

## N95 Respirator Emergency Decontamination

# Example Return to Original User Setup and Logistics

**Intended Audience:** Hospital logistics staff, to be determined by each hospital.

## Summary

This is an example of how a hospital might implement decontamination of N95 filtering facepiece respirators (FFRs) and is designed to be generic enough to be adapted to different methods of decontamination. This document was synthesized by N95DECON from a review of published and unpublished N95 decontamination protocols implemented in U.S. hospitals.

This document illustrates the logistics of implementing the “Transfer Station” method for in-hospital N95 decontamination. In this method, used N95 FFRs are deposited at a Transfer Station by healthcare workers (HCWs). They are then taken to a Decontamination Station, and after decontamination, they are returned again to the original user. If an **external decontamination service** is used they may provide more specific or additional guidelines that must be followed. *Example implementations are noted in blue italics.*

Decontamination procedures are under development at many organizations. The guidance may change. See [n95decon.org](https://www.n95decon.org) for updates. Please send comments and feedback at <https://www.n95decon.org/contact>.

**Reviewed by:** MDs (2), COVID ICU RNs (2), and Hospital Health and Safety Staff (2)

**Updates in v1.1:** Update language from ‘return to index-user’ to ‘return to original user’.

## Information and Resources

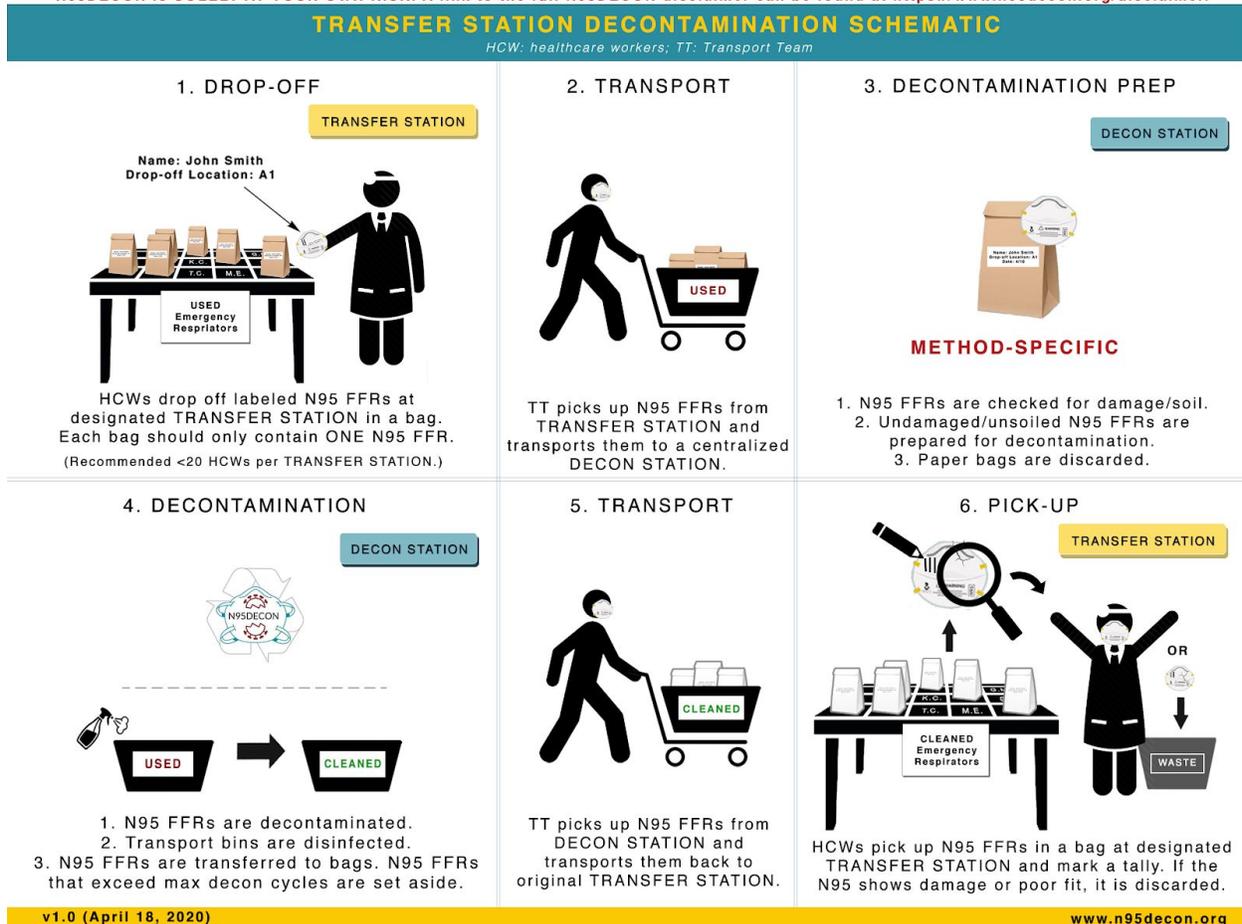
- Several processes that have been implemented at other institutions and used for comparison can be found at <https://www.n95decon.org/example-processes>.
- Literature reviews of different decontamination methods published by N95DECON can be found at <https://www.n95decon.org/publications>
- A bibliography of sources for this and other N95DECON publications can be found at <https://www.n95decon.org/bibliography>.
- CDC guidance for optimizing respirator supply  
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html>
- CDC extended use and limited reuse  
<https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html>
- CDC Decontamination and Reuse of Filtering Facepiece Respirators  
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html>

