

# RIBAVIRIN AEROSOL

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## *Information for personnel*

### Overview

#### WHAT IS RIBAVIRIN?

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Ribavirin is an anti-viral medication that can be delivered as an aerosol, or suspension of small particles in air. Although it is used as a drug in fighting viral infections, it may cause some adverse health effects in humans.

#### HOW IS RIBAVIRIN AEROSOL PRODUCED?

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The SPAG, or Small Particle Aerosol Generator, is used to create microscopic particles of Ribavirin that can penetrate deep into patients' lungs.

#### HOW CAN I BE EXPOSED TO RIBAVIRIN AEROSOL?

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The particles of Ribavirin intended for inhalation by the patient can get into room air and create a potential for personnel and visitor exposure. This is most likely to happen if there is leakage around the delivery mask or hood. The highest concentrations of Ribavirin will be close to the patient's head.

#### HOW DOES DUKE PREVENT EXPOSURE TO RIBAVIRIN AEROSOL?

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Engineering controls, work practices, and personal protective equipment are used to prevent exposure to employees and visitors at Duke.

### ADVERSE HEALTH EFFECTS OF RIBAVIRIN

The drug Ribavirin is used to treat some viral infections, but it may cause adverse health effects in persons exposed to it.

***Reproductive Effects:** Ribavirin has been shown to be teratogenic in rodents and rabbits; however, there have been no controlled human studies of Ribavirin exposure and pregnancy outcomes.*

**Duke policy requires that, when possible, assignments be made so pregnant\* employees are not required to enter patient rooms during Ribavirin therapy.**

**If this is not possible, pregnant\* women providing patient care during ANY Ribavirin treatment should wear respiratory protection.**

**Other Effects:** Some Health Care workers administering Ribavirin have reported the following symptoms: headache, redness/watering of the eyes, rhinitis, nausea, dizziness, fatigue, unusual weakness, and trouble sleeping. There have been case reports of damage to contact lenses after prolonged exposure.

**\*Employees trying to become pregnant** should also be cautious around this drug. If an employee has announced that she is trying to conceive, she should be treated as if she is pregnant with respect to Ribavirin.

## PROTECTING STAFF AND VISITORS

For the patient, the benefits of treatment outweigh the risks associated with Ribavirin. However, since Ribavirin is often delivered as an aerosol, healthy employees and visitors can be exposed to the drug if it gets into room air. At Duke, several types of controls are used to protect visitors and staff.

### ENGINEERING CONTROLS

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**Engineering Controls** are used to reduce the concentration of Ribavirin in the breathing zones of employees and visitors. For example, when an intubated patient receives Ribavirin via a **mechanical ventilator**, there are minimal leaks and therefore the concentration in the room is very low. In other situations, when Ribavirin is administered to a non-intubated patient, Respiratory Therapy will set up a **Demistifier** containment tent. The Demistifier pulls contaminated air through a High Efficiency Particulate Air (HEPA) filter, and releases the cleaned air into the room. An additional engineering control is frequently used: when possible, the room is converted to a **"negative pressure" room**, which means that the air flows from the hallway into the room. This prevents Ribavirin from entering the hallway.

### WORK PRACTICE CONTROLS

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**Work Practice Controls** refer to actions taken by a health care professional (or, in some cases, a visitor) to reduce the potential for exposure. For example, Duke policy requires that health care providers **turn off the flow of Ribavirin before disturbing the Demistifier tent** for routine patient care. Additionally, replacing a "popped off" ventilator as quickly as possible will keep room concentrations of Ribavirin negligible.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

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In an emergency, Demistifiers may not be available for all non-intubated patients on Ribavirin. If this occurs, all employees must wear **fit-tested N-95 respirators or loose-fitting Powered Air-Purifying Respirators (PAPRs)** when they enter a patient room during Ribavirin treatment. Visitors should be encouraged to wear N-95 respirators in these situations. (Visitors do not have to be fit-tested because OSHA regulations do not apply.)

**Persons with contact lenses should wear tight-fitting goggles** or other eye protection if they will be in the room for a prolonged period of time.

**PREGNANT\* women providing patient care during ANY Ribavirin treatment should wear respiratory protection.**

## Questions?

Call the Occupational and Environmental Safety Office (OESO) for information on the following topics:

- Respirator fit tests, medical clearance, and training for situations when a Demistifier is not available for Ribavirin administration to a non-intubated patient
- Occupational Safety and Health Administration (OSHA) regulations on respirators and other Personal Protective Equipment (PPE)
- Eye protection for contact lens-wearers to use around Ribavirin aerosol
- Health effects of occupational exposure to Ribavirin



### **Occupational Hygiene Programs**

#### **Occupational & Environmental Safety Office**

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