021/04/19/waiving-ip-rights-during-times-of-covid-a-false-good-idea/id=132399/)), can we really feel confident that this or some future Administration will not **apply** the **same logic to** the **climate crisis**? And, without the confidence in the underlying IP for such solutions, what does this mean for U.S. innovation and economic growth? United States Trade Representative (USTR) [Katherine Tai](https://www.ipwatchdog.com/2021/05/05/tai-says-united-states-will-back-india-southafrica-proposal-waive-ip-rights-trips/id=133224/) was subject to questioning along this very line during a recent Senate Finance Committee hearing. And while Ambassador Tai did not affirmatively state that an IP waiver would be in the future for climate change technology, she surely did not assuage the concerns of interested parties. The United States has historically supported robust IP protection. This support is one reason the United States is the center of biotechnology innovation and leading the fight against COVID-19. However, a brief review of the domestic legislation arguably most relevant to this discussion shows just how far the international campaign against IP rights has eroded our **normative position**. The Clean Air Act, for example, contains a provision allowing for the mandatory licensing of patents covering certain devices for reducing air pollution. Importantly, however, the patent owner is accorded due process and the statute lays out a detailed process regulating the manner in which any such license can be issued, including findings of necessity and that no reasonable alternative method to accomplish the legislated goal exists. Also of critical importance is that the statute requires compensation to the patent holder. Similarly, the Atomic Energy Act contemplates mandatory licensing of patents covering inventions of primary importance in producing or utilizing atomic energy. This statute, too, requires due process, findings of importance to the statutory goals and compensation to the rights holder. A TRIPS IP waiver would operate outside of these types of frameworks. There would be no **due process**, no particularized findings, no **compensation and** no **recourse**. Indeed, the fact that the World Trade Organization (WTO) already has a process under the TRIPS agreement to address public health crises, including the compulsory licensing provisions, with necessary guardrails and compensation, makes quite clear that the waiver would operate as a free for all. Forced Tech Transfer Could Be on The Table When being questioned about the scope of a potential TRIPS IP waiver, Ambassador Tai invoked the proverb “Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime.” While this answer suggests primarily that, in times of famine, the Administration would rather give away other people’s fishing rods than share its own plentiful supply of fish (here: actual COVID-19 vaccine stocks), it is apparent that in Ambassador Tai’s view waiving patent rights alone would not help lower- and middle-income countries produce their own vaccines. Rather, they would need to be taught how to make the vaccines and given the biotech industry’s manufacturing know-how, sensitive cell lines, and proprietary cell culture media in order to do so. In other words, Ambassador Tai acknowledged that the scope of the current TRIPS IP waiver discussions includes the concept of forced tech transfer. In the context of climate change, the idea would be that companies who develop successful methods for producing new **seed technologies and sustainable biomass, reducing greenhouse gases** in manufacturing **and** transportation, **capturing** and sequestering **carbon** in soil and products, and more, **would be required to turn over their proprietary know-how** to global competitors. While it is unclear how this concept would work in practice and under the constitutions of certain countries, the suggestion alone could be devastating **to voluntary international collaborations**. Even if one could assume that the United States could not implement forced tech transfer on its own soil, what about the governments of our international development partners? It is not hard to understand that a U.S.-based company developing climate change technologies would be unenthusiastic about partnering with a company abroad knowing that the foreign country’s government is on track – with the assent of the U.S. government – to change its laws and seize proprietary materials and know-how that had been voluntarily transferred to the local company. Necessary Investment Could Diminish Developing climate change solutions is not an easy endeavor and bad policy positions threaten the likelihood that they will materialize. These products have long lead times from research and development to market introduction, owing not only to a high rate of failure but also rigorous regulatory oversight. Significant investment is required to sustain and drive these challenging and long-enduring endeavors. For example, synthetic biology companies critical to this area of innovation [raised over $1 billion in investment in the second quarter of 2019 alone](https://www.bio.org/sites/default/files/2021-04/Climate%20Report_FINAL.pdf). If investors cannot be confident that IP will be in **place to protect important climate change technologies** after their long road from bench to market, **it is unlikely they will** continue to **invest at** the current and **required levels.**

#### Private sector innovation is key to solve climate change – short term politicking and priority shifts means government can’t solve alone.

Henry 17, Simon. “Climate Change Cannot Be Solved by Governments Alone. How Can the Private Sector Help?” World Economic Forum, 21 Nov. 2017, www.weforum.org/agenda/2017/11/governments-alone-cannot-halt-climate-change-what-can-private-sector-do/.  Programme Director, International Carbon Reduction & Offset Alliance (ICROA) //sid

Climate leadership is also an opportunity for many organizations, and this was the most popular reason for purchasing carbon credits in Ecosystem Marketplace’s [2016 survey of buyers](http://www.forest-trends.org/documents/files/doc_5677.pdf%5Bforest-trends.org%5D). Companies are looking to differentiate from their competitors, and build their brand, by taking a leadership role on climate. Offsetting plays an integral role in delivering this climate leadership status, alongside direct emissions reductions. The survey indicated that companies that included offsetting in their carbon management strategy typically spend about 10 times more on emissions reductions activities than the typical company that doesn’t offset.

