

NETEC COVID-19 Webinar Series:

Supply Management and Inventory Control During COVID-19 – Part Two



Welcome

Sharon Vanairsdale, DNP, APRN, ACNS-BC, NP-C, CEN, FAEN, FAAN



➤ **Welcome:** Sharon Vanairsdale, DNP, APRN, ACNS-BC, NP-C, CEN, FAEN, FAAN

➤ **Supply Management and Inventory Control During COVID-19:
Emory Healthcare:** Kari Love, MS, RN, CIC, FAPIC, Program Director Infection Prevention

➤ **Supply Management and Inventory Control During COVID-19:
Nebraska Medicine / University of Nebraska Medical Center:**

Brian Spencer, AIA, Director Facilities & Clinical Space Planning

➤ **NETEC Resources:** Sharon Vanairsdale, DNP, APRN, ACNS-BC, NP-C, CEN, FAEN, FAAN

➤ **Questions and Answers with NETEC**

National Emerging Special Pathogens Training and Education Center

Mission Statement

To increase the capability of the United States public health and health care systems to safely and effectively manage individuals with suspected and confirmed special pathogens

For more information

Please visit us at www.netec.org
or email us at info@netec.org



Assessment

Empower hospitals to gauge their readiness using
Self-Assessment

Measure facility and healthcare worker readiness using
Metrics

Provide direct feedback to hospitals via
On-Site Assessment

Education

Provide self-paced education through
Online Trainings

Deliver didactic and hands-on simulation training via
In-Person Courses

COVID-19 focused
Webinars

Technical Assistance

Onsite & Remote Guidance

Compile
Online Repository of tools and resources

Develop customizable
Exercise Templates based on the HSEEP model

Provide
Emergency On-Call Mobilization

Research Network

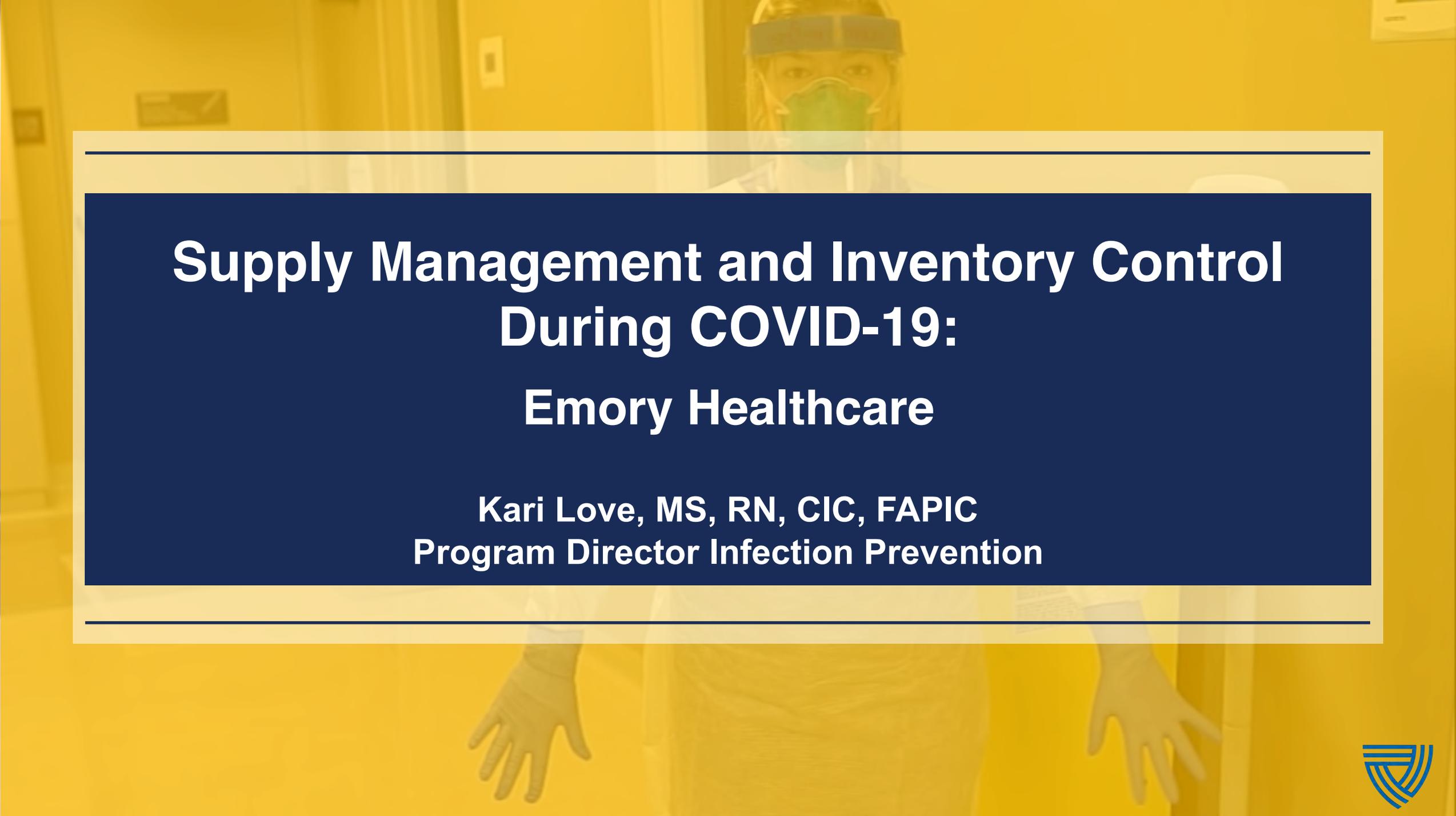
Online Repository
Built for rapid implementation of clinical research protocols