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## Transfer Station Overview

This method coordinates N95 dropoff, decontamination, and N95 pickup, while ensuring that **each N95 is returned to its original owner**. The graphic below illustrates the process (available as a standalone figure [here](#)). More details below in the ‘Example Workflow’ section.

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[www.n95decon.org](http://www.n95decon.org)

- Healthcare workers (HCWs) are assigned a Transfer Station where DIRTY N95 FFRs are stored and CLEANED N95 FFRs are picked up. The DIRTY dropoff site and CLEANED pickup site should be clearly separated (e.g. two different tables) to reduce risk of cross-contamination. A CLEANED N95 is reused by the same HCW who used it originally.
- HCWs label fresh N95 FFRs with their first initial, last name, and Transfer Station location code with a label or soft-tipped permanent marker prior to first donning. Different institutions have chosen to label either the strap or facepiece of the N95. The impact of labeling on the integrity and/or decontamination of N95 FFRs has not been characterized.
- DIRTY N95 FFRs from a given Transfer Station go to the same Decon Station every time.
- Transport Technicians are assigned to a Decon Station. They transport N95 FFRs between Transfer Stations and the Decon Station, and sort N95 FFRs to ensure they are returned to the same HCW.
- Decon Technicians are assigned to a specific Decon Station and process DIRTY N95 FFRs.

## Initial Setup

1. Establish record keeping
  - a. Track the number of new N95 FFRs and the number of decontaminated N95 FFRs delivered to each Transfer Station. *Example: Filled by Materials Management personnel or Transport Team.*

<b>Transfer Station 1 - CLEANED N95 Dropoff Log</b>	
<b>Date &amp; Time</b>	<b>Number</b>
<i>4/12/2020; 8pm</i>	<i>20</i>
<i>4/13/2020; 8pm</i>	<i>18</i>

- b. Track the number of N95 FFRs being decontaminated for the first time, the number that will reach their max number of decon cycles and be removed from circulation instead of being returned to users, and the number of total N95 FFRs delivered to each Decontamination Station. *Example: Filled by Materials Management personnel or Decontamination Team.*

<b>Decontamination Station 1 - N95 Dropoff Log</b>				
<b>Transfer Station</b>	<b>N95 FFRs with no decon cycles (no tallies)</b>	<b>N95 FFRs on last decon cycle (max-1 tallies)</b>	<b>Total N95 FFRs</b>	<b>Date &amp; Time</b>
<i>Loc 3</i>	<i>8</i>	<i>1</i>	<i>20</i>	<i>4/12/2020; 8pm</i>
<i>Loc 4</i>	<i>6</i>	<i>3</i>	<i>17</i>	<i>4/13/2020; 8pm</i>

2. Choose Transfer Stations, set up physical equipment for N95 storage, put up signage instructing HCW on how to use the Transfer Station. Physically separate the CLEANED N95 pickup and the DIRTY N95 dropoff to prevent contamination. Example signage for HCW by N95DECON can be found [here](#).
3. Choose decontamination stations (Decon Stations), set up physical equipment for Decon Stations, put up signage.
4. Assign HCWs to Transfer Stations. Limit number of HCWs per Transfer Station. *Example: 20 HCWs at location A4*
5. Assign each Transfer Station to a Decon Station. *Example: A4 and A5 to UVC-2*
6. Assign Transport Technicians and Decontamination Technicians to each Decon Station. *Example: 5 Transport Technicians and 5 Decontamination Technicians at UVC-2*
7. Train HCWs, Hospital Logistics Staff, and Decontamination Team. Clear communication to HCW and Staff is critical.

