



Central California Women's Facility (CCWF): A Site Visit Report on SARS-CoV-2 Transmission at a CDCR Facility

May 4-5, 2021



University of California
San Francisco



CHANGING CORRECTIONAL CULTURE



Stefano Bertozzi*, Jessie Harney*, Brittany Imwalle*, Karalyn Lacey*, Sandra McCoy*, Rachel Sklar*,
Helena Archer, Ada Kwan, David Sears, Rae Wannier, Brie Williams, Lee Worden,
on behalf of the CalPROTECT team

* Attended in-person site visit
† Corresponding authors

Given the rapidly evolving understanding of the novel SARS-CoV-2 virus and disease (COVID-19), CalPROTECT and its partners may not revise all publications and resources as new information becomes available. This report was produced based on the most updated research and our understanding of the CDCR facilities as of July 16, 2021.

We encourage continued engagement with public health and medical communities regarding how best to implement the most updated recommendations based on science and evidence to prevent and manage COVID-19.

Main Takeaways

1. Leadership alignment and cooperation (health care and corrections) appeared to support effective site-wide planning and rapid response to the outbreak
 - a. Many staff - including leadership - went above and beyond: working longer hours and helping others across departments in order to support the institution
2. No clear narrative of how the outbreak was contained so quickly
 - a. Likely a combination of good compliance with prevention measures, early access to PPE, appropriate use of safe spaces for medical isolation and quarantine, and early vaccination efforts
3. Urgent needs to:
 - a. Explore strategies to increase vaccine uptake, especially among staff;
 - b. Conduct ongoing assessment for risks of airborne transmission (e.g., CALPIA);
 - c. Clean vents, rebalance the HVAC system, and establish a regular maintenance schedule; and
 - d. Ensure equitable information delivery to residents, addressing lost belongings during movement, and providing self-guided resources on dealing with trauma to residents (and staff)

Presentation Outline

- ❖ Context
- ❖ Overview of observations
- ❖ Recommendations
- ❖ Discussion



CalPROTECT (California Prison Roadmap for Targeting Efforts to Address the Ecosystem of COVID Transmission)

CalPROTECT is an initiative comprised of a multidisciplinary team of experts in public health, medicine and infectious disease, behavioral science, environmental engineering, and economics from **UC San Francisco** and **UC Berkeley Schools of Public Health and Public Policy**.

On May 4-5, 2021, CalPROTECT visited the Central California Women's Facility (CCWF) to evaluate their experience during the COVID-19 pandemic, including a large outbreak that occurred between early December and early May.

This presentation summarizes our preliminary key findings and recommendations for discussion and feedback with the team at CCWF.

1. Purpose of this Assessment

Our goal is to describe and recommend policies that may protect and promote physical and mental health among people who are incarcerated, including the prevention and control of COVID-19.

For our team's May 2021 site visit to CCWF, we were guided by the following questions:

1. What were characteristics of the December-May COVID-19 outbreak at CCWF?
 - a. What are the factors that contributed to the outbreak and/or its containment?
 - b. How did COVID-19 spread in different housing units?
 - c. What barriers exist for vaccination take-up among incarcerated people and staff?
 - d. In which areas does CCWF remain vulnerable to a potential variant that evades protection from current vaccines or a future respiratory pathogen?
2. What lessons might be transferable to other settings, and how are these lessons translated to policy?

2. Methodology

Onsite Data Collection

- Pre-visit questionnaire
- Interviews and conversations with key stakeholders (e.g., leadership staff, medical leadership, inmate councils)
- Group discussions (e.g., inmate councils)
- Space/place observation during facility visit
- Indoor air quality assessments
 - CO₂ and airflow

