## 1AC

#### My Value is human life because death is the worse possible thing since it erases our very existence

Paterson 03, Craig [Department of Philosophy, Providence College, Rhode Island] 2003, “A Life Not Worth Living?”, Studies in Christian Ethics

Contrary to those accounts, I would argue that it is **death** per se that **is** really **the objective evil** for us, not because it deprives us of a prospective future of overall good judged better than the alter- native of non-being. It cannot be about harm to a former person who has ceased to exist, for no person actually suffers from the sub-sequent non-participation. Rather, death in itself is an evil to us because **it ontologically destroys the** current existent **subject** — it is the ultimate in metaphysical lightning strikes.80 The evil of death is truly an ontological evil borne by the person who already exists, independently of calculations about better or worse possible lives. Such an evil need not be consciously experienced in order to be an evil for the kind of being a human person is. Death is an evil because of the change in kind it brings about, a change that is destructive of the type of entity that we essentially are. **Anything**, whether caused naturally or caused by human intervention (intentional or unintentional) **that** drastically **interferes in the process of maintaining** the person in **existence is an objective evil** for the person. What is crucially at stake here, and is dialectically supportive of the self-evidency of the basic good of human life, is that death is a radical interference with the current life process of the kind of being that we are. In consequence, **death** itself **can be** credibly **thought of as a ‘primitive evil’ for all persons**, regardless of the extent to which they are currently or prospectively capable of participating in a full array of the goods of life.81  In conclusion, concerning willed human actions, it is justifiable to state that any intentional **rejection of human life** itself **cannot** therefore **be warranted since it is** an expression of an **ultimate disvalue** for the subject, namely, the destruction of the present person; a radical ontological good that we cannot begin to weigh objectively against the travails of life in a rational manner. To deal with the sources of disvalue (pain, suffering, etc.) we should not seek to irrationally destroy the person, the very source and condition of all human possibility.82

#### My Value Criterion is maximizing the most lives saved.

#### Requires the prevention of extinction which is a pre-req to all other frameworks.

GPP 17 Global Priorities Project, [Future of Humanity Institute at the University of Oxford, Ministry for Foreign Affairs of Finland] 2017, “Existential Risk: Diplomacy and Governance,” Global Priorities Project, <https://www.fhi.ox.ac.uk/wp-content/uploads/Existential-Risks-2017-01-23.pdf>

1.2. THE ETHICS OF EXISTENTIAL RISK In his book Reasons and Persons, Oxford philosopher Derek Parfit advanced an influential argument about the importance of avoiding extinction: I believe that if we destroy mankind, as we now can, this outcome will be much worse than most people think. Compare three outcomes: (1) Peace. (2) A nuclear war that kills 99% of the world’s existing population. (3) A nuclear war that kills 100%. (2) would be worse than (1), and (3) would be worse than (2). Which is the greater of these two differences? Most people believe that the greater difference is between (1) and (2). I believe that the difference between (2) and (3) is very much greater. ... The Earth will remain habitable for at least another billion years. **Civilization began only a few thousand years ago. If we do not destroy mankind, these** few thousand **years may be only a tiny fraction of the whole of** civilized **human history**. The difference between (2) and (3) may thus be the difference between this tiny fraction and all of the rest of this history. If we compare this possible history to a day, what has occurred so far is only a fraction of a second.65 In this argument, it seems that Parfit is assuming that the survivors of a nuclear war that kills 99% of the population would eventually be able to recover civilisation without long-term effect. As we have seen, this may not be a safe assumption – but for the purposes of this thought experiment, the point stands. **What makes** existential catastrophes especially bad is that they would “destroy the future,” as another Oxford philosopher, Nick Bostrom, puts it.66 **This future could potentially be extremely long and full of flourishing, and would therefore have** extremely large value. In standard risk analysis, when working out how to respond to risk, we work out the expected value of risk reduction, by weighing the probability that an action will prevent an adverse event against the severity of the event. **Because the value of preventing existential catastrophe is so vast, even a tiny probability of prevention has huge** expected **value**.67 Of course, there is persisting reasonable disagreement about ethics and there are a number of ways one might resist this conclusion.68 Therefore, it would be unjustified to be overconfident in Parfit and Bostrom’s argument. In some areas, government policy does give significant weight to future generations. For example, in assessing the risks of nuclear waste storage, governments have considered timeframes of thousands, hundreds of thousands, and even a million years.69 Justifications for this policy usually appeal to principles of intergenerational equity according to which future generations ought to get as much protection as current generations.70 Similarly, widely accepted norms of sustainable development require development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs.71 However, when it comes to existential risk, it would seem that we fail to live up to principles of intergenerational equity. Existential catastrophe would not only give future generations less than the current generations; it would give them nothing. Indeed, reducing existential risk plausibly has a quite low cost for us in comparison with the huge expected value it has for future generations. In spite of this, relatively little is done to reduce existential risk. Unless we give up on norms of intergenerational equity, they give us a strong case for significantly increasing our efforts to reduce existential risks. 1.3. WHY EXISTENTIAL RISKS MAY BE SYSTEMATICALLY UNDERINVESTED IN, AND THE ROLE OF THE INTERNATIONAL COMMUNITY In spite of the importance of existential risk reduction, it probably receives less attention than is warranted. As a result, concerted international cooperation is required if we are to receive adequate protection from existential risks. 1.3.1. Why existential risks are likely to be underinvested in There are several reasons why existential risk reduction is likely to be underinvested in. Firstly, it is a global public good. Economic theory predicts that such goods tend to be underprovided. The benefits of existential risk reduction are widely and indivisibly dispersed around the globe from the countries responsible for taking action. Consequently, a country which reduces existential risk gains only a small portion of the benefits but bears the full brunt of the costs. Countries thus have strong incentives to free ride, receiving the benefits of risk reduction without contributing. As a result, too few do what is in the common interest. Secondly, as already suggested above, existential risk reduction is an intergenerational public good: most of the benefits are enjoyed by future generations who have no say in the political process. For these goods, the problem is temporal free riding: the current generation enjoys the benefits of inaction while future generations bear the costs. Thirdly, many existential risks, such as machine superintelligence, engineered pandemics, and solar geoengineering, pose an unprecedented and uncertain future threat. Consequently, it is hard to develop a satisfactory governance regime for them: there are few existing governance instruments which can be applied to these risks, and it is unclear what shape new instruments should take. In this way, our position with regard to these emerging risks is comparable to the one we faced when nuclear weapons first became available. Cognitive biases also lead people to underestimate existential risks. **Since there have not been any catastrophes of this magnitude, these risks are not salient to** politicians and **the public**.72 This is an example of the misapplication of the availability heuristic, a mental shortcut which assumes that something is important only if it can be readily recalled. **Another cognitive bias affecting perceptions of existential risk is scope neglect**. In a seminal 1992 study, three groups were asked how much they would be willing to pay to save 2,000, 20,000 or 200,000 birds from drowning in uncovered oil ponds. The groups answered $80, $78, and $88, respectively.73 In this case, the size of the benefits had little effect on the scale of the preferred response. **People become numbed to the effect of saving lives when the numbers get too large**.74 Scope neglect is a particularly acute problem for existential risk because the numbers at stake are so large. Due to scope neglect, **decision-makers are prone to treat existential risks in a similar way to problems which are less severe by many orders of magnitude.** A wide range of other cognitive biases are likely to affect the evaluation of existential risks.75

#### I affirm the resolution: The Member Nations of the World Trade Organization ought to reduce intellectual property protections on medicines. I advocate reducing IP protections on medicines through the implementation of a one and done system for patents in member nations.

