

Powered Air Purifying Respirator (PAPR) Guide – April 16, 2021 1245 *Highlight denotes new content

Spectrum Health contact Ken Shawl

Document reviewed: 4.16.21

Table of Contents

Introduction	
Protection	2
Uses	2
Limitations	2
OSHA requirements	2
Tips for Success	3
Versaflo PAPRs	
Parts/ordering	3
Startup procedure	5
PAPR Cleaning Procedure	7
PAPR Tracking Standard Work	7

Introduction to Powered Air Purifying Respirators (PAPRs)

Protection

A powered air purifying respirator is a device that protects the wearer from breathing contaminated air. These types of respirators do not fit tightly to the face and use a blower to deliver filtered air to the wearer. The function of a PAPR protects the wearer in three ways. The first, is by drawing air from the surrounding area through a filter. This clean air is delivered through a tube to the hood, worn by the user. The second layer of protection is the pressure of the delivered air as it leaves the hood. This helps remove exhaled carbon dioxide and prevents the contaminated room air from entering the hood. Lastly, the hood helps to protect the wearer's eyes, nose, and mouth from splash and splatter of contaminated bodily fluids.

Uses

There are many uses for PAPRs throughout many industries. We use them in healthcare to help prevent against the contamination of our team members from contagious airborne diseases and fumes from hazardous medication spills.

Limitations

Our PAPRs do not deliver supplemental oxygen and cannot be used where oxygen levels are expected to be below 19.5%, normal room air level. PAPRs must be used with the parts and pieces they were designed and approved with to ensure proper protection. The exhaled air from the wearer is not filtered before being released from the hood, and therefore, the user must wear a procedure mask over their mouth and nose while wearing the PAPR. Additionally, to help prevent asymptomatic transmission, all team members wearing a PAPR should also wear a procedure mask.

OSHA Regulations

Under the United States Department of Labor, the Occupational Safety and Health Administration regulates the requirements for a respiratory protection program. OSHA standard 1910.134 addresses respiratory protection that includes many different respirators. Below are the key components, regarding PAPR usage:

- Each team member expected to wear a respirator must complete the OSHA respiratory questionnaire. This must be completed and reviewed by a physician prior to wearing a PAPR.
- This questionnaire must be completed on an annual basis, for those team members expected to need to wear a PAPR during their normal work routine, per Spectrum Health guidelines.
- If a respirator is required for use by the employer, the employer must provide a respirator to each employee expected to need one. Many team members will require the use of a respirator. Powered air purifying respirators should be reserved for those team members that cannot safely wear a tight-fitting respirator mask.

PAPR Tips for Success

- Team Members must have completed the annual respiratory questionnaire on Ready set and be reviewed by physician to use **any** respirator/PAPR
- PAPRs operate by filtered positive pressure flow, therefore a tight fit/seal is not needed or expected
- A procedure mask is **required** to be worn under the PAPR hood, to protect staff between users from contamination by asymptomatic team members
- 3M filters are good for 5 months in the unit unless visibility soiled or can no longer pass a flow test
- The TR-6530N, Purple and Yellow label, is required for hazardous medication spills/cleanup and is a **onetime use** item because of the charcoal filter protection needed
 - If needed for hazardous cleanup a new, in manufacture package filter should be obtained
- Inspect PAPR each use, checking for signs of damage and Battery level, if an issue is present report to the PPE Coach or designee
- A flow test (with flow meter) and an occlusion test with hand over the hose connection must be completed each time the PAPR is used
 - Flow Meter itself, not the PAPR unit must be level, up and down at eye level to complete flow test
 - The Occlusion test takes about 30 sec for unit to alarm then another 30 seconds for unit to recover self
- Put on PAPR unit, tighten straps to ensure correct fit/unit will not dislodge while in use
- If at any time unit alarms/turns off during use, leave environment immediately

If any part of PAPR fails inspection or is damaged and needs to be replaced **DO NOT USE**, contact the PPE coach or designee. Replacement parts can be obtained from Supply Chain following standard practice.

If you have any questions regarding correct use of PAPR or if the PAPR is approved for intended environment/use, reach out to the PPE coach or designee.

Ordering Replacement Parts

Spectrum Health currently uses two different models of the 3M Versaflo PAPR to provide respiratory protection against airborne diseases. The pictures below are representative of the parts of the Versaflo PAPR system. Following the pictures is an outline of the key differences of the two models (TR-600; TR-300+). 3M filters are good for 5 months from the date of manufacture, indicated by a sticker on the filter, or when they are visibly soiled or can no longer pass a flow test.



