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Investigating Risk Factors Contributing to the High Incidence of COVID-19 Among the Diné People of the Navajo Nation

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Background:

COVID-19 became international news in December 2019 and subsequently impacted global health. The research shows that the Diné people of the Navajo Nation were one of the most severely impacted populations¹. The Navajo Nation is a region spanning Arizona, New Mexico, and Utah that is composed of North American indigenous people known as the Diné.

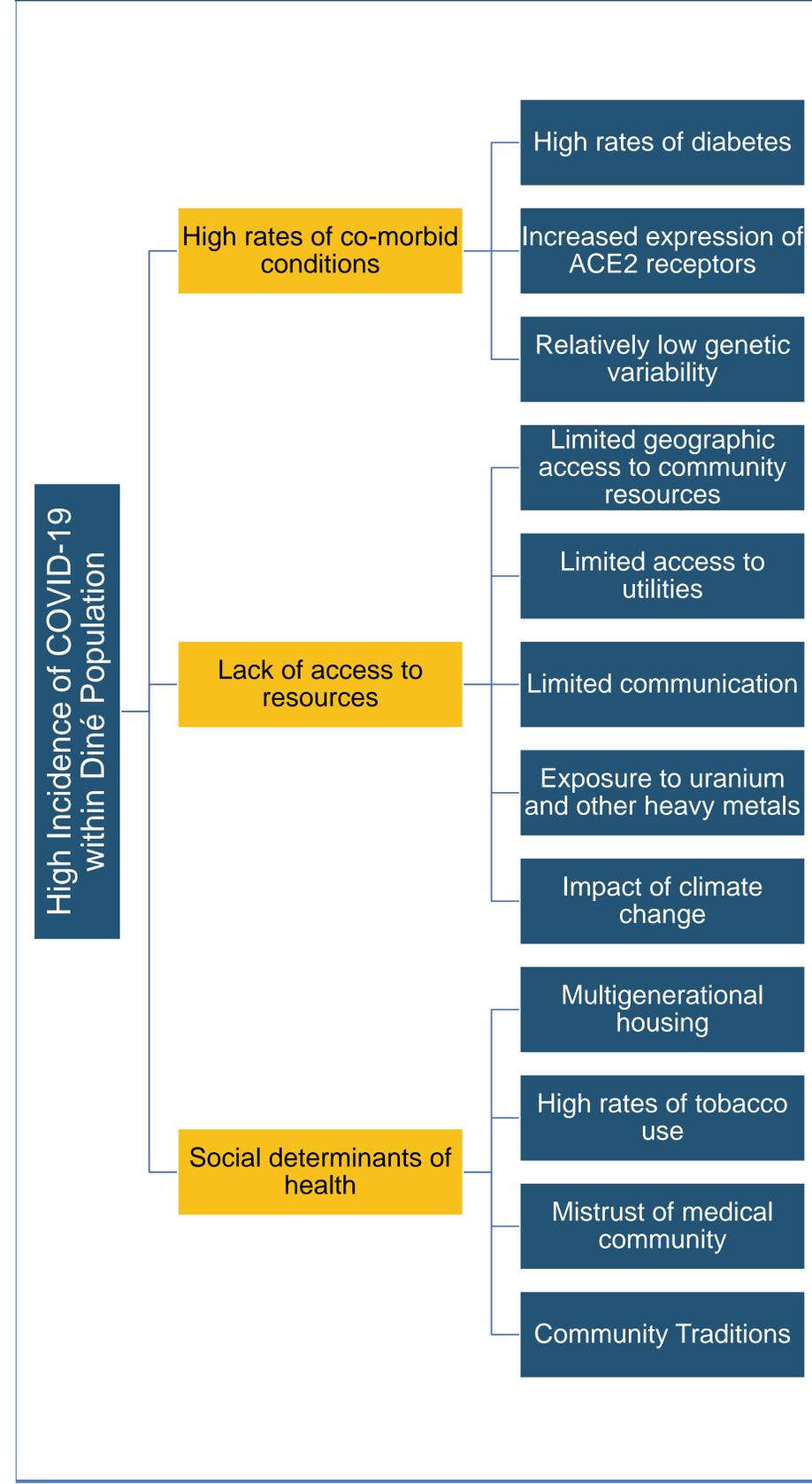
Purpose:

To explore the risk factors that culminated in the particularly high incidence and severity of COVID-19 within the Navajo Nation. This review categorizes the multifactorial causes into themes of social risk factors, medical risk factors, and environmental risk factors with specific findings classified under each category. This is relevant and important not only because the Navajo Nation was the most severely impacted population by COVID-19, but also because it highlights inequities to be addressed by healthcare workers to prevent future poor outcomes in vulnerable populations.

