# NC-Util

**NC – Framework [Policy]**

**The standard is maximizing expected well-being.**

**1] Only pleasure and pain are intrinsically valuable – all other frameworks collapse.**

**Moen 16** [Ole Martin Moen, Research Fellow in Philosophy at University of Oslo “An Argument for Hedonism” Journal of Value Inquiry (Springer), 50 (2) 2016: 267–281] TDI

Let us start by observing, empirically, that a widely shared judgment about intrinsic value and disvalue is that **pleasure is intrinsically valuable and pain is intrinsically disvaluable**. On virtually any proposed list of intrinsic values and disvalues (we will look at some of them below), pleasure is included among the intrinsic values and pain among the intrinsic disvalues. This inclusion makes intuitive sense, moreover, for **there is something undeniably good about the way pleasure feels and something undeniably bad about the way pain feels**, and neither the goodness of pleasure nor the badness of pain seems to be exhausted by the further effects that these experiences might have. “Pleasure” and “pain” are here understood inclusively, as encompassing anything hedonically positive and anything hedonically negative.2 **The special value statuses of pleasure and pain are manifested in how we treat these experiences in our everyday reasoning about values.** If you tell me that you are heading for the convenience store, I might ask: “What for?” This is a reasonable question, for when you go to the convenience store you usually do so, not merely for the sake of going to the convenience store, but for the sake of achieving something further that you deem to be valuable. You might answer, for example: “To buy soda.” This answer makes sense, for soda is a nice thing and you can get it at the convenience store. I might further inquire, however: “What is buying the soda good for?” This further question can also be a reasonable one, for it need not be obvious why you want the soda. You might answer: “Well, I want it for the pleasure of drinking it.” If I then proceed by asking “But what is the pleasure of drinking the soda good for?” the discussion is likely to reach an awkward end. The reason is that the **pleasure is not good for anything further**; it is simply that for which going to the convenience store and buying the soda is good.3 As Aristotle observes: “We never ask [a man] what his end is in being pleased, because we assume that pleasure is choice worthy in itself.”4 Presumably, a similar story can be told in the case of pains, for if someone says “This is painful!” we never respond by asking: “And why is that a problem?” We take for granted that if something is painful, we have a sufficient explanation of why it is bad. If we are onto something in our everyday reasoning about values, it seems that **pleasure and pain are both places where we reach the end of the line in matters of value.**

**2] Extinction first --- moral uncertainty.**

**Bostrom 12** [(Nick Bostrom, Faculty of Philosophy & Oxford Martin School University of Oxford) “Existential Risk Prevention as Global Priority.” Global Policy, 2012] TDI

These reflections on moral uncertainty suggest an alternative, complementary way of looking at existential risk; they also suggest a new way of thinking about the ideal of sustainability. Let me elaborate. **Our** present **understanding** of axiology **might** well **be confused**. We may not now know — at least not in concrete detail — what outcomes would count as a big win for humanity; we might not even yet be able to imagine the best ends of our journey. **If we are** indeed profoundly **uncertain about our** ultimate aims, **then we should** recognize that there is a great option **value** in preserving — and ideally improving — **our ability to** recognize value and to **steer the future accordingly. Ensuring** that there will be **a future** version **of humanity** with great powers and a propensity to use them wisely is plausibly the best way available to us to increase the probability that the future will contain a lot of value. To do this, **we must prevent any existential catastrophe**.

**3] Actor specificity: A] Governments must aggregate since every policy benefit some and harms others, which also means side constraints freeze action. B] States lack wills or intentions since policies are collective actions. C] Actor-specificity comes first since different agents have different ethical standings.**

**Offense**

**Thus, I negate the resolution Resolved: The member nations of the World Trade Organization ought to reduce intellectual property protections for medicines.**

**Definitions:**

**WTO -- the only global international organization dealing with the rules of trade between nations**

<https://www.wto.org/english/thewto_e/whatis_e/whatis_e.htm>

**Intellectual property protections -- protection for inventions, literary and artistic works, symbols, names, and images created by the mind**

