# Meadows R6 Neg vs Diamond Bar NC

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### 1

#### Interp – the aff must only defend that the member nations of the World Trade Organization ought to reduce intellectual property protections for medicines.

#### Intellectual property is

Brewer 19 [(Trevor, advises clients on business structuring and sale transactions, regulatory compliance, third-party contracts, liability protection and general matters facing small business owners. His focus extends beyond legal advice and includes business strategy and wealth preservation.) “WHAT ARE THE FOUR BASIC TYPES OF INTELLECTUAL PROPERTY RIGHTS?” Brewer Long, 5/16/19. <https://brewerlong.com/information/business-law/four-types-of-intellectual-property/>] RR

There are four types of intellectual property rights and protections (although multiple types of intellectual property itself). Securing the correct protection for your property is important, which is why consulting with a lawyer is a must. The four categories of intellectual property protections include:

TRADE SECRETS

Trade secrets refer to specific, private information that is important to a business because it gives the business a competitive advantage in its marketplace. If a trade secret is acquired by another company, it could harm the original holder.

Examples of trade secrets include recipes for certain foods and beverages (like Mrs. Fields’ cookies or Sprite), new inventions, software, processes, and even different marketing strategies.

When a person or business holds a trade secret protection, others cannot copy or steal the idea. In order to establish information as a “trade secret,” and to incur the legal protections associated with trade secrets, businesses must actively behave in a manner that demonstrates their desire to protect the information.

Trade secrets are protected without official registration; however, an owner of a trade secret whose rights are breached–i.e. someone steals their trade secret–may ask a court to ask against that individual and prevent them from using the trade secret.

PATENTS

As defined by the U.S. Patent and Trademark Office (USPTO), a patent is a type of limited-duration protection that can be used to protect inventions (or discoveries) that are new, non-obvious, and useful, such a new process, machine, article of manufacture, or composition of matter.

When a property owner holds a patent, others are prevented, under law, from offering for sale, making, or using the product.

COPYRIGHTS

Copyrights and patents are not the same things, although they are often confused. A copyright is a type of intellectual property protection that protects original works of authorship, which might include literary works, music, art, and more. Today, copyrights also protect computer software and architecture.

Copyright protections are automatic; once you create something, it is yours. However, if your rights under copyright protections are infringed and you wish to file a lawsuit, then registration of your copyright will be necessary.

TRADEMARKS

Finally, the fourth type of intellectual property protection is a trademark protection. Remember, patents are used to protect inventions and discoveries and copyrights are used to protect expressions of ideas and creations, like art and writing.

Trademarks, then, refer to phrases, words, or symbols that distinguish the source of a product or services of one party from another. For example, the Nike symbol–which nearly all could easily recognize and identify–is a type of trademark.

While patents and copyrights can expire, trademark rights come from the use of the trademark, and therefore can be held indefinitely. Like a copyright, registration of a trademark is not required, but registering can offer additional advantages.

#### A one-and-done approach affects orphan drug designations – their solvency advocate card

Feldman 3 Robin Feldman 2-11-2019 "‘One-and-done’ for new drugs could cut patent thickets and boost generic competition" <https://www.statnews.com/2019/02/11/drug-patent-protection-one-done/> (Arthur J. Goldberg Distinguished Professor of Law, Albert Abramson ’54 Distinguished Professor of Law Chair, and Director of the Center for Innovation)//SidK + Elmer

I believe that one period of protection **should be enough**. We should make the legal changes necessary to prevent companies **from building patent walls** and piling up mountains of rights. This could be accomplished **by** a “one-and-done” approach for patent protection. Under it, a drug would receive just one period of exclusivity, and no more. The choice of which “one” could be left entirely in the hands of the pharmaceutical company, with the election made when the FDA approves the drug. Perhaps development of the drug went swiftly and smoothly, so the remaining life of one of the drug’s patents is of greatest value. Perhaps development languished, so designation as an orphan drug or some other benefit would bring greater reward. The choice would be up to the company itself, based on its own calculation of the maximum benefit. The result, however, is that a pharmaceutical company chooses whether its period of exclusivity would be a patent, an orphan drug designation, a period of data exclusivity (in which no generic is allowed to use the original drug’s safety and effectiveness data), or something else — but not all of the above and more. Consider Suboxone, a combination of buprenorphine and naloxone for treating opioid addiction. The drug’s maker has extended its protection cliff eight times, including obtaining an orphan drug designation, which is intended for drugs that serve only a small number of patients. The drug’s first period of exclusivity ended in 2005, but with the additions its protection now lasts until 2024. That makes almost two additional decades in which the public has borne the burden of monopoly pricing, and access to the medicine may have been constrained. Implementing a one-and-done approach in conjunction with FDA approval underscores the fact that these problems and solutions are designed for pharmaceuticals, not for all types of technologies. That way, one-and-done could be implemented through **legislative changes to the FDA’s drug approval system**, and would apply to patents granted going forward. One-and-done would apply to both patents and exclusivities. A more limited approach, a baby step if you will, would be to invigorate the existing patent obviousness doctrine as a way to cut back on patent tinkering. Obviousness, one of the five standards for patent eligibility, says that inventions that are obvious to an expert or the general public can’t be patented. Either by congressional clarification or judicial interpretation, many pile-on patents could be eliminated with a ruling that the core concept of the additional patent is nothing more than the original formulation. Anything else is merely an obvious adaptation of the core invention, modified with existing technology. As such, the patent would fail for being perfectly obvious. Even without congressional action, a more vigorous and robust application of the existing obviousness doctrine could significantly improve the problem of piled-up patents and patent walls. Pharmaceutical companies have become adept at maneuvering through the system of patent and non-patent rights to create mountains of rights that can be applied, one after another. This behavior lets drug companies keep competitors out of the market and beat them back when they get there. We shouldn’t be surprised at this. Pharmaceutical companies are profit-making entities, after all, that face pressure from their shareholders to produce ever-better results. If we want to change the system, we must change the incentives driving the system. And right now, the incentives for creating patent walls are just too great.

#### Orphan drug designation goes beyond IP

FDA “Designating an Orphan Product: Drugs and Biological Products” No Date <https://www.fda.gov/industry/developing-products-rare-diseases-conditions/designating-orphan-product-drugs-and-biological-products> SM

Supporting the development and evaluation of new treatments for rare diseases is a key priority for the FDA. The FDA has authority to grant orphan-drug designation to a drug or biological product to prevent, diagnose or treat a rare disease or condition. Orphan drug designation qualifies sponsors for incentives including:

Tax credits for qualified clinical trials

Exemption from user fees

Potential seven years of market exclusivity after approval

#### Reducing orphan drug designation standards is widely extra-topical – it affects companies’ abilities to obtain tax credits, grants, regulatory assistance, fee waivers, and more. Market exclusivity is just one aspect.

Nuventra 4/21 Nuventra Pharma Sciences [Our consultants translate complex data into actionable insights across the entire drug development spectrum. With more than 1,000 years of combined experience in pharmaceutical development, we enable our clients to make better strategic decisions and improve their clinical and nonclinical studies.] “FDA Orphan Drug Designation for Rare Diseases” April 21, 2021 <https://www.nuventra.com/resources/blog/orphan-drug-products/> SM

Incentives of Orphan Drug Designation

One of the biggest challenges for companies developing drugs for rare diseases is that due to the small target population size, sponsors are unlikely to recoup the cost of research, development, and approval from the orphan drug product. In response to this, the FDA has created multiple incentives to make orphan drug development more financially possible for companies to pursue. Some of the incentives include:

7-year marketing exclusivity to sponsors of approved orphan products

25% federal tax credit for expenses incurred in conducting clinical research within the United States

Tax credits may be applied to prior year or applied over as many as 20 years to future taxes

Waiver of Prescription Drug User Fee Act (PDUFA) fees for orphan drugs

A value of approximately $2.9 million in 2021

Ability to qualify to compete for research grants from the Office of Orphan Products Development (OOPD) to support clinical studies for orphan drugs

Eligibility to receive regulatory assistance and guidance from the FDA in the design of an overall drug development plan

#### Vote neg for limits – allowing extra topicality explodes the prep burden to every possible incentive granted to pharma companies – reciprocal prep burdens are key to engagement

#### No plan text in a vacuum for this arg specifically – a] their plan text says “a one-and-done approach for patent and exclusivity protection” which is defined as including orphan drugs PER THEIR OWN EV so the plan text violates b] vote neg on presumption – there’s zero way you’d know what a “one-and-done approach” is absent reading their evidence which means evaluating their plan text absent the Feldman card is incoherent and illogical

#### 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,

### 2

#### CP: The member nations of the World Trade Organization should allow exclusivity to be extended indefinitely through new patent reapplication for antimicrobial drugs per Salmieri. The member nations of the World Trade Organization should reduce intellectual property protections for all other medicines by implementing a one-and-done approach for patent protection.

Salmieri 18 “INTELLECTUAL PROPERTY AND THE FREEDOM NEEDED TO SOLVE THE CRISIS OF RESISTANT INFECTIONS” 2018 Gregory Salmieri [Ph.D., Philosophy, 2008, University of Pittsburgh; B.A. 2001, The College of New Jersey. Fellow, The Anthem Foundation for Objectivist Scholarship; Lecturer, Philosophy Department, Rutgers University] <http://georgemasonlawreview.org/wp-content/uploads/2019/04/26-1_7-Salmieri.pdf> SM

This Article suggests another sort of solution, which might be described as a way of incentivizing, by means of a single policy change, both the development of new antimicrobials and the responsible stewardship of these drugs. In its simplest form, the solution is to make the patent terms on these drugs extremely long. The solution has been proposed in this form by Professor John Horowitz and Brian Moehring32 as well as Professor Eric Kades,33 and it is occasionally mentioned in the existing literature.34 However, the case for this broad sort of solution has not been adequately articulated or appreciated. The next part develops the case for a solution of this sort and proposes an alternative version of the solution that is better tailored to the problem and better situated within a theory of IP. Finally, Part III addresses some concerns faced by any solution of this sort.

