Infectious Diseases, Mental Impairments and Global Instability

AONM

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Disclosures

- I have no relevant financial or non-financial relationships to disclose.
  - Most of my income has been paid directly from patients in return for trying to help them.
  - I have been an expert witness in cases involving Lyme disease.
- Any reference to off-label or non-FDA approved usage in this presentation will be noted and disclosed.

Microbes and Mental Illness

Aspergillus, *Babesia*, *Bartonella*, Borna disease virus, *Borrelia burgdorferi* (Lyme disease) and other tick-borne infections, *Candida, Chlamydia, c*oronaviruses (e.g. SARS-CoV-2), *Cryptococcus neoformans,* cytomegalovirus, Epstein-Barr virus, hepatitis C, herpes simplex virus, human endogenous retroviruses, HIV, human herpesvirus-6 (HHV-6), human T-cell lymphotropic virus type 1, influenza viruses, measles virus, *Mycoplasma, Plasmodium*, rubella virus, Group A *Streptococcus* (PANDAS), *Taenia solium*, *Toxoplasma gondii*, *Treponema pallidum, Trypanosoma*, and West Nile virus.

Autism
Schizophrenia
Bipolar Illness
Depression

Anxiety
Suicidal
Aggressiveness,
etc.

Bransfield RC, Mao C, Greenberg R. Microbes and Mental Illness: Past, Present and Future. Healthcare 2023

The Scream, by Edvard Munch, 1893; in the National Gallery, Oslo

Bransfield RC. The Association between Infectious Diseases, Mental Impairments, Violent Behavior, and Global Instability
Medical Research Archives.
2025; 13(1)

Infectious Disease Sequence to Global Instability

Bransfield RC. Med Res Arch. 2025; 13(1).

Introduction I

- Are we overlooking some of the explanations for violent behavior?
- The title of a 2017 presentation the author in Paris, France was—Could a Pandemic Causing Mental Dysfunction Contribute to Global Instability? The hypothesis was--If a pandemic occurs that causes the type of mental impairments that increase the risk this violence, it could cause global instability.
- At that time, it was an untested hypothesis. Since the onset of the SARS-CoV-2 pandemic, the validity of this hypothesis can now be tested. Do any other infectious diseases contribute to mental impairments, violence, and global instability?

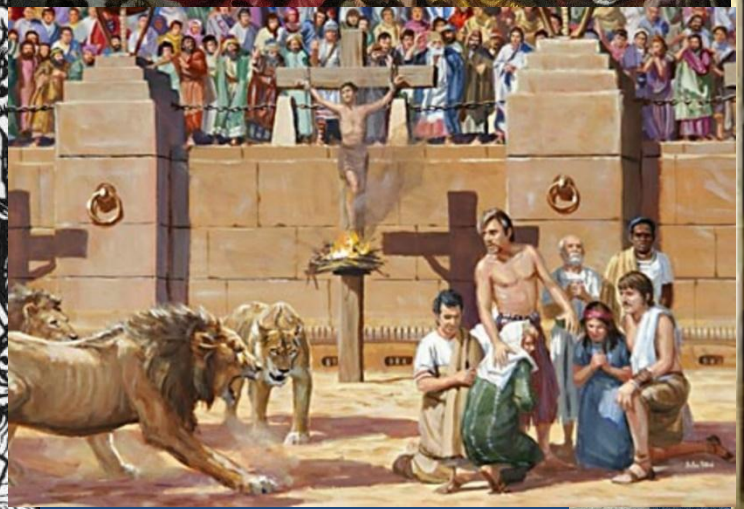
Bransfield RC. Could a Pandemic Causing Mental Dysfunction Contribute to Global Instability? ILADS 7th European Conference; May 19, 2017; Paris, France.

Introduction II

- Violence has greatly impacted history, with periods of advances and declines in civilization associated with cycles of collaboration and conflict. Collaboration, compassion and empathy are a part of our functioning that allows us to collectively experience great achievements and a better quality of life. However at different times in history, and in different geographical locations, conflict, violent behavior, and a decline in quality of life are more prevalent.
- What explains these episodic increases in violence?

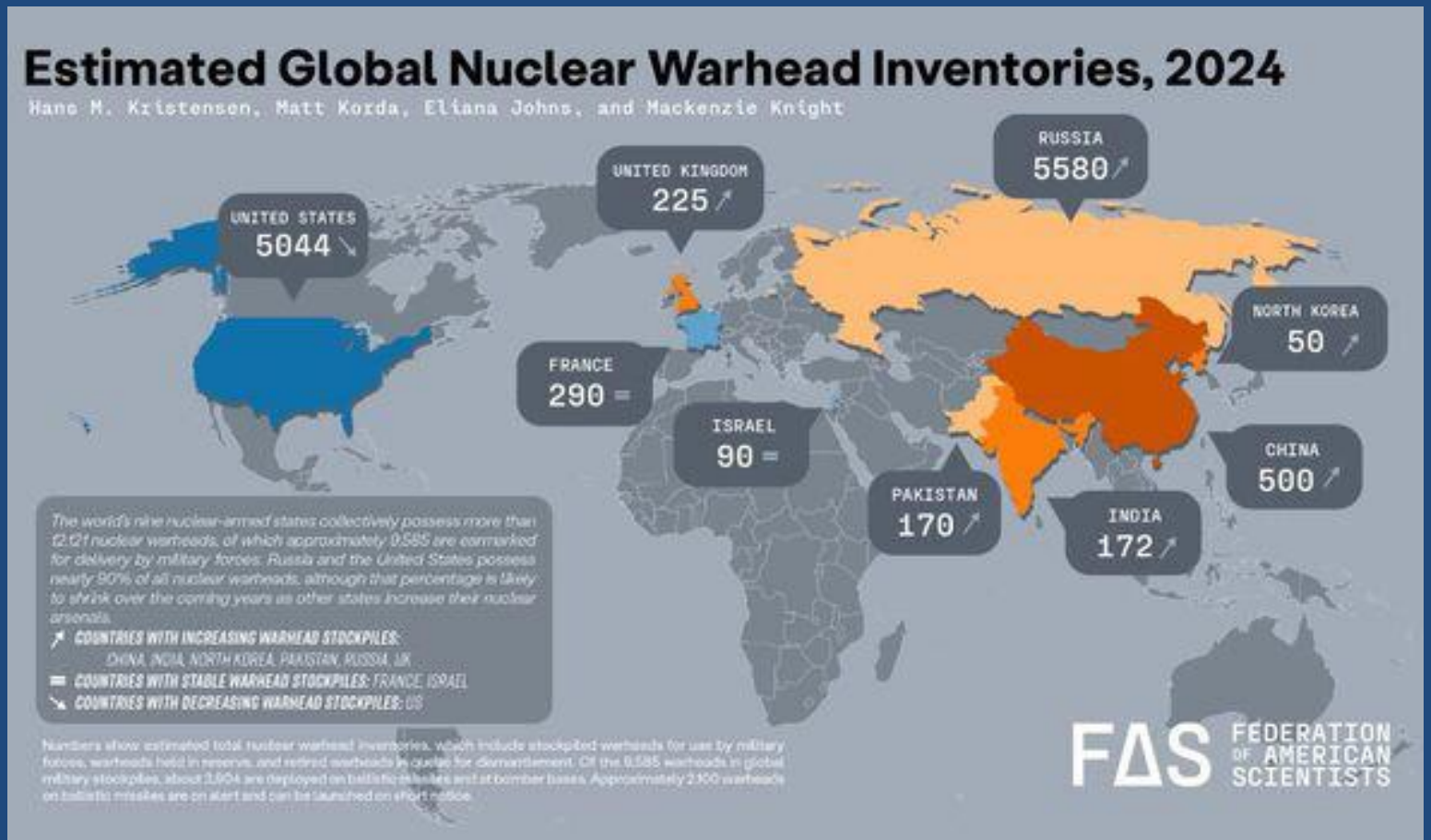

Ancient & Modern Wonders of The World

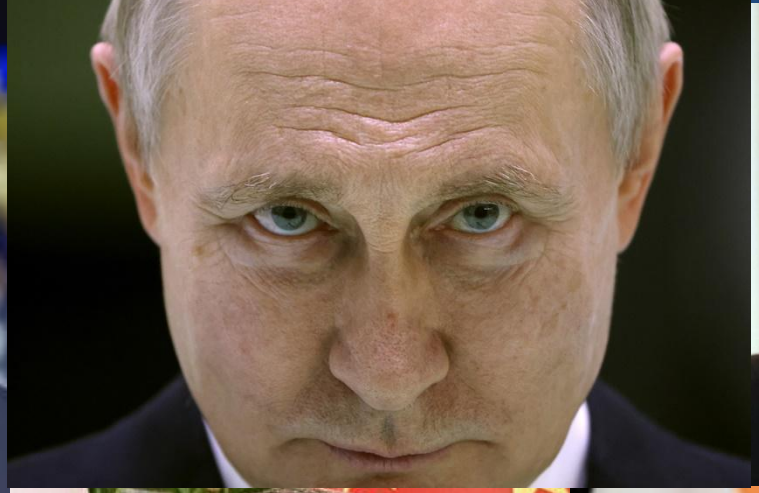
Why?



This Raises a Concern

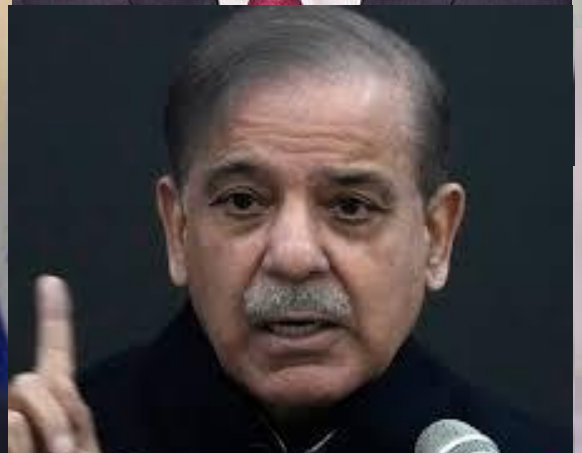
- Weapon technology is more advanced than mental health technology.
- The mental stability of the individuals controlling these weapons is a concern.










Introduction III

- Violence needs to be differentiated from normal aggression and competition, which are a part of our innate functioning. The interplay between compassion and collaboration vs. competition, and aggression constantly occur in both mammalian and human functioning. Extremes of competitive aggression are normally restrained by opposing social bonds and social structures that support social collaboration and cooperation.
- When aggression becomes violence, is it just a part of human functioning, or is it instead caused by an inadequately understood pathological process? Could a better understanding of violence help to prevent or reduce some of the fundamental causes of violence and avoid the later consequences?

Introduction IV

- This article shall test the previously stated hypothesis and review other infections that may have a similar impact. It shall include an evaluation of the sequences involved that may contribute to any association between infectious diseases, including the recent pandemic, mental impairments, violence, and global instability.

Method

- The question to be addressed is—do some infectious diseases contribute to mental impairments, violence, and global instability?

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A Series of Questions I

- Have environmental changes increased infectious disease?
- Do zoonotic and vector-borne diseases have a significant impact upon humans?
- Do parasites manipulate the behavior of their hosts?
- Do infectious diseases contribute to violent behavior in animals?
- Do infectious diseases contribute to violent behavior in humans?
- What pathophysiology explains an association between infectious diseases and violence?
- Was the behavior of influential individuals impaired by infectious diseases?
- If infections contribute to violent behavior of individuals, can it also have an impact on a greater social or global level?

Bransfield RC. The Association between Infectious Diseases, Mental Impairments, Violent Behavior, and Global Instability Med Res Arch. 2025

A Series of Questions II

- Is there a geographical association between infectious disease burden and violence?
- Are soldiers returning from conflict zones at greater risk for having acquired infectious disease associated with violence?
- Did the SARS-CoV-2 pandemic result in mental impairments that may have contributed to violence?
- Is there more global instability since the SARS-CoV-2 pandemic has occurred?
- Have any other pandemics contributed to mental impairments that may have been associated with violence?
- What further research and actions are needed to address the association between infections disease, mental impairments, violence, and global stability?

