

## In Conspiracy We Trust



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There are increasing calls to discipline or de-credential doctors who are spreading anti-vaccine, anti-mask, and other pandemic misinformation. While statistics show that 96% of US physicians are vaccinated, a handful repeatedly conduct rallies, give media interviews on major networks, and advise politicians on statewide policies. Misinformation spreads six times faster on Facebook than factual, science-based posts, as it both offers something shocking and aligned with pre-existing beliefs or biases.

As seen with the case of disgraced Andrew Wakefield, even removal of credentials does not prevent someone with medical training from being a leader of anti-vaccine misinformation. Instead, the "martyr" role of being "silenced" or disciplined feeds conspiracy theories of "suppression of the truth" and fuels celebrity status.

Some companies that conduct reputation management also do consulting work to slander and smear rivals or mentee within both academia and medicine. These dynamics make the lay public see science itself as too political to be trustworthy, priming for appeal of misinformation about science or doctors.

A common slogan of those who spread misinformation is, "The data don't lie," whereas data can be manipulated or low-quality in a number of ways. A closer look at most misinformation on vaccines or masks shows poor data integrity: misuse of a database, inclusion/exclusion criteria that do not support conclusions drawn or mislabeled or out of proportion axes on graphs. There has also been a rush to publicize studies via preprints as seen with the now retracted study that spread fear about myocarditis.

Dr. Todd Wolynn recently wrote in *Nature* on the best practices, as a physician, to make progress with hesitant families who are exposed to misinformation. Many families will trust their own family physician. Making your own videos for your own community or working with faith groups can convince those in groups with distrust of government or authority. Those of marginalized identities respond better to in-person outreach from those of their own community. Medical centers with established relationships of trust for serving the marginalized are successful in their use of science communication with joyful, inviting, fun videos of healthcare workers of the communities served. HHS partners with community and faith groups to disseminate factual vaccine information.

Ultimately, the antidote to conspiracy and disinformation is not more data from a scientist nor authoritarian censure via license, but focusing on the trust our patients have in us via humanism and authentic community connections. ▶ PW



## Hyperuricemia and Gout Across Racial Groups: Examining Epidemiology & Genetics



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The incidence and prevalence of gout across indigenous groups from Europe, Asia, and Africa are different from what is seen in people from the United States, according to prior research. Studies suggest that genetics can significantly modulate risks for gout and for hyperuricemia—which usually precedes gout—after exposure to specific environmental or dietary factors. "Worldwide, there are significant health disparities in the prevalence of gout," explains Youssef Roman, PharmD, PhD. "In addition, some people will develop gout rapidly and others can have more severe form of the disease. By gaining a better understanding of genetic and epigenetic risk factors for gout across ethnic groups, clinicians may be able to improve how specific populations are managed and can potentially reduce disparities in gout care."

### Comparing Patterns in Different Racial Groups



Dr. Roman and his group had a study published in the *Journal of Personalized Medicine* that estimated the frequency of risk alleles associated with elevated serum urate levels or gout in select racial groups when compared with Europeans. "Some of these risk alleles are of great interest because they may play a role in personalizing diet and treatment plans in gout," Dr. Roman says. "We wanted to interrogate specific genes as contributing factors to racial health disparities in gout prevalence and clarify possible genetic sources of differential responses to urate-lowering therapies for patients in the US."

For the study, investigators first conducted a literature review to determine the global prevalence of gout. They then compared the frequency of urate-related genetic risk alleles between Europeans and four major racial groups from the 1,000 Genomes Project: 1) Africans in the Southwest US, 2) Han-Chinese, 3) Japanese, and 4) Mexicans. "Using the 1,000 Genomes Project database, we compared the frequency of alleles of 11 single nucleotide polymorphisms across 11 genes that are physiologically involved and significantly

associated with serum urate levels and gout risk," says Dr. Roman (Figure). "Our goal was to identify similarities and differences in patterns of disease prevalence relative to risk allele frequencies."

### Gout: A Western World Phenomenon

According to the study, the prevalence of hyperuricemia and gout was higher in Western countries when compared with non-US populations. "Gout appeared to be a Western world phenomenon," Dr. Roman says. "Asians had higher risks for hyperuricemia and gout than other populations assessed in our study." When compared with Europeans, Han-Chinese and Japanese populations had the highest hyperuricemia or gout risk allele frequencies, followed by Mexicans and Africans in the Southwestern US. Specifically, nine alleles in Han-Chinese populations and 11 alleles in Japanese populations were considered hyperuricemia or gout risk alleles.