Beyond these direct commercial reasons for companies to take voluntary action, there are many broader, societal motivations at play. Climate change is a global, multidecade challenge that needs solutions and input from all stakeholders. It transcends the short-term nature of politics, which will inevitably experience changes in priorities, personnel and knowledge. Because of this, climate change cannot be solved by governments alone. Instead, it needs significant and long-term investment from the private sector. Companies that take a longer-term outlook recognise this and want to contribute to the solution to help secure the viability of their businesses.

#### Warming causes Extinction

Kareiva 18, Peter, and Valerie Carranza. "Existential risk due to ecosystem collapse: Nature strikes back." Futures 102 (2018): 39-50. (Ph.D. in ecology and applied mathematics from Cornell University, director of the Institute of the Environment and Sustainability at UCLA, Pritzker Distinguished Professor in Environment & Sustainability at UCLA)//Re-cut by Elmer

In summary, six of the nine proposed planetary boundaries (phosphorous, nitrogen, biodiversity, land use, atmospheric aerosol loading, and chemical pollution) are unlikely to be associated with existential risks. They all correspond to a degraded environment, but in our assessment do not represent existential risks. However, the three remaining boundaries (**climate change**, global **freshwater** cycle, **and** ocean **acidification**) do **pose existential risks**. This is **because of** intrinsic **positive feedback loops**, substantial lag times between system change and experiencing the consequences of that change, and the fact these different boundaries interact with one another in ways that yield surprises. In addition, climate, freshwater, and ocean acidification are all **directly connected to** the provision of **food and water**, and **shortages** of food and water can **create conflict** and social unrest. Climate change has a long history of disrupting civilizations and sometimes precipitating the collapse of cultures or mass emigrations (McMichael, 2017). For example, the 12th century drought in the North American Southwest is held responsible for the collapse of the Anasazi pueblo culture. More recently, the infamous potato famine of 1846–1849 and the large migration of Irish to the U.S. can be traced to a combination of factors, one of which was climate. Specifically, 1846 was an unusually warm and moist year in Ireland, providing the climatic conditions favorable to the fungus that caused the potato blight. As is so often the case, poor government had a role as well—as the British government forbade the import of grains from outside Britain (imports that could have helped to redress the ravaged potato yields). Climate change intersects with freshwater resources because it is expected to exacerbate drought and water scarcity, as well as flooding. Climate change can even impair water quality because it is associated with heavy rains that overwhelm sewage treatment facilities, or because it results in higher concentrations of pollutants in groundwater as a result of enhanced evaporation and reduced groundwater recharge. **Ample clean water** is not a luxury—it **is essential for human survival**. Consequently, cities, regions and nations that lack clean freshwater are vulnerable to social disruption and disease. Finally, ocean acidification is linked to climate change because it is driven by CO2 emissions just as global warming is. With close to 20% of the world’s protein coming from oceans (FAO, 2016), the potential for severe impacts due to acidification is obvious. Less obvious, but perhaps more insidious, is the interaction between climate change and the loss of oyster and coral reefs due to acidification. Acidification is known to interfere with oyster reef building and coral reefs. Climate change also increases storm frequency and severity. Coral reefs and oyster reefs provide protection from storm surge because they reduce wave energy (Spalding et al., 2014). If these reefs are lost due to acidification at the same time as storms become more severe and sea level rises, coastal communities will be exposed to unprecedented storm surge—and may be ravaged by recurrent storms. A key feature of the risk associated with climate change is that mean annual temperature and mean annual rainfall are not the variables of interest. Rather it is extreme episodic events that place nations and entire regions of the world at risk. These extreme events are by definition “rare” (once every hundred years), and changes in their likelihood are challenging to detect because of their rarity, but are exactly the manifestations of climate change that we must get better at anticipating (Diffenbaugh et al., 2017). Society will have a hard time responding to shorter intervals between rare extreme events because in the lifespan of an individual human, a person might experience as few as two or three extreme events. How likely is it that you would notice a change in the interval between events that are separated by decades, especially given that the interval is not regular but varies stochastically? A concrete example of this dilemma can be found in the past and expected future changes in storm-related flooding of New York City. The highly disruptive flooding of New York City associated with Hurricane Sandy represented a flood height that occurred once every 500 years in the 18th century, and that occurs now once every 25 years, but is expected to occur once every 5 years by 2050 (Garner et al., 2017). This change in frequency of extreme floods has profound implications for the measures New York City should take to protect its infrastructure and its population, yet because of the stochastic nature of such events, this shift in flood frequency is an elevated risk that will go unnoticed by most people. 