# T

### NC – OFF

#### T – Appropriation:

#### Interpretation: Appropriation means use, exploitation, or occupation that is permanent and to the exclusion of others

Babcock 19 Professor of Law, Georgetown University Law Cente. Babcock, Hope M. "The Public Trust Doctrine, Outer Space, and the Global Commons: Time to Call Home ET." Syracuse L. Rev. 69 (2019): 191.

Article II is one of those succeeding provisions that curtails “the freedom of use outlined in Article [I] by declaring that outer space, including the [m]oon and other celestial bodies, is not subject to national appropriation.”147 It flatly prohibits national appropriation of any celestial body in outer space “by means of use or occupation, or by any other means.”148 However, “many types of ‘use’ or ‘exploitation’. . . are inconceivable without appropriation of some degree at least of any materials taken,” like ore or water.149 If this view of Article II’s prohibitory language is correct, then “it is not at all farfetched to say that the OST actually installs a blanket prohibition on many beneficial forms of development.”150 However, the OST only prohibits an appropriation that constitutes a “long-term use and permanent occupation, to the exclusion of all others.”151

#### Violation: Constellations do not appropriate – reject non-legal interpretations

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No, This Is Not Impermissible Appropriation

An opposite conclusion can also be reasonably arrived at when approached along the following lines. The counter argument would assert that the deployment and operation of these global constellations, such as SpaceX’s Starlink, OneWeb, Kepler, etc., are aligned with and in full conformity with the laws applicable to outer space. These constellations are merely the exercise and enjoyment of the freedom of exploration and use of outer space and do not constitute any impermissible appropriation of the orbits that they transit.

Freedom of Access and Use Permits Constellations

Rather than being a violation of other’s rights to access and explore outer space, the deployment of these constellations is more correctly viewed as the exercise and enjoyment of the right to access and use outer space. Article I of the Outer Space Treaty establishes a right to access and use space without discrimination.

Not allowing an actor to deploy spacecraft, regardless of their number or destination, would be infringing with the exercise of their freedom. It would be discriminatory. Additionally, actors do not need permission from any other State, or group of States, to access and explore outer space.

Aligned with the Intentions of the Outer Space Treaty

This use of outer space by constellations in LEO, while not explicitly mentioned by the drafters of the Outer Space Treaty or other space law, actually is the fulfillment of their visions for the use of outer space. The preamble to the Outer Space Treaty (which contains the subject matter and purpose of the treaty and can be used for interpreting the operative articles of the treaty) speaks of the aspirations of humanity in exploring and using outer space. It is easy to see constellations that will provide Internet access to the world as fulfilling the visions of the drafters:

The States Parties to this Treaty,

Inspired by the great prospects opening up before mankind as a result of man’s entry into outer space,

Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes,

Believing that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development,

Desiring to contribute to broad international cooperation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes,

Believing that such cooperation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples,

As such, subsequent article of the Outer Space Treaty should be read in a permissive light, as permitting constellations, rather than a restrictive light which only sees potential negative aspects of constellations.

Due Regard and Harmful Contamination Will be Addressed

Operators in LEO are well aware of the challenges to space sustainability that their constellations will pose and will be taking efforts to mitigate the creation of debris. OneWeb is keenly focused on space sustainability and has even argued that the current norm, whereby spacecraft are not in space for longer than 25 years and are deorbited from lower orbits at the end of their lifetime (aka post mission disposal), is not sufficient to keep outer space clean and that shorter lifespan limits should be imposed on operators, especially operators in LEO, and operators of small satellites.

Additionally, these systems will be able to cooperate with emerging space safety and space traffic management plans and can operate in ways that do not restrict or impinge on other users of the space domain. Because due regard is therefore displayed for the space domain, and to the interests of others, these constellations do not prejudice or infringe upon the freedoms of use and exploration of the space domain and are therefore not occupation, or possession, much less appropriation.

This Does Not Constitute Possession, or Ownership, or Occupation

The use of LEO by satellite constellations is substantially similar to the use of GSO, and therefore permissible. In each region, individual actors are given permission - either from a national administrator or from an international governing body (the ITU) via a national administer–to use precoordinated subsections of space. In a way that is overwhelmingly similar to the use of orbital slots in GSO, the placement of spacecraft into orbits in LEO or higher orbits does not constitute possession, ownership, or occupation of those orbits. This is because States (and their companies) have been occupying orbital slots in GSO for decades, and these uses of GSO have never been accused of “appropriating” GSO. The users have never claimed to be appropriating GSO, and their exercising of rights to use GSO is respected by other actors in the space domain. This is the same situation for other orbits, including LEO and other non-Geostationary orbits.

And while GSO locations are relatively stable (subject to space weather and other perturbations, and require stationkeeping), spacecraft in LEO are actually moving through space and are not stationary, so it is even more difficult to see this use by constellations as occupation, much less appropriation. Moreover, Space Situational Awareness (SSA) and Space Traffic Management (STM) will allow other uses to use these orbits, and nothing about the use of any one user necessarily precludes others. Lastly, there is no intention by operators of constellations to exclusively occupy, must less possess or appropriate, these orbits. Would not the appropriation of outer space be an intentional, volutional act? No such intention can be found in the operators of global constellations.

#### 1] Precision – if we win definitions the aff doesn’t defend a shift from the squo or solve their advantages – so at best vote negative on presumption. The resolution is the only predictable stasis point for dividing ground—any deviation justifies the aff arbitrarily jettisoning words in the resolution at their whim which decks negative ground and preparation because the aff is no longer bounded by the resolution.

#### 2] Predictable limits—including satellite slots offers huge explosion in the topic since they get permutations of different satellite systems – LEO MEO and HEO, plus different companies, plus sizes of constellations, et cetera. Letting temporary occupation be appropriation is a limits diaster - any aff about a single space ship, satellite, or weapon would be T because they temporarily occupy space. Limits explodes neg prep burden and draws un-reciprocal lines of debate, where the aff is always ahead, turns their pragmatics offense

#### Topicality is a voting issue that should be evaluated through competing interpretations – it tells the negative what they do and do not have to prepare for—there’s no way for the negative to know what constitutes a “reasonable interpretation” when we do prep – reasonability is arbitrary and causes a race to the bottom, proliferating abuse

#### No RVIs—it’s your burden to be topical.

# Fwk

#### The standard is minimizing existential risk.

#### 1] Use util – it’s impartial, specific to public actors, and resolves infinite regress which explains all value. Reject flawed calc indicts that misunderstand happiness and rely on problematic intuitions.

Greene 15 — (Joshua Greene, Professor of Psychology @ Harvard, being interviewed by Russ Roberts, “Joshua Greene on Moral Tribes, Moral Dilemmas, and Utilitarianism”, The Library of Economics and Liberty, 1-5-15, Available Online at <https://www.econtalk.org/joshua-greene-on-moral-tribes-moral-dilemmas-and-utilitarianism/#audio-highlights>, accessed 5-17-20, HKR-AM) \*\*NB: Guest = Greene, and only his lines are highlighted/underlined

Guest: Okay. So, I think utilitarianism is very much misunderstood. And this is part of the reason why we shouldn't even call it utilitarianism at all. We should call it what I call 'deep pragmatism', which I think better captures what I think utilitarianism is really like, if you really apply it in real life, in light of an understanding of human nature. But, we can come back to that. The idea, going back to the tragedy of common-sense morality is you've got all these different tribes with all of these different values based on their different ways of life. What can they do to get along? And I think that the best answer that we have is--well, let's back up. In order to resolve any kind of tradeoff, you have to have some kind of common metric. You have to have some kind of common currency. And I think that what utilitarianism, whether it's the moral truth or not, is provide a kind of common currency. So, what is utilitarianism? It's basically the idea that--it's really two ideas put together. One is the idea of impartiality. That is, at least as social decision makers, we should regard everybody's interests as of equal worth. Everybody counts the same. And then you might say, 'Well, but okay, what does it mean to count everybody the same? What is it that really matters for you and for me and for everybody else?' And there the utilitarian's answer is what is sometimes called, somewhat accurately and somewhat misleadingly, happiness. But it's not really happiness in the sense of cherries on sundaes, things that make you smile. It's really the quality of conscious experience. So, the idea is that if you start with anything that you value, and say, 'Why do you care about that?' and keep asking, 'Why do you care about that?' or 'Why do you care about that?' you ultimately come down to the quality of someone's conscious experience. So if I were to say, 'Why did you go to work today?' you'd say, 'Well, I need to make money; and I also enjoy my work.' 'Well, what do you need your money for?' 'Well, I need to have a place to live; it costs money.' 'Well, why can't you just live outside?' 'Well, I need a place to sleep; it's cold at night.' 'Well, what's wrong with being cold?' 'Well, it's uncomfortable.' 'What's wrong with being uncomfortable?' 'It's just bad.' Right? At some point if you keep asking why, why, why, it's going to come down to the conscious experience--in Bentham's terms, again somewhat misleading, the pleasure and pain of either you or somebody else that you care about. So the utilitarian idea is to say, Okay, we all have our pleasures and pains, and as a moral philosophy we should all count equally. And so a good standard for resolving public disagreements is to say we should go with whatever option is going to produce the best overall experience for the people who are affected. Which you can think of as shorthand as maximizing happiness--although I think that that's somewhat misleading. And the solution has a lot of merit to it. But it also has endured a couple of centuries of legitimate criticism. And one of the biggest criticisms--and now we're getting back to the Trolley cases, is that utilitarianism doesn't adequately account for people's rights. So, take the footbridge case. It seems that it's wrong to push that guy off the footbridge. Even if you stipulate that you can save more people's lives. And so anyone who is going to defend utilitarianism as a meta-morality--that is, a solution to the tragedy of common sense morality, as a moral system to adjudicate among competing tribal moral systems--if you are going to defend it in that way, as I do, you have to face up to these philosophical challenges: is it okay to kill on person to save five people in this kind of situation? So I spend a lot of the book trying to understand the psychology of cases like the footbridge case. And you mention these being kind of unrealistic and weird cases. That's actually part of my defense.

Russ: Yeah, there's some plus to it, I agree.

Guest: Right. And the idea is that your amygdala is responding to an act of violence. And most acts of violence are bad. And so it is good for us to have a gut reaction, which is really a reaction in your amygdala that's then sending a signal to your ventromedial prefrontal cortex and so on and so forth, and we can talk about that. It's good to have that reaction that says, 'Don't push people off of footbridges.' But if you construct a case in which you stipulate that committing this act of violence is going to lead to the greater good, and it still feels wrong, I think it's a mistake to interpret that gut reaction as a challenge to the theory that says we should do whatever in general is going to promote the greater good. That is, our gut reactions are somewhat limited. They are good for everyday life. It's good that you have a gut reaction that says, 'Don't go shoving people off of high places.' But that shouldn't be a veto against a general idea that otherwise makes a lot of sense. Which is that in the modern world, we have a lot of different competing value systems, and that the way to resolve disagreements among those different competing value systems is to say, 'What's going to actually produce the best consequences?' And best consequences measured in terms of the quality of people's experience. So, that's kind of completing or partially completing the circle between the tragedy of the commons, that discussion, and how do we get to the Trolleys.

#### 2] Extinction outweighs---it’s the upmost moral evil and disavowal of the risk makes it more likely.

Burns 2017 (Elizabeth Finneron-Burns is a Teaching Fellow at the University of Warwick and an Affiliated Researcher at the Institute for Futures Studies in Stockholm, What’s wrong with human extinction?, <http://www.tandfonline.com/doi/pdf/10.1080/00455091.2016.1278150?needAccess=true>, Canadian Journal of Philosophy, 2017)