## Initial Purchases (one-time)

### One-time purchases

Item	Example Vendor	Qty	Unit cost
Racks for N95 FFRs	Any table already available		
	<a href="#">Walmart 10-shelf floor-mounted shoe rack</a>	1 shelf per HCW. At minimum 2 per station (one for cleaned N95, one for dirty).	\$21.99
	<a href="#">Walmart 24 pocket door-mounted hanging shoe rack (4 columns, 6 rows)</a>	1 row per HCW At minimum 2 per station (one for cleaned N95, one for dirty)	\$9.50
Transport bins	<a href="#">Uline</a>	Depends on pickup schedule	\$215 (28 x 16 x 22") \$260 (30 x 20 x 27")

### Consumables

Item	Example Vendor	Qty	Unit cost
Brown Paper Bags	<a href="#">Walmart Brown Paper Bags</a> <a href="#">Office Supply Brown Paper Bags</a>	1.2 per N95 processed	\$13 (100ct) \$13.93 (500ct)
White Paper Bags	<a href="#">Walmart White Paper Bags</a>	1.2 per N95 processed	\$19.24 (500ct)
Plastic bags	<a href="#">Target Ziploc Bag</a>	1.2 per N95 processed	\$8.69 (80ct)
Indelible soft tip markers	<a href="#">Amazon Fine tip sharpie</a>	5 per station	\$6.99 (12ct)
Stickers	<a href="#">Online Labels</a>	1.2 per N95 processed	\$10.45 (600 labels)
<a href="#">EPA Approved Disinfectant</a>	<a href="#">Clorox Healthcare</a>	Varies	Varies

## Example Workflow

1. The DIRTY and CLEANED Transfer Stations should be clearly separated, labeled “DIRTY [or CLEANED] Emergency Respirators”, and be distinguishable at a glance (e.g. by color).
2. Transport Technician refills the stock of new paper bags for used N95 FFRs at the Transfer Station and checks that there are markers or pre-labels available. Transport Technician fills out the number of new and number of decontaminated N95 FFRs delivered to each Transfer Station.
3. HCW drops off used but undamaged N95 as specified in the [Donning & Doffing Procedure](#) into a labeled paper bag at his or her DIRTY drop off location at the Transfer Station. Paper bags are suggested so the N95 FFRs do not retain moisture.
4. Following a route and schedule set by Hospital Logistics, the Transport Technician (donning appropriate PPE based on institution guidelines) picks up contaminated N95 FFRs from the Transfer Station DIRTY drop off location, using a Transport Bin.
5. Transport Technician brings the Transport Bin to the DIRTY Staging Area in the Decon Station, where it is dropped off and added to the queue. Transport Technician fills out the chain of custody form, example given in ‘Initial Setup’ section above.
6. When the bin is next in the queue, Decontamination Technician moves bin to the Decon Stations and decontaminates N95 FFRs following **process-specific SOP (e.g. UV-C)**.
7. N95 FFRs that are visibly damaged, soiled, or not appropriately labeled are disposed of as medical waste. N95 FFRs that have exceeded the max number of cycles are disposed of, or (for sterilizing processes) may be sterilized and stored in an emergency stockpile.
8. All used paper bags are disposed of as medical waste.
9. During decontamination time: Decontamination Technician disinfects the Transport Bin with [EPA approved disinfectant](#) then moves it to the CLEANED staging area.
10. When decontamination is complete, the Decontamination Technician dons clean gloves and removes all N95 FFRs from the Decon Stations one by one.
  - a. Inspect each one, disposing of any that are damaged. For processes that sterilize the N95 (e.g. H<sub>2</sub>O<sub>2</sub>), the decontamination technician may increment the tally of decontamination cycles on the N95; otherwise this duty falls to the HCW, see below.
  - b. Transfer to CLEANED bags. If paper bags are used they must be a different color than the DIRTY bags, and must be labeled with the HCW and Transfer Station location. If plastic bags are used, ensure no moisture is trapped in the bag that could lead to microorganism growth.
  - c. Place CLEANED bags in the CLEANED Transport Bin.
11. Transport Technician picks up CLEANED Transport Bin.
12. Transport Technician returns the Transport Bin to the appropriate Transfer Station and unloads N95 FFRs into their appropriate CLEANED spots. This will be done by finding the N95 owner’s name on the bag, and placing the bag in that person’s spot. Any N95 FFRs that are visibly damaged or whose HCW cannot be determined are disposed of. Transport Technician fills out the chain of custody form. See ‘Initial Setup’ section above.
13. When complete, the Transport Technician returns the transport bin to the Decon Stations or begins at step 1 again.