



WNF Commentary: Rapid Reviews

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At the time of writing this commentary, knowledge on the pathogenesis of SARS-CoV-2 and how to effectively treat it is lacking. The role of naturopathic treatment approaches or those from the realm of Traditional and Complementary Medicine (T&CM) have received limited attention with respect to their potential role in this pandemic.

Based on contemporary research evidence, traditional knowledge and the extensive training and experience of naturopathic doctors (NDs) in pharmacognosy, herbal medicine and clinical nutrition there is reason to believe that naturopathic approaches warrant consideration among the span of possible aids to the global response to COVID-19. Hence, the naturopathic profession undertook the task of conducting rapid reviews to assess the role of specific recommendations in the prevention or treatment of upper respiratory tract infections (URTIs) inclusive of, but not limited to, COVID-19. The focus of all rapid reviews was limited to human studies specific to URTIs either as original research or systematic reviews.

With the support of nine naturopathic educational institutions which included a team of over 40 naturopathic researchers, practitioners and content experts from seven countries and five WHO world regions, in two short months the profession has produced ten rapid reviews related to the role of natural health products in treating acute respiratory tract infections, with a further two reviews in draft. These rapid reviews will be published individually and as a dedicated issue of the scientific journal *Advances in Integrative Medicine* (Elsevier publication). They will be made open-access – meaning they will be free for download. The Task Force was chaired by WNF President Dr Iva Lloyd with Dr Amie Steel and Professor Jon Wardle as research leads.

These rapid reviews demonstrate the naturopathic profession's dedication to evidence-informed decision making and their commitment to being part of the solution to this global pandemic.

The following is a brief overview of the findings from the completed reviews.

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COMMENTARY

CASE REVIEW

PRACTICE

RESEARCH

TABLE 1: Brief Overview of Findings from Rapid Review of Evidence Reported in *Advances in Integrative Medicine* Volume 7, Issue 3 (Elsevier)

RESEARCH FOCUS	BRIEF OVERVIEW OF FINDINGS
Vitamin C²	Oral vitamin C may assist with the symptoms of acute respiratory viral infections (ARI) and common cold-induced asthma, but no studies have been identified justifying oral vitamin C for the prevention or treatment of coronavirus infections including COVID-19. When taken at onset of ARI, oral vitamin C may reduce the duration of symptoms including fever, chest pain, chills and bodily aches and pains. It may also reduce the incidence of hospital admission and duration of hospital stays. For individuals admitted to hospital with community-acquired pneumonia, vitamin C may improve respiratory function in more severe cases. No major adverse events nor interactions were reported by either method of administration. However, there is an absence of high quality, contemporary clinical research examining this topic. Current evidence suggests further studies are needed to better understand the value of both oral and IV vitamin C for ARI, including COVID-19.
Vitamin D³	Experimental evidence and observations in large cohorts are generally consistent that deficiency and insufficiency of vitamin D is associated with increased risk of ARTI, and supplementation for those with deficiency/insufficiency may lead to clinically meaningful reductions in the incidence of ARTI. Based on significant heterogeneity in published clinical trials there is however, insufficient evidence to draw conclusions regarding the impact of vitamin D supplementation on the severity or duration of ARTI, nor on outcomes related to lung injury or hospitalization from ARTI.
Multivitamins⁴	Based on the available evidence, multivitamin supplementation does not appear to reduce the incidence of ARTI or mortality (both ARTI-related and all-cause). The effect of multivitamins taken before infection on the duration of ARTI is unclear due to conflicting results across studies. Multivitamins may, however, reduce the symptoms associated with ARTI such as headache, conjunctivitis, and activity restriction but not the overall symptom scores.
Zinc⁵	Zinc may potentially reduce the risk of SARS-CoV-2 infections and shorten the duration and severity of illness, including recovery from stroke, through several mechanisms. Indirect evidence from systematic reviews have found zinc supplementation is effective for the prevention of acute respiratory infections in young children and zinc lozenges may reduce the duration of the common cold in adults. Safety concerns associated with high doses or prolonged intake of zinc include anosmia (loss of smell) and copper deficiency.
Quercetin⁶	Current evidence on the efficacy of quercetin supplementation in the treatment and prevention of COVID-19 is insufficient for its clinical recommendation at this time. Quercetin exhibits both immunomodulatory and antimicrobial effects in preclinical studies; however, only three human clinical trials, each with a low risk of bias rating, were identified in this rapid review. One study reported a decrease in incidence of upper respiratory tract infections following a competitive athletic event. A larger community clinical trial reported a benefit in older, athletic adults only.
N-Acetyl-Cysteine⁷	Current evidence suggests that N-Acetyl Cysteine (NAC) administration may help improve outcomes in people with acute respiratory distress syndrome (ARDS) and acute lung injury (ALI) – conditions that closely resemble the signs and symptoms of COVID-19. In this rapid review, NAC was predominately administered intravenously to patients with ARDS or ALI, who were at risk of or requiring mechanical ventilation, and were admitted to a hospital intensive care unit. Findings indicated that NAC administration may assist in improving markers of inflammation or oxidation, systemic oxygenation, the need for / duration of ventilation, rate of patient recovery and clinical improvement score. The effects of NAC on patient length of stay, CT/x-ray images, mortality rate and pulmonary complications were inconclusive.
Essential Oils⁸	Clinical evidence from published clinical trials identified in this rapid review suggests that oral administration of blends of certain essential oils (EO) can reduce symptoms of acute respiratory infections of viral origin in humans, namely acute sinusitis and acute bronchitis.

