**Arizona COVID-19 cases**

The Arizona Department of Health Services has reported 152,944 positive COVID-19 cases and 102,247 cases in Maricopa County as of July 23, 2020. Out of the 1,037,924 COVID-19 tests completed to date in Arizona, 12.5% have tested positive for the virus. Percent positive is the number of people with a positive test result, out of all the people COVID-19 tested completed in Arizona.

In Maricopa County, 4,047 patients (4%) have been admitted to a hospital and 841 (1%) admitted to an ICU since the county began collecting data on Jan. 22. People aged 65 or older or those who have at least one chronic health condition make up 72% of those who have been hospitalized and 85% of deaths for COVID-19. Nearly 65% of all COVID-19 infections reported have been among those under 45 years old.

**Thank you to Dr. Ellert for his following clinical message:**

As everyone is well aware, the data regarding the treatment of COVID-19 is evolving every day. As new data emerges, we try to modify our processes to ensure we are providing the most evidence-based care possible. Our clinicians have done an excellent job with adapting to this ever-changing information. Our Medical Executive Committees either recently reviewed or are in the process of reviewing recommendations regarding the use of Remdesivir.

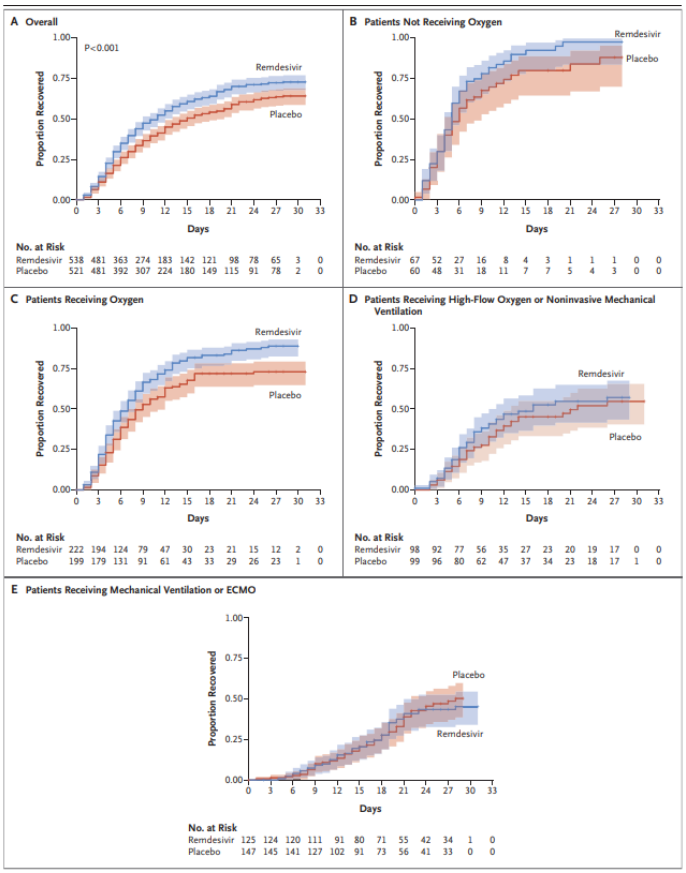
There is compelling data which has caused us to believe that patients receive the most value from this drug earlier in their treatment course. This, of course, makes clinical sense since its unique structural features allow high concentrations of the active triphosphate metabolite to be delivered intracellularly and evade proofreading to successfully inhibit viral RNA synthesis. Hence, it will logically be most likely to be beneficial in the early stage of the illness when the virus is rapidly duplicating.

Due to the ongoing limited supply of the drug, we want to put processes in place that ensures the medication is being used in its most effective time period to hopefully decrease the progression of the infection and ultimately decrease the number of patients' condition deteriorating and needing advanced critical care. This pharmacological assumption seems to be supported with some of the more recent data and public reports that we are seeing. Specifically:

1. Data was released by Gilead on Friday, July 10, 2020, which was reviewed by Dr. Deborah Birx on the Florida FHA call last Wednesday, which indicates that the greatest effectiveness was when patients transitioned from not needing supplemental oxygen to needing it. A link with additional details from Gilead can be found at the following web site: https://www.gilead.com/news-and-press/press-room/press-releases/2020/7/gilead-presents-additional-data-on-investigational-antiviral-remdesivir-for-the-treatment-of-covid-19
2. Publication of the new data is anticipated in a peer reviewed journal soon. Nevertheless, some key information from the data that Dr. Birx referenced on the Florida Department of Health call on Wednesday include the following:
    a. They compared the patients from the SIMPLE-Severe trial (n=312) which was the open-label, non-placebo controlled Gilead study comparing 5 days of remdesivir and 10 days of remdesiver to a retrospective cohort of patients not treated with remdesivir during roughly the same time period (n=818).
        i. The authors found significant difference in recovery (based on the ordinal scale) and significant mortality benefit (7.6% mortality rate remdesivir vs. 12.5% control group; adjusted OR 0.35; p=0.001).
        ii. It should be noted that was not a randomized, controlled trial and caution should be utilized when analyzing this data and applying it to patients.
    b. The authors also completed some sub-group analysis from SIMPLE-Severe and the effect of hydroxychloroquine (HCQ) with the following findings:

i. Among the patients who received remdesivir treatment, those who were of African descent, age under 65 years, and had only low-flow oxygen support on room air at baseline were factors significantly associated with clinical improvement of at least two points at Day 14.
ii. It was also noted that when analyzed, the concomitant use of HCQ and remdesivir was associated with lower recovery rates when compared to those who did not receive HCQ (57 percent vs. 69 percent; p=0.002)
iii. Also, there were significantly more Grade 3/4 adverse effects.

3. The information noted above is also consistent with the KS survival curves in the NEJM. The difference in survival tends to come on those with low flow oxygen and not for NIMV:




These findings are also consistent with our own internal DUE Data which has shown that patients who were Ordinal Score 4 (hospitalized on Room Air) and Ordinal Score 5 (Hospitalized, on low-flow O2) did well on remdesivir. Once a patient reached Ordinal Score 6 (high-flow or non-invasive vent) and Ordinal Score 7 (invasive vent) they did not do well. The difference is striking.

Needless to say, we do not know the trajectory of this disease in our state and community. We do, however, anticipate an on-going limited supply of Remdesivir and therefore we must continue to be good stewards of the medication with the information currently available to us.

While guidelines can help focus our attention, clinical judgement will always be needed to ensure that we continue to locally and nationally be responsible stewards of this limited resource. I want to thank the many physicians who have reviewed the data and participated in calls, meetings and discussions to assist in implementing a program that will best fulfill our responsibility to justly and ethically utilize this limited resource in an equitable manner.

**Dr. Hess talks coronavirus on PHXTV**

Abrazo Emergency Department physician Dr. Brian Hess recently was interviewed about coronavirus for the City of Phoenix PHXTV Channel 11 in Phoenix. The conversation between Dr. Hess and Vice Mayor Betty Guardado is also available in English and Spanish on the city's YouTube channel:

English: https://youtu.be/TQmzlTqHrP4
Spanish: https://youtu.be/DB80VAmKJLo

**Do you have some positive news to share?**

We know that good things are happening within our hospitals even with the challenges we face. Do you have a positive or "good news" story about coworkers going the extra mile, patient human interest or other topics that might be worthy of recognition? Talk with your supervisor, who can contact Communications Manager Keith Jones for follow up. The story may be used for a press release, media story or the internal update emails.

**Employee Health hotline**

A reminder to please notify your hospital's Employee Health office if you go home sick. Employee Health staff will stay in touch daily before you return to work.

The Abrazo Employee Health hotline for COVID-19 questions is available Monday through Friday from 7 a.m. – 7 p.m., and Saturday-Sunday from 7 a.m. – 5 p.m. The hotline is for Abrazo employees only and may be reached at 602-246-5597.

If you need to visit Employee Health, please call ahead so staff can plan for your arrival.

**Incident Command email**

Do you have a suggestion or feedback related to the hospital's pandemic response? Please email questions or suggestions to IncidentCommand@abrazohealth.com. Your message will be routed to the appropriate person to evaluate and respond.

# Abrazo Community Health Network

# Guidelines for the Use of Remdesivir in the Treatment of SARS CoV-2 Infections

**Purpose and Guiding Principles**

The purpose of these guidelines is to assist physicians to allow the optimal utilization of remdesivir due to its limited supply and in the context of current evidence. The Abrazo Community Health Network P&T and facility Medical Executive Committees endorse the ethical framework developed by the National Academy of Medicine which stresses the importance of an ethically grounded system to guide decision-making in crisis standards of care situation. The following principles should be utilized in selecting patients appropriate for Remdesivir therapy:

- *Fairness* – standards that are, to the highest degree possible, recognized as fair by those affected by them – including the members of affected communities, practitioners, and provider organizations, evidence based and responsive to specific needs of individuals and the population. Fairness includes the notions of teamwork and respect for persons.
- *Duty to care* – standards are focused on the duty of healthcare professionals to care for patients in need of medical care.
- *Duty to steward resources* – healthcare institutions and public health officials have a duty to steward scarce resources, reflecting the utilitarian goal of saving the greatest possible number of lives. Resource stewardship requires evidence-based decision making and responsiveness to new information.
- *Transparency* – in design, decision making, and information sharing. The principle of transparency also requires truth-telling and informed consent.
- *Consistency* – in application across populations and among individuals regardless of their human condition (e.g. race, age disability, ethnicity, ability to pay, socioeconomic status, preexisting health conditions, social worth, perceived obstacles to treatment, past use of resources).
- *Proportionality* – public and individual requirements must be commensurate with the scale of the emergency and degree of scarce resources.
- *Accountability* – of individual decisions and implementation standards, and of governments for ensuring appropriate protections and just allocation of available resources. Accountability is part of the broader principle of trustworthiness. Physicians are committed to decision-making that is unbiased, and which place the community's best interest above our own individual interests. We will communicate the evidence for and reasons behind recommendations clearly. We will also be honest about what we don't yet know.

Specifically, allocation decisions should not be based upon:

- Race, ethnicity, gender, gender identity, sexual orientation or preference, religion, citizenship or immigration status, or socioeconomic status;
- Ability to pay;
- Age as a criterion in and of itself (this does **not** limit consideration of a patient's age in clinical prognostication of likelihood to survive to hospital discharge);
- Disability status or comorbid condition(s) as a criterion in and of itself (this does **not** limit consideration of a patient's physical condition in clinical prognostication of likelihood to survive to hospital discharge);
- Predictions about baseline life expectancy beyond the current episode of care (i.e., life expectancy if the patient were not facing the current crisis), unless the patient is imminently and irreversibly dying or terminally ill with life expectancy under 6 months (e.g., eligible for admission to hospice);
- Judgments that some people have greater "quality of life" than others;
- Judgments that some people have greater "social value" than others.

**Remdesivir Treatment Guidance**

*General Requirements for Use:*

- All adverse events must be documented and reported to the FDA Medwatch Adverse Event Reporting Program

*Dosing & Duration of Therapy:*

- 200 mg IV x 1 (Day 1), then 100mg IV daily x 4 days (Days 2 – 5)

*Place in therapy for remdesivir:*

- Patients who present within 7 days of symptom onset who currently are moderately ill and requiring oxygen supplementation 4L/min or greater via nasal cannula or less or equal to 15L/min via oxymask or non-rebreather but not yet requiring high-flow nasal cannula (vapotherm), non-invasive ventilation (e.g. BiPaP), or invasive mechanical ventilation.

| Inclusion Criteria | Exclusion Criteria |
|---|---|
| • Infectious Disease or Critical Care physicians only can order remdesivir | • Patients already on high-flow nasal cannula/vapotherm (HFNC) greater than 15 L/min, non-invasive ventilation (e.g. BiPaP), or invasive mechanical ventilation |
| • Symptom onset within previous 7 days (Cough, Shortness of Breath, Fever) | • AST/ALT greater than 5x the upper limit of normal (ULN) |
| • Confirmed COVID-19 infection diagnosis by molecular amplification or antigen laboratory testing | • Estimated glomerular filtration rate (eGFR) less than 30 mL/min |
| • Oxygen saturation ($SpO_2$) less than 95% on room air AND requiring supplemental oxygen | • Patients already on hospice/comfort care OR unlikely to survive for more than 24 hours OR patients who are clinically improving and likely to be discharged within 72 hours |

**Please note that these criteria are guidance and local clinical circumstances may supersede these inclusion/exclusion criteria in certain patient cases.*

**Process to Order Remdesivir at Abrazo facilities will be divided into 2 Groups:**

- **Group 1- Patients receiving supplemental oxygen greater than 4 L/min via nasal cannula or less than or equal to 15 L/min via oxymask or non-rebreather and do not have any exclusion criteria.**
  - . No prior approval by Remdesivir Workgroup is required.
- **Group 2 – Patients outside of current criteria, with considerations for timing of onset of symptoms, oxygen requirements, and any other exceptions.**
  - Requires consultation, and unanimous agreement, with Pulmonary/Critical Care, Infectious Disease, and Pharmacy. **ALL RATIONALE FOR APPROVAL MUST BE DOCUMENTED IN THE CHART.**
  - In the event unanimous agreement cannot be accomplished, the remdesivir review team will be convened to evaluate. Evaluation will occur promptly after notification, but

**Updates to this criteria will continue to be evaluated as new evidence becomes available. We encourage all clinicians to provide to P&T for evaluation and discussion.**

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