II. THE RIGHT TO THE VALUE CREATED BY RESPONSIBLE STEWARDSHIP

Consider how the two-fold problem of growing resistance to our current antimicrobial drugs and the dearth of new antimicrobials under development looks once the specifics are omitted. Forget for a moment that the subject is drugs and microbes—or even inventions as opposed to other sorts of property—and just focus on the structure of the predicament.35 There is a resource of immense value that is being used myopically in a way that destroys existing stocks of the resource, and little is being done to find or develop new stocks of it.

This is a pattern one expects to see with unowned resources, but not with owned ones. It is the classic “tragedy of the commons.” When a patch of grazing land is owned in common by everyone—which is just to say it is unowned—everyone has an incentive to make what use of it he can, leading to its overuse and destroying its value. By contrast, an owner can use land judiciously in ways that preserve its value or even to invest in improving the land. This is possible because the owner has exclusive control of the land in the present and therefore can control its uses, and because the owner expects to reap the benefit of the land’s future value. If deeds to land expired after twenty years, with the land reverting to the commons, land owners would have no financial incentives to preserve or enhance the land’s value past the twenty-year window. In this scenario, they could not afford to forgo shortterm gains that came at the expense of the land’s later value. Nor could they afford to invest in long-term improvement projects, such as clearing new land for grazing. This is the predicament with antimicrobial drugs. The profligate use of such drugs in the present destroys their value in a future in which they are unowned.

This suggests the simple solution of extending the patent terms for antimicrobial drugs. So long as the drug remains under patent, the patent holder has both an interest in preserving its usefulness and the ability to control its use so as to preserve its value. How long should the patent term be extended? The five years of extra market exclusivity offered by the GAIN Act is calculated with a view to incentivizing companies to invest in developing new drugs. The aim of the present proposal is different. It is to enable the creators of drugs to profitably exercise their rights over the drugs in a manner that preserves the drugs’ effectiveness over time—ideally into the indefinite future. This requires extending the term of exclusivity not just a few years or decades, but as far into the future as there is reason to hope that the drugs’ effectiveness can be maintained.

There are various ways in which this suggestion could be further developed; perhaps the most promising is simply to allow patents on antimicrobial drugs to be renewed indefinitely, so long as the drugs’ continued effectiveness can be demonstrated. (How exactly continued effectiveness should be demonstrated is a matter of detail, but likely by showing resistance to be below a certain threshold—perhaps 20 percent—in clinical isolates of interest.36) This would allow for a potentially infinite patent term. “Perpetual patents” have occasionally been proposed, 37 but the lack of a fixed term may do violence to the notion of a patent, so it may be better to conceive of this as a proposal for a new type of IP right that combines features of patents and trademarks. Conceptualizing the relevant right in this way highlights its basis. Like a patent, the right would pertain to an invention and would confer market exclusivity; like a trademark, however, it would be renewable in perpetuity on the grounds that the continued value of the property depends on the owner taking continuous action to maintain it. In the case of the right under consideration, the relevant actions would be those of stewarding the drug in such a manner as to prolong its continued effectiveness in the face of resistance.

This new sort of property right could, in principle, be applied to drugs that are already off patent or otherwise ineligible for patent protection. The Chatham House Working Group proposes granting “delinkage rewards” to “firms registering a new antibiotic without patent protection (such as new uses for old drugs),”38 and it may be that the sort of IP protection proposed here would be applicable in such cases as well. If so, the right would be justified by the discovery of the new use for the drug and by the fact that intelligent management of this use is required for it to retain its value. A more difficult case is granting such rights to already known antibiotics that have gone off patent and are now available as generics. Removing these drugs from the commons would make it possible for an owner to profit by stewarding them responsibly. The difficulty here is determining who would own them. Professor Kades considers the possibility of granting a new patent to the original patent holder, but suggests “auctioning the patent rights [to such drugs] to the highest bidder.”39 Both are plausible solutions. Another option, in light of the issue of cross-resistance (which will be discussed in Part III) would be to apportion the IP rights to the relevant drugs among the owners of other drugs with similar mechanisms of action.

Instituting the sort of property right described here (whether or not it is extended to drugs that are currently unpatentable and/or in the public domain) would create an environment in which pharmaceutical companies and other private entities can compete to develop new policies and business models that maximize the total value derived from antimicrobial drugs over time. An important advantage of this proposal is that it does not require policymakers (or authors of law review articles) to know in advance which specific practices would have this auspicious effect. However, some obvious possibilities suggest themselves.

Pharmaceutical companies could sell new antimicrobials at a price high enough to make it prohibitive to use them as anything other than treatments of last resort. In addition to extending the drugs’ useful lives, the high prices would compensate for the lower initial volume of sales, and the drugs could eventually be repriced for wider use as second- and then first-line treatments. This repricing would have to be paced both to the growth of the resistant bacterial population and to the development of new antimicrobial drugs to take their predecessors’ place as treatments of last resort. One can imagine many variations of this strategy with different price points and development cycles.

Pharmaceutical companies could also extend the effective lifespan of their antimicrobials through contractual arrangements with healthcare providers, which restrict the latter’s use of the drugs to certain protocols or best practices. Imagine the new business practices whereby pharmaceutical companies might profit from drugs that are never or hardly ever used. Licensing plans like the one proposed by Commissioner Gottlieb might be employed in innovative ways.40 For example, healthcare providers or insurance companies might pay a monthly fee for the right to use these drugs should it ever become necessary to do so. Or the various parties might negotiate a system whereby a pharmaceutical company (or an entity that has licensed drugs from multiple companies) charges a fixed price for treatment in accordance with a proprietary antimicrobial protocol that makes use of several of their drugs, specifying which drugs can used under which conditions.

The suggestions in the last paragraph all amount to ways in which revenues from the creation of a new drug might be “delinked” from sales volume. In principle, this delinkage could occur simply through market forces, without any additional policy interventions, but since governments and multinational organizations account for most of the spending in the healthcare sector in much of the world, their adopting policies favoring delinkage would likely stimulate the development of these sorts of business models under an IP regime of the sort suggested. Indeed, such delinkage–promoting policies would likely fare better under the proposed IP regime than under the current IP system because, as The Chatham House Working Group observes, “patent expiry” creates some difficulties for such policies.

Obligations for responsible use can be carefully crafted and functional when monopoly rights are in place, but are likely to fail once generic antibiotics are introduced upon the termination of the period of exclusivity. Generic manufacturers ordinarily rely on volume-based rewards, and low prices and large volume of sales without appropriate measures to conserve the antibiotics may be an important driver of indiscriminate use and resistance. A sustainable system will require controls on market entry after termination of the patent, and regulation of the way the generic products are marketed and prescribed.41

It bears emphasizing at this point that the best stewardship policies for antimicrobial drugs remain to be discovered. The Chatham House Working Group report (quoted several times above) represents the cutting edge of research on this issue, and it offers precious few details about the new “delinked” business model it says “needs to be developed.” Successful business models are rarely if ever specified from on high by public policy makers. Securing a long-range IP right to antimicrobial drugs would create the conditions in which the healthcare industry as a whole could invest the resources required to discover the practices, protocols, and business models that maximize the value of these substances. In addition, the ability to capture this value as profit would create an incentive to develop new drugs as needed.

IP rights, and patents in particular, are sometimes understood as bargains between creators and society. The proposal under consideration grants a lot more to the developers of any new antimicrobial drugs than they are granted under current law, but it asks a lot of these developers in return—for it requires them to become good stewards of their drugs by discovering and implementing the means necessary to preserve the drugs’ value over time, so that the maximum potential benefit from them is realized.42 This is work that needs to be done by someone, and the sort of IP regime proposed here would enable those people and firms most qualified to do this work to profit by doing it.

This leads to a deeper point. Although IP rights are often understood as special privileges granted by government and justified on utilitarian grounds, the dominant strand in early American jurisprudence, taking its inspiration from John Locke, regards all property rights as securing to a creator the fruits of his productive work.43 Among the reasons why patents and copyrights are finite in duration, whereas rights to chattels or land can be passed on from generation to generation indefinitely, is that chattels and land generally need to be maintained in order to retain their economic value over time, whereas this is not true of the economic value of an artwork or a method.44 But the case under consideration reveals that the continued economic value of certain methods does depend on an ongoing process of intelligent management by which one uses the method sparingly. It is this very fact that (according to the argument of this Part) justifies extending the IP right to the drug indefinitely. This raises the question of whether there are structurally similar cases in other fields, where the continued commercial value of a potential invention depends on its judicious use. If so, it may be that there are other values being destroyed (or never created) because of tragedies of the commons that could be rectified by policies analogous to the one suggested here.

#### Even if the aff incentivizes innovation they cannot incentivize innovation in anti-microbial research – the problem right now is lack of profit incentives for innovation and responsible stewardship.