RESEARCH FOCUS	BRIEF OVERVIEW OF FINDINGS
<i>Sambucus nigra</i> (Elderberry)⁹	Collectively the evidence obtained from across five clinical studies involving 996 adults indicate that mono-herbal preparations of <i>Sambucus nigra</i> L. berry (<i>S.nigra</i>), when taken within 48 hours of onset of acute respiratory viral infection, may reduce the duration and severity of common cold and influenza symptoms in adults. There is currently no evidence to support the use of <i>S.nigra</i> berry for the treatment or prevention of COVID-19. Given the body of evidence from preclinical studies demonstrating the antiviral effects of <i>S.nigra</i> berry, alongside the results from clinical studies included in this review, further pre-clinical research exploring the potential role of <i>S.nigra</i> berry for the prevention and/or treatment of COVID-19 infection is encouraged.
<i>Echinacea</i> spp. (Echinacea)¹⁰	<i>Echinacea</i> supplementation may assist with the symptoms of acute respiratory infections (ARI) and the common cold, particularly when administered at the first sign of infection; however, no studies using <i>Echinacea</i> in the prevention or treatment of conditions similar to COVID-19 have been identified. Previous studies have reported that <i>Echinacea</i> may decrease the severity and/or duration of ARI when taken at the onset of symptoms. The studies reporting benefit used <i>E. purpurea</i> or a combination of <i>E. purpurea</i> and <i>E. angustifolia</i> containing standardized amounts of active constituents.
<i>Hedera helix</i> (Ivy Leaf)¹¹	Based on the evidence identified in this rapid review, <i>Hedera helix</i> preparations and herbal complex preparations including <i>H. helix</i> may be a therapeutic option for treating early symptoms of respiratory tract infections. The best effectiveness for <i>H. helix</i> preparations has been proven for coughing, as an expectorant and to reduce the frequency and intensity of cough. Only weak evidence was found for all other researched symptoms. Both adults and children tolerate <i>H. helix</i> well. Currently, there is insufficient evidence to recommend the use of this supplement in the treatment or prevention of COVID-19. However, the current evidence justifies further research to better understand its applicability in coronavirus infections.

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About the Authors

Iva Lloyd BScH, BCPP, ND has been president of the World Naturopathic Federation (www.worldnaturopathicfederation.org) since its inception in 2014. She has participated in four WHO Working Groups and the Global Conference for Primary Health Care.

Dr. Lloyd is founder and Editor-in-Chief of the website www.ndhealthfacts.org and was editor of the Vital Link for thirteen (13) years. She graduated from the Canadian College of Naturopathic Medicine (CCNM) in 2002 where she is a part-time professor. Dr. Lloyd has maintained a full-time naturopathic practice at Naturopathic Foundations Health Clinic (www.naturopathicfoundations.ca) since 2002 in Markham, Ontario.

Dr. Lloyd has written over eighty articles and has done various seminars both nationally and internationally on naturopathic and energetic medicine. She is the author of four books, including, “Messages From The Body – a guide to the energetics of health”, “The Energetics of Health, a naturopathic assessment” and “The History of Naturopathic Medicine, a Canadian perspective”.

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