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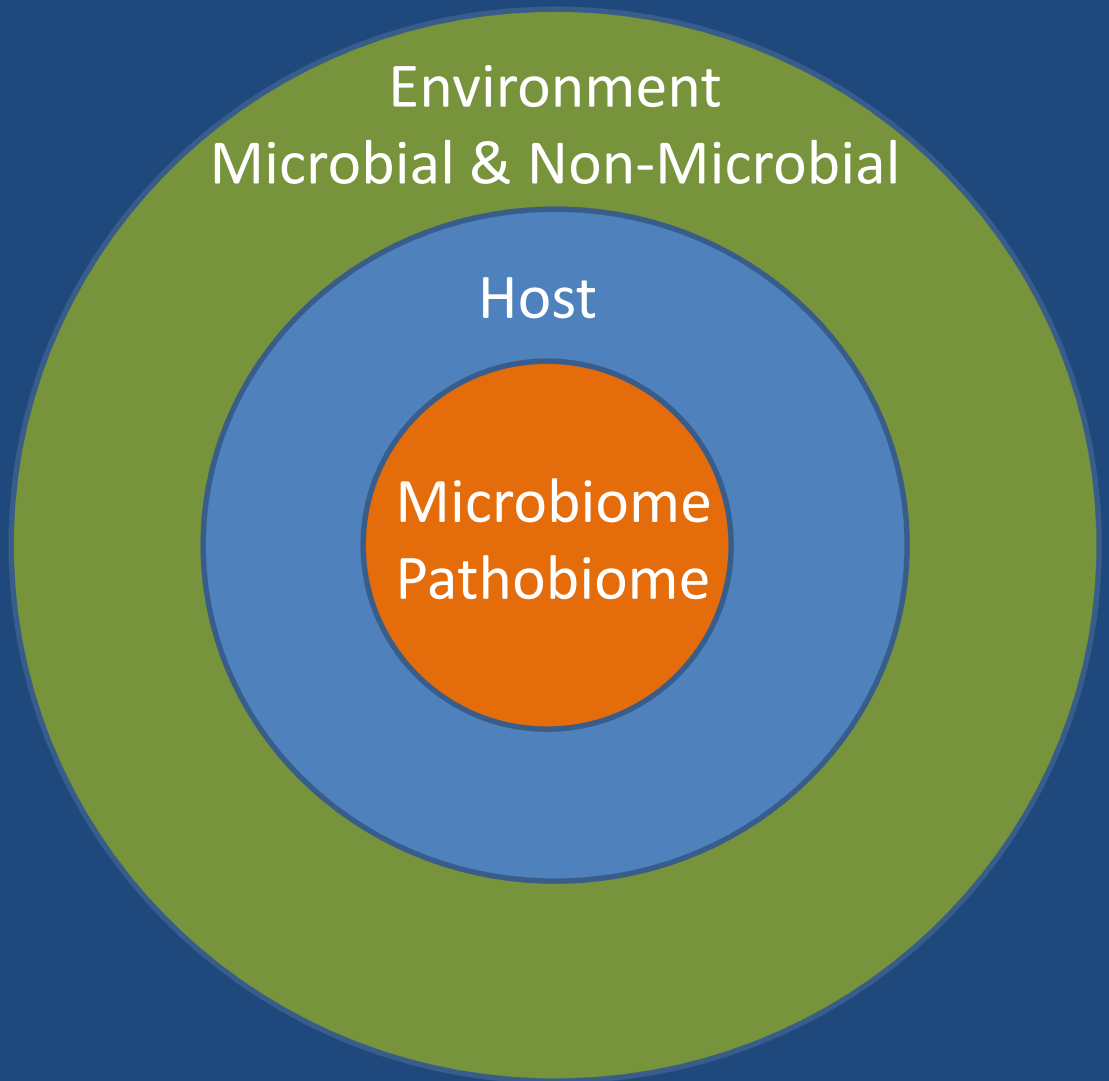
Microbes in External & Internal Environment



Have environmental changes increased infectious disease?

- Parasites reproduce more quickly than hosts, allowing them to adapt more quickly to rapidly changing environments associated with reductions in biodiversity, climate changes, chemical pollution, landscape transformations and species introductions. Other human influences on the planet includes domestic and wild animals encounters, deforestation, outdoor recreational activities, urbanization, agriculture impact, habitat changes, melting permafrost, technological impacts, rapid population growth, international travel, globalization, inequalities in resources, cultural and religious conflicts, political instability, conflict zones, and large population migrations.
- These changes are associated with an increased the risk of zoonotic diseases, and the consequences of these infections.
- Since 2022, 44 countries have experienced a 10-fold increase in the incidence of at least one of 13 infectious diseases compared with a pre-pandemic baseline.
- In summary, environmental changes increase infectious diseases, particularly zoonotic diseases.

Healthy Ecosystems, Healthy Humans Biodiversity is one of the best defenses against many infectious diseases

- Human activities have directly and indirectly fueled the spread of zoonotic diseases.
- Climate change is a powerful threat driver. As global temperatures rise, disease vectors can spread into regions newly favorable to them and is a driver of biodiversity loss.

Weber T. Hopkins Bloomberg Public Health. 9/26/2024.

Earth from Outer Space

- “Last year, I had a life-changing experience at 90 years old. “We were living on a tiny oasis of life, surrounded by an immensity of death. I saw the deepest darkness I could have ever imagined, contrasting so starkly with the welcoming warmth of our nurturing home planet.
- "This was an immensely powerful awakening for me. I had to get to space to understand that Earth is and will stay our only home. And that we have been ravaging it, relentlessly, making it uninhabitable."

-- William Shatner, actor

Do vector-borne zoonotic diseases contribute to mental illnesses?

- Vector-borne diseases are human illnesses caused by parasites, viruses and bacteria that are transmitted by vectors (ie. ticks, mosquitos, etc.) & account for almost 20% of all known infectious diseases globally.*
- Zoonotic disease are any of a group of diseases that can be transmitted to humans by nonhuman vertebrate animals.
- One Health is an approach that recognizes that the health of people is closely connected to the health of animals and our shared environment.

WHO fact sheet. Vector-borne diseases. Fact sheet #387. (2014). http://www.who.int/kobecentre/mediacentre/vbdfactsheet.pdf

Zoonotic Diseases

- Zoonotic disease outbreaks are an important threat to human health and numerous drivers were related to vector abundance, human population density, encroachment on wild areas, biodiversity loss, climate change, poverty, urbanization, unusual weather conditions and water contamination.
- Pathogens of large outbreaks were more likely to be viral and vector-borne.

Stephens PR, Gottdenker N, Schatz AM, Schmidt JP, Drake JM. Characteristics of the 100 largest modern zoonotic disease outbreaks. Philos Trans R Soc Lond B Biol Sci. 2021 Nov 8;376(1837): 20200535.

Do zoonotic and vector-borne diseases have a significant impact upon humans?

- Zoonotic diseases are infections that are spread between animals and people. The pathogens in these diseases may include bacteria, parasites, and viruses. SARS-CoV-2 is a zoonotic disease, and many pandemics, such as plague, were zoonotic diseases. Approximately 60% of emerging human pathogens and around 75% of all emerging infectious diseases are zoonotic.
- Vector-borne diseases are disease from an infection transmitted to humans and other animals by blood-feeding arthropods, such as mosquitoes, ticks, and fleas. They often have complex life cycles with definitive hosts, intermediate hosts, arthropod vectors, and environmental reservoirs. Vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700 000 deaths annually. Many vector-borne diseases are also zoonotic diseases.
- In summary, zoonotic vector-borne diseases are diseases that can be transmitted between animals and humans and are also spread by vectors such as mosquitoes, ticks, and fleas. Examples include Lyme disease, West Nile virus, dengue fever, malaria, toxoplasmosis, bartonellosis, rabies, avian flu and plague, all of which may have significant impact upon humans. They have a significant impact upon humans.

Do Parasites manipulate the behavior of their hosts?

- Despite humans being the most cognitively advanced species, bacteria are a more dominant life form on earth. The Manipulation Hypothesis states a number of parasites purposefully alter the behaviour of their hosts in a specific manner that increases the probability of their transmission to an uninfected host.
- One example is toxoplasmosis which can reduce the fear of cats or the speed of reaction in infected rodents. Another example is toxoplasmosis increasing sexual promiscuity. Rabies is an example of an infected host transmitting the infection to another host by increased aggressive behavior. In most cases, humans are an incidental host to a zoonotic infection. The altered behavior that benefits parasite transmission may be maladaptive for the host with symptoms that can include excessive passivity, hypersexuality, increased aggressiveness, and/or other symptoms.
- In summary, parasite sometimes manipulate the behavior of their hosts.

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Do infectious diseases contribute to violent behavior in animals?

- Animals are in both cooperative and competitive situations. There is normal competition for territory, resources and mating. Functional forms of aggressive behavior are a means of communication throughout the animal kingdom. Cases of violent behavior associated with infectious diseases in animals have been reported in multiple species, including dogs, horses, chimpanzee, and pigs and multiple other animal species with rabies virus.
- In summary, animal models of excessive aggression have demonstrated parasites change host's behavior and cause violence in a number of species.

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Do infectious diseases contribute to violent behavior in humans?

- Cases of excessive aggression and violence in humans have been reported associated with *Bartonella, Borrelia burgdorferi,* Encephalitis lethargica agent, Hepatitis E virus, Herpes simplex virus, Measles virus, *Mycoplasma*, Neurosyphilis, Parvovirus, *Plasmodium* (Malaria), sepsis, Rabies virus, *Streptococcus pyogenes (group A Strep),* Toxoplasma gondii (Toxoplasmosis), *Treponema pallidum* (syphilis), viral encephalitis, Western Equine Encephalitis, and Viral Encephalitis.
- In summary, a number of infectious diseases contribute to violence in human and different types of violence may occur.

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What pathophysiology explains an association between infectious diseases and violence? I

- The association between infections and violence are studied with case reports, pathophysiological studies, autopsy studies, and epidemiological studies. Intact mental functioning facilitates the maintenance of intact social structures and a peaceful resolution of competitions and conflicts. In contrast, violent behavior is the result of the interaction of multiple contributors, failed deterrents and acute triggers, such as the post-acute effects of infectious diseases. Some infectious diseases, in susceptible individuals, can increase the risk of violence. A significant number of these infections are zoonotic and zoonotic vector-borne diseases. Infections and the immune reactions to them have caused impairments that have been associated with three basic types of violence associated with mental impairments—predatory aggression, impulse control disorders and psychotic violence. Predatory aggression may involve stalking and is seen in serial killers. Impulse control disorders are excessive responses to provocation and are the most common form of aggression. Psychotic aggression is associated with paranoia or delusions. Predatory aggression is a particular concern, since it can be ruthless and well planned with a lack of empathy.