Salmieri 18 “INTELLECTUAL PROPERTY AND THE FREEDOM NEEDED TO SOLVE THE CRISIS OF RESISTANT INFECTIONS” 2018 Gregory Salmieri [Ph.D., Philosophy, 2008, University of Pittsburgh; B.A. 2001, The College of New Jersey. Fellow, The Anthem Foundation for Objectivist Scholarship; Lecturer, Philosophy Department, Rutgers University] <http://georgemasonlawreview.org/wp-content/uploads/2019/04/26-1_7-Salmieri.pdf> SM

According to a 2013 report by the Center for Disease Control (“CDC”), two million people in the United States annually contract infections that are “resistant to one or more of the antibiotics designed to treat those infections”; the result is at least 23,000 deaths and (direct and indirect) economic losses that have been estimated at $55 billion (in 2008 dollars).2 The United Kingdom’s Antimicrobial Resistance Review estimates that, worldwide, there will be as many as ten million deaths annually from such infections by 2050.3 A 2017 report by the World Bank Group anticipates the financial toll:

In the optimistic case of low AMR [antimicrobial resistance] impacts, the simulations found that, by 2050, annual global gross domestic product (GDP) would likely fall by 1.1 percent, relative to a base-case scenario with no AMR effects; the GDP shortfall would exceed $1 trillion annually after 2030. In the high AMR-impact scenario, the world will lose 3.8 percent of its annual GDP by 2050, with an annual shortfall of $3.4 trillion by 2030.4

There are two related aspects to this crisis: (1) bacterial populations are evolving resistance to the antimicrobial drugs currently in use, and (2) there are few new drugs in the developmental pipeline that promise to be effective against these bacteria.5 It is widely understood that both aspects are caused or exacerbated by the economic incentives faced by the pharmaceutical industry and the healthcare industry more broadly.6

The eventual obsolescence of any conventional antimicrobial drug is inherent in its use, but it is hastened when the drug is liberally prescribed.7 Such liberal prescription is driven by incentives for both physicians and pharmaceutical companies. Patients’ expectations for prompt treatment sometimes lead doctors to prescribe broad-spectrum antibiotics in cases where it would be more prudent to await testing and prescribe a more targeted antimicrobial—or to prescribe antibiotics for viral infections where they are ineffective. 8 Pharmaceutical companies have an incentive to sell as much volume as possible in the period between the drug’s Food and Drug Administration (“FDA”) approval and the end of its twenty-year patent term.

The problem of liberal prescription of antibiotics has been much discussed in medical and policy circles. 9 It is widely agreed that an important part of the solution is antimicrobial stewardship, which the Infectious Diseases Society of America defines as follows:

Antimicrobial stewardship refers to coordinated interventions designed to improve and measure the appropriate use of antimicrobials by promoting the selection of the optimal antimicrobial drug regimen, dose, duration of therapy, and route of administration. The major objectives of antimicrobial stewardship are to achieve optimal clinical outcomes related to antimicrobial use, to minimize toxicity and other adverse events, to reduce the costs of health care for infections, and to limit the selection for antimicrobial resistant strains.10

The most dramatic outcome thus far of the policy discussion, in the United States at least, is that the Centers for Medicare and Medicaid Services updated its “Conditions of Participation.”11 These updated “Conditions of Participation” (issued as a result of an executive order by President Obama in 2014) require all hospitals participating in Medicare and Medicaid to establish and maintain “antibiotic stewardship programs.”12 These conditions are already in effect for acute care hospitals and are expected to go into effect generally by the end of 2018.13

An additional incentive for too liberal use of antibiotics comes from outside of the healthcare industry. These drugs are useful as a growth promoter for livestock, and it has been shown that this use can lead to the growth of resistant bacteria, which can then infect human beings. 14 Such use of most antibiotics is now banned in the European Union member states, Mexico, New Zealand, and South Korea.15 In the United States and Canada, regulatory agencies have issued guidelines against this use of antibiotics that are deemed medically important.16

The second aspect of the crisis is the dearth of new antimicrobial drugs in development. A 2017 World Health Organization report projects that approximately ten new antibiotics and biologicals will be approved in the next ten years but warns that “these new treatments will add little to the already existing arsenal” because most of them will be “modifications of existing antibiotic classes,” which are “only short term solutions as they usually cannot overcome multiple existing resistance mechanisms and do not control the growing number of pan-resistant pathogens.”17

Few new antimicrobial drugs are in development because there is a low return on the investment needed to discover such drugs and shepherd them through the approval process. This is the reason why Aventis, Bristol-Myers, Squibb, Eli Lilly, Glaxo SmithKline, Proctor and Gamble, Roche, and Wyeth all “greatly curtailed, wholly eliminated or spun off their antibacterial research” between 1999 and 2003.18 The already low return on investment will dwindle as stewardship guidelines are adopted and the drugs are prescribed more judiciously.19

The Chatham House Working Group on New Antibiotic Business Models summarizes the situation thusly:

Today, few large pharmaceutical companies retain active antibacterial drug discovery programmes. One reason is that it is scientifically challenging to discover new antibiotics that are active against the antibiotic-resistant bacterial species of current clinical concern. Another core issue, however, is diminishing economic incentives. Increasingly, there are calls to conserve the use of truly novel antibiotics, which might limit sales severely and discourage greater investment in R&D. Meanwhile, unless they see evidence of superiority, healthcare payers are unwilling to pay prices that would directly support the cost of development, provide a competitive return on investment and reflect the value to society of maintaining a portfolio of antibiotics adequate to overcome growing resistance.

A principal reason for this is the mismatch between the current business model for drugs and combating resistance. The current business model requires high levels of antibiotic use in order to recover the costs of R&D. But mitigating the spread of resistance demands just the opposite: restrictions on the use of antibiotics. Economic incentives play a key role in the global resistance problem, leading to overuse of these precious drugs at the same time as companies are abandoning the field; and the increasing restrictions on inappropriate use of antibiotics make them relatively unprofitable compared with other disease areas.20

Plackett 20 “Why big pharma has abandoned antibiotics” October 21, 2020, Benjamin Plackett [science journalist based in London and the Middle East] <https://www.nature.com/articles/d41586-020-02884-3> SM

Why big pharma has abandoned antibiotics

A lack of financial incentive has meant large pharmaceutical companies have left the market

When scientists, public-health bodies and governments around the world warn that antimicrobial resistance is the next great health crisis, they have good reason. Since the 1960s, bacteria and other microorganisms have become increasingly resistant to antimicrobial drugs, leading to more and more people dying.

Drug-resistant diseases kill around 700,000 people each year, but a United Nations interagency group on antimicrobial resistance estimates that this could swell to 10 million a year by 2050 if no action is taken. This is more than the number of people who currently die from cancer worldwide every year.

Despite the clear need for more antimicrobial agents, such drugs have not been forthcoming. Fewer new antibiotics are reaching the market; the last entirely original class of antibiotic was discovered in the late 1980s. One reason is that discovering and bringing antibiotics to market is often not profitable for pharmaceutical companies.

A 2017 estimate puts the cost of developing an antibiotic at around US$1.5 billion1. Meanwhile, industry analysts estimate that the average revenue generated from an antibiotic’s sale is roughly $46 million per year. “That’s tiny and nowhere near the amount needed to justify the investment,” says Kasim Kutay, chief executive of Novo Holdings, an investment firm in Hellerup, Denmark, focused on the life sciences.

As a result, many large pharmaceutical firms have dropped out of the market in favour of pursuing profitable lines of drug development, such as cancer treatments (see ‘Low approval ratings’). In their place, smaller companies and funding bodies are striving to fill the gap. But fixing the economics of drug development might take a radical approach.

Pipeline problem

Deaths caused by infectious diseases have fallen by 70% since antibiotics were introduced on a large scale in the 1940s, according to the UK biomedical funding charity Wellcome. This could be in jeopardy unless the economics of the market can be re-imagined.

A 2017 review found that in one strain of bacteria, the prevalence of resistance to levofloxacin, an antibiotic used to treat a wide variety of infections, grew from roughly 2% before 2000 to 27% between 2011 and 2015 in the Asia Pacific region2.

“The problem is terrible and not too far away,” warns Asad Khan, a microbiologist at the Aligarh Muslim University in Aligarh, northern India. “I think many governments and funding bodies haven’t yet understood the scale of what we’re facing.”

Many economists have also been slow to act. One review found that only 55 of more than 1 million peer-reviewed economics articles in the EconLit database were related to antimicrobial resistance3. Papers on climate change, by comparison, totalled around 16,000. Yet economics has a significant role in the lack of antibiotics coming to market.

Any type of pharmaceutical development is an expensive process, but for antibiotics it is especially hard. One issue is that the cost–benefit ratio — how much profit will result from an investment — is much less favourable than for other drugs. “Profit is basically volume multiplied by price,” says Richard Smith, a health economist at the University of Exeter, UK. For antibiotics, neither element is high enough to offset the cost of development.

Prices are low because in many countries government agencies have a role in assessing the price, not the manufacturer alone. In the United Kingdom, for instance, the National Institute for Health and Care Excellence (NICE) assesses the clinical strength and cost-effectiveness of new medicines. “The point of NICE is to try and keep drug prices low,” says Smith.

Other countries have a similar set-up. For a new drug to be included in the Australian government’s Pharmaceutical Benefits Scheme, which subsidizes the cost of medication, it has to be approved by a committee of health professionals and economists, who evaluate whether the drug offers value for money. Canada also regulates the price of patented medicines to keep prices low.

At the same time, physicians avoid prescribing new antibiotics to help delay the development of bacterial resistance. This means that governments and health agencies are even less likely to accept a premium for new antibiotics, says Smith. “Antibiotics used to be profitable back in the 1960s when you didn’t have to consider resistance as an issue,” he says. Typically, a drug is granted a 5–10 year exclusivity period, during which the manufacturer is shielded from competition from any generic versions that might be developed. But even this isn’t enough to recoup the vast development costs. Once the exclusivity period expires, other drug makers can enter the market — and, without the need to account for large research expenditures, they can drop the price.

According to a policy review4 by the UK Office of Health Economics, the relatively short treatment cycle for a course of antibiotics reduces the volume that can be sold. Antibiotics are typically prescribed for a couple of weeks, whereas therapies for chronic diseases are taken for months or even years.

In a 2003 study, researchers found that an injectable antibiotic is roughly three times less profitable than are drugs used for the treatment of cancer5. Drugs for musculoskeletal conditions, meanwhile, are around 11 times more lucrative.

### 3

#### CP: The member nations of the World Trade Organization should enter into a prior and binding consultation with the World Health Organization over whether to reduce intellectual property protections for medicines by implementing a one-and-done approach for patent protection.. Member nations should support the proposal and adopt the results of consultation.