#### A one and done approach would end patent walls

Feldman 19 Feldman, Robin. "Drug Patent Protection: It's Time For A 'One-And-Done' Approach - STAT." STAT. N.p., 2019. Web. 14 Aug. 2021. Robin Feldman is professor of law and director of the Institute for Innovation Law at UC Hastings College of the Law in San Francisco and author of [“Drugs, Money, and Secret Handshakes”](https://www.cambridge.org/us/academic/subjects/law/us-law/drugs-money-and-secret-handshakes-unstoppable-growth-prescription-drug-prices?format=HB)

In a perfect world, the system for conveying medications from their makers to patients should be designed to deliver the lowest-cost drugs. The system in the U.S. doesn’t even come close. Insurers should provide the lowest-cost and highest-quality drug benefit for each plan, public or private. But they don’t. Pharmacy benefit managers should use their volume buying power to obtain rebates that individuals could never obtain on their own and pass those rebates along to patients. But they don’t. Pharmacists, who know the prices of the drugs in their stock and who see patients’ cost-sharing amounts at the cash register, should be motivated to provide their customers with information on how to find the best deal so they can afford their medicines. But they aren’t. Doctors should make medication decisions that are in the best interests of their patients. But they often don’t. All of this occurs against the backdrop of a national conversation to lower drug costs and a policy to expedite and encourage vigorous competition in the pharmaceutical industry through the rapid entry of generic drugs as soon as patents expire. But even though the vast majority of prescriptions are filled with generic drugs, rising prices on existing brand-name drugs and sky-high prices for new drugs are swamping the savings from generics. Why isn’t the system working as it should? Some experts believe the U.S. can rein in drug process with [value-based pricing](https://www.statnews.com/pharmalot/2017/06/01/drug-prices-outcomes-health-plans/), which aims to tie the prices we pay for drugs to the benefits they provide, either in terms of longer life or better quality of life. Others call for [dismantling pharmacy benefit managers](https://www.statnews.com/2018/08/23/pbms-rebates-drug-purchasing/). Still others want large groups like Medicare [to negotiate with drug companies](https://www.hsgac.senate.gov/imo/media/doc/REPORT-Manufactured%20Crisis-How%20Better%20Negotiation%20Could%20Save%20Billions%20for%20Medicare%20and%20America's%20Seniors.pdf) for better drug prices. While each of these might help, they cannot solve the problem alone. Why? Because they do not reach the heart of the problem. As I explain in my new book, [“Drugs, Money, and Secret Handshakes,”](https://www.cambridge.org/us/academic/subjects/law/us-law/drugs-money-and-secret-handshakes-unstoppable-growth-prescription-drug-prices?format=HB) the government itself is giving pharmaceutical companies the power they are wielding through overly generous drug patent protection. Effective solutions must address that problem. Drug companies have brought great innovations to market. Society rewards innovation with patents, or with non-patent exclusivities that can be obtained for activities such as testing drugs in children, undertaking new clinical studies, or developing orphan drugs. The rights provided by patents or non-patent exclusivities provide a defined time period of protection so companies can recoup their investments by charging monopoly prices. When patents end, lower-priced competitors should be able to jump into the market and drive down the price. But that’s not happening. Instead, drug companies build massive patent walls around their products, extending the protection over and over again. Some modern drugs have an avalanche of U.S. patents, with expiration dates staggered across time. For example, the rheumatoid arthritis drug [Humira](https://www.statnews.com/pharmalot/2018/11/07/abbvie-biosimilars-humira-patents/) is protected by [more than 100 patents](https://www.wsj.com/articles/biosimilar-humira-goes-on-sale-in-europe-widening-gap-with-u-s-1539687603). Walls like that are insurmountable. Rather than rewarding innovation, our patent system is now largely repurposing drugs. Between 2005 and 2015, [more than three-quarters](https://academic.oup.com/jlb/advance-article/doi/10.1093/jlb/lsy022/5232981) of the drugs associated with new patents were not new ones coming on the market but existing ones. In other words, we are mostly churning and recycling. Particularly troubling, new patents can be obtained on minor tweaks such as adjustments to dosage or delivery systems — a once-a-day pill instead of a twice-a-day one; a capsule rather than a tablet. Tinkering like this may have some value to some patients, but it nowhere near justifies the rewards we lavish on companies for doing it. From society’s standpoint, incentives should drive scientists back to the lab to look for new things, not to recycle existing drugs for minimal benefit. 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](https://www.law.cornell.edu/wex/nonobviousness) 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.

### Contention 1: Infectious Disease

#### Drug prices rising rapidly in the US

NASEM 18 National Academies of Sciences, Engineering, and Medicine. 2018. Making Medicines Affordable: A National Imperative. Washington, DC: The National Academies Press. <https://doi.org/10.17226/24946>. The National Academies of Sciences, Engineering, and Medicine are private, nonprofit institutions that provide expert advice on some of the most pressing challenges facing the nation and the world. Our work helps shape sound policies, inform public opinion, and advance the pursuit of science, engineering, and medicine. Over many decades we have earned a solid reputation as the nation's premier source of independent, expert advice on scientific, engineering, and medical issues.