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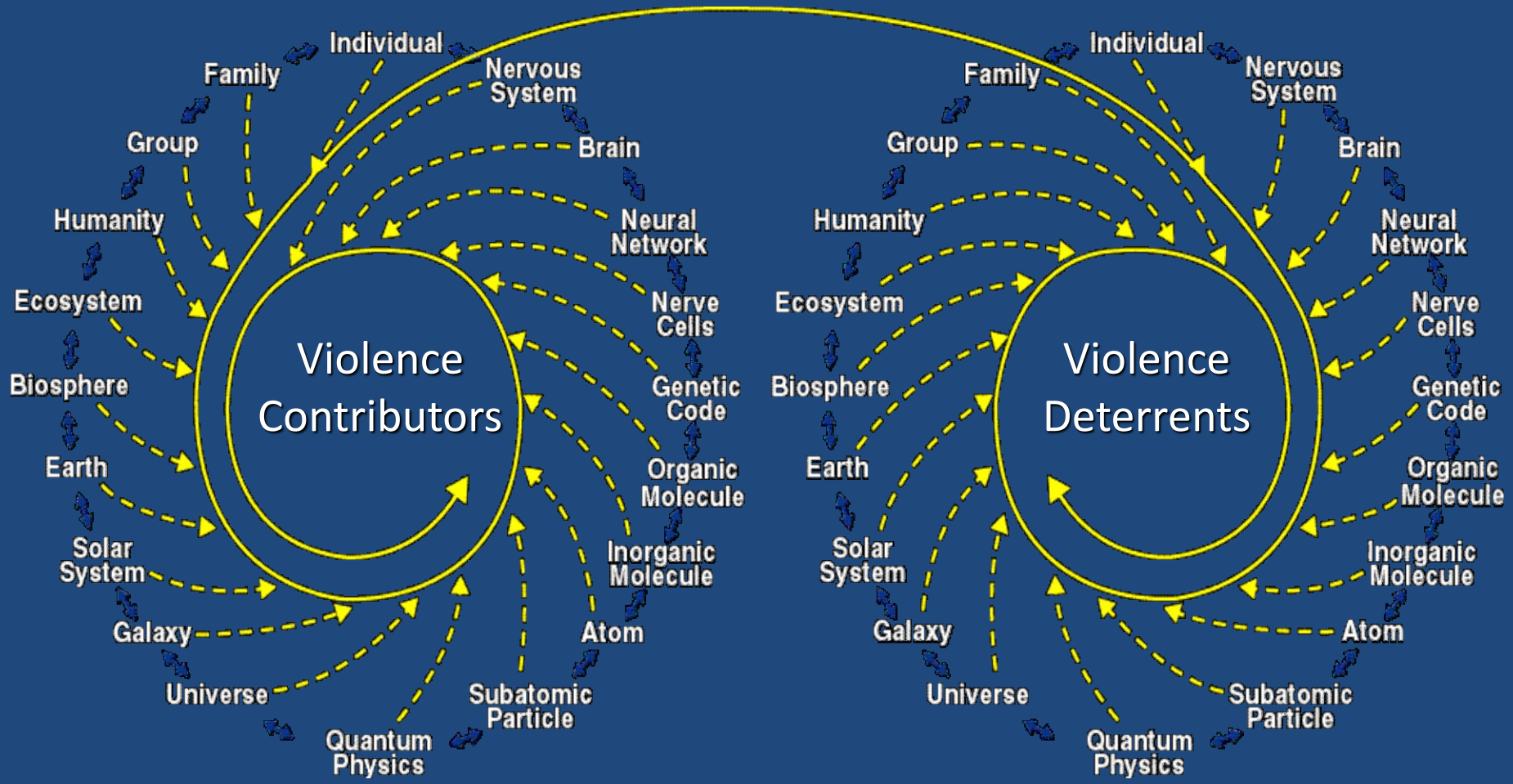
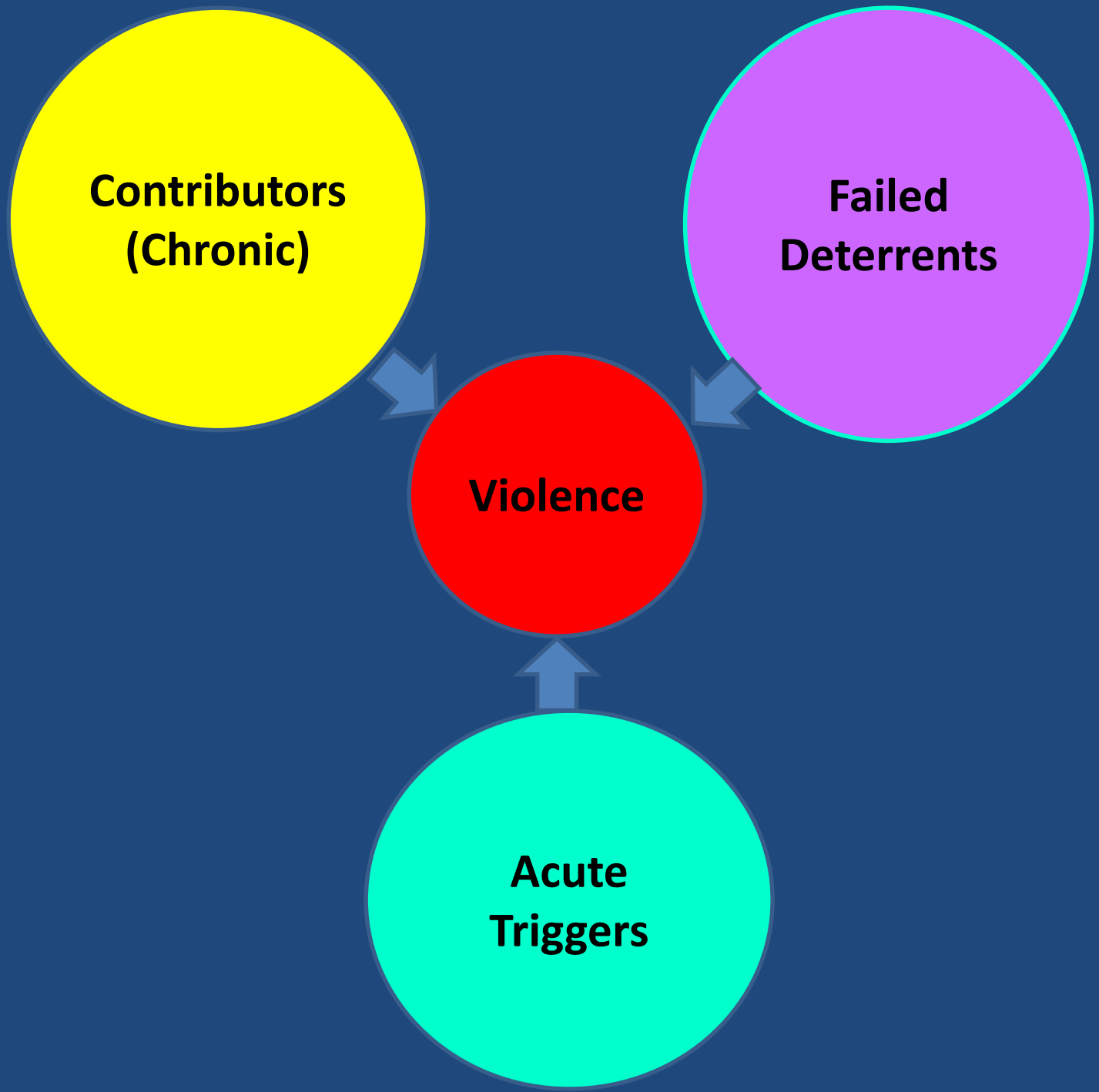
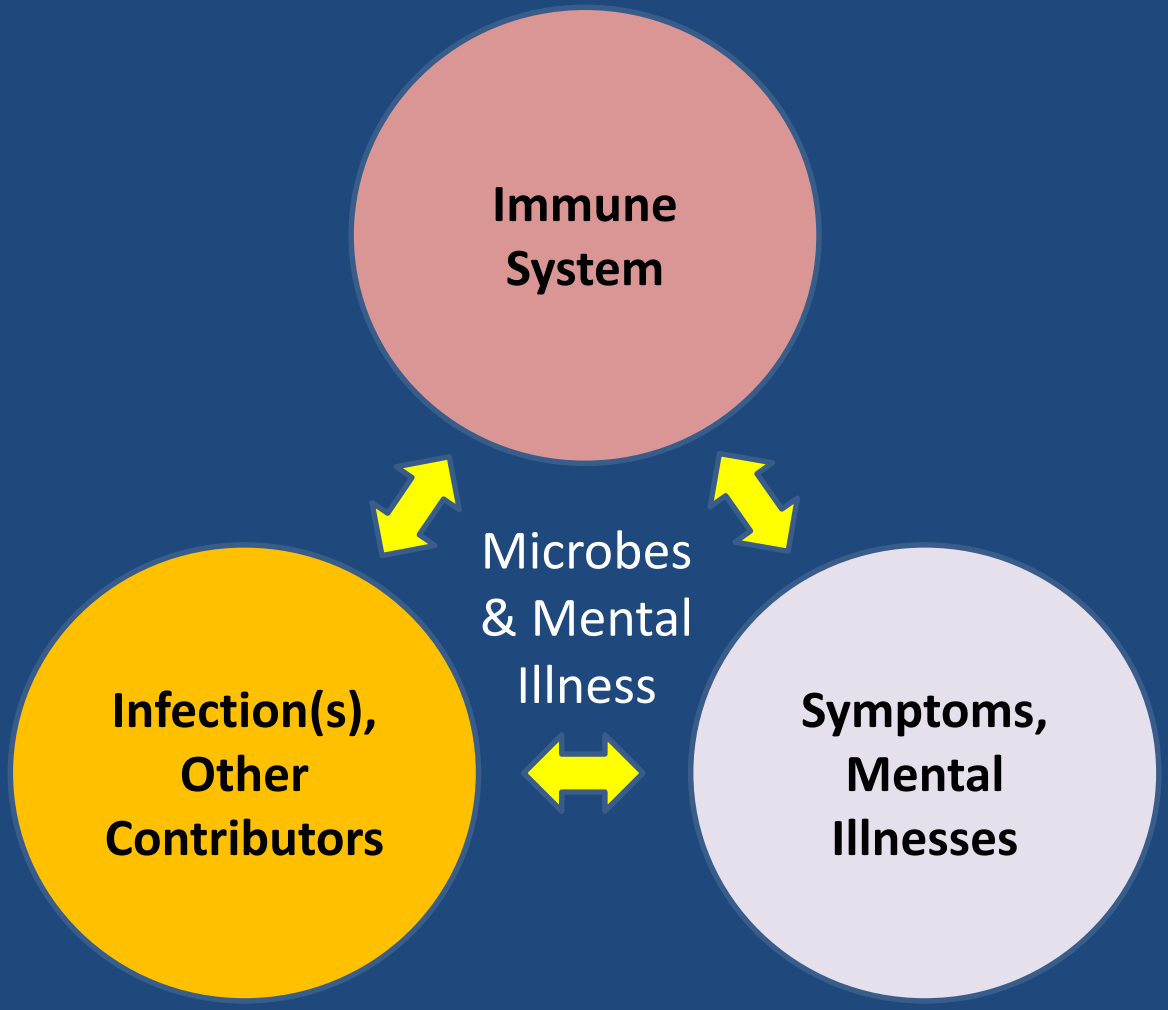
Multisystemic Balance of Contributors vs. Deterrents of Violence




Contributors (Chronic)
Failed Deterrents
Violence
Acute Triggers

Pathophysiology



What pathophysiology explains an association between infectious diseases and violence? II

- Some of the pathophysiology is mediated by the immune system, and associated with increases in proinflammatory cytokines, Interleukin 6 and Interleukin 1 beta which have been associated with aggressive and self-destructive behavior. The proinflammatory state associated with some acute and post-acute infectious diseases can alter tryptophan catabolism which decreases serotonin and melatonin and increases quinolinic acid, a neurotoxin. This metabolic change has been studied with human immunodeficiency virus (HIV), Lyme disease, malaria and toxoplasmosis. It can affect brain functioning by increasing the risk of both suicide and violence, and has been termed “the death formula”.

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The Death Formula

Lyme and associated diseases infection→

Persistent proinflammatory cytokines→

Dysregulation of tryptophan metabolism→

Quinolinic acid→NMDA receptor agonism→

Glutamate dysregulation→

Neural circuit dysfunction→

Psychiatric dysfunction→

Suicidal, sometimes also homicidal

Bransfield RC. Suicide and Lyme and associated diseases. Neuropsychiatr Dis Treat. 2017 Jun 16;13:1575-1587.

The Death Formula

- The patient described intrusive, overpowering very violent thoughts. At times, the intrusive, violent, thoughts would be triggered by stimulation; such as a dog barking, a bird chirping, a strobe light or the presence of other people. There were also episodes of anger with an urge to destroy. He described sudden urges to rip the room apart and kill everyone and every animal in the house. At times, he has obsessions that he wished he had an excuse to go after someone. The patient is particularly frightened when he has these urges in the presence of children. He felt he could sometimes stop these urges by hurting himself. He described road rage out of nowhere and fantasies of beating and killing people.

Bransfield RC. Lyme Neuroborreliosis and Aggression. LDA 14th International Scientific Conference on Lyme Disease and Other Tick-Borne Disorder. April 21-23, 2001

Pathophysiology: emotional impairments

- The combined effect of the pathophysiology described and other processes can alter neural functioning. The right ventromedial prefrontal cortex plays an important role in mediating the empathic response in the healthy brain. The orbital frontal cortex plays a crucial role in constraining impulsive outbursts, while the anterior cingulate cortex recruits other brain regions in the response to conflict. The amygdala, is involved in the production of a fear response and other negative emotions. Injury from infectious disease or other trauma can have different effects depending upon which one of these brain region and circuit are involved.

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Pathophysiology: emotional impairments II

- For example, brain dysfunction from infectious diseases can impair recognition of social emotions following amygdala damage. Dysfunction of the prefrontal cortex, the anterior cingulate, the amygdala and white matter communication from infections can contribute to disinhibition and violence. Some types of injury and brain dysfunction can cause a lack of empathy which can result in ruthless predatory behavior. Punitive deterrents may have limited effectiveness. A review of 50 homicidal late stage Lyme/tick-borne disease patients demonstrated 49 of the 50 patient were also suicidal.

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Pathophysiology: cognitive impairments

- Besides emotional impairments, many infections are also associated with chronic cognitive impairments. A comprehensive review of the infections that may be found causing cognitive impairments included *Borrelia* (Lyme disease), Chinkungunya Virus, Coccidiodal meningitis, COVID-19 or long COVID, Dengue Virus, Ebola, Ebstein Barr Virus, Helminthiases, Hepatitis C Virus, Human Herpes Virus, Human Immune Deficiency Virus (HIV), Human T Lymphocyte Virus (HTLV), Malaria, Murine Typhus, Neurosyphilis, Varicella Zoster, and Zika Virus. Many of these infections are zoonotic and vector-borne disease. The review also identified 245 million people worldwide as being cognitively impaired from long COVID, myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS), and fibromyalgia.