#### WHO says yes – it supports increasing the availability of generics and limiting TRIPS

Hoen 03 [(Ellen T., researcher at the University Medical Centre at the University of Groningen, The Netherlands who has been listed as one of the 50 most influential people in intellectual property by the journal Managing Intellectual Property, PhD from the University of Groningen) “TRIPS, Pharmaceutical Patents and Access to Essential Medicines: Seattle, Doha and Beyond,” Chicago Journal of International Law, 2003] JL

However, subsequent resolutions of the World Health Assembly have strengthened the WHO’s mandate in the trade arena. In 2001, the World Health Assembly adopted two resolutions in particular that had a bearing on the debate over TRIPS [30]. The resolutions addressed:

– the need to strengthen policies to increase the availability of generic drugs;

– and the need to evaluate the impact of TRIPS on access to drugs, local manufacturing capacity, and the development of new drugs

#### Consultation boosts strong leadership, authority, and cohesion among member states – key to WHO legitimacy

Gostin et al 15 [(Lawrence O., Linda D. & Timothy J. O’Neill Professor of Global Health Law at Georgetown University, Faculty Director of the O’Neill Institute for National & Global Health Law, Director of the World Health Organization Collaborating Center on Public Health Law & Human Rights, JD from Duke University) “The Normative Authority of the World Health Organization,” Georgetown University Law Center, 5/2/2015] JL

Members want the WHO to exert leadership, harmonize disparate activities, and set priorities. Yet they resist intrusions into their sovereignty, and want to exert control. In other words, ‘everyone desires coordination, but no one wants to be coordinated.’ States often ardently defend their geostrategic interests. As the Indonesian virus-sharing episode illustrates, the WHO is pulled between power blocs, with North America and Europe (the primary funders) on one side and emerging economies such as Brazil, China, and India on the other. An inherent tension exists between richer ‘net contributor’ states and poorer ‘net recipient’ states, with the former seeking smaller WHO budgets and the latter larger budgets.

Overall, national politics drive self-interest, with states resisting externally imposed obligations for funding and action. Some political leaders express antipathy to, even distrust of, UN institutions, viewing them as bureaucratic and inefficient. In this political environment, it is unsurprising that members fail to act as shareholders. Ebola placed into stark relief the failure of the international community to increase capacities as required by the IHR. Guinea, Liberia and Sierra Leone had some of the world's weakest health systems, with little capacity to either monitor or respond to the Ebola epidemic.20 This caused enormous suffering in West Africa and placed countries throughout the region e and the world e at risk. Member states should recognize that the health of their citizens depends on strengthening others' capacity. The WHO has a central role in creating systems to facilitate and encourage such cooperation.

The WHO cannot succeed unless members act as shareholders, foregoing a measure of sovereignty for the global common good. It is in all states' interests to have a strong global health leader, safeguarding health security, building health systems, and reducing health inequalities. But that will not happen unless members fund the Organization generously, grant it authority and flexibility, and hold it accountable.

#### WHO diplomacy solves great power conflict

Murphy 20 [(Chris, U.S. senator from Connecticut serving on the U.S. Senate Foreign Relations Committee) “The Answer is to Empower, Not Attack, the World Health Organization,” War on the Rocks, 4/21/2020] JL

The World Health Organization is critical to stopping disease outbreaks and strengthening public health systems in developing countries, where COVID-19 is starting to appear. Yemen announced its first infection earlier this month, and other countries in Africa, Asia and the Middle East are at severe risk. Millions of refugees rely on the World Health Organization for their health care, and millions of children rely on the WHO and UNICEF to access vaccines.

The World Health Organization is not perfect, but its team of doctors and public health experts have had major successes. Their most impressive claim to fame is the eradication of smallpox – no small feat. More recently, the World Health Organization has led an effort to rid the world of two of the three strains of polio, and they are close to completing the trifecta.

These investments are not just the right thing to do; they benefit the United States. Improving health outcomes abroad provides greater political and economic stability, increasing demand for U.S. exports. And, as we are all learning now, it is in America’s national security interest for countries to effectively detect and respond to potential pandemics before they reach our shores.

As the United States looks to develop a new global system of pandemic prevention, there is absolutely no way to do that job without the World Health Organization. Uniquely, it puts traditional adversaries – like Russia and the United States, India and Pakistan, or Iran and Saudi Arabia – all around the same big table to take on global health challenges. It has relationships with the public health leaders of every nation, decades of experience in tackling viruses and diseases, and the ability to bring countries together to tackle big projects. This ability to bridge divides and work across borders cannot be torn down and recreated – not in today’s environment of major power competition – and so there is simply no way to build an effective international anti-pandemic infrastructure without the World Health Organization at the center.

#### Ought means should

Merriam Webster n.d. – Merriam Webster’s Learner’s Dictionary, “ought”, <http://www.learnersdictionary.com/definition/ought>  
ought /ˈɑːt/ verb  
Learner's definition of OUGHT [modal verb] 1 ◊ Ought is almost always followed by to and the infinitive form of a verb. The phrase ought to has the same meaning as should and is used in the same ways, but it is less common and somewhat more formal. The negative forms ought not and oughtn't are often used without a following to. — used to indicate what is expected They ought to be here by now. You ought to be able to read this book. There ought to be a gas station on the way. 2 — used to say or suggest what should be done You ought to get some rest. That leak ought to be fixed. You ought to do your homework.

#### Should means must and is immediate

Summers 94 (Justice – Oklahoma Supreme Court, “Kelsey v. Dollarsaver Food Warehouse of Durant”, 1994 OK 123, 11-8, http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn13)

¶4 The legal question to be resolved by the court is whether the word "should"[13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn13) in the May 18 order connotes futurity or may be deemed a ruling in praesenti.[14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn14) The answer to this query is not to be divined from rules of grammar;[15](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn15) it must be governed by the age-old practice culture of legal professionals and its immemorial language usage. To determine if the omission (from the critical May 18 entry) of the turgid phrase, "and the same hereby is", (1) makes it an in futuro ruling - i.e., an expression of what the judge will or would do at a later stage - or (2) constitutes an in in praesenti resolution of a disputed law issue, the trial judge's intent must be garnered from the four corners of the entire record.[16](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn16) [CONTINUES – TO FOOTNOTE] [13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn13) "*Should*" not only is used as a "present indicative" synonymous with *ought* but also is the past tense of "shall" with various shades of meaning not always easy to analyze. See 57 C.J. Shall § 9, Judgments § 121 (1932). O. JESPERSEN, GROWTH AND STRUCTURE OF THE ENGLISH LANGUAGE (1984); St. Louis & S.F.R. Co. v. Brown, 45 Okl. 143, 144 P. 1075, 1080-81 (1914). For a more detailed explanation, see the Partridge quotation infra note 15. Certain contexts mandate a construction of the term "should" as more than merely indicating preference or desirability. Brown, supra at 1080-81 (jury instructions stating that jurors "should" reduce the amount of damages in proportion to the amount of contributory negligence of the plaintiff was held to imply an *obligation* *and to be more than advisory*); Carrigan v. California Horse Racing Board, 60 Wash. App. 79, [802 P.2d 813](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=802&box2=P.2D&box3=813) (1990) (one of the Rules of Appellate Procedure requiring that a party "should devote a section of the brief to the request for the fee or expenses" was interpreted to mean that a party is under an *obligation* to include the requested segment); State v. Rack, 318 S.W.2d 211, 215 (Mo. 1958) ("should" would mean the same as "shall" or "must" when used in an instruction to the jury which tells the triers they "should disregard false testimony"). [14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn14) In praesenti means literally "at the present time." BLACK'S LAW DICTIONARY 792 (6th Ed. 1990). In legal parlance the phrase denotes that which in law is presently or immediately effective, as opposed to something that will or would become effective in the future *[in futurol*]. See Van Wyck v. Knevals, [106 U.S. 360](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=106&box2=U.S.&box3=360), 365, 1 S.Ct. 336, 337, 27 L.Ed. 201 (1882).

#### 1AR theory is skewed towards the aff – a) the 2NR must cover substance and over-cover theory, since they get the collapse and persuasive spin advantage of the 3min 2AR, b) their responses to my counter interp will be new, which means 1AR theory necessitates intervention. Implications – a) reject 1AR theory since it can’t be a legitimate check for abuse, b) drop the arg to minimize the chance the round is decided unfairly, c) use reasonability with a bar of defense or the aff always wins since the 2AR can line by line the whole 2NR without winning real abuse

* Answers infinite abuse bc allowing 2ar to make new args allows infinite abuse which is non uq
* Doesn’t matter if theory not legit check on abuse
* If they get it no preassigned aff paradigm issues – short paragraph theory solves time skew and splits the 2nr
* 2NR theory but use a high bar – checks intrinsic or severance perms

#### Reject multiple 1AR shells – it moots 1NC topic ed and splits the 2NR multiple ways while the 2AR can collapse to the most undercovered shell or substance - topic ed o/w since we only have a few months for it

### Case

#### No extinction from disease:

#### 1] Burnout and geographical isolation check – their ev just proves it gets to urban centers

Consiglio 17 [Dave, Community College Professor of Chemistry and Physics, 12/7/17, “Could a Disease Wipe Out Humans Entirely?”, <https://www.forbes.com/sites/quora/2017/12/07/could-a-disease-wipe-out-humans-entirely/#387c2f308203> Accessed 2/8/28] BBro

What scenarios seem like they should kill everyone but actually won't? Disease. Everyone seems worried about a killer disease, be it HIV or Ebola or Flu or some unknown pathogen. But humans are going to be really hard to wipe out via disease. Why? Well, we have several things going for us: We have a massive population. **We are geographically widespread**. We are capable of eating nearly anything. We are reasonably diverse as a species. **There are geographically** and genetically **isolated** pockets of our **population. Diseases require** a **vector** to spread. Let’s say the perfect disease arose tomorrow: It kills two weeks after you get it, shows no symptoms until the last minute, is really easy to transmit, and we have very little immunity to it. It still doesn’t kill everyone. Native Greenlanders and the people in Antarctica and people on Navy submarines and the few random people who are immune, and park rangers all either never come into contact with an infected person or else are spared by a genetic fluke. We even have the International Space Station as a potential place to hide and wait for the epidemic to die down. In fairness, nearly everyone is dead in short order, but **once** the **disease has run its course, the pathogen** that causes it **is also** likely to be **dead.** The vast majority of pathogens don’t survive for long outside of their hosts. As such, once nearly everyone is dead and the survivors wait a bit, they’re **unlikely to encounter live pathogen**. As an added bonus, the few surviving people include many of the most naturally immune members of the (now mostly dead) population. Now, don’t get me wrong, this scenario would be catastrophic for humanity. 99.9% of us could die in this way. And it’s possible that the remaining humans would be so isolated as to be unable to find one another for the purposes of reproduction. But I doubt it. Humans are nothing if not fecund, and we have those submarines, boats, airplanes, etc. We will eventually come out from hiding, find that special someone, and breed our way out of trouble. It’s why we’re still around as a species - nothing stops us from making more humans.