Develop Policies, Procedures and Data Capture Tools to facilitate research

Create infrastructure for a
Specimen Biorepository



Cross-Cutting, Supportive Activities



Supply Management and Inventory Control During COVID-19: Emory Healthcare

**Kari Love, MS, RN, CIC, FAPIC
Program Director Infection Prevention**



PPE and Donated Supplies

- ➔ **Articulate creative ways in managing reusable and disposable supplies and how to approach the need for substitution amid the pandemic crisis**
- ➔ **Describe vetting processes for supplies received including how to manage donations while maintaining safety and infection control measures**

The First Needs

Hand Sanitizer was one of the first items we felt like we had to scramble to procure

Worked with medical students to create hand sanitizer in the chemistry lab

- Used WHO recipe

Seriously considered using sheet protectors for face shields as demonstrated by Sharon Vanairsdale



World Health Organization | Patient Safety | SAVE LIVES Clean Your Hands

Guide to Local Production: WHO-recommended Handrub Formulations

GUIDE TO LOCAL PRODUCTION: WHO-RECOMMENDED HANDRUB FORMULATIONS

PART A: GUIDE TO LOCAL PRODUCTION

Part A is intended to guide a local producer in the actual preparation of the formulation.

Materials required (small volume production)

REAGENTS FOR FORMULATION 1:	REAGENTS FOR FORMULATION 2:
<ul style="list-style-type: none">• Ethanol 96%• Hydrogen peroxide 3%• Glycerol 98%• Sterile distilled or boiled cold water	<ul style="list-style-type: none">• Isopropyl alcohol 99.8%• Hydrogen peroxide 3%• Glycerol 98%• Sterile distilled or boiled cold water

- 10-litre glass or plastic bottles with screw-threaded stoppers (1), or
- 50-litre plastic tanks (preferably in polypropylene or high density polyethylene, translucent so as to see the liquid level) (2), or
- Stainless steel tanks with a capacity of 80–100 litres (for mixing without overflowing) (3 , 4)
- Wooden, plastic or metal paddles for mixing (5)
- Measuring cylinders and measuring jugs (6 , 7)
- Plastic or metal funnel
- 100 ml plastic bottles with leak-proof tops (8)
- 500 ml glass or plastic bottles with screw tops (8)
- An alcoholometer: the temperature scale is at the bottom and the ethanol concentration (percentage v/v) at the top (9 , 10 , 11)

NOTE

- Glycerol: used as humectant, but other emollients may be used for skin care, provided that they are cheap, widely available and miscible in water and alcohol and do not add to toxicity, or promote allergy.
- Hydrogen peroxide: used to inactivate contaminating bacterial spores in the solution and is not an active substance for hand antisepsis.
- Any further additive to both formulations should be clearly labelled and be non-toxic in case of accidental ingestion.
- A colorant may be added to allow differentiation from other fluids, but should not add to toxicity, promote allergy, or interfere with antimicrobial properties. The addition of perfumes or dyes is not recommended due to risk of allergic reactions.