4. The combination of positive feedback loops and societal inertia is fertile ground for global environmental catastrophes **Humans** are remarkably ingenious, and **have adapted** to crises **throughout** their **history**. Our doom has been repeatedly predicted, only to be averted by innovation (Ridley, 2011). **However**, the many **stories** **of** human ingenuity **successfully** **addressing** **existential risks** such as global famine or extreme air pollution **represent** environmental c**hallenges that are** largely **linear**, have immediate consequences, **and operate without positive feedbacks**. For example, the fact that food is in short supply does not increase the rate at which humans consume food—thereby increasing the shortage. Similarly, massive air pollution episodes such as the London fog of 1952 that killed 12,000 people did not make future air pollution events more likely. In fact it was just the opposite—the London fog sent such a clear message that Britain quickly enacted pollution control measures (Stradling, 2016). Food shortages, air pollution, water pollution, etc. send immediate signals to society of harm, which then trigger a negative feedback of society seeking to reduce the harm. In contrast, today’s great environmental crisis of climate change may cause some harm but there are generally long time delays between rising CO2 concentrations and damage to humans. The consequence of these delays are an absence of urgency; thus although 70% of Americans believe global warming is happening, only 40% think it will harm them (http://climatecommunication.yale.edu/visualizations-data/ycom-us-2016/). Secondly, unlike past environmental challenges, **the Earth’s climate system is rife with positive feedback loops**. In particular, as CO2 increases and the climate warms, that **very warming can cause more CO2 release** which further increases global warming, and then more CO2, and so on. Table 2 summarizes the best documented positive feedback loops for the Earth’s climate system. These feedbacks can be neatly categorized into carbon cycle, biogeochemical, biogeophysical, cloud, ice-albedo, and water vapor feedbacks. As important as it is to understand these feedbacks individually, it is even more essential to study the interactive nature of these feedbacks. Modeling studies show that when interactions among feedback loops are included, uncertainty increases dramatically and there is a heightened potential for perturbations to be magnified (e.g., Cox, Betts, Jones, Spall, & Totterdell, 2000; Hajima, Tachiiri, Ito, & Kawamiya, 2014; Knutti & Rugenstein, 2015; Rosenfeld, Sherwood, Wood, & Donner, 2014). This produces a wide range of future scenarios. Positive feedbacks in the carbon cycle involves the enhancement of future carbon contributions to the atmosphere due to some initial increase in atmospheric CO2. This happens because as CO2 accumulates, it reduces the efficiency in which oceans and terrestrial ecosystems sequester carbon, which in return feeds back to exacerbate climate change (Friedlingstein et al., 2001). Warming can also increase the rate at which organic matter decays and carbon is released into the atmosphere, thereby causing more warming (Melillo et al., 2017). Increases in food shortages and lack of water is also of major concern when biogeophysical feedback mechanisms perpetuate drought conditions. The underlying mechanism here is that losses in vegetation increases the surface albedo, which suppresses rainfall, and thus enhances future vegetation loss and more suppression of rainfall—thereby initiating or prolonging a drought (Chamey, Stone, & Quirk, 1975). To top it off, overgrazing depletes the soil, leading to augmented vegetation loss (Anderies, Janssen, & Walker, 2002). Climate change often also increases the risk of forest fires, as a result of higher temperatures and persistent drought conditions. The expectation is that **forest fires will become more frequent** and severe with climate warming and drought (Scholze, Knorr, Arnell, & Prentice, 2006), a trend for which we have already seen evidence (Allen et al., 2010). Tragically, the increased severity and risk of Southern California wildfires recently predicted by climate scientists (Jin et al., 2015), was realized in December 2017, with the largest fire in the history of California (the “Thomas fire” that burned 282,000 acres, https://www.vox.com/2017/12/27/16822180/thomas-fire-california-largest-wildfire). This **catastrophic fire** embodies the sorts of positive feedbacks and interacting factors that **could catch humanity off-guard and produce a** true **apocalyptic event.** Record-breaking rains produced an extraordinary flush of new vegetation, that then dried out as record heat waves and dry conditions took hold, coupled with stronger than normal winds, and ignition. Of course the record-fire released CO2 into the atmosphere, thereby contributing to future warming. Out of all types of feedbacks, water vapor and the ice-albedo feedbacks are the most clearly understood mechanisms. Losses in reflective snow and ice cover drive up surface temperatures, leading to even more melting of snow and ice cover—this is known as the ice-albedo feedback (Curry, Schramm, & Ebert, 1995). As snow and ice continue to melt at a more rapid pace, millions of people may be displaced by flooding risks as a consequence of sea level rise near coastal communities (Biermann & Boas, 2010; Myers, 2002; Nicholls et al., 2011). The water vapor feedback operates when warmer atmospheric conditions strengthen the saturation vapor pressure, which creates a warming effect given water vapor’s strong greenhouse gas properties (Manabe & Wetherald, 1967). Global warming tends to increase cloud formation because warmer temperatures lead to more evaporation of water into the atmosphere, and warmer temperature also allows the atmosphere to hold more water. The key question is whether this increase in clouds associated with global warming will result in a positive feedback loop (more warming) or a negative feedback loop (less warming). For decades, scientists have sought to answer this question and understand the net role clouds play in future climate projections (Schneider et al., 2017). Clouds are complex because they both have a cooling (reflecting incoming solar radiation) and warming (absorbing incoming solar radiation) effect (Lashof, DeAngelo, Saleska, & Harte, 1997). The type of cloud, altitude, and optical properties combine to determine how these countervailing effects balance out. Although still under debate, it appears that in most circumstances the cloud feedback is likely positive (Boucher et al., 2013). For example, models and observations show that increasing greenhouse gas concentrations reduces the low-level cloud fraction in the Northeast Pacific at decadal time scales. This then has a positive feedback effect and enhances climate warming since less solar radiation is reflected by the atmosphere (Clement, Burgman, & Norris, 2009). The key lesson from the long list of potentially positive feedbacks and their interactions is that **runaway climate change,** and runaway perturbations have to be taken as a serious possibility. Table 2 is just a snapshot of the type of feedbacks that have been identified (see Supplementary material for a more thorough explanation of positive feedback loops). However, this list is not exhaustive and the possibility of undiscovered positive feedbacks **portends** even greater **existential risks**. The many environmental crises humankind has previously averted (famine, ozone depletion, London fog, water pollution, etc.) were averted because of political will based on solid scientific understanding. We cannot count on complete scientific understanding when it comes to positive feedback loops and climate change.