Many, though certainly not all, people might believe that it would be wrong to bring about the end of the human species, and the reasons given for this belief are various. I begin by considering four reasons that could be given against the moral permissibility of human extinction. I will argue that only those reasons that impact the people who exist at the time that the extinction or the knowledge of the upcoming extinction occurs, can explain its wrongness. I use this conclusion to then consider in which cases human extinction would be morally permissible or impermissible, arguing that there is only a small class of cases in which it would not be wrong to cause the extinction of the human race or allow it to happen. 2.1. It would prevent the existence of very many happy people One reason of human extinction might be considered to be wrong lies in the value of human life itself. The thought here might be that it is a good thing for people to exist and enjoy happy lives and extinction would deprive more people of enjoying this good. The ‘good’ in this case could be understood in at least two ways. According to the first, one might believe that you benefit a person by bringing them into existence, or at least, that it is good for that person that they come to exist. The second view might hold that if humans were to go extinct, the utility foregone by the billions (or more) of people who could have lived but will now never get that opportunity, renders allowing human extinction to take place an incidence of wrongdoing. An example of this view can be found in two quotes from an Effective Altruism blog post by Peter Singer, Nick Beckstead and Matt Wage: One very bad thing about human extinction would be that billions of people would likely die painful deaths. But in our view, this is by far not the worst thing about human extinction. The worst thing about human extinction is that there would be no future generations. Since there could be so many generations in our future, the value of all those generations together greatly exceeds the value of the current generation. (Beckstead, Singer, and Wage 2013) The authors are making two claims. The first is that there is value in human life and also something valuable about creating future people which gives us a reason to do so; furthermore, it would be a very bad thing if we did not do so. The second is that, not only would it be a bad thing for there to be no future people, but it would actually be the worst thing about extinction. Since happy human lives have value, and the number of potential people who could ever exist is far greater than the number of people who exist at any one time, even if the extinction were brought about through the painful deaths of currently existing people, the former’s loss would be greater than the latter’s. Both claims are assuming that there is an intrinsic value in the existence of potential human life. The second claim makes the further assumption that the forgone value of the potential lives that could be lived is greater than the disvalue that would be accrued by people existing at the time of the extinction through suffering from painful and/or premature deaths. The best-known author of the post, Peter Singer is a prominent utilitarian, so it is not surprising that he would lament the potential lack of future human lives per se. However, it is not just utilitarians who share this view, even if implicitly. Indeed, other philosophers also seem to imply that they share the intuition that there is just something wrong with causing or failing to prevent the extinction of the human species such that we prevent more ‘people’ from having the ‘opportunity to exist’. Stephen Gardiner (2009) and Martin O’Neill (personal correspondence), both sympathetic to contract theory, for example, also find it intuitive that we should want more generations to have the opportunity to exist, assuming that they have worth-living lives, and I find it plausible to think that many other people (philosophers and non-philosophers alike) probably share this intuition. When we talk about future lives being ‘prevented’, we are saying that a possible person or a set of possible people who could potentially have existed will now never actually come to exist. To say that it is wrong to prevent people from existing could either mean that a possible person could reasonably reject a principle that permitted us not to create them, or that the foregone value of their lives provides a reason for rejecting any principle that permits extinction. To make the first claim we would have to argue that a possible person could reasonably reject any principle that prevented their existence on the grounds that it prevented them in particular from existing. However, this is implausible for two reasons. First, we can only wrong someone who did, does or will actually exist because wronging involves failing to take a person’s interests into account. When considering the permissibility of a principle allowing us not to create Person X, we cannot take X’s interest in being created into account because X will not exist if we follow the principle. By considering the standpoint of a person in our deliberations we consider the burdens they will have to bear as a result of the principle. In this case, there is no one who will bear any burdens since if the principle is followed (that is, if we do not create X), X will not exist to bear any burdens. So, only people who do/will actually exist can bear the brunt of a principle, and therefore occupy a standpoint that is owed justification. Second, existence is not an interest at all and a possible person is not disadvantaged by not being caused to exist. Rather than being an interest, it is a necessary requirement in order to have interests. Rivka Weinberg describes it as ‘neutral’ because causing a person to exist is to create a subject who can have interests; existence is not an interest itself.3 In order to be disadvantaged, there must be some detrimental effect on your interests. However, without existence, a person does not have any interests so they cannot be disadvantaged by being kept out of existence. But, as Weinberg points out, ‘never having interests itself could not be contrary to people’s interests since without interest bearers, there can be no ‘they’ for it to be bad for’ (Weinberg 2008, 13). So, a principle that results in some possible people never becoming actual does not impose any costs on those ‘people’ because nobody is disadvantaged by not coming into existence.4 It therefore seems that it cannot be wrong to fail to bring particular people into existence. This would mean that no one acts wrongly when they fail to create another person. Writ large, it would also not be wrong if everybody decided to exercise their prerogative not to create new people and potentially, by consequence, allow human extinction. One might respond here by saying that although it may be permissible for one person to fail to create a new person, it is not permissible if everyone chooses to do so because human lives have value and allowing human extinction would be to forgo a huge amount of value in the world. This takes us to the second way of understanding the potential wrongness of preventing people from existing — the foregone value of a life provides a reason for rejecting any principle that prevents it. One possible reply to this claim turns on the fact that many philosophers acknowledge that the only, or at least the best, way to think about the value of (individual or groups of) possible people’s lives is in impersonal terms (Parfit 1984; Reiman 2007; McMahan 2009). Jeff McMahan, for example, writes ‘at the time of one’s choice there is no one who exists or will exist independently of that choice for whose sake one could be acting in causing him or her to exist … it seems therefore that any reason to cause or not to cause an individual to exist … is best considered an impersonal rather than individual-affecting reason’ (McMahan 2009, 52). Another reply along similar lines would be to appeal to the value that is lost or at least foregone when we fail to bring into existence a next (or several next) generations of people with worth-living lives. Since ex hypothesi worth-living lives have positive value, it is better to create more such lives and worse to create fewer. Human extinction by definition is the creation of no future lives and would ‘deprive’ billions of ‘people’ of the opportunity to live worth-living lives. This might reduce the amount of value in the world at the time of the extinction (by killing already existing people), but it would also prevent a much vaster amount of value in the future (by failing to create more people). Both replies depend on the impersonal value of human life. However, recall that in contractualism impersonal values are not on their own grounds for reasonably rejecting principles. Scanlon himself says that although we have a strong reason not to destroy existing human lives, this reason ‘does not flow from the thought that it is a good thing for there to be more human life rather than less’ (104). In contractualism, something cannot be wrong unless there is an impact on a person. Thus, neither the impersonal value of creating a particular person nor the impersonal value of human life writ large could on its own provide a reason for rejecting a principle permitting human extinction. It seems therefore that the fact that extinction would deprive future people of the opportunity to live worth-living lives (either by failing to create either particular future people or future people in general) cannot provide us with a reason to consider human extinction to be wrong. Although the lost value of these ‘lives’ itself cannot be the reason explaining the wrongness of extinction, it is possible the knowledge of this loss might create a personal reason for some existing people. I will consider this possibility later on in section (d). But first I move to the second reason human extinction might be wrong per se. 2.2. It would mean the loss of the only known form of intelligent life and all civilization and intellectual progress would be lost A second reason we might think it would be wrong to cause human extinction is the loss that would occur of the only (known) form of rational life and the knowledge and civilization that that form of life has created. One thought here could be that just as some might consider it wrong to destroy an individual human heritage monument like the Sphinx, it would also be wrong if the advances made by humans over the past few millennia were lost or prevented from progressing. A related argument is made by those who feel that there is something special about humans’ capacity for rationality which is valuable in itself. Since humans are the only intelligent life that we know of, it would be a loss, in itself, to the world for that to end. I admit that I struggle to fully appreciate this thought. It seems to me that Henry Sidgwick was correct in thinking that these things are only important insofar as they are important to humans (Sidgwick 1874, I.IX.4).5 If there is no form of intelligent life in the future, who would there be to lament its loss since intelligent life is the only form of life capable of appreciating intelligence? Similarly, if there is no one with the rational capacity to appreciate historic monuments and civil progress, who would there be to be negatively affected or even notice the loss?6 However, even if there is nothing special about human rationality, just as some people try to prevent the extinction of nonhuman animal species, we might think that we ought also to prevent human extinction for the sake of biodiversity. The thought in this, as well as the earlier examples, must be that it would somehow be bad for the world if there were no more humans even though there would be no one for whom it is bad. This may be so but the only way to understand this reason is impersonally. Since we are concerned with wrongness rather than badness, we must ask whether something that impacts no one’s well-being, status or claims can be wrong. As we saw earlier, in the contractualist framework reasons must be personal rather than impersonal in order to provide grounds for reasonable rejection (Scanlon 1998, 218–223). Since the loss of civilization, intelligent life or biodiversity are per se impersonal reasons, there is no standpoint from which these reasons could be used to reasonably reject a principle that permitted extinction. Therefore, causing human extinction on the grounds of the loss of civilization, rational life or biodiversity would not be wrong. 2.3. Existing people would endure physical pain and/or painful and/or premature deaths Thinking about the ways in which human extinction might come about brings to the fore two more reasons it might be wrong. It could, for example, occur if all humans (or at least the critical number needed to be unable to replenish the population, leading to eventual extinction) underwent a sterilization procedure. Or perhaps it could come about due to anthropogenic climate change or a massive asteroid hitting the Earth and wiping out the species in the same way it did the dinosaurs millions of years ago. Each of these scenarios would involve significant physical and/or non-physical harms to existing people and their interests. Physically, people might suffer premature and possibly also painful deaths, for example. It is not hard to imagine examples in which the process of extinction could cause premature death. A nuclear winter that killed everyone or even just every woman under the age of 50 is a clear example of such a case. Obviously, some types of premature death themselves cannot be reasons to reject a principle. Every person dies eventually, sometimes earlier than the standard expected lifespan due to accidents or causes like spontaneously occurring incurable cancers. A cause such as disease is not a moral agent and therefore it cannot be wrong if it unavoidably kills a person prematurely. Scanlon says that the fact that a principle would reduce a person’s well-being gives that person a reason to reject the principle: ‘components of well-being figure prominently as grounds for reasonable rejection’ (Scanlon 1998, 214). However, it is not settled yet whether premature death is a setback to well-being. Some philosophers hold that death is a harm to the person who dies, whilst others argue that it is not.7 I will argue, however, that regardless of who is correct in that debate, being caused to die prematurely can be reason to reject a principle when it fails to show respect to the person as a rational agent. Scanlon says that recognizing others as rational beings with interests involves seeing reason to preserve life and prevent death: ‘appreciating the value of human life is primarily a matter of seeing human lives as something to be respected, where this involves seeing reasons not to destroy them, reasons to protect them, and reasons to want them to go well’ (Scanlon 1998, 104). The ‘respect for life’ in this case is a respect for the person living, not respect for human life in the abstract. This means that we can sometimes fail to protect human life without acting wrongfully if we still respect the person living. Scanlon gives the example of a person who faces a life of unending and extreme pain such that she wishes to end it by committing suicide. Scanlon does not think that the suicidal person shows a lack of respect for her own life by seeking to end it because the person whose life it is has no reason to want it to go on. This is important to note because it emphasizes the fact that the respect for human life is person-affecting. It is not wrong to murder because of the impersonal disvalue of death in general, but because taking someone’s life without their permission shows disrespect to that person. This supports its inclusion as a reason in the contractualist formula, regardless of what side ends up winning the ‘is death a harm?’ debate because even if death turns out not to harm the person who died, ending their life without their consent shows disrespect to that person. A person who could reject a principle permitting another to cause his or her premature death presumably does not wish to die at that time, or in that manner. Thus, if they are killed without their consent, their interests have not been taken into account, and they have a reason to reject the principle that allowed their premature death.8 This is as true in the case of death due to extinction as it is for death due to murder. However, physical pain may also be caused to existing people without killing them, but still resulting in human extinction. Imagine, for example, surgically removing everyone’s reproductive organs in order to prevent the creation of any future people. Another example could be a nuclear bomb that did not kill anyone, but did painfully render them infertile through illness or injury. These would be cases in which physical pain (through surgery or bombs) was inflicted on existing people and the extinction came about as a result of the painful incident rather than through death. Furthermore, one could imagine a situation in which a bomb (for example) killed enough people to cause extinction, but some people remained alive, but in terrible pain from injuries. It seems uncontroversial that the infliction of physical pain could be a reason to reject a principle. Although Scanlon says that an impact on well-being is not the only reason to reject principles, it plays a significant role, and indeed, most principles are likely to be rejected due to a negative impact on a person’s well-being, physical or otherwise. It may be queried here whether it is actually the involuntariness of the pain that is grounds for reasonable rejection rather than the physical pain itself because not all pain that a person suffers is involuntary. One can imagine acts that can cause physical pain that are not rejectable — base jumping or life-saving or improving surgery, for example. On the other hand, pushing someone off a cliff or cutting him with a scalpel against his will are clearly rejectable acts. The difference between the two cases is that in the former, the person having the pain inflicted has consented to that pain or risk of pain. My view is that they cannot be separated in these cases and it is involuntary physical pain that is the grounds for reasonable rejection. Thus, the fact that a principle would allow unwanted physical harm gives a person who would be subjected to that harm a reason to reject the principle. Of course the mere fact that a principle causes involuntary physical harm or premature death is not sufficient to declare that the principle is rejectable — there might be countervailing reasons. In the case of extinction, what countervailing reasons might be offered in favour of the involuntary physical pain/ death-inducing harm? One such reason that might be offered is that humans are a harm to the natural environment and that the world might be a better place if there were no humans in it. It could be that humans might rightfully be considered an all-things-considered hindrance to the world rather than a benefit to it given the fact that we have been largely responsible for the extinction of many species, pollution and, most recently, climate change which have all negatively affected the natural environment in ways we are only just beginning to understand. Thus, the fact that human extinction would improve the natural environment (or at least prevent it from degrading further), is a countervailing reason in favour of extinction to be weighed against the reasons held by humans who would experience physical pain or premature death. However, the good of the environment as described above is by definition not a personal reason. Just like the loss of rational life and civilization, therefore, it cannot be a reason on its own when determining what is wrong and countervail the strong personal reasons to avoid pain/death that is held by the people who would suffer from it.9 Every person existing at the time of the extinction would have a reason to reject that principle on the grounds of the physical pain they are being forced to endure against their will that could not be countervailed by impersonal considerations such as the negative impact humans may have on the earth. Therefore, a principle that permitted extinction to be accomplished in a way that caused involuntary physical pain or premature death could quite clearly be rejectable by existing people with no relevant countervailing reasons. This means that human extinction that came about in this way would be wrong. There are of course also additional reasons they could reject a similar principle which I now turn to address in the next section. 2.4. Existing people could endure non-physical harms I said earlier than the fact in itself that there would not be any future people is an impersonal reason and can therefore not be a reason to reject a principle permitting extinction. However, this impersonal reason could give rise to a personal reason that is admissible. So, the final important reason people might think that human extinction would be wrong is that there could be various deleterious psychological effects that would be endured by existing people having the knowledge that there would be no future generations. There are two main sources of this trauma, both arising from the knowledge that there will be no more people. The first relates to individual people and the undesired negative effect on well-being that would be experienced by those who would have wanted to have children. Whilst this is by no means universal, it is fair to say that a good proportion of people feel a strong pull towards reproduction and having their lineage continue in some way. Samuel Scheffler describes the pull towards reproduction as a ‘desire for a personalized relationship with the future’ (Scheffler 2012, 31). Reproducing is a widely held desire and the joys of parenthood are ones that many people wish to experience. For these people knowing that they would not have descendants (or that their descendants will endure painful and/or premature deaths) could create a sense of despair and pointlessness of life. Furthermore, the inability to reproduce and have your own children because of a principle/policy that prevents you (either through bans or physical interventions) would be a significant infringement of what we consider to be a basic right to control what happens to your body. For these reasons, knowing that you will have no descendants could cause significant psychological traumas or harms even if there were no associated physical harm. The second is a more general, higher level sense of hopelessness or despair that there will be no more humans and that your projects will end with you. Even those who did not feel a strong desire to procreate themselves might feel a sense of hopelessness that any projects or goals they have for the future would not be fulfilled. Many of the projects and goals we work towards during our lifetime are also at least partly future-oriented. Why bother continuing the search for a cure for cancer if either it will not be found within humans’ lifetime, and/or there will be no future people to benefit from it once it is found? Similar projects and goals that might lose their meaning when confronted with extinction include politics, artistic pursuits and even the type of philosophical work with which this paper is concerned. Even more extreme, through the words of the character Theo Faron, P.D. James says in his novel The Children of Men that ‘without the hope of posterity for our race if not for ourselves, without the assurance that we being dead yet live, all pleasures of the mind and senses sometimes seem to me no more than pathetic and crumbling defences shored up against our ruins’ (James 2006, 9). Even if James’ claim is a bit hyperbolic and all pleasures would not actually be lost, I agree with Scheffler in finding it not implausible that the knowledge that extinction was coming and that there would be no more people would have at least a general depressive effect on people’s motivation and confidence in the value of and joy in their activities (Scheffler 2012, 43). Both sources of psychological harm are personal reasons to reject a principle that permitted human extinction. Existing people could therefore reasonably reject the principle for either of these reasons. Psychological pain and the inability to pursue your personal projects, goals, and aims, are all acceptable reasons for rejecting principles in the contractualist framework. So too are infringements of rights and entitlements that we accept as important for people’s lives. These psychological reasons, then, are also valid reasons to reject principles that permitted or required human extinction.

#### 3] That is the only egalitarian metric---anything else collapses cooperation on collective action crises and makes extinction inevitable

Khan 18 (Risalat, activist and entrepreneur from Bangladesh passionate about addressing climate change, biodiversity loss, and other existential challenges. He was featured by The Guardian as one of the “young climate campaigners to watch” (2015). As a campaigner with the global civic movement Avaaz (2014-17), Risalat was part of a small core team that spearheaded the largest climate marches in history with a turnout of over 800,000 across 2,000 cities. After fighting for the Paris Agreement, Risalat led a campaign joined by over a million people to stop the Rampal coal plant in Bangladesh to protect the Sundarbans World Heritage forest, and elicited criticism of the plant from Crédit Agricolé through targeted advocacy. Currently, Risalat is pursuing an MPA in Environmental Science and Policy at Columbia University as a SIPA Environmental Fellow, “5 reasons why we need to start talking about existential risks,” https://www.weforum.org/agenda/2018/01/5-reasons-start-talking-existential-risks-extinction-moriori/)

Infinite future possibilities I find the story of the Moriori profound. It teaches me two lessons. Firstly, that human culture is far from immutable. That we can struggle against our baser instincts. That we can master them and rise to unprecedented challenges. Secondly, that even this does not make us masters of our own destiny. We can make visionary choices, but the future can still surprise us. This is a humbling realization. Because faced with an uncertain future, the only wise thing we can do is prepare for possibilities. Standing at the launch pad of the Fourth Industrial Revolution, the possibilities seem endless. They range from an era of abundance to the end of humanity, and everything in between. How do we navigate such a wide and divergent spectrum? I am an optimist. From my bubble of privilege, life feels like a rollercoaster ride full of ever more impressive wonders, even as I try to fight the many social injustices that still blight us. However, the accelerating pace of change amid uncertainty elicits one fundamental observation. Among the infinite future possibilities, only one outcome is truly irreversible: extinction. Concerns about extinction are often dismissed as apocalyptic alarmism. Sometimes, they are. But repeating that mankind is still here after 70 years of existential warning about nuclear warfare is a straw man argument. The fact that a 1000-year flood has not happened does not negate its possibility. And there have been far too many nuclear near-misses to rest easy

. As the World Economic Forum’s Annual Meeting in Davos discusses how to create a shared future in a fractured world, here are five reasons why the possibility of existential risks should raise the stakes of conversation: 1. Extinction is the rule, not the exception More than 99.9% of all the species that ever existed are gone. Deep time is unfathomable to the human brain. But if one cares to take a tour of the billions of years of life’s history, we find a litany of forgotten species. And we have only discovered a mere fraction of the extinct species that once roamed the planet. In the speck of time since the first humans evolved, more than 99.9% of all the distinct human cultures that have ever existed are extinct. Each hunter-gatherer tribe had its own mythologies, traditions and norms. They wiped each other out, or coalesced into larger formations following the agricultural revolution. However, as major civilizations emerged, even those that reached incredible heights, such as the Egyptians and the Romans, eventually collapsed. It is only in the very recent past that we became a truly global civilization. Our interconnectedness continues to grow rapidly. “Stand or fall, we are the last civilization”, as Ricken Patel, the founder of the global civic movement Avaaz, put it. 2. Environmental pressures can drive extinction More than 15,000 scientists just issued a ‘warning to humanity’. They called on us to reduce our impact on the biosphere, 25 years after their first such appeal. The warning notes that we are far outstripping the capacity of our planet in all but one measure of ozone depletion, including emissions, biodiversity, freshwater availability and more. The scientists, not a crowd known to overstate facts, conclude: “soon it will be too late to shift course away from our failing trajectory, and time is running out”. In his 2005 book Collapse, Jared Diamond charts the history of past societies. He makes the case that overpopulation and resource use beyond the carrying capacity have often been important, if not the only, drivers of collapse. Even though we are making important incremental progress in battles such as climate change, we must still achieve tremendous step changes in our response to several major environmental crises. We must do this even while the world’s population continues to grow. These pressures are bound to exert great stress on our global civilization. 3. Superintelligence: unplanned obsolescence? Imagine a monkey society that foresaw the ascendance of humans. Fearing a loss of status and power, it decided to kill the proverbial Adam and Eve. It crafted the most ingenious plan it could: starve the humans by taking away all their bananas. Foolproof plan, right? This story describes the fundamental difficulty with superintelligence. A superintelligent being may always do something entirely different from what we, with our mere mortal intelligence, can foresee. In his 2014 book Superintelligence, Swedish philosopher Nick Bostrom presents the challenge in thought-provoking detail, and advises caution. Bostrom cites a survey of industry experts that projected a 50% chance of the development of artificial superintelligence by 2050, and a 90% chance by 2075. The latter date is within the life expectancy of many alive today. Visionaries like Stephen Hawking and Elon Musk have warned of the existential risks from artificial superintelligence. Their opposite camp includes Larry Page and Mark Zuckerberg. But on an issue that concerns the future of humanity, is it really wise to ignore the guy who explained the nature of space to us and another guy who just put a reusable rocket in it? 4. Technology: known knowns and unknown unknowns Many fundamentally disruptive technologies are coming of age, from bioengineering to quantum computing, 3-D printing, robotics, nanotechnology and more. Lord Martin Rees describes potential existential challenges from some of these technologies, such as a bioengineered pandemic, in his book Our Final Century. Imagine if North Korea, feeling secure in its isolation, could release a virulent strain of Ebola, engineered to be airborne. Would it do it? Would ISIS? Projecting decades forward, we will likely develop capabilities that are unthinkable even now. The unknown unknowns of our technological path are profoundly humbling. 5. 'The Trump Factor' Despite our scientific ingenuity, we are still a confused and confusing species. Think back to two years ago, and how you thought the world worked then. Has that not been upended by the election of Donald Trump as US President, and everything that has happened since? The mix of billions of messy humans will forever be unpredictable. When the combustible forces described above are added to this melee, we find ourselves on a tightrope. What choices must we now make now to create a shared future, in which we are not at perpetual risk of destroying ourselves? Common enemy to common cause Throughout history, we have rallied against the ‘other’. Tribes have overpowered tribes, empires have conquered rivals. Even today, our fiercest displays of unity typically happen at wartime. We give our lives for our motherland and defend nationalistic pride like a wounded lion. But like the early Morioris, we 21st-century citizens find ourselves on an increasingly unstable island. We may have a violent past, but we have no more dangerous enemy than ourselves. Our task is to find our own Nunuku’s Law. Our own shared contract, based on equity, would help us navigate safely. It would ensure a future that unleashes the full potential of our still-budding human civilization, in all its diversity. We cannot do this unless we are humbly grounded in the possibility of our own destruction. Survival is life’s primal instinct. In the absence of a common enemy, we must find common cause in survival. Our future may depend on whether we realize this.