**2] Intervening actors check**

**Zakaria 9—**Editor of Newsweek, BA from Yale, PhD in pol sci, Harvard. He serves on the board of Yale University, The Council on Foreign Relations, The Trilateral Commission, and Shakespeare and Company. Named "one of the 21 most important people of the 21st Century" (Fareed, “The Capitalist Manifesto: Greed Is Good,” 13 June 2009, http://www.newsweek.com/id/201935)

Note—Laurie Garrett=science and health writer, winner of the Pulitzer, Polk, and Peabody Prize

It certainly looks like another example of crying wolf. **After bracing ourselves for a global pandemic, we've suffered** something more like **the usual seasonal influenza**. Three weeks ago the World Health Organization declared a health emergency, warning countries to "prepare for a pandemic" and said that the only question was the extent of worldwide damage. **Senior officials prophesied that millions could be infected** by the disease. **But as of last week, the WHO had confirmed only 4,800 cases** of swine flu, with 61 people having died of it. Obviously, these low numbers are a pleasant surprise, but it does make one wonder, what did we get wrong? **Why did** the **predictions of a pandemic turn out to be so exaggerated**? Some people blame an overheated media, but it would have been difficult to ignore major international health organizations and governments when they were warning of catastrophe. I think **there is a** broader **mistake in the way we look at the world.** Once we see a problem, we can describe it in great detail, extrapolating all its possible consequences. But **we** can **rarely anticipate the human response to that crisis. Take** **swine flu. The virus** **had crucial characteristics** **that led researchers to worry that it could spread far and fast**. They described—and the media reported—what would happen if it went unchecked. **But it did not go unchecked**. **In fact, swine flu was met by an extremely vigorous response at its epicenter**, **Mexico. The Mexican government reacted quickly** and massively, quarantining the infected population, testing others, providing medication to those who needed it. **The noted expert on this subject,** Laurie **Garrett, says, "**We should all stand up and scream, **'Gracias, Mexico**!' because the Mexican people and the Mexican government have sacrificed on a level that I'm not sure as Americans we would be prepared to do in the exact same circumstances. They shut down their schools. They shut down businesses, restaurants, churches, sporting events. **They** basically paralyzed their own economy. They've suffered billions of dollars in financial losses still being tallied up, and thereby **really brought transmission to a halt." Every time one of these viruses is detected**, writers and **officials bring up the Spanish influenza** epidemic **of 1918** in which millions of people died. Indeed, during the last pandemic scare, in 2005, President George W. Bush claimed that he had been reading a history of the Spanish flu to help him understand how to respond. **But the world we live in today looks nothing like 1918. Public health-care systems are far better** and more widespread than anything that existed during the First World War. **Even Mexico, a developing country, has a first-rate public-health system**—far better than anything Britain or France had in the early 20th century.

#### 3] C’mon they can do better than contagious cancers - couldn’t happen in humans—experiments and immune response

**CTCA 16** (Cancer Treatment Centers of America, “Can people catch cancer? Not likely, but some animals can,” [https://www.cancercenter.com/community/blog/2016/12/can-people-catch-cancer-not-likely-but-some-animals-can December 12](https://www.cancercenter.com/community/blog/2016/12/can-people-catch-cancer-not-likely-but-some-animals-can%20December%2012), 2016)DR 21

"Despite recent headlines about cancer being contagious in other species, current data shows it’s virtually impossible in humans," says Dr. Glen Weiss, Director of Clinical Research and Phase I & II Clinical Trials at [our hospital near Phoenix](https://www.cancercenter.com/locations/phoenix). "There have been attempts to transfect people without cancer with cancer cells, and it did not work."

A controversial experiment

In the 1950s and 1960s, Dr. Chester Southam, a New York immunologist, [conducted several controversial experiments](http://science.sciencemag.org/content/143/3606/551.pdf-extract.jpeg) by injecting live cancer cells into uninformed cancer patients and healthy prisoners. While patients in both studies grew tumors, those in the healthy patients were quickly attacked and eliminated by their immune systems. "Foreign cells would more likely be rejected just like an organ donation or bone marrow transplant from a donor," Dr. Weiss says. "In order to take, a recipient would likely require significant immunosuppression." Southam was widely criticized for his experiments on humans and his medical license was suspended for one year.

Organ recipients are at a [higher risk](https://www.medicinenet.com/script/main/art.asp?articlekey=151144) of developing cancer, but only in rare cases has the cancer been linked to the organ donor having cancer. Such cases are so rare that some cancer patients are [still eligible to donate](https://www.cancer.org/treatment/survivorship-during-and-after-treatment/be-healthy-after-treatment/can-i-donate-my-organs.html) organs. Some recipients develop cancer because the body's immune system is suppressed to help prevent organ rejection. "Fortunately, survival of transplanted cancers in healthy humans is exceedingly rare and documented by only a small handful of cases," Dr. James S. Welsh, a radiation oncologist currently with the Loyola University Health System writes in a [2011 article](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3228048/) on contagious cancer. "Thus, friends and family members of cancer patients and we, as caregivers of cancer patients, need not be unduly concerned with the remote possibility of 'catching cancer.'"

#### Treatments and vaccines solve– other species prove

**Zimmer 19** (Katarina, After a year teaching an algorithm to differentiate between the echolocation calls of different bat species, Katarina decided she was simply too greedy to focus on one field of science and wanted to write about all of them. Following an internship with The Scientist in 2017, she’s been happily freelancing for a number of publications, covering everything from climate change to oncology. Katarina is a regular news correspondent for The Scientist and contributes occasional features to the magazine.  “Some Cancers Become Contagious,” https://www.the-scientist.com/features/some-cancers-become-contagious-65617 April 1, 2019)DR 21

One approach to protecting the devils is to vaccinate uninfected animals kept in captivity or on the uninhabited island against the contagious cancers before returning them to the wild. Vaccines produced from heat-treated or otherwise damaged DFT1 cells, for example, were used on devils released in groups of 19 or more in different parts of Tasmania between 2015 and 2018. But trapping the animals again to see whether the vaccine had any protective effect has proven difficult, as devils disperse widely across the island and often become victims of vehicular collisions, explains Carolyn Hogg, a conservation biologist at the University of Sydney who is working with the Tasmanian government–sponsored Save the Tasmanian Devil Program.

Another tack is to treat infected individuals. A combined vaccine and immunotherapy trial with six devils in 2017 proved promising, with half of the animals’ tumors vanishing entirely.[14](https://www.the-scientist.com/features/some-cancers-become-contagious-65617#reference14)“It was essentially a cure,” for those devils, says Lyons, who led the study. For him, the trial is a proof of principle that the devils’ immune system is capable of fighting off the cancer, and it could help the team build better vaccines in the future. But capturing wild devils and treating them with immunotherapy isn’t logistically feasible on a large scale, he notes.

Fortunately, devils seem to be getting better at battling the disease without medical intervention. “We’re getting an increasing number of animals that are actually surviving, [in which] the tumors regress and in some cases disappear,” says Menna Jones, a zoologist at the University of Tasmania. “And some of those individuals will live to quite a ripe old age.” Such resilient devils appear to be genetically different from devils that succumb to the tumor, she and others found last year. For example, alleles thought to underlie cancer risk and immune responses to tumors in humans were overrepresented among the survivors. This suggests that some populations are adapting to the disease, Jones says.

#### It's good:

#### Disease outbreaks will be defeated with quarantines

**Szalai 7/26** [(Jennifer Szalai - author for the NYT) “The Extradordinary History (and likely busy future) of quarantine” The New York Times. 7-26-2021]

**Quarantine can be lifesaving**; it can also be dangerous, an exercise of extraordinary power in the name of disease control, a presumption of guilt instead of innocence.

In “Until Proven Safe,” a new book about quarantine’s past and future, Geoff Manaugh and Nicola Twilley do an impressively judicious job of explaining exactly why fears of quarantine are understandable and historically justified, while also showing how in coming years “we will almost certainly find ourselves more dependent on quarantine, not less.” Quarantine has to do with risk and uncertainty, and its logic is simple: “There might be something dangerous inside you — something contagious — on the verge of breaking free.”

**While medical advances have made some diseases more diagnosable** and less deadly, newfound knowledge can also accentuate the depths of our ignorance. The more we know, the more we know how much we don’t know — not to mention that **modern life, with escalating numbers of people and goods churning** their way **around the world**, has **increased the opportunities for contagion.**

Quarantine is distinct from isolation, even if the terms are often used interchangeably. Someone is isolated when they are known to be sick; **someone is quarantined when they might be but we cannot be sure**. Manaugh, an architecture and technology blogger, and Twilley, the co-host of a podcast about the science and history of food, bring an impressively wide range of interests to bear on a subject that involves not only infectious disease but also — in their ambitious yet seamless narration — politics, agriculture, surveillance and even outer space.