<https://www.upcounsel.com/intellectual-property-protection>

**Reduce -- to diminish in size, amount, extent, or number**

<https://www.merriam-webster.com/dictionary/reduce>

**Medicine -- a substance or preparation used in treating disease**

<https://www.merriam-webster.com/dictionary/medicine>

**My value is morality in this debate space**

**Innovation**

**IP protection is critical to innovation – it incentivizes risk-taking by boosting investments**

**Ezell and Cory 19** [(Stephen, vice president, global innovation policy, at the Information Technology and Innovation Foundation, B.S. from the School of Foreign Service at Georgetown University, and Nigel, associate director covering trade policy at the Information Technology and Innovation Foundation, former researcher in the Southeast Asia Program at the Center for Strategic and International Studies, MA in public policy from Georgetown University) “The Way Forward for Intellectual Property Internationally,” Information Technology and Innovation Foundation, 4/25/2019] TDI

IPR reforms also introduce **strong incentives for domestic innovation**. Sherwood, using case studies from 18 developing countries, concluded that **poor provision of intellectual property rights deters local innovation and risk-taking**.47 In contrast, IPR reform has been associated with increased innovative activity, as measured by domestic patent filings, albeit with some variation across countries and sectors.48 For example, Ryan, in **a study of biomedical innovations and patent reform in Brazil, found that patents provided incentives for innovation investments and facilitated the functioning of technology markets**.49 Park and Lippoldt also observed that the provision of adequate protection for IPRs can help to stimulate local innovation, in some cases building on the transfer of technologies that provide inputs and spillovers.50 In other words, local innovators are introduced to technologies first through the technology transfer that takes place in an environment wherein protection of IPRs is assured; then, they may build on those ideas to create an evolved product or develop alternate approaches (i.e., to innovate). Related research finds that trade in technology—through channels including imports, foreign direct investment, and technology licensing—improves the quality of developing-country innovation by increasing the pool of ideas and efficiency of innovation by encouraging the division of innovative labor and specialization.51 However, Maskus notes that without protection from potential abuse of their newly developed technologies, foreign enterprises may be less willing to reveal technical information associated with their innovations.52 The protection of patents and trade secrets provides necessary legal assurances for firms wishing to reveal proprietary characteristics of technologies to subsidiaries and licensees via contracts.

The relationship between IPR rights and innovation can also be seen in studies of how the introduction of stronger IPR laws, with regard to patents, copyrights, and trademarks, affect R&D activity in an economy. Studies by Varsakelis and by Kanwar and Evenson found that **R&D to GDP ratios are positively related to the strength of patent rights**, and are conditional on other factors.53 Cavazos Cepeda et al. found a positive influence of IPRs on the level of R&D in an economy, with each 1 percent increase in the level of protection of IPRs in an economy (as measured by improvements to a country’s score in the Patent Rights Index) equating to, on average, a 0.7 percent increase in the domestic level of R&D.54 Likewise, a 1 percent increase in copyright protection was associated with a 3.3 percent increase in domestic R&D. Similarly, when trademark protection increased by 1 percent, there was an associated R&D increase of 1.4 percent. As the authors concluded, “Increases in the protection of the IPRs carried economic benefits in the form of higher inflows of FDI, and increases in the levels of both domestically conducted R&D and service imports as measured by licensing fees.”55 As Jackson summarized, regarding the relationship between IPR reform and both innovation and R&D, and FDI, “**In addition to spurring domestic innovation, strong intellectual property rights can increase incentives for foreign direct investment which in turn also leads to economic growth**.”56

**Medical innovations key to future**

**Remes et al 20** (<https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/ten-innovations-that-can-improve-global-health>, [McKinsey Global Institute](https://www.mckinsey.com/mgi/overview) Ten innovations that can improve global health July 15, 2020 | Article, [Jaana Remes](https://www.mckinsey.com/our-people/jaana-remes) is a partner of the McKinsey Global Institute, where [Jonathan Woetzel](https://www.mckinsey.com/our-people/jonathan-woetzel) is a director and [Sven Smit](https://www.mckinsey.com/our-people/sven-smit) is co-chair and a director. [Katherine Linzer](https://www.mckinsey.com/our-people/katherine-linzer) is a partner in McKinsey’s Chicago office. [Shubham Singhal](https://www.mckinsey.com/our-people/shubham-singhal) is a senior partner in the Detroit office. [Martin Dewhurst](https://www.mckinsey.com/our-people/martin-dewhurst) and [Penelope Dash](https://www.mckinsey.com/our-people/penny-dash) are senior partners in the London office, where [Kristin-Anne Rutter](https://www.mckinsey.com/our-people/kristin-anne-rutter) is a partner. [Matthias Evers](https://www.mckinsey.com/our-people/matthias-evers) is a senior partner in the Hamburg office. Matt Wilson is a senior partner in the New York office. Aditi Ramdorai is a consultant in the Berlin office.//lex AL)