Other data sources

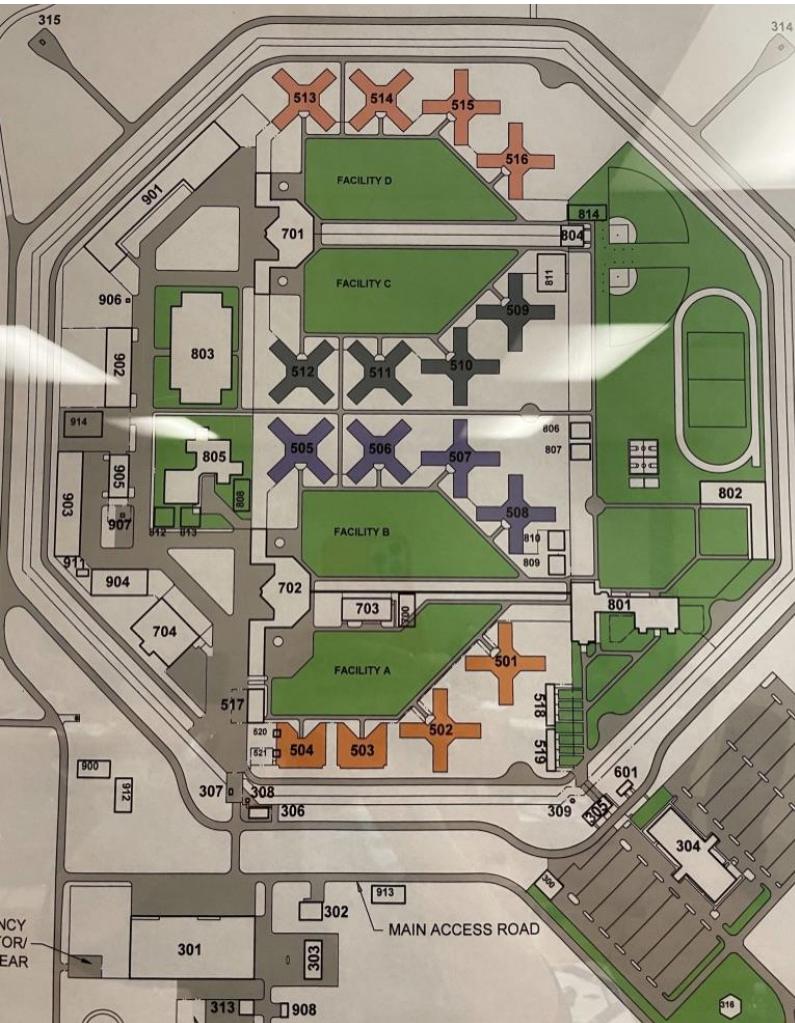
- CDCR/CCHCS

3.1 Findings

Outbreak Characterization

CCWF Facility Layout

- Population = 2403, design capacity = 2004 (119.9%) as of May 5, 2021
- 4 yards with 14 housing units
- Two 270 units in A Yard - AdSeg and 503 (not AdSeg) are majority celled housing
 - AdSeg divided in half with solid wall; 503 is open
- SNF (licensed) & 805 mental health unit (TCU)
- Numerous PIA industries (flags, dentures, etc)
- 'Very porous': frequent movement across yards/security level for program (exc. 503/504)



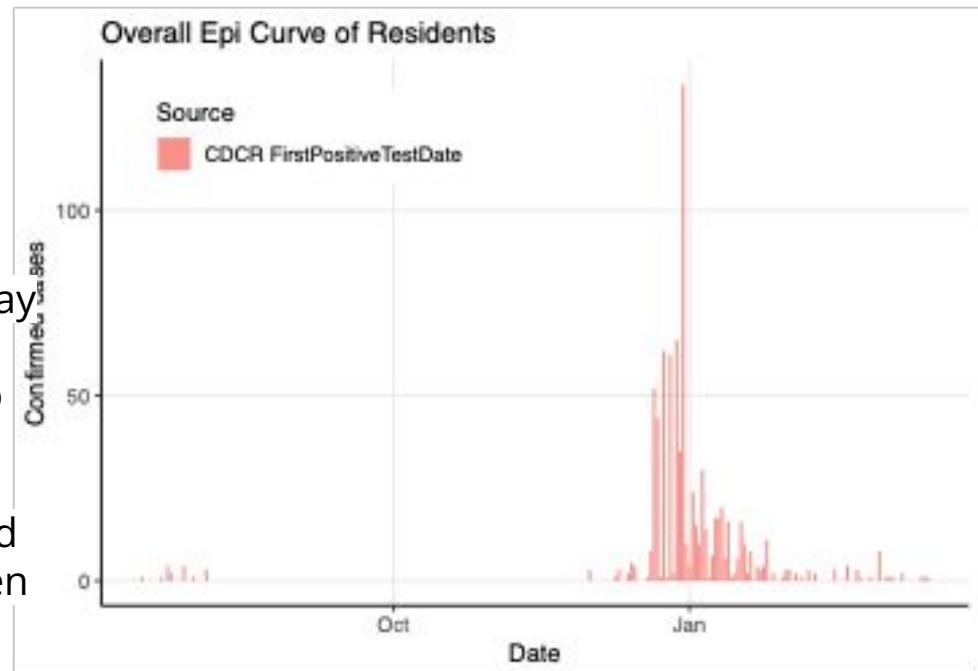
CCWF COVID-19 Cases in Residents

At the time of our May 4-5, 2021 site visit:

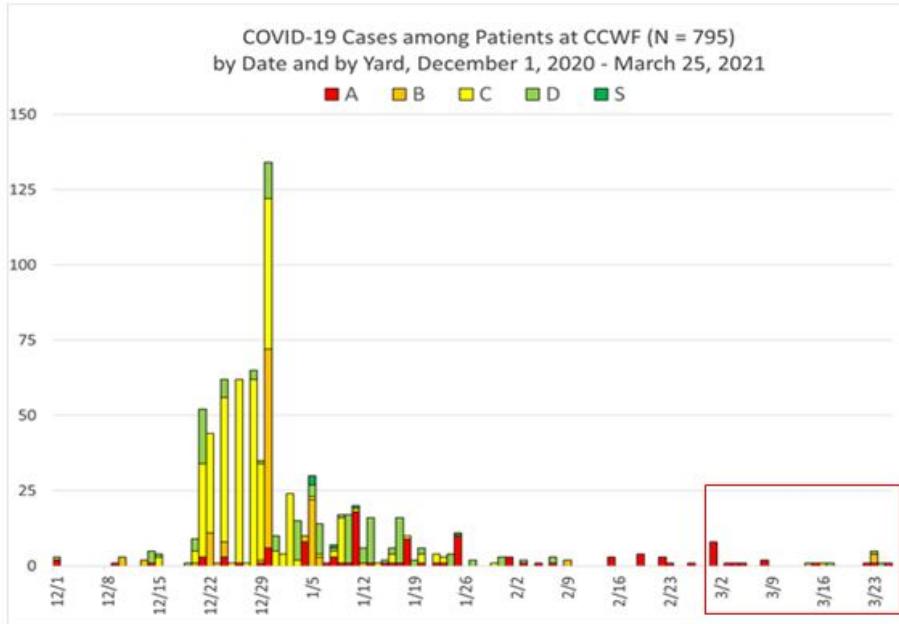
CCWF had experienced two outbreaks
(source: CDCR population tracking):

- A small outbreak (n=16, Jul - Aug 2020)
- A large outbreak (n=521, Dec 2020 - May 2021)
- One death; low mortality rate linked to frequent use of bamlanivimab (BAM)

In addition, 1403 (58%) of 2,402 incarcerated people and 571 (43%) of 1,330 staff had been fully vaccinated.



CCWF COVID-19 Cases in Residents, by Yard



- First case of a small outbreak (16 cases) in July 2020
- First case of the larger outbreak on December 24, 2020
- Only one death - frequent use of BAM (one of the first facilities) - linked to frequent use of bamlanivimab (BAM, one of the first facilities in the CDCR system to do so)
- The red box (March 2021) is around a cluster of false positives

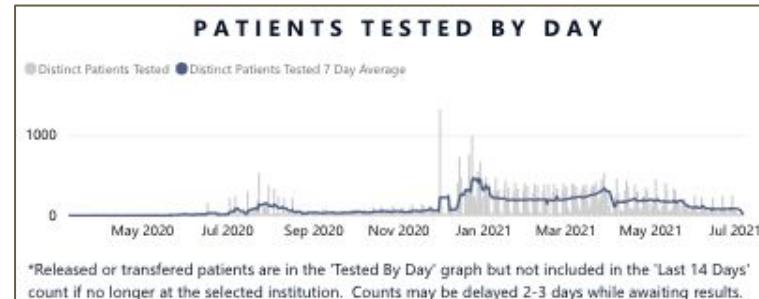
Courtesy: Justine Hutchinson, PhD, MPH

CCWF COVID-19 Outbreak Response: Leadership

- Small outbreak in July (n=16) tied to a drug rehabilitation program led to creation of **Incident Command Post (ICP)** that was key to the response
 - At times meeting 1-2x per day, available 24 hours
 - ICP had a very clear goal: minimize morbidity and mortality among entire CCWF population (this was expressed by several leaders in separate conversations)
 - ICP staffed with associate warden level staff (vs. supervisor level staff) which enabled clear, decisive decision-making and fast action
- Site utilized information from region and augmented response with local site solutions
 - Timing of December outbreak meant staff had ample time to plan and prepare
 - For example, creative ways to ensure outdoor time was provided
- CEO has outbreak response experience in nursing homes; cited as an asset

CCWF COVID-19 Outbreak Response: Testing

- POC testing available for residents (July 2020) and staff (March 2021)
- Strategic use of rapid testing: (i) As part of outbreak response (w/ PCR testing for faster decision making), and (ii) for intake
- Testing Capacity:
 - Batch PCR processing (August 2020) was a “game changer”; order 1600 tests in 15 min
 - Rapid testing: 2 machines, 10-12/hr
- Weekly staff testing (policy exempting vaccinated staff from testing arrived during visit)
 - Initially (earlier in pandemic) they were testing staff monthly
- False positives from Valencia lab helped refine protocols (e.g., examining cycle thresholds)