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Geographical patterns of infectious disease, cognitive impairments, and violence II

- A study addressing cognitive functioning and infectious diseases put forward the hypothesis that "The worldwide distribution of cognitive ability is determined in part by variation in the intensity of infectious diseases. These correlations are robust worldwide, as well as within five of six world regions. Infectious disease remains the most powerful predictor of average national IQ". The article describing the study was withdrawn due to "several critiques claiming that they contain substantial inaccuracies and biases." However, "the authors acknowledged at least some of the claimed flaws, they maintained that the inferences from the data were nevertheless reliable".
- In summary, multiple studies have shown reduced cognitive abilities increase the risk of criminality and violence.

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Pathophysiology summary

- In summarizing this section, infectious diseases, and the immune, biochemical, neurotransmitter, and the neural circuit reactions to it can cause impairments that may be associated with violence. Many patients with post-acute infectious diseases have no, or only mild aggressiveness tendencies. However there are some who experience explosive anger, impulsivity, and predatory homicidal tendencies.

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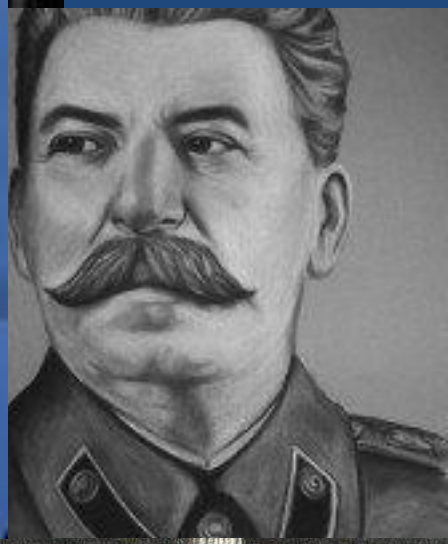
Can healthcare prevent evil?



Was the behavior of influential individuals impaired by infectious diseases?

- When an infection does contribute to violent behavior in a person who influences others, there is a risk of a greater negative impact. The presence of predatory aggression in a person who influences others is a particular concern. As previously stated, a number of infections are associated with violent behavior. The impact of infectious diseases upon the behavior of influential individuals has not been adequately studied. One exception is syphilis, which has long been recognized as potentially contributing to violent tendencies. Based upon different levels of evidence and speculation, some influential individuals were considered to have had syphilis, with a potential impact upon their behavior. Individuals suspected to have had mental symptoms associated with syphilis in some historical publications

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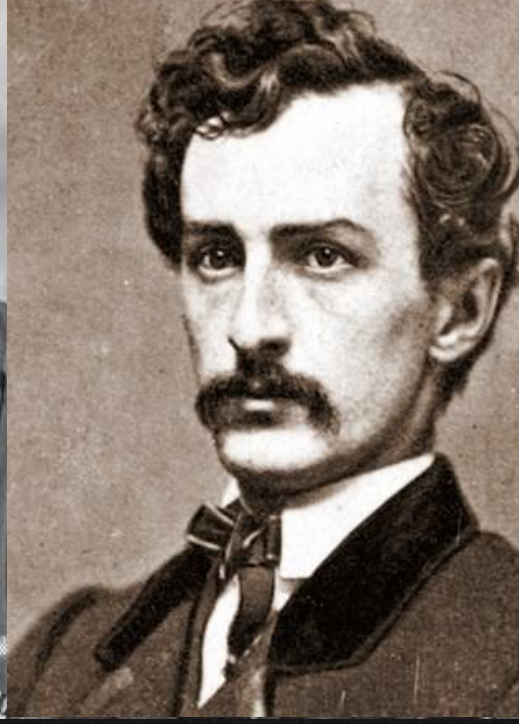




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Was the behavior of influential individuals impaired by infectious diseases? II

- include Ivan the Terrible, Henry VIII of England, Edward Teach (Blackbeard), Pope Alexander VI, Emperor Charles V, Edward IV of England, Henry III of France, Charles VIII of France, Catherine the Great, and John Wilkes Booth. Al Capone, Idi Amin Dada, Adolf Hitler, and questionably Vladimir Lenin were also considered to have had syphilis. They all had a similar pattern with a lack of empathy and ruthless behavior, followed by increasing cognitive and neurological decline in mid-life.

Bransfield RC. Med Res Arch. 2025

Was the behavior of influential individuals impaired by infectious diseases? III

- In summary, some influential individuals may have been impaired by infectious diseases. There has been a historical attention to syphilis, but it is quite possible that other infectious diseases, not identified at the time, may have impacted the behavior of influential individuals.

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If infections contribute to violent behavior of individuals, can it also have an impact on a greater social or global level?

- If impairments that increase the risk of violence occur in only a few individuals, their behavior may be restrained by the larger majority of higher functioning individuals and an intact social structure. Violence may be deterred in societies that embrace eight key factors—well-functioning government, sound business environment, acceptance of the rights of others, good relations with neighbors, free flow of information, high levels of human capital, low levels of corruption, and equitable distribution of resources.

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If infections contribute to violent behavior of individuals, can it also have an impact on a greater social or global level? II

- Violence has been considered to be a contagious disease. It meets the definitions of a disease, and can be contagious since it can be spread from one person to another. Also, victims of violence have an increased risk of perpetrating violence on others.
- In summary, if highly influential individuals or a significant minority develop violent tendencies from any cause, and the numbers affected reach a critical size, a cascade of behavioral changes can occur, overturning stable social norms. This critical mass dynamic involving violent behavior can sometimes disrupt the deterrents and magnify violent behaviors.

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Is there a geographical association between infectious disease burden and violence?

- There have been changes in the prevalence of infectious diseases at different times in history, in part associated with environmental changes, epidemics and pandemics. Human and animal parasites are more prevalent towards equatorial regions and less prevalent towards polar regions. In addition, different areas of the world and different countries have different environmental, ecosystem, sanitation, and healthcare considerations that result in infectious diseases being unequally distributed throughout the world. It is difficult to categorize very large countries that contain many different ecosystems, such as Russia and the United States.

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Comparing peacefulness and infectious disease loads in different countries

- Peace and violence are not equally distributed throughout the world. The Global Peace Index (GPI) is a composite index measuring the peacefulness of countries. It is made up of 23 quantitative and qualitative indicators each weighted on a scale of 1-5. The lower the score the more peaceful the country.
- Based upon the GPI 2021 statistics, Iceland is the most peaceful country in the world with a GPI of 1.112. Afghanistan is the least peaceful country in the world for the past eight of nine years.

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Afghanistan Vector-borne Diseases

- Crimean-Congo Hemorrhagic Fever
- Malaria
- Sand Fly Fever
- Dengue Fever
- Yellow Fever
- Japanese Encephalitis
- African Trypanosomiasis
- Cutaneous Leishmaniasis
- Plague
- Rift Valley fever
- Chikungunya
- Schistosomiasi
- *aerosolized dust or soil contact disease*
- Lassa fever
- Filariasis
- Trench Fever
- Five-Day Fever
- Wolhynia Fever
- Boutonneuse (Mediterranean)
- Fever Cutaneous Leishmaniasis (zoonotic)
- Cutaneous Leishmaniasis (anthroponic)
- Visceral Leishmaniasis
- Q Fever
- Rocky Mountain Spotted Fever
- West Nile Fever
- Sindbis Fever
- Siberian Tick Typhus
- Mite-borne Typhus (Tsutsugamushi Fever)
- Louse-borne Typhus
- Epidemic Typhus
- Murine Typhus
- Endemic Typhus Fever
- Epidemic Relapsing Fever
- Tick-borne Relapsing Fever
- Leptospirosis
- *Leptospira icterohaemo-rrhagiae,*
- *L. hebdomadis*
- *L. tarassovi,*
- *L. grippotyphosa,*
- *L. pomona,*
- *L. javanica,*
- *L. canicola,*
- *L. ballum,*
- *L. bataviae*

CIA World Factbook, Global Disaster Information Network, Faulde

Other Infectious Diseases in Afghanistan

- Measles
- Diphtheria
- Meningitis
- Influenza
- Tuberculosis
- Acute respiratory infections
- Meningococcal meningitis
- Poliomyelitis
- Anthrax
- Leptospirosis
- Rabies
- Enterotoxigenic Escherishia coli
- Campylobacter
- Shigella
- Salmonella
- Cryptosporidium spp.
- Giardia lamblia
- Entamoeba histolytica
- Amoebiasis
- Hepatitis A and E
- Typhoid
- Paratyphoid Fever

Iceland, the Mot Peaceful Country

- By comparison, Iceland ha the most favorable GPI, and has longevity, and health and infectious diseases are considerably better. There are no mosquitoes in Iceland. Ticks are rare in Iceland and Lyme disease has rarely been identified in Iceland. Other countries with favorable GPI such as New Zealand and Denmark, also have low parasite, zoonotic disease and infectious disease burdens.

Disability Adjusted Life Years vs. Global Peace Index 163 Countries

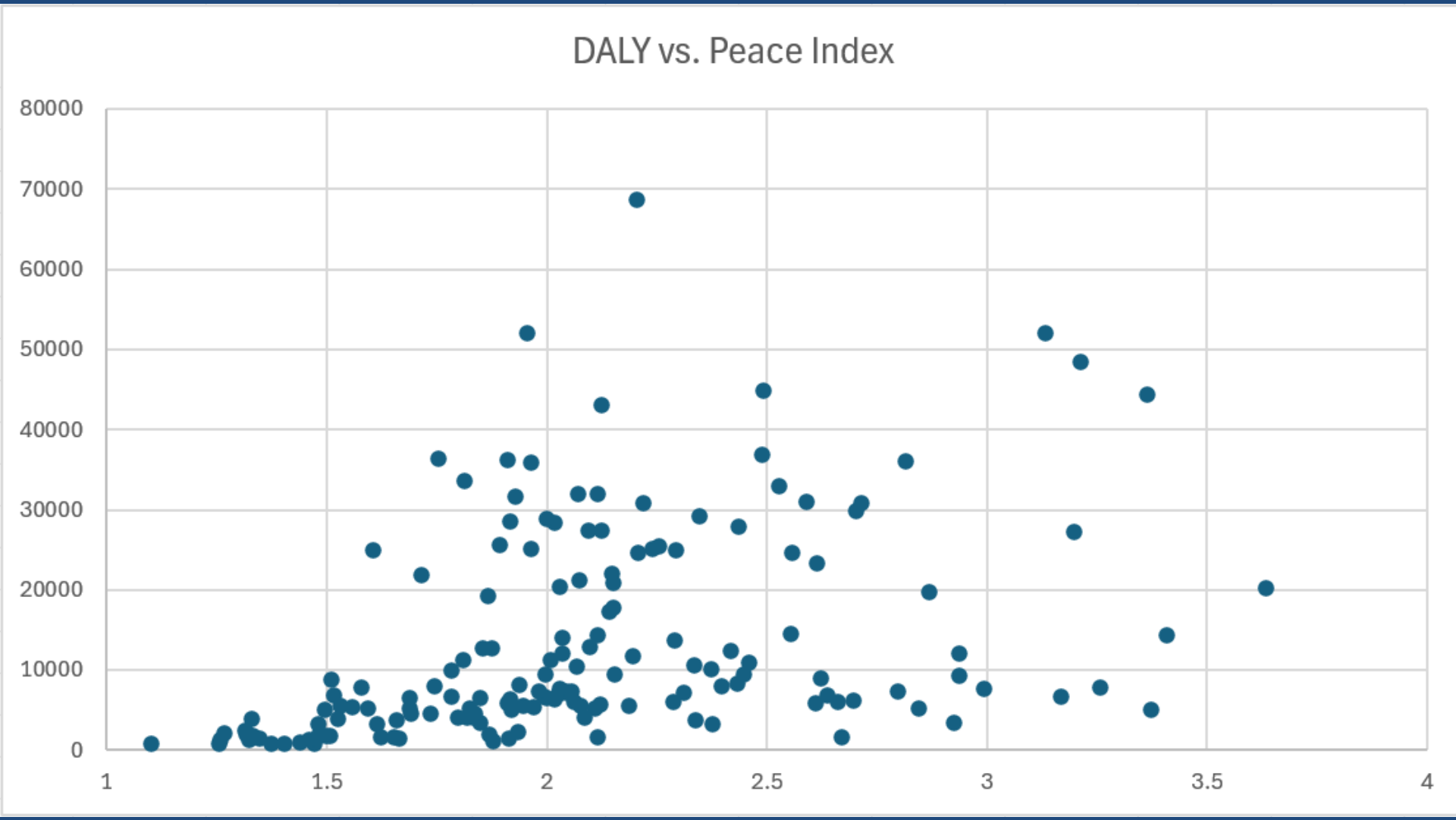

Figure 1: Disability Adjusted Life Years (DALY) scores compared to Global Peace Index (GPI) scores for 163 countries. Lower GPI scores (more peaceful) generally correlate with lower DALY (communicable disease rates) scores.

