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Giving a new perspective on the high COVID-19 case numbers in McKinley County, particularly on the Navajo Nation, two Diné College science professors have released a research paper called, *The Medical Basis for Increased Susceptibility of COVID-19 among the Navajo and other Indigenous Tribes: A Survey* .

The Navajo Nation has the highest COVID-19 rate in the United States which is 450% higher than the national average.

Joseph DeSoto, M.D., Ph.D., and Shazia Tabassum Hakim, Ph.D., conclude, in part, that Native Americans and Asians may be particularly susceptible to COVID-19 due to an enzyme they identify as ACE2.

The two professors work in the Science, Technology, Engineering and Math division of the Diné College. They said they started talking amongst themselves about the causes of COVID-19 in December, and then started reviewing the literature.

“Late in December 2019, we read every single thing that was published out there in the scientific community,” DeSoto said. “We discussed it and evaluated it long before the virus came over here.

“Then based on the best medical evidence, we realized that this might soon be a problem. So, we started discussing, evaluating and analyzing and then we wrote and completed the paper.”

The paper was accepted for publication in the *Journal of Biomedical Research and Reviews* Ma y 29.

DeSoto and Hakim said the document represents the first comprehensive world-wide scientific understanding of the high rate of infectivity among the Navajo and Indigenous tribes of the SAR-CoV-2 from a molecular medical perspective on COVID-19.

ACE2, which is short for Angiotensin Converting Enzyme 2, is a type of protein found on the surface of a number of cells in the respiratory, digestive, nervous and reproductive systems. The protein, in general, serves as a door allowing the virus to enter the cells, the team said.

“And the key that the virus has is to open the door is a spike with the protein S,” Hakim explained. “When this right key “S” is inserted into the door lock — ACE-2 —, the magic happens and the virus enters the host cell, hijacks the host cell’s DNA machinery and starts producing its own proteins, multiplies, increases in number and infects more cells of the host body.”

“There are four things that aggravate COVID-19 as it pertains to the Navajo Nation,” De Soto said. “Medically, it’s the high rate of diabetes, hypertension, genetics and poor protein diets among the Navajo; poor health care infrastructure and technology; poverty, with the associated lack of water access; and dense multi-generational living arrangements.”

Two more papers by De Soto and Hakim are also being published within weeks in major peer reviewed Medical and Scientific Journals, *“The Medical Treatment for COVID-19,”* and *“The Pathophysiology of COVID-19,”*
with Fred Boyd, Ph.D., a well-known molecular physiologist of Diné College. Both papers have already received international attention via preprints.

Hakim said she and DeSoto are working on another manuscript related to the eating habits,

food scarcity and the unavailability of the varieties of fruits and vegetables in Navajo communities.

The Journal of Biomedical Research and Review is an international, peer reviewed, open access, scientific and scholarly journal which publishes research papers, review papers, mini reviews, case reports, case studies, short communications, letters, editorials, books, theses and dissertations from various aspects of medicine, engineering, science and technology to improve and support health care.

DeSoto, was senior author and is a medical school graduate of Howard University. His specialty is molecular medicine and pharmacogenetics. Hakim, has a background in microbiology and infectious diseases. She is a graduate of the University of Karachi in Pakistan.