# 1NC vs Aragon ZB

## OFF

### 1NC - OFF

Penalties CP

#### CP TEXT: The member nations of the World Trade Organization ought to reduce intellectual property protections for medicines by increasing penalties for patent abuse and evergreening fraud in the pharmaceutical industry.

#### Evergreening links to politics and collapses innovation, BUT the downsides are empirically debunked media hype – shifting enforcement for existing patent law solves abuse without harming pharma

Madigan & O'Connor 19 [Kevin Madigan joined CPIP in January of 2016. As Deputy Director, Kevin works closely with CPIP scholars in their research and promotion of comprehensive intellectual property law and policy. Before joining CPIP, Kevin worked as an intellectual property Research Associate at Finnegan Henderson Farabow Garrett & Dunner and also interned at the Recording Industry Association of America. Sean O’Connor, noted innovation law scholar, is a Professor of Law and Faculty Director of the Center for Intellectual Property x Innovation Policy (C-IP2) at George Mason University, Antonin Scalia Law School. "“No Combination Drug Patents Act” Stalls, but Threats to Innovation Remain." https://cip2.gmu.edu/2019/06/27/no-combination-drug-patents-act-stalls-but-threats-to-innovation-remain/]

This week, the Senate Judiciary Committee was to mark up a bill limiting patent eligibility for combination drug patents—new forms, uses, and administrations of FDA approved medicines. While the impetus was to curb so-called “evergreening” of drug patents, the effect would have been to stifle life-saving therapeutic innovations. Though the “No Combination Drug Patents Act”—reportedly to be introduced by Senator Lindsey Graham (R-SC)—was wisely withdrawn at the last minute, it’s likely not the last time that such a misconceived legislative effort will be introduced.

An Exaggerated Response to a Disputed Theory

The bill would have established a presumption of obviousness for drug or biologic patent applications whose invention was a new: dosing regimen, method of delivery, method of treatment, or formulation. While there was a rebuttal provision where the claim covered a new treatment for a new indication or “increase[d] . . . efficacy,” the latter was almost certain to introduce years of uncertainty and litigation. Further, the bill would have covered a broader class than true combination drug patents, in which one active ingredient is combined with another or with a non-drug.

Like many recent legislative efforts, the amendment sought to address a perceived lack of affordability of prescription drugs. After praising the America Invents Act of 2011 and subsequent Supreme Court rulings for strengthening the US patent system, the bill claimed that rising drug prices have outpaced “spending on research and development with respect to those drugs.” In addition to applauding Supreme Court decisions that have injected unquestionable uncertainty into patentable subject matter standards, the amendment went on to blame high drug prices on continually overstated issues related to advanced drug patents.

According to critics, combination drug patents have granted drug makers unearned and extended protection over existing drugs or biological products. But, quite simply, when properly issued by the USPTO under existing patentability standards, these are new patents for new products or processes.

Combination patents have been maligned as anticompetitive, resulting in a “thicket” of patents that impedes innovation through transaction costs and other inefficiencies. Unfortunately, notwithstanding a lack of empirical evidence validating the harm of follow-on innovation patents, patent thicket rhetoric is now being echoed by the media, the academy, courts, and policy makers in a fraught attempt to fix drug pricing.

Reports (see here, here, here, and here) from leading antitrust experts and intellectual property scholars have detailed the value of incremental innovation and challenged the notion that patent thickets are a true threat to competition and innovation. These studies have exposed patent thicket claims—much like the “troll” narrative that for years infected patent law debates—as an empty strawman theory, the repetition of which has led to undue confidence in its accuracy. The reality is that what critics point to as problematic cases of combination patents are in fact infrequent outliers, strategically highlighted to discount evidence of the value of new and innovative drug uses and administrations.

