



Indian Health Service
National Pharmacy and Therapeutics Committee
Formulary Brief: COVID-19 Emerging Treatments
& Vaccine Update
-January 2021-



Background:

COVID-19 is the most severe infectious disease pandemic in a century. Medications and vaccinations offer important new tools to combat this pandemic, along with other equally important tools including public health measures such as mask wear, physical distancing, and avoidance of crowds.

Discussion:

Treatment Guidelines:

Clinical guidelines from two U.S.-based healthcare organizations, the National Institutes of Health (NIH) and the Infectious Diseases Society of America (IDSA), along with limited recommendations from the World Health Organization in the treatment of COVID-19 were reviewed in detail. While all recommended pharmacotherapeutic strategies were outlined during the NPTC review, emphasis was placed on FDA-authorized medications in all clinical settings for patients diagnosed with COVID-19.

In addition to graded recommendations of individual therapies for COVID-19, the [NIH COVID-19 Treatment Guidelines](#) offer a concise, medical acuity-based approach to the “pharmacologic management of patients with COVID-19 base on disease severity” ([Figure 1](#)). This colorful 1-page, criteria-based strategy pairs authorized therapies to patients’ respective healthcare acuity level, which if made broadly available, may be useful for clinician awareness and convenience. Lastly, in order to remain current with rapidly changing clinical data, the NIH COVID-19 Guidelines provide rolling therapeutic updates on their website, published in the “[What’s New in the Guidelines](#)” section.

The [IDSA Treatment Guidelines](#) also offer a convenient, singular summary table that provides an overview of all 19 current therapeutic recommendations. Similar to the NIH Treatment Guidelines is the IDSA’s “Update History” section which catalogues the series and timeline of recent changes to the IDSA’s therapeutic recommendations.

Current medication treatments available for the management of SARS-CoV2 infection include remdesivir, dexamethasone, convalescent plasma, bamlanivimab, casirivimab/imdevimab, and baricitinib/remdesivir. The NPTC provides detailed guidance in the form of Emerging Treatments Updates for these agents on the [IHS NPTC webpage \(COVID tab\)](#). Note that in keeping with the NIH and IDSA guidelines, the NPTC recommends against the use of hydroxychloroquine for the prevention or management of SARS-CoV2 infection.

Vaccines¹⁻⁴

Vaccination is a source of active immunity. In the case of coronaviruses, the antigen of interest is the surface spike protein the virus uses to bind and fuse with human cells. mRNA vaccine designs deliver a synthetic nucleic acid “message” encapsulated in a lipid carrier nanoparticle “envelope.” The mRNA sequence encodes the SARS-CoV-2 spike protein using cellular hardware to manufacture the protein and stimulate an immune response.

Currently there are two mRNA vaccines under FDA Emergency Use Authorization. The first of the two mRNA COVID vaccines was developed by Pfizer (BNT-162b2), in partnership with BioNTech. In terms of vaccine efficacy in Phase III clinical trials, both primary objectives (including prevention of infection and prevention of severe disease) met success criteria. In individuals without prior SARS-CoV-2 infection, observed vaccine efficacy against COVID-19 occurring at least 7 days after Dose 2 was 95%, with high probability (97.5%) that the true vaccine efficacy is at least 90%. Phase III safety data indicate that BNT-162b2 produces similar vaccine side effects as other currently licensed vaccines.

The second mRNA vaccine for consideration, called mRNA-1273, was co-developed by Moderna and scientists from the National Institute of Allergy and Infectious Diseases. As the name suggests, it also uses an mRNA platform. The phase 3 clinical trial enrolled 30,000 participants. In terms of vaccine efficacy in Phase III clinical trials, both primary objectives (including prevention of infection and prevention of severe disease) met success criteria. In individuals without prior SARS-CoV-2 infection, observed vaccine efficacy against COVID-19 occurring at least 14 days after Dose 2 was 94.5%. Phase III safety data indicate that mRNA-1273 produces similar vaccine side effects as other currently licensed vaccines.

COVID-19 vaccines are deemed safe and effective in persons regardless of history of symptomatic or asymptomatic SARS-CoV-2 infection but should be deferred until recovery from acute illness when criteria have been met for removal from isolation. For those with a known exposure, they should wait until quarantine has ended to avoid exposure of HCP during vaccination visit except in congregate settings such as long-term care facilities. Following treatment with a SARS-CoV-2 monoclonal Ab product, vaccination should be deferred 90 days as a precaution. COVID-19 vaccination may be administered to persons with underlying conditions if there are no contraindications to vaccination.