Although branded medications make up approximately 10 percent of all prescriptions in the United States, they account for nearly three-quarters of prescription drug spending (GPhA, 2015). Spending for all retail prescription drugs accelerated significantly in 2014 and 2015, before slowing in 2016 (QuintilesIMS, 2017a). The spending rate was 10.3 percent, which rose to 12.4 percent between 2014 and 2015 before falling to 5.8 percent in 2016—still twice the 2.5 percent rate of growth in 2013 (QuintilesIMS, 2015a, 2016a, 2017a). The cost of branded drugs is influenced by their launch prices—the prices set by the manufacturer for the new drugs when they first become available on the market—and the subsequent annual increases in their list prices. Recent data on anti-cancer drugs show that on average launch prices increased by about $8,500 per year over the past 15 years (Howard et al., 2015). Other studies have found similar increases in the prices of cancer drugs after their launch (Bach, 2009; Bennette et al., 2016; Shih et al., 2017). A 2009 report from the U.S. Government Accountability Office (GAO) estimated that between 2000 and 2008, 416 brand-name drug products displayed “extraordinary” price increases (GAO, 2009). The 416 products represented 321 specific medications, with some medications being available in different drug strength and dosage forms; for example, the 416 products included eight different strength and dosage forms of the beta blocker Inderal. Most often the increases in price reported in the study were between 100 and 499 percent, but in a few cases, specifically for drugs used to treat such conditions as fungal or viral infections or heart disease, a drug’s price increased by 1,000 percent or more. The absolute price increases for branded drugs ranged from $0.01 per unit to $5,400 per unit. The unit price of a drug is, of course, only one factor in determining the cost of a full course of treatment for a medical condition. The cost for a full course of treatment for one drug used to treat one rare form of cancer increased from $390 to more than $3,000 during the study period (GAO, 2009). Figure 3-1 shows how the prices of 268 top branded drugs rose throughout the period 2006–2015, with the yearly increases being consistently higher than the increases in the overall consumer price index—sometimes much higher. Spending on specialty medicines has nearly doubled over the past 5 years, clearly outpacing the consumer price index and accounting for more than two-thirds of the overall growth in spending on medicines between 2010 and 2015 (AHIP, 2015; QuintilesIMS, 2016a). One result of this increase is that Medicare beneficiaries face rapidly growing out-of-pocket payments for specialty drugs. This trend is likely to continue as the population ages and more treatments become available for difficult-to-manage diseases (Dusetzina and Keating, 2015; Dusetzina et al., 2017; Trish et al., 2016). On the challenge of how to go about financing very expensive branded drugs, see Box 3-1. Whether existing or new drug therapies are actually effective in patients is another issue that must be considered.1

#### Drug companies invest more into share buybacks and marketing then R&D

NASEM 18 National Academies of Sciences, Engineering, and Medicine. 2018. Making Medicines Affordable: A National Imperative. Washington, DC: The National Academies Press. <https://doi.org/10.17226/24946>. The National Academies of Sciences, Engineering, and Medicine are private, nonprofit institutions that provide expert advice on some of the most pressing challenges facing the nation and the world. Our work helps shape sound policies, inform public opinion, and advance the pursuit of science, engineering, and medicine. Over many decades we have earned a solid reputation as the nation's premier source of independent, expert advice on scientific, engineering, and medical issues.

As has been noted, such funding is critically important, but drug prices do not map one-to-one onto a firm’s investment in research and development (R&D). There are business choices to be made among numerous potential allocations of resources, including the accrual of profits, employee (usually executive) compensation, sales and marketing expenditures, dividends, lobbying, share repurchases, etc. A study published by the Institute for New Economic Thinking, reported by The New York Times, concluded that during a recent 10-year period drug companies in the Fortune 500 expended 11 percent more on share repurchases and dividends than on R&D. Another study concluded that manufacturers, on average, devoted more to marketing than to R&D. Thus, reductions in price can, but do not necessarily need to, result in curtailing R&D. Reflecting, among many other considerations, the relatively high risks confronted by biopharmaceutical firms, these entities on average achieve greater net profit margins than firms in most other industrial sectors, as various studies have shown. For example, a study reported by Forbes found that during the period examined companies producing generics had an average 30 percent net profit margin, while major biopharmaceutical manufacturers were reported to realize an overall 25.5 percent net margin, placing them first and third, respectively, among all sectors considered in the study. Another study, conducted at the University of Southern California’s Leonard D. Schaeffer Center for Health Policy and Economics, concluded that in 2015, brand (on-patent) manufacturers averaged a 28 percent margin and generic manufacturers averaged 16 percent, placing the two segments highest and fourth highest, respectively, among the 26 industrial sectors considered. The study also pointed to the substantial costs to the consumer that it attributed to profits in the drug distribution system (i.e., not by the developer/manufacturer), that were determined to consume about one of every five dollars spent on prescription drugs. Evidencing both the cyclical nature of the U.S. pharmaceutical industry and its financial growth over time, U.S. companies listed among the world’s 15 largest pharmaceutical firms by revenue realized a 5-year rate of growth in market capitalization that exceed the rate of growth in market capitalization of the S&P 500 by more than one-fourth and a 10-year rate of growth that exceeded that of the S&P 500 by more than a factor of two.

#### Majority of pharmaceutical resources focused on evergreen drugs – stifling innovation and raising prices

Feldman 18 Robin Feldman, May your drug price be evergreen, Journal of Law and the Biosciences, Volume 5, Issue 3, December 2018, Pages 590–647, <https://doi.org/10.1093/jlb/lsy022> Robin Feldman is professor of law and director of the Institute for Innovation Law at UC Hastings College of the Law in San Francisco and author of [“Drugs, Money, and Secret Handshakes”](https://www.cambridge.org/us/academic/subjects/law/us-law/drugs-money-and-secret-handshakes-unstoppable-growth-prescription-drug-prices?format=HB)

The study results demonstrate definitively that the pharmaceutical industry has strayed far from the patent system’s intended design. The patent system is not functioning as a time-limited opportunity to garner a return, followed by open competition. Rather, companies throughout the industry seek and obtain repeated extensions of their competition-free zones. Moreover, the incidence of such behavior has steadily increased between 2005 and 2015, especially on the patent front and for certain highly valuable exclusivities. Most troubling, the data suggest that the current state of affairs is harming innovation in tangible ways. Rather than creating new medicines—sallying forth into new frontiers for the benefit of society—drug companies are focusing their time and effort extending the patent life of old products.This, of course, is not the innovation one would hope for.The greatest creativity at pharmaceutical companies should be in the lab, not in the legal department.115 The following sections describe the results obtainedthrough our analysis in detail, but below arethe keytakeaways fromthe study: Rather than creating new medicines, pharmaceutical companies are recycling and repurposing old ones. In fact, 78% of the drugs associated with new patents in the FDA’s records were not new drugs coming on the market, but existing drugs. In some years, the percentage reached as high as 80%. Adding new patents and exclusivities to extend the protection cliff is particularly pronounced among blockbuster drugs. Of the roughly 100 best-selling drugs, more than 70% extended their protection at least once, with more than 50% extending the protection cliff more than once. Looking at the full group, almost 40% of all drugs available on the market created additional market barriers by having patents or exclusivities added to them. Many ofthe drugs addingtothe Orange Book are ‘serial offenders’—returning to the well repeatedly for new patents and exclusivities. Of the drugs that had an addition to the Orange Book, 80% of those had an addition to the Orange Book on more than one occasion, and almost half of these drugs had additions to the Orange Book on four or more occasions. The number of drugs with a high quantity of added patents in a single year has substantially increased. For example, the number of drugs with three or more patents added to them in one year has doubled. Similarly, the number of drugs with five or more added patents has also doubled. Overall, the quantity of patents added to the Orange Book has more than doubled, increasing from 349 patents added in the year 2005 to 723 in 2015. The number of drugs that had a patent added to them in the Orange Book almost doubled. There were striking increases in certain exclusivities, such as orphan drug exclusivity, new patient population exclusivity, and new product exclusivity. In particular, the number of drugs with an added orphan drug exclusivity tripled. In addition, the number of times a use code was added to a patent more than tripled, suggesting that this has become a new favored game. To provide a broad sense of the types of metrics we are using, some could be characterized as ‘intensity’ measures, which capture the breadth and depth of patent and exclusivity activity in the industry. Another set of our metrics can be characterized as ‘temporal’ measures, which evaluate whetherthere are anytrends inthe behavior under examination across time during our 11-year timeframe from 2005 to 2015. IV.B. Number of drugs that had patents and/or exclusivities added to them in the Orange Book, compared to the total number of drugs available As an initial inquiry, we wanted to determine the extent to which companies are adding patents and exclusivities to drugs. Is this a limited activity, confined to well-worn anecdotes that everyone repeats, or does it occur throughout the industry? Our results demonstrate that adding patents and exclusivities is a common behavior, endemic to pharmaceuticals. In fact, between 2005 and 2015, almost 40% of all drugs available on the market had patents, exclusivities, or other changes added to them. Table 1 shows the total number of FDA-approved drugs available on the market in each year of our study. Table 2 shows the number of drugs that had a patent or exclusivity added to them as a percentage of the total number of drugs. The figure is broken down in terms of the number of drugs with an added patent, the number of drugs with an added exclusivity, and the number of drugs that had any relevant change made to it (which includes not only adding a patent and/or exclusivity, but also other significant changes such as adding a use code.)