## 5

#### NC theory first - 1] They started the chain of abuse and forced me down this strategy 2] We have more speeches to norm over it 3] It was introduced first so it comes lexically prior.

#### Neg abuse outweighs Aff abuse – 1] Infinite prep time before round to frontline 2] 2AR judge psychology 3] 1st and last speech 4] Infinite perms and uplayering in the 1AR.

#### Reasonability on 1AR shells – 1AR theory is very aff-biased because the 2AR gets to line-by-line every 2NR standard with new answers that never get responded to

#### DTA on 1AR shells - They can blow up blippy 20 second shells in the 2AR but I have to split my time and can’t preempt 2AR spin which necessitates judge intervention

#### RVIs on 1AR theory – 1AR being able to spend 20 seconds on a shell and still win forces the 2N to allocate at least 2:30 on the shell which means RVIs check back time skew

#### No new 1ar theory paradigm issues- A] New 1ar paradigms moot any 1NC theoretical offense B] introducing them in the aff allows for them to be more rigorously tested

#### Not highest layer – you could read different shells that are different lengths meaning we cant verify the length from the 1ac

## Case

#### The aff is only for the US cant solve for other strains that exist in other countries

#### 1] Lack of access is not a result of IP – rather IP is key to ensure high quality vaccines that pass regulatory hurdles, which means the plan actually reduces access

Stevens, Philip, and Mark Schultz 1/14. “Why Intellectual Property Rights Matter for COVID-19 - Geneva Network - Intellectual Property Rights and Covid-19.” Geneva Network, 14 Jan. 2021, geneva-network.com/research/why-intellectual-property-rights-matter-for-covid-19/. Philip Stevens in the Founder and Executive Director of Geneva Network. He is also a Senior Fellow at the Institute for Democracy and Economic Affairs, Malaysia.; Professor Mark F. Schultz is the Goodyear Tire & Rubber Company Endowed Chair in Intellectual Property Law, the Director of the Intellectual Property and Technology Law Program at the University of Akron School of Law. He was a professor at Southern Illinois University School of Law for 16 years and was co-founder and a leader of the Center for Protection of Intellectual Property (CPIP) at George Mason University in Washington, D.C., where he remains a non-resident Senior Scholar. He also serves as a Senior Fellow of the Geneva Network. //sid

IP has underpinned the research and development that has led to the arrival of several game-changing vaccines. But the challenge does not end there. Perhaps the biggest hurdle is manufacturing billions of doses or new antibody treatments while maintaining the highest quality standards.

There’s more to it than starting a global manufacturing free for all by overriding or ignoring patents. A spokesperson for Regeneron, a manufacturer of a novel COVID-19 antibody treatment explained to [The Lancet](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)32581-2/fulltext): “Manufacturing antibody medicines is incredibly complex and transferring the technology takes many months, as well as significant resources and skill. Unfortunately, it is not as simple as putting a recipe on the internet and committing to not sue other companies during the pandemic”.

[John-Arne Røttingen](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)32581-2/fulltext), chair of the WHO COVID-19 Solidarity trial, explains that technology transfer will be crucial to scaling up production, but voluntary mechanisms are better: “If you want to establish a biological production line, you need a lot of additional information, expertise, processes, and biological samples, cell lines, or bacteria” to be able to document to regulatory agencies that you have an identical product, he explains.

#### 2] A vaccine waiver greenlights counterfeit medicine – independently turns Case.

Conrad 5-18 John Conrad 5-18-2021 "Waiving intellectual property rights is not in the best interests of patients" <https://archive.is/vsNXv#selection-5353.0-5364.0> (president and CEO of the Illinois Biotechnology Innovation Organization in Chicago.)//Elmer

The Biden's administration's support for India and South Africa's proposal before the World Trade Organization to temporarily waive anti-COVID vaccine patents to boost its supply will fuel the **development of counterfeit vaccines and weaken the already strained global supply chain**. The proposal will not increase the effective number of COVID-19 vaccines in India and other countries. The manufacturing standards to produce COVID-19 vaccines are **exceptionally complicated**; it is unlike any other manufacturing process. To ensure patient safety and efficacy, only manufacturers with the **proper facilities and training should produce the vaccine, and they are**. Allowing a temporary waiver that permits compulsory licensing to allow a manufacturer to export counterfeit vaccines will **cause confusion and endanger public health**. For example, between 60,000 and 80,000 children in Niger with fatal falciparum malaria were treated with a counterfeit vaccine containing incorrect active pharmaceutical ingredients, resulting in more than **100 fatal infections.** Beyond the patients impacted, counterfeit drugs erode public confidence in health care systems and the pharmaceutical industry. Vaccine hesitancy is a rampant threat that feeds off of the distribution of misinformation. Allowing the production of vaccines from improper manufacturing facilities further opens the door for antivaccine hacks to stoke the fear fueling **vaccine hesitance**.