By 2040, new technologies could reduce the total burden of disease by 6 to 10 percent. Today’s interventions are the innovations of the past. Without them, healthy lifespans would not be as long as they are. Innovation continues to be critical to tackle diseases without known cures and to help increase uptake and adherence to interventions that work. As part of the report [Prioritizing health: A prescription for prosperity](https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/prioritizing-health-a-prescription-for-prosperity), the McKinsey Global Institute identified ten promising innovations, now in progress, that could have a material impact on health by 2040. Focusing on technologies that address the greatest unmet needs, we determined the impact of these innovations by interviewing experts and evaluating the current biological understanding of each disease, as well as the effort and excitement surrounding the new techniques as measured by funding. Identifying and sizing the potential scope of innovations now in the pipeline is inherently difficult, but we estimate that these technologies could reduce the burden of disease by a further 6 to 10 percent, assuming aspirational yet realistic adoption rates by 2040—on top of the 40 percent from known interventions. Some of these innovations could not only fully cure a number of diseases but also significantly extend healthy lifespans by tackling the underlying biology of aging and therefore postponing the onset of several age-related conditions. These possibilities make a sharp contrast with the innovations of the past 30 years, many of which reduced the symptoms or delayed the progression of diseases but rarely prevented or cured them. In addition, the innovations we have identified here are more digitally enabled than those of the past; for example, [artificial intelligence](https://www.mckinsey.com/featured-insights/artificial-intelligence/applying-artificial-intelligence-for-social-good) (AI) systems make advances in omics and molecular technologies, such as gene editing, faster and more accurate. How can we improve health globally over the next two decades? Omics and molecular technologies These technologies—key components of the [Bio Revolution](https://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/the-bio-revolution-innovations-transforming-economies-societies-and-our-lives)—are therapeutics or diagnostics that harness the various types of molecules within cells (such as DNA, RNA, and proteins). Some omics and molecular technologies (for instance, genome editing) engineer these intracellular components or analyze them (such as proteomics and transcriptomics). Example: CRISPR and curbing malaria The current treatment includes antimalarial prophylactics and nonpharmaceutical measures (such as indoor residual spraying and insecticide-treated bed netting) and antimalarial medications. Genetically **modifying malaria-carrying mosquitos** by **using** gene-editing technologies, such as [**CRISPR**](https://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/programming-life-an-interview-with-jennifer-doudna), may **significantly reduce disease levels** by propagating the modified genes across the mosquito population. Next-generation pharmaceuticals Newer iterations of traditional chemical compounds (small molecules) and classes of molecules could be used as medicinal drugs, possibly with multiple and concurrent target structures. Example: Senolytics and the regulation of cellular aging Cellular aging (senescence) is considered an unavoidable physiological process that is not a viable field for drug development. But senolytics (a class of small molecules) may decrease or eliminate aging cells that can cause cellular inflammation, dysfunction, and tissue damage. This has implications for delaying age-related diseases. Cellular therapy and regenerative medicine Cellular therapy is a biological product, derived from living cells, used for therapeutic purposes to replace or repair damaged cells or tissues. Regenerative medicine has the power to restore diseased or injured tissues and organs, potentially decreasing reliance on transplantation. Example: CAR T-cell therapy and the treatment of solid tumors Today, treatment is based primarily on unspecific radiotherapy and chemotherapeutic agents, plus surgical interventions. In many cases, these approaches are ineffective. [CAR T-cell therapy](https://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/driving-the-next-wave-of-innovation-in-car-t-cell-therapies) reprograms a patient’s T-cells (immune-system cells) to target tumor cells. When infused into the patient, the T-cells bind to an antigen on tumor cells, attacking and destroying them. Innovative vaccines Vaccines stimulate the immune system to respond to and destroy a bacterium or virus. Historically, they have eradicated or controlled the