#### IP evergreening causes high prices by squashing generic competition

I-Mak 18 <https://www.i-mak.org/wp-content/uploads/2018/08/I-MAK-Overpatented-Overpriced-Report.pdf> I-mak.org. N.p., 2018. Web. 15 Aug. 2021. I-MAK (Initiative for Medicines, Access & Knowledge) is a nonprofit that challenges systemic injustice and advocates for health equity in drug development and access.

Such filings allow drugmakers to a) increase the price of the branded drugs by an average of 68% in six years, and b) seek to stall generic competition by an average of 38 years. While these average figures are disconcerting, examples among specific drugs run even more extreme in each category. Among the top grossing and best known drugs on the market today, some of the ‘worst offenders’ include AbbVie having filed 247 patent applications for Humira, Pfizer’s 163% price hike over six years for Lyrica, and Roche’s and Genentech’s efforts to seek 48 years of patent exclusivity for Herceptin. These examples are not outliers; our analysis indicates that patent holders for the other top twelve drugs also abuse the patent system, hike the price of drugs, and delay generic competition. Enabling drugmakers to maintain patent monopolies far beyond twenty years has significant consequences on the American healthcare system. The strategy to expand monopolies without any meaningful new science or invention exacts a heavy cost on American payers and households. Specifically, these twelve highest grossing drugs cost $96 billion to health insurers, government payers, and consumers in 2017 alone. Since drugmakers often continue to increase the prices of medicines once or twice a year, even after the product has already been on the market for many years, revenues may continue to grow for these medicines until there is generic competition. Generic competition, with two or more generic suppliers competing to reduce the price of a medicine, consistently lowers prescription drug prices by more than half. Yet policy makers have not put enough effort into accelerating generic competition, or at least ensuring that drugmakers do not extend monopolies beyond the twenty years intended under U.S. patent law. Measures must be taken to limit the power of the pharmaceutical industry to abuse the patent system and reverse the drug industry’s dramatic expansion of patent monopolies

#### High drug prices cause hospitals to slash services and staffing decreasing quality of care

Daly 19 Daly, Rich. "Drug Prices An Increasing Challenge For Hospitals: Survey." hfma. N.p., 2019. Web. 22 Aug. 2021. Rich Daly is a senior writer/editor in HFMA’s Washington, D.C., office.

Jan. 15—Most hospitals have had to juggle their budgets in recent years to accommodate increasingly expensive drugs, according to a new survey. From FY15 to FY17, almost two-thirds of hospitals responding to a [recent survey](https://fah.org/fah-ee2-uploads/website/documents/AHA_Drug_Pricing_Study_Report_FINAL_01152019.pdf) reported that changes in drug prices had a moderate or severe impact on their budgets, with over 15 percent of hospitals indicating that the increase in drug prices impacted their budgets “to a large extent.” The survey was accompanied by interviews with some responding executives, who reported that increased drug spending impacted many aspects of their operations. In response to drug prices, they implemented a range of approaches to control spending, including changes in day-to-day operations and systemwide strategies. “This report confirms that we are in the midst of a prescription drug spending crisis that threatens patient access to care and hospitals’ and health systems’ ability to provide the highest quality of care,” Rick Pollack, president and CEO of the American Hospital Association (AHA), said in a release. “Solutions must be worked on to rein in out-of-control drug prices and ease the drug shortages that are putting a strain on patient care.” The survey, interviews, and an accompanying study on hospital impacts from drug prices were analyzed by NORC at the University of Chicago for several national hospital advocacy groups, including AHA. According to the survey of 1,184 hospitals, among measures taken to address budget pressures associated with increasing drug prices were identifying alternative therapies (90 percent); doing more in-house compounding (69 percent); delaying investments in or replacement of equipment (28 percent); reducing staffing (25 percent); and reducing services offered (17 percent). “All interviewees described intensive efforts and close collaboration with healthcare providers to establish formularies for drugs used at their facilities and, when possible, to pursue therapeutic interchange,” the report stated. Additionally, pharmacy department staff work with other hospital clinical staff to change the delivery frequency of drugs to patients and patient care areas to avoid unnecessary waste. Larger operational impacts of drug price increases, as identified in the survey, included a reduction in the services available to patients. For instance, one medical center curtailed plans to open an outpatient chemotherapy site, citing uncertainty around payment relative to the acquisition cost for the drugs. The accompanying study found that from FY15 to FY17, total spending for inpatient and outpatient hospital drugs at U.S. community hospitals increased by 18.5 percent per adjusted admission (from $468.5 to $555.4). That increase cost the average hospital $1.8 million. The increase also eclipsed the 6.4 percent increase in overall medical inflation during the same period. Specifically, spending on outpatient drugs during the period increased by 28.7 percent on an adjusted admission basis, while inpatient drug spending per admission increased by 9.6 percent. That followed a 38.7 percent increase in inpatient drug spending from FY13 to FY15, according to a previous [NORC study](https://www.aha.org/guidesreports/2018-01-24-trends-hospital-inpatient-drug-costs-issues-and-challenges) for hospital advocates. That study did not evaluate outpatient spending.

#### Hospital resilience and quality key to combatting pandemics

Thobaity and Alshammari 20 Thobaity A, Alshammari F: Nurses on the Frontline against the COVID-19 Pandemic: An Integrative Review. Dubai Med J 2020;3:87-92. doi: 10.1159/000509361Farhan Alshammari is the Dean, College of Nursing [University of Hail](https://scholar.google.com/citations?view_op=view_org&hl=en&org=18023216350956736549) and Thobaity is the Assistant Professor - Dean - Applied Medical Sciences at Taif University.

