



MOVING PATIENTS IN A PANDEMIC: A Hybrid California Model Rescues Overwhelmed Hospitals



Imperial County, located in southeastern California, has a population of approximately 181,000, and shares borders with Arizona and Mexico.

El Centro serves as the county seat, and the county's economy is based primarily on agriculture. Two hospitals serve the county: El Centro Regional Medical Center and Pioneers Memorial Healthcare District. Imperial County has been a COVID-19 "hot spot," and at press time, had the highest mortality rate in the state. Many people who live in Mexicali, the capital of the Mexican state Baja California, regularly cross the border to Imperial County for healthcare, employment, and entertainment, and vice versa. In May 2020, Mexicali's hospitals reached capacity and leaders announced that they would divert American patients to El Centro Regional Medical Center, creating a near-instant patient surge, and necessitating the movement of over 625 patients. Dr. John Hick, ASPR TRACIE's Senior Editor, met with the following staff from the [California Emergency Medical Services Authority \(EMSA\)](#) to learn more about this significant undertaking:

- Dave Duncan (DD), MD, Director
- Craig Johnson (CJ), Chief of the Disaster Medical Services Division
- Jennifer Lim (JL), Deputy Director of Legislation, Regulatory and External Affairs

■ JH

The patient movement from Imperial County to surrounding hospitals has been one of the largest in the U.S. What was the total number of patients you moved and how was this coordinated?

■ CJ

In May, we began to see an increase in COVID-19 cases. Both the region and the county were concerned about the increase and the need to decompress hospitals that were becoming overwhelmed. The hospital in Mexicali became overwhelmed and at times completely stopped receiving patients, which then overwhelmed Imperial County's two hospitals (El Centro Regional Medical Center and Pioneers Memorial Healthcare District). We realized we had to decompress these facilities by moving patients out of the Imperial County. To date, we have transported a total of 625 patients out of county across the state (to Regions 1, 2, 4, 5, and 6; Regions 1 and 6 are southern, 2 is coastal, 4 is the Sacramento Valley, and 5 is inland). No patients have been transported to Region 3 (the northernmost part of the state).

Initially, the state and county relied on the medical/health mutual aid system to facilitate patient movement out of the county. The Medical Health Operational Area Coordinators (MHOACs) helped with bed polling and hospital placement. Within a few days, we transitioned to using the Inter Facility Transport (IFT) model, but with notification to the Regional Disaster Medical Health Specialist (RDMHS) and MHOACs to support the ongoing daily transfer of 10-15 patients from both hospitals. This "hybrid" approach proved to be effective, allowing for IFT transfers while keeping the MHOACs informed and engaged.

To effectively coordinate the large number of statewide patient transfers and facilitate the IFT process for these predominantly intensive care unit (ICU) patients, we contracted with the All Access Transfer Center (AATC) and a GMR ambulance transportation service contractor. Coordination among the region, using the IFT model and MHOACs, proved effective. The plan moving forward is to integrate the lessons learned into the [California Patient Movement Plan](#), which serves as the framework for statewide patient movement.

■ JH

Did the MHOAC receive a list of patients, then work with the state to determine capacity, and then work with GMR to transport? Was there a patient distribution or regional rotation system?

■ CJ

We worked with the AATC to coordinate this. They gathered the patient status, condition, and location from Imperial, and we worked with the MHOAC for bed polling and identifying hospitals that could support that bed request. About 80% of these requests were for ICU beds. The AATC coordinated with the sending and receiving hospitals while also coordinating with the MHOAC. Some Regions preferred more active MHOAC involvement than others. Our primary problem was locating enough receiving beds. Aligning fair distribution was certainly a goal, but our primary need was to get the large number of patients to an appropriate bed.

■ DD

The transport requirements and numbers taxed the region, including San Diego and Riverside Counties, with over 100 patients in the first few days and more than 625 over about 8 weeks.



Inside the patient care surge area tent at El Centro Hospital. Photo courtesy of authors.

El Centro Regional Medical Center is an acute-care medical center with 161 beds. Pioneers Memorial Hospital is a 107-bed acute care medical center. Both hospitals have ICUs.