A grid of 11 numbered photographs showing various pieces of laboratory equipment used in the hand sanitizer production process. The images include: 1. A 10-litre glass or plastic bottle with a screw-threaded stopper. 2. A 50-litre plastic tank. 3. A stainless steel tank. 4. Another stainless steel tank. 5. A wooden, plastic, or metal paddle. 6. Measuring cylinders and measuring jugs. 7. Another set of measuring cylinders and measuring jugs. 8. 100 ml plastic bottles with leak-proof tops. 9. 500 ml glass or plastic bottles with screw tops. 10. An alcoholometer. 11. Another alcoholometer.

Develop a Process for Disinfecting CAPR Cuffs/Lenses

Developed disinfection protocol for the CAPR lens as part of the doffing process so that it could be reused by a HCW



Face Shields

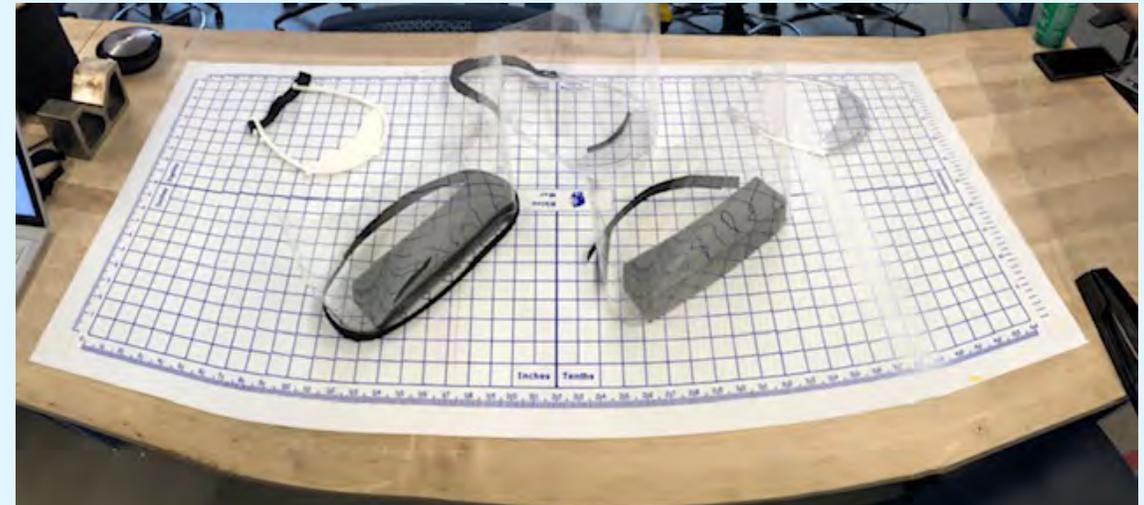
▶ Partnered with Georgia Tech (GT) to develop multiple prototypes

Disposable

Disinfected and reused until the headband disintegrated

Reusable

Headband and shield dedicated to each HCW
– shields can be replaced if damaged



PPE Tailored to Fit

➤ Reusable face shields created by Georgia Tech had input from three different health systems

➤ Feedback from Emory - difficult to hear and the shield was too long

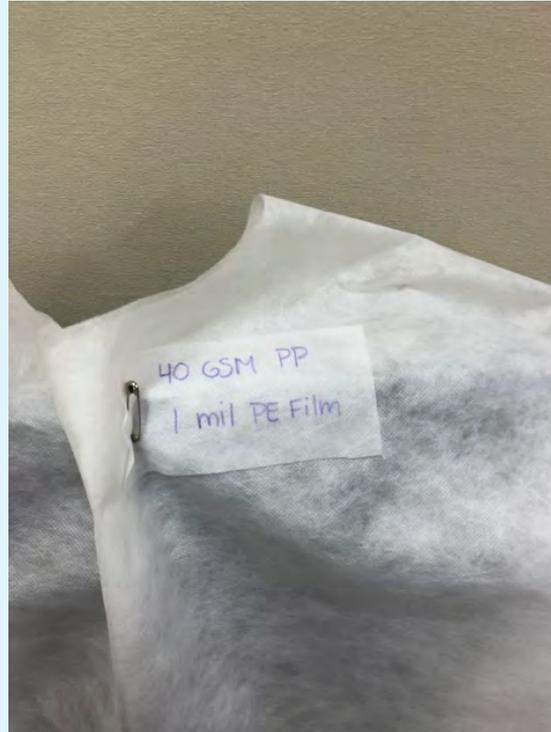
➤ The other two health systems did not want to re-design the shield