#### 3] Can’t make enough vaccines vital components are too scarce

Tepper 4-10 James Tepper, 4/10 [James Tepper, (James M. Tepper is an American neuroscientist currently a Board of Governors Professor of Molecular and Behavioral Neuroscience and Distinguished Professor at Rutgers University and an Elected Fellow of the American Association for the Advancement of Science.)]. "Global Covid vaccine rollout threatened by shortage of vital components." Guardian, 4-1-2021, Accessed 8-8-2021. https://www.theguardian.com/world/2021/apr/10/global-covid-vaccine-rollout-threatened-by-shortage-of-vital-components // duongie

Vaccine-makers around the world face shortages of vital components including large plastic growbags, according to the head of the firm that is manufacturing a quarter of the UK’s jab supply. Stan Erck, the chief executive of Novavax – which makes the second vaccine to be grown and bottled entirely in Britain – told the Observer that the shortage of 2,000-litre bags in which the vaccine cells were grown was a significant hurdle for global supply. His warning came as bag manufacturers revealed that some pharmaceutical firms were waiting up to 12 months for the sterile single-use disposable plastic containers, which are used to make medicines of all kinds, including the Pfizer, Moderna and Novavax Covid-19 vaccines. But Erck and his British partners said they were confident they had enough suppliers to avoid disruption to the supply of Novavax. The vaccine is waiting for approval from the Medicines and Healthcare products Regulatory Agency (MHRA) but the first of 60 million doses ordered by the government are already in production in Teesside. The Fujifilm Diosynth Biotechnologies factory began growing the first cells for the Novavax vaccine in Billingham, County Durham this month and in a few weeks they will fill the bioreactor bag, ready to be transported to GlaxoSmithKline’s plant at Barnard Castle to be put into vials for distribution. “The first hurdle is showing it works and we don’t have that hurdle any more,” Erck said. But he added there were others still to overcome. “There’s the media that the cells have to grow in,” Erck said. “You grow them in these 2,000-litre bags, which are in short supply. Then you pour it out and you have to filter it, and the filters are in short supply. The little things count.” Novavax almost ran out of bags at one of its 20 factories earlier this year, but there had been no delays for the UK operation, according to Martin Meeson, global chief executive of Fujifilm Diosynth. “We started working on our part of the supply chain in summer last year,” he said. “We had to accelerate some of the investment here, but the commitment we made last summer to start manufacturing in February has been fulfilled.” Production of coronavirus vaccines is being ramped up. Production of coronavirus vaccines is being ramped up. Photograph: Christophe Archambault/AP Both Meeson and Erck said the UK’s vaccine taskforce had been helpful in sorting out supply issues so far, but other countries and other medical supplies might be affected. ABEC makes bioreactor bags at two plants in the US and two in Fermoy and Kells in Ireland, and delivered six 4,000-litre bags to the Serum Institute in India last year for its Covid vaccines. Brady Cole, vice-president of equipment solutions at ABEC, said: “We are hearing from our customer base of lead times that are pushing out to nine, 10, even 12 months to get bioreactor bags. We typically run out at 16 weeks to get a custom bioreactor bag out to a customer.” He said ABEC was still managing to fulfil orders at roughly that rate. “The bag manufacturing capacity can’t meet demand right now,” he added. “And on the component side, the tubes and the instruments and so forth that also go into the bag assembly – those lead times are also starting to get stretched as well. But the biggest problem we see is it really is just the ability to get bags in a reasonable amount of time.” ABEC expanded its factories last year and has now started making 6,000-litre bags, which are roughly the size of a minibus. Other firms including MilliporeSigma, part of German company Merck, have also been expanding their manufacturing facilities. American firm Thermo Fisher Scientific expects it will finish doubling its capacity this year. The US government has also blocked exports of bags, filters and other components so it can supply more Pfizer vaccines for Americans. Adar Poonawalla, the chief executive of the Serum Institute of India, said the restrictions were likely to cause serious bottlenecks. Novavax is hoping to avoid delays and “vaccine nationalism” by operating on four continents, with 20 facilities in nine countries. “One year ago, we had exactly zero manufacturing capacity,” Erck said. “We’re self-sufficient. The two main things we need to do are done in the UK. And in the EU we have plants in Spain and the Czech Republic and fill-and-finish in Germany and the Netherlands.” There was no need for vaccines to cross borders to fulfil contracts, he said. The Oxford/AstraZeneca vaccine was hit by a delay to a delivery of 5 million doses from India and a problem with a batch made in Britain, and the company has been dragged into a lengthy row between the UK and the EU over vaccine exports.