#### CP solves the aff while fostering innovation – directly comparative to the aff

Holman 20 [Christopher, Professor of Law, University of Missouri-Kansas City School of Law. “Congress Should Decline Ill-Advised Legislative Proposals Aimed at Evergreening of Pharmaceutical Patent Protection” p. 29-30 https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=3593954]

Senator Thom Tillis, in his opening remarks prepared for one of the Senate’s hearings on drug pricing and intellectual property, expressed his concern that “[some members of Congress are] trying to take a sledgehammer to a problem that needs a fine tuned and highly efficient scalpel[, and that] by just focusing on patent protections, and the number of patent protections available to a single product, [Congress] may be doing more harm than good to our nation’s innovation economy.”112 Instead, he would support legislation that will “promote innovation and competition, allow the United States to continue to be the leader in medical and pharmaceutical research, and will ultimately lower drug prices for consumers.”113 It is important to bear in mind that the reason there has been such an uproar over the price of drugs is that these drugs provide huge benefits for society, far exceeding most other patentable innovation, and were it not for the patent incentive, it is very unlikely these products would have been made available to patients in the first place. In his testimony prepared for the same Senate hearing, Professor Olson reminded the Judiciary Committee that “even studies casting doubt on patent law’s efficacy generally tend to find that in the area of pharmaceuticals, patent law has a large, positive effect on social welfare by providing incentive for significant levels of drug development that otherwise simply would not occur.”114 By ~~impairing~~ impeding the ability of pharmaceutical companies to obtain patents on their inventions, the legislation discussed in this Article could discourage the investment necessary to bring the next generation of pharmaceutical innovation to patients. If pharmaceutical companies are deemed to be misusing patents to the detriment of patients and third-party payers, then it is that misuse of patents that should be targeted by legislation, not the patents themselves. For example, if the allegations regarding product hopping are true, and doctors are prescribing and patients using far more expensive follow-on products that provide little if any benefit to the patient, then that is a problem with the market that should be addressed, rather than denying patent protection for truly worthwhile product improvements. If pharmaceutical companies are using anticompetitive means to coerce patients and doctors into switching drugs, then antitrust laws can provide the remedy, as discussed above.115 Likewise, if the sheer number of patents that could be infringed by a single generic or biosimilar product exceeds the litigation capacity of any company attempting to bring such a product to market, then courts have it within their means to require the patent owner to limit infringement litigation to some reasonable number of patents and patent claims, and Congress could pass legislation that would encourage courts to do so, if such a reform is deemed necessary. By targeting misuse of patents by pharmaceutical companies, rather than pharmaceutical patents per se, it should be possible to address any valid concerns with the way pharmaceutical companies are using the patent system, while maintaining adequate incentives for the next generation of innovation.

### 1NC – OFF

Debt Ceiling DA

#### Debt limit and government funding will pass now—everything else is delayed

BRESNAHAN 9/15 [JOHN BRESNAHAN, ANNA PALMER AND JAKE SHERMAN, Punchbowl News Legislataive Outlook 9/15, https://email.punchbowl.news/t/ViewEmailArchive/t/E48C6AF0C3714E452540EF23F30FEDED/C67FD2F38AC4859C/]

As we’ve been writing for you in Punchbowl News AM, we’re in the middle of the busiest legislative period in years. September has a stunning number of fiscal and legislative deadlines. The biggest of these, of course, is the end of the fiscal year on Sept. 30. This issue has become caught up in the debt-limit debate as Democrats plan to attach a debt-limit increase to a short-term funding bill. Republicans have vowed to oppose this move, raising the risk for the two sides to blunder into a government shutdown or debt crisis.

Suddenly, the Democrats’ $3.5 trillion reconciliation package and the $1 trillion bipartisan Senate infrastructure bill -- long the top priority in D.C. -- are taking a back seat to the meat and potatoes of governing. It now seems at least somewhat likely that the “Build Back Better” agenda -- made up of infrastructure and social safety net measures proposed by President Joe Biden -- could be delayed until later this fall.

One theory among Democrats is that Republicans will cave -- if not initially, then after a brief government shutdown or debt default scare during which the Democrats win the political argument that the GOP is an irresponsible partner in governing. Good luck getting someone to say that on the record, but it’s the reality we hear privately in the Capitol.