Country & GPS Rank (Highest & Lowest 10)	Global Peace Score (GPS)	Disability Adjusted Life Years (DALY)	Latitude
1 Iceland	1.1	846	65 N
2 New Zealand	1.253	949	35-47 S
3 Denmark	1.256	1,427	56 N
4 Portugal	1.267	2,143	30-42 N
5 Slovenia	1.315	2,520	45-47 N
6 Austria	1.317	2,000	47 N
7 Switzerland	1.323	1,421	47 N
8 Ireland	1.326	1,844	33 N
9 Czech Republic	1.329	4,071	48-51 N
10 Canada	1.33	1,915	42-83 N
154 Russia	2.993	7,666	41-82 N
155 Central African Republic	3.131	52,092	2-11 N
156 Libya	3.166	6,798	25 N
157 Democratic Republic of Congo	3.196	27,384	4 N-14 S
158 Somalia	3.211	48,505	10 N
159 Iraq	3.257	7,962	33 N
160 South Sudan	3.363	44,446	3-13 N
161 Syria	3.371	5,171	35 N
162 Yemen	3.407	14,370	15 N
163 Afghanistan	3.631	20,369	33 N

Least Peaceful Regions

- The Middle East-North Africa region remained the world's least peaceful region. It includes four of the ten least peaceful countries. All these countries in both groups, other than Ireland, have always been ranked amongst the ten most peaceful or least peaceful countries. Historically, Sub-Sahara Africa and parts of Latin America and the Caribbean are also conflict zones.

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Higher latitude & higher altitude countries and regions generally have less parasites, less infectious disease loads and less violence than countries and regions closer to the equator.

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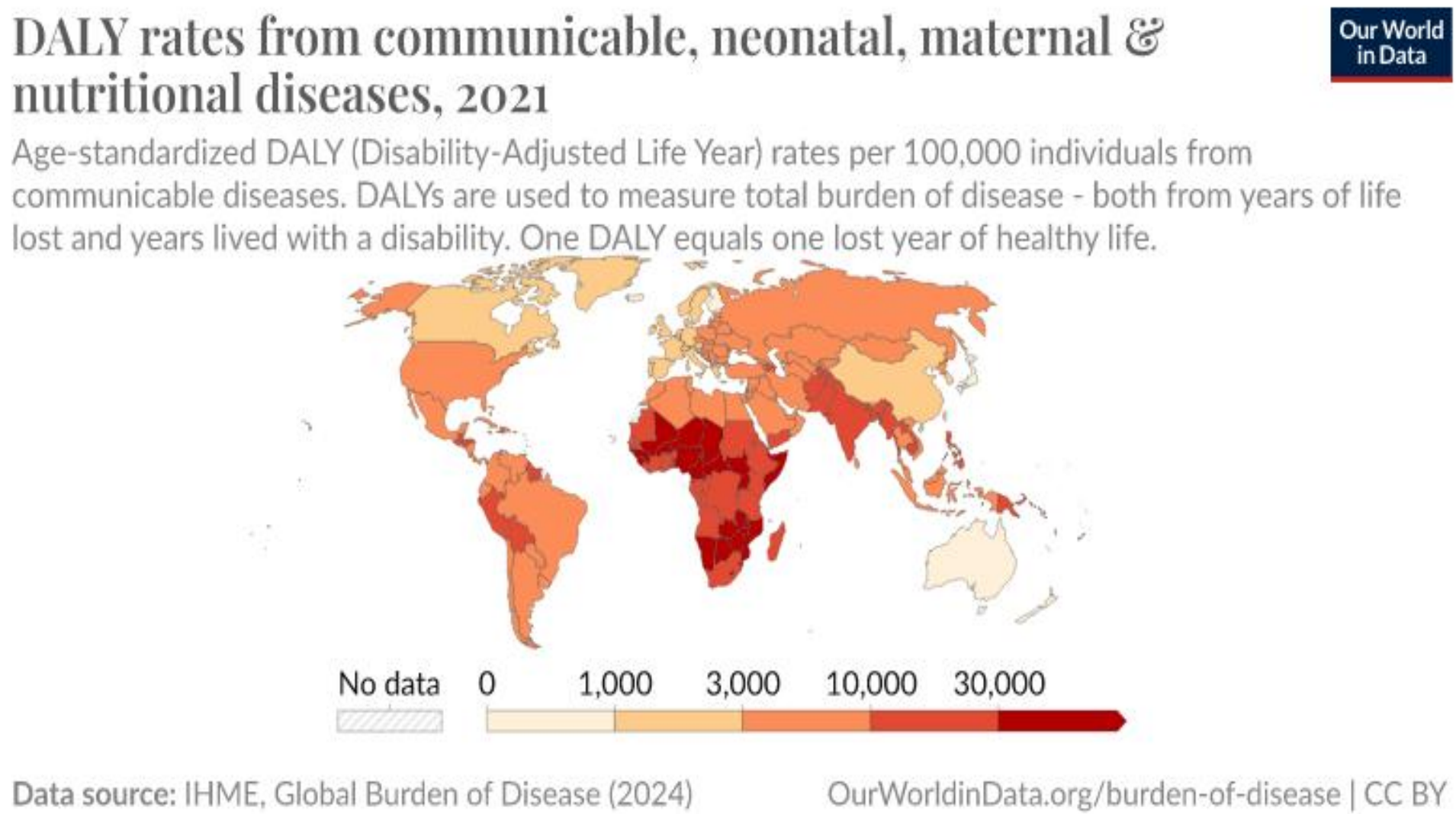
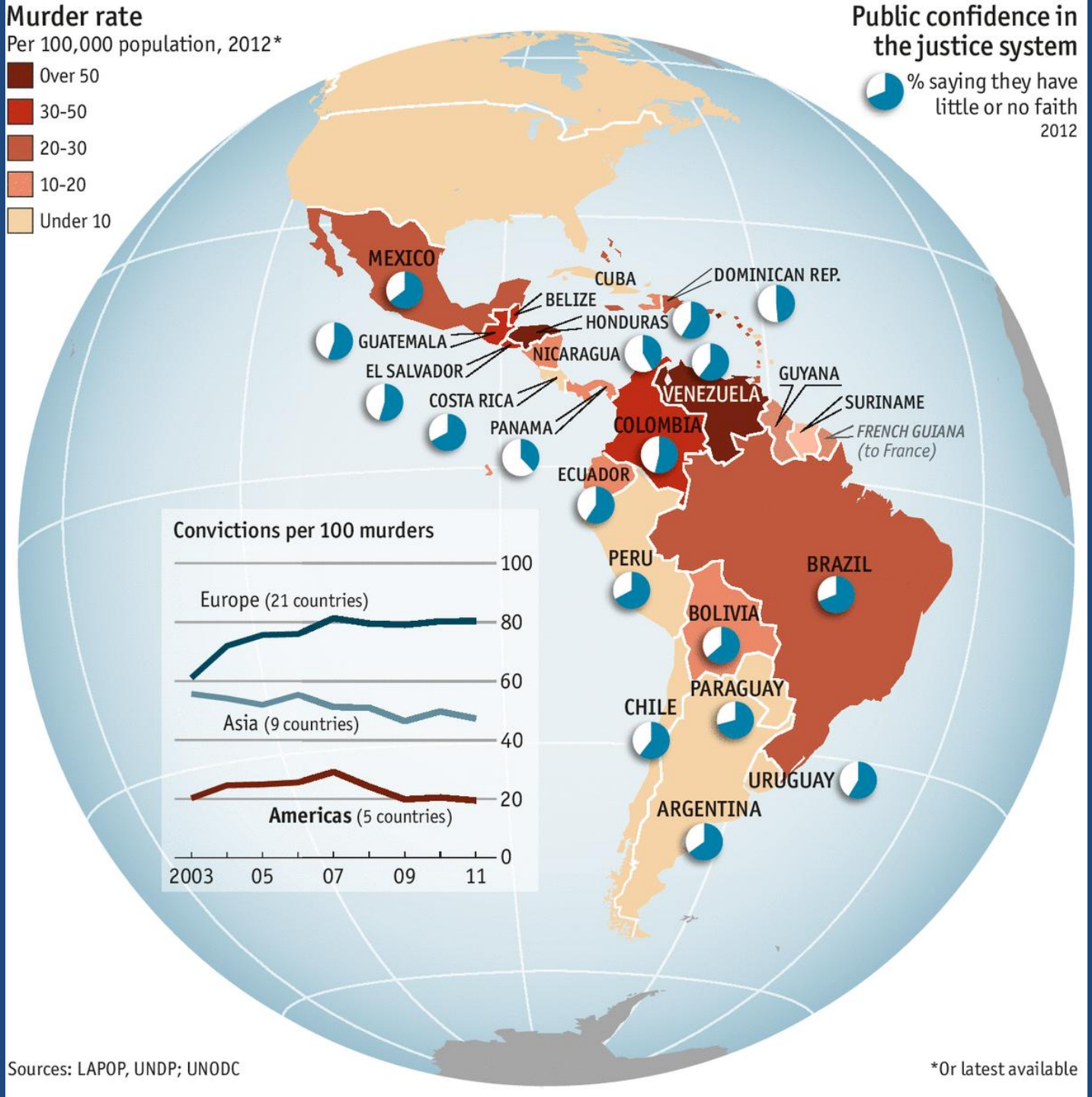
Disability-Adjusted Life Years/100,000



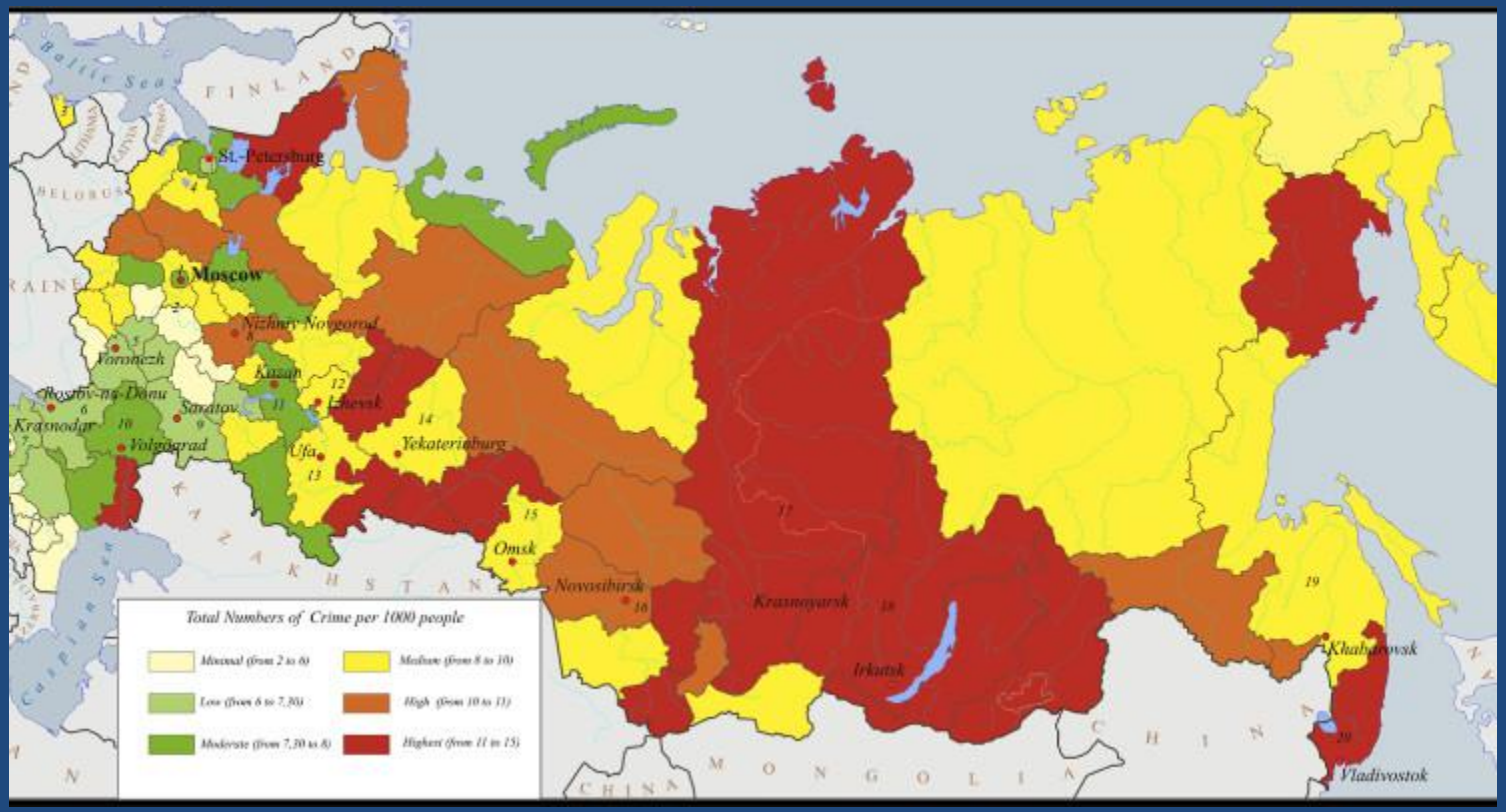
Global Peace Risk 2024



Sources: LAPOP, UNDP; UNODC

*Or latest available

Criminal Activity in Russia



/www.linkedin.com/pulse/measuring-sources-risk-russia-snapshot-criminal-manuel-amarilla-mena/

Emerging Natural Focal Infectious Diseases in Russia: A Medical-Geographical Study

- To consider its current status, we determined the most important natural focal emerging infectious diseases for Russia (tick-borne encephalitis, ixodid tick-borne borrelioses, hemorrhagic fever with renal syndrome, Crimean–Congo hemorrhagic fever, West Nile fever, Astrakhan spotted fever, leptospiroses, and tularemia) and analyzed the patterns of their epidemic manifestation. The highest risk rates are confined to the northwest regions of European Russia, the Cis-Urals and the Volga region, which are naturally related to forest biomes, as well as to the southern steppe regions of the interfluves between the Volga and the Don, and the foothills of the North Caucasus.

