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LESSONS ON COUNTERINSURGENCY FROM THE HUMAN BODY

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P R O C E E D I N G S

MR. O'HANLON: Good morning, everyone. Happy holidays, and welcome to Brookings. Glad to have you here. Thank you for coming today. We're all in for a treat. My good friends, Stan McChrystal and Kristina Talbert-Slagle, are going to talk to us about how counterinsurgency and the human immune system have some common features, and one can learn about one of these great enterprises of human activity, perhaps, by looking at the other. So, let me say a brief word of introduction, then turn things over to them. They're going to give us a PowerPoint presentation but also open up afterward to your questions and discussion.

And I will underscore from the beginning, as many of you have probably already surmised looking at the nature of the title and the presentation, this is not meant to be Gen. McChrystal coming out and saying what to do next in Afghanistan or Iraq or Syria or Libya or any other place. This is also not meant to be a discussion of exactly what size Army we need to be able to do what hypothetical future counterinsurgency missions may or may not occur in the future. This is a more general consideration of the nature of counterinsurgency and looking to gain insights, again, by this aspect of human physiology and immunology.

And Kristina Talbert-Slagel, let me say a brief word about her first. Her training is in public health, immunology. She's a research scientist at Yale. These are both professors from Yale University, so we're particularly honored

today to have them from that distinguished university. And she now works at the Yale Global Health Leadership Institute, and she and General McChrystal have been collaborating up there on developing this concept. She's a 2010 PhD from Yale.

Gen. McChrystal is not a 2010 PhD from Yale. As you know, he served a long career in the U.S. military. We're all very, very honored to have him here at Brookings. A fantastic friend of many of us, certainly of Brookings and of myself.

I also want to say a very brief word, just really of thanks and of commemoration of the distinguished life and service of his father who, as many of you know, passed away last week at the age of 89. General Herbert McChrystal, Jr., Major General Herbert McChrystal, Jr., served in the U.S. Army, was decorated in both Korea and Vietnam, was the son and grandson of Army officers, had five sons, one of whom we're honored to be with today, but the other four also served in the U.S. Army -- a remarkably accomplished and distinguished American hero. And we really just want to say a brief word of respect and thanks for what your dad did, and I know everyone will join me in feeling that way.

So, without further ado, now let me turn things over to these two. And, again, we've got about an hour, so we're going to begin with their presentation, then we'll go to discussion. So, please help me and join me in welcoming these two professors to Brookings.

MS. TALBERT-SLAGLE: Thanks very much, Mike.

I will start by saying what an honor it is to be here at Brookings and also to be standing with General McChrystal, and I thought I would begin by telling you why the two of us are standing up here and how this came about.

So, as Mike said, I did my PhD at Yale and studied virology and immunology in the laboratory and spent a lot of time thinking about how the human immune system works and how it defends us against infectious threats. And I started to think that it may be similar, in some respects, to counterinsurgency, and then by great, good fortune, General McChrystal came to Yale and was teaching and we got connected, are met, and I pitched this idea to him. And he said, yes, let's talk a little bit more about that. So, then he gave me some suggested readings, and I read FM 3-24, the *COIN Field Manual*, and I read *Galula*, and then we got back together and we started working on the concepts that we're going to describe to you today. And this has been, as I said, two years' worth of work, multiple iterations. We presented it at Yale in March, and we're really looking forward to doing this today.

GEN. McCHRYSTAL: Well, it's a great honor. I was teaching, and Kristina came up to my office to me at Yale, and someone walks in with my background and she says, I'm from the School of Public Health, and I said, well, I used penicillin; I thought I cured that. (Laughter) But then I found out what I in fact had met was someone of extraordinary thoughtfulness, who actually had come up with -- and she just pitches an idea, and she says, I think what you've been involved in is very similar to what I have learned and what I have seen, and we ought to talk more about it. So, we've been two years countless versions of

talking through this and getting it in our minds.

We're not going to give you the answer on the human immune system, and we're not going to give you the answer on counterinsurgency today. If you walk out of here thinking -- not thinking A or thinking B but thinking -- then we were a success, because I think more than anything else, if we learn to think about this and not have hard-held opinions, it will be best for all of us.

So, what I thought I'd do is sort of launch into it. All good briefings -- PowerPoint briefings -- start with a story or a scenario, so we've created a scenario. And of course in our scenario, not far from here in the situation room at two in the morning, people are starting to deal with a problem, and they're dealing with a place in the world where it's getting worse, and the question is: What are we going to do? Could be any country. And then if we're going to do something, how do we actually do that? It's not really a new question. Many of the people in this room have been in rooms where that question is asked, or they've been where people are trying to execute it. We've got a lot of history. We didn't always call it counterinsurgency. But we got a lot of history in dealing with problems that weren't exactly like normal, conventional war.

Typically what you find is you have a sick nation, a nation with a problem. It's infected -- and I use the term very carefully here -- with an insurgency. It has developed a disease that it has to deal with. But what's the real problem? Because at the end of the day, you've got to understand what that is before you try to go after it.

If you look at a nation -- and this is part of our highway system; it

looks a lot like a circulatory system, doesn't it? It looks like a living organism that depends upon certain things to work, and that's absolutely true. If you think about what we think about America, we think about our ability to do certain things, our quality of life, our rights, our opportunities, and the things that make it a social contract between Americans to each other and the things that underpin that.

And you can pull out five that I did here that say, here are sort of five things that are metrics of whether a nation is working well, be it economy, education, employment, property rights, and free press. The degree to which you don't have any of those, you start to really have issues with lots of things in a nation.

When you start to have a problem, like an insurgency, as many of you know, you say you've got a population which theoretically is neutral at the beginning, and you've got a tug of war or an argument between the host nation, the government, and the opposition or the insurgents for the support of the people. Not for the loved of the people but for the support of the people. Sometimes grudging is giving the one or the other side legitimacy to be the ruling power.