#### 4] The plan only hurts manufacturing moving bottlenecks to less efficient manufacturers

Alex **Knapp, 5/7** [Alex Knapp, (senior editor at Forbes covering healthcare, science, and cutting edge technology.)]. "Patent Waivers Won’t Impact Big Pharma’s Bottom Line—But Could Slow Covid Vaccine Rollouts." Forbes, 5-7-2021, Accessed 8-5-2021. https://www.forbes.com/sites/alexknapp/2021/05/07/patent-waivers-wont-impact-big-pharmas-bottom-line-but-could-slow-covid-vaccine-rollouts/?sh=78866f727862 // duongie

On Wednesday, the Biden Administration stated that it would support a proposal to temporarily waive protection of intellectual property (IP) rights for Covid vaccines during the pandemic, in a bid to boost production and accelerate vaccine distribution throughout the world. Industry trade groups immediately criticized the move, and investors reacted simultaneously—share prices plummeted, though they’ve been slowly recovering Thursday and Friday. Wall Street analysts at Morgan Stanley, Jefferies and Brookline Capital Markets, however, said in reports this week that waiving vaccine IP was unlikely to impact the financials of major vaccine makers, noting that current bottlenecks in vaccine production are related to supply chain, technical knowledge and difficulty in scaling up production. However, they caution that for the same reason, waivers could slow down current production by disrupting the market for raw materials. “Manufacturing supplies, raw materials, vials, stoppers and other key materials are in limited supply for 2021, and certainly for the 2021 calendar year,” wrote analysts from Jeffries, meaning that waivers can’t solve immediate vaccination needs in India and South Africa, where Covid-19 cases are surging. That report also notes that the mRNA vaccines from Pfizer and Moderna have yet to be authorized for use in India, as regulators desired local clinical trial data, which is another hurdle to overcome. Morgan Stanley commented that U.S. support alone doesn’t necessarily mean that a World Trade Organization agreement on the waiver would happen, especially since Germany has expressed opposition. The firm additionally notes that “manufacturing vaccines is a much more complicated process than making chemical drugs, and a patent waiver by itself would not enable other entities to manufacture their own copies of complex vaccines.” Jefferies analysts also remarked that another barrier to increased vaccine production is “ensuring the quality of the product, which is also not trivial.” Contractors for vaccine makers Pfizer, AstraZeneca and Johnson & Johnson have all run into quality-control issues that have led to millions of vaccine doses being discarded. On a company earnings call yesterday, Moderna CEO Stéphane Bancel said he doubted that waiving IP rights would impact his company much, because it would take months or even years for other companies to scale up manufacturing. Meanwhile, the biotech company has recently committed to expanding its own manufacturing capacity and expects to be able to make up to 3 billion doses of vaccine in 2022. Morgan Stanley analysts noted that in October 2020, Moderna “stated it would not enforce its patents during the pandemic, but to our knowledge, no one else has started manufacturing a vaccine that would violate Moderna’s patents.” The team at Brookline Capital markets noted that if a company did begin manufacturing vaccines based on Moderna’s patents, the upside would be an additional licensing revenue stream for the company. On Friday, vaccine manufacturer Novavax, which has reached an agreement with the private-public global health partnership Gavi to provide 1.1 billion vaccine doses to low income countries, stated its opposition to the WTO waiving patents, arguing that it “could further constrain resources by diverting them to entities incapable of manufacturing safe and effective vaccines in the near term.” Jeffries analysts note that a waiver wouldn’t put Novavax at immediate risk, as a key component of the company’s vaccine “is in limited supply and a majority of the raw material has already been locked up” by the company. That said, Morgan Stanley struck a similar point to Novavax about the risk involved in waiving patents. The analysts point out waivers could be counterproductive and actually slow down vaccine manufacturing. “An IP waiver now may exacerbate supply issues,” they write, “if some countries start to try to secure raw materials ahead of being able to produce a vaccine and cause shortages and disruptions in the supply chain.”

#### 5] Covid mutates too fast South Africa and UK variants prove

David **Ho 3/8** [David Ho, (David Da-i Ho is a Taiwanese-American AIDS researcher, physician, and virologist who has made a number of scientific contributions to the understanding and treatment of HIV infection.)]. "New Study of Coronavirus Variants Predicts Virus Evolving to Escape Current Vaccines, Treatments." Columbia University Irving Medical Center, 3-8-2021, Accessed 8-5-2021. https://www.cuimc.columbia.edu/news/new-study-coronavirus-variants-predicts-virus-evolving-escape-current-vaccines-treatments // duongie