#### Quarantines solve climate change – COVID was responsible for the largest drop in emissions ever

**Alexander 20** [(Kurtis, a general assignment reporter for The San Francisco Chronicle, frequently writing about water, wildfire, climate and the American West. His recent work has focused on the impacts of drought, the widening rural-urban divide and state and federal environmental policy. Before joining the Chronicle, Alexander worked as a freelance writer and as a staff reporter for several media organizations, including The Fresno Bee and Bay Area News Group, writing about government, politics and the environment.) "Coronavirus has altered the global warming trajectory. But for how long?" San Francisco Chronicle, 5/20/20, https://www.sfchronicle.com/health/article/Greenhouse-gas-emissions-on-track-for-record-drop-15279312.php] TDI

The disruption caused by the coronavirus has been so profound that it’s altered the trajectory of global warming.

Not since World War II — and perhaps never before — have the emissions of heat-trapping gases dropped as much around the planet as they have during the COVID-19 outbreak.

The latest and most detailed study yet on the pandemic’s impact on climate pollution, published Tuesday and authored by the research group Global Carbon Project chaired by Stanford University’s Rob Jackson, finds that the Earth will see up to a 7% decrease in carbon dioxide this year. The dip is five times the decline in emissions in 2009, when the recession choked the world’s economy, and double what it was in 1992, after the fall of the Soviet Union.

The paper’s findings mirror other reports that have similarly found sharp drops in greenhouse gases recently. The emerging research also is in agreement that the lull will likely be short-lived and, at best, buy time before the most devastating effects of climate change take hold. The lockdown that has halted factories, energy plants and automobiles during the pandemic is already lifting, and without deliberate action, carbon-intense activities are bound to resume.

“That’s the danger here,” said Jackson, a professor of earth system science and senior fellow at Stanford Woods Institute for the Environment. “We’ve decreased emissions for the wrong reasons. Will they jump back up starting this fall, or could the virus allow us to rethink transportation and other parts of the economy?”

The answer to the question, say Jackson and others, may not be so straightforward. Greenhouse gases could rebound in some areas, and there could be lasting decreases in others.

Measuring heat-trapping gas emissions, for which carbon dioxide is a proxy, is not easy to do, especially in real time. The researchers at the Global Carbon Project analyzed daily economic activity in 69 countries from January through April and modeled the carbon pollution that likely resulted, then compared it to last year. The countries included have historically produced almost all of the world’s carbon dioxide.

The researchers found that China, the largest polluter, reduced emissions by nearly 24% on some days in mid-February. The United States, the second-largest polluter, cut emissions by nearly 32% for almost two weeks in mid-April. The European Union, including Great Britain, trimmed emissions by about 27% during the first week of April.

The dates of peak reductions varied in different parts of the globe because each locked down at a different time. The biggest cumulative drop in carbon dioxide was on April 7 and measured about 17%, according to the study.

While a variety of activity explains the declines, fewer people driving was the largest contributor worldwide. Less industrial pollution was also a big contributor.

Based on the observed drops in emissions, the researchers estimate that going forward, carbon dioxide will fall between 4% and 7% for the year worldwide, depending on how quickly countries end their lockdowns.

Jackson said the amount of the decline can be viewed as both considerable, given that it’s the largest ever seen, and humbling because it’s the minimum needed annually to put the planet on track to meet the Paris climate agreement — enough of a drop to prevent the global temperature from rising 2 degrees Celsius above preindustrial levels.

“We would need to do this every year,” he said.

The International Energy Agency recently projected an 8% dip in greenhouse gases for the year while the International Monetary Fund came up with an estimate closer to 6%. Both organizations said carbon pollution would likely rise again in 2021.

After the decline in emissions in 2009 of about 1.4%, the following year saw an increase of 5.1%.

The Global Carbon Project says there’s reason to think that at least some parts of the globe will try to prevent heat-trapping gases from bouncing back. Stimulus programs aimed at developing clean energy and new carbon-friendly ways of living adopted during the pandemic, such as working from home, could help limit emissions.

“Cities from Seattle to Milan are keeping roads closed to cars and letting them stay open to bikes and pedestrians even after the shelter-in-place,” Jackson said. “And maybe COVID-19 and stimulus funding will jump-start electric cars.”

#### Shutdowns solve climate change – substantially reduce emissions, air and water pollution, directs attention to climate

**Chow 20** [(Denise, a reporter for NBC News Science focused on general science and climate change) "Coronavirus shutdowns have unintended climate benefits: cleaner air, clearer water," NBC News, 3/18/20, https://www.nbcnews.com/science/environment/coronavirus-shutdowns-have-unintended-climate-benefits-n1161921] DRD

Concentrations of nitrogen dioxide in the atmosphere over Italy also fell precipitously, as they did in China. An analysis by The Washington Post found that the most dramatic drop was observed over northern Italy.

Nitrogen dioxide can irritate the lungs, and inhaling the pollutant can increase the risk of asthma and inflammation of the lungs. Although the noxious gas isn't thought to be a major contributor to climate change, studying its concentration in the atmosphere can help scientists understand other heat-trapping greenhouse gases that do drive global warming.

Jacqueline Klopp, co-director of the Center for Sustainable Urban Development at Columbia University in New York City, said she expects to see greenhouse gas emissions plummet across the board because of the quarantine measures.

"People were in their homes and really stopped a lot of the activities that lead to greenhouse gas emissions and other pollution," she said.

Early observations have shown that extreme social-distancing measures are likely also having an effect on air pollution at the city level in the U.S.

Jordan Wildish, a project director at Earth Economics, an environmental non-profit organization based in Tacoma, Washington, developed an online dashboard to track air quality in San Francisco, New York City and the Seattle area, comparing the measurements with figures from the same time last year.

In San Francisco, which is under shelter-in-place orders to control the spread of the coronavirus, the average concentration of fine particulate matter — tiny particles in the air that are dangerous because they can be breathed deeply into the lungs — over the past five days was almost 40 percent lower than the previous year.

In New York City, there was a 28 percent drop over the same period of time, and the Seattle-Tacoma-Bellevue saw a 32 percent decrease.

But experts warned that observed reductions are temporary and that as cities, countries and economies bounce back, so, too, will emissions — unless major infrastructure or societal changes are adopted.

Klopp said the pandemic could make companies and governments realize that other threats to humanity, including climate change, could be just as devastating and that it's imperative to develop protective measures.

#### Short-term action to mitigate climate change solves extinction and nuclear war

**Pester 8/30/21** (Patrick, staff writer for Live Science. His background is in wildlife conservation and he has worked with endangered species around the world. Patrick holds a master's degree in international journalism from Cardiff University in the U.K. and is currently finishing a second master's degree in biodiversity, evolution and conservation in action at Middlesex University London. Citing **Luke Kemp, a research associate at the Centre for the Study of Existential Risk at the University of Cambridg**e in the United Kingdom AND **Michael Mann, PhD, distinguished professor of atmospheric science at Penn State**. “Could climate change make humans go extinct?” [https://www.livescience.com/climate-change-humans-extinct.html August 30](https://www.livescience.com/climate-change-humans-extinct.html%20August%2030), 2021)DR 21

According to Mann, a global temperature increase of 5.4 degrees Fahrenheit (3 degrees Celsius) or more could lead to a collapse of our societal infrastructure and massive unrest and conflict, which, in turn, could lead to a future that resembles some Hollywood dystopian films.

One way climate change could trigger a societal collapse is by creating food insecurity. Warming the planet has a range of negative impacts on food production, including increasing the water deficit and thereby reducing food harvests, [Live Science previously reported](https://www.livescience.com/58891-why-2-degrees-celsius-increase-matters.html). Food production losses can increase human deaths and drive economic loss and socio-political instability, among other factors, that may trigger a breakdown of our institutions and increase the risk of a societal collapse, according to a study published Feb. 21 in the journal [Climatic Change](https://go.redirectingat.com/?id=92X1590019&xcust=livescience_us_1191050396230939400&xs=1&url=https%3A%2F%2Flink.springer.com%2Farticle%2F10.1007%2Fs10584-021-02957-w&sref=https%3A%2F%2Fwww.livescience.com%2Fclimate-change-humans-extinct.html).

Related: [Has the Earth ever been this hot before?](https://www.livescience.com/65927-has-earth-been-this-hot-before.html)

Past extinctions and collapses

Kemp studies previous civilization collapses and the risk of climate change. Extinctions and catastrophes almost always involve multiple factors, he said, but he thinks if humans were to go extinct, climate change would likely be the main culprit.

"If I'm to say, what do I think is the biggest contributor to the potential for human extinction going towards the future? Then climate change, no doubt," Kemp told Live Science.

All of the major [mass-extinction events](https://www.livescience.com/mass-extinction-events-that-shaped-Earth.html) in Earth's history have involved some kind of climatic change, according to Kemp. These events include cooling during the Ordovician-[Silurian](https://www.livescience.com/43514-silurian-period.html) extinction about 440 million years ago that wiped out 85% of species, and warming during the [Triassic](https://www.livescience.com/43295-triassic-period.html)-[Jurassic](https://www.livescience.com/28739-jurassic-period.html) extinction about 200 million years ago that killed 80% of species, Live Science previously reported. And more recently, climate change affected the fate of early human relatives.

While [Homo sapiens](https://www.livescience.com/homo-sapiens.html) are obviously not extinct, "we do have a track record of other hominid species going extinct, such as [Neanderthals](https://www.livescience.com/28036-neanderthals-facts-about-our-extinct-human-relatives.html)," Kemp said. "And in each of these cases, it appears that again, climatic change plays some kind of role."

Scientists don't know why Neanderthals went extinct about 40,000 years ago, but climatic fluctuations seem to have broken their population up into smaller, fragmented groups, and severe changes in temperature affected the plants and animals they relied on for food, according to the [Natural History Museum](https://www.nhm.ac.uk/discover/who-were-the-neanderthals.html) in London. Food loss, driven by climate change, may have also led to a tiny drop in Neanderthal fertility rates, contributing to their extinction, [Live Science previously reported](https://www.livescience.com/65594-neanderthal-fertility-led-to-extinction.html).

