State of West Virginia Remdesivir Protocol for Use of West Virginia's Allocation of Remdesivir Solution for Injection (Version 1)

WEST VIRGINIA
Department of
Health & Human Resources
BUREAU FOR PUBLIC HEALTH

COVID-19
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Part I:	West Virginia Remdesivir Clinical Protocol
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Questions about the West Virginia Remdesivir protocol should be directed to the 24/7 Coronavirus Hotline: 1-800-887-4304

Part I

West Virginia Remdesivir Clinical Protocol (Version 1)

This protocol is based on currently available evidence, resources, information, emergency use authorization and expert opinion and is subject to change. As evidence regarding the use of remdesivir to treat patients with COVID-19 emerges, it may be necessary to modify this protocol.

Background:

- On May 1, 2020, the U.S. Food and Drug Administration (FDA) approved emergency use of remdesivir for patients with suspected or confirmed COVID-19 with severe disease (criteria below).

- The FDA has issued an Emergency Use Authorization (EUA) to permit the emergency use of remdesivir for treatment of suspected or confirmed COVID-19 in patients hospitalized with severe disease, defined as an SpO2 ≤ 94% on room air or requiring supplemental oxygen or requiring mechanical ventilation or requiring extracorporeal membrane oxygenation (ECMO).

- The West Virginia Department of Health and Human Resources, Bureau for Public Health (BPH) will receive supplies of remdesivir from the U.S. Department of Health and Human Services.

- The total number of remdesivir doses allotted to West Virginia (in the first and follow-up shipment) is 760 vials. Therefore, the total number of patients that can receive remdesivir is a minimum of 69 if all receive the 10-day course of treatment; this may increase to a higher number of patients depending on whether a 5-day course is sufficient.

- At the direction of BPH, this remdesivir treatment protocol was created by healthcare professionals including infectious diseases (ID) physicians, pulmonary and intensive care physicians, pharmacists, and bioethicists working in the State of West Virginia, and defines clinical criteria and treatment dosing of remdesivir.

- This protocol will be followed to approve use of West Virginia's remdesivir supply.

Criteria for emergency use authorization:

- ID physician approval required (may be done via tele-consult if no ID staff is available at facility; ID physician must practice in the State of West Virginia).
- Laboratory confirmed COVID-19 positive via PCR testing.
- Severe disease defined as SpO2 ≤ 94% on room air requiring new supplemental and escalating continual oxygen support of:

- ≥5 L nasal cannula (for those not previously requiring oxygen at baseline) and attempts to wean oxygen supplementation have not been successful, OR
- high flow nasal canula, OR
- mechanical ventilation, OR
- ECMO

- Initiation within 10 days of symptoms onset (examples of symptoms include cough, dyspnea, and fever).
- It **MUST** be documented in the patient's medical record prior to administration of remdesivir that the patient, medical power of attorney, or healthcare surrogate has been provided the following:
  - The FDA's Fact Sheet for Patients and Parents/Caregivers: https://www.fda.gov/media/137565/download. This information may be shared directly or electronically. If electronic means are not available, a phone conversation in which information is read and subsequent mailing of the Fact Sheet are acceptable and encouraged. If providing this information will delay the administration of remdesivir to a degree that would endanger the lives of patients, the information must be provided to the patients as soon as practicable after remdesivir is administered.
  - Informed of alternatives to receiving remdesivir.
  - Informed that remdesivir is an unapproved drug authorized for use under EUA.

Exclusion criteria:

- Remdesivir will not be used in the following situations:
  - Weight < 40kg
  - eGFR < 30 ml/min, including hemodialysis or hemofiltration
  - Liver dysfunction on presentation defined as ALT ≥ 5 times the upper limit of normal at baseline
  - Known hypersensitivity to any ingredient of remdesivir or known infusion reaction to remdesivir
  - Life expectancy less than six months prior to COVID-19 diagnosis

Treatment dosing:

Requiring mechanical ventilation/ECMO prior to starting remdesivir: 200mg IV x 1 on day 1, then 100mg IV q24 hours x 9 doses.

Not requiring mechanical ventilation prior to starting remdesivir: 200mg IV x 1 on day 1, then 100mg IV q24 hours x 4 doses.