CCWF Outbreak Response: Movement of Exposed and Infected

- Little celled housing; space constraints challenging for safe quarantine and medical isolation
 - 503 used entirely for quarantine
 - 501, then 502 used for isolation, then gym as needed
 - Buildings 509 + 511 in C yard used for overflow isolation (and quarantine) *only* when capacity elsewhere exceeded and only for a short time
- Variable COVID-19 risk in CALPIA:
 - During outbreak, PIA limited to resolved + vaccinated
 - Flag factory appeared very safe (large space, open door, ↑air exchange)
 - Denture industry appeared less unsafe (indoor, crowded, poorly ventilated)



Photo by S.McCoy, CCWF Gym

CCWF Outbreak Response: Notable Activities

- Excellent access to PPE (N95s) starting from March
 - N95s distributed to staff in March 2020
- Good compliance with protocols observed (e.g., masking donning/removing PPE in designated areas, requirement for weekly testing)
- Rigorous contact tracing, including use of *camera footage when tracing led to dead ends*
- Some cohorting of residents (esp. intake) but not staff due to union restrictions
- Implemented a goal of moving people to quarantine within 2 hrs (during business hours; 4 hrs otherwise)
 - Resident comments didn't always support this



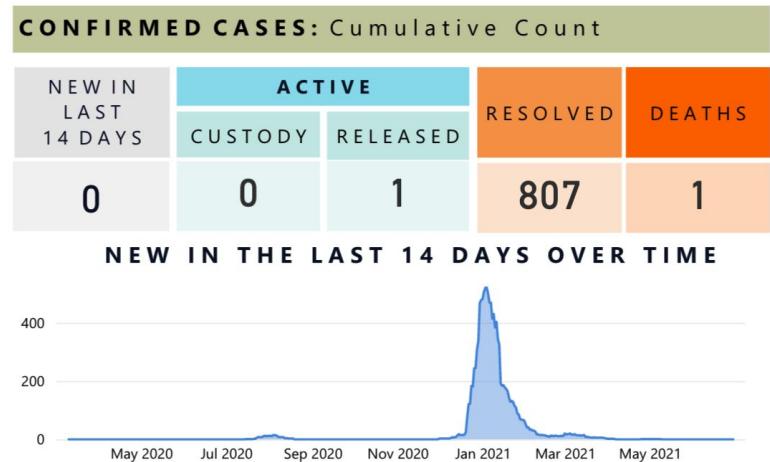
COVID-19 Vaccination

- Vaccines available December 23rd, 2020
 - Only to TCU and SNF staff, high-risk patients
 - Vaccines available to general resident population in January 2021
- Uptake of vaccines among residents good but can be improved (currently 73%)
 - Enthusiasm for exploring incentive schemes to bolster vaccination rates (e.g., no quarantine required after exposure if fully vaccinated)
 - Some residents noted that they did not get information about the vaccine
- Low uptake of vaccines among staff (currently 53%)
 - For custody staff, those who are not vaccinated are largely not getting vaccinated because of personal preferences (also heard about the influence of politics)
 - Historically has also had low staff influenza vaccination rates
 - Enthusiasm for exploring incentive schemes to bolster vaccination rates (e.g., golf cart use)
 - Policy that vaccinated staff could forgo testing arrived during our visit and was well-received

Why did the 2021 CCWF COVID-19 Outbreak End?

A notable (and unexplainable) feature of CCWF's 2021 outbreak is how abruptly it ended.

- Although CCWF had the 5th highest staff vaccination rate (28%) on 1/4/21, this is unlikely to be responsible for virtually stopping the epidemic ~2/3/21.
- Incredible access to PPE (N95s) from March 2020
- Possible that facility-wide adherence to prevention measures (masking, testing, exhaustive contact tracing, etc.) is part of the story of containment
 - We know PIA was limited to resolved+vaccinated during the outbreak; unclear if other new measures were activated
 - Communication also regularly cited as a key factor
- Abrupt end of the outbreak even more surprising given (general) lack of recognition of airborne transmission



*New case count by date may be delayed 2-3 days while awaiting test results.

