Building Capacity for Critical Care

Using a Framework

For Pandemic Readiness

Hospital Epidemiology and Infection Prevention (HEIP)

Critical Care Services
Organism leaves original host (patient or employee)

Organism survives in transit (direct/indirect contact, droplets, aerosols, airborne)

Transmission via contaminated hands, equipment, surfaces, droplets, or air currents

Susceptible host (patient, visitor or employee) via nonintact skin, mucous membrane, and/or other susceptible tissues

Escapes host defenses (airway, immune system, integumentary system)

Organism multiplies and cause tissue damage, etc. (infection)

Patient, visitor and employee exposure is mitigated by:

Eliminate exposure to host

Replace with less likely exposure situations

Alter airflow or place barriers

New workflows to decrease exposure

Masks, gowns, gloves, PaPR
Pandemic Response for Critical Care: Hierarchy of Controls

- **Elimination**: Physically Remove the Hazard
- **Substitution**: Replace the Hazard
- **Engineering Controls**: Isolate the Hazard from People
- **Administrative Controls**: Change the Way People Work
- **PPE**: Protect People Using Barriers

Most effective to Least effective

Airborne/Droplet Transmission

Epidemic/Pandemic Organism

Contact Transmission (Direct/Indirect)

Elimination
Remove exposure to COVID-19

Substitution
Replace potential exposure with less likely exposure scenarios

Engineering Controls
Place barriers between people and infectious organism

Administrative Controls
Modify Care Protocols

PPE

Most effective

Least effective
Elimination
Remove exposure to Epidemic/Pandemic Organism in Critical Care Units

- Eliminate Unnecessary Access to unit
- Restrict visitors/no visitors to infected patients/group tasks
- Cancel/delay elective admissions, procedures, and surgeries
- Provide universal vaccination when available

CTRL-Click on each yellow tile for specific considerations in critical care

https://www.slidecow.com/powerpoint-tutorials/link-slides-ppt/
Substitution
Replace potential exposure with less likely exposure scenarios in Critical Care Units

Dedicate non-disposable items and utilize disposable when available (disposable bronchoscope)

Design/utilize signage specific to the causative organism

Establish travel pathways for patient transportation to other areas

Redeploy staff to supplement needed rounding, non-patient care tasks

CTRL-Click on each gray tile for specific considerations in critical care

https://www.slidecow.com/powerpoint-tutorials/link-slides-ppt/
Engineering Controls
Isolate the infected and the infectious organism

- Convert rooms to negative air to keep from the corridors and work areas (Facilities)
- Check pressurization and airflow in areas with scrubbers, take pressure readings, doors closed (Facilities)
- Erect physical barriers to keep people separated
- Leaders provide feedback to staff regarding discrepancies or lapses

CTRL-Click on each aqua tile for specific considerations in critical care

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Administrative Controls
Modify Care Protocols

- Provide mechanisms to communicate effectively
- Evaluate staffing in a fluid manner in anticipation of surges
- Provide transparency with unions, employees and patients
- Policies and workflows published and utilized

CTRL-Click on each white tile above for specific considerations in critical care

https://www.slidecow.com/powerpoint-tutorials/link-slides-ppt/
Personal Protective Equipment (PPE)

- PPE training from HEIP, INEX, Unit Champions
- N-95 Training and Preservation
- Gowns – Disposable vs Washable
- Support decisions around changes to PPE based on availability

CTRL-Click on each black tile above for specific considerations in critical care

https://www.slidecow.com/powerpoint-tutorials/link-slides-ppt/
• **Eliminate unnecessary access to ICU units**
  • Leaders set up badge access for necessary/trained staff only
  • Utilize video or e-Consults
  • Rounding groups in rooms minimized to 1-2
  • No students in clinical areas
  • Remove excess items from rooms
• **Decrease exposures and group tasks**
  • *Limit visitation to video calls; infected patients stay in room*
  • *Meal tray delivery grouped with Nursing tasks*
  • *Nursing, physicians, resp therapy, etc. group tasks so frequent room entry is eliminated/reduced*
  • *Extend monitoring cables, tubing, etc. out of room if safe and able to do in a manner that does not allow contamination*
UCSF Health COVID-19 Guidelines for Visitor Restrictions and Exceptions