So, this tension is what creates and is what we often talk about when we start to deal with an ins00:09:41 urgency one way or another. Of course, it's pretty self-evident that the support of the population underpins the stability of the government, but the stability of the government also contributes to the support of the population.

MS. TALBERT-SLAGLE: And the overarching goal is to have people living healthy, productive lives. And we all know what a healthy person looks like on the outside, but what does a healthy person look like on the inside? And similarly to the picture that's been showed of a nation, we have a system of systems: cardiovascular, digestive, respiratory, lymphatic system. All of these things work together to make a human being healthy. And this is a ripe and warm nutrient-rich environment that infectious agents can't wait to get into.

An infection side of a human body is really an attempt by a small group of microorganisms to take hold and spread. Initially, they're at a disadvantage, much outmaneuvered in every imaginable way.

And how does that really work? The average person ingests 10,000 -- probably tens of thousands -- of microorganisms every day. We breathe them in. We eat them. We touch them and touch our noses. They come in. These can be viral, bacterial. Many of us in this room -- 50 percent of the people have cytomegalovirus right now inside of our body. Ninety percent of us have Epstein-Barr virus. And so we're talking about constant exposure. And, yet, most of us are healthy. We all got here today. Rarely ever do we get sick.

So, how does this really work? Let's come back to one of the systems. This is a close-up picture of the lymphatic system. It's essentially a trafficking network, different vessels. The little dark dots are nodes, lymph nodes, which we always know are -- we feel these swell sometimes when we get sick. And the vessels, as I said, serve a function of trafficking immune cells, which are constantly circulating in the body, patrolling, conducting surveillance,

checking all the time to protect us from all of the microorganisms that come in. The immune cells are represented here by these yellow stars.

So, how do they actually determine what's a real threat? It's about detecting itself and non-self. Here's an image -- this is representing the yellow immune cell. That's a start. And this is a normal cell inside the body. It has some things on its surface, certain patterns, and the immune cell has the capability to recognize patterns which are non-self. So, any mean cells patrolling touchdown on a cell that is self, it doesn't recognize anything foreign, doesn't do anything. But when it finds a foreign surface of non-self, it recognizes that pattern, and these are in fact called pattern recognition receptors. This is a fundamental characteristic of the immune system.

So, let me take you through what happens when the immune system detects non-self. Here we're looking at a cross-section. This white area at the top is the area outside of the body. The dark pink layer is the exterior layer of skin. The lighter, very faint pink at the bottom is inside the body. There's a break in the skin, maybe a paper cut, and these little red dots are an infectious agent that can't wait to get inside this warm, nutrient-rich environment.

But when it does that, the immune cells are waiting. These are the yellow patrolling immune cells. They recognize non-self through pattern recognition, capture that non-self, and enter into the lymphatic system. So, now they traffic, come into those vessels, and travel to a lymph node. That's what this kidney bean-shaped picture is. Inside of the lymph node are responder cells. Those are little blue circles. They are waiting to be told we have a non-self

pattern, and it is a threat.

So, now inside the lymph node here is the patrolling immune cell. It has captured non-self and is showing small pieces that non-self -- that's the little red dots here -- to the responder cells. These responder cells have the capacity to recognize all different kinds of patterns. When pattern recognition happens, the responding cell that is best adapted to counter this threat copies itself and makes what I always thought of as an army.

So, then it traffics back out to the side of infection through the lymphatic system. Here, now we're back outside of the body. On the bottom are cells inside the bottom, and the blue circle is the responder cell that's adapted to recognize the non-self threat. The cell on the left is uninfected; the cell on the right is infected. Most microorganisms have evolved to hide themselves quite well inside of an infected cell.

But this responder cell is capable of very precise recognition of a pattern of infection. So, first it touches on the self, an infected cell. It doesn't recognize anything unusual, doesn't kill it. Then it touches on the infected cell, recognizes that there is an infection there. It sends what is called a death signal. Causes that specific target cell to die, and all the uninfected nearby cells to be completely unharmed.

This is a huge investment on the part of the immune system. Lots of effort goes into making these responder cells. That's why I mentioned that when your lymph cells get swollen, you can feel in your neck but you can feel it all throughout your body. So, the immune system doesn't want to waste that

level of investment, so it has a feature called memory. Here on the left is a measure of antibody concentration in the blood.

Antibodies are something generated by the immune system whenever it has detected and adapted to a specific threat. So, the more antibodies, the more the immune response.

So, at the time of first exposure -- here we're going through in days. The first few days don't have too much, but then the antibody response builds up in the blood, and this is whenever it's fighting off this infectious agent, which again is happening most of us, maybe all of us, right now. Then, after it clears the infection, the antibody response drops down, but you'll note it doesn't drop down to zero. And you can see this takes about three weeks on average. So, at the time of second exposure, the immune system remembers what it did. It remembers the adaptive response and has an immediate and very powerful effect that can clear that infectious agent. You can see it doesn't take any time for the antibodies to build up to a very high level in the blood.

This is the premise behind vaccination. When we vaccinate, we're tricking the immune system into seeing a first exposure so that when you actually exposed to polio or measles, you have this kind of response inside your body and you never get sick.

GEN. McCHRYSTAL: Amazingly, it only took me six months to teach Kristina all that about the human immune system. (Laughter) I must be a (inaudible) professor.

You know, human bodies aren't the only things that get infected,

and if you think in terms of a nation, even our own, you can have infections -- and we'll call it insurgency here -- that are threats to a nation. And it can be a small group of individuals. It can be any sort of forms. But, typically, most nations are strong enough where not only can they fend them off, they almost don't notice them. The average population on a daily basis doesn't know them. So, we're exposed a lot.