3.2 Findings

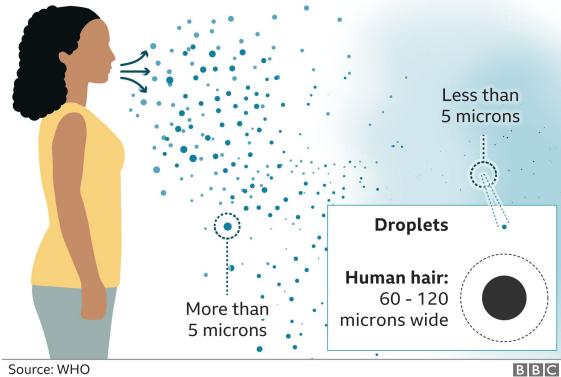
Environmental Observations

With poor ventilation, viral particles can build up in a cell, in the dayroom, and in a building

The difference between droplet and airborne transmission

Droplet transmission

Coughs and sneezes can spread droplets of saliva and mucus

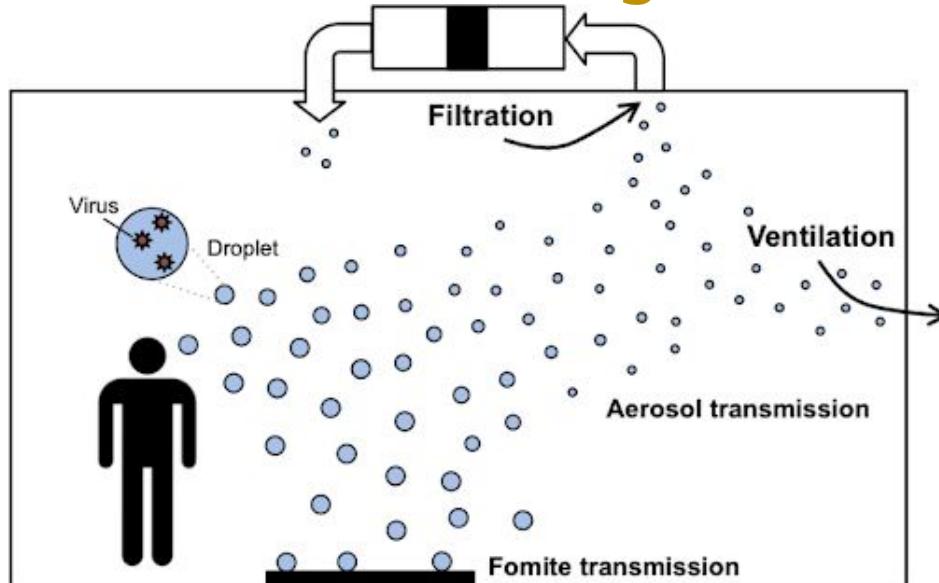


Source: WHO

Source: WHO

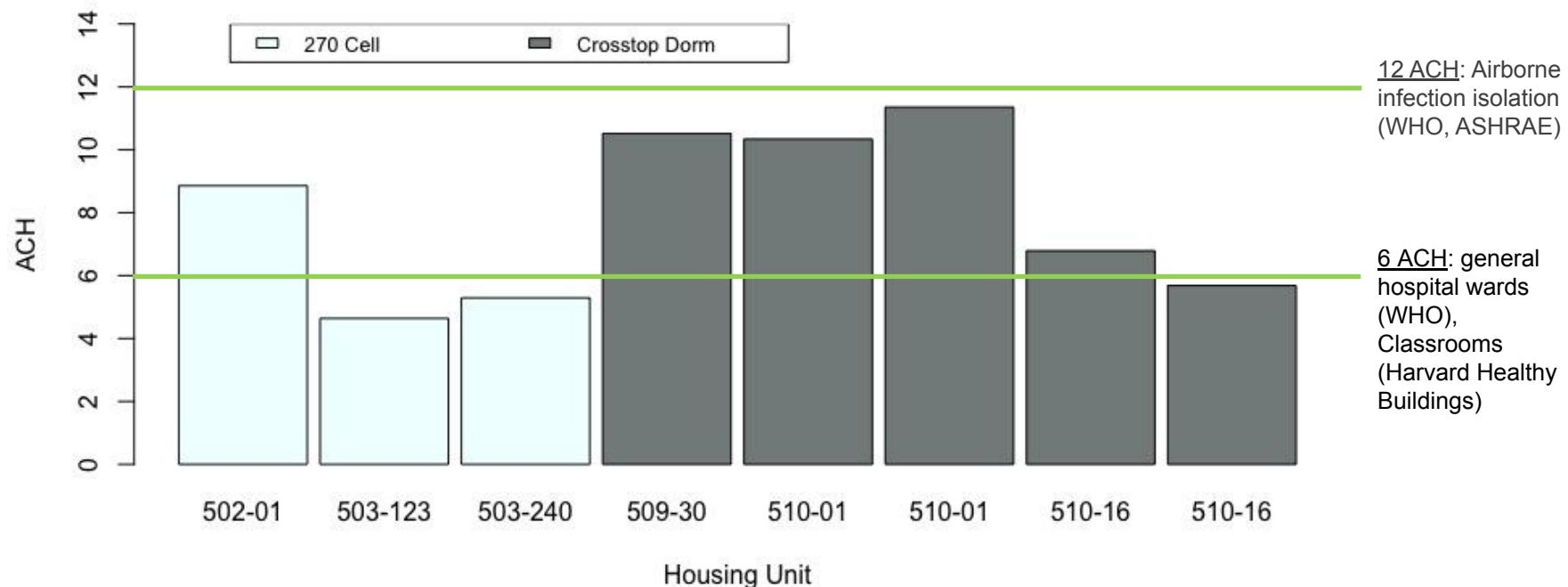
Airborne transmission

Tiny particles, possibly produced by talking, are suspended in the air for longer and travel further