A new study of the U.K. and South Africa variants of SARS-CoV-2 predicts that current vaccines and certain monoclonal antibodies may be less effective at neutralizing these variants and that the new variants raise the specter that reinfections could be more likely. The study was published in Nature(link is external and opens in a new window) on March 8, 2021. A preprint of the study was first posted to BioRxiv(link is external and opens in a new window) on January 26, 2021. The study’s predictions are now being borne out with the first reported results of the Novavax vaccine, says the study's lead author David Ho, MD. The company reported(link is external and opens in a new window) on Jan. 28 that the vaccine was nearly 90% effective in the company’s U.K. trial, but only 49.4% effective in its South Africa trial, where most cases of COVID-19 are caused by the B.1.351 variant. "Our study and the new clinical trial data show that the virus is traveling in a direction that is causing it to escape from our current vaccines and therapies that are directed against the viral spike,” says Ho, the director of the Aaron Diamond AIDS Research Center and the Clyde’56 and Helen Wu Professor of Medicine at Columbia University Vagelos College of Physicians and Surgeons. “If the rampant spread of the virus continues and more critical mutations accumulate, then we may be condemned to chasing after the evolving SARS-CoV-2 continually, as we have long done for influenza virus,” Ho says. “Such considerations require that we stop virus transmission as quickly as is feasible, by redoubling our mitigation measures and by expediting vaccine rollout.” After vaccination, the immune system responds and makes antibodies that can neutralize the virus. Ho and his team found that antibodies in blood samples taken from people inoculated with the Moderna or Pfizer vaccine were less effective at neutralizing the two variants, B.1.1.7, which emerged last September in England, and B.1.351, which emerged from South Africa in late 2020. Against the U.K. variant, neutralization dropped by roughly 2-fold, but against the South Africa variant, neutralization dropped by 6.5- to 8.5-fold. “The approximately 2-fold loss of neutralizing activity against the U.K. variant is unlikely to have an adverse impact due to the large 'cushion' of residual neutralizing antibody activity,” Ho says, “and we see that reflected in the Novavax results where the vaccine was 85.6% effective against the U.K. variant.” Data from Ho’s study about the loss in neutralizing activity against the South Africa variant are more worrisome. “The drop in neutralizing activity against the South Africa variant is appreciable, and we’re now seeing, based on the Novavax results, that this is causing a reduction in protective efficacy,” Ho says. The new study did not examine the more recent variant found in Brazil (B.1.1.28) but given the similar spike mutations between the Brazil and South Africa variants, Ho says the Brazil variant should behave similarly to the South Africa variant. “We have to stop the virus from replicating and that means rolling out vaccine faster and sticking to our mitigation measures like masking and physical distancing. Stopping the spread of the virus will stop the development of further mutations,” Ho says. The study also found that certain monoclonal antibodies used now to treat COVID patients may not work against the South Africa variant. And based on results with plasma from COVID patients who were infected earlier in the pandemic, the B.1.351 variant from South Africa has the potential to cause reinfection. New study contains comprehensive analysis of variants The new study conducted an extensive analysis of mutations in the two SARS-CoV-2 variants compared to other recent studies, which have reported similar findings. The new study examined all mutations in the spike protein of the two variants. (Vaccines and monoclonal antibody treatments work by recognizing the SARS-CoV-2 spike protein.) The researchers created SARS-CoV-2 pseudoviruses (viruses that produce the coronavirus spike protein but cannot cause infection) with the eight mutations found in the U.K. variant and the nine mutations found in the South African variant. They then measured the sensitivity of these pseudoviruses to monoclonal antibodies developed to treat COVID patients, convalescent serum from patients who were infected earlier in the pandemic, and serum from patients who have been vaccinated with the Moderna or Pfizer vaccine. Implications for monoclonal antibody treatments The study measured the neutralizing activity of 18 different monoclonal antibodies—including the antibodies in two products authorized for use in the United States. Against the U.K. variant, most antibodies were still potent, although the neutralizing activity of two antibodies in development was modestly impaired. Against the South Africa variant, however, the neutralizing activity of four antibodies was completely or markedly abolished. Those antibodies include bamlanivimab (LY-CoV555, approved for use in the United States) that was completely inactive against the South Africa variant, and casirivimab, one of the two antibodies in an approved antibody cocktail (REGN-COV) that was 58-fold less effective at neutralizing the South Africa variant compared to the original virus. The second antibody in the cocktail, imdevimab, retained its neutralizing ability, as did the complete cocktail. “Decisions of the use of these treatments will depend heavily on the local prevalence of the South Africa and Brazil variants,” Ho says, “highlighting the importance of viral genomic surveillance and proactive development of next-generation antibody therapeutics.” Reinfection implications Serum from most patients who had recovered from COVID earlier in the pandemic had 11-fold less neutralizing activity against the South Africa variant and 4-fold less neutralizing activity against the U.K. variant. “The concern here is that reinfection might be more likely if one is confronted with these variants, particularly the South Africa one,” Ho says.

#### 6] Hesitancy high worldwide

Andrea **Taylor, 2/6** [Andrea Taylor, (Andrea leads a portfolio of global innovation programs focused on evaluation, scaling, and adaptation of healthcare innovations to address critical access and quality challenges. Her work with the Duke Global Health Innovation Center and Innovations in Healthcare drive evidence-based recommendations for scaling transformative models of care, adapting models into new contexts, and facilitating system change. She is the research lead for the Launch and Scale project’s COVID-19 workstream, analyzing global data on vaccines, partnerships, and therapeutics to combat the pandemic. She led design and research for the USAID-funded Social Entrepreneurship Accelerator at Duke (SEAD) and the development of several publications for the recent evaluation of the Saving Lives at Birth program, with USAID and GCC.)]. "VACCINE HESITANCY WILL SOON BECOME THE PRIMARY OBSTACLE TO GLOBAL IMMUNITY – Global Health Innovation Center." 2-16-2021, Accessed 8-5-2021. https://dukeghic.org/2021/02/16/vaccine-hesitancy-will-soon-become-the-primary-obstacle-to-global-immunity/ // duongie

