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New Clinical and Translational Research Section of "Science, Public Health Policy & The Law"

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Abstract
This editorial announces a new section focused on Clinical and Translational Research. The first paper to be published in this section is a case series of consecutive patients diagnosed with COVID-19 who were treated with nutritional and oxidative medical therapies. It places the study in the context of clinical and translational research on **SARS-CoV-2** research and invites studies and articles focused on studies that fill the void of critical missing research studies.

Keywords
SARS-CoV-2, COVID-19, ozone therapy, hydrogen peroxide therapy, Vitamin A, iodine, Vitamin C, Vitamin D, immune system, antiviral.

The experiences of many scientists and physicians in clinical and translational research should have direct involvement in forging public health policies. The practical understanding of real-world therapeutic application and outcomes places these experiences in a nexus position of high influence to render much needed improvements in relatively impoverished and increasingly ineffectual medical practices and public health policies.

For far too long, evidence-based medicine has under-valued and side-lined real-world clinical evidence which is rich in detail that can and should inform decisions at the individual doctor-patient level. In keeping with the mission of objective science in this journal, we have expanded to include a new section in which we will publish case studies, case series reports, observational studies and prospective clinical trials. We will also publish meta-analyses. Because of the relative vacuum of objectivity in allopathic-centric medicine (with respect, of course, to all publication outlets that have not been compromised by profit influences) we are expanding the scope of the journal, beginning with the case series by *Brownstein et al.* This contribution is important clinically and is truly history-making: past searches for efficacious clinical treatments and interventions for coronaviruses, including SARS & MERS, are devoid of translational successes. What little research had historically been conducted on antivirals prior to 2019 were pharmacologically-based and have failed to yield a standard protocol. One drug, Hydroxychloroquine, did show promise, yet during the current **COVID** crisis,[1][2] we've witnessed a flabbergast move by the US FDA to strip **HCQ** of its emergency use authorization using a letter that incongruously cited more studies that support HCQ as a safe and effective early intervention, especially for mild **COVID-19** illness,

than it did against it. No systematic review of treatment studies of **SARS**, **MERS**, and **SARS-CoV-2** induced coronavirus disease is yet available, but patients must have care now, and practitioners are using their experienced judgement to address the infection and its symptoms for PCR-confirmed and symptom-based **COVID-19** cases

Brownstein et al. employed a novel protocol for respiratory flu-like illnesses. As practitioners of medicine, *Brownstein et al.* found it appropriate to treat **COVID-19** patients with specific protocols with the expectation that the relative success of the interventions used in addressing similar symptoms from other respiratory infections and conditions in the past would translate to recovery for **COVID-19** patients. Their educated experience-based treatment choices have led to a cohort with far lower serious (0.18%) and critical (0.0%) illness and death (0.0%) is lower than reported to date anywhere, including lower than the rates reported in studies of hydroxychloroquine. Given the age distribution of their particular cohort, with only 7% of patients being younger than 25, and 69% being over the age of 51, the number of deaths from, or even with, **COVID** under this novel protocol is clearly significantly lower than that expected given national and international trends under other protocols. *Brownstein et. al. (2020)* also provide detailed evidence of likely specific molecular mechanisms of action. Here I speculate on additional direct mechanisms that might be in play. Via their case series, *Brownstein et al.* show that their low-cost support of the immune system with appropriate nutrients, individualized to each patient and stage of disease progression, may be highly effective and relatively inexpensive in treating **COVID-19**. The efficacy of their protocol suggests that they may have been successful in supporting the immune system to the endpoint of reducing viremia, thus providing relief to viremia-induced symptoms. We know that serious and critical cases of **COVID-19** are typified by **Th2**-skewed responses with elevated proinflammatory **IL-1** and **IL-6** cytokines [3]

It is presumed that this type of response fails to reduce viral load, as would be expected in immune systems in **Th1/Th2** balance. Given the absence of serious and critical cases in the *Brownstein et al.* cohort, it seems likely that his patient population is in **Th1/Th2** balance.

Although direct measurements of viral load are not available, there is also reason to be hopeful that the suspected reduced viremia induced by their protocol would aid in the reduction of transmission. This, and the fact that vaccines nudge human immunity toward **Th2**-skew, draws into question why a vaccine is considered the central strategy for controlling transmission of **SARS-CoV-2**.

A second potential mechanism of action of their protocol is the reduction of systemic inflammation, including a reduction in the production of *alpha defensin* and coagulopathy. The patients who form fatal systemic clotting have an increased level of alpha defensin protein in their blood, as explained by Higazi (2020). [4] For patients under more traditional, and more deadly treatment protocols, colchicine might be an effective emergency intervention.

Vitamin D itself has significant backing in the scientific literature as having a positive effect on health outcomes in thrombosis. It and other naturally occurring compounds have been independently found to be likely candidates as effective therapeutics against **COVID-19**. Evidence reviewed by Grant et al. [5][**?**] supports the rationality of the Brownstein protocol.

A third potential mechanism of action of their protocol is the net effect on whole-body health. Sleep provides a critically important aspect of fighting infections; proper balance of nutrients is related to sleep quality (St-Onge et al. [6]; Peuhkuri et al., [7]), and melatonin appears to reduce the severity of **COVID-19** related hemoglobinopathies, refractory hypoxemia and myocardial injury [8]. While *Brownstein et al.* did not use melatonin in the study, individuals with chronic cough and chest pain lack adequate sleep, and thus in reducing the severity of symptoms, the protocol used likely helped patients obtain adequate rest.

And finally, another potential mechanism of action may include the absence of pharmaceutical antipyretics. It is well-established that the use of antipyretics with influenza and other fever-inducing in-

fections can increase severity and duration of illness due to the immune-suppressing effects of such products, and the important role fever plays in reducing viral replication. One study showed that use of aspirin and acetaminophen by those with Rhinovirus was associated with suppression of serum neutralizing antibody response, increased nasal symptoms, a rise in circulating monocytes, and longer duration of virus shedding. The reduction of viremia via the innate and cellular immune responses leading to fever is underappreciated in public health policy. The use of medicines to reduce fever in people with mild illness will prevent the reduction of viremia and increase the likelihood of community transmission. Acetaminophen also depletes glutathione, which is critically needed during times of viral infection, and so the absence of the use of such products may also contribute to the success of *Brownstein et al.* patient outcomes[9].

The study by *Brownstein et al.* was reviewed by three practicing physicians and one citizen reviewer, consistent with the aims of improving public health policies via science. The consensus among all of the reviewers was that the study was among the most important published to date on **COVID-19** treatment efficacy. The evidence presented by *Brownstein et al.* is sufficient grounds for future randomized prospective clinical trials of mild and seriously ill patients distributed across many clinical performance sites. *Science, Public Health Policy & the Law* looks forward to providing a rigorously reviewed outlet for such studies.

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