I. TABLE OF CONTENTS
- PURPOSE
- UCSF VISITOR POLICIES AND PROCEDURES
- INFECTION CONTROL GUIDANCE FOR NURSING UNITS
- APPENDIX A. VISITING RESPONSIBLY
- APPENDIX B. PEDIATRIC CARERS AND PATIENT GUIDANCE IN THE ED AND INPATIENT SETTING
- APPENDIX C. BOSF STANDARD WORK FOR THE COVID CONFIRMED PATIENT MIDDLE

II. PURPOSE
To ensure the safety of our patients and staff, and in compliance with the San Francisco Ordinances on the limitation of Hospital Visitors, we continue to limit the entrance of visitors to our Hospital and Ambulatory sites:

- UCSF will continue to limit when and where visitors are permitted and asks that only patients with specific caregiving needs bring a visitor with them when seeking medical care.
- The policy below clarifies the times when visitor restrictions can be lifted and clarifies the number and timing of allowed visitors.
- Visitors who fail to comply with the policies below will be restricted from entering the premises.

III. UCSF VISITOR POLICIES AND PROCEDURES:

A. General Visitation: Visitation for patient support without a “medical or caregiving necessity” is allowed only for patients in the Inpatient and Perioperative Areas. ED and Ambulatory visitors are only allowed “Necessary Visitation” as below. In approved areas under general visitation, patients regardless of condition, are allowed one visit per day. A patient may have up to one visitor on their approved list at one time.

- In the adult hospitals, switches can be made to another visitor every 24 hours in the adult setting.
- Visitors to adults and children can stay for visitor hours only from 10 AM – 8 PM and will be allowed to come and go on and off premises during visitor hours.
- In Children’s Hospital and the Birth Center, general visitors (primary caregivers) can switch twice per day and are allowed 24 hours a day. During the time the caregivers are switching, both caregivers can be at the patient’s bedside together for up to 30 mins.

Process
Ambulatory: Ambulatory patients are not allowed general visitation. Please see allowed visitors below under necessary visitation.

ED patients: The ED is unable to allow general visitation at this time. Only visitors meeting criteria for “necessary visitation” are allowed. Switches with other caregivers are not permitted, unless by exceptional circumstances.

Procedural and Perioperative patients will be allowed one visitor as part of a surgical admission, coming and going surgery and procedures/endo. Due to space constraints in our recovery rooms and PACUs, for all procedures, visitors will be encouraged to wait in one of the designated waiting areas in a socially distanced fashion or off-site if waiting areas full and will not be allowed into the PACU/procedural area, unless there is a need that meets “Necessary Visitation” criteria below. For inpatient surgeries, the PACU or bedside RN will have the responsibility of adding a designated visitor to the list to enable them to enter once the patient is transferred to the floor. Visitors will not be allowed to wait on hospital floors.

Inpatients will be allowed one visitor on their approved list as per the restrictions above. A patient’s bedside RN will have the ability to add a designated visitor to the list and then daily verify with patient and/or family the approved visitor for that day.

Revised: 10/28/2020
• **Cancel/delay elective admits, procedures, transfers, and surgeries**
  - Adjust staffing for decreased census d/t less elective patients /increased staffing for very ill infected patients
  - Provide workflows and documents that promote in-room procedures /surgeries for infected patients

Documents/Workflows/Examples
• **Provide universal vaccination when available**
  • *Occupational Health Services (OHS)*
  • *Inpatient vaccination policy*
• Dedicate disposable, wipeable items to infected patients
  • Cross-train staff
  • Disposable bronchoscope
  • Use zoom or tablets for patient caregiver interactions
  • Dedicate non-disposable items
• Design workflows to minimize exposure to infected patients
  • *Design/utilize signage specific to the causative organism*
  • *Provide employee necessities to decrease time off unit*
• Establish travel pathways and areas to treat patients safely
  • *Work with other departments on transport*
  • *Utilize rooms designed for infected patients on ancillary departments e.g., Surgery*
  • *Utilize private rooms only for suspect or known infected*
Redeploy staff to supplement needed rounding, non-patient care tasks