Graphical user interface, text

Description automatically generated

#### Medical IP takes time, energy, and political capital away from domestic legislation – big pharma and EU allies

Bhadrakumar 5/9 M K Bhadrakumar is a former Indian diplomat. "Biden’s talk of vaccine IP waiver is political theater." Asia Times, May 9, 2021, asiatimes.com/2021/05/bidens-talk-of-vaccine-ip-waiver-is-political-theater.

On the other hand, Biden, whose political life of half a century was largely spent in the US Congress, is well aware of the awesome clout of the pharmaceutical companies in American politics. From that lobby’s perspective, the patent waiver “amounts to the expropriation of the property of the pharmaceutical companies whose innovation and financial investments made the development of Covid-19 vaccines possible in the first place,” as a senior scholar at the Johns Hopkins Center for Health Security puts it. The US pharmaceutical industry and congressional Republicans have already gone on the offensive blasting Biden’s announcement, saying it undermines incentives for American innovation. Besides, the argument goes, even with the patent waiver, vaccine manufacturing is a complex process and is not like simply flipping a switch. Senator Richard Burr, the top Republican on the US Senate Health Committee, denounced Biden’s decision. “Intellectual property protections are part of the reason we have these life-saving products,” he said. “Stripping these protections only ensures we won’t have the vaccines or treatments we need when the next pandemic occurs.” The Republican senators backed by Republican Study Committee chairman Jim Banks propose to introduce legislation to block the move. Clearly, Biden would rather spend his political capital on getting the necessary legislation through Congress to advance his domestic reform agenda rather than spend time and energy to take on the pharmaceutical industry to burnish his image as a good Samaritan on the world stage. Conceivably, Biden could be counting on the “text-based negotiations” at the WTO dragging on for months, if not years, without reaching anywhere. The US support for the waiver could even be a tactic to persuade pharmaceutical firms to back less drastic steps like sharing technology and expanding joint ventures to boost global production quickly. So far Covid-19 vaccines have been distributed primarily to the wealthy countries that developed them, while the pandemic sweeps through poorer ones such as India, and the real goal is, after all, expanded vaccine distribution. Biden is well aware that there will be huge opposition to the TRIPS waiver from the United States’ European allies as well. The British press has reported that the UK has been in closed-door talks at the World Trade Organization in recent months along with the likes of Australia, Canada, Japan, Norway, Singapore, the European Union and the US, who all opposed the idea.

#### Agenda change has a cascading effect

Joly 19, [Jeroen Joly is a Doctor Assistant at Universiteit Gent, Punctuated equilibrium theory and foreign policy, The research for this chapter was financially supported by the French Ministry of the Armed Forces, Directorate General for International Relations and Strategy (DGRIS), https://www.researchgate.net/profile/Jeroen\_Joly/publication/331073786\_Punctuated\_equilibrium\_theory\_and\_foreign\_policy/links/5c66ec3092851c1c9de446f2/Punctuated-equilibrium-theory-and-foreign-policy.pdf]

Further Theorization of Existing Concepts

Finally, agenda-setting scholars have continued to improve our understanding of some mechanisms and key concepts of PET. Several agenda-setting studies, for example, examined how friction and cascading contribute to the typical pattern of policy punctuations. Cascading is best understood as a self-reinforcing process of positive feedback whereby attention from one actor generates attention from another actor, which, again, draws even more attention from the initial actor, overthrowing the existing friction mechanisms (Jones and Baumgartner 2005; Walgrave and Vliegenthart 2010). Looking at mass media and parliament, Walgrave and Vliegenthart (2010) found friction and cascading to operate independently from each other to create punctuations, and showed under which conditions these mechanisms are more likely to occur.

The notion of cascading closely relates to the wider agenda-setting literature examining how attention from one actor influences that of another. We know, for example, that political parties heavily influence each other regarding the issues they focus on in parliament (Vliegenthart et al. 2011). Several studies have also confirmed the mutual influence between news media, parliament and government influence in the issues they focus on (for a comprehensive review of the literature on the media’s influence on parliament and government, see Van Aelst and Walgrave (2016) and Walgrave et al. (2006)), also for foreign policy issues (Edwards and Wood 1999; Wood and Peake 1998).