In the United States 300 anti-government militias are estimated in the U.S. right now, and they come and they go and they rise all the time. And we get glimpses of them, but we typically don't feel as though we are threatened by an insurgency on any given day. Most nations are that way. They face differing levels of resistance. Some have significant threats. Most sort of move along without much drama. So, it's really not just occasional exposure; it's constant exposure, much like the human body faces.

So, how does it happen? How does a nation do that? Well, it's all of the things that make a nation able to defend itself, first identifying what's self and non-self, what is a threat. We have things that we pass by every day that are part of our systems that allow us to secure ourselves, that allow us to have resilience in our society. And if we think of a national immune system, sometimes it's things that we see in train stations or airports. It's the things we have built up to protect our borders. It's the processes that give rule of law and resilience to how we deal with people. And then of course it's the buy-in that we create in a population by letting people be a part of the process so that they are vested in the state.

But when a nation -- and we go back to our five pillars that I've identified -- if a nation is pretty solid, those things are resilient and they can fight off the differing infections -- exposures -- that come. But what if they're not? What if they are weakened by any number of things and they drop down into what I'll call a cautionary or dysfunctional level? Suddenly you have a different situation.

MS. TALBERT-SLAGLE: So, I described what happens in a healthy body that's able to fight off threats. But what happens when the system inside the body breaks down? That can be called immunodeficiency, and there are many examples of immunodeficiency -- people with leukemia, chemotherapy -- but here I'm going to talk about a case study of system breakdown that has occurred in our lifetimes, and that's HIV/AIDS, human immunodeficiency virus and acquired immunodeficiency syndrome.

So, what really happens over the course of HIV and AIDS? Well, the body gets infected, just as I described, and in the first few weeks the immune system fights it down. But the virus stays in the body and comes back. Over the course of, on average, about a decade it is an ongoing, again, battle inside of the body between the human immunodeficiency virus and the immune system. And over a long period of time, this ultimately depletes the immune system, leaving the person susceptible to takeover by the virus.

So, what does this look like? Here we have in blue the immune cells in the blood and in red the virus in the blood. So, at the initial time of infection, there's very low virus, very high immune cells. The virus is at a

disadvantage. But it attacks and reaches a very high level and drops down the immune cells. The immune cells fight back, build back up again, but the virus drops down. And then over many, many years -- so these blinds are breaking between weeks and years -- eventually the virus wears down the immune system, causing acquired immunodeficiency syndrome. This is the breakdown of the system. And at this point, the person's immune system is no longer capable of the things that I described to you before, and they become susceptible to opportunistic infection. And without intervention, they die.

So, what about these opportunistic infections? Again here we have immune cells in the blood. Over the first few months of infection they drop and then rebuild, but over years they drop down until there is no immune system left. And that leaves the body susceptible to all kinds of infections that you don't ordinarily see in a healthy individual.

Thrush is yeast infection. We all have yeast around and in us all the time. Oral hairy leukoplakia is caused by Epstein-Barr virus, which, as I mentioned, about 90 personal of people have.

Lots of these infections are things that before the AIDS epidemic we never saw in young, healthy individuals. But because the system has broken down over time, the body becomes susceptible to opportunistic infections that can take hold inside the system.

And this is a picture, just to give a human face to this. This man is named David Kirby. He died of AIDS shortly after this picture was taken, within hours, and he gave consent for this picture to be shown, because he was an

activist and he wanted people to understand what it really meant for human health and the human body to be broken down and susceptible to all the things that ultimately killed him.

GEN. McCHRYSTAL: When we think about insurgencies, of course our mind now tends to go to Afghanistan because it's been in the news so much. So, we think a little bit about a history of a background. Of course, the Soviet withdrawal, which in 1989 was preceded by 10 years of war. So, Afghanistan had already begun as a weak state, became a much weakened state, and then of course they broke into civil war with withdrawal of the Soviet forces.

The weakened central government couldn't control many of the forces that had arisen. We call them warlords. I call them opportunistic, clever people that get economic, military, and political power. And suddenly across Afghanistan, you have a general weakening of those things that give a nation state its resilience: rule of law, ownership of land, all the things that people count on. And suddenly, by 1994, the country is vulnerable to the kind of infection that in normal periods wouldn't even register.

Someone like Mullah Omar with a small group comes and is able to have disproportionate effectiveness pretty quickly, because he's pushing essentially against a weakened state and almost an open door in the minds of the people. And pretty soon we all know the history. The Taliban, by 1996, had taken most of the country. That went on until 2001 when they had almost complete control. And then there was an intervention by activities in 2001 that

brought foreign actions back into Afghanistan. It was a little like the response that Kristina talked about where we have initially the human body where the body starts to fight back and the infection is suddenly pushed back, but it's not eradicated.

And so by 2007, really starting in 2003, the Taliban started to regain their confidence and their strength and come back in force, and by 2007 essentially it had happened again. And they had significant control over significant parts of the country.

By 2009 of course it had grown even more. It wasn't complete control. The nation state wasn't defeated. But it was increasingly weakened; made it harder and harder for the state to establish the effectiveness and the legitimacy that a state requires. And of course we're very familiar with different factors that added to that: youthful fighters; the growth of the drug industry; the increase of the drug industry; money; corruption -- it becomes a corrosive effective in any environment. And of course just the poverty and severing of people around the country give it a desperation that a healthy nation doesn't typically face.

MS. TALBERT-SLAGLE: So, the coming back to the case of HIV and AIDS, the case study, I think a question is: Is failure inevitable? So, let me take you through a little bit of history and learning over the 35 years of the HIV and AIDS epidemic.