Monitoring while on remdesivir:

- Baseline and daily comprehensive metabolic panel (ALT, AST, bilirubin, alkaline phosphatase, electrolytes, BUN, serum creatinine, eGFR).
  - Discontinue remdesivir in patients who develop:
    - ALT ≥ 5 times the upper limit of normal during treatment with remdesivir; recommend NOT restarting remdesivir even if ALT levels normalize.

    - ALT elevation accompanied by signs or symptoms of liver inflammation or increasing conjugated bilirubin, alkaline phosphatase, or INR.
- Baseline and daily complete blood count (CBC) and coagulation tests (PT/INR).
- Baseline and continuous or intermittent pulse oximetry no less than every 4 hours.
- Baseline and continuous or intermittent vital monitoring no less than every 4 hours.

Specific considerations for remdesivir use:

Remdesivir should be used during pregnancy only if the potential benefit justifies the potential risk for the mother and the fetus.

Mandatory adverse events monitoring and procedures:

- Serious adverse reactions and administration errors MUST be reported to the West Virginia Poison Center at 1-800-222-1222 as soon as possible but no later than 3 days after time of error or adverse reaction.
- The prescribing healthcare provider and/or the provider's designee are/is responsible for mandatory reporting of all medication errors and serious adverse events considered to be potentially related to remdesivir and occurring during remdesivir treatment.
- Serious adverse events are defined as an adverse event resulting in any of the following:
    - Death
    - A life-threatening adverse event
    - Inpatient hospitalization or prolongation of existing hospitalization
    - A persistent or significant incapacity or substantial disruption of the ability to conduct normal life functions
    - A congenital anomaly/birth defect
    - A need for medical or surgical intervention to prevent death, a life-threatening event, hospitalization, disability, or congenital anomaly
- Reports shall be submitted within 7 calendar days from the onset of the event.
- The reports should include unique identifiers and the words "Remdesivir under Emergency Use Authorization (EUA)" in the description section of the report.
- MUST submit adverse event reports to FDA MedWatch using one of the following methods within 7 calendar days from the onset of the event:
    - Complete and submit the report online: www.fda.gov/medwatch/report.htm
    - Use postage-paid MedWatch Form FDA 3500 available online (https://www.fda.gov/safety/medical-product-safety-information/medwatch-forms-fda-safety-reporting) or by phone (1-800-FDA-1088); return by mail to MedWatch, 5600 Fishers Lane, Rockville, MD 20852-9787, or by fax, 1-800-FDA-0178
    - Submitted reports should include in the field name, "Describe Event, Problem, or Product Use/Medication Error" and the statement "Remdesivir under Emergency Use Authorization (EUA)"
- In addition, please provide a copy of all FDA MedWatch forms to Gilead Pharmacovigilance and Epidemiology by fax, 1-650-522-5477, or e-mail Safety_fc@gilead.com.

Part II

West Virginia Remdesivir Distribution Protocol (Version 1)

This protocol is based on core models and established collaborations that have been ongoing as part of West Virginia's Strategic National Stockpile (SNS) planning and training efforts over the past several years. As available supplies change and usage needs fluctuate, this document is subject to modification as needed.

Background:

- Remdesivir solution for injection was received in West Virginia following the May 1, 2020, FDA approval for the emergency use of remdesivir for patients with suspected or confirmed COVID-19 with severe disease.

- The total number of remdesivir doses allotted to West Virginia (in the first and follow-up shipment) is 760 vials. Therefore, the total number of patients that can receive remdesivir is a minimum of 69 if all receive the 10-day course of treatment; this may increase to a higher number of patients depending on whether a 5-day course is sufficient.

- Given that West Virginia received a small number of remdesivir courses, and that West Virginia has an uneven distribution of seriously ill COVID-19 hospital admissions for extended care, a drug distribution model in which all hospitals in the state receive a supply of remdesivir is not feasible. Therefore, a plan to position drugs in West Virginia for further distribution is needed to ensure that seriously ill COVID-19 patients admitted to a hospital have an opportunity to receive remdesivir even if the drug is not pre-positioned at that hospital.

- The concept of pre-positioning state medication assets in West Virginia is not new; the SNS Chempack Program has been in place for many years.

Hospitals that will store the remdesivir state medication assets (hereafter referred to as the Pre-Positioned Facility) include:

1. Charleston Area Medical Center (CAMC) – Memorial Division

2. St. Mary's Medical Center

3. Berkeley Medical Center

4. WVU Medicine J.W. Ruby Memorial Hospital

Each facility will initially receive one-fourth of the total state supply.

