Indian Health Service
National Pharmacy and Therapeutics Committee
Formulary Brief: *COVID-19 pandemic and the IHS*
-July 2020-

Background:

At the July 2020 meeting, the Indian Health Service (IHS) National Pharmacy and Therapeutics Committee (NPTC) convened a panel of IHS clinicians which reviewed aspects and impact of the SARS-CoV-2 coronavirus pandemic, commonly known as coronavirus disease 2019 (COVID-19).

Discussion:

The disease caused by the SARS-CoV-2 virus was first reported to the World Health Organization (WHO) on December 31, 2019 as a cluster of cases of severe pneumonia in Wuhan, the capital city of Hubei province. On February 11, 2020, the WHO selected the name COVID-19 to describe the disease caused by the SARS-CoV-2 virus. The SARS-CoV-2 virus is thought to spread primarily person-to-person. High risk groups include older adults and people with certain underlying medical conditions including obesity, diabetes, COPD, heart disease, and chronic kidney disease. There is a wide range of illness from mild to severe. According to the WHO, 80% of cases are mild or asymptomatic, while 15% produce severe infection and 5% produce critical illness. Severe cases include those requiring hospitalization with hypoxia (RA sat ≤94%), oxygen requirement, ICU admission, mechanical ventilator support, extracorporeal membrane oxygenation, and/or associated with mortality.

In April 2020, a new condition with features related to Kawasaki Disease was first identified in connection with COVID-19 infection in children. Known as Multisystem Inflammatory Syndrome in Children (or MIS-C), the condition results in inflammation in the heart, lungs, kidneys, brain, skin, eyes, and GI tract.

There are two general categories of testing for the SARS-CoV-2 virus; viral testing and antibody testing. Viral testing is the diagnostic testing modality for active infection, although antibody testing may serve as an adjunct when a patient presents 1-3 weeks after symptom onset. PCR diagnostic tests, which first received FDA emergency use authorization in early February 2020, are now widely used by state and commercial labs. Point of care testing uses nucleic acid amplification technology with qualitative nucleic acid detection methodology.

COVID in Indian Country

The IHS implemented an Incident Command system in mid-March to respond to the COVID-19 pandemic. This response was organized around four strategic objectives to Prevent, Detect, Treat, and Recover from the pandemic. Through efforts to increase testing for COVID-19 among communities served by the IHS, by July 25th the IHS had conducted 449,806 SARS-CoV-2 tests, with 29,855 patients testing positive.[1] The most significant regional surges of COVID-19 activity within IHS have been seen in Arizona, New Mexico, and Mississippi, with the Navajo Nation receiving national attention for the significant impact within their reservation. The IHS has tested at a rate of 27.1 tests per 100k population, exceeding the U.S. all races rate (U.S. rate for testing: 16.3 tests per 100k). Additionally, the IHS has exceeded targets for percent positivity as a measure of adequacy of testing penetrance in the population. The IHS percent positive is at 7.3% compared to an all races U.S. rate of 9.1%. The IHS has monitored hospital capacity issues for responding to COVID-19. During June-July 2020, among the Federal IHS hospitals, approximately 32% of inpatient beds and 54% of ICU beds have been occupied, with an average census across the system of 65 inpatients with COVID-19 on a daily basis.[2]

Emerging Therapies Update

The therapeutic approach to managing the effects of COVID-19 can be divided into two separate general categories; treatment (pharmacotherapy) and prevention (vaccines). Potential COVID-19 treatments are often uniquely identified through various atypical methods and require disease-specific confirmation prior to broad application. Most drugs intended to treat SARS-CoV-2 directly attempt to either inhibit viral attachment to the host cell or interrupt various stages of viral replication during the infectious process. Often, drugs previously approved for other indications are repurposed to combat SARS-CoV-2 based on previous testing results from in vitro studies. These drugs, including hydroxychloroquine, require clinical trial evaluation in patients with confirmed SARS-CoV-2 to ensure they offer in vivo safety and efficacy across a variety of patient conditions/severity, environments, etc.

Despite early messaging of reportedly positive findings with hydroxychloroquine, multiple clinical trials with methodologically-superior design continue to refute its role in treating CoVID-19.[3-6] Still other medications, like the antiviral medication remdesivir which displayed efficacy against earlier coronaviruses (e.g., SARS-CoV-1, MERS), are frequently accelerated into clinical trials.[7] Despite the intuitive approach of using antiviral medications as well as the volume of currently approved antivirals on the market, none have demonstrated benefit in reducing mortality. Remdesivir, as noted in a May 2020 NPTC Formulary Brief, received emergency use authorization from the FDA in May 2020 based on published findings that it reduced time to clinical improvement by 32% versus placebo.[8] Based on positive outcomes, remdesivir use continues to be supported in treatment guidelines from the National Institutes of Health and the Infectious Diseases Society of America. Lastly, medications like glucocorticoids with known benefits germane to the infectious process are almost universally employed to help mitigate inflammatory effects on respiration. Results from the RECOVERY trial (dexamethasone) demonstrated a statistically significant 17% reduction in all hospitalized patients who received dexamethasone 6mg.[9] Although confirmation is needed, subgroup analysis data support that higher acuity patients (i.e., requiring oxygen or ventilation) may derive the most benefit from dexamethasone use. Additional information can be found in the July 2020 NPTC Formulary Brief. Together, at present, remdesivir and dexamethasone represent the cornerstones of COVID-19 treatment in all eligible patient populations.

Timely COVID-19 vaccine development represents a substantial challenge, considering that conventional vaccine timelines (from R&D to approval and production) average approximately ten years. To help expedite vaccine development, manufacturing, and distribution, the US government initiated the interagency partnership Operation Warp Speed (OWS) with a stated objective to deliver 300 million doses of a safe and effective vaccine by January 2021.[10] As of the time of this writing, OWS has invested over $7 billion in development alone which includes 7 vaccine candidates from biopharmaceutical manufacturers. Of the 202 vaccine candidates registered, five are currently in Phase 3 clinical testing. It is anticipated that availability of one or more novel SARS-CoV-2 vaccines will radically alter the burden of COVID-19 on our healthcare system, however also likely posing unique challenges.

NPTC Pharmacovigilance Efforts

The NPTC engaged in numerous activities during the initial months of the COVID-19 pandemic by partnering with IHS programs and federal agencies to share knowledge and identify opportunities where NPTC could provide unique services to help achieve the IHS mission. These activities varied in nature and included (but were not limited to) the following: (1) integrating multiple emerging treatment resources into a single data set and visualization to facilitate analysis and planning, (2) developing analysis of potential treatment options, current supplies available by IHS Area, and availability through the pharmaceutical prime vendor to ensure availability of treatment if needed, (3) participating in the distribution and tracking of personal protective equipment including N-95 masks, surgical masks, gowns, gloves, and hand sanitizer as well as tracking the dissemination of Abbott COVID-19 analyzers, quality control kits, and test kits, and (4) accessing the IHS Disease Surveillance system to assist in identifying facilities at most need for remdesivir therapy as well as tracking distribution, use, and safety of therapy.

References:

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8. Beigel J, et al. Remdesivir for the Treatment of OCIVD-19 – Preliminary Report. NEJM 2020, May 22. DOI: 10.1056/NEJMoa2007764.
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10. U.S. Department of Health & Human Services. Fact Sheet: Explaining Operation Warp Speed. August 12, 2020.