COVID-19 is considered the cause of a dangerous illness that affects people’s lives and, in many cases, threatens the lives of infected people. In addition, this virus presents an immediate danger to the functioning of communities across the world. Such impacts include the loss of jobs and its effects on families, changes in the mode of education because attendance and interaction have shifted to online and distance learning, and many other changes in people’s lives [[1](https://www.karger.com/Article/Fulltext/509361#ref1), [2](https://www.karger.com/Article/Fulltext/509361#ref2)]. Despite these facts, in many countries, disease mitigation, preparedness, and responses were implemented; however, these measures for coping with the events of COVID-19 were insufficient. The affected countries called for help when COVID-19 massively harmed healthcare systems and hospitals and, in many countries, consumed their medical resources. It was found that the detection of COVID-19 cases was not identical across countries, as in some countries the number of infected cases was large and rapidly increased, and sudden critical care was necessary in countries such as Italy [[3](https://www.karger.com/Article/Fulltext/509361#ref3)]. However, in some countries, the number of cases either remained steady or fluctuated, which is expected in biological disasters [[2](https://www.karger.com/Article/Fulltext/509361#ref2)]. The majority of infected or symptomatic people seek medical treatment in medical facilities, particularly hospitals, as a high number of cases, especially those in critical condition, will have an impact on hospitals [[4](https://www.karger.com/Article/Fulltext/509361#ref4)]. The concept of hospital resilience in disaster situations is defined as the ability to recover from the damage caused by huge disturbances quickly [[2](https://www.karger.com/Article/Fulltext/509361#ref2)]. The resilience of hospitals to pandemic cases depends on the preparedness of the institutions, and not all hospitals have the same resilience. A lower resilience will affect the sustainability of the health services. This also affects healthcare providers such as doctors, nurses, and allied health professionals [[5](https://www.karger.com/Article/Fulltext/509361#ref5), [6](https://www.karger.com/Article/Fulltext/509361#ref6)]. Despite the impact on healthcare providers, excellent management of a pandemic depends on the level of preparedness of healthcare providers, including nurses. This means that if it was impossible to be ready before a crisis or disaster, responsible people will do all but the impossible to save lives. Be it in daily routine or disasters, nurses are on the frontline and are responsible for providing holistic care for all types of patients. Considering the fact that nurses constitute the majority of healthcare providers, they have a critical function in healthcare systems [[2](https://www.karger.com/Article/Fulltext/509361#ref2), [5](https://www.karger.com/Article/Fulltext/509361#ref5)]. Their roles in treating patients with COVID-19 involve triaging patients and detecting suspected cases with infections; providing essential treatment in an emergency and dealing with suspected patients with precautions; helping in decontamination and coordination with other healthcare providers; supplying holistic nursing practices in managing multiple infections simultaneously; playing critical roles in expanding care services; and dealing with relatives [[7](https://www.karger.com/Article/Fulltext/509361#ref7)]. In crises, they have more tasks to satisfy patients and their families; therefore, nurses must be well equipped with essential knowledge and skills in managing crises involving clinical treatment, decontamination, isolation, communication, triaging, psychological support, and palliative care if necessary [[8](https://www.karger.com/Article/Fulltext/509361#ref8)-[11](https://www.karger.com/Article/Fulltext/509361#ref11)]. However, when they respond to a crisis such as COVID-19, they face problems that hinder them from caring for the infected patients. Exploring the issues that nurses face when caring for patients with COVID-19 will help increase nurse and hospital resilience in response to the crisis, as well as enhance preparedness and recovery from the crisis. Additionally, understanding these issues will help support nurses by informing leaders and decision-makers about these issues and providing recommendations and implications. Therefore, this integrative review aims to explore the issues facing nurses during their response to the COVID-19 crisis.

#### High quality healthcare workers necessary to preventing pandemics

Madhav et al. 17 Madhav N, Oppenheim B, Gallivan M, et al. Pandemics: Risks, Impacts, and Mitigation. In: Jamison DT, Gelband H, Horton S, et al., editors. Disease Control Priorities: Improving Health and Reducing Poverty. 3rd edition. Washington (DC): The International Bank for Reconstruction and Development / The World Bank; 2017 Nov 27. Chapter 17. Available from: https://www.ncbi.nlm.nih.gov/books/NBK525302/ doi: 10.1596/978-1-4648-0527-1\_ch17 Nita Madhav, Ben Oppenheim, and Mark Gallivan work for Metabiota, San Francisco, California, United States.

Preparing for a pandemic is challenging because of a multitude of factors, many of which are unique among natural disasters. Pandemics are rare events, and the risk of occurrence is influenced by anthropogenic changes in the natural environment. In addition, accountability for preparedness is diffuse, and many of the countries at greatest risk have the most limited capacity to manage and mitigate pandemic risk. Unlike most other natural disasters, pandemics do not remain geographically contained, and damages can be mitigated significantly through prompt intervention. As a result, there are strong ethical and global health imperatives for building capacity to detect and respond to pandemic threats, particularly in countries with weak preparedness and high spark and spread risk. Investments to improve pandemic preparedness may have fewer immediate benefits, particularly relative to other pressing health needs in countries with heavy burdens of endemic disease. Therefore, characterizing pandemic risk and identifying gaps in pandemic preparedness are essential for prioritizing and targeting capacity-building efforts. Thinking about risks in terms of frequency and severity, notably using probabilistic modeling and EP curves, can quantify the potential pandemic risks facing each country and clarify the benefit-cost case for investing in pandemic preparedness. No single, optimal response to a public health emergency exists; strategies must be tailored to the local context and to the severity and type of pandemic. However, overarching lessons emerge after multiple regional epidemics and global pandemics. For example, because of their high spark and spread risks, many LMICs would benefit most from building situational awareness and health care coordination capacity; public health response measures are far more cost-effective if they are initiated quickly and if scarce resources are targeted appropriately. Building pandemic situational awareness is complex, requiring coordination across bureaucracies, across the public and private sectors, and across disciplines with different training and different norms (including epidemiology, clinical medicine, logistics, and disaster response). However, an appropriately sized and trained health workforce (encompassing doctors, nurses, epidemiologists, veterinarians, laboratorians, and others) that is supported by adequate coordination systems is a fundamental need—the World Health Organization has recommended a basic threshold of 23 skilled health professionals per 10,000 people ([WHO 2013a](https://www.ncbi.nlm.nih.gov/books/NBK525302/)). Increasing the trained health workforce also will increase the capacity to detect whether any particular population (for example, human, farm animal, or wildlife) is suffering from a pathogen with high pandemic risk. Increasing the health workforce also will improve the overall resiliency of the health system, an improvement that can be applied to any emergency that results in morbidity and mortality shocks. Additionally, building situational awareness will require sustained investment in infectious disease surveillance, crisis management, and risk communications systems. Investments in these capacities are likely to surge after pandemic or epidemic events and then abate as other priorities emerge. Hence, stable investment to build sustained capacity is critical. Risk transfer mechanisms such as catastrophe risk pools offer a viable strategy for countries to manage pandemic risk. Further developing these mechanisms will allow countries to offload portions of pandemic risk and response that are beyond their immediate budgetary capacity. For this reason, risk transfer solutions should be designed with the needs and constraints of LMICs in mind. However, countries must have predefined contingency and response plans as well as the absorptive capacity to use the emergency financing offered by such solutions. Broad and effective use of pandemic insurance will require parallel investments in capacity building and emergency response planning. Finally, researchers must address the significant knowledge gaps that exist regarding LMICs’ pandemic preparedness and response. Improving the tracking of spending and aid flows specifically tied to pandemic prevention and preparedness is vital to tracking gaps and calibrating aid flows for maximum efficiency. Systematic data on response costs in low-income settings are scarce, including data regarding spending on clinical facilities, supplies, human resources, and response activities such as quarantines. Bridging these data gaps can improve pandemic preparedness planning and response through evidence-based decision making and support efforts to prevent and mitigate epidemics and pandemics.