**4]Uncertainty and social contract require governments use util**

**Gooden, 1995 (**Robert, philsopher at the Research School of the Social Sciences, Utilitarianism as Public Philosophy. P. 62-63)

Consider, first, the argument from necessity. Public officials are obliged to make their choices under uncertainty, and uncertainty of a very special sort at that. All choices—public and private alike—are made under some degree of uncertainty, of course. But in the nature of things, private individuals will usually have more complete information on the peculiarities of their own circumstances and on the ramifications that alternative possible choices might have on them. Public officials, in contrast, are relatively poorly informed as to the effects that their choices will have on individuals, one by one. What they typically do know are generalities: averages and aggregates. They know what will happen most often to most people as a result of their various possible choices. But that is all. That is enough to allow public policy-makers to use the utilitarian calculus—if they want to use it at all—to choose general rules of conduct. Knowing aggregates and averages, they can proceed to calculate the utility payoffs from adopting each alternative possible general rules.

#### Death is the worse form of moral exlclusion bc you hae no way of interacting with society and being able to expreince life which is moral inclusin

They have to prove our spec scenario doesn’t cause ext to leverage the ext arg but even so its impossible to make decisions well

Actor spec o/ws

Life is the most important, future generation and infinite people dying ow/s on magnitude bc magnitude bc it prevents ppl from living life

# Innovation DA

### 1NC

#### U.S. leads innovation globally but it’s on the brink

Khan 19 [Dr. Mehmood Khan, chair of the U.S. Council on Competitiveness and Vice Chairman and Chief Scientific Officer for Global Research & Development, PepsiCo. “Maintaining U.S. Leadership in Science and Technology.” 3/18/19. https://insight.ieeeusa.org/articles/maintaining-u-s-leadership-in-science-and-technology/]

Can the U.S. Compete?

We are seeing changes in technology, competition and the global economy, historic in terms of their size, speed and scope. The U.S. faces hyper competition, a potential new global superpower competitor in China, and the prospect of economic and social disruption brought about by the unrelenting and accelerating march of technology. Nevertheless, in a global economy ever more driven by technology and innovation, an enabling environment for innovation remains the advantage of only a few economies, with the United States in a position of significant strength:

The U.S. remains the world’s epicenter for disruptive innovation, thanks to its exceptional research infrastructure and low barriers to entrepreneurs and start-ups.

The U.S. remains the world leader in high-tech manufacturing. It has a 31-percent global share and its output is growing. China is closing the gap with a 24-percent share and its output is also growing, surpassing Japan and the EU.

The U.S. remains the world’s largest investor in R&D for 28 percent of global R&D spending. It now invests half a trillion in R&D per year and has built up a globally unparalleled national stock of science and technology.

Because the U.S. is by far the world’s largest innovator in basic research, it dominates patenting, sowing the seeds of future innovation, representing about one quarter of all international patent applications filed in 2016.

The U.S. has distinctive assets – its national laboratories and top research universities.

In the U.S. innovation ecosystem, industry, start-ups, national labs and universities collaborate on R&D across the spectrum of science and technology.

Vast amount of venture capital is pouring in to commercialize advanced technologies.

The U.S. is seen as the global technology leader. A recent survey asked researchers across the world which country they considered to be the global leader in 12 advanced industries. The U.S. was named most often in 11 of the 12 industries.

Despite these significant U.S. strengths, the competitiveness of a wide range of nations – not to mention economic and technological change – is dynamic and ever transforming. A country’s comparative position can change rapidly.

Conclusion

The United States is at a critical moment in time in national innovation systems research and action. New, transformational models driven by the democratization and self-organization of innovation are emerging and taking root across the nation. But, at the same time, U.S. leadership is under threat. The United States faces now what are perhaps existential challenges to its global leadership in innovation. America’s role in technology advancement is diminishing globally—now accounting for only one-quarter of global research & development investments, down from two-thirds in 1960. Competitors are increasing their capacity for innovation. And rapid technological change and disruption have impacted the workforce and communities.

When the U.S. controlled the direction of technology, we were positioned to control our economic destiny. That is no longer guaranteed. The United States must take stock. We must assess if our innovation ecosystems and investments are enough to maintain our global economic and technological leadership. And, as technology seeps into nearly every aspect of American life, our national leaders and our government at every level must bolster their knowledge and response capabilities to match the strengthening competition, technological change and disruptions that are coming.

#### Strong commercial space catalyzes tech innovation – progress at the margins and spinoff tech change global information networks

Joshua Hampson 2017, Security Studies Fellow at the Niskanen Center, 1-25-2017, “The Future of Space Commercialization”, Niskanen Center, https://republicans-science.house.gov/sites/republicans.science.house.gov/files/documents/TheFutureofSpaceCommercializationFinal.pdf

Innovation is generally hard to predict; some new technologies seem to come out of nowhere and others only take off when paired with a new application. It is difficult to predict the future, but it is reasonable to expect that a growing space economy would open opportunities for technological and organizational innovation. In terms of technology, the difficult environment of outer space helps incentivize progress along the margins. Because each object launched into orbit costs a significant amount of money—at the moment between $27,000 and $43,000 per pound, though that will likely drop in the future —each 19 reduction in payload size saves money or means more can be launched. At the same time, the ability to fit more capability into a smaller satellite opens outer space to actors that previously were priced out of the market. This is one of the reasons why small, affordable satellites are increasingly pursued by companies or organizations that cannot afford to launch larger traditional satellites. These small 20 satellites also provide non-traditional launchers, such as engineering students or prototypers, the opportunity to learn about satellite production and test new technologies before working on a full-sized satellite. That expansion of developers, experimenters, and testers cannot but help increase innovation opportunities. Technological developments from outer space have been applied to terrestrial life since the earliest days of space exploration. The National Aeronautics and Space Administration (NASA) maintains a website that lists technologies that have spun off from such research projects. Lightweight 21 nanotubes, useful in protecting astronauts during space exploration, are now being tested for applications in emergency response gear and electrical insulation. The need for certainty about the resiliency of materials used in space led to the development of an analytics tool useful across a range of industries. Temper foam, the material used in memory-foam pillows, was developed for NASA for seat covers. As more companies pursue their own space goals, more innovations will likely come from the commercial sector. Outer space is not just a catalyst for technological development. Satellite constellations and their unique line-of-sight vantage point can provide new perspectives to old industries. Deploying satellites into low-Earth orbit, as Facebook wants to do, can connect large, previously-unreached swathes of 22 humanity to the Internet. Remote sensing technology could change how whole industries operate, such as crop monitoring, herd management, crisis response, and land evaluation, among others. 23 While satellites cannot provide all essential information for some of these industries, they can fill in some useful gaps and work as part of a wider system of tools. Space infrastructure, in helping to change how people connect and perceive Earth, could help spark innovations on the ground as well. These innovations, changes to global networks, and new opportunities could lead to wider economic growth.

#### Short innovation cycles mean every contract counts

John J. Klein 19, Senior Fellow and Strategist at Falcon Research Inc. and adjunct professor at the George Washington University Space Policy Institute, 1-15-2019, "Rethinking Requirements and Risk in the New Space Age," Center for a New American Security, https://www.cnas.org/publications/reports/rethinking-requirements-and-risk-in-the-new-space-age

Unfortunately, these variances in models between the MDAP’s lengthy development cycle and the commercial space sector’s 18-month innovation cycle are a result of stark differences in thinking about requirements and risk. Requirements and risk for MDAPs commonly focus on ensuring critical mission capabilities at a given cost. In contrast, the commercial space sector tends to focus more on providing innovation quickly using economies of scale. The commercial sector understands that time dynamically shapes decisions related to requirements and risk because of the relatively short innovation cycle. In a highly competitive space sector with tight profit margins, those unable to innovate quickly will likely be out of business soon. Alternatively, space systems with mission assurance requirements – where failures are detrimental to national security and military operations – often drive DoD’s timelines. Program managers of critical national security space systems commonly require additional time to test and verify that satellites can perform missions with a very low probability of failure.

#### Tech innovation solves every existential threat – cumulative extinction events outweigh the aff

Dylan **Matthews 18**. Co-founder of Vox, citing Nick Beckstead @ Rutgers University. 10-26-2018. "How to help people millions of years from now." Vox. https://www.vox.com/future-perfect/2018/10/26/18023366/far-future-effective-altruism-existential-risk-doing-good

If you care about improving human lives, you should overwhelmingly care about those quadrillions of lives rather than the comparatively small number of people alive today. The 7.6 billion people now living, after all, amount to less than 0.003 percent of the population that will live in the future. It’s reasonable to suggest that those quadrillions of future people have, accordingly, hundreds of thousands of times more moral weight than those of us living here today do. That’s the basic argument behind Nick Beckstead’s 2013 Rutgers philosophy dissertation, “On the overwhelming importance of shaping the far future.” It’s a glorious mindfuck of a thesis, not least because Beckstead shows very convincingly that this is a conclusion any plausible moral view would reach. It’s not just something that weird utilitarians have to deal with. And Beckstead, to his considerable credit, walks the walk on this. He works at the Open Philanthropy Project on grants relating to the far future and runs a charitable fund for donors who want to prioritize the far future. And arguments from him and others have turned “long-termism” into a very vibrant, important strand of the effective altruism community. But what does prioritizing the far future even mean? The most literal thing it could mean is preventing human extinction, to ensure that the species persists as long as possible. For the long-term-focused effective altruists I know, that typically means identifying concrete threats to humanity’s continued existence — like unfriendly artificial intelligence, or a pandemic, or global warming/out of control geoengineering — and engaging in activities to prevent that specific eventuality. But in a set of slides he made in 2013, Beckstead makes a compelling case that while that’s certainly part of what caring about the far future entails, approaches that address specific threats to humanity (which he calls “targeted” approaches to the far future) have to complement “broad” approaches, where instead of trying to predict what’s going to kill us all, you just generally try to keep civilization running as best it can, so that it is, as a whole, well-equipped to deal with potential extinction events in the future, not just in 2030 or 2040 but in 3500 or 95000 or even 37 million. In other words, caring about the far future doesn’t mean just paying attention to low-probability risks of total annihilation; it also means acting on pressing needs now. For example: We’re going to be better prepared to prevent extinction from AI or a supervirus or global warming if society as a whole makes a lot of scientific progress. And a significant bottleneck there is that the vast majority of humanity doesn’t get high-enough-quality education to engage in scientific research, if they want to, which reduces the odds that we have enough trained scientists to come up with the breakthroughs we need as a civilization to survive and thrive. So maybe one of the best things we can do for the far future is to improve school systems — here and now — to harness the group economist Raj Chetty calls “lost Einsteins” (potential innovators who are thwarted by poverty and inequality in rich countries) and, more importantly, the hundreds of millions of kids in developing countries dealing with even worse education systems than those in depressed communities in the rich world. What if living ethically for the far future means living ethically now? Beckstead mentions some other broad, or very broad, ideas (these are all his descriptions): Help make computers faster so that people everywhere can work more efficiently Change intellectual property law so that technological innovation can happen more quickly Advocate for open borders so that people from poorly governed countries can move to better-governed countries and be more productive Meta-research: improve incentives and norms in academic work to better advance human knowledge Improve education Advocate for political party X to make future people have values more like political party X ”If you look at these areas (economic growth and technological progress, access to information, individual capability, social coordination, motives) a lot of everyday good works contribute,” Beckstead writes. “An implication of this is that a lot of everyday good works are good from a broad perspective, even though hardly anyone thinks explicitly in terms of far future standards.” Look at those examples again: It’s just a list of what normal altruistically motivated people, not effective altruism folks, generally do. Charities in the US love talking about the lost opportunities for innovation that poverty creates. Lots of smart people who want to make a difference become scientists, or try to work as teachers or on improving education policy, and lord knows there are plenty of people who become political party operatives out of a conviction that the moral consequences of the party’s platform are good. All of which is to say: Maybe effective altruists aren’t that special, or at least maybe we don’t have access to that many specific and weird conclusions about how best to help the world. If the far future is what matters, and generally trying to make the world work better is among the best ways to help the far future, then effective altruism just becomes plain ol’ do-goodery.\*

# Case

No impact to inequality

Liao 15: just regional space assests in general, Africa and G77 in GSO not key

Innovation DA turns because aff prevents innovations so they don’t solve their impacts

## AT Telemedicine

### 1NC – AT: Telemedicine – No Solve

#### 2] Telemedicine is worse for care - overstretches doctors, causes misdiagnoses, and doctor miscommunications increase

Dragovic 17, (Telemedicine: Virtual Doctors Pose Real Medical Malpractice Risks, member of Sommers Schwartz's Personal Injury and Medical Malpractice Groups, https://www.sommerspc.com/blog/2017/01/telemedicine-virtual-doctors-pose-real-medical-malpractice-risks/)

But there are risks too. There is a doctor shortage in this country that is only expected to get much worse in the next decade. If busy doctors become too dependent on technology to help them work through their jam-packed schedules, the standard of care may be compromised.In some cases, there’s no substitute for physical interaction between patient and physician. If an orthopedist doesn’t touch a patient’s swollen ankle before diagnosing a sprain, he might miss a subtle fracture he would have felt during an in-person visit. Without the rapport that comes with face-to-face contact, a doctor might not be able to detect a patient’s spiraling depression. Because telemedicine is dependent upon the use of technology, it also comes with the added risk of equipment malfunction. If a doctor can’t accurately see a patient’s skin tone via his videoconferencing equipment, for example, he might miss an important diagnostic clue for detecting jaundice or some other serious condition. An even more frightening scenario could occur if a remote heart rate or blood sugar monitor is not accurately transmitting a patient’s data to his doctor. Practicing medicine remotely could also lead to increased miscommunication among the treating physicians. For example, there has already been at least one reported case in which a radiologist was sent an X-ray for a remote patient, but failed to review it in a timely manner because it wasn’t made clear that the case was an emergency.

#### Studies prove Mis-diagnoses likely – takes out their Predictions and Vaccinations warrants since they’re unable to actually make them correct.

Addady 16 Michal Addady is a reporter for Fortune Magazine, May 16, 2016 A New Study of Telemedicine Services Finds Bad Diagnoses, <http://fortune.com/2016/05/16/telemedicine-services/>

A study recently published in JAMA Dermatology looked into telemedicine companies, and the Wall Street Journal reports that researchers found many physicians failed to ask important questions, and subsequently misdiagnosed and mistreated certain conditions. The study covered 16 companies—nine of which were specific to dermatology while the remaining seven were general medicine websites—totaling in 62 visits. According to the American Telemedicine Association (ATA), there are 200 networks and 3,500 service sites in the U.S., and the group is expecting more than 1 million online consultations this year. Researchers created six scenarios, including detailed medical histories, and used stock photos to pose as patients. Of 62 visits, 48 patients were diagnosed and 31 were prescribed medication. Only 10 were warned about potential risks and side effects, 13 were asked about their primary care physician, and six were offered to have records of the consultation sent to their doctor, according to the study. Diagnoses tended to be correct when a condition was identifiable based on photos alone. Clinicians were less successful when it was a more complex condition that required additional information. “The services failed to ask simple, relevant questions of patients about their symptoms, leading them to repeatedly miss important diagnoses,” dermatologist and lead author Jack Resneck told the Journal. The study admitted it couldn’t say whether visits would have been more successful had patients seen a doctor in person, though Resneck said, “The usual give-and-take that occurs between a physician and a patient wasn’t happening.”