In 1981, the first five cases of AIDS were reported in the United States. Two years later, the virus was identified by a group of

researchers in France. But at this time, everybody who was presenting with AIDS was dying, and they would come in with strange cancers -- Kaposi's sarcoma -- and clinicians would treat them like you ordinarily treat cancer, with radiation, and that would kill whatever was left of their immune cells and they died faster. And we didn't understand what was going on. And it turns out that's because the problem was incredibly complex.

This is just a snapshot, really, of the complexity of the immune system's functioning. Who understands this? Any one of these little pathways can be an entire research career. And there was so much that we did not know that it did feel like failure was inevitable because of the incredible complexity of the problem.

But, we kept learning. We kept trying. In 1983, as I said, the virus is identified. So, this is our little cartoon of the virus. And then over many subsequent years and thousands of scientific publications, scientists worked out how the virus infects a single immune cell and goes through the stages of its life cycle to make more viruses.

In 1987, four years after the virus is identified, six years after the first cases, was the first noticeably effective antiretroviral drug. But we kept trying, and in 1995 another class of drugs was introduced, and this was when we turned a corner 14 years after the first cases were identified. But we kept trying. Another class of drugs. Another over subsequent years. And I should tell you that the places where these texts are appearing are actually places in the virus life cycle that are interrupted by these particular drugs. So, there's a huge

amount of knowledge and expertise that went into each one of these landmark events in the HIV and AIDS-targeted response history.

And it turns out that these drugs work. So, these are data from many patients who are infected with HIV. Start treatment. They have very high virus. Again, the red is the virus in the blood; the blue is the immune cells in the blood. At the start of treatment, they have very high virus, very low immune cells. Over the course of four years, the immune system is rebuilt, and the virus is stopped, with some hiccups in the process. It doesn't go away, but this very specific, targeted response with decade's worth of knowledge has been an effective strategy for dealing with HIV.

And, yet, in the United States, of the people who have HIV infection, only about 30 percent have the kind of control of their viral load that I just showed you. Seventy percent of the people who are infected are not taking medications regularly or they don't have control of the virus in their body, so the question is: Wait a second, I thought we figured this out, we have a targeted response and yet we still have questions about health.

This is one piece that I find really exciting about the overlay with COIN. So, let's think about the health of a person living with HIV. It's not just about the immune system complexity. It's also about all the factors that affect health: the medical care; access to medical care; whether this person has mental health to be able to get to medical care; whether this person has capacity in any number of ways to get to medical care or feels stigmatized; and even where this person lives, what's the political context around any infected person?

All of these things come together to talk about the social determinates of health and health outcomes, which turn out to be really important for people who are living with HIV in order to get control over the challenge to their health.

And there's scholarship now saying that people with HIV, if they don't have a house they're not going to take their antiretroviral medication. If they struggle with mental illness, they're not going to take their medication. If they don't know where their next meal is going to come from, they struggle and they're not going to take their medication. If they can't read, if they're under a lot of stress due to socioeconomic circumstances, they're not going to take their medication.

So, it turns out that to bring any person back to health, it's more than just rebuilding the immune system. It's a multi-party, multi-aspect approach to rebuilding health.

So, coming back to the timeline, is failure inevitable? I left off here. In 1983 the virus was identified. It took six years from the time the first five AIDS cases were reported before the President of the United States said the word AIDS. There are many reasons, but among those a powerful reason is that the five cases and many of the others were among young gay men who were having sex with other men, and nobody wanted to talk about that. That was "other." That was not part of us. That was far away.

During these six years, hundreds of people died in the U.S. I don't know the numbers for the rest of the world. But I do know that by 1987 there

were more three million cases of HIV in the world. So, denial did not make that problem go away. Meanwhile, many public health officials and clinicians were working on figuring out how can we prevent this? How can we find cases of HIV?

The world started to pay attention. The U.N. AID program was started in 1996. New treatment strategies -- this was when we turned the corner, as I mentioned, with different kinds of antiretroviral drugs that together highly antiretroviral therapy really started to bring people back to health.

The World Health Organization said, okay, we have this treatment, but we have millions of people who need it; we want to get three million people in treatment by 2005. In 2006 we start talking about circumcision. Again, these are things that are hard to discuss, but the problem doesn't go away. All the while, we're developing newer and better antiretroviral drugs, less side effects, things that people can take once a day instead of 15 different pills at different times with and without food.

In certain populations in 2010 a major breakthrough was that we can give pre-exposure protection for certain people, and it can protect them from HIV. And now, for the first time, 34 years after the first cases were reported, people are starting to talk about getting to zero new HIV infections. Starting to talk about it -- no promises, but even getting to a point where we can start to feel like maybe we can stop the spread of this epidemic.

So, failure is not inevitable, but success is really hard.

GEN. McCHRYSTAL: So, now we talk about the potential of

insurgency. Is failure inevitable? And there's a lot of talk now that you just can't do it. It's just too hard. And there are a lot of tools we bring out to try to deal with it, and many of these tools have different names, and many of them have different meanings to different people. In many cases, they're very confused in what they do, the approaches, the tactics, and whatnot, and what they do in their level of effectiveness. So, we confuse the issue a little bit by the lexicon involved.

And just as Kristina showed you the mapping of the human immune system, we mapped out in sort of this famous picture of FM 3-24 -- the purpose here is -- this isn't a joke, this is the complexity of trying to do counterinsurgency. You start with a basic tug of war between the population of the government, but then all of the different factors and the feedback loops as you improve one or if one deteriorates, if one side does thing or whatever, and suddenly you realize what you've got is an extraordinarily complex system and environment that you're dealing with. It's not something as simple as we sometimes put it in a bumper sticker.

Just understanding the problem. It took years to understand what the human immune virus was. It takes years to understand, because every insurgency situation is unique to its particular environment.