Method:

This literature review research process utilized PubMed and JAMA to find scholarly articles on this topic. Search terms included: Navajo, Diné, COVID-19, respiratory illness, health disparity, healthy equity, vaccine, nutrition, smoking, healer, medical mistrust, and resources.

Results:



Conclusion:

In summary, it is important to acknowledge the resilience and efforts of the Diné people while also noting what healthcare professionals can do to support them and other communities facing health inequity because it is our responsibility as future healthcare providers and humans to do so. Respect and acknowledgment of how resilient the Diné have been despite the barriers they have faced. This respect will help to improve rapport and rebuild trust in the medical community which can be furthered by making a concentrated effort to understand Diné beliefs and values. At that point once a healthy relationship based on respect and understanding has been established, healthcare professionals and the Diné can work cooperatively to address the many barriers outlined in this paper to work toward decreased health inequity in the Navajo Nation and beyond.

References:

- Kakol M, Upson D, Sood A. Susceptibility of Southwestern American Indian Tribes to Coronavirus Disease 2019 (COVID-19). *The Journal of Rural Health*. 2020;37(1):197-199. doi:https://doi.org/10.1111/jrh.12451
- Angel de Soto J (2020) Medical Basis for Increased Susceptibility of COVID-19 among the Navajo and other Indigenous Tribes: A Survey. *J Biomed Res Rev* Vol: 3, Issue: 1. (37-41) 3. Hatcher S, Agnew-Brune C, Anderson M, et al. *Morbidity and Mortality Weekly Report COVID-19 among American Indian and Alaska Native Persons - 23 States*; 2020.
- Arazola J, Masiello M, Joshi S, et al. *Morbidity and Mortality Weekly Report*; 2020.
- Denetclaw WF, Otto ZK, Christie S, et al. Diné Navajo Resilience to the COVID-19 pandemic. *von Fricken ME, ed. PLOS ONE*. 2022;17(8):e0272089. doi:https://doi.org/10.1371/journal.pone.0272089
- Nez Henderson P, Roessler A, Moor G, et al. Advancing smoke-free policy adoption on the Navajo Nation. *Tobacco Control*. 2016;25(Suppl 1):i26-i31. doi:https://doi.org/10.1136/tobaccocontrol-2016-053109
- Rodriguez-Lonebear D, Barceló NE, Akee R, Carroll SR. American Indian Reservations and COVID-19: Correlates of Early Infection Rates in the Pandemic. *Journal of Public Health Management and Practice*. 2020;26(4):371-377. doi:https://doi.org/10.1097/phh.0000000000001206
- Lively C. COVID-19 in the Navajo Nation Without Access to Running Water: The Lasting Effects of Settler Colonialism. *Voices in Bioethics*. 2021;7(7). doi:https://doi.org/10.1007/s10096-020-04138-6
- Bongiovanni T, Shamasunder S, Brown W, et al. Lessons learned from academic medical centers' response to the COVID-19 pandemic in partnership with the Navajo Nation. *Odai A, ed. PLOS ONE*. 2022;17(4):e0265945. doi:https://doi.org/10.1371/journal.pone.0265945
- Guadagnolo A, Cina K, Helbig P, et al. Medical Mistrust and Less Satisfaction With Health Care Among Native Americans Presenting for Cancer Treatment. *Journal of Health Care for the Poor and Underserved*. 2008;20(1):210-226. doi:https://doi.org/10.3390/ijerph18136753
- Rock T, Jones L, Ingram JC. Approaches for Disseminating Environmental Research Findings to Navajo Communities. *International Journal of Environmental Research and Public Health*. 2021;18(13):6753. doi:https://doi.org/10.3390/ijerph18136753
- Sabo S, O'Meara L, Russell K, et al. Community Health Representative Workforce: Meeting the Moment in American Indian Health Equity. *Frontiers in Public Health*. 2021;9(9):667926. doi:https://doi.org/10.3389/fpubh.2021.667926
- Gampa V, Smith C, Muskett O, et al. Cultural elements underlying the community health representative-client relationship on Navajo Nation. *BMC Health Services Research*. 2017;17(1). doi:https://doi.org/10.1186/s12913-016-1956-7