- HEIP train on rounding and observations
- Train PSA’s on caring for infected patients
- Train staff to assist observations of ancillary departments
Engineering Controls

• Convert rooms to negative air to keep from the corridors and work areas (Facilities)
Engineering Controls

- Check pressurization and airflow in areas with scrubbers, take pressure readings, doors closed (Facilities)
- *Modify airflow and the environment to prevent infection*
- *AGP workflows should allow the room to stand unused for 1 hr if air exchanges are 6 or less*
# Guidance for Use of Personal Protective Equipment (PPE) for Aerosol Generating Procedures (AGP)

The following table provides guidance for determining the appropriate PPE and room criteria required for Aerosol Transmissible Diseases (ATDs) when performing Aerosol Generating Procedures (AGP). A PAPR is required for AGP for patients requiring airborne precautions.1

<table>
<thead>
<tr>
<th>Type of Procedure</th>
<th>PPE</th>
<th>Room criteria</th>
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<tbody>
<tr>
<td><strong>Aerosol Generating Procedure</strong></td>
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<tr>
<td>PAPR and refer to isolation table</td>
<td>N95 with face shield (or PAPR), gown, gloves</td>
<td>Airborne isolation room</td>
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<tr>
<td>Airborne isolation room</td>
<td>Private patient room with door closed</td>
<td>Surgical mask with eye protection, refer to isolation table</td>
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<td><strong>Not aerosol generating procedure</strong></td>
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<tr>
<td>PAPR or N95 and refer to isolation table</td>
<td>N95 with face shield (or PAPR), gown, gloves</td>
<td>Private patient room preferred</td>
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</tbody>
</table>

## Aerosol Generating Procedures (AGP) include but are not limited to:

- Intubation/depilation
- Non-invasive ventilation (BiPAP/CPAP)
- Mechanical ventilation
- Bronchoscopy
- Stent placement
- Low/high-frequency ventilation
- Thoracotomy/Lung biopsy

## Other High-risk procedures:

- Certain ENT procedures
- Certain dental procedures

### Requirements for AGP

- Use non-negligible agitation of the patient
- Ensure the patient and staff are appropriately trained and equipped
- Use appropriate PPE
- Use Standard Precautions and refer to isolation table as applicable

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1. [UCSF Health](https://www.ucsfhealth.org)
2. [Centers for Disease Control and Prevention](https://www.cdc.gov)
3. [National Institute for Occupational Safety and Health](https://www.cdc.gov/niosh)
4. [World Health Organization](https://www.who.int)

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**For COVID-19 testing:**

- Not an AGP: non-endotracheal intubation, non-percutaneous access, non-invasive ventilation, non-high-frequency ventilation, non-catheterization
- Endotracheal intubation
- Percutaneous access
- High-frequency ventilation

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**For all other AGP:**

- Position patient on side
- Use appropriate PPE
- Use Standard Precautions and refer to isolation table as applicable

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**Contact Information:**

- [UCSF Health](https://www.ucsfhealth.org)
- [UCSF Children’s Hospital](https://childrens.ucsf.edu)
- [UCSF Adult Health](https://adult.ucsf.edu)

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**For any questions or concerns:**

Please contact the Medical Center Safety Office at [MedicalCenterSafety@ucsf.edu](mailto:MedicalCenterSafety@ucsf.edu) or [415-476-8585](tel:415-476-8585) with any questions or concerns.
Engineering Controls

• Erect plexiglass barriers as needed to keep people separated
• Develop disinfection protocols with HEIP in order to increase cleaning of high touch areas
• Develop room-cleaning protocols with Hospitality to ensure daily cleaning and thorough protocols
Leaders provide feedback to staff regarding discrepancies or lapses
Administrative Controls

- Support public health recommendations and regulations
- Provide mechanisms to communicate effectively (hotline, huddles, dedicated website, workflows)
- Leader updates with staff on changes and new knowledge
- Respond to discrepancies and new issues in patient care
Welcome to the HEIP

The goals of the Department of Hospital Epidemiology and Infection Prevention are to:

- **Provide epidemiologic analysis** based on the results of surveillance, risk assessment, communicable disease exposure follow-up, outbreak investigation, and other data.
- **Provide direct interventions** at the patient, location, and service levels where needs are identified and where risk-reduction or change in practice is likely to have long-term success.
- **Provide education** to personnel, patients and visitors with an emphasis on their role in infection prevention.
- **Develop thresholds** of infection rates for surgical procedures and device-related infections above which department action is indicated.
- **Ensure regulatory, accreditation and legal compliance** related to infection prevention issues.