Vaccine hesitancy will soon become the primary obstacle to global immunity Global manufacturing capacity has been the primary rate limiter for Covid-19 vaccinations. Our vaccine manufacturing infrastructure was not designed to produce enough doses to cover 70% of the world’s population within a year (in addition to regular and routine vaccines) and, as expected, demand is outstripping supply. There has been good news on the manufacturing front, however, with several large pharma companies recently joining with rivals to ramp up production. At the same time, data on vaccine hesitancy suggest that it may soon overtake manufacturing capacity as the primary obstacle to global coverage and reaching herd immunity. If this is the case, we will soon find that producing enough vaccines does not translate to enough vaccinations. Covid-19 vaccine hesitancy is growing around the world. A survey of 15 countries found that willingness to get a Covid-19 vaccine dropped in nearly all of the countries between October and December 2020. France and Russia had the lowest rates of vaccine intent in the survey, below 50%. Another survey of 32 countries found that fewer than half of the population in Lebanon, France, Croatia, and Serbia intend to get vaccinated. In Peru, vaccine hesitancy grew by 26 percentage points (from 22% to 48%) between August and December and the population is now evenly split between those willing and those not willing to receive the vaccine. Other data indicate some countries fall much lower: in the Philippines, fewer than a third are willing to have a Covid-19 vaccine. Even in China, a country with historically high rates of vaccine take-up, intent to get a Covid-19 vaccine dropped in late 2020 (though at 80% China was still at the top of the chart). Negative coverage of western-developed vaccines in Chinese state media appears to be fueling mistrust of even Chinese-developed Covid-19 vaccines and slowing vaccination rates. In both the US and UK, recent studies found that hesitancy rates are highest among younger adults, racial minorities, and people with lower education and income. A similar trend was noted this week in Israel, where vaccine take-up has slowed and is particularly low among minority communities and younger populations. There was improvement in vaccine intent among Black and LatinX populations in the US between December and January; however, these groups are still most likely to say that they will “wait and see” rather than get the vaccine as soon as possible. Experts suggest that supply may outstrip demand in the US as early as April. Public health leaders in countries around the world have pulled every lever they can to secure vaccine doses to protect their populations. Each dose is the result of unprecedented scientific and industry cooperation, complex negotiations, and a flat-out global effort. But the race to develop, manufacture, and distribute vaccines must result in vaccinations. We need to get ahead of vaccine hesitancy now, with strong outreach campaigns, before it becomes the rate limiter.

1. <http://dictionary.reference.com/browse/negate>, <http://www.merriam-webster.com/dictionary/negate>, <http://www.thefreedictionary.com/negate>, <http://www.vocabulary.com/dictionary/negate>, <http://www.oxforddictionaries.com/definition/english/negate> [↑](#footnote-ref-1)
2. *Dictionary.com – maintain as true, Merriam Webster – to say that something is true, Vocabulary.com – to affirm something is to confirm that it is true, Oxford dictionaries – accept the validity of, Thefreedictionary – assert to be true* [↑](#footnote-ref-2)
3. https://www.google.com/search?q=member+definition&rlz=1C1CHBF\_enUS877US877&oq=member+definition&aqs=chrome.0.69i59j69i60l3.1863j0j7&sourceid=chrome&ie=UTF-8 [↑](#footnote-ref-3)
4. https://www.google.com/search?q=of+definition&rlz=1C1CHBF\_enUS877US877&oq=of+definition&aqs=chrome.0.69i59j69i61l3.1473j0j7&sourceid=chrome&ie=UTF-8 [↑](#footnote-ref-4)
5. https://www.google.com/search?q=the+definition&rlz=1C1CHBF\_enUS877US877&oq=the+definition&aqs=chrome..69i57j69i64j69i61j69i60l2.1976j0j7&sourceid=chrome&ie=UTF-8 [↑](#footnote-ref-5)
6. https://www.google.com/search?q=to+definition&rlz=1C1CHBF\_enUS877US877&oq=to+definition&aqs=chrome..69i57j69i60l3.1415j0j7&sourceid=chrome&ie=UTF-8 [↑](#footnote-ref-6)
7. https://www.google.com/search?q=reduce+definition&rlz=1C1CHBF\_enUS877US877&sxsrf=AOaemvI3lZsbmnXg5WHeL4m6rYGn8Vf6Aw%3A1630610232638&ei=OCMxYbCaJpO0tQb6wpGoCA&oq=reduce+definition&gs\_lcp=Cgdnd3Mtd2l6EAMyCQgjECcQRhD5ATIECAAQQzIECAAQQzIFCAAQgAQyBQgAEIAEMgUIABCABDIFCAAQgAQyBQgAEIAEMgUIABCABDIFCAAQgAQ6BwgAEEcQsAM6BwgAELADEEM6BwgjEOoCECc6BAgjECc6BQgAEJECOhEILhCABBCxAxCDARDHARDRAzoKCAAQsQMQgwEQQzoHCAAQsQMQQzoICAAQgAQQsQM6CAgAELEDEIMBOgoIABCABBCHAhAUSgQIQRgAUMLMBFjS3QRgnt8EaAJwAngDgAG2A4gB-heSAQozLjExLjEuMi4xmAEAoAEBsAEKyAEKwAEB&sclient=gws-wiz&ved=0ahUKEwiwlru9gOHyAhUTWs0KHXphBIUQ4dUDCA8&uact=5 [↑](#footnote-ref-7)
8. https://www.merriam-webster.com/dictionary/for#:~:text=English%20Language%20Learners%20Definition%20of,meant%20to%20be%20used%20with [↑](#footnote-ref-8)
9. <https://www.google.com/search?q=medicine+definition&rlz=1C1CHBF_enUS877US877&oq=medicine+definition&aqs=chrome.0.69i59.2986j0j7&sourceid=chrome&ie=UTF-8> [↑](#footnote-ref-9)