Pre-Positioned Facilities receiving the remdesivir supplies from the state agree to:

1. Store these state assets according to EUA guidelines: Store remdesivir injection, 5 mg/mL, vials at refrigerated temperature (2°C to 8°C [36°F to 46°F]) until required for use. Do not use after expiration date.

2. Follow all clinical and distribution protocol requirements for verification of use prior to releasing remdesivir to another facility (see West Virginia Remdesivir Protocol Parts I and II).

3. Not use remdesivir for patients admitted to their facility without going through the same approval process for eligibility as hospitals who are not Pre-Positioned Facilities (see West Virginia Remdesivir Protocol Parts I and II).

4. Provide updates to the state regarding amount of remdesivir vials remaining and immediately notify the state when the supply gets down to only 3 courses remaining (33 vials).

5. Release remdesivir supplies back to the state if supply quantities must be adjusted between these facilities as the pattern of seriously ill COVID-19 patients evolves. If this occurs, the state will be responsible for drug transfer.

Distribution of West Virginia hospitals based on pre-positioned supplies:

Hospitals that are not one of the four with pre-positioned supplies will obtain approved courses (see West Virginia Remdesivir Clinical Protocol, Part 1) of remdesivir supplies according to which of the seven West Virginia Healthcare Coalition Regions the hospital resides in (see map, Appendix I):

- Charleston Area Medical Center (CAMC) – Memorial Division
    - Will be the site for hospitals in Region 3/4 and hospitals in Region 1

- St. Mary's Medical Center
    - Will be the site for hospitals in Region 2 and hospitals in Region 5

- Berkeley Medical Center
    - Will be the site for hospitals in Region 8/9

- WVU Medicine J.W. Ruby Memorial Hospital
    - Will be the site for hospitals in Region 6/7, and hospitals in Region 10/11

The Hospital Pharmacy SNS pharmacist contact (or his/her alternate) at the requesting facility will need to contact the Hospital Pharmacy SNS pharmacist contact (or his/her alternate) at the assigned Pre-Positioned Facility to arrange for drug transfer ***after*** the ID consult is complete and the patient has been determined to meet West Virginia Remdesivir Clinical Protocol requirements for remdesivir.

- These contacts are identified in each facility's West Virginia Hospital SNS Plan on file with the state and in the pharmacy department.
    - Each facility will be provided this contact information for their assigned Pre-Positioned Facility site. In the event this information cannot be found when needed, the pharmacist can call the state's Coronavirus Hotline (1-800-887-4304) to obtain contact information.

Prior to transfer of remdesivir courses:

Drug supply and drug order requirements will be verified by the Pharmacy SNS lead at the Pre-Positioned Facility per the following checklist:

- □ The SNS Pharmacist at the Pre-Positioned Facility has received a hard copy, e-mail, phone, or text verification from the ID consulting physician that he/she has approved patient eligibility for the requesting facility as per the West Virginia Remdesivir Clinical Protocol (Part I).
    - A hard copy of the consult sheet will be sent by the next business day for storage in the pharmacy after receipt.
- □ Approval document notes the length of therapy approved, 5-day or 10-day course respectively, per the West Virginia Remdesivir Clinical Protocol.
- □ The time the receiving facility will dispatch a courier to obtain the drug and the name of the person the drug is to be given to.
    - The inability to identify a courier should be promptly reported to the state's Coronavirus Hotline (1-800-887-4304) to begin the resolution process.
- □ Assurance that the receiving hospital will maintain the cold-storage supply chain for the drug en route.
- □ Assurance that a pharmacist will be at the receiving facility to receive the drug and promptly store under refrigeration in the pharmacy (at no time will drug be allowed to be dropped off to a hospital front desk or non-pharmacy employee).
- □ Assurance that the receiving hospital has on-site facilities to compound sterile intravenous solutions on-site at the facility.
- □ Assurance that the pharmacy agrees to assist the care provision team with reporting of administration errors and adverse drug reaction.
    - Per the EUA, adverse drug reactions are to be reported to FDA MedWatch within 7 days of event onset.
        - See FDA Remdesivir EUA for details on how to submit this report (included in Part I of the West Virginia Remdesivir Protocol).