#### Debt default is the easiest way to wreck the US economy—ruins the US dollar and financial reputation

Egan 9/8 [Matt Egan is an award-winning reporter at CNN, covering business, the economy and financial markets across CNN's television and digital platforms, "'Financial Armageddon.' What's at stake if the debt limit isn't raised", 9/8/21, <https://www.cnn.com/2021/09/08/business/debt-ceiling-default-explained/index.html>]

The easiest way to spark a financial crisis and wreck the US economy would be to allow the federal government to default on its debt. It would be an epic, unforced error — and millions of Americans would pay the price.

And yet that unlikely situation is once again being contemplated. If Congress doesn't raise the limit on federal borrowing the federal government will most likely run out of cash and extraordinary measures next month, Treasury Secretary Janet Yellen warned lawmakers on Wednesday.

In short, a default would be an economic cataclysm. Interest rates would spike, the stock market would crater, retirement accounts would take a beating, the value of the US dollar would erode and the financial reputation of the world's only superpower would be tarnished.

"It would be financial Armageddon," Mark Zandi, chief economist at Moody's Analytics, told CNN. "It's complete craziness to even contemplate the idea of not paying our debt on time."

But it's a crazy world.

Lawmakers in Washington are again playing chicken with America's creditworthiness. And the path to raising the debt ceiling is not clear.

Even though Congress has in the past raised the debt ceiling with a bipartisan vote, Senate Minority Leader Mitch McConnell vowed in July that Republicans will not vote to raise the debt ceiling.

JPMorgan Chase (JPM) CEO Jamie Dimon urged lawmakers not to even think about going down this path again. During a hearing in May, Dimon said an actual default "could cause an immediate, literally cascading catastrophe of unbelievable proportions and damage America for 100 years."

'Irreparable damage'

In her letter to Congress, Yellen said history shows that waiting "until the last minute" to suspend or increase the debt limit "can cause serious harm" to business and consumer confidence, raise borrowing costs for taxpayers and hurt America's credit rating.

"A delay that calls into question the federal government's ability to meet all its obligations would likely cause irreparable damage to the U.S. economy and global financial markets," Yellen wrote.

A US default would undermine the bedrock of the modern global financial system.

"We pay our debt. That's what distinguishes the United States from almost every other country on the planet," Zandi of Moody's said.

Because of America's long track record of paying its debt, it's very cheap for Washington to borrow. But a default would force ratings companies to downgrade US debt and shatter that borrowing advantage. Markets plunged in 2011 when that debt ceiling standoff caused Standard & Poor's to downgrade America's credit rating.

Higher borrowing costs would make it much harder for Washington to borrow to pay for infrastructure, the climate crisis or to fight future recessions. And refinancing America's nearly $29 trillion mountain of existing debt would become that much more expensive. Interest expenses, which totaled $345 billion in fiscal 2020, would quickly rival what Washington spends on defense.

#### Extinction

Joshua Zoffer 20, Investor at Cove Hill Partners, Fellow at New America, JD Candidate at Yale University Law School, AB from Harvard University, “To End Forever War, Keep the Dollar Globally Dominant”, The New Republic, 2/3/2020, https://newrepublic.com/article/156417/end-forever-war-keep-dollar-globally-dominant