Hoods for both models are interchangeable
SM/MED – ITM-1072772
LRG – ITM-1072773



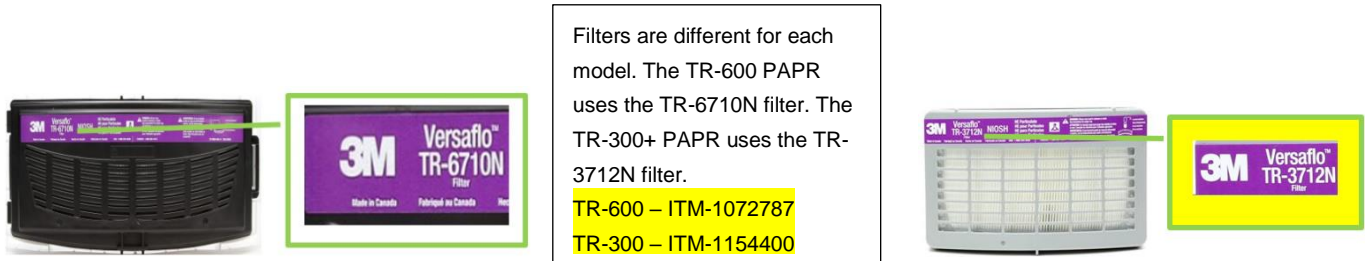
The battery for each model is a different size and are not interchangeable
TR-600 – ITM-1023431
TR-300 – ITM-1158501



Blower motors and filter assembly is a different size for each model.



Airflow tubing for both models is interchangeable.
ITM-1158893

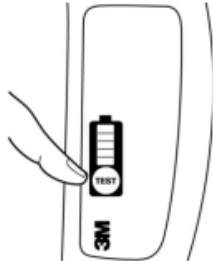
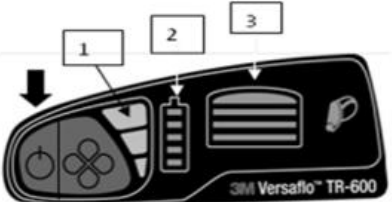
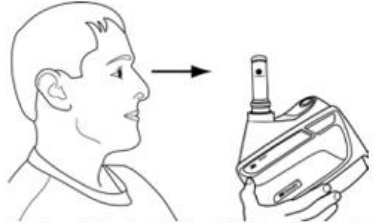


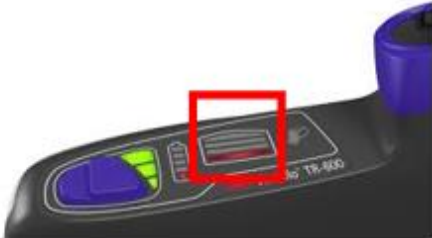





For respiratory protection when cleaning up spills of hazardous medication, you need model number **TR-6530N**. This filter cartridge has two layers of protection. This first layer is a high efficiency particulate filter. The second layer is a charcoal filter, which protects against harmful vapors from the hazardous medication. You can easily identify this filter cartridge by its yellow and purple label and the model number, as shown below.

- The charcoal portion of this filter deteriorates rapidly and should be considered unusable once finished with the spill cleanup.



3M Versaflo TR-600 & TR-300+ PAPR Startup

Seq. No	Task Description:	Key Point / Image / Measure (what good looks like)
1.	<p>Inspect the VERSAFLO PAPR system.</p> <ul style="list-style-type: none"> • Motor/blower. Inspect for cracks, holes, damage to user interface panel and belt attachments. • Battery pack. Confirm case is intact. Press TEST button on pack to confirm charge is sufficient for duration of the work period. • Breathing tube. Examine breathing tube for tears, holes, or cracks. Bend the tube to verify that it is flexible and not showing signs of wear. Ensure the o-rings located at both ends of the breathing tube are present and intact. • Filter/cartridge. Closely inspect filter/cartridge plastic housing including the corners and latches, outer rectangular barrier, and inner circular filter seal gasket for cracks, tears, cuts, distortion, indentations, or debris. Replace filter/cartridge if damaged. If the filter/cartridge has been mishandled or dropped, re-inspect fully. If you have any concern, contact 3M Technical Service for guidance. • Headgear. Inspect the headgear for tears, cuts, loose stitching, cracks, discoloration, or other signs of damage. 	 <p>Push 'Test' button to confirm battery charge – 5 bars = 80-100%.</p>
2.	<p>Perform flow check.</p> <ul style="list-style-type: none"> • Insert air flow indicator TR-971 into the outlet on the VERSAFLO motor/blower unit. • Start motor/blower. Run for 1 minute. • With the airflow indicator TR-971 in a vertical position, bottom of the floating ball must be at, or above, the minimum flow level indicated on airflow indicator chart for your 'zone'. If not above minimum level, respirator system must not be used until evaluated and repaired. 	 <p>Turn on PAPR. Confirm LEDs flash on startup. Confirm audible and vibratory alarms sound.</p>  <p>Confirm airflow is sufficient. Bottom of the ball above airflow indicator zone flow level.</p>