### 1NC – AT: Telemedicine – Trust Turn

#### Telehealth devastates trust – independently causes patients to withhold information which undermines care and reverses telehealth deployment

Garg and Brewer 11, (Vaibhav Garg, M.S.1 and Jeffrey Brewer, M.S.2 1School of Informatics and Computing, Indiana University, Bloomington, Indiana 2Department of Computer and Information Technology, Purdue University, West Lafayette, Indiana, Telemedicine Security: A Systematic Review, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3192643/#)

Telemedicine, though promising in trial stages, has been less successful in real life.3,4 Reporting of research methodology used in the trials has been inadequate,5 which makes it difficult to analyze the gap between real life and trial stages.6 Security has also been identified as a determinant for successful telemedicine implementations.7 Thus, in this article, we look at the research done in the field of telemedicine security. In particular, we address the reporting of methodology in telemedicine security research. The articles reviewed include several different chronic diseases, including diabetes. The research does not break out diabetes separately, as the issues in security discovered apply across all studies. Telemedicine security includes problems such as authorization, authentication, and accounting8 that are common with other information technology applications such as banking and manufacturing support. There are, however, many new challenges as well. Telemedicine requires information security and privacy as well as physical safety. Physical safety, for example, detection of falls in older adults, has to be evaluated remotely. The patient should be able to trust the system and not feel that human contact in terms of an onsite caregiver is needed. Thus reliability is an important concern. Fischhoff and colleagues9 noted, “Acceptable risk for a new technology is defined as that level of safety associated with ongoing activities having similar benefits to society.” Thus telemedicine systems should also be evaluated for perceptions of both patients and caregivers since they may be perceived as intrusive and ineffective.10 According to Broens and associates,7 both patient physical safety and patient information security are crucial to support the trust relationship between health care providers and patients and for acceptance of telemedicine implementations. Savastano and coworkers10 note that lack of patient trust means that patients would not reveal accurate and complete information, which lowers the quality of care. This is a critical consideration because a big part of the treatment of diabetes patients is in the accurate self-reporting of blood glucose levels. Poor quality of care would further reduce the confidence of both providers and consumers of telemedicine services. Lack of confidence would make it less likely for these services to be deployed widely.Earlier research11 suggests that security is not the primary focus of the telemedicine research community. But this needs to change if telemedicine is to become widely acceptable.7 Several articles10,12 have suggested that poor security may lead to lesser quality of care and lack of confidence in the services for both providers and consumers and cause legal liability. These are unique challenges, separate from other forms of health-care-technology-related initiatives such as electronic medical record systems that need to be identified. Not addressing these issues in telemedicine services not only lowers the quality of care but may also have fatal consequences.13

#### Two Impacts:

#### a] Key to solve bioterror- research, response and treatment

**Jacobs, 5** – MD; Boston University professor of medicine [Alice, director of Cardiac Catheterization Laboratory and Interventional Cardiology, "Rebuilding an Enduring Trust in Medicine," Circulation, 2005, circ.ahajournals.org/content/111/25/3494.full#xref-ref-3-1, accessed 8-18-14]

To be sure, we will learn about the emerging science and clinical practice of cardiovascular disease over the next four days. But **there is an internal disease** of the heart **that confronts** us as **scientists**, as **physicians**, **and** as **healthcare professionals**. It is a threat to us all—insidious and pervasive—and one that we unknowingly may spread. **This threat is one of the most critical issues facing our profession** today. How we address this problem will shape the future of medical care.¶ **This issue is** **the** **erosion of trust.**¶ **Lack of trust is a barrier between our intellectual renewal and our ability to deliver** this new **knowledge to our research labs**, to our **offices**, to the bedside of our **patients, and** to **the public.** **Trust is** a **vital**, unseen, and essential **element in diagnosis, treatment, and healing**. So it is fundamental that we understand what it is, why it’s important in medicine, its recent decline, and what we can all do to rebuild trust in our profession. Trust is intrinsic to the relationship between citizens around the world and the institutions that serve their needs: government, education, business, religion, and, most certainly, medicine.¶ Albert Einstein recognized the importance of trust when he said, “Every kind of peaceful cooperation among men is primarily based on mutual trust.”1 In our time, trust has been broken, abused, misplaced, and violated. The media have been replete with commentaries, citing stories of negligence, corruption, and betrayal by individuals and groups in the public and private sectors, from governments to corporations, from educational institutions to the Olympic Organizing Committee. These all are front-page news. Perhaps the most extreme example is terrorism, in which strangers use acts of violence to shatter trust and splinter society in an ongoing assault on our shared reverence for human life.¶ Unfortunately, we are not immune in our own sphere of cardiovascular medicine. The physician-investigator conflicts of interest concerning enrollment of patients in clinical trials, the focus on medical and nursing errors, the high-profile medical malpractice cases, the mandate to control the cost of health care in ways that may not be aligned with the best interest of the patient—all of these undermine trust in our profession. At this time, when more and more public and private institutions have fallen in public esteem, restoring trust in the healthcare professions will require that we understand the importance of trust and the implications of its absence.¶ Trust is intuitive confidence and a sense of comfort that comes from the belief that we can rely on an individual or organization to perform competently, responsibly, and in a manner considerate of our interests.2 It is dynamic, it is fragile, and it is vulnerable. Trust can be damaged, but it can be repaired and restored. It is praised where it is evident and acknowledged in every profession. Yet it is very difficult to define and quantify.¶ Trust is easier to understand than to measure. For us, trust may be particularly difficult to embrace because it is not a science. Few instruments have been designed to allow us to evaluate it with any scientific rigor. Yet, **trust is inherent to our profession**, **precisely** because patients **turn to us in their most vulnerable moments, for knowledge about their** health and **disease**. **We know trust when** we experience it: when **we advise patients in need of highly technical procedures** that are **associated with increased risk** or when we return from being away to learn that our patient who became ill waited for us to make a decision and to discuss their concerns, despite being surrounded by competent colleagues acting on our behalf.¶ Many thought **leaders in the medical field understand the importance of trust**.3 **When asked whether the public health system could be overrun by public panic over** SARS and **bioterror**ism, **C**enters for **D**isease **C**ontrol and Prevention **Director** Julie **Gerberding replied, “You can manage people if they trust you.**

**We’ve put a great deal of effort into** improving state and local communications and scaled up our own public affairs capacity…we’re **building credibility**, **competence and trust**.”4¶ Former **H**ealth and **H**uman **S**ervices **Secretary** Donna **Shalala** also **recognized the importance of trust when she said, “If we are to keep testing new med**icine**s and new approaches to curing disease, we cannot compromise the trust and willingness of patients to participate in clinical trials.**”5¶ These seemingly intuitive concepts of the importance of trust in 21st century medicine actually have little foundation in our medical heritage. In fact, a review of the early history of medicine is astonishingly devoid of medical ethics. Even the Codes and Principles of Ethics of the American Medical Association, founded in 1847, required patients to place total trust in their physician’s judgment, to obey promptly, and to “entertain a just and enduring sense of value of the services rendered.”6 Such a bold assertion of the authority of the physician and the gratitude of the patient seems unimaginable today.¶ It was not until the early 1920s that role models such as Boston’s Richard Cabot linked patient-centered medical ethics with the best that scientific medicine had to offer,6 and Frances Weld Peabody, the first Director of the Thorndike Memorial Laboratory at the Boston City Hospital, crystallized the ethical obligation of the physician to his patient in his essay “The Care of the Patient.”7 In one particularly insightful passage, Peabody captures the essence of the two elements of the physician’s ethical obligation: He must know his professional business and he must trouble to know the patient well enough to draw conclusions, jointly with the patient, as to what actions are indeed in the patient’s best interest. He states: “The treatment of a disease may be entirely impersonal: **The care of the patient must be completely personal**. **The** significance of the intimate personal **relationship between physician and patient cannot be too strongly emphasized, for in an extraordinarily large number of cases both diagnosis and treatment are directly dependent on it.”** Truly, as Peabody said, “The secret to the care of the patient…is in caring for the patient.”7¶ **This concept that links the quality of the physician-patient relationship to health outcomes has** indeed **stood the test of time**. **Trust has been shown to be important** in its own right. **It is essential to patients, in their willingness to seek care**, their **willingness to reveal sensitive info**rmation, **their willingness to submit to treatment, and their willingness to follow recommendations**. **They must be willing for us to be able.**

## AT Disease

#### Disease doesn’t cause extinction

Adalja 16 [Amesh Adalja is an infectious-disease physician at the University of Pittsburgh. Why Hasn't Disease Wiped out the Human Race? June 17, 2016. https://www.theatlantic.com/health/archive/2016/06/infectious-diseases-extinction/487514/]

But when people ask me if I’m worried about infectious diseases, they’re often not asking about the threat to human lives; they’re asking about the threat to human life. With each outbreak of a headline-grabbing emerging infectious disease comes a fear of extinction itself. The fear envisions a large proportion of humans succumbing to infection, leaving no survivors or so few that the species can’t be sustained.

I’m not afraid of this apocalyptic scenario, but I do understand the impulse. Worry about the end is a quintessentially human trait. Thankfully, so is our resilience.

For most of mankind’s history, infectious diseases were the existential threat to humanity—and for good reason. They were quite successful at killing people: The 6th century’s Plague of Justinian knocked out an estimated 17 percent of the world’s population; the 14th century Black Death decimated a third of Europe; the 1918 influenza pandemic killed 5 percent of the world; malaria is estimated to have killed half of all humans who have ever lived.

Any yet, of course, humanity continued to flourish. Our species’ recent explosion in lifespan is almost exclusively the result of the control of infectious diseases through sanitation, vaccination, and antimicrobial therapies. Only in the modern era, in which many infectious diseases have been tamed in the industrial world, do people have the luxury of death from cancer, heart disease, or stroke in the 8th decade of life. Childhoods are free from watching siblings and friends die from outbreaks of typhoid, scarlet fever, smallpox, measles, and the like.

So what would it take for a disease to wipe out humanity now?

In Michael Crichton’s The Andromeda Strain, the canonical book in the disease-outbreak genre, an alien microbe threatens the human race with extinction, and humanity’s best minds are marshaled to combat the enemy organism. Fortunately, outside of fiction, there’s no reason to expect alien pathogens to wage war on the human race any time soon, and my analysis suggests that any real-life domestic microbe reaching an extinction level of threat probably is just as unlikely.

Any apocalyptic pathogen would need to possess a very special combination of two attributes. First, it would have to be so unfamiliar that no existing therapy or vaccine could be applied to it. Second, it would need to have a high and surreptitious transmissibility before symptoms occur. The first is essential because any microbe from a known class of pathogens would, by definition, have family members that could serve as models for containment and countermeasures. The second would allow the hypothetical disease to spread without being detected by even the most astute clinicians.

The three infectious diseases most likely to be considered extinction-level threats in the world today—influenza, HIV, and Ebola—don’t meet these two requirements. Influenza, for instance, despite its well-established ability to kill on a large scale, its contagiousness, and its unrivaled ability to shift and drift away from our vaccines, is still what I would call a “known unknown.” While there are many mysteries about how new flu strains emerge, from at least the time of Hippocrates, humans have been attuned to its risk. And in the modern era, a full-fledged industry of influenza preparedness exists, with effective vaccine strategies and antiviral therapies.

HIV, which has killed 39 million people over several decades, is similarly limited due to several factors. Most importantly, HIV’s dependency on blood and body fluid for transmission (similar to Ebola) requires intimate human-to-human contact, which limits contagion. Highly potent antiviral therapy allows most people to live normally with the disease, and a substantial group of the population has genetic mutations that render them impervious to infection in the first place. Lastly, simple prevention strategies such as needle exchange for injection drug users and barrier contraceptives—when available—can curtail transmission risk.

Ebola, for many of the same reasons as HIV as well as several others, also falls short of the mark. This is especially due to the fact that it spreads almost exclusively through people with easily recognizable symptoms, plus the taming of its once unfathomable 90 percent mortality rate by simple supportive care.

Beyond those three, every other known disease falls short of what seems required to wipe out humans—which is, of course, why we’re still here. And it’s not that diseases are ineffective. On the contrary, diseases’ failure to knock us out is a testament to just how resilient humans are. Part of our evolutionary heritage is our immune system, one of the most complex on the planet, even without the benefit of vaccines or the helping hand of antimicrobial drugs. This system, when viewed at a species level, can adapt to almost any enemy imaginable. Coupled to genetic variations amongst humans—which open up the possibility for a range of advantages, from imperviousness to infection to a tendency for mild symptoms—this adaptability ensures that almost any infectious disease onslaught will leave a large proportion of the population alive to rebuild, in contrast to the fictional Hollywood versions.

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#### No extinction – coevolution

Farquhar 17 [Sebastian Farquhar, director at Oxford's Global Priorities Project, Owen Cotton-Barratt, a Lecturer in Mathematics at St Hugh’s College, Oxford, John Halstead, Stefan Schubert, Haydn Belfield, Andrew Snyder-Beattie, "Existential Risk Diplomacy and Governance", GLOBAL PRIORITIES PROJECT 2017, https://www.fhi.ox.ac.uk/wp-content/uploads/Existential-Risks-2017-01-23.pdf]

1.1.3 Engineered pandemics For most of human history, natural pandemics have posed the greatest risk of mass global fatalities.37 However, there are some reasons to believe that natural pandemics are very unlikely to cause human extinction.

Analysis of the International Union for Conservation of Nature (IUCN) red list database has shown that of the 833 recorded plant and animal species extinctions known to have occurred since 1500, less than 4% (31 species) were ascribed to infectious disease.38 None of the mammals and amphibians on this list were globally dispersed, and other factors aside from infectious disease also contributed to their extinction. It therefore seems that our own species, which is very numerous, globally dispersed, and capable of a rational response to problems, is very unlikely to be killed off by a natural pandemic. One underlying explanation for this is that highly lethal pathogens can kill their hosts before they have a chance to spread, so there is a selective pressure for pathogens not to be highly lethal. Therefore, pathogens are likely to co-evolve with their hosts rather than kill all possible hosts.39

## Cap Good

#### Capitalism is sustainable – solves war, environment, and quality of life – prefer empirics

Mark **Budolfson 21**. PhD in Philosophy. Assistant Professor in the Department of Environmental and Occupational Health and Justice at the Rutgers School of Public Health and Center for Population–Level Bioethics "Arguments for Well-Regulated Capitalism, and Implications for Global Ethics, Food, Environment, Climate Change, and Beyond". Cambridge Core. 5-7-2021. https://www-cambridge-org.proxy.library.emory.edu/core/journals/ethics-and-international-affairs/article/arguments-for-wellregulated-capitalism-and-implications-for-global-ethics-food-environment-climate-change-and-beyond/96F422D04E171EECDEF77312266AE9DD

However, **things are more complicated than the arguments above would suggest**, and the benefits of capitalism, especially for the world's poorest and most vulnerable people, are in fact myriad and **significant**. In addition, as we will see in this section, many experts argue that **capitalism is not the fundamental cause of the** previously described **problems** but rather an essential component of the **best solutions** to them and of the best methods for promoting our goals of health, well-being, and justice. To see where the defenders of capitalism are coming from, consider an analogy involving a response to a pandemic: if a country administered a rushed and untested vaccine to its population that ended up killing people, we would not say that vaccines were the problem. Instead, the problem would be the flawed and sloppy policies of vaccine implementation. Vaccines might easily **remain** absolutely **essential** to the correct response to such a pandemic and could also be essential to promoting health and flourishing, more generally. The argument is similar with capitalism according to the leading mainstream arguments in favor of it: Capitalism is an essential part of the best society we could have, just like vaccines are an essential part of the best response to a pandemic such as COVID-19. But of course both capitalism and vaccines can be implemented poorly, and can even do harm, especially when combined with other incorrect policy decisions. But **that does not mean that we should turn against them**—quite the opposite. Instead, we should **embrace them as essential** to the best and most just outcomes for society, and educate ourselves and others on their importance and on how they must be **properly designed and implemented** with other policies in order to best help us all. In fact, the argument in favor of capitalism is even more dramatic because it claims that much more is at stake than even what is at stake in response to a global pandemic—what is at stake with capitalism is nothing less than **whether the world's poorest and most vulnerable billion people will remain in conditions of poverty and oppression**, or if they will instead finally gain access to what is minimally necessary for basic health and wellbeing and become increasingly affluent and empowered. The argument in favor of capitalism proceeds as follows: Premise 1. Development and the past. Over the course of recorded human history, the majority of historical increases in health, wellbeing, and justice have occurred in the last two centuries, largely as a result of societies adopting or moving toward **capitalism**. Capitalism is a relevant cause of these improvements, in the sense that they could not have happened to such a degree if it were not for capitalism and would **not have happened to the same degree under any alternative** noncapitalist approach to structuring society. The argument in support of this premise relies on observed relationships across societies and centuries between indicators of degree of capitalism, wealth, investments in public goods, and outcomes for health, wellbeing, and justice, together with econometric analysis in support of the conclusion that the best explanation of these correlations and the underlying mechanism is that large increases in health, wellbeing, and justice are largely driven by increasing investments in public goods. The scale of increased wealth necessary to maximize these investments requires **capitalism**. Thus, as capitalist societies have become dramatically wealthier over the past hundred years (and wealthier than societies with alternative systems), this has allowed **larger investments in public goods**, which simply has not been possible in a sustained way in societies without the greater wealth that capitalism makes possible. Important investments in public goods include investments in basic **medical knowledge**, in health and nutrition programs, and in the institutional capacity and know-how to **regulate** society and **capitalism** itself. As a result, capitalism is a **primary driver** of positive outcomes in **health and wellbeing** (such as increased **life expectancy**, **lowered child and maternal mortality**, adequate calories per day, **minimized infectious disease rates**, a lower percentage and number of people in **poverty**, and more reported **happiness**);5 and in **justice** (such as reduced deaths from **war** and homicide; higher rankings in **human rights** i

# READ IF TIME (didn’t read)

#### Randomized control trials prove there’s no benefit

Fraiche et al 17, (From the a Department of Medicine, Duke University Medical Center, Durham, North Carolina; and the b Duke-Margolis Center for Health Policy, Durham, North Carolina. Dr. Eapen consults and serves on the advisory boards for Novartis, Amgen, Cytokinetics, Janssen, Medtronic, Myokardia, SHL Telemedicine, and Equity–Pattern Health Technologies. Dr. McClellan is a board member for Johnson & Johnson; and serves on the advisory board for American Well, Moving Beyond the Walls of the Clinic Opportunities and Challenges to the Future of Telehealth in Heart Failure, <https://www.biofourmis.com/wp-content/uploads/Moving-Beyond-the-Walls-of-the-Clinic.pdf>)

HF=Heart Failure

In contrast to this meta-analysis, larger, highquality randomized clinical trials have recently shown no benefit to noninvasive approaches to telehealth in HF. The Tele-HF (Telemonitoring to Improve Heart Failure Outcomes) trial randomized 1,653 recently hospitalized patients with HF to a telephone-based interactive voice-response system that collected daily information about symptoms and weight that was reviewed by the patients’ clinicians (6). There was no significant difference between the intervention and usual-care groups with respect to readmission for any reason or death of any cause within 180 days after enrollment. Of note, adherence to daily calls to the interactive voice-response system had dropped to 55.1% by the end of the study.