In early 2016, Obama Treasury Secretary Jack Lew cautioned that the dollar’s dominance as a global currency rested, in part, on the U.S. government’s reluctance to fully weaponize it. If foreign markets and governments “feel that we will deploy sanctions without sufficient justification or for inappropriate reasons,” he warned, “we should not be surprised if they look for ways to avoid doing business in the United States or in U.S. dollars.” Lew’s case stemmed from the more fundamental view that the dollar’s international role is “a source of tremendous strength for our economy, a benefit for U.S. companies and a driver of U.S. global leadership”—in other words, a role worth keeping. This view is emblematic of American financial governance since the Second World War. U.S. economic analysts, especially at the Treasury, have jealously guarded the dollar’s role and the many benefits it offers: the ability to run large deficits at low cost and disproportionate influence over the structure of the global economy, among others. Yet in their recent article in The New Republic, David Adler and Daniel Bessner argue the U.S. should abandon these advantages. In their view, the dollar’s role has encouraged American militarism and should be relinquished to curb such behavior. Dollar hegemony is not without cost, but to renounce it would be a profound mistake. Adler and Bessner’s view neglects the sizable economic benefits the dollar’s role confers on the U.S., as well as its possible use as an antidote to military adventurism. It ignores the enormous good that can be done with deficit spending, much of which has gone to the American military but could instead fund progressive programs. And it elides the inability of the U.S. and its global trading partners to shift away from dollar dominance without creating worldwide financial distress. Adler and Bessner are right that the U.S. has misused its privilege, but Washington should not abandon it; rather, American leaders should seek to transform it. Generations of American policymakers have been right to protect the dollar’s key currency role for economic reasons. Most notably, dollar hegemony affords the U.S. the ability to run large and prolonged budget and balance-of-payments deficits. The dollar represents 62 percent of allocated foreign exchange reserves, is used to invoice and settle roughly half of world trade, and accounts for 42 percent of global payments. Because governments, banks, and businesses worldwide need lots of dollars, the world market always stands ready to absorb new U.S.-dollar-denominated debt without charging higher interest rates. Adler and Bessner correctly point out that the rest of the world considers the dollar’s role as the world’s reserve currency to be an “exorbitant privilege,” a term coined in the 1960s by then French Finance Minister Valéry Giscard D’Estaing. The ability to spend beyond its means has enabled the U.S. to fund its impressive military might, whether one views that power as the fountainhead of Pax Americana or the source of illegitimate military adventurism. But these economic benefits go beyond just deficits. The demand for dollars also pushes up the dollar’s value against other currencies, enhancing American purchasing power and offering consumers access to imports on the cheap. The dollar’s role also means American firms rarely need to do business in foreign currencies, reducing transaction costs and exchange-rate risks. More broadly, America’s central economic role gives it outsize influence at crucial moments. At the height of the financial crisis that began in 2008, the Federal Reserve was able to inject vital liquidity into the global financial system by selectively offering dollar swap lines to trusted foreign central banks. Dollar hegemony enabled the U.S. to act swiftly, effectively, and on its own terms. In addition, the dollar’s role offers a potent alternative to kinetic military action as a means of pursuing foreign policy objectives. The dollar’s broad use means access to dollar liquidity—which in turn requires access to the U.S. financial system—is essential for foreign governments and businesses. For foreign banks, especially, being cut off from dollar access is essentially a death sentence. That makes sanctions that do so a powerful tool in the international arena. In 2005, for example, the U.S. used the dollar to strike a devastating blow against North Korea without firing a single shot or even formally enacting sanctions. Using authority provided by Section 311 of the Patriot Act, the Department of the Treasury crippled Banco Delta Asia, a bank accused of facilitating illegal activity by the North Korean government, by merely threatening to cut off its access to the American financial system. Deposit outflows began within days; within weeks the bank was placed under government administration to avoid a full collapse. Pyongyang was hit hard, as other banks ceased their business with it to avoid meeting the same fate. Similarly, though the Trump administration has worked hard to undo it, the Joint Comprehensive Plan of Action with Iran to limit the development of nuclear weapons was made possible, in part, by painful dollar sanctions that brought Iran to the table. Far from being a proximate cause of military conflict, the dollar’s central global role has often been used to contain adversaries without military intervention. Still, skeptics are right to point out that the dollar’s role has indirectly funded American interventionism and that dollar sanctions have been overused, provoking the ire of American allies. But these facts suggest we should use our dollar power to forge a more progressive U.S. order, not abandon the advantage altogether. America’s exorbitant privilege need not fund warships and missiles: The same low-interest borrowing could be used to fund a new universal health care system, expand access to higher education, or pursue any number of large-scale social policy objectives, including financing global public goods that no other country or consortium of countries is prepared to fund, such as climate change mitigation.