spread of infectious diseases around the world. In the future, vaccines may target noncommunicable diseases, such as cancer. Example: The AT04A vaccine and the lowering of cholesterol At present, patients take statins (lipid-lowering medicines) to control or lower high cholesterol levels in the blood. Patients with cardiovascular disease must take these daily, but adherence is often poor. AT04A is a vaccine made up of molecules that bind to blood cholesterol and degrade it. The vaccine would be required only once a year, potentially improving outcomes. Advanced surgical procedures These include treating injuries or disorders of the body with minimally invasive incisions or small instruments (including robotic surgery), as well as any technique that improves surgery-related processes outside the operating room. Example: Suspended animation for severe-trauma patients After patients suffer acute trauma (such as an accident) it may take time to get them to hospitals for surgery. That significantly decreases their chances of survival. Suspended animation for severe-trauma patients would involve, for example, injecting a cold saline solution into them on first contact to cool the body to 10–15ºC and stop its normal functions. This would give the surgeon time to operate before resuscitating the patient. Connected and cognitive devices Portable, wearable, ingestible, or implantable devices can monitor health and fitness information, engage patients and their communities of caregivers, and deliver self-regulated therapies autonomously. Example: E-tattoos for heart diagnostics Today’s technology relies on a Holter monitor (a battery-operated device) to monitor the heart continuously. The monitor’s batteries last for no more than 48 hours, and the procedure can cause immense discomfort for patients. Ultrathin e-tattoos can monitor hearts for longer periods and make patients more comfortable while providing a wider range of data to enhance clinical decision making. Electroceuticals Small therapeutic agents can target the neural circuits of organs. Such therapies map neural circuitry with neural impulses (administered by an implantable device) delivered to these specific targets. Example: Implantable microchips to mitigate chronic pain Today, managing chronic pain involves nonindividualized treatment with multiple drugs (including opioids) and relatively ineffective late-stage surgery. But one technique now under development—stimulating the spinal cord—can improve the patient’s quality of life by increasing mobility, enhancing sleep, and reducing the need for pain medication. Robotics and prosthetics A wide variety of programmable, self-controlled devices consisting of electronic, electrical, or mechanical units and of artificial substitutes or replacements for body parts are now under development. Example: Next-generation exoskeletons and mobility support Today’s mechanical mobility aids do not fully restore movement in the elderly, so they do not prevent a loss of independence and the risk of accidental injuries. Next-generation exoskeletons, powered by small motors that mimic human muscles, could allow older patients to recover their autonomy while reducing the likelihood of accidents and falls. Digital therapeutics These preventive and therapeutic evidence-based interventions, for a broad spectrum of physical, mental, and behavioral conditions, are controlled by software. Example: An AI-powered app to change behavior Apart from brief consultations, doctors now have few tools to help patients with chronic conditions adopt healthy lifestyles. In the future, digital therapeutics, powered by AI, patient data, and behavioral science, can use gamification and other forms of engagement to help patients adopt and sustain healthy behaviors. Tech-enabled care delivery These ways to deliver care incorporate new and larger data sets, use new analytics capabilities to generate insights, and help providers apply them to patients to improve the outcome, experience, and efficiency of care. Example: Multichannel care delivery Inefficient data management and poor communication among patients, payers, and providers hinder the continuity of care and therefore make treatment significantly less efficient. Innovative multichannel care delivery using online platforms may facilitate data sharing and make treatment more efficient. This is particularly relevant for chronic diseases, such as diabetes, because the glucose levels and other vital signs of patients are continuously shared with clinicians. Innovation—in the form of new medicines, procedures, medical devices, technologies, and delivery models—will clearly be critical to go on improving the health of the world’s population. Realizing these innovations, however, will require continual R&D investments by pharmaceutical companies, medical and other technology companies, and academia.