Source: Built Environment Research Group

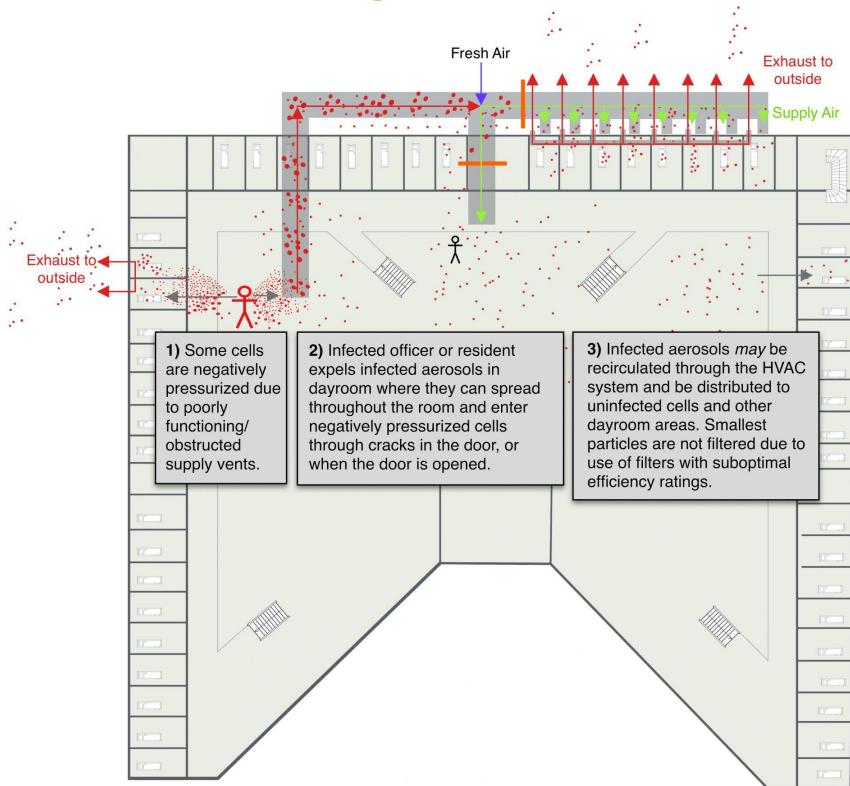
Air change rate in all cells and dorms measured are below recommended 12 ACH standard



Pressure differences found between cells/dorms and common areas

- Airflow velocity from 35 supply/return vents were measured in dorms and cells across the facility
- 7 of 35 (20%) vents measured were inoperable
 - Velocity=0 ft/min
- Unintended pressure systems between rooms → movement of air from infected areas to non-infected areas

Scenario: negative pressure in cells + recirculation in 270s



Infected droplets, $> 5 \mu\text{m}$ in size, settle on floors and surfaces quickly, but aerosols can travel in air currents potentially for hours.



Infected aerosols, $< 5 \mu\text{m}$ in size, can travel in air currents within a room, and remain suspended in air for hours.



MERV 8 and MERV 10s are used which are only 50% efficient at removing infectious aerosols between 1-3 micron in size. These filters are not rated for removing aerosols in the smallest size range, 0.3-1 micron, which can include infectious virus.