- Chief C, Sabo S, Clark H, et al. Breathing clean air is Sa'ah Naagháí Bik'eh Hózhóó (SNBH): a culturally centred approach to understanding commercial smoke-free policy among the Diné (Navajo People). *Tobacco Control*. 2016;25(Suppl 1):i19-i25. doi:https://doi.org/10.1136/tobaccocontrol-2016-053081
- Kapchuk TJ. Placebo studies and ritual theory: a comparative analysis of Navajo, acupuncture and biomedical healing. *Philosophical Transactions of the Royal Society B: Biological Sciences*. 2011;366(1572):1849-1858. doi:https://doi.org/10.1098/rstb.2010.0385
- Wilson J, Thomson C, Sabo S, Edleman A, Kahn-John M. Development of an American Indian Diabetes Education Cultural Supplement: A Qualitative Approach. *Frontiers in Public Health*. 2022;10(10). doi:https://doi.org/10.3389/fpubh.2022.790015
- Bennion N, Redelfs AH, Spruance L, Benally S, Sloan-Aagard C. Driving Distance and Food Accessibility: A Geospatial Analysis of the Food Environment in the Navajo Nation and Border Towns. *Frontiers in Nutrition*. 2022;9(9). doi:https://doi.org/10.3389/fnut.2022.904119
- Beyerstedt S, Casaro EB, Rangel EB. COVID-19: angiotensin-converting enzyme 2 (ACE2) expression and tissue susceptibility to SARS-CoV-2 infection. *European Journal of Clinical Microbiology & Infectious Diseases*. 2021;40(5). doi:https://doi.org/10.1007/s10096-020-04138-6
- Kwan A, Hu D, Song M, et al. Successful newborn screening for SCID in the Navajo Nation. *Clinical Immunology*. 2015;158(1):29-34. doi:https://doi.org/10.1016/j.clim.2015.02.015
- Gabryszecki SJ, England RN, Sun D, et al. Self-Limited COVID-19 in a Patient with Artemis Hypomorphic SCID. *Journal of Clinical Immunology*. 2021;41(8):1745-1747. doi:https://doi.org/10.1007/s10875-021-01093-5
- MacKenzie OW, George CV, Pérez-Escamilla R, et al. Healthy Stores Initiative Associated with Produce Purchasing on Navajo Nation [published correction appears in *Curr Dev Nutr*. 2020 Apr 24;4(5):nzaa026]. *Curr Dev Nutr*. 2019;3(12):nzz125. Published 2019 Nov 7. doi:10.1093/cdn/nzz125
- Sundberg MA, Warren AC, VanWassenhove-Paetzold J, et al. Implementation of the Navajo fruit and vegetable prescription programme to improve access to healthy foods in a rural food desert. *Public Health Nutrition*. 2020;23(12):2199-2210. doi:https://doi.org/10.1017/s1368980019005068
- Begay M, Kakol M, Sood A, Upson D. Strengthening Digital Health Technology Capacity in Navajo Communities to Help Counter the COVID-19 Pandemic. *Annals of the American Thoracic Society*. 2021;18(7):1109-1114. doi:https://doi.org/10.1513/annalsats.202009-1136ps
- Crede J, Torkelson J, Rock T, Ingram JC. Quantification of Elemental Contaminants in Unregulated Water across Western Navajo Nation. *International Journal of Environmental Research and Public Health*. 2019;16(15):2727. doi:https://doi.org/10.3390/ijerph16152727
- Scammell M, Sennett C, Laws R, et al. Urinary Metals Concentrations and Biomarkers of Autoimmunity among Navajo and Nicaraguan Men. *International Journal of Environmental Research and Public Health*. 2020;17(15):5263. doi:https://doi.org/10.3390/ijerph17155263
- Thompson NA, Ong J, Luo L, MacKenzie D. Chronic Community Exposure to Environmental Metal Mixtures Is Associated with Selected Cytokines in the Navajo Birth Cohort Study (NBCS). *International Journal of Environmental Research and Public Health*. 2022;19(22):14939-14939. doi:https://doi.org/10.3390/ijerph192214939
- Coombs S, Sleeth DK, Jones RM. Environmental and occupational health on the Navajo Nation: a scoping review. *Reviews on Environmental Health*. 2021;37(2):181-187. doi:https://doi.org/10.1515/reveh-2021-0118
- Wheat S, Gaughen S, Skeet J, et al. -NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>). *The Journal of Climate Change and Health*. 2022;8. doi:https://doi.org/10.1016/j.joclhm.2022.100148