Similarly, perfect precision. We tend to say, well, we will deal with this with very precise methods; we will go in. But if you look at the generations and generations of evolution that produced the incredible human immune system to try to claim that we have that kind of equivalent, counterinsurgency is just not

realistic. But it does bring to mind the importance of being able to deal with a problem without creating unintended negative effects, because often we think what is a precise action doesn't feel precise when you're close to it. A Hellfire missile looks precise on TV, but when you are near the blast radius, it doesn't feel precise.

So, we deal with a targeted response like this. We sometimes think that we have found a miracle drug or a miracle solution. In many cases, that's not the case. Suddenly, it takes -- we realize it takes a much wider level of effort just as going after AIDS has required beyond a single drug or a single scientific breakthrough. In fact, what we have to do is create in the nation state the equivalent of rebuilding of their immune system so that they have the ability to deal with the problem.

How do you do that? It's pretty basic. It's allowing people to have not only the confidence but the competence and the ability to rebuild. And if we look at some of the things that we take for granted on a daily basis, if one of these isn't working, we will immediately pick up the phone and argue. If our police isn't around, if our water's not working, if our electricity goes off even for a short period, if our schools aren't to the level we want much less not available, if we can't drive down a road, if we don't have access to medical care, or if somebody didn't pick up our trash, we immediately think: What in the hell is going on? But if all of those things deteriorate and you think of Baghdad in the summer of 2003 when the electricity was off and it was 125 degrees, suddenly someone wants to give the new government time and give the coalition forces an

opportunity. It's very difficult to do that, because suddenly you're out of income, you're literally in a hellish environment without electricity, and there's violence. So, suddenly it seems very different, and all those things that we think of as critical really are.

So, if we look at -- to parallel what Kristina showed on AIDS, this starts with the departure of the Soviet Union from Afghanistan in the beginning of 1989. But you remember, there'd been a decade of conflict before that. So, were talking about an already-weakened nation state. Nagi Bulla held on for three more years through which the fight had continued. The Taliban arrived in 1994 as sort of an antidote to some of the things that had arisen with warlord control.

In 1996, a lot of people don't know, Osama Bin Laden declared war on the United States publicly. Most people after 9/11 knew it, but five years earlier he had publicly declared war. Then, of course, the 9/11 attacks, which were planned inside Afghanistan. And as a response to that, the invasion of Afghanistan to get at the al Qaeda. But it of course had the effect of toppling the Taliban regime.

A couple of years of relative peace but relative weakness in the state, and then the Taliban start to return like a virus that starts to come back because it hasn't been eradicated, nor has the body been made strong enough to completely protect the states. New COIN manual, strategic assessment we did in December of 2009, UBO killed, having a counterinsurgency debate now on whether we need to do it, and then of course the impending end of the operation.

And it hasn't been cheap. I mean, relatively speaking, it has not -- the numbers 1.2 million Afghans were killed during the Soviet war. But every person, whether it's an Afghan civilian, policeman, servicemember, even the enemy -- they all matter a lot.

So, if we come down to, okay, conclusions, what are we saying here? And this is what really drove Kristina and me to see what we think are pretty strong parallels. And you start with some first.

MS. TALBERT-SLAGLE: Health is a complex outcome for a complex system.

GEN. McCHRYSTAL: Stability in a nation is the exact same thing. It's a balance between a number of factors that are extraordinarily complex.

MS. TALBERT-SLAGLE: And a healthy body can send out constant threats.

GEN. McCHRYSTAL: And same with a nation state. It's not avoiding threats; it's having the ability to deal with them.

MS. TALBERT-SLAGLE: And then when the body, the healthy body, becomes weakened, it's susceptible to things that it ordinarily could fight off.

GEN. McCHRYSTAL: Exact same in a state.

MS. TALBERT-SLAGLE: And intervention -- rebuilding health, rebuilding immune defense -- is a complex approach to a complex problem.

GEN. McCHRYSTAL: And you've heard that about counterinsurgency time and again. It must be a well-informed, complex response

to an extraordinarily complex problem.

Okay, here's what you're asking: So what? Why did I listen through this? And there are some questions that I think people typically walk in with.

The first is: Is it possible? And I'm really talking about counterinsurgency, because Kristina's already shown that it is possible to deal with something like HIV and AIDS. Does it matter? Do I care? Do our partners participate? Will it be hard? All right?

Fair question, is it possible? The real question is: What's possible? Because if you don't design what "it" is, in my experience you've got a real problem, because if you set goals that are unrealistic for a nation or an area or a people or anything, or your resources, then you are going to have a mismatch between what you can do and what you say you are trying to do. And of course whenever you have mismatch, you get frustration. What we found in Afghanistan was a tremendous frustration on the part of the Afghanistan people between what they expected after 9/11 and our intervention and what they got. Whether that was realistic or not didn't matter. It was the difference that mattered.

So, we have to decide what we're seeking and how quickly we think we'll get that, and we need to do that for the people who are our opponents, for the people who are our allies, and for ourselves, because I think in the fall of 2001 there was a certain idea that we would go in, and of course the Taliban government fell, and there was a certain sense of spike the ball in the end zone,

and then we would move on and next problem. And it's not that way.

Now, here's does it matter? This is even a more pertinent question. Is it necessary? There may be a problem, but is it relevant enough for me to risk blood, national treasure, the reputation, and credibility of the nation? And that means do we have a choice? If we say it's necessary, then I'd argue we don't have a choice. If we say it may not be necessary, then we have a choice in what we do or what we don't do.

Now, here's where there's a parallel with HIV and AIDS. In 1981 when there were five cases, we clearly and much of society said we have a choice and we don't much care, because the population in which it was residing wasn't us, and it was a long way away, and it wasn't a threat to us. But here's where it's a great question medically, and it's a great question in international relations, because the patient's health matters to the patient, but it also matters to the population at large.

