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How observation units and texting shortened hospital stays during COVID-19

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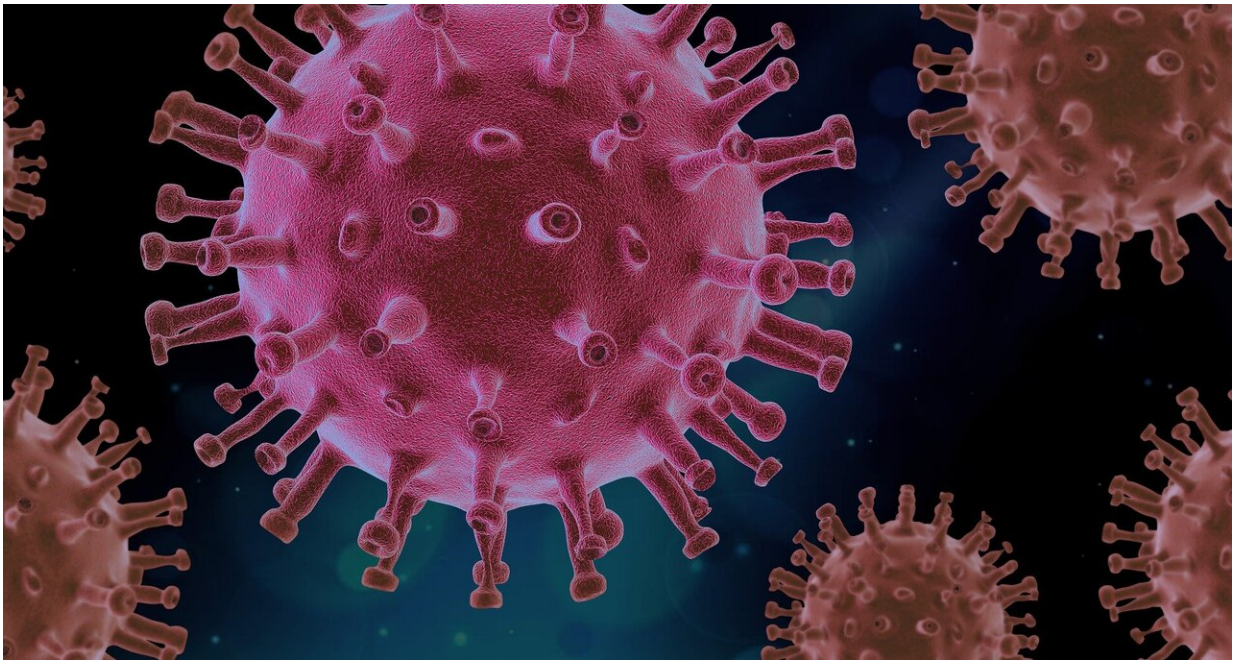

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Depending on how you count them, it was during the second or third surge of COVID-19 patients when the COVID Accelerated Care Pathway (CACP) launched on Dec. 14, 2020 at the Hospital of the University of Pennsylvania (HUP). Amid nationwide concerns about increasing strains on hospital capacity, this was a program designed to streamline care for patients who were sick enough to require

hospitalization for COVID-19 but could be safely discharged to recover at home after being initially stabilized at the hospital.

In an analysis published this month, the CACP was found to be highly effective in safely reducing hospital length of stay, a coveted metric during the worst of COVID-19. And it was all only possible once the health system took a step back to evaluate a problem that quietly developed under the umbrella of the pandemic.

The origins of the CACP could be traced to a call leaders had in November 2020, when fall was waning and case counts were waxing. David A. Asch, MD, the executive director of the Center for Health Care Innovation, recalls a discussion of a growing number of patients being admitted and discharged in the span of a few days—a labor-intensive trend that was, perhaps, not the best use of hospital resources or the right pathway for providing care to those types of patients.

Asch reached out to a key trio: Austin Kilaru, MD, an assistant professor emergency physician, M. Kit Delgado, MD, an assistant professor of Emergency Medicine and Epidemiology, and Kathleen Lee, MD, who was then director of Innovation in Emergency Medicine. It took a weekend for Delgado and Kilaru to run some numbers, then Lee put it all together and presented their ideas to the leadership group.

Effectively, the analysis showed that short hospitalizations were often unavoidable, but it might be possible to expedite the discharge for patients who could continue to recover at home—with some additional clinical support from the health system, of course.