Malkhazova S, Pestina P, Prasolova A, Orlov D. Int J Environ Res Public Health. 2020 Oct 30;17(21):8005. doi: 10.3390/ijerph17218005. PMID: 33143199; PMCID: PMC7663368.

Lyme disease prevalence in a conflict zone

- In an effort to understand other possible geographical variables, it is recognized the prevalence of some infections are dependent upon regional ecosystems. An example is Lyme disease, a zoonotic vector-borne global disease that has been associated with violent behavior. Lyme disease is the most common vector-borne in the United States. A meta-analysis of 89 studies estimated there was a 14.5% global prevalence of seropositivity for *Borrelia burgdorferi*. In contrast to the 14.5% global prevalence, a study in Bosra Province, Iraq, the seropositivity of 389 psychiatric patients was 66% for *Borrelia spp*. Iraq has a history of being a conflict zone. A study of patients with neuropsychiatric Lyme disease demonstrated 36% developed explosive anger and 1% developed homicidality after infection.

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Lyme/Tick-borne Disease & Homicidality

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- Bransfield RC. Neuropsychiatric Lyme Borreliosis: An Overview with a Focus on a Specialty Psychiatrist's Clinical Practice. Healthcare (Basel). 2018;6(3):104.
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- Bransfield RC. Suicide and Lyme and associated diseases. Neuropsychiatr Dis Treat. 2017;13:1575-1587.
- Munir A, Aadil M, Rehan Khan A. Suicidal and homicidal tendencies after Lyme disease: an ignored problem. Neuropsychiatr Dis Treat. 2017;13:2069-2071.
- Greenberg R. Aggressiveness, violence, homicidality, homicide, and Lyme disease. Neuropsychiatr Dis Treat. 2018;14:1253-1254.
- Fallon BA, Schwartzberg M, Bransfield R, Zimmerman B, Scotti A, Weber CA, Liebowitz MR. Late-stage neuropsychiatric Lyme borreliosis. Differential diagnosis and treatment. Psychosomatics. 1995;36(3):295-300.
- Bransfield RC, Embers ME, Dwork AJ. A Fatal Case of Late Stage Lyme Borreliosis and Substance Abuse. *J Affect Disord*. 2023, 12, 100525,
- Bransfield RC. Response to Dr Rosalie Greenberg's Letter to Editor, Aggressiveness violence homicidality homicide and Lyme disease. Response is in the pdf version of her letter.2018.
- Bransfield RC. Response to Letter to Editor from Munir A, Aadil M, Rehan Khan A. Suicidal and homicidal tendencies after Lyme disease: an ignored problem. August 2, 2017. Neuropsychiatr Dis Treat. 2017:13 P 2069-71.
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- Bransfield RC. Can infections and immune reactions to them cause violent behavior? Proceedings of the 11th Psychoimmunology Expert Meeting, Günzburg, Germany March 10, 2012 Neurology, Psychiatry and Brain Research. 2012;18(3):42.
- Bransfield RC. Diagnosis, treatment, and prevention of Lyme disease. JAMA. 1998;280(12):1049; author reply 1051.

Summary, geographical patterns of infectious disease burdens and violence

- A global study linking the frequency of conflicts to the intensity of infectious disease found a causal association between infectious diseases and intrastate armed conflict and civil war, because variation in the intensity of infectious disease occurred first, which were followed by variation in the frequency of intrastate armed conflict and civil war, rather than the opposite.
- In summary, there is a geographical association between infectious disease burdens and violent behavior.

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Are soldiers returning from conflict zones at greater risk for having contracted infectious disease associated with violence?

- If violence were associated with regional infectious diseases, soldiers returning from these conflict zones may be returning with infectious diseases that may increase their risk of violent behaviors. It is important to differentiate this from the higher probability of the risk for violence caused by military service from violence caused by military training or combat-related trauma.

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Are soldiers returning from conflict zones at greater risk for having contracted infectious disease associated with violence? II

- Soldiers returning from foreign wars often return with new and unusual infectious diseases. Some infections are often associated with compromised war zone environments and the stress of war in a foreign land. It is also possible some infections could have contributed to the wars they were in. Examples include the Plague of Athens 429 B.C., escape from Kaffa (Bubonic Plague 1347), French troops returning from Naples (Syphilis (1494/1495), and First World War (tuberculosis, typhus fever, typhoid fever, dysentery, scarlet fever, diphtheria, measles, whooping cough, smallpox, cholera, venereal diseases, particularly syphilis, Spanish Flu). The residual effect of these infections may have caused encephalopathy in some of the next generation of leaders and in millions in Europe and throughout the world, possibly contributing to World War II. In addition Cerebral Malaria in some Vietnam veterans, and *Mycoplasma,* a possible contributor to Gulf War Syndrome.

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Are soldiers returning from conflict zones at greater risk for having contracted infectious disease associated with violence? III

- The association between infections and violent behavior has been weakly demonstrated with data from some soldiers returning from areas with higher indigenous diseases associated with an increased probability of aggressive tendencies.

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Did the SARS-CoV-2 pandemic result in mental impairments that may have contributed to violence?

- The pandemic was a possible contributor to an increase in cognitive impairments, mental disorders, and substance abuse. Collectively these impairments are associated with an increased risk of violence, and other studies have demonstrated an increase in violence associated with the SARS-CoV-2 pandemic, including gun violence, violence against children, domestic violence, and elder abuse.
- In summary, the SARS-CoV-2 pandemic result in mental impairments that may have contributed to violence.

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Is there more global instability since the SARS-CoV-2 pandemic has occurred?

- Based upon GPI data, conflict deaths are at the highest level in the century contributing to a decline in world peace. “Deaths from internal conflict, neighboring countries relations, and external conflicts fought all recorded significant deteriorations, with the total number of conflict-related deaths increasing by 96 per cent”.
- Although the conflict in Ukraine was the primary driver of this increase, increases in conflict were also seen in many other countries, particularly in sub-Saharan Africa and the Asia Pacific area. Even excluding the violence occurring in Ukraine, there has been an increase in the level of conflict since 2019. Conflict-related deaths rose by 45 per cent in the year prior to Russia’s invasion of Ukraine, with over 100,000 total deaths being recorded in 2021. The war in Ukraine had a significant impact on global peacefulness, with Ukraine and Russia having the largest and fifth largest deteriorations in GPI respectively.
- In summary, there is more global instability since the SARS-CoV-2 pandemic.

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Have any other pandemics contributed to mental impairments that may have been associated with violence?

- Other pandemics include the Antonin Plague (165-180), Plague of Justinian (541-542), Japanese Smallpox Epidemic (735-737), Black Death (1347-1351), Smallpox (1520), 17th Century Great Plagues (1700), Cholera 6 Outbreaks (1817-1923), The Third Plague (1855), Yellow Fever (Late 1800s), Russian Flu (1899-1890), Spanish Flu (1918-1919), Asian Flu (1957-1958), Hong Kong Flu (1968-1970), HIV/AIDS (1981-Present), SARS (2002-2003), Swine Flu (2009-2010), MERS (2012-Present), and Ebola (2014-2016). Besides extensive death and disability, plagues have contributed to collapses of empires, social disruptions, infrastructure disruptions, boarder disruptions, decline of trade, shortages of food and other essentials, economic decline, migration, civil war and genocide.

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Have any other pandemics contributed to mental impairments that may have been associated with violence? II

- The development of violent behavior was recognized with the COVID-19 and Spanish Flu pandemics. HIV/AIDS is associated with psychiatric and cognitive impairments and sexual violence. Some pandemics did split societies with accusations and violence.
- Some pandemics did split societies with accusations and violence. There a few studies addressing the association between pandemics and scapegoating and persecution of minority groups, including migrants.
- However epidemics did not inevitably give rise to violence and hatred. Sometimes they did the opposite, as seen with epidemics of unknown causes in antiquity, the Great Influenza of 1918–19 and yellow fever across numerous cities and regions in America and Europe. These epidemics unified communities, overcoming previous social, political, religious, racial and ethnic conflicts.
- In summary, some other pandemics may have contributed to mental impairments that may have been associated with violence.

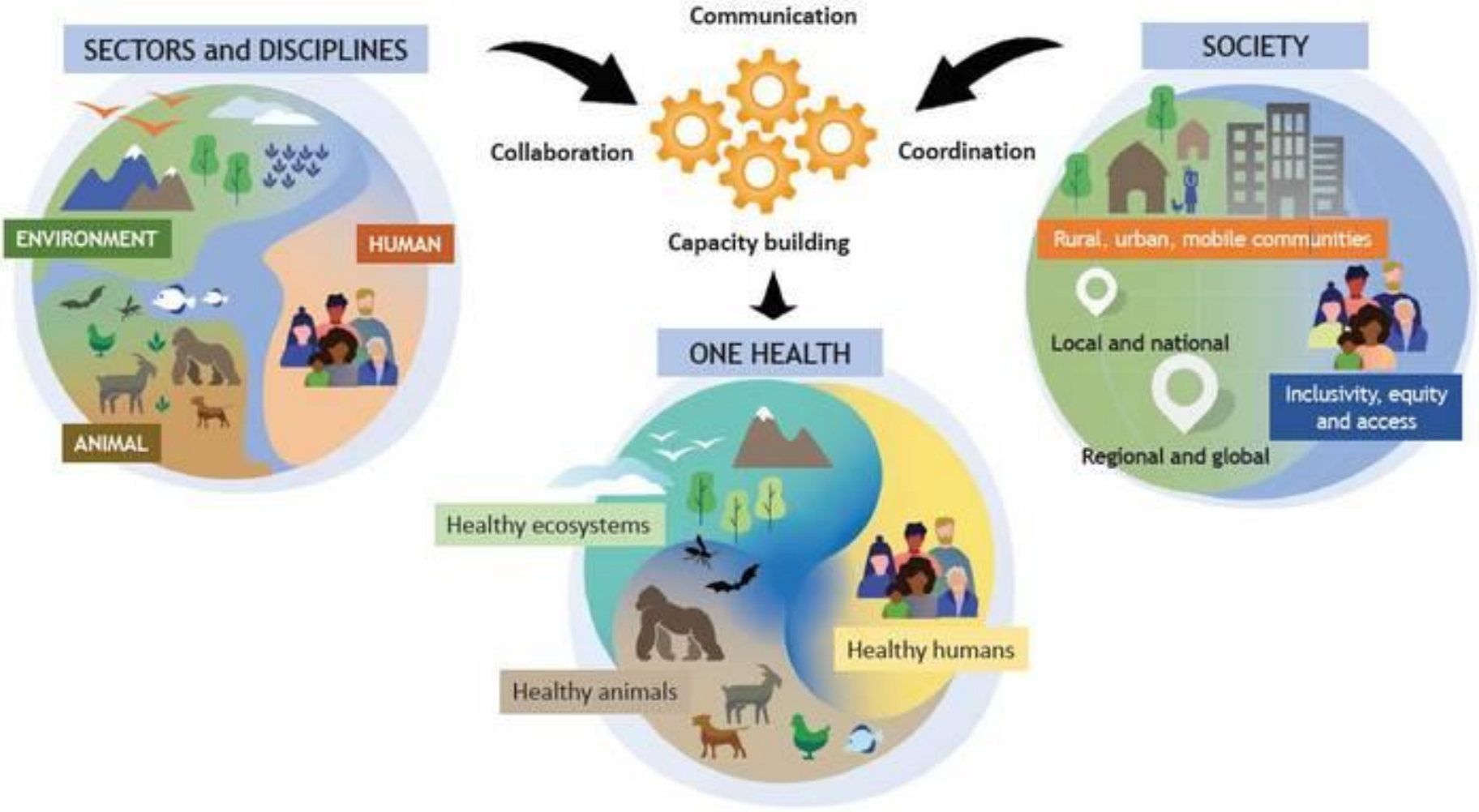
Bransfield RC. The Association between Infectious Diseases, Mental Impairments, Violent Behavior, and Global Instability Med Res Arch. 2025

Definitions of One Health

- One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems. It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent.
- The approach mobilizes multiple sectors, disciplines and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems, while addressing the collective need for clean water, energy and air, safe and nutritious food, taking action on climate changes and contributing to sustainable development.