### 1NC – AT: Telemedicine – Pandemics

#### Telehealth is useless during pandemics – three warrants

Louissaint 17, (Ph.D - Interim Executive Director of Healthcare Ready, Telehealth's Applications for Preparedness and Response, https://www.healthcareready.org/system/cms/files/1578/files/original/HCR\_Telehealth\_White\_Paper\_SCREEN.pdf)

Challenges In addition to the challenges and barriers summarized earlier, applying and integrating telehealth into public health emergency and disease outbreak response efforts faces a distinct set of challenges. Primary challenges include: Adapting Technology: Healthcare and public health experts point out that state and local agencies are likely to invest in systems that will be used in normal operations over systems more oriented for response. Therefore, in order for telehealth to be incorporated into preparedness and response it will likely have to be done by engaging systems already in place and possibly not designed with response efforts in mind. System Flexibility: Demands on telehealth systems are likely to surge during an outbreak or public health emergency. Systems must be adaptable and able to scale up for emergencies and built with an all hazards approach in mind. For example, RPM systems may be engaged and relied upon much more heavily during an outbreak and systems must be able to accommodate this surge in data transfer. Privacy and Security: The 2009 report by ASPR in response to PAHPA points out that privacy laws regarding personally identifiable health information differ by state and could impact data sharing through telehealth in a multi-state event. As it applies to mhealth, health departments have also expressed uncertainty at the ability to use mHealth for messaging.64 Public health departments may face a unique set of challenges in implementing telehealth programs for preparedness and response, including Funding: Telehealth initiatives frequently require funding both for technology and program design, implementation, and evaluation. Public health programs are often funded by grants from both public and private organizations that are typically tied to a specific use. This can lead to difficulties in sustainably funding telehealth programs. Competing Priorities: Public health departments are often occupied dealing with “the disease or disaster of the day.” This can leave limited resources and staff available to identify and implement new programs such as telehealth initiatives.

#### People are incompetent and can’t interface with telehealth. Prefer our ev---all large scale studies prove telehealth does not improve health

Fraiche et al 17, (From the a Department of Medicine, Duke University Medical Center, Durham, North Carolina; and the b Duke-Margolis Center for Health Policy, Durham, North Carolina. Dr. Eapen consults and serves on the advisory boards for Novartis, Amgen, Cytokinetics, Janssen, Medtronic, Myokardia, SHL Telemedicine, and Equity–Pattern Health Technologies. Dr. McClellan is a board member for Johnson & Johnson; and serves on the advisory board for American Well, Moving Beyond the Walls of the Clinic Opportunities and Challenges to the Future of Telehealth in Heart Failure, <https://www.biofourmis.com/wp-content/uploads/Moving-Beyond-the-Walls-of-the-Clinic.pdf>)

Like Tele-HF, another takeaway from BEAT-HF is limited patient adherence to telemonitoring and telephone calls, with slightly more than one-half of patients using the intervention within the first 30 days of the trial. Nonrandom interview responses from only half of the study population creates a reporting bias that likely skews the study results in favor of the intervention. Beyond these study challenges, poor patient engagement creates further challenges in implementing remote monitoring strategies. In Tele-HF and BEATHF, the burden of interfacing with the technologies used may have outweighed the value patients perceived. Trials investigating telemedicine interventions that require a significant degree of “patient activation,” a term that comprises the insight and knowledge of patients as well as their ability to perform the action despite external stressors (9), may generate varied conclusions as seen in these large-scale trials. Notably, Inglis et al. (10) published a 5-year update to the 2010 Cochrane meta-analysis assessing the effectiveness of structured telephone support and noninvasive monitoring for patients with chronic HF. The meta-analysis now includes 17 new peer reviewed, randomized controlled trials, such as Tele-HF, in addition to 24 studies reviewed in the original paper. The impact of both structured telephone and noninvasive telemonitoring interventions on all-cause mortality and HF-related hospitalizations was positive overall with the addition of the new studies. Yet the attempts of these meta-analyses to present an overall effect remain limited by the inclusion of such a wide variety of studies with variable quality, size, intervention type, adherence, and results. Evidence from large-scale studies of high methodologic quality, including Tele-HF and BEATHF, characterize the difficulty for telehealth strategies to improve outcomes in HF

### 1NC – AT: Telemedicine – Litigation Turn

#### 1] Turn – it causes waves of litigation

OP 15, (Oncology Practice - Medical News, Telemedicine poses novel legal risks for doctors, www.mdedge.com/oncologypractice/article/103362/health-policy/telemedicine-poses-novel-legal-risks-doctors/page/0/1)

Physicians who practice telemedicine have a lot to consider, including state laws, payment issues, and licensing regulations. But one overlooked area may pose the greatest risk of all: medical liability.As the practice of telemedicine continues to grow, so do the legal risks associated with virtual care, said Dr. Joseph P. McMenamin, an emergency physician and health law defense attorney based in Richmond, Va. “With good reason, there is a concern that as this form of care expands, claims against physicians will increase,” Dr. McMenamin said. “That’s almost inevitable, given how our society looks at litigation and how willing we are to sue our doctors. If you’re a plaintiffs’ attorney, you might be attracted to cases of this kind – partly because jurors may fear the unknown, and they may view [telemedicine] with some concern and suspicion.” Telemedicine can fuel a wide spectrum of legal dangers, including malpractice, product liability claims, data exposure, and credentialing risks. Making matters more complicated: No uniform standard of care exists for telemedicine when it comes to medical malpractice, said René Y. Quashie, a Washington health law attorney who specializes in telemedicine and e-health practices. “There are a lot of unanswered questions, including the prevailing standard of care,” Mr. Quashie explained. “Can we use the standard of care that we use for services provided in person for telehealth consults? Informed consent – does that process need to change? There are a lot of unanswered issues, which can only be resolved after a number of cases” are decided in the courts. Physicians who practice telemedicine should consider legal risks associated with patient and staff privacy, inaccuracies in self-reporting, and symptoms that are more accurately diagnosed in person, said Richard F. Cahill, vice president and associate general counsel for the Doctors Company, a national medical liability insurer. During 2007-2014, the Doctors Company had 11 claims that closed related to telemedicine, according to data provided by Mr. Cahill. The majority of claims resulted from the remote reading of x-rays and other films by health providers, usually from home, and the remote reading of fetal monitor strips by physicians when outside of the hospital. Two of the cases were associated with attempts to diagnose a patient via telemedicine. Of the claims, six were diagnosis related, two alleged delay in treatment, two were related to improper performance of treatment, and one was associated with failure to order medication. “The challenges of remote communications made it difficult to formulate the correct diagnosis due to limitations of radiology resolution, delayed readings of radiographs, or limits on fetal monitor strips,” said Darrell Ranum, vice president of patient safety and risk management for the Doctors Company. “Delays in treatment were closely related to delayed diagnosis. Radiologists did not receive a request for an interpretation, or they did not know that it was an emergency, so they did not provide a rapid turnaround report.” While telemedicine claims have been low so far, a rise in the number of patient contacts, regardless of modality, may increase the risk of adverse consequences, Mr. Cahill cautioned. “Because telemedicine is relatively new, and it takes 3-4 years for a claim to work its way through the system, we may see more cases in the future in which telemedicine is a factor,” he predicted. Other lawsuits could arise from claims that physicians had access to telemedicine but failed to use the technology to properly treat a patient, Mr. Quashie said. Product liability claims also pose a threat, added Dr. McMenamin, who is part of the Legal Resource Team at the Robert J. Waters Center for Telehealth & e-Health Law (CTeL). Such accusations stem from equipment that malfunctioned or failed to work as indicated.

#### Just the threat of privacy litigation causes insurers to spike premiums - turns access and cost

Brill 8 – Jack Brill, Candidate for Juris Doctor, Notre Dame Law School, “GIVING HIPAA ENFORCEMENT ROOM TO GROW: WHY THERE SHOULD NOT (YET) BE A

PRIVATE CAUSE OF ACTION”, Notre Dame Law Review, July, 83 Notre Dame L. Rev. 2105, Lexis

It is too early to determine the ultimate effect that Acosta and Sorensen will have on litigation involving HIPAA violations in state courts. Both decisions came from courts of appeals and thus not from a state's highest court. n140 As of April 2008, no other court had cited Acosta or Sorensen for the proposition that a violation of HIPAA may be used as the standard of negligence in a state law tort claim. Nevertheless, if other state courts adopt the notion that HIPAA can provide guidance as to the standard of care in negligence claims, then courts may see a dramatic increase in HIPAA-related litigation. The recent changes in the HIPAA legal framework are important to the question of whether Congress should confer a federal private cause of action. If HHS is capable of enforcing the Privacy and Security Rules, as the statistics seem to indicate, then there may be no need to bring HIPAA enforcement to the private sector. Moreover, if HIPAA litigation becomes prevalent in state courts, the costs of HIPAA compliance will surely increase. A federal cause of action would further increase these compliance costs and lead to more expensive health care. The debate over a private cause of action, discussed next, must take into account the effectiveness of HIPAA enforcement and the significant costs of HIPAA compliance. III. The Debate Surrounding a Private Cause of Action Perceived ineffectiveness in HIPAA enforcement and the lack of a remedy for aggrieved patients have led several commentators and organizations to argue that patients' privacy rights would be best protected by adding the deterrent of private litigation to the HIPAA legal framework. Although the arguments supporting a private cause of action may be compelling, ultimately it is not the best solution to any deficiencies in HIPAA compliance given practical, economic, and policy considerations. [\*2125] A. The Argument in Favor of a Private Cause of Action There are many reasons why it is important to keep one's personal health information private. For instance, if personal health information were accessible, employers might use the information to recruit the healthiest employees, and lenders might use personal health information in deciding whether to grant a loan. n141 One's personal health information could be even more lucrative to lenders and employers if it included information about genetic predispositions. Medical identity theft is also a huge concern that could jeopardize one's health and even lead to legitimate insurance claims being denied. n142 In addition to details pertaining to a person's health, medical records also contain other information, such as names, addresses, social security numbers, and billing information, all of which can be used to steal an identity. [\*2126] Given the strong interest that patients have in keeping their health information private, HHS is left with an extraordinary responsibility to police the standards set forth in the Privacy and Security Rules. Yet since the enforcement process is primarily complaint driven, n143 private citizens also play a crucial role in ensuring HIPAA compliance by filing complaints. The complementary roles that HHS and patients have in enforcing the Privacy and Security Rules begs the obvious question: would the goal of keeping personal health information private be more efficiently met by changing the enforcement process to confer a private cause of action for a violation? As of January 2008, HHS had yet to impose a civil fine on a covered entity for a HIPAA violation. n144 While hundreds of cases have been referred by HHS to the DOJ for criminal prosecution, n145 there have been only four criminal convictions for a HIPAA violation to date. n146 These sparse numbers have led many commentators to call for stricter enforcement of HIPAA's Privacy and Security Rules. n147 Others have criticized the complaint-driven enforcement process, [\*2127] lamenting HHS's failure to engage in independent audits pursuant to its statutory authority. n148 Critics of HIPAA enforcement, supported by several security breaches, argue that HHS is not doing enough to ensure the protection of personal health information. A privacy advocacy group, called the Health Privacy Project, keeps a list of post-HIPAA newspaper stories that involve personal health information being compromised. n149 For instance, in October 2006, a laptop containing the personal health information of 38,000 members was stolen from the health care organization Kaiser Permanente. n150 In November 2006, a thief stole two computers from the Family Health Center in Jeffersonville, Indiana. n151 These computers contained the names, addresses, billing and medical information, and social security numbers of over 7000 women who were being treated for breast or cervical cancer. n152 In September 2006, a computer containing the medical information of several former military men and women was stolen from a hospital in New York City. n153 These are just a few of many stories involving invasion into the privacy of personal health information. Concerns over the effectiveness of HHS enforcement led to a report released at a Senate hearing by the Government Accountability Office (GAO) in February 2007, which criticized the coordination of HHS in ensuring the privacy of medical information transmitted electronically. n154 The GAO noted that while HHS has initiated activities that were intended to address concerns related to PHI, n155 under the current system the goals of safeguarding personal health information will not be met. n156 The GAO recommended that HHS develop a plan [\*2128] containing specific goals and deadlines for ensuring the protection of PHI. n157 Disagreeing with the GAO's recommendation, HHS claimed that the implementation of the Privacy Rule and Security Rule were adequate foundations as safeguards of PHI. n158 But even if the Privacy and Security Rules provide an adequate foundation to safeguard personal health information, questions remain about whether the current system of enforcement serves as an effective deterrent. Moreover, there is also the important policy question of whether the current enforcement process properly protects the interests of patients whose medical information is compromised due to a HIPAA Privacy or Security Rule violation. Professors Hoffman and Podgurski argue that the current enforcement process fails both in terms of its deterrent effect and in its protection of aggrieved patients whose medical information is misappropriated. n159 Their solution is to amend the HIPAA enforcement procedure to include a private cause of action, which they contend would be the best way to effectively deter HIPAA violations while at the same time vindicating the rights of aggrieved patients. n160 Specifically, they propose that HIPAA be amended to include the following provision: (a) Any person aggrieved by any act of a covered entity in violation of this section may bring a civil action in a United States District Court. (b) The court may award - [sp'(b)'+n](1) actual damages, but not less than liquidated damages in the amount of $ 2500; [sp'(b)'+n](2) punitive damages upon proof of willful or reckless disregard of the law; [sp'(b)'+n](3) reasonable attorney's fees and other litigation costs reasonably incurred; and [sp'(b)'+n](4) such other preliminary and equitable relief as the court determines to be appropriate. n161 To justify this proposal, Hoffman and Podgurski point out that the underlying purpose of HIPAA privacy regulations is to protect patients. In their view, the current system undermines that purpose [\*2129] because it disregards the potential hardships that a privacy breach can cause. n162 Instead of exclusively relying on a government agency - which is susceptible to political influences and limited resources n163 - to monitor enforcement, Hoffman and Podgurski assert that conferring a private cause of action would be more effective because the threat of lawsuits would put both financial and reputational pressures on covered entities to make sure that they comply with the Privacy and Security Rules. n164 Under the current system, covered entities may discover that since the penalties of a HIPAA violation are not severe, it may be cheaper not to comply. n165 Hoffman and Podgurski also emphasize that published judicial opinions could prevent future violations because they might clarify vague or confusing language in the Privacy and Security Rules. n166 Many (if not most) of the Privacy and Security Rule violations do not result in actual money damages. n167 Hoffman and Podgurski, however, point to several other privacy laws that provide a right to recover attorney's fees and costs even if the plaintiff suffered only minimal damages. n168 In fact, Hoffman and Podgurski's proposed amendment to HIPAA is identical to a provision in the Driver's Privacy Protection Act of 1994, which affords a private cause of action when a person knowingly and illicitly obtains, uses, or discloses personal information from a motor vehicle record. n169 They also cite the Privacy Act of 1974, n170 the Video Privacy Protection Act of 1988, n171 the Electronic [\*2130] Communications Privacy Act, n172 and the Cable Communications Policy Act n173 in support of their argument that HIPAA should be brought in line with other privacy laws that allow private citizens to vindicate their rights in court. n174 Professors Hoffman and Podgurski make a compelling argument for a private cause of action - the threat of pricey and potentially embarrassing lawsuits would certainly deter noncompliance. Their argument also appeals to basic notions of fairness - intuitively, it seems only right for an entity that violates the law to compensate those who are harmed as a result. And certainly, given the numerous stories pertaining to privacy and security breaches, there is significant room for improvement of HIPAA compliance. Yet affording aggrieved persons a private cause of action only makes sense when the overall benefits outweigh the costs. It is not clear that a private cause of action would achieve that result. B. Why HIPAA Should Not Contain a Private Right of Action There are several practical, economic, and policy drawbacks to affording litigants a private cause of action for a Privacy or Security Rule violation. Recent enforcement figures suggest that the current enforcement process is continually improving its efficiency and effectiveness. The costs of HIPAA compliance may increase in the near future due to the possibility that other state courts might fall in line with Acosta and Sorensen. Conferring a federal private cause of action - especially one that includes liquidated damages - for a HIPAA violation would prove too costly to the health care system. The best course of action, at least for the time being, is simply to give [\*2131] HHS and covered entities more time to improve the current system before making any drastic changes. The most obvious problem with conferring a private cause of action for a HIPAA violation concerns the uncertainty as to whether judges and juries are best equipped to determine if a violation has even occurred. The Acosta and Sorensen cases are representative of the varying degrees of difficulty that courts will face if patients are allowed to sue after a HIPAA violation. If the liability for Faber in Acosta hinged merely on whether or not he violated HIPAA, then it would be a very easy case - obviously HIPAA's Security Rule prevents a doctor from granting an employee access to EPHI for no apparent reason. The Sorensen case is not as straightforward. The Privacy Rule does not mention ex parte communications with physicians, but it does provide that PHI may be disclosed pursuant to a discovery request or lawful process as long as reasonable efforts have been made by the requesting party to give the patient notice. n175 Courts have grappled with how to interpret HIPAA's effect on the legality of ex parte communications. Some courts have held that ex parte communications with treating physicians are lawful as long as the Privacy Rule's conditions for disclosure are met. n176 Other courts have reasoned that HIPAA disfavors ex parte communications, n177 and still others have held that since HIPAA does not specifically mention ex parte communications, only state law should determine the lawfulness of such activities. n178 The first interpretation is probably correct because the Privacy Rule regulates how PHI may be disclosed without patient authorization in a judicial proceeding, and it specifically articulates conditions that must be met before a disclosure of PHI is lawful without patient authorization. n179 Nevertheless, the discrepancies amongst various courts suggest that determining whether a HIPAA violation has occurred is not always a straightforward task. The Privacy and Security Rules, by design, provide covered entities with discretion. For instance, the Privacy Rule mandates that covered [\*2132] entities have "appropriate" safeguards that are "reasonably" designed to protect health information from illicit uses. n180 The Security Rule requires covered entities to continually renew and modify their security precautions so as to afford EPHI "reasonable and appropriate protection." n181 HHS, the entity which drafted the Privacy and Security Rules, is better situated than judges and juries to decide whether particular safeguards are reasonable and appropriate. There is no doubt that Privacy and Security Rules are complex, and certainly their complexity should not be an excuse for covered entities to violate them. At the same time, however, there are clear benefits to allowing HHS and covered entities to work together on solutions to potential problems, rather than allowing courts to promulgate standards of care when they may not be qualified to do so. n182 Over and above the practical difficulties that a private cause of action would entail, the most significant drawback to a private cause of action is its potential economic impact on the health care industry. The possibility of litigation for privacy and security violations would surely compel covered entities to incorporate more legal fees and judgment awards into their budgets - costs that would in turn be passed on to the patients themselves. These costs would add to the already very high costs of HIPAA privacy compliance.