**UCSF News**

- April 12, 2021
  - Peter Chin-Hong Explores Identity and History in 2021 Last Lecture
- March 11, 2021
  - Experts Discuss How Science Will Drive COVID-19 Recovery
- March 22, 2021
  - How Inequities Fueled the COVID-19 Pandemic – And What We Can Do About It
- January 8, 2021
  - UCSF Administers Second Dose of COVID-19 Vaccine to Frontline Staff

**Call the COVID Hotline**

UCSF Patients: (415) 514-7328
UCSF Health Employees: (415) 514-7328
UCSF Students: (415) 476-8736

**2019 Novel Coronavirus**

- UCSF Health COVID-19 Resources
- Frequently Asked Questions

**UCSF Measles Diagnostics**

- UCSF Measles Patient FAQ
Administrative Controls

- Evaluate staffing in a fluid manner in order to anticipate surges
- Keep units well staffed and float if needed
- For staffing awareness, allow for nursing to absorb many patient-facing jobs
- Provide staff amenities to limit time off the unit such as, meals, showers, change of scrubs
Administrative Controls

- Provide transparency with unions, employees, and patients
- Assist HEIP/OHS with contact tracing and report potential exposures
- Provide workflows with knowledge of new outbreaks and risk status
Go Live Date: 12/10/2020; Revision Date: 1/27/2021

Novel Respiratory Isolation for Patients Admitted to UCSF Health from Skilled Nursing Facilities

All patients transferred to UCSF from skilled nursing facilities (SNFs) should be placed on Novel Respiratory Isolation for 14 days following transfer. Based on the most current SFDPH COVID-19 surveillance data, starting 1/27/2021, asymptomatic patients transferred from assisted living facilities and other non-SNF congregate living settings will no longer require precautionary isolation.

Why?

- Many skilled nursing facilities are continuing to experience outbreaks of COVID-19
- If infected, patients may be too early in their illness to have a positive COVID-19 PCR result on the day of transfer
- Given this, we will consider all patients transferred from SNFs to be possibly exposed to COVID-19
- In order to minimize the risk of transmission to others, we are recommending placing these patients on Novel Respiratory Isolation in private rooms during the 14 days following transfer (i.e., during their 14-day incubation period).

How?

- A BPA will appear for all patients transferred to UCSF from a SNF that will direct providers to place the patient on Novel Respiratory Isolation.
Administrative Controls

- Assist with workflows to increase disinfection
- Prepare for hand hygiene and disinfectant changes with teaching and questions about changes
Personal Protective Equipment (PPE)

- Mandatory training for all unit staff
- Standardize and update PPE carts
- Provide donning/doffing steps in printed form to hang on door
- Assist with Train the Trainer and Just-In-Time training

Documents/Workflows/Examples

PPE Cart Checklist
# Novel Respiratory Isolation Cart Packet

## Component

- Novel Respiratory Isolation Sign
- "How to create a work order to change and document Negative Pressure Isolation room"
- Sign-In Sheet
- Donning/Doffing Instructions
- Room Setup Checklist
- Q-Shift Checklist

## Contacts

Hospital Epidemiology and Infection Prevention (HEIP):

- Moffitt-Long or Mt. Zion: During business hours: 415-353-4343 (main office) or 415-806-0269 (on-call cell); During non-business hours: MI Hospital Supervisor Spectralink 415-353-8036 or 415-353-1964
- Mission Bay: During business hours: 415-353-4343 (main office) or 415-806-0269 (on-call cell); During non-business hours: Benioff Children’s Hospital-SF Hospital Supervisor 415-502-0728; MB Adult Hospital Clinical Resource Nurse 415-502-0562
- Benioff Children’s Hospital Oakland: (during business hours) 510-428-3733; (during non-business hours) cellphone 510-459-3702, pager 510-718-1466, or BCHO Nursing supervisor 510-428-3885 ext 6997