**Counterplan**

**CP Text – The member nations of the WTO ought to reduce IPP for medicines during public health emergencies and employ direct health support through the methods in the Lindsey evidence. In all other cases IPP ought to remain the same.**

**The CP incentivizes pharma medicine development during future pandemics – the aff fails.**

**Lindsey 21** Brink Lindsey is Vice President and Director of the Open Society Project at the Niskanen Center. Previously he was the Cato Institute's vice president for research [Brink Lindsey, 6-3-2021, "Why intellectual property and pandemics don’t mix," Brookings, <https://www.brookings.edu/blog/up-front/2021/06/03/why-intellectual-property-and-pandemics-dont-mix/>] //Lex AKo

On May 5 the Biden administration announced that it would support waiving intellectual property protections for COVID-19 vaccines under the World Trade Organization’s Agreement on Trade-Related Intellectual Property Rights (TRIPS). Predictably, the move drew fiery condemnation from drug companies. In addition, many disinterested observers criticized the support for a TRIPS waiver as empty symbolism, arguing that vaccine patents are not the major obstacle hindering the currently flagging drive to make vaccines available around the world. Waiving patent protections is certainly no panacea. **What is needed most urgently is a massive drive of technology transfer**, capacity expansion, and supply line coordination **to bring vaccine supply in line with global demand. Dispensing with patents in no way obviates the need for governments to fund and oversee this** effort. Although focusing on these immediate constraints is vital, we cannot confine our attention to the short term. First of all, the COVID-19 pandemic is far from over. Although Americans can now see the light at the end of the tunnel thanks to the rapid rollout of vaccines, most of the world isn’t so lucky. The virus is currently raging in India and throughout South America, overwhelming health care systems and inflicting suffering and loss on a horrific scale. And consider the fact that Australia, which has been successful in suppressing the virus, recently announced it was sticking to plans to keep its borders closed until mid-2022. Criticisms of the TRIPS waiver that focus only on the next few months are therefore short-sighted: this pandemic could well drag on long enough for elimination of patent restrictions to enable new vaccine producers to make a positive difference. Furthermore, and probably even more important, **this is almost certainly not the last pandemic** we will face. Urbanization, the spread of factory-farming methods, and globalization all combine to increase the odds that **a new virus will** make the jump from animals to humans and then **spread rapidly around the world**. Prior to the current pandemic, the 21st century already saw outbreaks of SARS, H1N1, MERS, and Ebola. Everything we do and learn in the current crisis should be viewed from the perspective of getting ready for next time. THE NATURE OF THE PATENT BARGAIN When we take the longer view, we can see a fundamental mismatch between the policy design of intellectual property protection and the policy requirements of effective pandemic response. Although **patent law**, properly restrained, **constitutes one important element of a well-designed national innovation system**, the way it goes about encouraging technological progress **is singularly ill-suited to the emergency conditions** of a pandemic or other public health crisis. Securing a TRIPS waiver for COVID-19 vaccines and treatments would thus establish a salutary precedent that, in emergencies of this kind, **governments should employ other, more direct means to incentivize the development of new drugs.** Here is the basic bargain offered by patent law: encourage the creation of useful new ideas for the long run by slowing the diffusion of useful new ideas in the short run. The second half of the bargain, the half that imposes costs on society, comes from the temporary exclusive rights, or monopoly privileges, that a patent holder enjoys. Under U.S. patent law, for a period of 20 years nobody else can manufacture or sell the patented product without the permission of the patent holder. This allows the **patent holder to block competitors from the market**, or extract licensing fees before allowing them to enter, and consequently charge above-market prices to its customers. Patent rights thus slow the diffusion of a new invention by restricting output and raising prices. **The imposition** of these short-run costs, however, **can bring net long-term benefits by sharpening the incentives to invent new products**. In the absence of patent protection, **the prospect of easy imitation by later market entrants can deter would-be innovators from incurring the up-front fixed costs of research and development**. But with a guaranteed period of market exclusivity, inventors can proceed with greater confidence that they will be able to recoup their investment. For the tradeoff between costs and benefits to come out positive on net, patent law must strike the right balance. **Exclusive rights should be valuable enough to encourage greater innovation, but not so easily granted or extensive in scope or term that this encouragement is outweighed by output restrictions** on the patented product and discouragement of downstream innovations dependent on access to the patented technology. Unfortunately, the U.S. patent system at present is out of balance. Over the past few decades, the expansion of patentability to include software and business methods as well as a general relaxation of patenting requirements have led to wildly excessive growth in these temporary monopolies: the number of patents granted annually has skyrocketed roughly fivefold since the early 1980s. One unfortunate result has been the rise of “non-practicing entities,” better known as patent trolls: firms that make nothing themselves but buy up patent portfolios and monetize them through aggressive litigation. As a result, a law that is supposed to encourage innovation has turned into a legal minefield for many would-be innovators. In the pharmaceutical industry, firms have abused the law by piling up patents for trivial, therapeutically irrelevant “innovations” that allow them to extend their monopolies and keep raising prices long beyond the statutorily contemplated 20 years. Patent law is creating these unintended consequences because policymakers have been caught in an ideological fog that conflates “intellectual property” with actual property rights over physical objects. Enveloped in that fog, they regard any attempts to put limits on patent monopolies as attacks on private property and view ongoing expansions of patent privileges as necessary to keep innovation from grinding to a halt. In fact, patent law is a tool of regulatory policy with the usual tradeoffs between costs and benefits; like all tools, it can be misused, and as with all tools there are some jobs for which other tools are better suited. **A well-designed patent system**, in which benefits are **maximized and costs kept to a minimum, is just one of various policy options that governments can employ to stimulate technological advance—including tax credits for R&D, prizes for targeted inventions**, and direct government support. PUBLIC HEALTH EMERGENCIES AND DIRECT GOVERNMENT SUPPORT For pandemics and other public health emergencies, patents’ mix of costs and benefits is misaligned with what is needed for an effective policy response. The basic patent bargain, even when well struck, is to pay for more innovation down the road with slower diffusion of innovation today. In the context of a pandemic, that bargain is a bad one and should be rejected entirely. Here the imperative is to accelerate the diffusion of vaccines and other treatments, not slow it down. Giving drug companies the power to hold things up by blocking competitors and raising prices pushes in the completely wrong direction. What approach to encouraging innovation should we take instead? How do we incentivize drug makers to undertake the hefty R&D costs to develop new vaccines without giving them exclusive rights over their production and sale? **The most effective approach** during a public health crisis **is direct government support: public funding of R&D, advance purchase commitments by the government to buy large numbers of doses at set prices, and other, related payouts**. And when we pay drug makers, we should not hesitate to pay generously, even extravagantly: **we want to offer drug companies big profits so that they prioritize this work** above everything else, and so that they are ready and eager to come to the rescue again the next time there’s a crisis.