Dr. Roman says the study results are consistent with previous reports that Asian subgroups have a higher prevalence of hyperuricemia and gout when compared with non-Asians. "Our findings suggest a strong genetic component to the development of hyperuricemia and gout in Asian populations when compared with the European population," he says. "It's likely that genetics interact with environment in Asian subgroups with gout risk." The differences in allele frequencies could be responsible for the differential prevalence

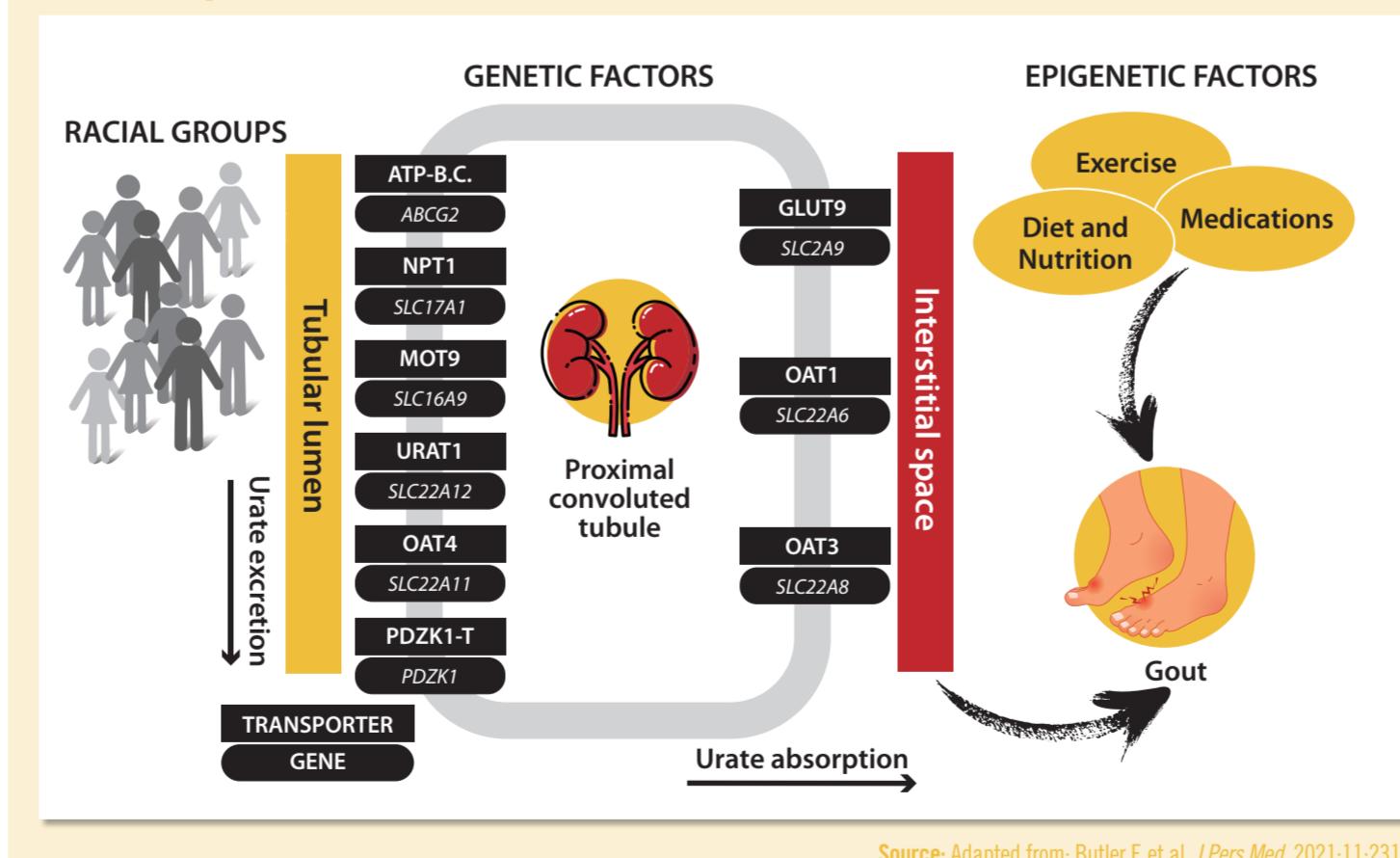
of hyperuricemia and gout across distinct racial groups.

### Making the Case for Personalizing Approaches

The data provide evidence to support the use of polygenic risk assessments for gout to personalize approaches with robust assessments rather than relying on racial stratification for disease risk or treatment selection, according to Dr. Roman. "Evaluating each person's genetic information may guide efforts to tailor diet and medication for patients," he says. "Genomics can help clinicians design personalized risk-mitigation strategies for patient groups at high risk for developing hyperuricemia or gout. With the strong association between hyperuricemia and cardiovascular diseases, use of genomics could help prevent suboptimal medication selection and reduce risks for new disease onset."

Genomics has potential to improve healthcare outcomes and could help address existing health disparities associated with hyperuricemia and gout across different racial populations, which in turn can improve health equity. "Over the years, the field of genomics has advanced considerably as genetic platforms have improved and as costs have decreased," Dr. Roman says. "As efforts increase to personalize medicine, the hope is to empower clinicians with decision support tools and the knowledge to use genomics to help select the most appropriate treatment for patients." ▶ PW

**FIGURE Hyperuricemia and Gout Across Major Racial Groups: Graphical Abstract**



Source: Adapted from: Butler F, et al. *J Pers Med*. 2021;11:231.