If there was an individual in this room that had smallpox right now, we would all care. We'd care a lot. And if an individual beyond their ability to transmit the disease wider, if they're a critical part of society -- what if they are teachers or people that we rely on suddenly that are underpinning our society -- if we lose parts of that, it has effects on the rest of our well-being. What if it's the guy who fixes our cable TV? Suddenly we care a little more. And what if it impacts our regional stability -- not just the sort of cold war domino theory but the effect of how a region or the world is impacted, and the world's way too small for us to think anything's over there.

If you think back to 1981 when the AIDS population was a small group of people that didn't represent most of society and then think back to 1981 Afghanistan, you remember, that was the beginning of the Mujahedeen resistance to the Soviets, and they were brave guys fighting with very little equipment in a landlocked country so far away that it was interesting, but it wasn't otherwise relevant. It would be nice if they beat the Soviets, because they are our enemy but if they get killed in the process not really relevant up close to most people. And yet, suddenly, as it starts to get wider as the AIDS population grew and got into the heterosexual part of our population, suddenly it did matter. Suddenly, it's relevant to more of us. And as Afghanistan after 9/11, which had been the location from which al Qaeda's 9/11 strikes struck the continental U.S., suddenly it felt differently. Suddenly, why aren't we over there doing something about that?

Then the question is: Who's participating? Does a patient participate in their treatment? As Kristina said, the patient's role is key. The intervention by outside elements matters a lot, but the patient is a big part of the calculus in what they decide or don't decide to do. Then you go: Does a host nation participate? And you get even more focus maybe on an individual: Does Hamid Karzai participate in what we think is our requirement? And our interests have to be aligned. But here is something that we sometimes forget. The problem is there. But the problem doesn't look the same from every angle. If you look at the problem from the U.S. or westernized, it has a certain look and feel. I used to go to Pakistan and sit down with Pakistani leaders, and I'd say

we've got to do something about al Qaeda. And they'd go: We do. I said: So that's our problem. And they go: No, that's problem No. 12. Problem No. 1 is water; problem No. 2 is electricity; problem No. 3 is religious stand and whatnot. And the get down, they said: We've got to solve the other 11. We'll help you with 12, but you've got to understand that the other 11 will kill us. And suddenly you realize that people have a different view, depending upon where you stand. Even a patient in a medical situation may have a different view. If somebody is infected with something we say you can't go to school because you're infected with HIV, because you will threaten other kids, somebody in the family says now wait a minute, our child has a right to an education. A different view. And sometimes we've got to turn the lens to recognize that things like a security agreement and of course, in a medical sense, treatment.

And, finally, it doesn't take a PhD to answer this one. (Laughter) Yes. I can tell you that on day one. My daughter-in-law -- we found out -- we have one son, my daughter-in-law is sacred to us, and we found out she's pregnant. So, my son asked me -- the father-and-son question is: Is raising a kid going to be hard? Yes. (Laughter) Love ya, proud of ya, it's going to be really hard.

But if you don't, if you don't do anything about HIV, what would be the case? If you don't do anything about instability somewhere, it's harder to extrapolate and decide exactly what the impact is, but it's certainly food for thought.

And this is the one thing that I've become more and more

convinced: The longer you wait, the more clear the problem, the more the platform is burning, the more it's going to cost and the more difficult it's going to be, and more the outcome will be in question. And if you draw it out in the case of counterinsurgency, it might look like this. If you start with a functioning state on the left over to a failing state on the right and you say this is the cost of intervention, when it's really bad it takes a lot of troops and it takes a lot of effort.

In the fall of 2009 when I asked for 40,000 more troops, that's the last thing I wanted to do but didn't have a choice in my mind at that point, because we were at a point where only that kind of action would produce the effect. But if we had started earlier and been more effective in what we did and balanced in how we did it, I would argue, it would have a very different effect. But it's hard to convince somebody early that you've got enough of a problem to warrant the kinds of costs that are involved or to build the capability to do that, to build a whole nation capability to do that when it doesn't look like a real bad problem.

We would be happy to entertain your questions.

MR. O'HANLON: Starting here with Mark please.

MR. JACOBSON: Thank you both for a wonderful presentation. Mark Jacobson from the German Marshall Fund and formerly employee of ISAF in an interesting time. And to my former boss, this is a wonderful presentation.

Kristina, thank you. This is an analogy that I think will be very helpful in perhaps both ways, and I wanted to raise three questions -- well, it's one question but really three areas I think you might want to explore a bit further.

First, how corruption or maligned actors in the insurgent system -- you might find parallels with bacteria in the human body. E. coli. It's fine, it's there, but then at other times it's not. And of course the old phrase is, you know, my obligation, their patient is your corruption. So, when does E. coli become a maligned actor, I guess?

The second piece is on intervention. I'll say just one word: Who does the inoculation? And that becomes a very critical issue that can have n effect not just for the individual but for the broader system. And I think there are some great places for further research there.

And, third, you mentioned specifically, Kristina, that the system remembers its adaptive response, and actually in counterinsurgency Bob Combers argued that that's the problem, that during the Vietnam war USAID only knew one way to react, and so both from how this model can help inform better counterinsurgency or stabilization and then how counterinsurgency practice might inform those who are looking into immunology, there might be an area for further exploration there.

MS. TALBERT-SLAGLE: Great. Well, thank you for those excellent points. That's very interesting, and I -- you touched on several things that have come up and been discussed. But, first, the bacterial co-infection is something that we've thought a lot about in HIV progression, and people do have more than one infection at a time often. And that does seem to affect their prognosis, and that would be something that I think would be great to explore. I agree.

And then who does the inoculation? The HIV/AID story has been a little bit haphazard in that way, but we've learned that it's better to be deliberate about that to the extent that we can. But early intervention is probably more important than deciding who is doing the intervention. We've learned that we need to do that quickly.