- In addition, administration errors and serious adverse drug reactions (as defined by the FDA Remdesivir EUA) are to be reported to the West Virginia Poison Center (1-800-222-1222) as soon as possible but no later than 3 days after time of error or adverse reaction.

□ Double checking that the pharmacist at the receiving hospital has no questions about EUA compounding and dosing requirements.

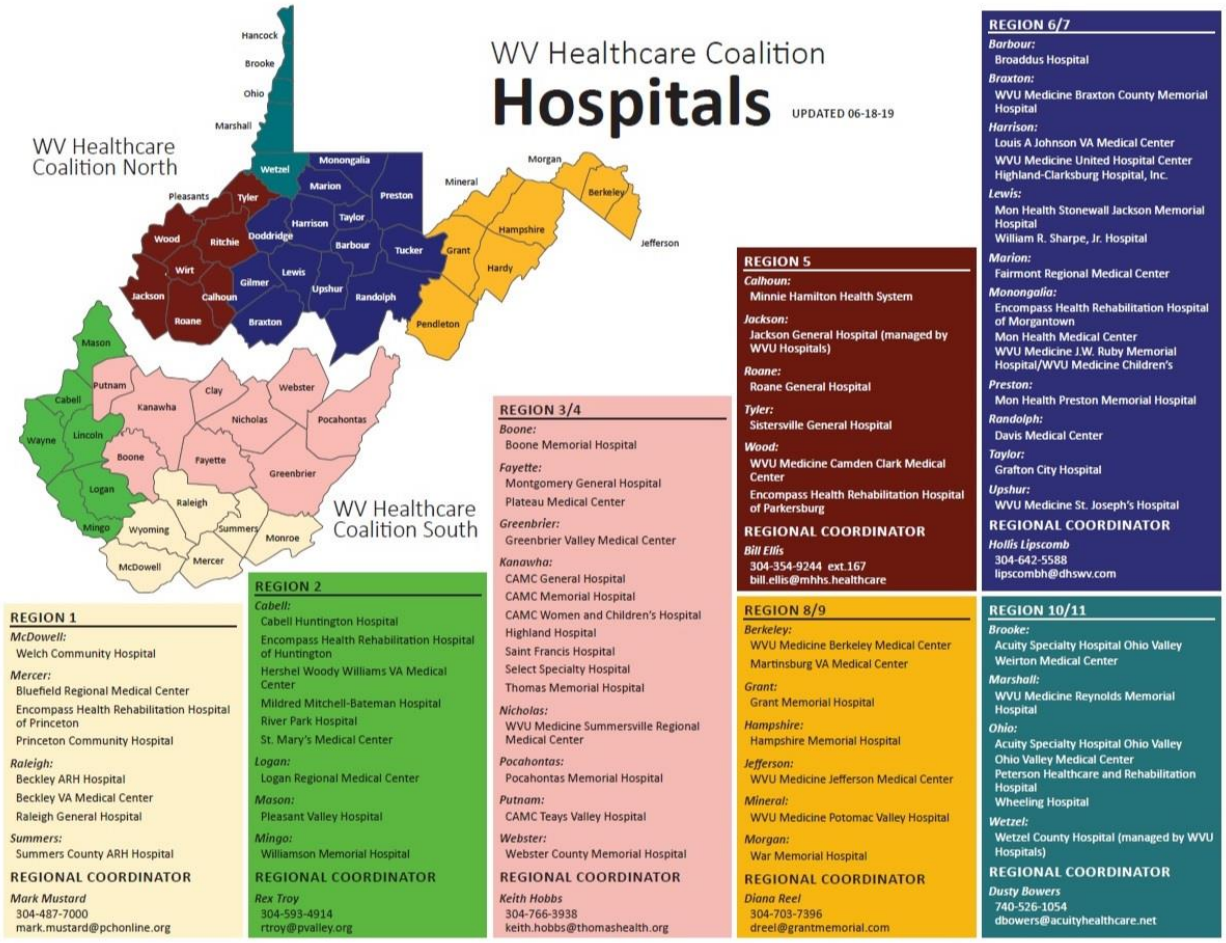
□ A system is in place so the patient will not be charged for the drug itself.

□ Hospital order sets are in place to allow the drug orders to be processed in the hospital order system.