#### 2] Causes Anti-Biotic over-usage - prescriptions are overused electronically AND fragments care

Roy Benaroch 16, pediatrician who blogs at the Pediatric Insider. He is also the author of A Guide to Getting the Best Health Care for Your Child and the creator of The Great Courses' Medical School for Everyone: Grand Rounds Cases. This post appeared on KevinMD.com., 12-27-2016, "Telemedicine: An Idea With Many Potential Pitfalls," Medpage Today, https://www.medpagetoday.com/Blogs/KevinMD/62261

What was needed was a risk assessment, not a prescription. Holly's story, to a pediatrician, makes no sense. It doesn't represent anything close to good or even reasonable medical care. A high fever means "call in a prescription"? That is completely and utterly wrong. So why is Aetna pushing Teladoc? It's cheap. Aetna's payout to the telemedicine company is far less than what they'd pay for an urgent care or emergency room visit. Insurance companies aren't eager to spend money for people to see doctors. Cheap is good for insurance companies, but is it good for your children? I couldn't find any studies in pediatric patients looking at the accuracy of this kind of service for making a diagnosis and prescribing medicine for acute problems over the phone. I emailed the Teladoc people, introducing myself as a physician whose patients might use their services. Do they track their accuracy or outcomes? Do they have any data showing that what they're doing is even close to good care? I got no response. Though there are zero pediatric studies, I found one good study in adults, reviewed here. Researchers contacted 16 different telemedicine companies specifically about rashes. They uploaded photos and basically "posed" as patients. The results were abysmal – there were all sorts of crazy misdiagnoses. Many of the telephone clinicians failed to ask even basic questions to help determine what was going on. Two sites linked to unlicensed overseas docs, and very few of the services even asked for contact info for a patient's primary care doc to send a copy of the record. I think I know why telemed companies don't bother to send records to primary care docs. I have gotten just two copies of telemedicine records in the last few years. They are, frankly, embarrassing. One was about an 8-year-old with a sore throat (who wasn't even asked about fever). It says the mom "looked at the throat and saw it was pink without exudate." (Let me mention here that throats are always pink. That's what's called the normal color of a throat.) Amoxicillin, in an incorrect dose, was called in for "possible strep throat." This is terrible medicine that contradicts every published guideline for evaluating sore throats in children. If this is the kind of Krappy Kare we've decided we want for our children, we ought to just make antibiotics over-the-counter and skip the pretending over the phone. The other telemedicine record I have was nearly identical, a 15-month-old also diagnosed with strep -- amoxicillin called in. (More Krap Kare for Kids.) There can be a role for telemedicine. I see it as a useful tool for follow-ups, especially for psychiatric or behavioral care where a detailed physical exam isn't needed. Telemedicine can also be an excellent way for physicians in isolated or rural areas to get help from a specialist for complex cases. And telemedicine technology is already being used successfully to allow expert-level interpretation of objective tests, like pediatric EKGs and echocardiograms. But current available technology -- like this Teladoc service -- doesn't allow a clinician to really examine a patient, look in their ears or even assess whether their vital signs are normal. They cannot help decide whether a child is genuinely ill or just a little sick -- and that is what parents need to know in the middle of the night. Calling in unnecessary antibiotics is cheap and easy. But it's no substitute for genuine medical care.

### 1NC – AT: Telemedicine – AMR Turn

#### Mis-use causes AMR.

Kelland 15 Kate Kelland 11-17-2015 "Misunderstanding of Antibiotics Fuels Superbug Threat, WHO Says" <https://www.scientificamerican.com/article/misunderstanding-of-antibiotics-fuels-superbug-threat-who-says/> (Journalist at Scientific American)//Elmer

People across the world are alarmingly confused about the role of antibiotics and the right way to take them, and this ignorance is fuelling the rise of drug-resistant superbugs, the World Health Organization said on Monday. "The rise of antibiotic resistance is a global health crisis," WHO Director-General Margaret Chan told reporters in a telebriefing from the organization's Geneva headquarters. She said the problem was "reaching dangerously high levels" in all parts of the world and could lead to "the end of modern medicine as we know it". Antibiotic resistance happens when bacteria mutate and adapt to become invulnerable to the antibiotics used to treat the infections they cause. Over-use and misuse of antibiotics exacerbates the development of drug-resistant bacteria, often called superbugs. Publishing the results of a survey of public awareness, the United Nations health agency said 64 percent of those asked believed wrongly that penicillin-based drugs and other antibiotics can treat colds and flu, despite the fact such medicines have no impact on viruses.

#### AMR is an existential threat – it’s non-linear and has an invisible tipping point.

Silverman 16 Rachel Silverman 4-19-2016 “Confronting Antimicrobial Resistance: Can We Get to Collective Action?” <https://www.cgdev.org/blog/confronting-antimicrobial-resistance-can-we-get-collective-action> (MPhil with Distinction in Public Health @ the University of Cambridge, Senior Policy Analyst and Assistant Director of Global Health Policy @ the Center for Global Development, focusing on global health financing and incentive structures)//Elmer

Antimicrobial resistance is already causing huge harm – and the worst is yet to come. To open the panel, Dr. Chan issued a serious warning about the size and scope of the AMR threat: “everyone will be affected if we do not address this problem.” AMR is already responsible for an estimated 700,000 global deaths each year, 50,000 of which take place in the US and Europe. Extensively drug-resistant (XDR) tuberculosis—cases where the most effective first- and second-line drugs are rendered useless—infected an estimated 47,000 people worldwide in 2014, only one ‘last-line’ antimicrobial is available to reliably treat gonorrhea, and few new antimicrobial drugs are in the development pipeline. According to the latest review, AMR could cause 10 million deaths each year by 2050, with knock-on effects draining many trillions from the global economy. Summers suggested that AMR and potential pandemics, alongside climate change and nuclear proliferation, represent the top three existential threats to life on earth as we know it. And as Dr. Chan explained, the worst-case scenario implies the end of modern medicine as we know it. Even worse, Summers suggested that AMR seems like a “quintessential non-linear phenomenon, and therefore more dangerous.” Year by year the effects are small and mostly invisible. Butat some point in the future they could suddenly become catastrophic, like a “levee that doesn’t hold and unleashes a flood.” Dr. Chan concurred that “the tipping point is not predictable because…microbes are invisible. We don’t even know when they’re going to make the switch” to become resistant to existing drugs.

#### 3] Doctor trust is high.

Swanson and Murphy 21 Emily Swanson and Tom Murphy 8-10-2021 "High trust in doctors, nurses in US, AP-NORC poll finds" <https://apnews.com/article/joe-biden-business-health-coronavirus-pandemic-509835fc9b663bffc83f52d248e9ef4a> (Associated Editor at the Associated Press)//Elmer

WASHINGTON (AP) — Most Americans have high trust in doctors, nurses and pharmacists, a new poll finds. Researchers say that trust could become important in the push to increase COVID-19 vaccinations, as long as unvaccinated people have care providers they know and are open to hearing new information about the vaccines. At least 7 in 10 Americans trust doctors, nurses and pharmacists to do what’s right for them and their families either most or all of the time, according to the poll from the University of Chicago Harris School of Public Policy and The Associated Press-NORC Center for Public Affairs Research. The poll shows high levels of trust among both Democrats and Republicans; men and women; and white, Black and Hispanic Americans.

### 1NC – AT: Telemedicine – Trust Turn

#### Telehealth devastates trust – independently causes patients to withhold information which undermines care and reverses telehealth deployment

Garg and Brewer 11, (Vaibhav Garg, M.S.1 and Jeffrey Brewer, M.S.2 1School of Informatics and Computing, Indiana University, Bloomington, Indiana 2Department of Computer and Information Technology, Purdue University, West Lafayette, Indiana, Telemedicine Security: A Systematic Review, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3192643/#)

Telemedicine, though promising in trial stages, has been less successful in real life.3,4 Reporting of research methodology used in the trials has been inadequate,5 which makes it difficult to analyze the gap between real life and trial stages.6 Security has also been identified as a determinant for successful telemedicine implementations.7 Thus, in this article, we look at the research done in the field of telemedicine security. In particular, we address the reporting of methodology in telemedicine security research. The articles reviewed include several different chronic diseases, including diabetes. The research does not break out diabetes separately, as the issues in security discovered apply across all studies. Telemedicine security includes problems such as authorization, authentication, and accounting8 that are common with other information technology applications such as banking and manufacturing support. There are, however, many new challenges as well. Telemedicine requires information security and privacy as well as physical safety. Physical safety, for example, detection of falls in older adults, has to be evaluated remotely. The patient should be able to trust the system and not feel that human contact in terms of an onsite caregiver is needed. Thus reliability is an important concern. Fischhoff and colleagues9 noted, “Acceptable risk for a new technology is defined as that level of safety associated with ongoing activities having similar benefits to society.” Thus telemedicine systems should also be evaluated for perceptions of both patients and caregivers since they may be perceived as intrusive and ineffective.10 According to Broens and associates,7 both patient physical safety and patient information security are crucial to support the trust relationship between health care providers and patients and for acceptance of telemedicine implementations. Savastano and coworkers10 note that lack of patient trust means that patients would not reveal accurate and complete information, which lowers the quality of care. This is a critical consideration because a big part of the treatment of diabetes patients is in the accurate self-reporting of blood glucose levels. Poor quality of care would further reduce the confidence of both providers and consumers of telemedicine services. Lack of confidence would make it less likely for these services to be deployed widely.Earlier research11 suggests that security is not the primary focus of the telemedicine research community. But this needs to change if telemedicine is to become widely acceptable.7 Several articles10,12 have suggested that poor security may lead to lesser quality of care and lack of confidence in the services for both providers and consumers and cause legal liability. These are unique challenges, separate from other forms of health-care-technology-related initiatives such as electronic medical record systems that need to be identified. Not addressing these issues in telemedicine services not only lowers the quality of care but may also have fatal consequences.13

#### Two Impacts:

#### a] Key to solve bioterror- research, response and treatment

**Jacobs, 5** – MD; Boston University professor of medicine [Alice, director of Cardiac Catheterization Laboratory and Interventional Cardiology, "Rebuilding an Enduring Trust in Medicine," Circulation, 2005, circ.ahajournals.org/content/111/25/3494.full#xref-ref-3-1, accessed 8-18-14]

To be sure, we will learn about the emerging science and clinical practice of cardiovascular disease over the next four days. But **there is an internal disease** of the heart **that confronts** us as **scientists**, as **physicians**, **and** as **healthcare professionals**. It is a threat to us all—insidious and pervasive—and one that we unknowingly may spread. **This threat is one of the most critical issues facing our profession** today. How we address this problem will shape the future of medical care.¶ **This issue is** **the** **erosion of trust.**¶ **Lack of trust is a barrier between our intellectual renewal and our ability to deliver** this new **knowledge to our research labs**, to our **offices**, to the bedside of our **patients, and** to **the public.** **Trust is** a **vital**, unseen, and essential **element in diagnosis, treatment, and healing**. So it is fundamental that we understand what it is, why it’s important in medicine, its recent decline, and what we can all do to rebuild trust in our profession. Trust is intrinsic to the relationship between citizens around the world and the institutions that serve their needs: government, education, business, religion, and, most certainly, medicine.¶ Albert Einstein recognized the importance of trust when he said, “Every kind of peaceful cooperation among men is primarily based on mutual trust.”1 In our time, trust has been broken, abused, misplaced, and violated. The media have been replete with commentaries, citing stories of negligence, corruption, and betrayal by individuals and groups in the public and private sectors, from governments to corporations, from educational institutions to the Olympic Organizing Committee. These all are front-page news. Perhaps the most extreme example is terrorism, in which strangers use acts of violence to shatter trust and splinter society in an ongoing assault on our shared reverence for human life.¶ Unfortunately, we are not immune in our own sphere of cardiovascular medicine. The physician-investigator conflicts of interest concerning enrollment of patients in clinical trials, the focus on medical and nursing errors, the high-profile medical malpractice cases, the mandate to control the cost of health care in ways that may not be aligned with the best interest of the patient—all of these undermine trust in our profession. At this time, when more and more public and private institutions have fallen in public esteem, restoring trust in the healthcare professions will require that we understand the importance of trust and the implications of its absence.¶ Trust is intuitive confidence and a sense of comfort that comes from the belief that we can rely on an individual or organization to perform competently, responsibly, and in a manner considerate of our interests.2 It is dynamic, it is fragile, and it is vulnerable. Trust can be damaged, but it can be repaired and restored. It is praised where it is evident and acknowledged in every profession. Yet it is very difficult to define and quantify.¶ Trust is easier to understand than to measure. For us, trust may be particularly difficult to embrace because it is not a science. Few instruments have been designed to allow us to evaluate it with any scientific rigor. Yet, **trust is inherent to our profession**, **precisely** because patients **turn to us in their most vulnerable moments, for knowledge about their** health and **disease**. **We know trust when** we experience it: when **we advise patients in need of highly technical procedures** that are **associated with increased risk** or when we return from being away to learn that our patient who became ill waited for us to make a decision and to discuss their concerns, despite being surrounded by competent colleagues acting on our behalf.¶ Many thought **leaders in the medical field understand the importance of trust**.3 **When asked whether the public health system could be overrun by public panic over** SARS and **bioterror**ism, **C**enters for **D**isease **C**ontrol and Prevention **Director** Julie **Gerberding replied, “You can manage people if they trust you. We’ve put a great deal of effort into** improving state and local communications and scaled up our own public affairs capacity…we’re **building credibility**, **competence and trust**.”4¶ Former **H**ealth and **H**uman **S**ervices **Secretary** Donna **Shalala** also **recognized the importance of trust when she said, “If we are to keep testing new med**icine**s and new approaches to curing disease, we cannot compromise the trust and willingness of patients to participate in clinical trials.**”5¶ These seemingly intuitive concepts of the importance of trust in 21st century medicine actually have little foundation in our medical heritage. In fact, a review of the early history of medicine is astonishingly devoid of medical ethics. Even the Codes and Principles of Ethics of the American Medical Association, founded in 1847, required patients to place total trust in their physician’s judgment, to obey promptly, and to “entertain a just and enduring sense of value of the services rendered.”6 Such a bold assertion of the authority of the physician and the gratitude of the patient seems unimaginable today.¶ It was not until the early 1920s that role models such as Boston’s Richard Cabot linked patient-centered medical ethics with the best that scientific medicine had to offer,6 and Frances Weld Peabody, the first Director of the Thorndike Memorial Laboratory at the Boston City Hospital, crystallized the ethical obligation of the physician to his patient in his essay “The Care of the Patient.”7 In one particularly insightful passage, Peabody captures the essence of the two elements of the physician’s ethical obligation: He must know his professional business and he must trouble to know the patient well enough to draw conclusions, jointly with the patient, as to what actions are indeed in the patient’s best interest. He states: “The treatment of a disease may be entirely impersonal: **The care of the patient must be completely personal**. **The** significance of the intimate personal **relationship between physician and patient cannot be too strongly emphasized, for in an extraordinarily large number of cases both diagnosis and treatment are directly dependent on it.”** Truly, as Peabody said, “The secret to the care of the patient…is in caring for the patient.”7¶ **This concept that links the quality of the physician-patient relationship to health outcomes has** indeed **stood the test of time**. **Trust has been shown to be important** in its own right. **It is essential to patients, in their willingness to seek care**, their **willingness to reveal sensitive info**rmation, **their willingness to submit to treatment, and their willingness to follow recommendations**. **They must be willing for us to be able.**

#### Bioterrorism causes Extinction – overcomes any conventional defense.

Walsh 19, Bryan. End Times: A Brief Guide to the End of the World. Hachette Books, 2019. (Future Correspondent for Axios, Editor of the Science and Technology Publication OneZero, Former Senior and International Editor at Time Magazine, BA from Princeton University)//Elmer

I’ve lived through disease outbreaks, and in the previous chapter I showed just how unprepared we are to face a widespread pandemic of flu or another new pathogen like SARS. But a deliberate outbreak caused by an engineered pathogen would be far worse. We would face the same agonizing decisions that must be made during a natural pandemic: whether to ban travel from affected regions, how to keep overburdened hospitals working as the rolls of the sick grew, how to accelerate the development and distribution of vaccines and drugs. To that dire list add the terror that would spread once it became clear that the death and disease in our midst was not the random work of nature, but a deliberate act of malice. We’re scared of disease outbreaks and we’re scared of terrorism—put them together and you have a formula for chaos. As deadly and as disruptive as a conventional bioterror incident would be, an attack that employed existing pathogens could only spread so far, limited by the same laws of evolution that circumscribe natural disease outbreaks. But a virus engineered in a lab to break those laws could spread faster and kill quicker than anything that would emerge out of nature. It can be designed to evade medical countermeasures, frustrating doctors’ attempts to diagnose cases and treat patients. If health officials manage to stamp out the outbreak, it could be reintroduced into the public again and again. It could, with the right mix of genetic traits, even wipe us off the planet, making engineered viruses a genuine existential threat. And such an attack may not even be that difficult to carry out. Thanks to advances in biotechnology that have rapidly reduced the skill level and funding needed to perform gene editing and engineering, what might have once required the work of an army of virologists employed by a nation-state could soon be done by a handful of talented and trained individuals. Or maybe just one. When Melinda Gates was asked at the South by Southwest conference in 2018 to identify what she saw as the biggest threat facing the world over the next decade, she didn’t hesitate: “A bioterrorism event. Definitely.”2 She’s far from alone. In 2016, President Obama’s director of national intelligence James Clapper identified CRISPR as a “weapon of mass destruction,” a category usually reserved for known nightmares like nuclear bombs and chemical weapons. A 2018 report from the National Academies of Sciences concluded that biotechnology had rewritten what was possible in creating new weapons, while also increasing the range of people capable of carrying out such attacks.3 That’s a fatal combination, one that plausibly threatens the future of humanity like nothing else. “The existential threat that would be most available for someone, if they felt like doing something, would be a bioweapon,” said Eric Klien, founder of the Lifeboat Foundation, a nonprofit dedicated to helping humanity survive existential risks. “It would not be hard for a small group of people, maybe even just two or three people, to kill a hundred million people using a bioweapon. There are probably a million people currently on the planet who would have the technical knowledge to pull this off. It’s actually surprising that it hasn’t happened yet.”