And then the adaptive piece, that was one of my favorite parts of FM 3-24: adapt, adapt, adapt, adapt. And I think you've touched on something really interesting. You're absolutely right; immunology remembers its adapted response. But it doesn't stop there. Any re-exposure triggers more adaptation. So, thank you for raising that. That's something that I wanted to make sure to be clear, and that's one of the hallmark features in addition to self and non-self, but the adaptability of the immune system is incredibly adaptive. Beautifully adaptive.

GEN. McCHRYSTAL: I'd be interested in if you have favorite parts of FM 3-24. (Laughter)

MR. JACOBSON: That's the quote of the day.

MR. O'HANLON: Garrett.

MR. MITCHELL: Thanks very much. I'm Garrett Mitchell, and I write the *Mitchell Report*, and part of what I want to ask the gentleman has touched on, and that was I was struck by the fact that all of your references seem to be about viral disease as opposed to bacterial, and I wondered if there was a specific reason why that's the case. In other words, is that a reflection of your expertise or is that a reflection of understanding the difference between how a

virus and a bacteria act in the body, and would that mean that the analogy with COIN wouldn't work as well? That was the question.

The second and related question comes back to I think one of the things General McChrystal said at the outset, which is if you leave here thinking we've achieved what you wanted -- and I can assure you that you've given us a lot to think about -- and so what I was thinking about as you were doing that all the way through and then you got to that last slide where the you had the human body and the nation state and those four or five categories, was in the course of this research that you've been doing, when you put the analogy or the metaphor to the test, were there places where it didn't work? And if so, what were those and what do we learn from that?

MS. TALBERT-SLAGLE: Thank you for those questions. Those are challenging.

The first one I can do a little better: bacteria versus viruses. And of course you're right that there are bacterial infections that can also be a significant threat to the human body. HIV in particular confers this immunodeficiency, which then opens the door to other opportunistic infections, and that felt very resonant in terms of what happens when a previously healthy complex system breaks down and becomes susceptible to threats that it ordinarily wouldn't have any trouble fighting off.

I am trained in virology, so I'm sure that's part of it, but I also can't think of a bacterial example that maps quite so closely to how we're thinking about long-term breakdown leading to susceptibility.

I don't know if you want to say anything.

GEN. McCHRYSTAL: No, I think -- I don't know if it's exactly in line, but as we looked at the factors in a place like Afghanistan, when we had looked at the relatively minor threats that killed the human body when it was weakened by HIV, suddenly drugs, which weren't a problem 20 years ago in Afghanistan; corruption, which was in the society but not on the level it is now; and things like that suddenly become potentially fatal problems not manageable when they would be manageable in a more resilient society. So, I think, you know, we were drawn to that as well.

I'm trying to think if we tested something that didn't work. I'd like to say we did, but I don't remember us doing that.

MS. TALBERT-SLAGLE: I don't either.

MR. O'HANLON: Let's see, gentleman here in the blue sweatshirt and then the gentleman in red -- we take two together sort of as a lightning round. Then we have to go pretty quickly here.

GEN. McCHRYSTAL: Okay.

MR. O'HANLON: Okay, okay.

MR. ALTMAN: Okay, I'm Fred Altman, and I'm wondering, in terms of pushing the analogy a little bit, with the immune system, there's another system that has considerable control, and there's tremendous interaction, that is, with the brain, and how that plays in; and also what about something like autoimmunity?

MS. TALBERT-SLAGLE: Well, that's an excellent question, and

I've given a lot of thought to that. In touching on the different systems that work inside the body, I think the immune system, as Stan said, is just one system just like in a nation. We have national defense, but we have a command structure that has many component parts and then I think maps quite well, accurately, to what the brain does and what the neurological system does in terms of determining responses.

Autoimmunity, which is when the immune system improperly recognizes self as non-self and attacks the body. That is one of the things that when I was studying immunology -- and I said I've been thinking about this while I was pipe petting in the lab -- really made me realize the incredible power of the immune system and how careful the body has had to be with it. And so I think you've touched on something fascinating. That's a really interesting question, and it's part of kind of what's led to the conceptual development of the project, at least on my side.

GEN. McCHRYSTAL: I would that when you compared -- or when Kristina compared the National Command System to the brain -- I worked in the Pentagon, and I don't draw that today. (Laughter)

MS. TALBERT-SLAGLE: Fair enough.

MR. O'HANLON: Sir.

SPEAKER: Thank you for the wonderful presentation. I've got both a question and a suggestion, probably for more work.

The first one is, and I'm focused in on the comments that were made a little earlier and by your own, general, about the corruption be smarting

small -- and you can take the AIDS example -- and then going into something more serious. It seems to me that that corruption, which is Karzai and his government and some of the workings that are historical within the country are the (inaudible) of the problem, much like the immune system acting on the lymph system and all the rest. Why did we not really get a drug, if you would, or an action against that corruption in a more fundamental way, particularly before the drug problem became (inaudible). It seems to me that getting rid of Karzai, to be a little blunt about it, may be one of the elements just like getting rid of the, if you would, the very worst part of AIDS.

The second element is -- I hate to tell you this, maybe the Jackson Center could work on this -- I come from that school of yours -- and that is to apply this analogy in this system to the global element. You know, there's -- (inaudible) you were talking, I thought very much that you could look at the whole problem of a globe's instability and problems from the same analytical framework that should have not only insurgency and evils, which you've got the climate change, you have poverty, you have many different environmental elements, and you have the growing inequality of people and so many elements that bring a sickness, if you would, to our whole global system. So, I throw that out as a challenge to go to Yale, et al., in this process.

Thank you.

GEN. McCHRYSTAL: That's great.

