

The following is an interesting essay written by Dr. Stanley Goldfarb, Professor of Medicine at the University of Pennsylvania shortly after September 11, 2001 that is still quite pertinent more than a year later. - Harvey Rubin, Director

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TERRORISM: NOT A WAR BUT RATHER A DISEASE

By Dr. Stanley Goldfarb, University of Pennsylvania

The atrocious attack of September 11 has evoked metaphors of war to describe the horrible destruction, the mobilization of the nation, and the subsequent military response. The President and other political leaders have repeatedly stated that this will be a war unlike any experienced by the United States or any nation as it will be both overt and covert and will be an ongoing reality for many years to come. While a declaration of war is a precise political act and requires a hostile nation for its realization, this conflict with terrorism is quite different- no opposing state per se, no clear battlefield, and no clear end, except safety and security from harm for the people of America.

The language used to describe this struggle is an important issue as the images of war are well known and will be anticipated by the citizens of the United States. Battle maps, triumphant returns, veneration of victorious generals, and redrawing of national boundaries are all the results we expect and will be the results that will define success. But we clearly need a new lexicon to describe the actions of our obscure enemies, their apparently bewildering motives, and our complex array of responses. We need this more robust set of phrases and descriptors to give context to these threats and reactions.

Bacterial or viral infection and the integrated response by individuals or by society to infection more clearly describe the present conflict with terrorism. Infection can be overwhelming and rapidly lead to death but more typically, it is a localized insult that elicits a systemic response. Organisms invade other organisms to achieve the goals of domination, their own proliferation, or to insinuate themselves into the life cycle of the invaded organism to co-opt the organizational mechanisms of the invaded host. They may invade and lie quiescent for years or they may induce local injury. The attacks of terrorists are very similar in their intermittency, their stealthy origins, and their local characteristics. Infectious agents tend to exploit the very complexity of mammalian organisms to achieve their goals, be it binding to key surface molecules of normal cells to utilizing enzymatic pathways for synthesis of the RNA or DNA of the invader. So too do terrorists actually need a complex society with vulnerability that actually springs from highly automated and highly integrated organizational structures for their successful disruptions.

The characteristics of infection and epidemics in the population and the immune response provide a better series of descriptors than does the military metaphor. The invasion of bacteria or viruses may initially overcome local defenses, usually by some sort of stealthy phenomenon like mimicking molecules that normally reside on the cell surface, just as

the terrorist requires subterfuge to reach the site of injury. As terrible as a terrorist act may be, it is virtually always a localized event since a widespread attack characteristic of a state of war almost always requires an organized and technologically competent state for its support.

Epidemics may induce terror in a population and in very rare instances can threaten the existence of the population. More typically, epidemics are terrifying and disruptive but limited by a number of factors including host susceptibility characteristics, immune responses, technological advances to combat the infection, public health measures to contain the risk of infection, elimination of the breeding grounds of the vectors (if an arthropod-borne disease), education of the populace to reduce risk, and other complex actions on the part of the host and the infectious agent. These integrated responses ultimately lead to a new steady state wherein the infection is much less pathogenic and more chronic in nature.

All this is characteristic of the actions of terrorists and the societal response to terrorism. The risk of harm is terrifying but in truth, a very small segment of the population is truly at risk. The long-term outcome typically favors the species being invaded or terrorized. Technology in the form of drug or vaccine discovery or in the form of counter terrorist military and counterespionage actions is likely to control the epidemic. Enhancement of the body's resistance (immune responses) or of societies' security arrangements each goes far in controlling the risk of infection or terrorism.

Thus, terrorism and infectious epidemics share much and the language of infectious diseases and epidemics serves well to describe the characteristics of terrorism. The HIV-AIDS epidemic is much closer to what terrorism evokes and how it may be controlled than is the Korean War. So let our political leaders consider the language of infections rather than militarism to describe our current dilemma and the hope and even likelihood for an eventual recovery from a most terrible and disturbing disease. Let us consider our nation's enemies as a disease to be overcome rather than a military enemy to be vanquished. We control epidemics and eventually find them to be minor but persistent problems. They may flare and they may do harm, but the robustness of our immune response and the pharmacological tools we invent ultimately reduce them to the level of a footnote to history. So too should we see the perpetrators of such harm as occurred on September 11 to be no less –but no more– than agents of a disease that must and will be eradicated or at least successfully controlled. This is the fate of virtually all infectious diseases in the modern era.