Definition developed 2021 by the One Health High Level Expert Panel, an advisory panel to the One Health (now) Quadripartite made up of the FAO, WHO, WOAH, and UNEP

What Is One Health?



One Health High-Level Expert Panel (OHHLEP), Adisasmito WB et al. (2022) PLoS Pathog 18(6): e1010537.

Infectious Disease Sequence to Global Instability

Bransfield RC. Med Res Arch. 2025

Conclusion

- Although the data reviewed has limitations, there is evidence to suggest that infectious diseases, including the recent pandemic, may contribute to mental impairments with resultant increased risk of violence and global instability.
- Each of the sections summarized would benefit from more detailed studies. Collaborative research efforts are needed between psychiatrists, infectious disease physicians, public health officers, government officials and others with a One Health approach that recognizes the interactions of the multiple systems involved. There is a need for relevant surveillance, education, public awareness, prevention, and treatment.

Bransfield RC. The Association between Infectious Diseases, Mental Impairments, Violent Behavior, and Global Instability Med Res Arch. 2025

Conclusion

- Greater attention to hygiene, infection control, prevention, education, diagnosis, treatment of infectious diseases, recognizing the association between infectious disease and violence, and mental health care can help prevent violence on both a regional and global level. Improved infection control may be more effective towards improving global stability than military approaches. Any failures of corrective interventions may have very serious ramifications.
- When future epidemics occur, more attention is needed to reduce the potential adverse mental and behavioral effects.

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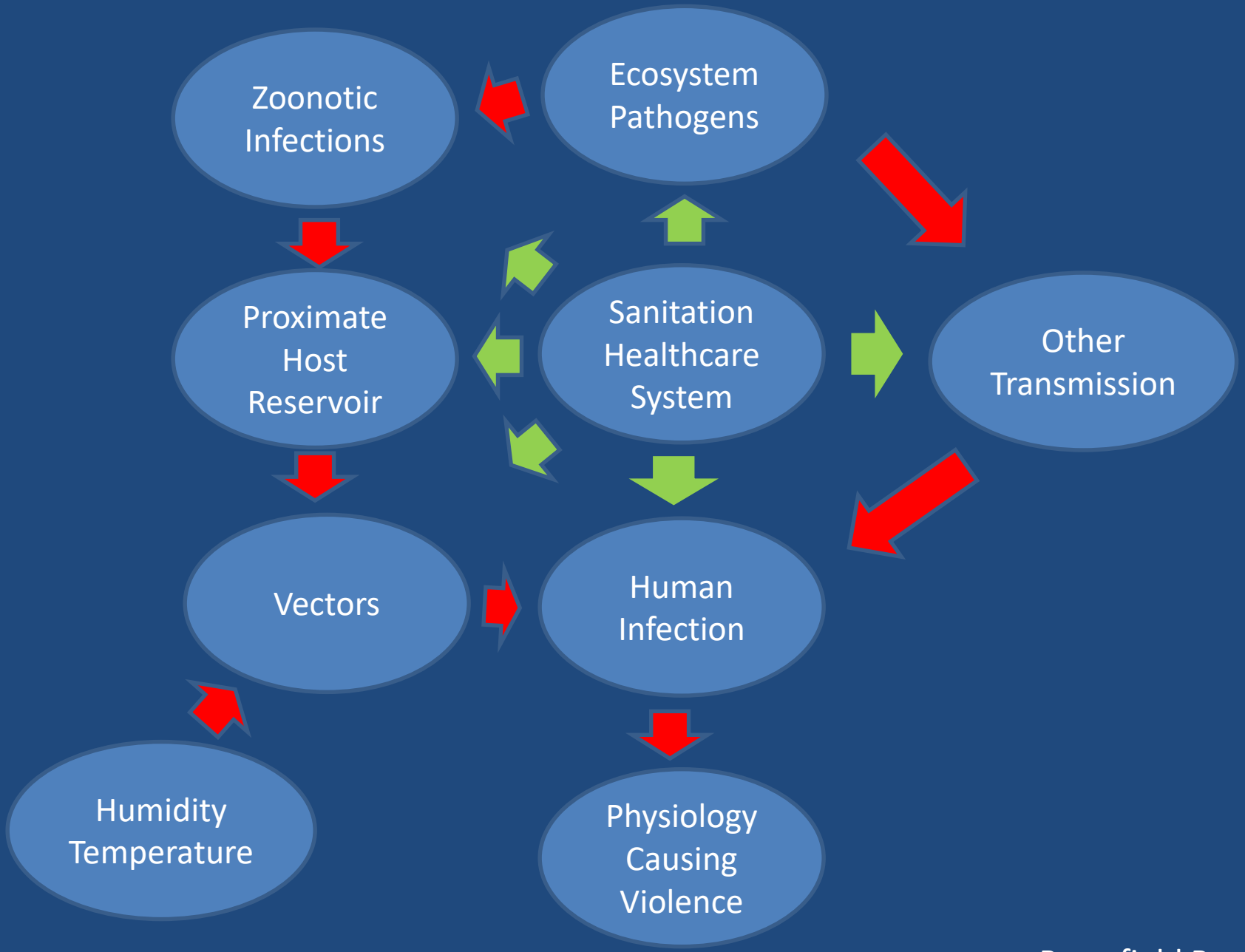
Action Plan

- Create a model explaining regional differences.
- Compare regional violence & infection data.
- Explain pathophysiology.
- Evaluate violent individuals in conflict zones for exposure to infections vs. control group.
- Anti-infective strategies
- Monitor violence reduction effectiveness.

Infections & Violence Regional Differences



Bransfield R.

The association between infectious diseases and violent behavior is dependent upon a number of variables

- Regional differences in ecosystems
- Pathogens
- Pathogen potential to contribute to violent behavior
- Transmission potential: Vector-borne, airborne, fecal, contact body fluids, sexual, congenital, food, water, soil, animal contact
- Animal pathogen reservoir in proximity to humans (zoonotic)
- Vectors (ticks, fleas, mosquitos, mites, lice, etc.)
- Temperature, humidity, season duration impact on vector survival
- Sanitation
- Healthcare system
- Social system stability
- Population density
- Toxoplasmosis (transmitted by cat feces, food, sexual)
- Reliability of data, veterinarians more attentive to zoonotic diseases

Action Plan

- Create a model explaining regional differences.
- Compare regional violence & infection data.
- Explain pathophysiology.
- Evaluate violent individuals in conflict zones for exposure to infections vs. control group.
- Anti-infective strategies
- Monitor violence reduction effectiveness.

Go round up the usual suspects…

Potential or Postulated Association of Aggressiveness with Infectious Agents

- *Babesia*
- *Bartonella*
- *Borrelia burgdorferi*
- Encephalitis lethargica
- herpes simplex encephalitis
- Infection during childhood
- Mycoplasma
- *Plasmodium* (Malaria)
- Rabies
- *Streptococcus*
- Toxoplasmosis
- *Treponema pallidum* (syphilis)
- viral encephalitis
- Animal models of infections associated with violence include B henselae in dogs, & horses, B. burgdorferi postulated in chimpanzee in lay news, rabies and gut microbiota changes in dogs, horses, pigs, & companion animals.

Bransfield RC, Mao C, Greenberg R. Microbes and Mental Illness: Past, Present, and Future. Healthcare (Basel). 2023,12(1):83.

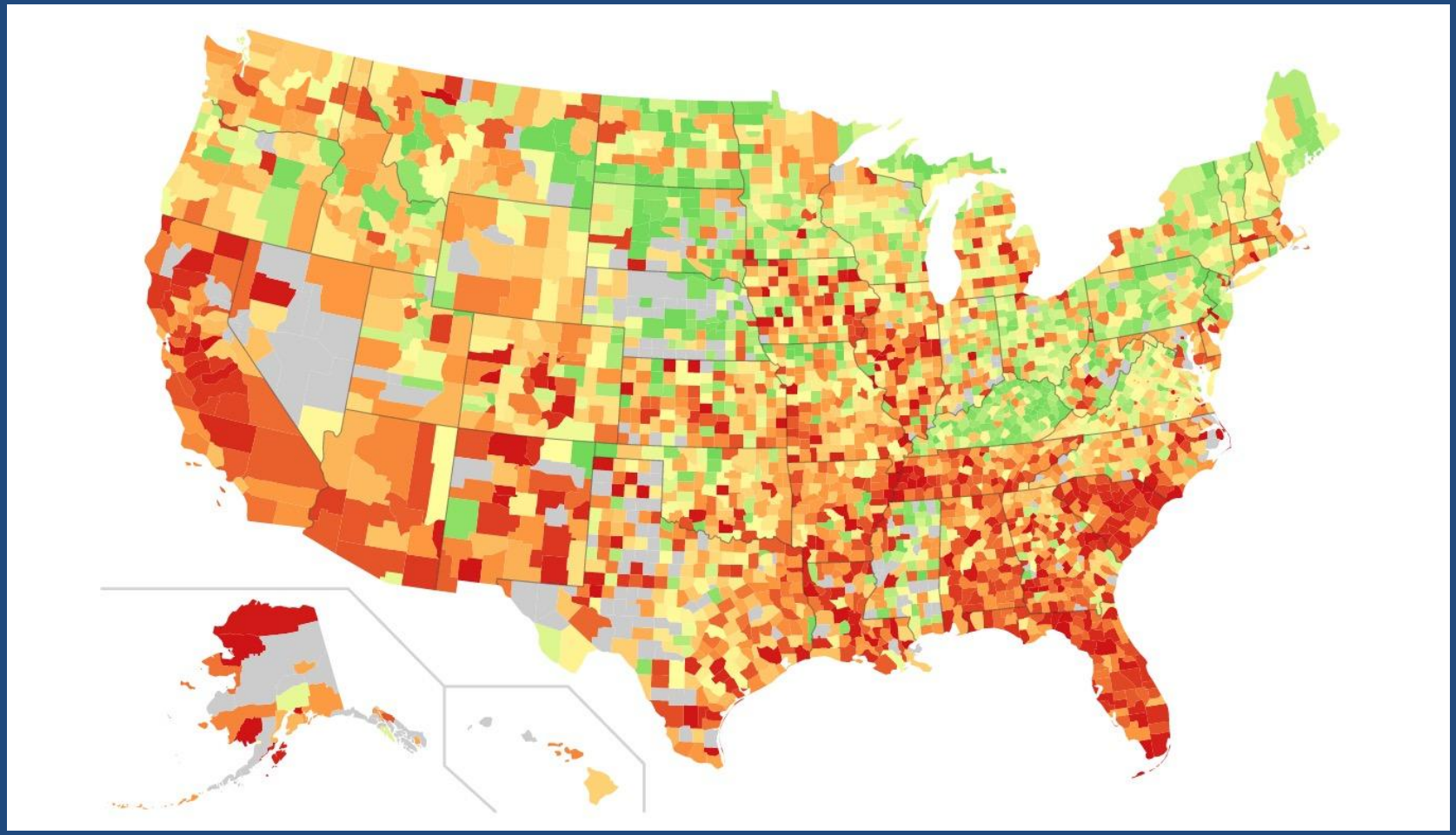
The Usual Suspects? Depends upon the Location

- *Zoonotic:*
  - *Plasmodium (Malaria), Babesia sp.* (Apicomplexa)
  - *Bartonella sp.*
  - *Borrelia sp.*
  - Some viruses
  - *Toxoplasma gondaii*
- Non-zoonotic or mostly non-zoonotic:
  - *Streptococcus*
  - *Mycoplasma*
  - Some viruses
  - *Treponema pallidum*
- Other?