#### Future pandemics are inevitable – globalization and climate change

IPBES 21 IPBES WORKSHOP ON BIODIVERSITY AND PANDEMICS. IPBES, 2021. Web. 3 Sept. 2021. The Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) is the intergovernmental body which assesses the state of biodiversity and ecosystem services, in response to requests from Governments, the private sector and civil society.

Pandemics represent an existential threat to the health and welfare of people across our planet. The scientific evidence reviewed in this report demonstrates that pandemics are becoming more frequent, driven by a continued rise in the underlying emerging disease events that spark them. Without preventative strategies, pandemics will emerge more often, spread more rapidly, kill more people, and affect the global economy with more devastating impact than ever before. Current pandemic strategies rely on responding to diseases after their emergence with public health measures and technological solutions, in particular the rapid design and distribution of new vaccines and therapeutics. However, COVID-19 demonstrates that this is a slow and uncertain path, and as the global population waits for vaccines to become available, the human costs are mounting, in lives lost, sickness endured, economic collapse, and lost livelihoods. Pandemics have their origins in diverse microbes carried by animal reservoirs, but their emergence is entirely driven by human activities. The underlying causes of pandemics are the same global environmental changes that drive biodiversity loss and climate change. These include land-use change, agricultural expansion and intensification, and wildlife trade and consumption. These drivers of change bring wildlife, livestock, and people into closer contact, allowing animal microbes to move into people and lead to infections, sometimes outbreaks, and more rarely into true pandemics that spread through road networks, urban centres and global travel and trade routes. The recent exponential rise in consumption and trade, driven by demand in developed countries and emerging economies, as well as by demographic pressure, has led to a series of emerging diseases that originate mainly in biodiverse developing countries, driven by global consumption patterns. Pandemics such as COVID-19 underscore both the interconnectedness of the world community and the rising threat posed by global inequality to the health, wellbeing and security of all people. Mortality and morbidity due to COVID-19 may ultimately be higher in developing countries, due to economic constraints affecting healthcare access. However, large-scale pandemics can also drastically affect developed countries that depend on globalized economies, as COVID-19’s impact on the USA and many European countries is currently demonstrating.

#### Disease causes extinction

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

Historically, disease events have been responsible for the greatest death tolls on humanity. The 1918 flu was responsible for more than 50 million deaths,1 while smallpox killed perhaps 10 times that many in the 20th century alone.2 The Black Death was responsible for killing over 25% of the European population,3 while other pandemics, such as the plague of Justinian, are thought to have killed 25 million in the 6th century—constituting over 10% of the world’s population at the time.4 It is an open question whether a future pandemic could result in outright human extinction or the irreversible collapse of civilization. A skeptic would have many good reasons to think that existential risk from disease is unlikely. Such a disease would need to spread worldwide to remote populations, overcome rare genetic resistances, and evade detection, cures, and countermeasures. Even evolution itself may work in humanity’s favor: Virulence and transmission is often a trade-off, and so evolutionary pressures could push against maximally lethal wild-type pathogens.5,6 While these arguments point to a very small risk of human extinction, they do not rule the possibility out entirely. Although rare, there are recorded instances of species going extinct due to disease—primarily in amphibians, but also in 1 mammalian species of rat on Christmas Island.7,8 There are also historical examples of large human populations being almost entirely wiped out by disease, especially when multiple diseases were simultaneously introduced into a population without immunity. The most striking examples of total population collapse include native American tribes exposed to European diseases, such as the Massachusett (86% loss of population), Quiripi-Unquachog (95% loss of population), and theWestern Abenaki (which suffered a staggering 98% loss of population). In the modern context, no single disease currently exists that combines the worst-case levels of transmissibility, lethality, resistance to countermeasures, and global reach. But many diseases are proof of principle that each worst-case attribute can be realized independently. For example, some diseases exhibit nearly a 100% case fatality ratio in the absence of treatment, such as rabies or septicemic plague. Other diseases have a track record of spreading to virtually every human community worldwide, such as the 1918 flu,10 and seroprevalence studies indicate that other pathogens, such as chickenpox and HSV-1, can successfully reach over 95% of a population.11,12 Under optimal virulence theory, natural evolution would be an unlikely source for pathogens with the highest possible levels of transmissibility, virulence, and global reach. But advances in biotechnology might allow the creation of diseases that combine such traits. Recent controversy has already emerged over a number of scientific experiments that resulted in viruses with enhanced transmissibility, lethality, and/or the ability to overcome therapeutics.13-17 Other experiments demonstrated that mousepox could be modified to have a 100% case fatality rate and render a vaccine ineffective.18 In addition to transmissibility and lethality, studies have shown that other disease traits, such as incubation time, environmental survival, and available vectors, could be modified as well.19-2

#### Independently, Pandemics cause massive economic damage, drives instability, and social tension

Madhav et al. 17 Madhav N, Oppenheim B, Gallivan M, et al. Pandemics: Risks, Impacts, and Mitigation. In: Disease Control Priorities: Improving Health and Reducing Poverty. 3rd ed. The International Bank for Reconstruction and Development / The World Bank, Washington (DC); 2017. PMID: 30212163. Nita Madhav, Ben Oppenheim, and Mark Gallivan work for Metabiota, San Francisco, California, United States.