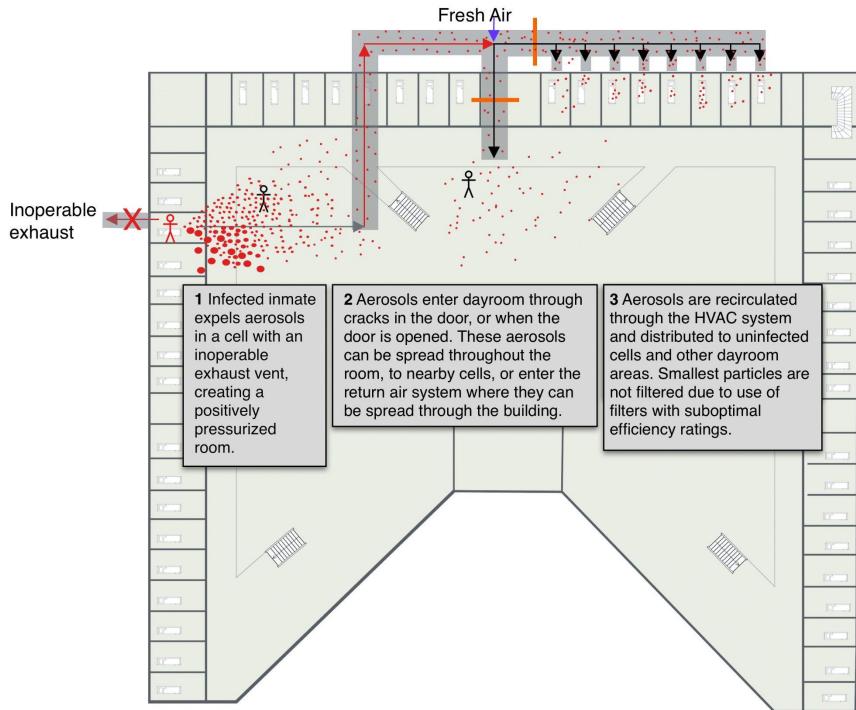


Infected individual



Uninfected individual

Scenario: positive pressure in cells + recirculation in 270s



Infected droplets, > 5 µm in size, settle on floors and surfaces quickly, but aerosols can travel in air currents potentially for hours.



Infected aerosols, <5 µm in size, can travel in air currents within a room, and remain suspended in air for hours.



MERV 8 and MERV 10s are used which are only 50% efficient at removing infectious aerosols between 1-3 micron in size. These filters are not rated for removing aerosols in the smallest size range, 0.3-1 micron, which can include infectious virus.



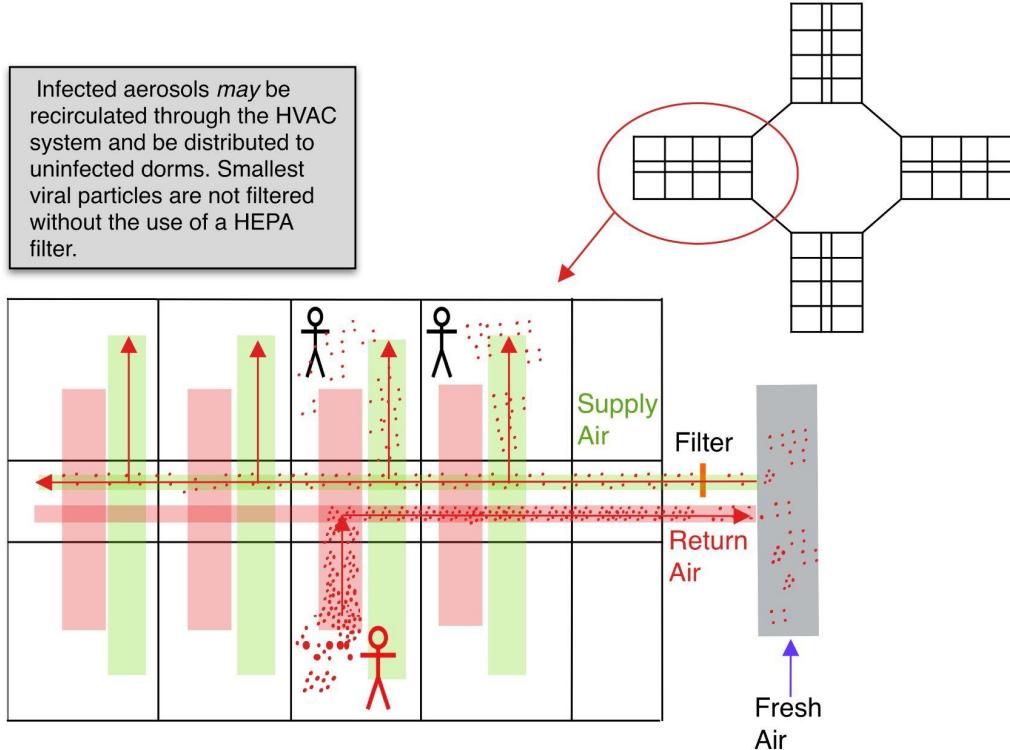
Infected individual



Uninfected individual

Scenario: recirculation in crosstop

Infected aerosols *may* be recirculated through the HVAC system and be distributed to uninfected dorms. Smallest viral particles are not filtered without the use of a HEPA filter.