IHS Vaccine Implementation Plan & Progress:

The Indian Health Service established the COVID-19 Vaccine Task Force (VTF) on September 4, 2020 to implement COVID-19 vaccine across Indian country for direct service units, tribal health programs and urban Indian organizations (I/T/U). As a recognized jurisdiction by the CDC, IHS is allocated COVID-19 vaccine and able to equitably distribute across 11 IHS Areas, 340 I/T/U facilities, to meet the needs of 2,046,085 total people as determined by I/T/Us during pre-planning phases. Tribal health programs and urban Indian organizations were able to select whether they would receive vaccine through IHS or their state depending on local considerations, a current list of I/T/U by area can be found on the [VTF website](#).

As of January 19, 2021, IHS has distributed a total of 358,450 doses of vaccine (219,600 first doses and 138,850 second doses) and administered 104,140 doses (90,329 first doses and 13,811 second doses) as updated on the [CDC COVID Data Tracker](#). As a jurisdiction, IHS is required to submit vaccine administration data to the CDC daily. To facilitate this requirement, the IHS Office of Information Technology has utilized the CDC's vaccine administration management system (VAMS) as well as developed processes for HL7 v2.5.1 messages to be sent from I/T/U facilities. Currently data is being transmitted every day and IHS OIT, Area offices and local sites are working to ensure data lags, timing as well as message errors are being corrected.

The IHS COVID-19 VTF is continuing to promote increased vaccine allocations, provided education and outreach, technical assistance as well as improve vaccine acceptance. In the upcoming month, the VTF will be updating the [IHS COVID-19 Pandemic Plan](#).

Pharmacovigilance Efforts:

The FDA has issued numerous Emergency Use Authorizations for medications and vaccines used to treat and prevent COVID-19. While these medications appear safe and likely effective, many have not yet received FDA approval. The NPTC is working with points of contact at health care facilities and various programs to monitor the safety of these medications and vaccines.

For medications, the IHS utilizes information from the MedWatch program and has established an emerging treatment survey network to assess utilization and safety with points of contact at sites receiving medications of interest (e.g., remdesivir, bamlanivimab, and casirivimab/imdevimab). Over an 8-month period, utilization of these medications increased but occurrence of potential adverse drug events (ADEs) remains low ($\leq 1\%$ of those treated). In patients diagnosed with COVID-19 receiving remdesivir, the most common ADEs were elevated liver function tests and decreased glomerular filtration rate. When submitting ADEs to the FDA MedWatch program, it is important to remind users to document "IHS" in the Reporter Section (section G) of the report.

Three monitoring systems are utilized to assess the safety of COVID-19 vaccines including the Vaccine Adverse Events Reporting System (VAERS), the I-STAR program for monitoring events at IHS federal and participating tribal sites, and a biweekly survey of 58 Federal and Tribal programs from IHS healthcare facilities. The VAERS is the primary method of reporting adverse vaccine events (AVEs); documentation of "IHS" in box #26 in the VAERS report helps the CDC identify these reports as originating from an I/T/U program within IHS. The I-STAR and NPTC surveys are utilized to assure AVEs are captured and reported accordingly. In addition to capturing AVE information, IHS is helping the CDC identify specific adverse vaccine events (i.e., Adverse Events of Special Interest or AESI) which include symptoms or reporting of anaphylaxis, Bell's palsy, coagulopathy, stroke, etc.

The NPTC continues to monitor the safety of these medications and vaccines.

References:

1. ClinicalTrials.gov [Internet]. Bethesda (MD): National Library of Medicine (US). 2021 Jan 30.
2. Polack FP, Thomas SJ, Kitchin N, et al. [Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine](#). NEJM 2020; 383:2603-2615.
3. Jackson LA, Anderson EJ, Roberts PC, et al. [An mRNA Vaccine against SARS-CoV-2 — Preliminary Report](#). NEJM 2020; 383:1920-31.
4. [FDA Briefing Document](#). Moderna COVID-19 Vaccine, Vaccines and Biological Products Advisory Committee Meeting, Dec 17, 2020.