Economic Impacts Pandemics can cause acute, short-term fiscal shocks as well as longer-term damage to economic growth. Early-phase public health efforts to contain or limit outbreaks (such as tracing contacts, implementing quarantines, and isolating infectious cases) entail significant human resource and staffing costs ([Achonu, Laporte, and Gardam 2005](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit1)). As an outbreak grows, new facilities may need to be constructed to manage additional infectious cases; this, along with increasing demand for consumables (medical supplies, personal protective equipment, and drugs) can greatly increase health system expenditures ([Herstein and others 2016](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit53)). Diminished tax revenues may exacerbate fiscal stresses caused by increased expenditures, especially in LMICs, where tax systems are weaker and government fiscal constraints are more severe. This dynamic was visible during the 2014 West Africa Ebola epidemic in Liberia: while response costs surged, economic activity slowed, and quarantines and curfews reduced government capacity to collect revenue ([World Bank 2014](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit62)). During a mild or moderate pandemic, unaffected HICs can offset fiscal shocks by providing increased official development assistance (ODA) to affected countries, including direct budgetary support. However, during a severe pandemic where HICs confront the same fiscal stresses and may be unable or unwilling to provide assistance, LMICs could face larger budget shortfalls, potentially leading to weakened public health response or cuts in other government spending. The direct fiscal impacts of pandemics generally are small, however, relative to the indirect damage to economic activity and growth. Negative economic growth shocks are driven directly by labor force reductions caused by sickness and mortality and indirectly by fear-induced behavioral changes. Fear manifests itself through multiple behavioral changes. As an analysis of the economic impacts of the 2014 West Africa Ebola epidemic noted, “Fear of association with others . . . reduces labor force participation, closes places of employment, disrupts transportation, motivates some governments to close land borders and restrict entry of citizens from affected countries, and motivates private decision makers to disrupt trade, travel, and commerce by canceling scheduled commercial flights and reducing shipping and cargo services” ([World Bank 2014](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit62)). These effects reduce labor force participation over and above the pandemic’s direct morbidity and mortality effects and constrict local and regional trade. The indirect economic impact of pandemics has been quantified primarily through computable general equilibrium simulations; the empirical literature is less developed. World Bank economic simulations indicate that a severe pandemic could reduce world gross domestic product (GDP) by roughly 5 percent ([Burns, Van der Mensbrugghe, and Timmer 2006](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit16)). The reduction in demand caused by aversive behavior (such as the avoidance of travel, restaurants, and public spaces, as well as prophylactic workplace absenteeism) exceeds the economic impact of direct morbidity- and mortality-associated absenteeism. These results align with country-specific estimates: an analysis of pandemic influenza’s impact on the United Kingdom found that a low-severity pandemic could reduce GDP by up to 1 percent, whereas a high-severity event could reduce GDP by 3–4 percent ([Smith and others 2009](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit113)). The World Bank’s estimates from the 2014 West Africa Ebola epidemic suggest that economic disruption in low-income countries (LICs) could be even greater. For example, the 2015 economic growth estimate for Liberia was 3 percent (against a pre-Ebola estimate of 6.8 percent); for Sierra Leone, it was −2 percent (against a pre-Ebola estimate of nearly 9 percent) ([Thomas and others 2015](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit132)). Finally, estimates of fiscal and growth shocks are significant but do not include the intrinsic value of lives lost. Fan, Jamison, and Summers ([2016](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit39)) consider this additional dimension of economic loss by estimating the value of excess deaths across varying levels of modeled pandemic severity, finding that the bulk of the expected annual loss from pandemics is driven by the direct cost of mortality, particularly in the case of low-probability, severe events. During a severe pandemic, all sectors of the economy—agriculture, manufacturing, services—face disruption, potentially leading to shortages, rapid price increases for staple goods, and economic stresses for households, private firms, and governments. A sustained, severe pandemic on the scale of the 1918 influenza pandemic could cause significant and lasting economic damage. Social and Political Impacts Evidence suggests that epidemics and pandemics can have significant social and political consequences, creating clashes between states and citizens, eroding state capacity, driving population displacement, and heightening social tension and discrimination ([Price-Smith 2009](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit113)). Severe premodern pandemics have been associated with significant social and political upheaval, driven by large mortality shocks and the resulting demographic shifts. Most notably, deaths arising from the introduction of smallpox and other diseases to the Americas led directly to the collapse of many indigenous societies and weakened the indigenous peoples’ institutions and military capacity to the extent that they became vulnerable to European conquest ([Diamond 2009](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit29); see [table 17.1](https://europepmc.org/books/NBK525302/table/pt5.ch17.sec3.table1/?report=objectonly)). Subsequent pandemics have not had such dramatic effects on political and social stability, primarily because the potential mortality shock has been attenuated by improvements in prevention and care. Evidence does suggest that epidemics and pandemics can amplify existing political tensions and spark unrest, particularly in fragile states with legacies of violence and weak institutions. During the 2014 West Africa Ebola epidemic, steps taken to mitigate disease transmission, such as the imposition of quarantines and curfews by security forces, were viewed with suspicion by segments of the public and opposition political leaders. This led directly to riots and violent clashes with security forces ([McCoy 2014](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit81)). Latent political tensions from previously warring factions in Liberia also reemerged early in the epidemic and were linked with threats to health care workers as well as attacks on public health personnel and facilities. The Ebola epidemic also greatly amplified political tensions in Guinea, Liberia, and Sierra Leone, with incumbent politicians accused of leveraging the crisis and disease control measures to cement political control and opposition figures accused of hampering disease response efforts ([ICG 2015](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit56)). Whereas growing tensions did not lead to large-scale political violence or instability, they did complicate public health response efforts. In Sierra Leone, quarantine in opposition-dominated regions was delayed because of concerns that it would be seen as politically motivated ([ICG 2015](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit56)). In countries with high levels of political polarization, recent civil war, or weak institutions, sustained outbreaks could lead to more sustained and challenging political tensions. Pandemics also can have longer-term impacts on state capacity ([Price-Smith 2001](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit112)). The HIV/AIDS pandemic offers one notable example. The 1990s and early 2000s saw extremely high HIV/AIDS prevalence rates among African militaries, leading to increased absenteeism, decreased military capacity, and decreased readiness ([Elbe 2002](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit35)). Similar effects may occur during shorter, more acute pandemics, reducing state capacity to manage instability. The weakening of security forces can, in turn, amplify the risk of civil war and other forms of violent conflict ([Fearon and Laitin 2003](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit41)). Large-scale outbreaks of infectious disease have direct and consequential social impacts. For example, widespread public panic during disease outbreaks can lead to rapid population migration. A 1994 outbreak of plague in Surat, India, caused only a small number of reported cases, but fear led some 500,000 people (roughly 20 percent of the city’s population, including a disproportionately large number of clinicians) to flee their homes ([Barrett and Brown 2008](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit9)). Sudden population movements can have destabilizing effects, and migrants face elevated health risks arising from poor sanitation, poor nutrition, and other stressors ([Toole and Waldman 1990](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit135)). Migration also poses the risk of further spreading an outbreak. Finally, outbreaks of infectious disease can cause already vulnerable social groups, such as ethnic minority populations, to be stigmatized and blamed for the disease and its consequences ([Person and others 2004](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit45)). During the Black Death, Jewish communities in Europe faced discrimination, including expulsion and communal violence, because of stigma and blame for disease outbreaks ([Cohn 2007](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit23)). Modern outbreaks have seen more subtle forms of discrimination, such as shunning and fear, directed at minority populations linked with disease foci. For example, Africans in Hong Kong SAR, China, reported experiencing social isolation, anxiety, and economic hardship resulting from fears of their association with Ebola ([Siu 2015](https://europepmc.org/article/nbk/nbk525302#pt5.ch17.ref-list1.cit128)).