➤ Created a pattern with feedback from front line staff members – it can be trimmed to fit



Isolation Gowns

- ▶ Purchased material made of 40 GSM polypropylene
- ▶ Local companies took material, used an isolation gown pattern and made gowns
- ▶ Since the material was not rated as AAMI Level 2 etc., we did some of our own testing with diet coke, water and other fluids to determine fluid resistance



Cloth Gowns, Surgical Gowns and Coveralls

Cloth isolation gowns

- Having cloth isolation gowns laundered
 - Good for 100 wash cycles



Disposable surgical gowns

- Laundered 3x and the gowns were still intact



Coveralls

- Not optimal but were able to use them at the testing centers
 - Staff wore PAPRs and coveralls for 4 hour shifts in the drive-up testing clinic



Donation Center

➤ **Amazing community response**

➤ **Found a building on campus where donations could be received**

- **Overwhelmed the dock and the supply warehouse**

➤ **Took a full-time team just to manage donations**

- **VP of Performance Improvement utilized management engineers to categorize, organize and distribute**

➤ **Developed and posted criteria for items that we could accept**

➤ **Also assisted with pulling supplies out of the emergency management pods**



Reprocessing N95 Respirators and PAPR Hoods

➤ UV disinfection of N95s

➤ Bioquell – PAPR hoods

- Achieved > 6 log kill INSIDE the hood

➤ Once EUA received – N95s reprocessed in sterile processing



Ready to Swab

➔ **Gowns sewn by Mohawk Flooring**

➔ **Face shields produced by TSG**



Resources

The National Personal Protective Technology Laboratory (NPPTL)

NIOSH NPPTL



NPPTL

Promoting productive workplaces
through safety and health research



What's New on the NPPTL Website

A to Z Index

For Respirator Users

For Respirator Manufacturers

Protective Clothing and Ensembles

Protective Technology Program at NIOSH

Respirator Trusted-Source Information

Approved Particulate Filtering Facepiece Respirators

Certified Equipment List (CEL)

Respirator User Notices

Meetings, Webinars, & Conferences

Letters to Respirator Manufacturers and Interested Parties

About NPPTL

Contact NPPTL

NIOSH-Approved Particulate Filtering Facepiece Respirators

For information about Coronavirus Disease 2019, visit <https://www.cdc.gov/coronavirus/2019-ncov/index.html>.

For information about the FDA-authorized emergency use of NIOSH-approved FFRs, please see: <https://www.fda.gov/emergency-preparedness-and-response/mcm-legal-regulatory-and-policy-framework/emergency-use-authorization#2019-ncov>

This site provides a listing of NIOSH-approved particulate filtering facepiece respirators. This type of air-purifying respirators protects by filtering particles out of the air the user is breathing. There are seven classes of filters for NIOSH-approved filtering facepiece respirators available at this time. Ninety-five percent is the minimal level of filtration that will be approved by NIOSH. The N, R, and P designations refer to the filter's oil resistance as described below.

Select a type of respirator to see all approved models:

[N95](#) – Filters at least 95% of airborne particles. Not resistant to oil.
(N95 Manufacturers Index: [3M](#) [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#))

[Surgical N95](#) – A NIOSH-approved N95 respirator that has also been cleared by the Food and Drug Administration (FDA) as a surgical mask.

[N99](#) – Filters at least 99% of airborne particles. Not resistant to oil.

[N100](#) – Filters at least 99.97% of airborne particles. Not resistant to oil.

[R95](#) – Filters at least 95% of airborne particles. Somewhat resistant to oil.

[P95](#) – Filters at least 95% of airborne particles. Strongly resistant to oil.

Resources

Coronavirus Disease 2019 (COVID-19)



Your Health Community, Work & School Healthcare Workers & Labs Health Depts Cases & Data More

Healthcare Workers

- Testing
- Clinical Care
- Infection Control

Optimize PPE Supply

- Summary Optimization Strategies
- PPE Burn Rate Calculator
- Eye Protection
- Gowns
- Gloves
- Facemasks
- N95 Respirators
- Powered Air Purifying Respirators
- Elastomeric Respirators
- Ventilators
- PPE FAQ

Potential Exposure at Work

First Responder Guidance

HEALTHCARE WORKERS

Optimizing Supply of PPE and Other Equipment during Shortages

Updated July 16, 2020

Print



Personal protective equipment (PPE) is used every day by healthcare personnel (HCP) to protect themselves, patients, and others when providing care. PPE helps protect HCP from many hazards encountered in healthcare facilities.