### 1NC - OFF

Nanotech DA

#### Patent exclusivities are preventing private sector nanotech acquisition

Pearce 12 [Joshua Pearce, Departments of Materials Science & Engineering and of Electrical & Computer Engineering, Joshua M. Pearce is associate professor in the Open Sustainability Technology Lab, Michigan Technological University. “Make nanotechnology research open-source.” November 21, 2012. *Nature.* https://www.nature.com/articles/491519a]

This thicket of patents, including entire classes of nanotechnologies, basic methods and science, is hindering nanotechnology. Excessive patenting is increasing costs, slowing technical development and removing from the public domain fundamental knowledge about the understanding and control of matter on the atomic or molecular scale (1–100 nanometres). Patent thickets occur in other high-tech fields, but the consequences for nanotechnology are dire because of the potential power and immaturity of the field. Advances are being stifled at birth because downstream innovation almost always infringes some early broad patents. By contrast, computing, lasers and software grew up without overzealous patenting at the outset2. Nanotechnology offers the promise of enabling matter to be manipulated as easily as software. I believe that those working with it should adopt the open-source approach3 that has proved so successful for software development. All publicly funded nanotechnology research and innovation should be made available to everyone for free. A moratorium should be placed on patenting fundamental nanotechnologies and basic quantum-science applications, from which most developments stem. Intellectual-property shackles Nanotechnology is big business. According to a 2011 report by technology consultants Cientifica, governments around the world have invested more than US$65 billion in nanotechnology in the past 11 years. The sector contributed more than $250 billion to the global economy in 2009 and is expected to reach $2.4 trillion a year by 2015, according to business analysts Lux Research. Since 2001, the United States has invested $18 billion in the National Nanotechnology Initiative; the 2013 US federal budget will add $1.8 billion more. This investment is spurring intense patent filing by industry and academia. The number of nanotechnology patent applications to the US Patent and Trademark Office (USPTO) is rising each year and is projected to exceed 4,000 in 2012. Anyone who discovers a new and useful process, machine, manufacture or composition of matter, or any new and useful improvement thereof, may obtain a patent that prevents others from using that development unless they have the patent owner's permission. With universities increasingly operating like corporations, faculty members are pressured into locking away their results as intellectual property (IP), even though their research is largely funded by taxpayers. In the United States, the passage of the 1980 Bayh–Dole Act enabled US universities to retain ownership of the products of federally funded research that had previously been non-exclusively licensed to anyone on request4. Broad patents covering the 'building blocks' of nanotechnology — such as quantum dots, nanowires and fullerenes, carbon nanotubes and methods for making them — hamper conscientious innovators, who must spend time and money to acquire all the necessary licences to avoid lawsuits5. Examples of patents that cover basic components include one owned by the multinational chip manufacturer Intel, which covers a method for making almost any nanostructure with a diameter less than 50 nm; another, held by nanotechnology company NanoSys of Palo Alto, California, covers composites consisting of a matrix and any form of nanostructure. And Rice University in Houston, Texas, has a patent covering “composition of matter comprising at least about 99% by weight of fullerene nanotubes”. The vast majority of publicly announced IP licence agreements are now exclusive, meaning that only a single person or entity may use the technology or any other technology dependent on it6. This cripples competition and technological development, because all other would-be innovators are shut out of the market. Exclusive licence agreements for building-block patents can restrict entire swathes of future innovation. An evaluation of the carbon-nanotube patent thicket in 2006 found that of 446 carbon-nanotube patents issued in the United States, in which 8,557 claims were made, 420 of those claims were of a building-block type7. Imagine how equivalent patenting of the idea of a semiconductor or basic programming would have stifled electronics and computing. These dense webs of overlapping rights are created partly as a result of the complex nature of the underlying science. Beating into this patent thicket is made difficult for innovators and patent examiners alike because of the field's interdisciplinary nature and its span across a range of industries. Nanoscience uses a rich and fast-evolving lexicon of technical language — carbon nanotubes can, for example, be described as nanofibres, fibrils, shells, nanocylinders, buckytubes or nanowires. For nanotechnology patent examiners at the USPTO, incomplete availability of information and inadequate training are recognized problems8. Licences can be costly, but the potential expense of litigation for not acquiring them is often much greater. Multimillion-dollar legal fees have overwhelmed nanotechnology companies such as Evident Technologies (legal fees of $1 million compared with $4 million in assets) and Luna Innovations (ordered by a jury to pay $36 million despite assets of $20 million). Such risks dissuade other companies from working in the nanotechnology field.