#### b] Maintaining trust is key to vaccinations - it can reverse

Ward 17. 1Discipline of Public Health, Flinders University. 03/08/2017. “Improving Access To, Use Of, and Outcomes from Public Health Programs: The Importance of Building and Maintaining Trust with Patients/Clients.” Frontiers in Public Health, vol. 5. PubMed Central, doi:10.3389/fpubh.2017.00022.

Trust in Childhood Immunizations Childhood immunization programs have been so effective in the elimination of infectious disease that they have become a victim of their own success (79), with some people now questioning the need for childhood immunizations due to their perception that certain diseases are rare and therefore less concerning (80). Public health practitioners thus have to engage with, and promote the benefits of, vaccination to groups who are increasingly unlikely to have encountered some of the diseases they are being asked to vaccinate their children against. The increasing debate in Western society regarding the real or perceived adverse events following vaccination has made some parents “uneasy” about the decision to vaccinate their children (81). This “unease” or “uncertainty” is called “vaccine hesitancy” (82), and approximately 20–30% of all parents in some countries are vaccine hesitant (80, 83). The literature attempting to understand this phenomenon reveals mistrust as a key factor, but there lacks a rich theoretical exploration of the interaction between trust and vaccine hesitancy and specifically how trust in vaccines is eroded and maintained. There are a number of concerns that parents hold regarding vaccines, mostly centered on concerns about vaccine safety (84). The immunization process induces complex, emotional decisions in some parents who are faced with potentially difficult choices, such as attempting to balance the individual rights of their child with the broader health protection of the community (85). Other widely held concerns by vaccine hesitant parents are as follows: the perceived high number of vaccinations given to children; that health professionals may provide inadequate information; that health professionals are perceived to be unwilling to spend adequate time providing vaccine information; and that vaccines may be perceived to overload their child’s immune system, vaccine components may be harmful, and alternative medicines may suffice in place of vaccines (84). The final concern regarding vaccine hesitancy concerns trust. Not only do some parents distrust the medical system but anything recommended by government institutions (83). A core research question that resulted from the 2014 report by American Academy of Arts and Sciences, entitled “Public Trust in Vaccines: Defining a Research Agenda” was, “To what extent does vaccine hesitancy result from broader distrust in government and science” [(83) p. 10]. This question resonates with other recent literature which cites “trust” as critically important in the decision for parents to vaccinate (86–89). Trust in vaccines and vaccination is complex: it describes a continuum of trust from the funding of immunology research, to vaccine design and manufacture, through government decision making regarding which vaccinations to fund for immunization programs, to the point at which a vaccine is administered by the medical provider to the individual. The parental decision to vaccinate or not is both the beginning and the end point of the vaccine journey and if distrust is evident at any point in this journey then there is a potential for vaccine rejection. Public trust in vaccinations, and the health professionals who promote them, has been identified in the literature as pivotal in determining whether parents will decide to immunize their child (80, 90). Parental perceptions of insufficient, biased, poorly communicated advice from health-care providers is noted in the literature as key to a lack of trust in vaccinations (90) with the result that individuals may turn to the internet for advice, where they may compound their confusion with a multitude of conflicting and unregulated material so that it is difficult to discriminate between the evidence-based sources and those based on anecdote and misinformation (87, 91). Maintenance of institutional trust is paramount to immunization programs. For example, concerns regarding trust in institutions involved in vaccinations during the 2009 influenza H1N1 pandemic led to increasing hesitancy to vaccinate, linked to conspiracy theories, and speculation that the pandemic response was influenced by commercial interests (79). This distrust was further promulgated in Australia when the 2010 seasonal influenza vaccine for children was withdrawn due to an observed increase in febrile convulsions, later found to be linked to one vaccine brand. Despite the resumption of the vaccine program with other vaccine brands, persistent mistrust, and confusion is linked to a decline in influenza vaccination coverage. It is also argued that institutional trust is being eroded by current social trends toward patient advocacy, empowerment, and patient choice, being at odds with the traditional approach to public health programs, which is increased further with virtually unlimited access to health information via sources, such as social media and the internet (79). Given the importance of understanding parental (dis)trust in childhood immunizations, I am currently part of a research team undertaking in-depth qualitative research to further develop our understanding. Our first paper from this study outlines the ways in which broad distrust in multinational pharmaceutical companies impacts some parents trust in childhood vaccinations and their decisions not to vaccinate their children (92). A number of parents perceived that pharmaceutical companies were motivated purely by profits and had the global power and reach to influence governments and research institutions and thus questioned whether they were indeed “working for the best interests of children”, a key issue in trustworthiness. The immunizations were therefore imbued with distrust, not necessarily due to the ingredients of the vial, but the various institutions that have created and marketed it. Rebuilding trust in this example may require “distancing” the immunization from the pharmaceutical companies and being clearer on the independence of researchers (and the scientific system) and governments (and the political system) in making decisions on childhood immunization policy and practice. Conclusion Contemporary public health systems are located historically and culturally within a society whereby individuals question, research, interrogate, and seek alternatives to “traditional” approaches to health and illness. The push to modernity has meant that public health practitioners can no longer just assume that patients or the public will simply “trust” them because of their position in society or their extensive training. Therefore, trust needs to be won and kept because “trust comes on foot and goes away of [on] horseback” (93) (p. 389). In other words, once trust has been lost, it is very difficult to regain it. This is critically important because, as I have shown using numerous examples from different areas of public health, people who distrust public health services are less likely to use them, less likely to follow advice or recommendations, and more likely to have poorer health outcomes. Therefore, public health practitioners need to understand the centrality of trust in their roles. They need to understand the importance of engaging meaningfully and in a trustworthy fashion to build and maintain trust in those groups who are currently mistrusting and to maintain trust in all other groups.

#### Domestic coverage is key to moral authority on vaccinations

Chan 14, MD, World Health Organization, “The Contribution of Immunization: Saving Millions of Lives, and More,” Public Health Reports, vol.129, supp.3, September/October 2014, https://www.hhs.gov/sites/default/files/nvpo/nvac/reports/nvac-global-report-supplement.pdf

The Expanded Programme on Immunization was established in 1974 as the world moved ever closer to smallpox eradication.1 Confidence was high that, with international commitment and cooperation, other vaccine-preventable diseases (VPDs) could be conquered. The 1979 certification of smallpox eradication—humanity’s greatest triumph—was taken as proof of the power of vaccines to permanently improve the world.2 At that time, no one could have foreseen that the 1980s would bring an oil crisis, a worldwide economic recession, and a dramatic shrinking of funds for international health development. At the end of what became known as the “lost decade for development,” the World Health Organization (WHO) singled out childhood immunization as the one true success story where momentum continued to build, with outstanding results.3 Today, as then, immunization has compelling political and public appeal as a cost-effective intervention with an immediate and measurable impact on childhood morbidity and mortality. A single statistic summarizes its remarkable success. In 1974, fewer than 5% of the world’s children were protected by vaccines against six killer diseases. Today, that figure is 83%, with some developing countries reaching 99% immunization coverage.4 Immunization programs have another advantage: their great moral authority. The establishment in 2000 of the Global Alliance for Vaccines and Immunization, or GAVI Alliance, operationalized the principle that every child, regardless of place of birth or income status of the parents, deserves the very best that medicine and science can offer, including access to newer and more expensive vaccines.5 Immunization, which makes universal coverage imperative, is also a potent social equalizer. Even in very wealthy countries such as the United States, it offers equal protection to rich and poor, privileged and marginalized, promoting equally good health outcomes for all. In a sense, the purpose of expanded immunization is straightforward: to deliver multiple vaccines to more children through a simple schedule of child health visits. Yet, as experience has shown, beneath this apparent simplicity lie multiple layers of complex problems—scientific as well as operational—that need to be solved in the interest of further progress. The success of smallpox eradication illustrated the critical importance of constant research and innovation, and of flexible operational approaches that can respond quickly to advances in knowledge and technology. Since its inception four decades ago, expanded immunization has been a story of progressive building on success in a never-ending quest to do more things better. As new problems arose, the determination to solve them brought out the best in human ingenuity and creativity. Global immunization efforts have been vastly enriched by the commitment of the U.S. government, including substantial financial support and the leadership of the U.S. Department of Health and Human Services (HHS). Thanks to the work of agencies such as the U.S. Centers for Disease Control and Prevention (CDC), the U.S. Food and Drug Administration, and the National Institutes of Health, the pages of this report are a catalogue of wide-ranging innovations, game-changing solutions, and progressive successes. They are also a tribute to the decisive impact of U.S. engagement.6 The legacy of the global drive to expand immunization is vast. Immunization programs were the proving ground for what are now core principles of public health: the importance of country ownership, community engagement, appropriate technology, and sustainable results. Immunization also demonstrated the value of setting ambitious but realistic goals and making fair access to services an explicit policy objective. Successes have been seen at the cutting edge of science and among the harsh realities of vaccine delivery in very poor places, in the creation of novel survey designs for tracking and measuring progress, and in constant simplifications and improvements in the cold chain. As a spearheading partner in the Global Polio Eradication Initiative,7 CDC has done much to push the world toward the finish line. The same is true for plans, now approved in all six WHO regions, to eliminate measles and rubella. In my visits to countries, I see the results: the increasingly rare sight of a child crippled by polio, the emptied measles wards in hospitals. Another characteristic of immunization success is its spillover benefits for overall health system capacities. CDC’s renowned laboratory expertise has supported networks of WHO-certified laboratories for polio, measles, and other diseases. This work has given developing countries the infrastructural asset of high-quality national laboratories to build surveillance capacity for multiple infectious diseases, including yellow fever and epidemic meningitis. Other innovations have simplified and streamlined essential work. For example, CDC introduced new laboratory procedures that reduced the time to detect and confirm polio infections by 50%.8 As yet another contribution to operational support, CDC has trained thousands of health-care workers, field epidemiologists, laboratory staff, and program managers. As this report is issued,6 global immunization efforts continue to expand, this time guided by a Global Vaccine Action Plan that supports the Decade of Vaccines.9 Immunization is making a value-added contribution to child survival, as vaccines are distributed together with insecticide-treated bednets, deworming tablets, vitamin A supplements, and tools for growth monitoring. Most recently, scientific evaluations supported by CDC, WHO, and UNICEF have shown how well-functioning immunization services can provide the foundation for integrated delivery of multiple health services.10,11 In other words, efforts to reach every child with a growing number of vaccines have doubled as a capacity-building strategy that benefits the entire health system—and the people it serves. Perhaps the best news, as noted in this report, is the widespread conviction that the potential of immunization to save lives and build capacity has not yet been fully realized. The stunning results to date can be surpassed. The U.S. government should be lauded for its commitment, HHS for its ingenious and innovative contributions, and the American people for their generosity. Expanded immunization has served as a platform by which the U.S. has shared its world-class capabilities with less fortunate countries for the benefit of all.

#### That solves science diplomacy

Hotez 14. Sabin Vaccine Institute and Texas Children’s Hospital Center for Vaccine Development, Departments of Pediatrics and Molecular Virology and Microbiology, National School of Tropical Medicine at Baylor College of Medicine. 06/26/2014. “‘Vaccine Diplomacy’: Historical Perspectives and Future Directions.” PLoS Neglected Tropical Diseases, edited by Sara Lustigman, vol. 8, no. 6, p. e2808.