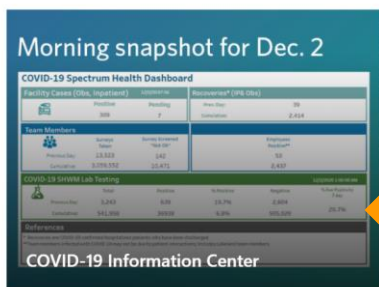
	<ul style="list-style-type: none"> Remove air flow indicator TR-971 and perform low flow alarm test per VERSAFLO User Instructions. <ul style="list-style-type: none"> Low flow alarm check: Check the low airflow alarm by simulating a low airflow condition. With the motor/blower on: Remove the airflow indicator and tightly cover the outlet of the motor/blower with the palm of your hand. The motor should automatically speed up, attempting to compensate for the low airflow condition. Continue to press your palm tightly against the end of the outlet, making a tight seal. TR-600 In less than approx. 30 seconds, the unit will sound an audible and vibratory alarm, and the bottom bar on the filter loading/low flow indicator will flash red. TR-300+ In less than 30 seconds, the unit will sound an audible alarm and the red fan shape LED will flash. Remove your hand from the outlet of the blower/motor. In less than approx. 30 seconds, the audible alarm and the flashing red LED should both stop when the motor returns to the selected speed. NOTE: If the low airflow alarm fails to sound, do not use the unit. Contact 3M Technical Service. 	<p>TR-600</p>  <p>TR-300+</p> 
3.	<ul style="list-style-type: none"> Attach motor/blower to belt or backpack. Insert the end of the breathing tube with the two small prongs into slots in the motor/blower air outlet. Twist the breathing tube ¼ turn to the right (clockwise) to lock. Attach breathing tube to headgear. Push the QRS end of the breathing tube (blue pinch clip) onto the air inlet of the headgear. Headgear will secure with a distinct click. Gently pull to confirm a secure connection. 	 <p>Insert breathing tube into PAPR outlet. Inspect headtop for damage. Connect breathing tube to headtop. Don PAPR.</p>
4.	<p>Don Versaflo system</p> <ul style="list-style-type: none"> Turn on motor/blower by pressing and holding blue on/off button. Use belt to attach PAPR to wearer. Pull headgear overhead and adjust. Adjust following the user instructions for the specific headgear. 	<p>TR-600  TR-300+ </p> 

<p>DOFFING PAPR: Remove Hood from back to front. Remove PAPR assembly and place in designated “dirty” area. Doff remaining PPE, per procedure Disinfect all parts, except for filter, and place PAPR in designated “clean” area. Remove battery from PAPR and place on charger.</p>	
---	--

Cleaning Versaflo PAPR

1. Sanitize Hands
2. Don PPE
3. Prep cleaning area
4. Wipe outside of PAPR hood with approved hospital disinfectant, allowing for adequate kill time per disinfectant direction
5. Wipe inside of PAPR hood with a **NEW** approved hospital disinfectant wipe, hang cleaned hood to dry, allowing for adequate kill time per disinfectant direction
6. Wipe down PAPR hose/unit with hospital approved disinfectant allowing for adequate kill time
7. Placed cleaned PAPR unit in designated clean holding area
 - a. Check PAPR battery for charge level, replace battery with fresh charged battery if less than 50% charged
8. Disinfect dirty PAPR holding area ie. pink basin with approved hospital disinfectant, allowing for adequate kill time per disinfectant direction
9. Doff PPE
10. Sanitize Hands

Daily PAPR Survey Standard Work



From the InSite Homepage, select the “COVID-19 Information Center” mosaic.