Shifting COVID care from hospital to home

When the CACP was launched, key work had already been done by Keith Hemmert, MD, the medical director of HUP's emergency

department. Hemmert and his team developed an algorithm to identify patients coming into the emergency department who had medium-severity illness—such as blood oxygen levels being low but not severely low—due to COVID-19, which was useful for identifying candidates for the program.

"Identifying these patients early in their encounter with the health system allowed us to set them on a trajectory toward early discharge to home, and meanwhile allowed us to prioritize the right resources for patients who were seriously ill with COVID-19," Hemmert said.

On top of having the algorithm in place, previous work led by the Center for Health Care Innovation had sought to shift care from the hospital setting to home.

"All of our previous efforts to innovate ways to improve care delivery prepared us to understand the concepts and challenges of this new problem," said Kilaru, the lead author of the paper evaluating outcomes from the CACP.

In particular, the CACP built upon work that led to COVID Watch, which many of the CACP's patients eventually used. COVID Watch enrolled patients with COVID-19 in different settings across Penn Medicine, and used automated text messaging to check in with them as they recovered at home. That program involved close collaboration between many partners, including Emergency Medicine, Penn Medicine OnDemand, and Penn Medicine at Home—the partners that the CACP would rely on.

With the institution of the CACP, the hospitals worked to identify patients who had "moderate" illness—who didn't need critical care—and needed just a little time to stabilize. Hemmert's algorithm made these patients easier to find.

"Our criteria were these: First, physicians had to determine that the patient could not be discharged directly from the emergency department," Kilaru said. "We then excluded patients with any signs of critical illness, like low blood pressure or severely low oxygen levels. We focused on patients that had real signs of illness, like fever or dehydration, that could improve with treatment."

Previously, patients like these were taken to the ICU or regular hospital wards. The CACP instead sought to change the way that observation units were used amid the crisis. As such, three negative pressure observation rooms at HUP were set aside to be used explicitly for the CACP. Those rooms fell under the jurisdiction of Stefanie Porges, MD, an assistant professor of Emergency Medicine and the medical director of HUP's Emergency Department Observation Unit. Asch called Porges and her team "the key" that made the project work.

"We're a short stay unit which cares for patients in a rapid setting," Porges said. "Rather than measuring length of stay in days, we measure it in hours. We care for patients in all specialties and diagnoses who are not safe for discharge from the ED, but might not require a lengthy inpatient hospital admission."

When the CACP launched in mid-December 2020, its patients were the first ones with COVID-19 that her team would care for.

"We had to rapidly educate our team, and manage the personal stresses of all providers and nursing and care managers," Porges said. "The CACP team—and Amy Lockwood [MSN, CRNP], our lead emergency department advanced practice provider manager, in particular—was very hands on during the first week of implementation. Having shoulder-to-shoulder support was instrumental in overcoming the challenges of the project."

Heading home

Once patients had stabilized in the observation unit and were judged safe to discharge, they were enrolled in at-home monitoring via text message, either COVID Watch or COVID Pulse (an offshoot of COVID Watch that also issued pulse oximeters). The patients stayed enrolled in the program for two weeks, with a case manager keeping an especially close eye in the first 24 hours after discharge. If their symptoms got worse at any point, the patients would be directed to a team of live providers who could guide them to needed care, including re-hospitalization, if needed.

"Patients were happier to be discharged home instead of staying in the hospital for a few extra days," Porges said.

Kilaru's study of the program also found that, from the launch of the program in December to the end of January 2021, only two patients of the 44 enrolled needed to return to the hospital within two weeks of discharge. When compared to similar patients not enrolled in CACP, proportionately twice as many were re-hospitalized.

Importantly, the length of hospital stay for the CACP patients was less than half of similar patients outside of the program, saving approximately two days in the hospital per patient. That is a boon during COVID-19 surges. And while the study obviously focused on COVID-19, it has implications for future crises, too.

"Our goal is to provide the optimal care in the right setting," Kilaru said. "If we can safely discharge patients who no longer require hospital-level care but still require support and monitoring, then this can greatly improve hospital capacity issues all around the country."

Asch is proud of the quick work by a multidisciplinary team, which spanned a wide swath of the health system, ranging from Emergency

Medicine to Internal Medicine, Infectious Disease, Pharmacy, and Social Work.

"This story is a combination of identifying a problem, using careful data analysis to confirm it and find potential opportunities, then designing and executing a plan, all done quickly," Asch said. "It's the way innovation should be done, especially in a crisis."

More information: An Accelerated Hospital Observation Pathway to Reduce Length of Stay for Patients With COVID-19. www.ajmc.com/view/an-accelerat … tients-with-COVID-19

Provided by University of Pennsylvania

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