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# *Anomalous Health Incidents of the Havana Syndrome: Implications and Lessons for Global Biosecurity and Defense*

James Giordano, Department of Neurology, Georgetown University Medical Center
Diane DiEuliis, Center for the Study of Weapons of Mass Destruction, National Defense University

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Last week, the United States Office of the Director of National Intelligence (ODNI) released the *Annual Threat Assessment of the US Intelligence Community*. [1] The report noted that, "global shortcomings in preparedness for…biosecurity may inspire some adversaries to consider…biological weapons developments." The report further stated that "recent advances in dual-use technology…could enable development of novel biological weapons that complicate detection, attribution, and treatment." Particular in this regard, the report addressed "anomalous health incidents", of the so-called Havana Syndrome, with the ODNI "focusing…upon a subset of priority cases for which it has not ruled…the possibility that one or more foreign actors were involved." The new ODNI Report echoes the Central Intelligence Agency's (CIA) previously stated position on Havana Syndrome [2], which, when taken together, establish that:

- the approximately two dozen individuals originally affected in Havana in 2016 are regarded as verified cases of a physical injury.
- the exact nature and probable cause of this injury remains under investigation; but exposure to some form of directed energy device remains a valid and viable possibility.
- several lines of evidence support that the multinational state-of-the- science and -technology is sufficiently advanced and developed to produce and operationally employ such devices.

 

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- it is premature and imprudent to speculate upon the possible/potential sources of such technology development and possible use.
- there are other individuals who have reported symptoms and presented signs of anomalous health incidents that are currently under investigation.
- there have been numerous - literally hundreds of- reports of symptoms and signs that are not consistent with the Havana AHIs, and most likely are some other disorders, and/or reflective of a socio/psychogenic effect.

Regarding this latter point, it is important to understand that many of the subjective symptoms (headache, feeling of fullness in the ears, dizziness, problems concentrating, perceived difficulties in activities of daily living) are not uncommon in the general population. As matter of fact, any of these symptoms occur quite frequently in individuals of perfectly good health, as well as individuals who suffer from a variety of medical conditions, from the relatively minor to the exceedingly severe.

However, symptoms are subjective, and such subjectivity can be influenced by a host of factors, inclusive of those that are psychological, environmental, as well as biological (think for example how one perceives their own body when one is stressed, fatigued, worried, or even in an unfamiliar and or perhaps threatening place or situation. But of equal importance is that subjective symptoms alone were not fundamental to establishing and asserting the claim that those individuals affected in 2016 in Havana had suffered some form of injury.

Rather, precise objective clinical evaluation of neurological functions, together with a number of other assessments (imaging, motor task testing, physiologic response metrics), and detailed neuropsychological evaluation, taken together with analysis of their current and prior medical record and history, strongly supported that some physical insult had occurred. The majority of those affected individuals have shown long-lasting, discernible neurological features that are evident upon clinical testing, and which present difficulties in these individuals' personal and professional abilities. At present, their long-term prognoses vary. [3,4]

The possibility remains that these individuals may have been exposed to some form of directed energy. The United States, Russia, and China all have dedicated programs of research and development of various types of directable energy, and the state-of-the science (i.e.- the technological readiness level - TRL) enables their scalability, portability, and potential for fieldable use. [5,6,7] Such technologies are employed in industrial/occupational settings to test the vulnerability of inorganic and organic matter. It is wholly possible that existing technologies could be directly used and/or modified for disruptive intent.

Investigation of "Havana Syndrome" remains ongoing, and rightly so. What has become clear from investigations to date is that current and emerging biotechnologies pose significant

 

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risk and threat to public safety and national security. Without doubt, diverse and diffused engagements of this sort, executed with some randomness, would be capable of inducing a mass public reactive effect. An opponent could foster concerns among the "worried well", and other sectors of the general population, which could incur significant disruptive effect, and be instrumental to creating a "fog of engagement".

Thus, regardless of what Havana Syndrome is ultimately revealed to be, an important take-away is the need to further understand, and develop readiness and response to the possible dual-use of emerging biotechnologies. The current administration's funding of projects focusing upon these ends is noteworthy, [8] but should be fortified and extended to meet changing level(s) of actual risk and threat. [9-12] Such an undertaking will require multi-national collaboration, with both intra and inter-governmental cooperation. Moreover, we've argued that a whole-of-nation(s) approach [13] to bring together resources of government, the research enterprise, and the commercial sector will be vital to sustain the personnel, services, and resources needed to meet the growing capabilities of emerging biotechnologies, both at present and in the near future.

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