Climate change has also played a role in the collapse of past human civilizations. A [300-year-long drought](https://www.livescience.com/38893-drought-caused-ancient-mediterranean-collapse.html), for example, contributed to the downfall of ancient Greece about 3,200 years ago. But Neanderthals disappearing and civilizations collapsing do not equal human extinction. After all, humans have survived climate fluctuations in the past and currently live all over the world despite the rise and fall of numerous civilizations.

Homo sapiens have proven themselves to be highly adaptable and able to cope with many different climates, be they hot, cold, dry or wet. We can use resources from many different plants and animals and share those resources, along with information, to help us survive in a changing world, according to the [Smithsonian’s National Museum of Natural History](https://humanorigins.si.edu/research/climate-and-human-evolution/climate-effects-human-evolution).

Related: [How would just 2 degrees of warming change the planet?](https://www.livescience.com/58891-why-2-degrees-celsius-increase-matters.html)

Today, we live in a global, interconnected civilization, but there's reason to believe our species could survive its collapse. A study published on July 21 in the journal [Sustainability](https://www.mdpi.com/2071-1050/13/15/8161/htm) identified countries most likely to survive a global societal collapse and maintain their complex way of life. Five island countries, including New Zealand and Ireland, were chosen as they could remain habitable through agriculture, thanks to their relatively cool temperatures, low weather variability and other factors that make them more resilient to climate change.

New Zealand would be expected to hold up the best with other favorable conditions, including a low population, large amounts of good quality agricultural land and reliable, domestic energy. So, even if climate change triggers a global civilization collapse, humans will likely be able to keep going, at least in some areas.

Turning on ourselves

The last scenario to consider is climate-driven conflict. Kemp explained that in the future, a scarcity of resources that diminish because of **climate change could** potentially create conditions for wars that threaten humanity. "There's reasons to be concerned that as water resources dry up and scarcity becomes worse, and the general conditions of living today become much, much worse, then suddenly, the threat of potential nuclear war becomes much higher," Kemp said.

Put another way, climate change impacts might not directly cause humans to go extinct, but it could lead to events that seriously endanger hundreds of millions, if not billions, of lives. A 2019 study published in the journal [Science Advances](https://advances.sciencemag.org/content/5/10/eaay5478) found that a nuclear conflict between just India and Pakistan, with a small fraction of the world's nuclear weapons, could kill 50 million to 125 million people in those two countries alone. Nuclear war would also change the climate, such as through temperature drops as burning cities fill the atmosphere with smoke, threatening food production worldwide and potentially causing mass starvation.

What's next?

While avoiding complete extinction doesn't sound like much of a climate change silver lining, there is reason for hope. Experts say it isn't too late to avoid the worst-case scenarios with significant cuts to greenhouse gas emissions.

"It is up to us," Mann said. "If we fail to reduce carbon emissions substantially in the decade ahead, we are likely committed to a worsening of already dangerous extreme weather events, inundation of coastlines around the world due to melting ice and rising sea level, more pressure on limited resources as a growing global population competes for less food, water and space due to climate change impacts. If we act boldly now, we can avoid the worst impacts."

#### Oopsie someone forgot to read a terminal to hotspot escalation! They definitely prevent middle east war! Sage reads blue

Nang and Martin 17, Roberto N., and Keith Martin. "Global health diplomacy: A new strategic defense pillar." Military medicine 182.1-2 (2017): 1456-1460. (MC, Global Health Division, Uniformed Services University of the Health Sciences)//Elmer

INTRODUCTION: FORCE IF NECESSARY BUT NOT NECESSARILY FORCE The world appears unhinged. Instability from the Middle East, Caucasus, Africa, and Central America to Asia abound. The Study of Terrorism and Response to Terrorism database identified fewer than 300 major terrorist incidents between 1998 and 2004 in the Middle East and North Africa. In 2013, they listed 4,650 such incidents.1 Quieter cracks tear at the fabric of South America and parts of Asia. Although geographically distinct, many of these areas of instability share underlying causes that give rise to threats to the United States and the global community. Human-generated causes include corruption, poor governance, absence of the rule of law, violence, gross human rights abuses, climate change, environmental degradation, a weak civil society, and a lack of professional capabilities across skill sets within the government departments needed to effectively manage the operations of a well-run state.2 Natural causes include disasters, disease, demographic changes, and limited access to the resources essential for life. When these human or natural causes create conditions that result in poor provision of, or unequal access to essential services, such as water, food, shelter, health services, education, and economic opportunity, people lose confidence in government and hope for their children and their future. They become restless, demonstrate, can become violent and overthrow their governments (such as the self-immolation of Mohamed Bouazizi, the Tunisian cart vendor, which sparked 35 more selfimmolations by extralegal businessmen and started the Arab Spring), or can result in mass migrations.3 Desperate human security, conditions create desperate people undermining stability and creating even more demands from host nation governments and governments in neighboring states. Although force and counter terrorism programs are sometimes needed to address security threats, enormous opportunities are available to use nonkinetic capabilities within the Department of Defense (DoD), Department of State, U.S. Agency for International Development, other U.S. Government agencies, and civilian organizations to address the underlying causes of instability. Global health diplomacy is an underutilized strategic asset to do this. At a far lower cost, it will save lives, decrease economic losses, reduce the need for kinetic military operations, increase security cooperation, improve diplomatic relations, encourage trade, and create the foundations for longterm stability. HEALTH IS A NATIONAL SECURITY IMPERATIVE—DISTANT HEALTH THREATS ARE GLOBAL THREATS Health is a national security imperative. The second- and thirdorder effects of a strategic health or global health issue that severely impacts and overwhelms the stability of a far-distant nation can have broad and multiplying effects that transcend boundaries and can become regional and global security threats. When human immunodeficiency virus/acquired immunodeficiency syndrome first started to be seen in the United States, there were U.S. leaders that were not too concerned about its impact on the general public, alluding to the fact that it was a disease that mostly affected the four H’s: homosexuals, heroin addicts, hemophiliacs, and Haitians.4 From its first known cases in 1981 up to 2013, human immunodeficiency virus has infected almost 78 million people and killed about 39 million.5 The Chernobyl power plant accident that occurred on October 26, 1986, was a catastrophic nuclear accident. Several studies have been done to estimate the increase in health effects and cancer-related morbidity and mortality in Europe.6 Communicable diseases can be easily carried from a distant area of the world to a teeming metropolis within 24 hours because of the ease and affordability of plane travel. The interconnectedness of countries as a result of trade has its drawbacks— biological or chemical contamination of food or products commonly occur across oceans and continents.7 Noncommunicable diseases are also affecting not just high income countries but also low-to-middle income countries. Ubiquitous exports of fast-food meals, high-fructose drinks, and salty, fried foods have contributed to a tremendous increase in obesity and hypertension.8 Obese and sedentary populations negatively impact the workforce of a nation and its productivity. The offices of military personnel and readiness cite obesity as the number one disqualifying reason for new recruits.9 Twenty seven percent of the U.S. young adults are not fit to serve in the military.10 Addiction to illegal drugs is an important global health threat. The problems created by the manufacture of opium in Afghanistan, methamphetamine in Mexico, and cocaine in Peru and Columbia create tremendous and devastating health effects, loss of productivity, social disruptions, breed corruption in a nation’s military and police forces, and create turbulent violence all along its wake, both in the countries manufacturing the drugs and the countries importing them. Weather forecasters often discuss the multiplying effects that the fluttering of a butterfly’s wings in one country may have on the regional weather of another distant country. Global health professionals and more and more of our military and political leaders are now concerned that the disease that we see in a child in Africa or a pig in Asia may have tremendous impacts on the public health, economic productivity, military readiness, and strategic security interests of their nation. In addition, a weak health and political system anywhere can be a threat everywhere. LINKAGES: GLOBAL HEALTH, SECURITY, AND STRATEGIC CHALLENGES Global health encompasses the basic needs required for human security: respect for people’s universal rights, personal protection, the rule of law, access to food, water, health care, education, basic infrastructure, and shelter.11 Their absence leaves populations vulnerable to the depredations of insurgent groups and corrupt, venal cabals that can hijack a region or state for the benefit of themselves and a select group of people. This creates an environment of the privileged and abused, the included and excluded, and an environment ripe for insecurity and conflict.12 For a nation to provide the environment where people’s basic needs can be met requires capabilities within their governing infrastructure and communities. This includes management, finance, education, social sciences, law,medicine, public health, engineering, veterinary medicine, agronomy, and more. Their absence [undermines] ~~cripples~~ a nation’s ability to support a foundation for human security and stability, inhibits its ability to thrive in good times, and respond effectively to natural and man-made threats in bad times. It breeds corruption, poverty, poor health outcomes, spread of lethal diseases, gross human rights abuses and conflict. This we have seen played out with grim efficiency in Afghanistan, Pakistan, Iraq, Syria, Sudan, Democratic Republic of the Congo, Central African Republic, Libya, Yemen, Somalia, Nigeria, Honduras, and beyond. All have had disastrous regional effects, many have created direct threats to U.S. interests. Islamic State in Iraq and Syria was borne out of the brutal kleptocracy of Assad’s Syria and a destructive government in Iraq. Al-Shabaab was created in the failed state of Somalia. Boko Haram grew in the destitute and neglected regions of northern Nigeria. Al Qaeda and the Taliban secured a haven in the lawless western regions of Pakistan. Weak governments in Central America created a fertile ground for organized criminal gangs to terrorize the populace and profiteer off the illegal drug trade that destroys lives, and drives people to desperately flee northward into the United States. Insurgencies, terrorist organizations, and other nonstate actors thrive in the presence of an incompetent or abusive state government that violates segments of its citizenry and fails to provide an environment where peoples’ rights are protected and their basic needs met. These groups divine counter narratives that take advantage of people’s lack of hope and fears. They create a refuge and an outlet for people’s rage. Such messages and place of belonging can be a powerfulmagnet for youths, the poor, and the disenfranchised,who see little hope in the future. Security threats are not only manmade but also can come from nature. The international community’s failure to dramatically reduce our carbon footprint leaves us vulnerable to an increasing number of extreme weather events that threaten everything from coastal communities to food and water security. This will amplify existing tensions over natural resources and could result in the forced migrations of massive numbers of vulnerable people. The world’s population is expected to reach 9 billion by 2030. The growth will primarily occur in cities in the developing world most of which already have fractured or nonexistent infrastructure. Climate change will have a dramatic effect on densely populated poor urban areas, especially those in arid zones and in littoral areas. This is a recipe for disaster. Environmental degradation is also increasing the spread of infectious diseases and facilitating zoonoses to jump the species barrier and infect humans. The Ebola outbreak, like severe acute respiratory syndrome and H1N1 before it, is part of a long list of diseases that have infected humans from an animal reservoir with devastating impact. Many zoonoses exist and more will come. Using history’s guide, the next pandemic will likely be a zoonotic agent. Recognizing this, the United States last year led the creation of the Global Health Security Agenda to prevent, detect, and respond to deadly disease outbreaks.13 Though accepted by many countries, it has been implemented by few. No amount of force can resolve these challenges. However, global health diplomacy, exercised through civil-military and military-military programs, is a promising strategic tool that should be employed to address these wicked strategic or global health problems and improve domestic and international security. AN OPPORTUNITY TO ACT Despite a growing level of interest in academia and government agencies, there is little agreement on how to define “global health diplomacy.”14 Michaud defined it as “international diplomatic activities that (directly or indirectly) address issues of global health importance, and is concerned with how and why global health issues play out in a foreign policy context.”14 The World Health Organization (WHO) states that it “brings together the disciplines of public health, international affairs, management, law, and economics, and focuses on negotiations that shape and manage the global policy environment for health.”15 We summarize global health diplomacy as the application of a broad range of skill sets to cooperatively improve human security throughout the world. A vital area of focus must be to strengthen public service, governance capabilities, and civil society in unstable regions. Doing so will enable nations to create an environment where their citizens’ basic needs can be met, universal rights respected, and the ability to hold a government to account, secure. This includes building and retaining capabilities to manage effective, noncorrupt, justice, finance, health, education, defense, public works, and environmental departments. The absence of these structures cripples a country’s ability to govern itself and leaves it vulnerable to the causes of instability, both human and natural. The United States, by virtue of its strengths across diplomacy, defense, development, trade, and its inherent domestic civilian capabilities, has an opportunity to exercise its leadership and mobilize these assets. Using global health diplomacy to comprehensively strengthen public service and governance capabilities has been chronically neglected by the international development community. It needs a leader to start this process and the United States has the ability and authority to do so in the national and international interest.