Vaccine diplomacy is the branch of global health diplomacy that relies on the use or delivery of vaccines, while vaccine science diplomacy is a unique hybrid of global health and science diplomacy. Both offer innovative opportunities to promote United States (US) foreign policy and diplomatic relations between adversarial nations. Vaccine science diplomacy could also lead to the development and testing of some highly innovative neglected disease vaccines. Introduction: Origins and Definitions International cooperation for purposes of infectious and tropical disease control goes back to at least the 14th century, when early concepts of quarantine were introduced in Dubrovnik on the Adriatic Coast of Croatia [1,2], and to the later date of 1851, when Europe held its first International Sanitary Conference for multilateral cooperation to prevent the spread of cholera and, subsequently, plague and yellow fever [3]. Such efforts led to a series of international sanitary treaties and conventions and ultimately to the formation of the Pan American Health Organization and the later establishment of the World Health Organization (WHO) [3,4]. Some scholars trace our current framework for global health diplomacy to the writings of Dr. Peter G. Bourne in his role as special assistant for health issues to US President Jimmy Carter [5] and later (during the first years of the 21st century) to the launch of the Millennium Development Goals (MDGs) and the release of the ‘‘Report of the Commission for Macroeconomics and Health’’, when global health was placed squarely in the international diplomacy arena [6]. Among the driving forces for these activities was an urgent need for diplomatic collaboration to combat pandemics caused by HIV/ AIDS and seasonal and avian influenza, which came with the revelation that such diseases are threats to economic development and both national security and foreign policy interests [7]. There were also practical considerations concerning potential bioterrorist threats and situations that required international diplomacy, such as when Indonesia balked at sharing its time-sensitive avian influenza data or when Nigeria and Pakistan halted polio and other immunization initiatives because of religious tensions [7–11]. In 2007, foreign ministers from seven countries—Brazil, France, Indonesia, Norway, Senegal, South Africa, and Thailand— issued the landmark ‘‘Oslo Ministerial Declaration’’ that formally linked global health to foreign policy [12]. At that time, Kickbusch et al. defined global health diplomacy in terms of processes by which governments and civil societies both ‘‘position health in foreign policy negotiations’’ and create new types of ‘‘global health governance’’ [13,14]. More recently, Kickbusch and Lokeny defined it as a ‘‘system of organization and communications and negotiation processes that shape global policy environment in the sphere of health and its determinants’’ [15]. A key element of modern global health diplomacy is that ‘‘no longer do diplomats just talk to other diplomats’’, but instead a variety of experts in different areas and disciplines are now brought in to solve timely global health issues [13]. Katz et al. [9] have since categorized different aspects of global health diplomacy to include the following: (1) core diplomacy, referring to ‘‘classical Westphalian negotiations’’ between nations leading to bilateral and multilateral treaties, such as the recent WHO Framework Convention on Tobacco Control and International Health Regulations (IHR) 2005; (2) multistakeholder diplomacy, i.e., negotiations between or among nations and international agencies such as WHO, the GAVI Alliance, United States Agency for International Development (USAID), and nongovernmental organizations (NGOs); and (3) informal diplomacy, which includes peer-to-peer scientific partnerships, private funders such as the Bill & Melinda Gates Foundation, and even some government employees from USAID or the US military working more or less independently in the field due to unique circumstances [9]. Michaud and Kates have identified similar forms of global health diplomacy [16]. Kickbusch and Lokeny have also noted recently that the WHO director-general made frequent mention of health diplomacy in her remarks at the January 2013 executive session [15]. Among the factors responsible for this emphasis are globalization associated with the renewed emphasis on ‘‘soft power’’, security policy, trade agreements, and policies concerning the environment and international development, as well as the inclusion of health issues as part of the United Nations and summits held by various government organizations and agencies, such as the Group of Eight (G8) and Group of Twenty (G20) nations, the European Union (EU), the Organization of the Islamic Conference (OIC), and the BRICS (Brazil, Russia, India, China, and South Africa) countries [15]. Still another factor is the increasing use of health attaches embedded in foreign delegations and agencies and increasing dialogue with low- and middle-income countries [15]. With regards to the G20 (and their BRICScountry components), I introduced the term ‘‘blue marble health’’ to refer to the unexpectedly high neglected disease burden among the poor living in emerging economies and even some G20 countries, circumstances such that these nations could drastically reduce global burdens of neglected diseases by taking greater responsibility for their own health concerns [17,18]. Vaccine Diplomacy and Vaccine Science Diplomacy: Definitions Beginning in 2001, the broad framework of global health diplomacy outlined above helped to generate the concepts of vaccine diplomacy and vaccine science diplomacy [19–24]. Vaccine diplomacy refers to almost any aspect of global health diplomacy that relies on the use or delivery of vaccines and encompasses the important work of the GAVI Alliance, as well as elements of the WHO, the Gates Foundation, and other important international organizations. Central to vaccine diplomacy is its potential as a humanitarian intervention and its proven role in mediating cessation of hostilities and even cease-fires during vaccination campaigns [20–22,25]. In this case, the lead actor may come from an international organization, such as WHO or the United Nations Children’s Fund (UNICEF), or an associated nongovernmental organization. A subset of vaccine diplomacy is vaccine science diplomacy, which is a hybrid of elements of global health diplomacy and science diplomacy. I use the term ‘‘vaccine science diplomacy’’ narrowly to refer to the joint development of life-saving vaccines and related technologies, with the major actors typically scientists. Of particular interest, the scientists may be from two or more nations that often disagree ideologically or even from nations that are actively engaged in hostile actions. This definition is along the lines of what Katz et al. would call informal global health diplomacy based on peer-to-peer scientific interactions [9], together with elements of science diplomacy in which the representative nation projects power through its scientific prowess and reputation, as Abelson and others articulated for US science and applied technology during the Cold War [26–28] or more recently as can be seen in outreach to the Islamic world [29] and targeted initiatives for less developed countries [30]. Unlike many forms of global health diplomacy, this aspect of vaccine diplomacy is led by scientists. An underlying theme of both vaccine and vaccine science diplomacies is that vaccines are unique in comparison to other medical or public health interventions. By some estimates, vaccines are the single most powerful intervention ever developed by humankind in terms of the lives that they save. By one estimate, modern vaccines have saved more lives than those that were lost in the world wars during the 20th century [21–23]. The Historical Context Both vaccine diplomacy and vaccine science diplomacy might be best understood by reviewing their historical successes (Table 1). Indeed, an interesting but little-known feature is how diplomacy is intimately tied to the initial development and delivery of many vaccines. The first vaccine discovered in modern times was in 1798 by Britain’s Edward Jenner, who found that cowpox administered as an inoculum could prevent smallpox [31]; the term vaccine is derived from vacca, the Latin term for ‘‘cow’’. Because smallpox produced such devastating and massive killer epidemics (especially among indigenous populations in the New World), the first vaccine almost immediately attained international acclaim in the first years of the 19th century [31,32]. For example, from 1800 to 1805, Jenner corresponded widely and internationally and advised countries as diverse as Russia, Spain, and Turkey and Native American tribes and nations in Canada and Mexico on how to prepare and administer the smallpox vaccine [31,32]. Among the earliest examples of vaccine diplomacy, in 1801 Dr. Edward Gantt, the chaplain of the US Congress, vaccinated Native American diplomats who were visiting Washington, D.C., and in 1803 the Lewis and Clark Expedition was provided smallpox vaccine intended for Native Americans living on the western frontier, although it is unclear if successful vaccinations were actually performed [32]. From 1803 to 1815 during the Napoleonic wars between England and France, Jenner himself was called on for diplomatic functions, including prisoner releases [31]. Jenner was honored in France and wrote in a letter to the National Institute of France that ‘‘the sciences are never at war,’’ while Napoleon was supposed to have once stated, ‘‘Jenner—we can’t refuse that man anything’’ [19,31]. The next set of vaccines, including a new rabies vaccine, was developed almost one hundred years later by France’s Louis Pasteur. In a speech at the inauguration of his institute in Paris in 1888, Pasteur stated that ‘‘science knows no country, because knowledge belongs to humanity and is the torch which illuminates the world’’ [31,33]. Before the close of the century, scientists from the Pasteur Institute spread out to create a network of laboratories in Francophone countries in Indochina (beginning with the Saigon Pasteur Institute [1891]) and North Africa [34], especially for the preparation and administration of rabies vaccine. Around this time (from 1892–1897), Dr. Waldemar Haffkine, a Jewish scientist from Ukraine working in France and Switzerland, traveled to India in order to inoculate tens of thousands of people with his prototype cholera and plague vaccines, but he did so only after first testing the vaccines on himself [35]. Today, the Haffkine Institute in Mumbai is an important microbiology research institute. Vaccine science diplomacy entered its golden age during the Cold War between the US and the Union of Soviet Socialist Republics (USSR). Between 1956 and 1959, Dr. Albert Sabin from the US traveled to the USSR and collaborated with his Soviet virology counterparts, including Dr. Mikhail Chumakov, to develop a prototype oral polio vaccine and test it on 10 million Soviet children and ultimately 100 million people under the age of 20 [36]. The success of the collaboration depended on each scientist going to great lengths to convince their diplomatic liaisons to put aside ideologies for purposes of joint scientific cooperation [19–23,36]. Today, the oral polio vaccine is leading to global eradication efforts. Similarly, between 1962 and 1966, the USSR pioneered a freeze-drying technique for smallpox vaccine and provided 450 million doses of vaccine to support global smallpox eradication campaigns in developing countries, while the US provided key financial support [37]. Such international collaborative efforts led to the global eradication of smallpox by the late 1970s, an effort led by Dr. D. A. Henderson [37]. Later, in the 1980s and following the visit of US Nobel Laureate Fred Robbins to India, the Indo-US Vaccine Action Program (VAP) was established to foster international collaboration in the areas of epidemiology, laboratory investigation, and vaccine clinical trials, quality control, and delivery [38]. VAP is maintained under the auspices of the National Institute of Allergy and Infectious Diseases of the US National Institutes of Health (NIH) [38]. In 1990– 91, a Children’s Vaccine Initiative was launched as an early attempt at global governance for developing pediatric vaccines for developing countries. Vaccine diplomacy also flourished in the later decades of the 20th century. According to WHO’s Health as a Bridge to Peace—Humanitarian Cease-Fires Project (HCFP), vaccines and vaccinations were used to negotiate so-called ‘‘days of tranquility’’ in more than a dozen countries during the 1980s and 1990s, including Afghanistan, Angola, Chechnya, Democratic Republic of Congo, El Salvador, Guinea Bissau, Iraq, Lebanon, Philippines, Sierra Leone, Sri Lanka, and Sudan [25]. Modern Day Vaccine and Vaccine Science Diplomacy Beginning in 2000, vaccines became integrated as key tools in helping developing nations achieve their MDGs and targets. Following the launch of the GAVI Alliance, many developing countries for the first time gained access to vaccines for combating rotavirus and Haemophilus influenzae type b (Hib), and a new vaccine for pneumococcal vaccine was developed [39,40]. Partly because of these interventions, child mortality was reduced by almost one-half [40]. Included among these activities was GAVI’s important work in providing vaccines for North Korea and other fragile states [41]. Among the initiatives relevant to vaccine diplomacy in the 21st century are international efforts to ensure universal or equitable access for low- and middleincome countries to urgently needed vaccines for diseases of pandemic potential. It was noted that many developing countries were on the ‘‘outside looking in’’ when it came to having access to influenza vaccines, including the vaccine for the H1N1 pandemic influenza in 2009 and prototype H5N1 avian influenza vaccines [42,43]. As a result, Indonesia went through a period in which it refused to share timely influenza surveillance data with the WHO [42]. It was noted that IHR 2005 did not adequately spell out provisions on providing equitable access for vaccines [43], and it was probably not intended for this purpose. In 2009, an Intergovernmental Meeting (IGM) was held on pandemic influenza preparedness as a means to establish a framework for sharing influenza and other vaccines with developing countries [43]. Issues of developing country access again arose when cholera emerged in sub-Saharan Africa and Haiti; there was no mechanism to rapidly mobilize cholera vaccine, and calls went out to stockpile cholera vaccine as a humanitarian and diplomatic resource [44]. Also, in 2008 when yellow fever vaccine supplies were depleted during the first urban yellow fever outbreak in the Americas in decades, countries neighboring Paraguay helped to ensure that the vaccine was made available in that country [45]. In 2012, following the earlier launch of the Decade of Vaccines Collaboration [46], the Global Vaccine Action Plan (GVAP) was endorsed by the 194 Member States of the World Health Assembly as ‘‘a framework to prevent millions of deaths by 2020 through more equitable access to existing vaccines for people in all communities’’ [47]. A World Health Assembly resolution was adopted that recognizes access to vaccines as a fundamental right to human health [48]. The diplomatic community was also called on to address critical issues of noncompliance for polio and other vaccines intended for vulnerable populations living in Islamic countries. In 2003, a boycott of polio vaccinations in three northern Nigerian states from fears that the vaccine was contaminated with antifertility drugs (in order to sterilize Muslim girls) necessitated diplomatic intervention from the Government of Malaysia and the OIC [49]. Similar interventions are now required in Pakistan, where the Taliban and other extremist groups have assassinated vaccinators and other aid workers [50]. Some assassinations may have been carried out in retaliation for the Central Intelligence Agency (CIA)’s alleged role in establishing a fake vaccination campaign in Abbottabad, Pakistan, as a ruse in order to confirm the identity of members of Osama bin Laden’s family [51]. Such activities represent a significant setback to vaccine diplomacy. Of relevance to both vaccine and vaccine science diplomacy, in 2007 under the auspices of the WHO and the Global Pandemic Influenza Action Plan, six countries—Brazil, India, Indonesia, Mexico, Thailand, and Vietnam—received grants from the US and Japanese governments to establish in-country manufacturing capacity for influenza vaccines [52]. Future Directions and Moving towards a Framework While the historical and modern-day track records of vaccine and vaccine science diplomacy are impressive, they have not yet led to an overarching framework for its expanded role in foreign policy. Establishing such a framework might be especially useful for US foreign policy. In 2009, President Obama traveled to Cairo where he spoke out about engaging scientists in the Muslim world and extending a hand in science diplomacy [53]. Despite the establishment of a valuable US Science Envoy program, to date such activities have not led to substantive joint vaccine partnerships despite the observation that several Islamic countries in the Middle East and Asia, including Egypt, Indonesia, Iran, and Saudi Arabia, have some capacity for vaccine product development [23]. With an Iranian scientist from the Tehran University of Medical Sciences, Dr. Mohammed Rokni, I recently advocated launching such efforts between the US and Iran and provided as an example the opportunity for developing a vaccine for leishmaniasis, which has devastated areas of conflict in the Middle East and North Africa [54]. Similar opportunities exist in order to partner with nations such as Cuba, which has considerable technical expertise both in producing and delivering vaccine [55], and possibly even countries such as North Korea, which has some technical capabilities [56]. Our Sabin Vaccine Institute and Texas Children’s Hospital Center for Vaccine Development (Sabin), a nonprofit product development partnership (PDP) that uses industry practices to develop and test neglected disease vaccines, could occupy a key niche in vaccine diplomacy. Sabin’s vaccine portfolio targets neglected tropical diseases (NTDs) that specifically affect the poorest people living in low- and middleincome countries. Because NTDs have been shown to promote poverty through their adverse effects on worker productivity, the health of girls and women, and child development, the vaccines under development at Sabin are sometimes referred to as the ‘‘antipoverty vaccines’’ [57,58]. Moreover, most of the diseases targeted by the Sabin portfolio of vaccines occur in countries of direct relevance to vaccine diplomacy (Table 2) [59]. For example, more than one-third of the world’s cases of hookworm infection, ascariasis, and trichuriasis occur in nations of the OIC, i.e., the world’s Muslim countries (Figure 1), while almost one-half of the cases of schistosomiasis occur among the OIC countries [59]. Furthermore, both cutaneous and visceral leishmaniasis have emerged as the most significant infections arising in settings of ongoing conflict, with the former affecting hundreds of thousands of people in Syria and Syrian refugees, while the latter was the leading killer in the war between northern and southern Sudan during the 1980s and 1990s [60]. Some of these diseases are also widespread in some Latin American countries where leaders have expressed varying degrees of anti-American sentiment. While Sabin is currently conducting joint vaccine development with public-sector vaccine manufacturers in Brazil and Mexico, it is ready to embark on joint vaccine development with countries such as Cuba, Indonesia, and Iran, i.e., nations with either strained or even overtly hostile foreign relations with the US in past and recent years. As a form of projecting soft power with both allies and potential adversaries, such activities are consistent with what former Secretary Hillary Clinton termed ‘‘civilian power’’ [24].

#### Science Diplomacy solves Nuclear War

Audra J. Wolf 16, editor, historian, and publishing consultant, Ph.D. in the history of science from the University of Pennsylvania, 11/14/16, “Who could stop nuclear war in the Trump era? These scientists.,” <https://www.washingtonpost.com/posteverything/wp/2016/11/14/who-can-stop-nuclear-war-in-the-trump-era-maybe-these-scientists/?utm_term=.d41d8fbec7d7>

Since the end of the World War II — the only time that atomic weapons have been used in war — the policy of the United States has been to discourage nuclear proliferation, whether through defense treaties, economic sanctions or controlling international sales of uranium. Similarly, the concept of nuclear deterrence depends on rational, predictable decisions about the use of nuclear weapons. Trump’s statements naturally caused a flurry of panic over an untested leader with little familiarity with the basic principles of nuclear security having control of atomic weapons. Fear of Trump having “the nuclear codes” became a sort of rallying cry for his opponents. Americans terrified over this prospect, though, should take comfort in knowing that there is an option for limiting nuclear risk beyond panicking or praying. It may be time to resurrect a Cold War strategy for limiting nuclear risk: back-channel communications among private scientists. In 1955, a year after the U.S. test of a hydrogen bomb in the Bikini Atoll blanketed the globe with a thin layer of radioactive fallout, a group of scientists issued a manifesto against the development, testing and use of nuclear weapons. This public statement inspired what became known as the Pugwash Conference, an international scientists’ movement on behalf of nuclear disarmament. At the height of Pugwash’s influence in the late 1950s and early 1960s, scientists from the United States, the United Kingdom, the Soviet Union and a handful of other non-nuclear countries gathered regularly to discuss the nature of the nuclear threat and ways to reduce it. Both today and at the time, commentators have held up Pugwash as a model of nonpartisan scientific activism, a shining example of what scientists could accomplish if they worked without the constraints of formal politics. In 1995, the Pugwash Conferences and Joseph Rotblat, one of the movement’s founders, received the Nobel Peace Prize for their roles in reducing nuclear tensions at the height of the Cold War. More recently, the Obama administration hailed the personal relationship between Secretary of Energy Ernest Moniz and Ali Akbar Salehi, the head of Iran’s Atomic Energy Organization, as a critical ingredient in the nuclear agreement with Iran. The two men shared a background in physics and engineering and had overlapped at the Massachusetts Institute of Technology in the 1970s. While Moniz and Salehi obviously represented their respective countries at the negotiating table, their shared technical assumptions provided a platform on which to build political consensus. Both during and after the Cold War, the U.S. government supported initiatives that brought international scientists together outside formal political channels, whether in the form of academic conferences or cooperative research initiatives, like the European Organization for Nuclear Research (CERN). Beyond the nuclear realm, scientists have informally assisted U.S. officials in negotiating treaties on issues as diverse as climate change and exploration rights in Antarctica. This strategy, commonly known as “science diplomacy,” has limitations. Scientists are not elected officials, and nothing in their scientific training is designed to prepare them for the subtleties of international political negotiations. The premise of science diplomacy risks putting power in the hands of technical experts whose personal interests may or may not match those of their national governments. And yet: There is no evidence to suggest that the elected head of government — Donald J. Trump — possesses the finesse needed to negotiate a nuclear crisis, either. In 1955, scientists like Joseph Rotblat hoped to use their personal connections and technical expertise to avert a nuclear apocalypse. For the leaders of Pugwash, the point of an international scientists’ movement wasn’t so much to displace official negotiations between governments as to keep a line of communication open in the event of a crisis. The idea was that private citizens could maintain personal relationships even if their countries had severed formal relations, in much the same way that bipartisan dinner parties used to grease the wheels of government in Washington. During the Cuban missile crisis of 1962, for example, the American members of the Pugwash Committee sent their Soviet counterparts a telegram urging restraint and promising to use whatever limited influence they had over U.S. government officials to defuse the situation. The scientists acknowledged that the crisis could be solved only by heads of state but hoped that a mere reminder of their presence might jolt political leaders into recognizing the effects of a nuclear strike. Whether the president-elect and his advisers realize it, Trump is going to need scientific expertise. His comments as a candidate suggest that he’ll scuttle the Iran deal and turn a blind eye to nuclear proliferation, all while engaging in a race with Russia to modernize the nuclear arsenal. It remains to be seen, of course, how many of these ideas will carry over to a Trump administration. In a normal administration, it would be a given that Trump and his advisers would confer with security experts who could provide a reality check on technical questions, from the stages of nuclear proliferation to the effects of modernized nuclear weapons on theories of deterrence. But the Trump campaign has defied expectations in a number of ways, and a Trump presidency is in many ways an open question. Should Trump decide to go forgo technical advice, Americans (and the world) should take comfort in the fact that scientists, security specialists and nuclear weapons experts from many countries will continue to talk to one another. Pugwash’s scientists, too, continue to meet, forging personal links and technical knowledge that can transcend international borders. Back-channel communications among international scientists will always offer hope for preventing a nuclear catastrophe, regardless of who sits in the Oval Office.