The greatly increased need for PPE caused by the COVID-19 pandemic has caused PPE shortages, posing a tremendous challenge to the U.S. healthcare system. Healthcare facilities are having difficulty accessing the needed PPE and are having to identify alternate ways to provide patient care.

Surge capacity refers to the ability to manage a sudden, increase in patient volume that would otherwise severely challenge or exceed the present capacity of a facility. While there are no commonly accepted measurements or triggers to distinguish surge capacity from daily patient care capacity, surge capacity is a useful framework to approach a decreased supply of PPE during the COVID-19 response. To help healthcare facilities plan and optimize the use of PPE in response to COVID-19, CDC has developed a [Personal Protective Equipment \(PPE\) Burn Rate Calculator](#). Three general strata have been used to describe surge capacity and can be used to prioritize measures to conserve PPE supplies along the continuum of care.

- Conventional capacity:** measures consisting of engineering, administrative, and PPE controls that should already be implemented in general infection prevention and control plans in healthcare settings.
- Contingency capacity:** measures that may be used temporarily during periods of anticipated PPE shortages. Contingency capacity strategies should only be implemented after considering and implementing conventional capacity strategies. While current supply may meet the facility's current or anticipated utilization rate, there may be uncertainty

Summary Strategies to Optimize the Supply of PPE			
	Conventional	Contingency	Crisis

Supply Management and Inventory Control During COVID-19:

**Nebraska Medicine
University of Nebraska Medical Center**

**Brian Spencer, AIA
Director Facilities & Clinical Space Planning**



Decision Making: Quick/Slow

➤ Decision making in an organization under extreme stress often resorts to one of two models:

➤ *Very quick and not always knowledge based*

➤ *Very slow and very safe*

➤ HICS exists, in part, to help combat moving to these extremes

➤ Our job as we continue to manage the pandemic is to help bring balance

➤ Launch more than one balloon!

Decision Making: Balloons

Example

Germicidal wipes burn rate was up, we were on allocation, shipments were delayed, and it appeared we would run out in the short term and have long term sustainability issues

The team quickly launched several balloons:

Nebraska Medicine Alternative Germicidal Wipes

The grey top sani-wipes are currently in low supply. Nebraska Medicine has produced homemade sani-wipes that are being distributed in containers as an alternative.

*NOTE: The product is not Oxivir! It contains alternative wipes from NM
Ratio in homemade wipes is 1:10 Bleach solution
Wipe surface and allow 10 minutes of contact time (surface must remain wet for 10 min)

Gloves & eye protection is required when using this product!

Disposal & Re-order

- Discard single use wipe in trash
- Do NOT throw away the white container
- When container is empty, for pick up call Resource Center at 700-332-1134
- For additional containers call General Supply at 402-559-4320

Recommendation

Conserve current supply of grey top sani-wipes to be used on electronics.

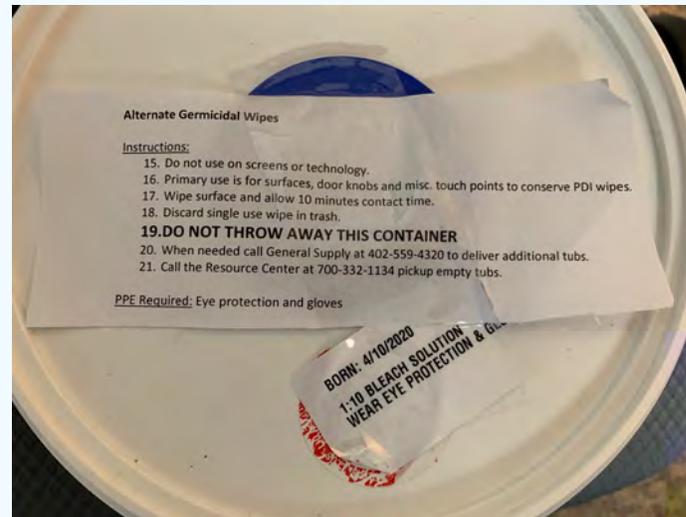
Product use

This product is to be used on:

- Surfaces
- Door knobs
- Miscellaneous high touch points

Do NOT use this product on:

- Screens
- Computers
- Electronics



- Infection Control team toured to understand burn very deeply
- Supply chain worked to see what WAS available in the market – even parts (tubs)
- Pharmacy and Sterile Processing began testing ‘home rolled’ solutions
- Deployed home roll solutions to low burn and low risk areas to test.