## the business of medicine

### What Financial Relief Options Are Available to Struggling Practices?

Written by Bill Loguidice

Physicians have averaged a 32% drop in revenue since February 2020, and the average number of in-person visits fell from 97 per week to 57. Fortunately, the federal government has enacted several programs into law to help physician practices offset these financial impacts as part of the Coronavirus Aid, Relief, and Economic Security (CARES) Act, the Families First Coronavirus Response Act, the Paycheck Protection Program (PPP), the Health Care Enhancement Act, and the Consolidated Appropriations Act (CAA), 2021. In addition, select state and municipal financial relief programs, as well as funds established by private entities, may be available.

The Small Business Administration (SBA) oversees two of the loan programs to address COVID-19-related economic stress: The 7(a) PPP and the Economic Injury Disaster Loan (EIDL). The PPP was reopened by the SBA the week of January 11, 2021, with four additional changes on March 3, 2021 to increase availability to more underserved small businesses. As part of its 2021 physician practice financial relief guide, the AMA has outlined the availability of two still-active programs:

**EIDL** | In response to the COVID-19 pandemic, small business owners and nonprofit organizations in all US states, Washington, DC, and US territories can apply for an EIDL. The EIDL program is designed to provide economic relief to businesses that are currently experiencing a temporary loss of revenue due to COVID-19. The eligibility timeframe includes businesses currently in operation through December 31, 2021.

### Medicare Accelerated and Advance Payment Program

On December 27, 2020, the CAA, 2021, was signed into law. It is a comprehensive omnibus spending package that funds the federal government through fiscal year 2021 and provides a new round of COVID-19 relief and economic stimulus. Included in this package is the announcement that the Medicare Accelerated and Advance Payments Program is continued. Repayment terms for physicians who received an accelerated or advance payment were amended October 8, 2020. On April 1, 2021, CMS announced that it had begun automatic recoupment of COVID-19 Accelerated and Advance Payments, an advance of up to 3 months of Medicare payments to help physician practices keep the lights on early in the COVID-19 pandemic.



It's stressed that the AMA's guide will continue to evolve along with these programs. The AMA recommends that physicians and practices consult their financial advisors or attorneys about these programs and the information presented in the guide before taking action. ▶ PW



## In Case You Missed It

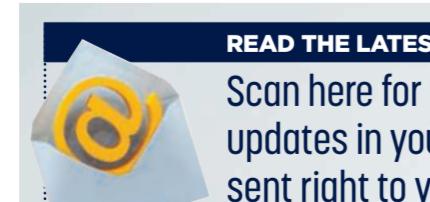


### Elevated Uric Acid & Gout Linked With Liver Dysfunction

Adults with hyperuricemia and gout are most likely to develop liver dysfunctions and suffer associated morbidities, according to a study published in *Diseases*. Researchers examined the association between uric acid levels and liver enzyme functions among adults with hyperuricemia and gout in the United States, using National Health and Nutrition Examination Survey (NHANES) data from 2007 to 2016. Data were analyzed for descriptive statistics and for differences using the t test, Chi-square test, and ANOVA. A regression analysis was performed to determine association between demographics and liver enzymes. A total of 14,946 adults were included; sample mean age was  $49 \pm 0.15$ , and 54% were female. Overall, 15% of adults had elevated uric acid levels ( $\geq 6.8$  mg/dL), men had significantly higher uric acid levels than women (6 mg/dL vs 4.8 mg/dL). High uric acid levels were associated with more than two times higher odds of elevated ALT, AST and GGT. Similarly, gender-based target uric acid values were associated with two-fold increased odds of GGT, more than 1.5-fold higher odds of ALT and AST.

### Synovial Fluid Lymphocytes May Be Biomarker for Gout

Synovial fluid lymphocytes have a higher diagnostic value for gout than for rheumatoid arthritis (RA), axial spondyloarthritis (axSpA), and osteoarthritis (OA), and therefore, may be a reliable, cost-effective, and novel potential biomarker for gout, according to a study published in *Disease Markers*. Researchers retrospectively collected the synovial fluid cell counts of patients with gout, RA, axSpA, and OA and investigated the diagnostic value of synovial fluid cell counts for gout. Patients with gout were divided into normal serum uric acid (sUA) and high sUA groups according to sUA levels on attack and laboratory data were recorded. The study team found that synovial fluid cell counts of patients with gout differed from those of patients with RA, axSpA, and OA. Synovial fluid white blood cell, peripheral blood mononuclear cell (PBMC), monocyte, polymorphonuclear and neutrophil counts in patients with gout were higher than those in patients with OA. The synovial fluid PBMC and lymphocyte counts in patients with gout were lower than those in patients with RA and axSpA. ▶ PW



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