#### Nanotech is dual use --- greater access causes terrorism, rogue states, and arms racing

Winstead 20 [Nicholas Winstead is a graduate student in the School of International Service at American University. “The applications and implications of nanotechnology.” April 15, 2020. https://www.american.edu/sis/centers/security-technology/the-applications-and-implications-of-nanotechnology.cfm]

There are three distinct threats posed by nanotechnology. First, the diffusion of nanotech may increase the likelihood of nano-enabled bioterrorism. Nanotechnology is becoming increasingly cheap and user-friendly. “Do-It-Yourself” nanotechnology hardware and open-source instructions are readily available online. For example, one site provides instructions for building a DNA nanotechnology lab for under $500. Another site advertises nanotechnology experiments for the whole family, ages 4 and up. This “democratization” of nanotech creates more opportunities for bad actors to engineer weapons (from “the comfort of your own home!” as the site advertises). Second, nanotechnology will make it easier for state actors to develop or use advanced CB weapons. Nanotech will make these weapons cheaper to produce and easier to conceal and transport, which will facilitate their proliferation to rogue states. Furthermore, existing national and international laws designed to prevent the spread of dangerous chemicals may be unable to keep pace with the rapid changes brought on by nanotech. Third, the potential for new nano-enabled capabilities may accelerate arms races and undermine strategic stability between the U.S. and its authoritarian great power competitors. Militaries around the world are already fielding expensive - and secretive - research and development programs to harness the technology’s potential. This risks offense-defense spirals that could make war more likely - and bloodier if it occurs.

#### Extinction

Piers Millett 17, Consultant for the World Health Organization, PhD in International Relations and Affairs, University of Bradford, Andrew Snyder-Beattie, “Existential Risk and Cost-Effective Biosecurity”, Health Security, Vol 15(4), http://online.liebertpub.com/doi/pdfplus/10.1089/hs.2017.0028

Historically, disease events have been responsible for the greatest death tolls on humanity. The 1918 flu was responsible for more than 50 million deaths,1 while smallpox killed perhaps 10 times that many in the 20th century alone.2 The Black Death was responsible for killing over 25% of the European population,3 while other pandemics, such as the plague of Justinian, are thought to have killed 25 million in the 6th century—constituting over 10% of the world’s population at the time.4 It is an open question whether a future pandemic could result in outright human extinction or the irreversible collapse of civilization.

A skeptic would have many good reasons to think that existential risk from disease is unlikely. Such a disease would need to spread worldwide to remote populations, overcome rare genetic resistances, and evade detection, cures, and countermeasures. Even evolution itself may work in humanity’s favor: Virulence and transmission is often a trade-off, and so evolutionary pressures could push against maximally lethal wild-type pathogens.5,6

While these arguments point to a very small risk of human extinction, they do not rule the possibility out entirely. Although rare, there are recorded instances of species going extinct due to disease—primarily in amphibians, but also in 1 mammalian species of rat on Christmas Island.7,8 There are also historical examples of large human populations being almost entirely wiped out by disease, especially when multiple diseases were simultaneously introduced into a population without immunity. The most striking examples of total population collapse include native American tribes exposed to European diseases, such as the Massachusett (86% loss of population), Quiripi-Unquachog (95% loss of population), and theWestern Abenaki (which suffered a staggering 98% loss of population).