This required immediate elevation of the Imperial response to a state level with ambulance strike teams, so that immediate and ongoing patient offloading could occur. It was a highly coordinated effort, where the county MHOAC, the AATC, hospitals and hospital systems were all integrally involved. We found it was critical for everyone to communicate constantly, and this worked best within the incident command system allowing the AATC to be the lead, aligning and finalizing transfers as information from the other participants was synthesized their center. This included utilizing hospital incident command systems which allowed the requests for transfer to be rapidly elevated to the accepting physicians. We also utilized both the California Hospital Association and standardized mutual aid communicating platforms to ensure hospitals and local operational areas throughout the state were aware of the immense need and would be ready to participate. We had many distant hospitals agree early on to take patients on a routine basis and some according to a schedule (e.g., 1 a day for 5 days or 1 a week for 3 weeks).

We found it was important to transport patients out from the both the “input” and “output” side of the hospitals; we needed to offload the emergency room (ER), but if we didn’t also prioritize getting patients out of the ICU, we would end up without ICU beds. This unique disease not only fills up ICUs from the ER, but also from the medical/surgical floor.

■ JH

Were patients primarily moved by air or ground? If by air, did they need to establish landing zones or other protocols? How were patients with more advanced medical needs handled?

■ DD

Most patients were transferred by air because of the level of care needed during the transport and the long distances between hospitals. Specialized landing zones were not required as air transport out of this remote county is commonplace. These air transports included critical care teams skilled in ventilator management and patients with respiratory failure. During the first week, we transferred out over 125 patients by air. After that, the numbers stabilized and decreased to 10-12 patients a day, then just a few per day. Overall, close to 80% of patients were transported by air.

■ CJ

We provided ambulance strike teams (which consist of five ambulances of like type) to transport less critical patients by ground.

■ JH

Did GMR rotate strike teams on a weekly basis? How did staffing work?

■ CJ

Under the contract, we sent three ambulance strike teams to Imperial County for close to a month, then scaled them back a bit as the need tapered off. The two critical care transport programs in Imperial County are normally used daily but were asked to dramatically expand their capabilities (e.g., add aircraft and ambulances). They did need to rotate staff through these strike teams to maintain appropriate readiness.

■ JH

Did hospitals require any staffing or other support from the state?

■ CJ

Yes, we brought in federal Disaster Medical Assistance Team members, [California Health Corps](#) and California National Guard medical providers to support both hospitals. We provided a California Medical Assistance Team (CAL-MAT) to support the alternate care site (ACS), located at the college in Imperial County. That ACS, which is still functioning, allowed us to care for lower-acuity patients and further decompress the hospitals. More recently, we increased the acuity level to include med/surg patients.

■ JH

What was peak census for ACS?

■ CJ

At peak, we had 26 patients in the ACS, but we averaged 10-15 patients a day. We are constantly tweaking our admission criteria to encourage hospitals to offload patients to the ACS.

■ JH

Tell us more about California Health Corps; what is their current scope?

■ CJ

California Health Corps is a statewide medical staffing initiative spearheaded by the governor's office. The goal was to recruit as many healthcare professionals as possible to support the expected critical statewide staffing shortages. This program differed from the Disaster Healthcare Volunteer program by using hired staff versus volunteer staff. The initiative proved successful, as we received nearly 80,000 registrants for the program. The actual number of volunteers who were onboarded as state employees was between 600 and 800.

■ JL

That number is very fluid, since we are still onboarding volunteers. In summary, Health Corps has been very successful in getting a pool of qualified healthcare professionals to come on as emergency employees and help for short periods of time. These professionals are only inserted when there is a request for aid. They are not supplanting; they are a resource for facilities to request of the state when facing their own staffing challenges.

■ JH

Have you been able to find enough providers not occupied with their daily duties so that they can deploy?