San Francisco Department of Public Health:

- Communicable Disease Control (415) 554-2830
- After hours On-Call Physician: (415) 554-3613
N-95/PAPR Training & Preservation

- N-95 fit tests/PAPR Training with visuals, INEX and HEIP support
- PAPRs - develop appropriate means of disinfection and storage
- Prepare for PPE shortages and collaborate in order to provide alternatives
- N95- only touch with clean hands, ensure appropriate fit and seal; if intact and not contaminated, extend use or remove and store appropriately for reuse
Gowns - disposable or washable

- Storage size may differ with washable gowns
- Technique for doffing may differ
- Washable requires increased emptying of linen hamper and monitoring quality of reprocessing
## COVID Compliance Observation Form

### Instructions
- Use a separate row for each entry or visit observed.
- Enter observations at [http://handhygiene.ucsfmedicalcenter.org/](http://handhygiene.ucsfmedicalcenter.org/)
- All data must be entered by midnight of the last day of the observation month.

### Month of Observation

<table>
<thead>
<tr>
<th>Entry/Exit</th>
<th>Hand Hygiene</th>
<th>Face Masking</th>
<th>Social Distancing</th>
<th>PPE</th>
<th>PPE Use</th>
<th>Contact Trac.</th>
<th>Symptom Reporting</th>
<th>Continuous Monitoring</th>
<th>Antigen Testing</th>
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### Special Observations
- Observe for compliance with all COVID guidelines and standards.
- Report any incidents or concerns to the appropriate service.
New PPE Product: Blue Contact Gown

UCSF Health has secured a one-time supply of a new type of disposable gown intended for use for both contact precautions and hazardous medication precautions. This disposable blue gown with purple lining can be used for any of the following levels of isolation precautions requiring a gown:

- Contact Isolation
- Entero Isolation
- Respiratory Illness Isolation
- Novel Respiratory Illness Isolation
- Hazardous Medication Precautions
- Standard Precautions when a gown is warranted (e.g. complex dressing change or bedside procedure)

Environmental Health and Safety has determined that this blue gown with purple lining is rated and acceptable for handling of hazardous medications.

There are slight variations with the disposable blue contact gown with purple lining that distinguishes this gown from the yellow contact gown or blue hazardous medication gown:

- There is a Velcro securement at the neck
- There is a single tie at the mid-back region
- The gown does not have loops for the thumbs
- There is a white cuff at the wrist

Due to the absence of thumb loops, when donning gloves take care to securely pull glove up and push the white cuff inside the glove. Pushing the white cuff up to the wrist region will provide a secure fit. If the sleeve and cuff become unsecured from the glove, pull the gloved hand hygiene before securing the cuff into a new pair of gloves.

Follow the established doffing technique for doffing disposable gowns:

- Grasp the gown in front and pull away from your body so that the ties break, while touching the outside of the gown only with gloved hands
  - Due to the Velcro at the neck, additional force may be required to break apart the Velcro securement
- While removing the gown, fold or roll the gown inside out into a bundle
- As you are removing the gown, pull off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands
- Place the gown and gloves into a waste container

For a patient with Hazardous Medication Precautions ONLY (no isolation of any kind) it is permissible to reuse the blue gown with purple lining for multiple instances of patient care with the same patient. This is permissible provided that the gown has not been soiled with hazardous medication or body fluids.
- The blue gown with purple lining must always be discarded after one use if the patient has any type of Transmission Based Isolation Precautions.

6/1/20

UCSF PPE Resilience
Eye Protection and Extended Use

- Eye protection can be wiped down and reused until non-intact or no longer clear
- Develop observation protocols that remind employees to use correctly
- Standardize PPE Caddy to include eye-protection
- Develop strategies for extended use
I WOULD LIKE TO THANK ALL THE PEOPLE THAT PROVIDED INPUT AND GUIDANCE ON THIS DOCUMENT.

Renee Graham-Ojo, RN, BSN, MPH, CIC