□ The pharmacist at the facility receiving the drug will double check that the nurse administering the drug is aware of administration requirements per the FDA Remdesivir EUA and the infusion reactions to be alert for.

- Administration rate per Table 4 of the remdesivir prescribing information found in the EUA)
- Remdesivir cannot be simultaneously administering with any other medication (compatibility of remdesivir with IV solutions and medications other than saline is not known)
- Possible Infusion reactions include hypotension, nausea, vomiting, diaphoresis, shivering. If clinically significant, the infusion should be stopped, and the pharmacist notified immediately.

Appendix 1



REGION 1

McDowell:
Welch Community Hospital

Mercer:
Bluefield Regional Medical Center
Encompass Health Rehabilitation Hospital of Princeton
Princeton Community Hospital

Raleigh:
Beckley ARH Hospital
Beckley VA Medical Center
Raleigh General Hospital

Summers:
Summers County ARH Hospital

REGIONAL COORDINATOR

Mark Mustard
304-487-7000
mark.mustard@pchonline.org

REGION 2

Cabell:
Cabell Huntington Hospital
Encompass Health Rehabilitation Hospital of Huntington
Hershel Woody Williams VA Medical Center
Mildred Mitchell-Bateman Hospital
River Park Hospital
St. Mary's Medical Center

Logan:
Logan Regional Medical Center

Mason:
Pleasant Valley Hospital

Mingo:
Williamson Memorial Hospital

REGIONAL COORDINATOR

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REGION 3/4

Boone:
Boone Memorial Hospital

Fayette:
Montgomery General Hospital
Plateau Medical Center

Greenbrier:
Greenbrier Valley Medical Center

Kanawha:
CAMC General Hospital
CAMC Memorial Hospital
CAMC Women and Children's Hospital
Highland Hospital
Saint Francis Hospital
Select Specialty Hospital
Thomas Memorial Hospital

Nicholas:
WVU Medicine Summersville Regional Medical Center

Pocahontas:
Pocahontas Memorial Hospital

Putnam:
CAMC Teays Valley Hospital

Webster:
Webster County Memorial Hospital

REGIONAL COORDINATOR

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REGION 5

Calhoun:
Minnie Hamilton Health System

Jackson:
Jackson General Hospital (managed by WVU Hospitals)

Roane:
Roane General Hospital

Tyler:
Sistersville General Hospital

Wood:
WVU Medicine Camden Clark Medical Center
Encompass Health Rehabilitation Hospital of Parkersburg

REGIONAL COORDINATOR

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REGION 8/9

Berkeley:
WVU Medicine Berkeley Medical Center
Martinsburg VA Medical Center

Grant:
Grant Memorial Hospital

Hampshire:
Hampshire Memorial Hospital

Jefferson:
WVU Medicine Jefferson Medical Center

Mineral:
WVU Medicine Potomac Valley Hospital

Morgan:
War Memorial Hospital

REGIONAL COORDINATOR

Diana Reel
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REGION 6/7

Barbour:
Broaddus Hospital

Braxton:
WVU Medicine Braxton County Memorial Hospital

Harrison:
Louis A Johnson VA Medical Center
WVU Medicine United Hospital Center
Highland-Clarksburg Hospital, Inc.

Lewis:
Mon Health Stonewall Jackson Memorial Hospital
William R. Sharpe, Jr. Hospital

Marion:
Fairmont Regional Medical Center

Monongalia:
Encompass Health Rehabilitation Hospital of Morgantown
Mon Health Medical Center
WVU Medicine J.W. Ruby Memorial Hospital/WVU Medicine Children's

Preston:
Mon Health Preston Memorial Hospital

Randolph:
Davis Medical Center

Taylor:
Grafton City Hospital

Upshur:
WVU Medicine St. Joseph's Hospital

REGIONAL COORDINATOR

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REGION 10/11

Brooke:
Acuity Specialty Hospital Ohio Valley Weirton Medical Center

Marshall:
WVU Medicine Reynolds Memorial Hospital

Ohio:
Acuity Specialty Hospital Ohio Valley
Ohio Valley Medical Center
Peterson Healthcare and Rehabilitation Hospital
Wheeling Hospital

Wetzel:
Wetzel County Hospital (managed by WVU Hospitals)

REGIONAL COORDINATOR

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