Vectors & Diseases (Mostly Zoonotic)

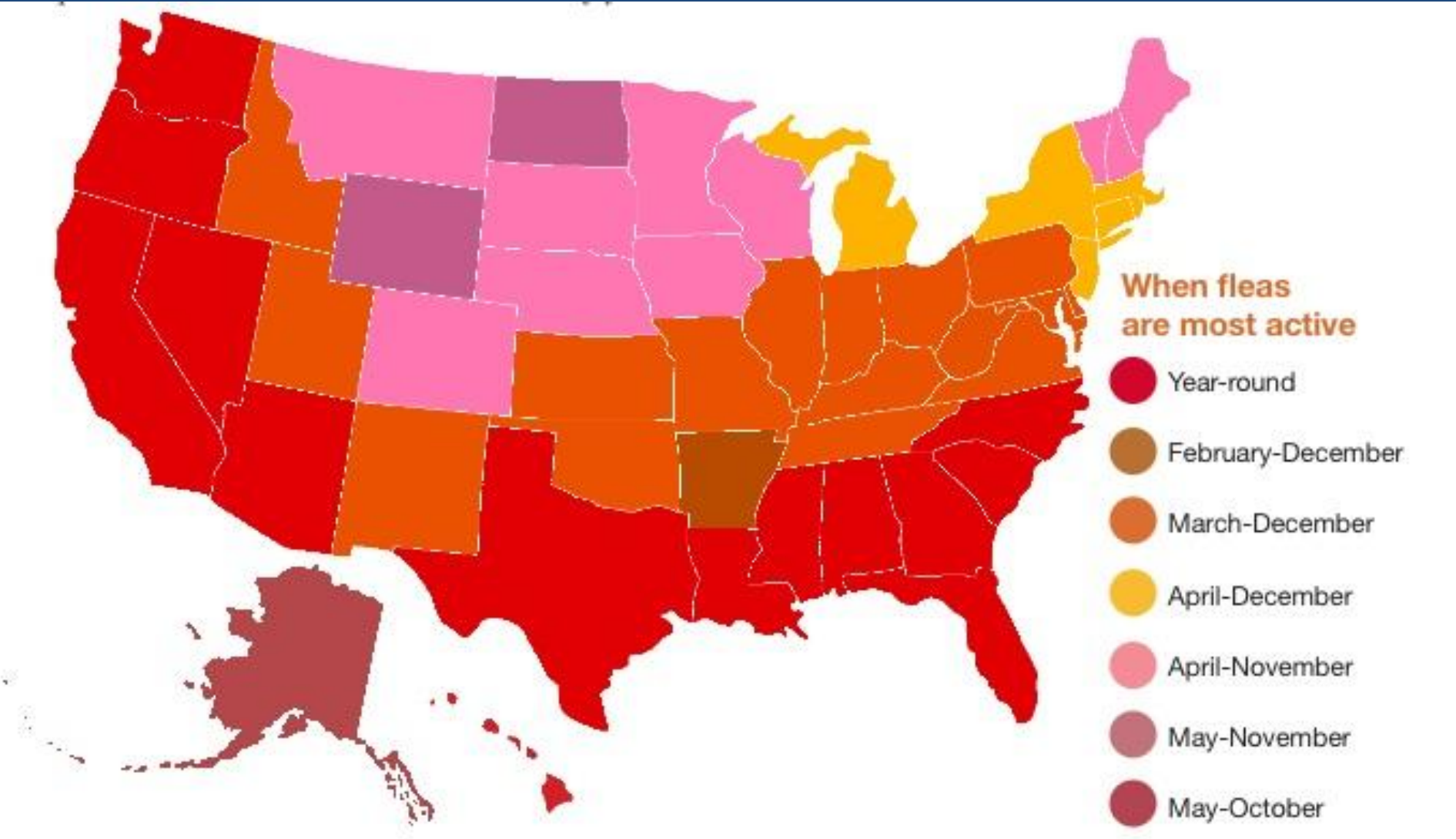
- Ticks, mosquitos, fleas, sand flies, black flies, tsetse flies, lice need high humidity and higher temperatures.
- Mosquitos: Malaria (parasite) Chikungunya (virus), Dengue (virus), Rift Valley fever (virus), Yellow Fever (virus), Zika (virus), West Nile fever (virus), Japanese encephalitis (virus), Lymphatic filariasis (parasite).
- Ticks: Lyme disease, Babesiosis, Bartonellosis, Relapsing Fever, Rocky Mountain spotted fever, Anaplasmosis, Ehrlichiosis, Powassan virus, Tularemia, Tick paralysis, etc.
- Fleas: Bartonellosis, Typhus, Plague, Tungiasis
- Triatome bugs: Chagas disease (American trypanosomiasis) (virus)
- Black flies: Onchocerciasis (river blindness) (parasite)
- Lice: Typhus (bacteria), Louse-borne relapsing fever (bacteria)
- Sandflies: Leishmaniasis (parasite), Sand-fly fever (phlebotomus fever) (virus)
- Aquatic snails: Schistosomiasis (bilharziasis) (parasite)

Most Dangerous Cities in America

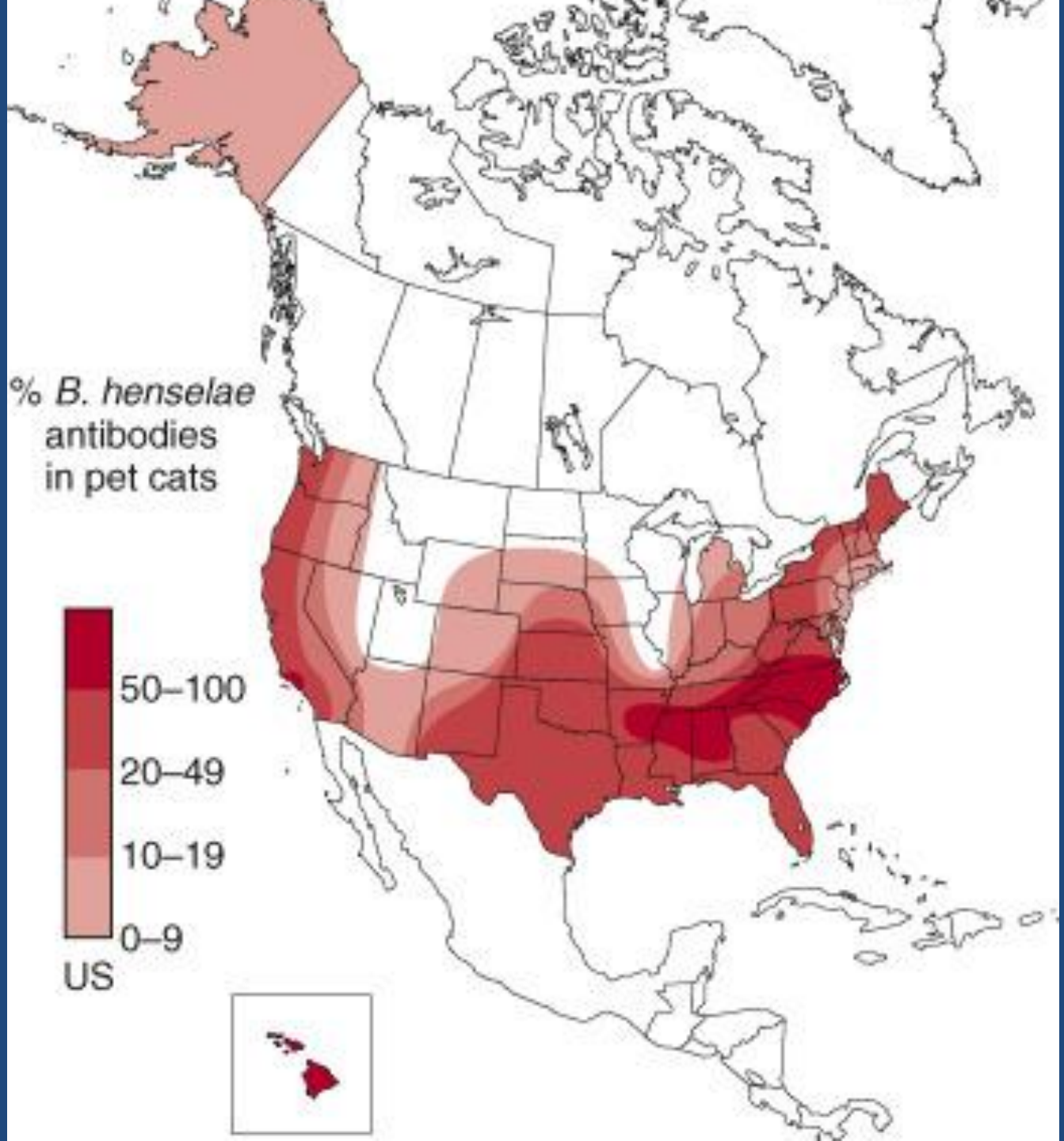


Tribune Media Wire

Fleas



https://www.petcarerx.com/article/everything-you-need-to-know-about-dog-ticks/2875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antibodies
in pet cats
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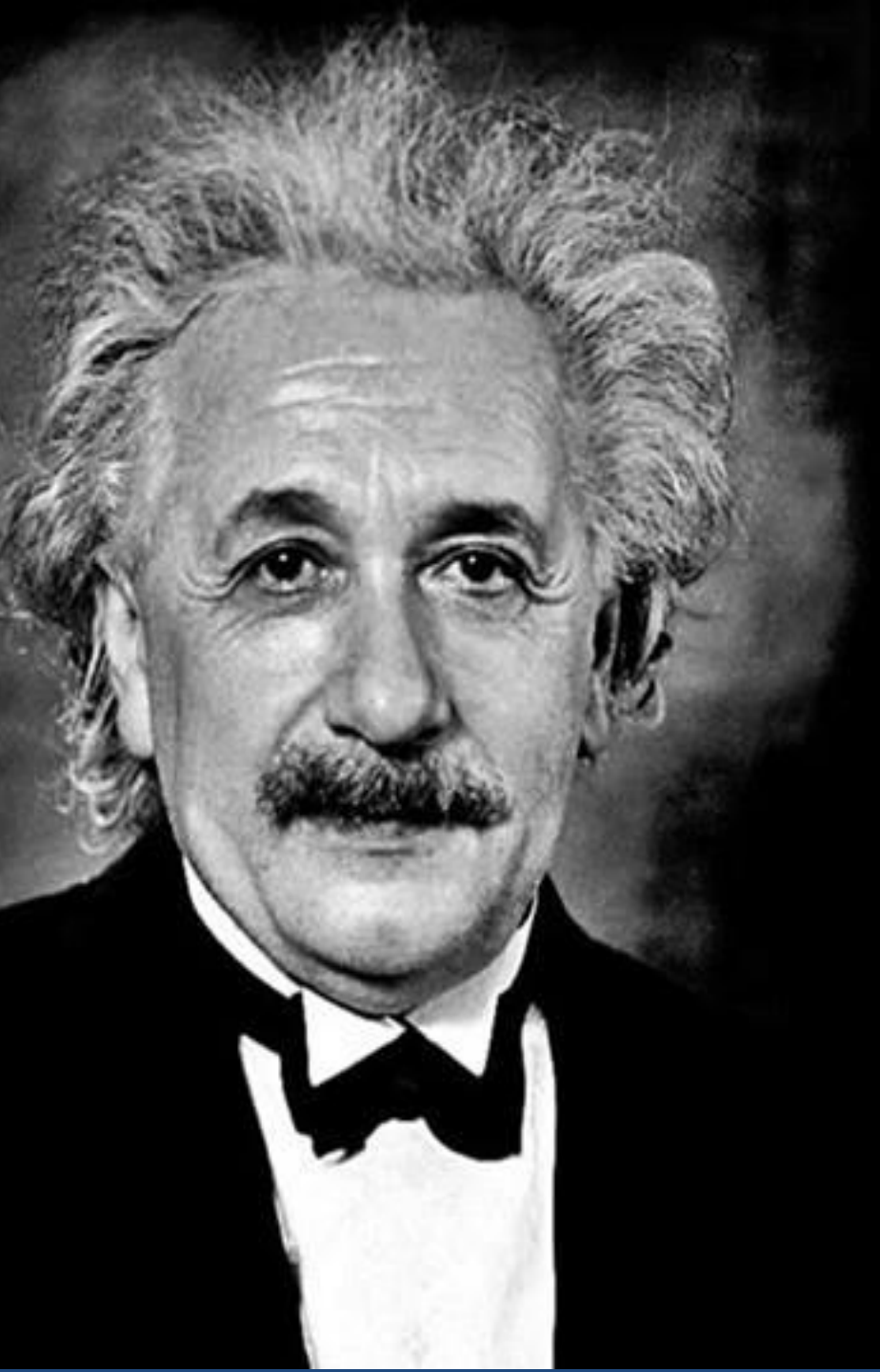
US



"The world is a dangerous place to live; not because of the people who are evil, but because of the people who don't do anything about it."

Albert Einstein


Khanaghutyun
Spokoj
Mir
Fred
Vrede
Hetep
Solh
Rauha
Paix
Sochin
Der friede
Irini
Shanti
Sholem
Béke
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