In the modern context, no single disease currently exists that combines the worst-case levels of transmissibility, lethality, resistance to countermeasures, and global reach. But many diseases are proof of principle that each worst-case attribute can be realized independently. For example, some diseases exhibit nearly a 100% case fatality ratio in the absence of treatment, such as rabies or septicemic plague. Other diseases have a track record of spreading to virtually every human community worldwide, such as the 1918 flu,10 and seroprevalence studies indicate that other pathogens, such as chickenpox and HSV-1, can successfully reach over 95% of a population.11,12 Under optimal virulence theory, natural evolution would be an unlikely source for pathogens with the highest possible levels of transmissibility, virulence, and global reach. But advances in biotechnology might allow the creation of diseases that combine such traits. Recent controversy has already emerged over a number of scientific experiments that resulted in viruses with enhanced transmissibility, lethality, and/or the ability to overcome therapeutics.13-17 Other experiments demonstrated that mousepox could be modified to have a 100% case fatality rate and render a vaccine ineffective.18 In addition to transmissibility and lethality, studies have shown that other disease traits, such as incubation time, environmental survival, and available vectors, could be modified as well.19-2

#### Instability, opaque tech development, and great power conflict escalate to nuke war

Aftergood 7-6 [Steven Aftergood directs the FAS Project on Government Secrecy. The Project works to reduce the scope of national security secrecy and to promote public access to government information. He writes Secrecy News, which reports on new developments in secrecy policy and provides direct access to significant official records that are otherwise unavailable or hard to find. “Pentagon Sees “Increased Potential” for Nuclear Conflict.” Jully 6, 2021. https://fas.org/blogs/secrecy/2021/07/increased-potential/]

The possibility that nuclear weapons could be used in regional or global conflicts is growing, said a newly disclosed Pentagon doctrinal publication on nuclear war fighting that was updated last year. “Despite concerted US efforts to reduce the role of nuclear weapons in international affairs and to negotiate reductions in the number of nuclear weapons, since 2010 no potential adversary has reduced either the role of nuclear weapons in its national security strategy or the number of nuclear weapons it fields. Rather, they have moved decidedly in the opposite direction,” the Department of Defense document said. “As a result, there is an increased potential for regional conflicts involving nuclear-armed adversaries in several parts of the world and the potential for adversary nuclear escalation in crisis or conflict.” The publication presents an overview of U.S. nuclear strategy, force structure, targeting and operations. See Joint Nuclear Operations, JP 3-72, April 2020. The document replaces a 2019 edition titled Nuclear Operations that was briefly disclosed and then withdrawn from a DoD website. (See “DoD Doctrine on Nuclear Operations Published, Taken Offline,” Secrecy News, June 19, 2019.) The current document no longer includes some of the more unfiltered and enthusiastic language about achieving “decisive results” through nuclear strikes and “prevail[ing] in conflict” that appeared in the 2019 version. The statement that “The President authorizes the use of nuclear weapons” was changed to a more restrained declaration that “Only the President can authorize the use of nuclear weapons.” Meanwhile, new material has been added, including an assessment that the threat from potential adversaries has grown even as the US nuclear posture is said to have been moderated: “While the United States has continued to reduce the number and salience of nuclear weapons, others, including Russia and China, have moved in the opposite direction. They have added new types of nuclear capabilities to their arsenal, increased the salience of nuclear forces in their strategies and plans, and engaged in increasingly aggressive behavior.” “Russia’s strategic nuclear modernization has increased, and will continue to increase, its warhead delivery capability, which provides Russia with the ability to rapidly expand its deployed warhead numbers.” “China continues to increase the number, capabilities, and protection of its nuclear forces.” “North Korea’s continued pursuit of nuclear weapons capabilities poses the most immediate and dire proliferation threat to international security and stability.” “Iran’s development of increasingly long-range ballistic missile capabilities, and its aggressive strategy and activities to destabilize neighboring governments, raises questions about its long-term commitment to forgoing nuclear weapons capability.”

## CASE