#### Instability leads to nuclear war

Ramberg 16 Ramberg, Bennett. "Nuclear Weapons In Civil War Zones | By Bennett Ramberg - Project Syndicate." Project Syndicate. N.p., 2016. Web. 7 Sept. 2021. Bennett Ramberg, a policy analyst in the US State Department’s Bureau of Politico-Military Affairs under President George H.W. Bush, is the author of Destruction of Nuclear Energy Facilities in War and [Nuclear Power Plants as Weapons for the Enemy](https://www.ucpress.edu/op/9780520049697/nuclear-power-plants-as-weapons-for-the-enemy).

LOS ANGELES – The [recent failed military coup in Turkey](https://www.project-syndicate.org/commentary/turkey-coup-erosion-of-law-by-dani-rodrik-2016-07) has produced instability, paranoia, and a crackdown on the regime’s perceived opponents, including many journalists. Luckily, it did not end with rebel forces seizing some of the dozens of US nuclear weapons stored at Turkey’s Incirlik Air Base, from which rebel aircraft departed. But what about next time? The world’s nine nuclear powers claim that there is little to worry about. They argue that the combination of physical protection and, in most cases, electronic safeguards (permissive action links, or PALs) means that their arsenals would remain secure, even if countries where they are stored or deployed were engulfed by violence. Robert Peurifoy, a former senior weapons engineer at Sandia National Laboratories, disagrees. He recently [told the Los Angeles Times](http://www.latimes.com/world/asia/la-na-turkey-nukes-20160721-snap-story.html) that such safeguards – earlier versions of which he helped to design – may only delay terrorists in using seized nuclear weapons. “Either you keep custody or you should expect a mushroom cloud.” Peurifoy’s statements have rightly raised concerns about the security of nuclear weapons stockpiled in [insecure regions](https://www.project-syndicate.org/commentary/bennett-ramberg-highlights-the-vulnerability-of-nuclear-assets-in-volatile-countries). Consider Pakistan, which has the world’s fastest-growing nuclear arsenal and suffers relentless jihadi terrorism and separatist violence. Attacks have already been carried out on Pakistani military installations reportedly housing nuclear components. The country’s new mobile “battlefield nuclear weapons” – easier to purloin – augment current fears. North Korea, with its volatile and mercurial regime, is another [source of concern](https://www.project-syndicate.org/commentary/north-korea-kim-collapse-by-kent-harrington-and-bennett-ramberg-2015-01). Suspicious of the military, Kim Jong-un’s government has repeatedly purged senior officers, which has surely stoked opposition that someday could spark serious civil strife. Adding nuclear weapons to that mix would be highly dangerous. While other nuclear powers appear stable, countries like China and Russia, which rely increasingly on authoritarianism, could face their own risks, should political cohesion fray. Of course, there are plenty of examples of security enduring strife. The 1961 revolt of the generals in French Algeria, which placed a nuclear test device in the Sahara at risk, produced no dangerous incidents. In China, the government effectively protected nuclear weapons sites threatened by Revolutionary Guards during the Cultural Revolution. And neither the attempted coup against Mikhail Gorbachev nor the Soviet collapse resulted in a loss of control over the country’s nuclear arsenal. But it is a leap to presume that these precedents mean that nuclear weapons will remain safe, especially in unstable countries like Pakistan and North Korea. Nuclear bombs or materials risk being controlled by rebels, terrorist groups, or even failing and desperate governments. And, in those cases, the international community has few options for mitigating the threat. External powers can, for example, launch a targeted attack, like the one that Israel carried out on suspected reactors under construction in Iraq and Syria. Those strikes would not have succeeded had Israel not been able to identify the targets accurately. Indeed, though the existence of Iraq’s Osirak plant was public knowledge, uncovering Syria’s Al Kibar plant was an intelligence coup. Carrying out such a strike on North Korean or Pakistani nuclear sites in a time of crisis would require a similar breakthrough – one that may be even more difficult to achieve, given extensive concealment efforts. Stealthy movement of bombs or materials amid the unrest would further complicate targeting. Another option – invasion and occupation – avoids the challenge of identifying nuclear sites. The defeat of Nazi Germany permitted the Allies to find and destroy the country’s nascent nuclear program. The 2003 invasion of Iraq granted the US unfettered access to all possible sites where weapons of mass destruction could be stored. But the costs were huge. Likewise, invasion and occupation of either North Korea or Pakistan would require massive armies risking a bitter conventional war and possible use of the weapons against the invaders. A third option is nuclear containment, which relies on several measures. First, in order to prevent nuclear migration, all land, sea, and air routes out of the country in question would have to be controlled, and homeland security near and far would have to be strengthened. While the [Proliferation Security Initiative](http://www.state.gov/t/isn/c10390.htm) (PSI) is already in place to stop the smuggling of nuclear contraband worldwide, the International Atomic Energy Agency [reports](https://www-ns.iaea.org/downloads/security/itdb-fact-sheet.pdf) continued trafficking of small amounts of nuclear material. An increase in monitoring may reduce, but still not eliminate the problem. Containment also requires nuclear custodians be persuaded to risk their lives to defend nuclear sites against terrorists or rebels. And it demands that states neighboring the country in question put ballistic missile defenses on alert. While India, South Korea, and Japan continue to modernize [such systems](https://www.project-syndicate.org/commentary/thaad-south-korea-nuclear-weapons-by-richard-weitz-2016-08), no missile defense is perfect. In a time of crisis, when the facts on the ground change fast and fear clouds thinking, mitigating the nuclear threat is no easy feat. While concerned governments do have confidential contingency planning in place, such planning has a mixed record when it comes to responding to recent international upsets in the Middle East. And simply hoping that things will go according to plan, and nuclear command and control will stick, remains a gamble. The time has come to discuss new ideas, with the United States – still the global leader in combating proliferation – taking the lead. A public discussion with input from the executive branch, Congress, think tanks, investigative journalists, and scholars should lay a foundation for policy. We cannot allow ourselves to stand on the precipice of catastrophe without a well-considered and broadly supported plan in place. The lesson from Turkey is not that the bombs of Incirlik – not to mention other nuclear weapons in unstable regions – are safe. Rather, it is that our most deadly weapons could be compromised in an instant. It ought to be a wake-up call for all of us.