**Future pandemics cause extinction**

**Bar-Yam 16** Yaneer Bar-Yam 7-3-2016 “Transition to extinction: Pandemics in a connected world” <http://necsi.edu/research/social/pandemics/transition> (Professor and President, New England Complex System Institute; PhD in Physics, MIT)//Elmer

Watch as one of the more aggressive—brighter red — strains rapidly expands. After a time it goes extinct leaving a black region. Why does it go extinct? The answer is that it spreads so rapidly that it kills the hosts around it. Without new hosts to infect it then dies out itself. That the rapidly spreading pathogens die out has important implications for evolutionary research which we have talked about elsewhere [1–7]. In the research I want to discuss here, what we were interested in is the effect of adding long range transportation [8]. This includes natural means of dispersal as well as **unintentional dispersal by humans**, like adding airplane routes, which is being done by real world airlines (Figure 2). When we introduce long range transportation into the model, the success of more aggressive strains changes. They can use the **long range transportation** to find new hosts and **escape local extinction**. Figure 3 shows that the more transportation routes introduced into the model, the **more higher aggressive pathogens are able to survive and spread**. As we add more long range transportation, there is a critical point at which pathogens become so aggressive that **the entire host population dies**. The pathogens die at the same time, but that is not exactly a consolation to the hosts. We call this the phase transition to **extinction** (Figure 4). With increasing levels of global transportation, **human civilization** may be approaching **such a critical threshold**. In the paper we wrote in 2006 about the dangers of global transportation for pathogen evolution and pandemics [8], we mentioned the risk from Ebola. Ebola is a horrendous disease that was present only in isolated villages in Africa. It was far away from the rest of the world only because of that isolation. Since Africa was developing, it was only a matter of time before it reached population centers and airports. While the model is about evolution, it is really about which pathogens will be found in a system that is highly connected, and Ebola can spread in a highly connected world. The traditional approach to public health uses historical evidence analyzed statistically to assess the potential impacts of a disease. As a result, many were surprised by the spread of Ebola through West Africa in 2014. As the connectivity of the world increases, past experience is not a good guide to future events. A key point about the phase transition to extinction is its **suddenness**. Even a system that seems stable, **can be destabilized** by a few more long-range connections, and connectivity is continuing to increase. So how close are we to the tipping point? We don’t know but it would be good to find out before it happens. While Ebola ravaged three countries in West Africa, it only resulted in a handful of cases outside that region. One possible reason is that many of the airlines that fly to west Africa stopped or reduced flights during the epidemic [9]. In the absence of a clear connection, public health authorities who downplayed the dangers of the epidemic spreading to the West might seem to be vindicated. As with the choice of airlines to stop flying to west Africa, our analysis didn’t take into consideration how people respond to epidemics. It does tell us what the outcome will be unless we respond fast enough and well enough to stop the spread of future diseases, which may not be the same as the ones we saw in the past. As the world becomes more connected, the dangers increase. Are people in western countries safe because of higher quality health systems? Countries like **the U.S.** have highly skewed networks of social interactions with some very highly connected individuals that can be **“superspreaders.”** The chances of such an individual becoming infected may be low but events like a mass outbreak pose a much **greater risk** if they do happen. If a sick food service worker in an airport infects 100 passengers, or a contagion event happens in mass transportation, **an outbreak could very well prove unstoppable**.