Yeah, on the first part, on corruption, it is so much harder than it seems, and all of you know this -- I'm not talking down to anybody -- but when a

society builds in corruption -- let's talk about tips. You tip a waiter at a restaurant, and you go to the restaurant, and that was to ensure proper service, and that was designed to reward somebody if they do well with the theory that you wouldn't reward them if they don't do well. Well, if you don't tip somebody now, you are taking part of their life away. Their salary is dependent upon the expectation that they're going to get that. In many societies, and unfortunately Afghanistan, that is what happened with corruption. Corruption became a part of the economy, so to cut it free was to cut people who didn't have another option.

District governors, when Mark and I served there together, got $150 a month pay equivalent, and they were expected to run a district. There were 364 districts, and if you went to visit them, they were supposed to lay out nuts and tea and whatnot. They didn't get any money for that, so they had to come up for if ISAF comes to see them or anybody else, that sort of thing. So, you create (inaudible) if they don't get some money to run their business they can't do it to do the greater good. So, it starts to get into the system: I'm doing this, but I'm doing the greater good for this. I mean, I used to talk to him a lot about corruption, and President Karzai would look at me and say: When I see a fancy SUV, armored SUV, driving around contractors in Kabul, westerners, I think corruption. Perception. So, it was very difficult. And then whether you get rid of a leader gets back to, of course -- I'm a great enthusiast for history, and I talked to Stanley Karnow. I called him to talk about this (inaudible), whatnot. This is an elected leader, and I don't think that's in our list of options. We don't get rid of elected leaders like this, or we shouldn't. (Laughter) It normally doesn't

work out well. And, you know, it wasn't like there was this other clear option though.

So, it's very -- the last point I'd make is about the drug thing, because the drugs -- the problem with drugs is the coercive effect of the corruption that comes. But if you were a farmer in Helmand Province, you didn't want to grow drugs but you made about the same on growing poppies that you did on wheat. The difference was the drug dealer will deliver poppy seeds to the farm gate, and they'll pick up opium paste at the farm gate. If you grow wheat, you've got to get the seed, then when you've grown it you've got to get it out to market. And when the security's not good -- I sat and talked to one farmer who in the time -- he was just south of Lashkar Gah. He had to go up through Lashkar Gah to Kandahar then down to Spin Boldak and go to Pakistan to sell it. He was stopped 18 times for bribes, some by the Taliban, some by corrupt police, and some by free agents. And so he had to get four times as much for his crop to make the same amount of money. So he's looking and he says what do I do -- and I can get killed in that process, so I grow poppies. And you say, well, why don't you grow pomegranates. Takes five years to get a pomegranate fine to produce fruit. What are you going to do for five years? How are you going to feed your family? And so it's sort of -- you go out there and you say you've got to get rid of these poppies, and they go and then what? We need to get ourselves a bridge. It's like a -- you know, anybody's got a tough time and you want their kids to come out right and you've got to give them a hand so that they can do something. So, it's so insidious. I was -- it's the where do you start, and you've

got to try to fix all the problems simultaneously. That's the challenge.

MR. O'HANLON: We'll take one last question I think here. The gentleman in the back with the purple shirt please.

SPEAKER: Thank you so much, and I think the HIV metaphor works really well. I think one thing that fits into that relationship is the role that stigma has played in sort of decreasing a system's immunity to HIV, and I wondered what sort of parallels you can draw to stigma either in the host nation with kind of decreasing whatever defense forces' effectiveness and maybe here at home (inaudible) sending in those forces, what kind of stigma parallels can be drawn.

MS. TALBERT-SLAGLE: I'll talk for just a second on stigma, because it's a really important piece of the HIV and AIDS story. The slide where I talked about 30 percent of the people in the U.S. that have HIV are getting proper care, and we're looking at all the social determinates of health, and one of those is stigma and how it keeps people from getting the care that they need. And that's one of the many pieces of the complex approach to rebuilding health that we have to think about in HIV and AIDS. So, I think that raises a really interesting point.

GEN. McCHRYSTAL: I think it's absolutely correct for a place like Afghanistan as well. We sort of had this groundswell of sympathy after 9/11, an interest in Afghan female rights, and a number of -- get kids in school. But the closer we got to it, the more you get with a real society, the more you deal with some people who aren't completely honest or aren't completely competent. And

suddenly what looks sort of clean from afar isn't quite as clean up close, and it can be harder, it's frustrating, whatnot. And then you say why am I helping this person when in fact they're corrupt, or why am I helping this person because they're a pretty extreme Islamist or something like that, and they don't like us. You've got to make a decision. You've got to get through some of that stigma and see the problem from trying to emphasize enough so that you can appreciate the problem from someone else's perspective. You're still dealing with your national interest. I mean, we don't do things strictly for altruism. But sometimes you've got to (inaudible), all the time I would argue. If you don't make the effort to see it from their side, you're never going to solve the problem. You can't even there. Our solution to their problem is dead on arrival.

MR. O'HANLON: In closing, I want to make one observation that is not pre-scripted, but it just strikes me -- and it's a point that Katrina's arguments really drive home, which is that the immune system retains, and must retain, the knowledge of infections that it's previously fought, because it may see them again. And it strikes me that in this era when we're downsizing the Army and deciding as a nation we don't want to do counterinsurgency again, some of that's unavoidable, perhaps even correct. We'd better not forget how to be able to do it again. And not just a general proposition of certain kinds of operations but specifics on specific countries and parts of the world. And that is implications for how we build not just the Army but the State Department, the intelligence community; retaining expertise in different parts of the world; retaining foreign area officers; retaining units that are cherished enough for their

specialized skills in doing some of this thing, that they can be centers of excellence to grow larger capacity, if we need to. It's just a point. You know, it's in the defense strategic guidance of 2012. People say the Pentagon says we've got to remember how to relearn or to search back up. But it's just a throw-away line or just a short mention. And I think this presentation drives home the centrality of that enduring lesson. So, I just want to thank you and ask everyone to join me in thanking these two distinguished professors.

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