■ CJ

The Health Corps personnel have been invaluable, but we have faced those challenges as some registrants have not been able to respond to help because of their jobs and some refused to work in a COVID-19 environment. However, they are just one tool in the toolbox; we have brought a host of resources to bear to this response. We have deployed over 600 CAL-MAT members to support multiple missions, including the ACS, federal medical stations (FMS), skilled nursing facilities (SNF), and long-term care facilities. EMS (including GMR) has provided paramedic and EMT support, and we have also brought in federal partners.

■ JH

Is the ACS licensed by the state? How do they operate?

■ DD

The ACS programs have been allowed through executive order for this disaster response to help mitigate the COVID burden on the hospital systems. Many sites have been extensively utilized and some to a minimal degree, but I see them as an absolute requirement in the overall preparedness formula, as models are unable to guarantee expected surge on our hospital systems.

■ JH

What other allowances or waivers has the state taken on to support this event?

■ CJ

The state ACS and FMS programs are run and managed by the state utilizing state and federal medical teams. State CAL-MAT members become state employees and are covered for insurance and liabilities. Also, ACS are not bound by same rules as hospitals. The department of public health handles COVID-19 surge-related waivers for hospitals and grants patient ratio waivers on a case-by-case basis.

■ DD

Regarding EMS personnel, we have developed several state waivers that have allowed EMTs and paramedics to use their scope of practice within stationary care environments such as hospitals, ACS, and SNFs. These waivers have been extremely helpful and used efficiently and extensively over the course of this event. That also reflects a core problem: a significant shortage of healthcare—particularly critical care—personnel. We have large volume requests for critical care personnel throughout the central valley. As a solution we have put together “Critical Care Strike Teams” to help support overwhelmed hospitals, and our federal partners have supported us by providing eight additional 20-person critical care teams. We do also need to figure out ways to rapidly broaden and accelerate an expanded healthcare workforce and we need to maintain the existing workforce to the best of our ability. This includes keeping personal protective equipment (PPE) procedures optimized, not allowing staff to get complacent about PPE, maintaining morale—all while bolstering and bringing up through the ranks additional staff to support the response.

■ JH

What is the current situation with Imperial County? Have things tapered off? Have you had to implement similar support in other areas?

■ CJ

Thankfully, the county is trending in the right direction. In the past two weeks, we have not transported any patients out of county. Both facilities have increased ICU capability and the ACS is helping. We are also seeing less COVID-positive patients in that area. But there are hot spots; there are surges in the central valley as well as in the northern part of the state. Federal and military staff are supporting the ICUs around the state as needed. We are also sending in CAL-MAT SNF strike teams when SNFs need it to provide short-term care, staff training and education, and help with schedules.

■ JH

What were your biggest lessons learned from this patient transfer experience?

■ DD

From the highest-level perspective, our goal at Imperial was to provide support from all directions to maintain the level of care Californians expect and avoid being forced into the realm of crisis care delivery. I try to divide the Imperial response into airway, breathing, and circulation with the goal of keeping the two hospitals viable. First and foremost (airway), we needed to offload an adequate number of critical patients to maintain enough bandwidth for viable care of patients in the hospitals. Continued level loading had to be maintained to keep the county facilities down at a level where they could continue to care for the large numbers of patients they had coming in through the ER daily and transitioning from med/surg to ICU. In terms of “breathing,” we need to provide ongoing support for the county, including optimized COVID care so that patients hopefully have a shorter hospital

stays and better outcomes. These interventions include training, additional ICU staff, pharmaceutical and ventilatory support, but also building out additional surge capability in the hospitals as hospitals do patient care best. Lastly, in maintaining “circulation,” we must ensure the SNFs are well supported or they could immediately fill your hospitals rather than support them. Standing up an ACS for low acuity patient offloading and ensuring a level of home healthcare is available to maintain improvement in the borderline discharged patients is also helpful.

■ CJ

One of the takeaways for me from this experience is the importance of effective communication and coordination and being able to work through our systems like MHOAC and regional programs. When using a hybrid system and working through the county and regional approach it is helpful to ensure everyone is on the same page. Another takeaway is the importance of having a regional coordination center; the AATC was incredibly valuable in helping us move and track patients all over the state.



Dr. Duncan and Mr. Johnson visiting El Centro Hospital. Photo courtesy of authors.