COVID-19 Information Center: The steps we are taking and resources for you

Bulson, Julie A.
Dir, Business Assurance
Published 12/2/2020

NEW INFORMATION: Week of Nov. 30 2020

Command Center Status : Yellow: Limited Impact to Operations; Plans Activated

- ICU census remains high in many of our hospitals across SHWM.
- Spectrum Health has reconvened the Scarce Resource Allocation Committee (SRAC), which earlier in the pandemic finalized the development of the [Scarce Resource Protocol](#). We hope that we don't face the hardest decisions regarding resource allocation, but if we do, this committee of experienced clinicians, professionals and leaders representing our communities is prepared to make them in the most ethical, equitable and humane way possible.
- To meet surging demand in SHWM hospitals, we are seeking team members to voluntarily pick up shifts in our adult inpatient units. See a list of opportunities and to sign up: [Additional Shift Opportunities](#). Refer to these [FAQs](#).
- Spectrum Health team members who are required to wear an N95 respirator for their role **must remove facial hair that prevents a proper fit** in line with the [CDC approved facial hair guidance](#). Refer to these [FAQs](#).
- **Take care of yourself.** All team members have [free access to Headspace](#), the stress-reducing meditation app. Use [care.com](#) and other [Team Member Resources](#) for support.

Morning snapshot for Dec. 2



[Click here to access past COVID-19 Updates](#)

Click the "Daily PAPER Survey" button.

Daily PAPER Survey

FAQs, resources & daily updates

Clinical Education and Training	Central Staffing Office Resources	Clinical resources / Provider resources	Therapeutic Treatment Resources
Non Clinical resources	Ambulatory Resources	Personal Protective Equipment (PPE)	Infection Prevention Resources
Visitor Restrictions, Exceptions, Screening, Masking & Signage	Team Member Resources	Daily COVID-19 Team Member Survey	Daily Survey, Spectrum Health App, Screening and Employee Testing
Virtual Health	Virtual Waiting Room Resources	All Command Center Requests (Including On-site Presence)	COVID-19 Return To Work Algorithm
Daily PAPER Survey			

9:00 am Daily PAPER Report

Please Record Your Unit and the Number of PAPERs on hand.

Hi Kenneth, when you submit this form, the owner will be able to see your name and email address.

* Required

1. Today's Date *

Please input date in format of M/d/yyyy

◀
2020
▶

◀
Dec
▶

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

Today
Clear
Close

Select today's date from the pop-up calendar

2. Hospital *

Select your answer ^

- Big Rapids
- Blodgett
- Butterworth
- Gerber
- HDVCH
- Kelsey
- Ludington
- Meijer Heart Center

Select your hospital from the dropdown ..

3. SHGR Butterworth Hospital

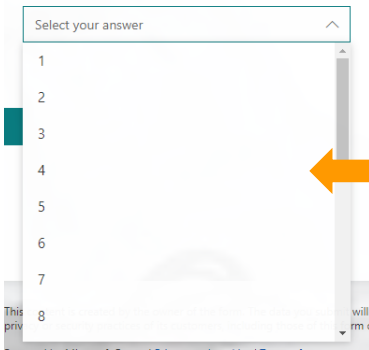
Select your answer ^

- BW SURGERY
- BW 2S
- BW 2WMS
- BW 4COBSC
- BW 5N
- BW 6N
- BW 7CMB
- BW 7S

Select your unit from the dropdown list.

Continued on next page.

4. Number of PAPRs currently on Unit *




Select the number of PAPRs that are currently on your unit.

Submit

Click the "Submit" button to complete the survey.

COVID-19 Supply Chain and Pharmacy Dashboard

Command Center Status is Yellow

Supply Chain						12/2/20 05:36		12/2/2020 10:00		Pharmacy		
	N95 Masks	Surgical/Isolator Masks	Face Shield / Goggles / Glasses	Gloves	Gowns	PAPR		Medication Supply Status				
Current QTY:	716,060	5,298,895	117,496	7,960,600	156,418	27		10				
Days On Hand:	137	284	275	42	289							
Ave.Daily Demand:	5,214	18,634	427	191,250	541							
Non Tier 1 QTY:	393,248	452,350										

Information will be posted to the COVID-19 Supply Chain and Pharmacy Dashboard. Hovering over the number of PAPRs will open a window showing a detailed list.

Number of PAPRs, currently on hand: 27

Hospital	Hospital Unit	As Of Date	
Blodgett	BL 3D	11/30/2020	4
	BL 4AB	11/30/2020	1
	BL 4H	12/1/2020	0
	BL ED	12/1/2020	5
Butterworth	BW 2WMS	11/25/2020	2
Meijer Heart Center	MH SE	12/1/2020	5
	MH SW	12/1/2020	10

- If you have more than one unit to report, you will need to complete the survey for each unit separately.
- Only submissions for the current day will be accepted.
- Questions and comments can be directed to Kenneth.Shaw@spectrumhealth.org