Vetting

Phase 1

Emergency issues and shortages

Phase 2

This is going to last a while and we need to capture good ideas and innovation

Phase 3

This is REALLY going to last a while and we need to have a framework for increasingly complex shortages



Vetting Team

Phase 1

As we worked through Phase 1 it became clear we needed a team....

- ✓ Grabbed a very small group – IC, ID, Safety, Legal, CIO, Logistics
- ✓ Common inbox for all ideas
- ✓ Met almost daily in the beginning and have settled to bi-weekly



Vetting Process: Hand Sanitizer Example

Phase 1

Emergency deploy portable hand sinks at entries, pull product from office areas, send people home

Phase 2

Work with existing vendors and local alternate folks (distillers, college pharmacy department) to get something coming

Phase 3

Worked with vendors to stabilize and refill existing bags. Develop stands to deploy more broadly for increased hand sanitation based on available materials, bags, dispensers, etc



Vetting Process: Intubation Boxes Example

Phase 1

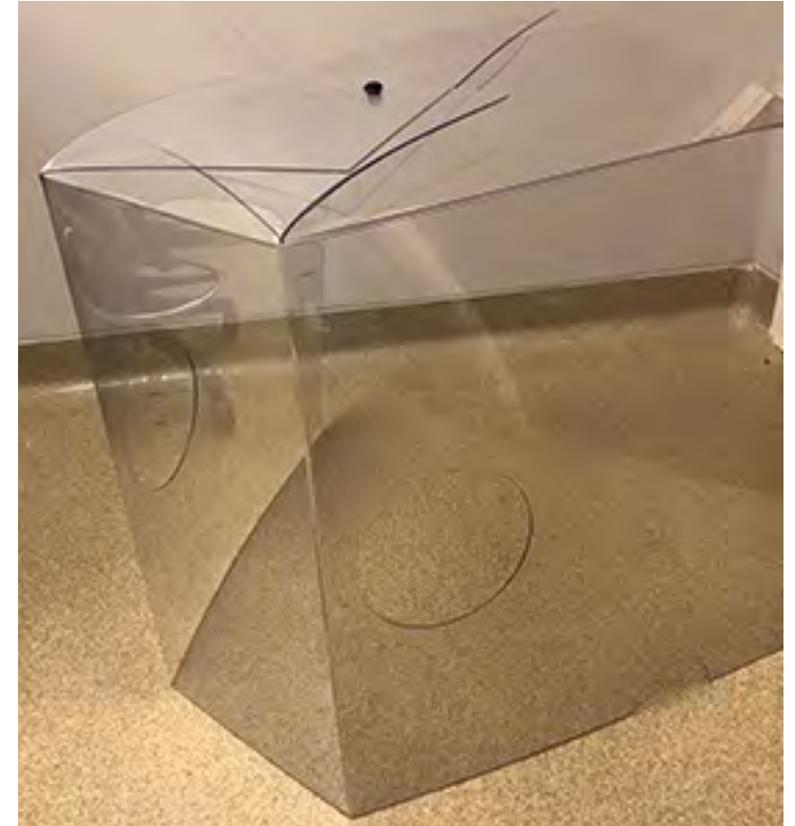
Emergency shortage of masks and other PPE, put out word in institution looking for safer way to intubate for aerosol producing procedures

Phase 2

Work with 'weekend warriors' to get samples made and into test rotation. Develop accepted standard and have small batch made

Phase 3

Working with legal and innovation groups on IP rights and bringing to larger market





NETEC Resources

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NETEC is Here to Help

NETEC will continue to build resources, develop online education, and deliver technical training to meet the needs of our partners

Ask for help!

- ➔ Send questions to info@netec.org - they will be answered by NETEC SMEs
- ➔ Submit a Technical Assistance request at [NETEC.org](https://www.netec.org)

Questions and Answers



NETEC eLearning Center

courses.netec.org

NETEC Skill videos

youtube.com/thenetec

Join the Conversation!



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