Visible clogs in supply and exhaust vents across facility may have contributed to COVID-19 transmission in housing units



Aging HVAC infrastructure may contribute to COVID-19 transmission in housing units



Air handler on roof of building 509



Environmental Observations

General Observations and Recommendations

- Local exhaust fans were performing suboptimally in all buildings measured
- Some vents in Yard C were cleaned 6 years ago, most other vents in facility probably haven't been cleaned in >12 years according to facilities staff
- Cleaning vents and rebalancing the HVAC system could significantly improve ventilation and removal of infected aerosols in cells, dorms, and common areas
- Need for a regular maintenance schedule & budget for routine maintenance (cleaning, balancing, replacing filters)

3.3 Findings

Themes from our conversations with staff & residents

Qualitative Insights: Movement

The movement of individuals to isolation and quarantine was difficult for staff and especially difficult for residents given its prolonged impact on their housing circumstance, belongings, and day to day experience.

- We heard concerns similar to those we've heard system-wide about challenges in tailoring the implementation of HQ movement protocols to the physical layout and culture of the institution.
- Residents described the experience of movement to isolation and/or quarantine as traumatic.
 - Mental health staff reported that 90% of their 2021 referrals were a result of housing concerns.
- Much of the concern from residents about movement related to their physical safety. We heard fears about being housed with someone they did not know who could be violent, actively using, or otherwise unsafe.
- Residents housed in facilities where overflow residents were transferred shared that questions about the reason for the moves and health and safety implications of the moves went unaddressed.
- Due to HQ policy, residents being moved had to leave their belongings to be packed by custody staff. Staff were overstretched, so many things were lost and damaged in the process, which has been very upsetting for residents and stressful for staff.

Qualitative Insights: Experiences across the institution

There was significant variation in experience of the COVID-19 outbreak across facilities.

- The TCU unit indicated that they got a great deal of information about COVID-19 and the vaccine, as well as good quality care when they were sick. They acknowledged that this wasn't necessarily the case for residents in other facilities.
- Residents in other facilities noted that they did not receive consistent information COVID, information about the vaccine and that it was extremely difficult to get care (e.g., could not get ibuprofen to manage COVID-19 symptoms).
- Continued restrictions on yard time due to COVID and staffing constraints were extremely difficult for residents.
- Staff stepped up to meet the increased need during COVID. Staff in some facilities highlighted the toll that the mandated overtime, additional COVID related responsibilities, and fears about getting sick has taken on their physical and mental wellbeing.

Qualitative Insights: Communication

CCWF Leadership, Custody, and Medical were aligned in their implementation of the ICS. Nevertheless, as we've seen across the system, communication with residents was inconsistent.

- Highlighted a strong “culture of learning” about COVID (e.g., airborne transmission, variant).
 - Collaborative calls with CMC were reported as being very helpful
- Good lines of partnership and communication reported between custody and medical.
- Capt Ratcliff and the Warden Pallares were specifically highlighted as communicating effectively with residents
- As highlighted in the last slide, differences across facilities extended into communication
 - For example: met with some frustrated/angry residents of 509/510 and a different picture emerged of the response (e.g., people of potentially mixed status housed together in dorms), with lack of communication/understanding
- Line-staff noted a lack of clarity and / or confidence in the rationale for HQ policies, impacting their ability to confidently participate in implementing these policies to achieve desired outcomes and to communicate with residents about policies.

4. Recommendations

Recommendations Overview

1. **Prepare:** Continue to iterate on the effective ICP model and conduct ongoing assessments for risks of airborne transmission (e.g., possible vulnerabilities in CALPIA).
2. **Vaccinate:** Vaccination is the single most effective method to prevent and reduce COVID-19 transmission at the current level of occupancy. *Explore creative strategies to incentivize vaccine-hesitant residents and staff to get vaccinated.*
3. **Decongregate:** Reduce population density when possible to slow COVID-19 transmission.
4. **Ventilate:** Urgently hire an HVAC specialist to clean vents and rebalance CCWF's ventilation system. *Establish regular maintenance schedule & budget for routine cleaning, balancing, and replacing filters.*
5. **Communicate:** Ensure that critical public health information reaches *all* residents and staff. *For example, information about the availability and safety of vaccination as well as when/why people are moved.*
6. **Improve Mental Health:** Strengthen a culture of wellness that recognizes and addresses COVID-19's influence on stress and anxiety among staff and residents. *Normalize use of the Employee Assistance Program among other mental health resources for staff. Provide face-to-face time for residents to obtain information and if possible, resources (expanded packets such as information about trauma and coping skills).*

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Mr. Elias Montoya, CCWF Correctional Plant Manager

Mr. Paul Espino, CCWF Chief Engineer

Mr. Rafael Arceo, CCWF Stationary Engineer

CCWF inmate councils

CCWF Medical and Custody leadership

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