#### ME war stops Saudi Arabia nuclear energy development

Green 17 [Dr Jim Green is the national nuclear campaigner with Friends of the Earth, Australia and editor of the Nuclear Monitor newsletter, published by the World Information Service on Energy. Is Saudi Arabia going nuclear? April 12, 2017. https://www.wiseinternational.org/nuclear-monitor/854/saudi-arabia-going-nuclear]

Military conflict Military conflict has been a recurring feature of Middle Eastern politics for decades and it isn't difficult to imagine military conflicts complicating and compromising nuclear power plants and associated facilities such as spent fuel stores. Since 2015, Saudi forces have intercepted missile attacks from Yemen on several occasions, including a missile attack on King Khalid International Airport in Riyadh in November 2017. "All airports, ports, border crossings and areas of any importance to Saudi Arabia and the UAE will be a direct target of our weapons, which is a legitimate right," the Houthi political office said in a statement on 7 November 2017.57 On 6 November 2017, the New York Times reported on the intercepted missile attack on the Riyadh airport: "Saudi Arabia charged Monday that a missile fired at its capital from Yemen over the weekend was an "act of war" by Iran, in the sharpest escalation in nearly three decades of mounting hostility between the two regional rivals. "We see this as an act of war," the Saudi foreign minister, Adel Jubair, said in an interview on CNN. "Iran cannot lob missiles at Saudi cities and towns and expect us not to take steps." ... The accusations raise the threat of a direct military clash between the two regional heavyweights at a time when they are already fighting proxy wars in Yemen and Syria, as well as battles for political power in Iraq and Lebanon. By the end of the day Monday, a Saudi minister was accusing Lebanon of declaring war against Saudi Arabia as well."58 Prince Turki al-Faisal said in 2016 that Saudi Arabia has "no illusions" about its limited nuclear security capabilities. "We know we have few capabilities in terms of human resources, so that's why we began a very extensive training and skills acquisition program," he said.15 A number of Middle Eastern countries (and the US) have developed their own response to the limitations of the IAEA safeguards system: bombing nuclear facilities suspected of being involved in covert weapons programs. Examples include the destruction of research reactors in Iraq by Israel and the US; Iran's attempts to strike nuclear facilities in Iraq during the 1980−88 war (and vice versa); Iraq's attempted strikes on Israel's nuclear facilities; and Israel's bombing of a suspected nuclear reactor site in Syria in 2007. Most of the above-mentioned attacks were directed at research reactors capable of producing plutonium for weapons, while Iraq attacked the partially-built Bushehr nuclear power plant in Iran in 1987. Israel has threatened to strike nuclear facilities in Iran in recent years. According to a cable released by Wikileaks, King Abdullah urged the US in 2008 to launch military strikes on Iran's nuclear program to "cut off the head of the snake".59 In time, nuclear power plants in Saudi Arabia might be the targets of military strikes, either to prevent their use in a weapons program or simply as an act of war or terrorism. Bennett Ramberg, a policy analyst in the US State Department’s Bureau of Politico-Military Affairs under President George H.W. Bush, wrote in 2014:60 "[W]arfare is rife with accidents and human error, and such an event involving a nuclear plant could cause a meltdown. A loss of off-site power, for example, could be an issue of serious concern. Although nuclear plants are copious producers of electricity, they also require electrical power from other sources to operate. Without incoming energy, cooling pumps will cease functioning and the flow of water that carries heat away from the reactor core ‒ required even when the reactor is in shutdown mode ‒ will stop. "To meet that risk, nuclear plants maintain large emergency diesel generators, which can operate for days ‒ until their fuel runs out. The reactor meltdowns at Japan’s Fukushima Daiichi power station in 2011 demonstrated what happens when primary and emergency operating power are cut. "Such vulnerabilities raise troubling questions in the event of a war. Fighting could disrupt off-site power plants or transmission lines servicing the reactor, and could also prevent diesel fuel from reaching the plant to replenish standby generators. Operators could abandon their posts should violence encroach.

#### Causes prolif – even if not, causes enrichment and reprocessing tech

Green 17 [Dr Jim Green is the national nuclear campaigner with Friends of the Earth, Australia and editor of the Nuclear Monitor newsletter, published by the World Information Service on Energy. Is Saudi Arabia going nuclear? April 12, 2017. https://www.wiseinternational.org/nuclear-monitor/854/saudi-arabia-going-nuclear]

Regardless of intent, a nuclear power program would bring Saudi Arabia far closer to a weapons capability. The reactor-grade plutonium produced in the normal course of operation of a reactor can be used in weapons, or reactors can be operated on a short irradiation cycle to produce weapon-grade plutonium. In addition, a nuclear power program would necessarily entail the development of significant nuclear science and engineering expertise which could be redeployed to a weapons program. A nuclear power program could justify the acquisition of other technologies − such as enrichment and reprocessing technology, and research reactors − which might be put to use in a weapons program. (Argentina's INVAP is building a very low power research reactor in Saudi Arabia37 and an October 2017 agreement between KACARE and Russia's Rosatom envisages construction of another research reactor in the Kingdom.6)

#### Nuclear war

Gerzhoy and Miller 16 [Gene Gerzhoy is a congressional fellow with the American Political Science Association. Nick Miller is an assistant professor of political science and international and public affairs at Brown University. Donald Trump thinks more countries should have nuclear weapons. Here’s what the research says. April 6, 2016. https://www.washingtonpost.com/news/monkey-cage/wp/2016/04/06/should-more-countries-have-nuclear-weapons-donald-trump-thinks-so/?noredirect=on&utm\_term=.1c54134ffee8]

Since the dawn of the nuclear age, the United States has pursued nonproliferation as a top policy priority. That includes sponsoring and enforcing the Nonproliferation Treaty (NPT). Research suggests the NPT has been instrumental in limiting the spread of nuclear weapons, in part by coordinating states’ beliefs about one another’s nonproliferation commitments. To develop nuclear weapons, Japan and South Korea would need to violate or withdraw from the NPT. That could prompt U.S. allies and adversaries in other regions — including Saudi Arabia, Germany and Iran — to question the treaty’s viability and consider seeking their own nuclear arsenals. Would this be so bad? After all, no two nuclear armed states have fought a major war with each other, and nuclear weapons have not been used in conflict since the United States bombed Hiroshima and Nagasaki in 1945. But the conclusion that nuclear weapons produce peace is subject to debate. It’s true that there has been no war between major powers since 1945. But that may be due to other factors. The quantitative evidence linking nuclear weapons to a reduced risk of conflict is limited at best. Further, theoretical and historical evidence suggests that nuclear accidents and miscalculations are likely. More countries with nuclear weapons would mean more opportunities for catastrophic nuclear mistakes. So what’s the takeaway? A look at history shows us that nuclear proliferation is anything but inevitable. U.S. nonproliferation efforts have been surprisingly successful, even when the United States was weaker than it is today. Without firm U.S. opposition to the spread of nuclear weapons — a policy implemented through “carrots” like alliances and “sticks” like sanctions — the world would probably have far more than nine countries with nuclear weapons. What’s more, research suggests that nuclear proliferation would reduce U.S. world influence, undermine global stability and increase the risk of nuclear war.

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