Coltrain

COLTRAIN CLINICAL PARTNERSHIPS

The rules are changing: Empowering clinicians by breaking down communication barriers with a common platform built for modern times

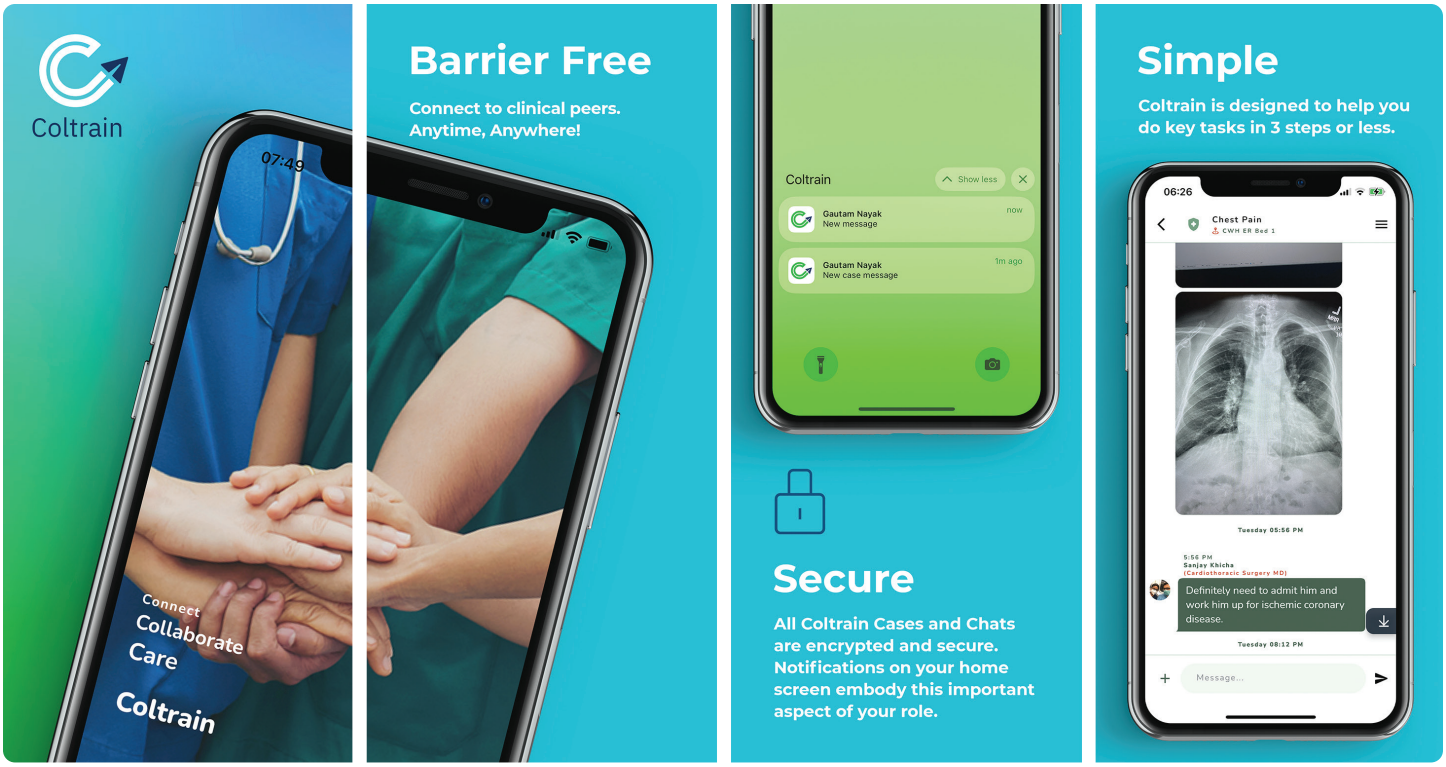
Problem

Health care professionals in rural settings are often primary care-based, geographically isolated, work in critical access hospitals, and limited in their access to specialists. In the Covid era, it has been difficult to transfer patients to larger hospitals for a higher level of care, particularly given the lack of bed availability and staffing shortages in these tertiary care centers. Outpatient specialty referrals can take months, even for the sickest patients. As our patients age and become increasingly complex, they move from one health care facility to another frequently, whether it is in the hospital inpatient setting or the outpatient clinic setting. In rural areas, this issue is magnified and the care team can traverse multiple clinics and hospitals, broad geographic areas, and countless healthcare systems. These systems have their own electronic medical record systems that rarely communicate with each other. In fact, this problem also applies to health care professionals caring for patients in urban areas with multiple hospitals in close proximity. How do we as rural or urban health care professionals in different specialties and different health care systems communicate about these patients, getting on the same page at the same time to provide real time care with the most important information about these patients at our fingertips? How do we modernize and simplify this process while securing patient health information?

Solution

We created Coltrain. It's a HIPAA-secure mobile application, independent of any EMR, and free for individual health care professionals. It's not a telemedicine platform for patient communication or intended for patients, but is rather only for clinicians needing to communicate with other clinicians to care for patients. Coltrain is built to allow health care professionals to discuss cases in a team-based format, sharing their clinical decision making based on the data entered into the patient-centered case and the real time discussion between specialists. Coltrain works across hospitals, clinics, or health care systems. By going directly to clinicians, the application is fast and straightforward, with no learning curve, and is ideal for daily use or for critical situations requiring complex care or care coordination. Clinicians that don't have access to specialists in their local institutions can use Coltrain to take care of the sickest of patients in coordination with specialists while they are awaiting transfer. Coltrain has its own address book and secure chat to make clinical connections effortless. Within cases, clinicians can be added at any time and view the entire text and image stream, removing redundancy and quickly getting colleagues on the same page. While the EMR is static, patient care is not. Coltrain gives health care professionals the flexibility they need to take care of sick patients, saving time and saving lives.

Save Time, Save Lives:
Impactful Coltrain Use Cases



Enabling Rural Clinicians to Keep Care Local When Beds in Larger Centers are Scarce

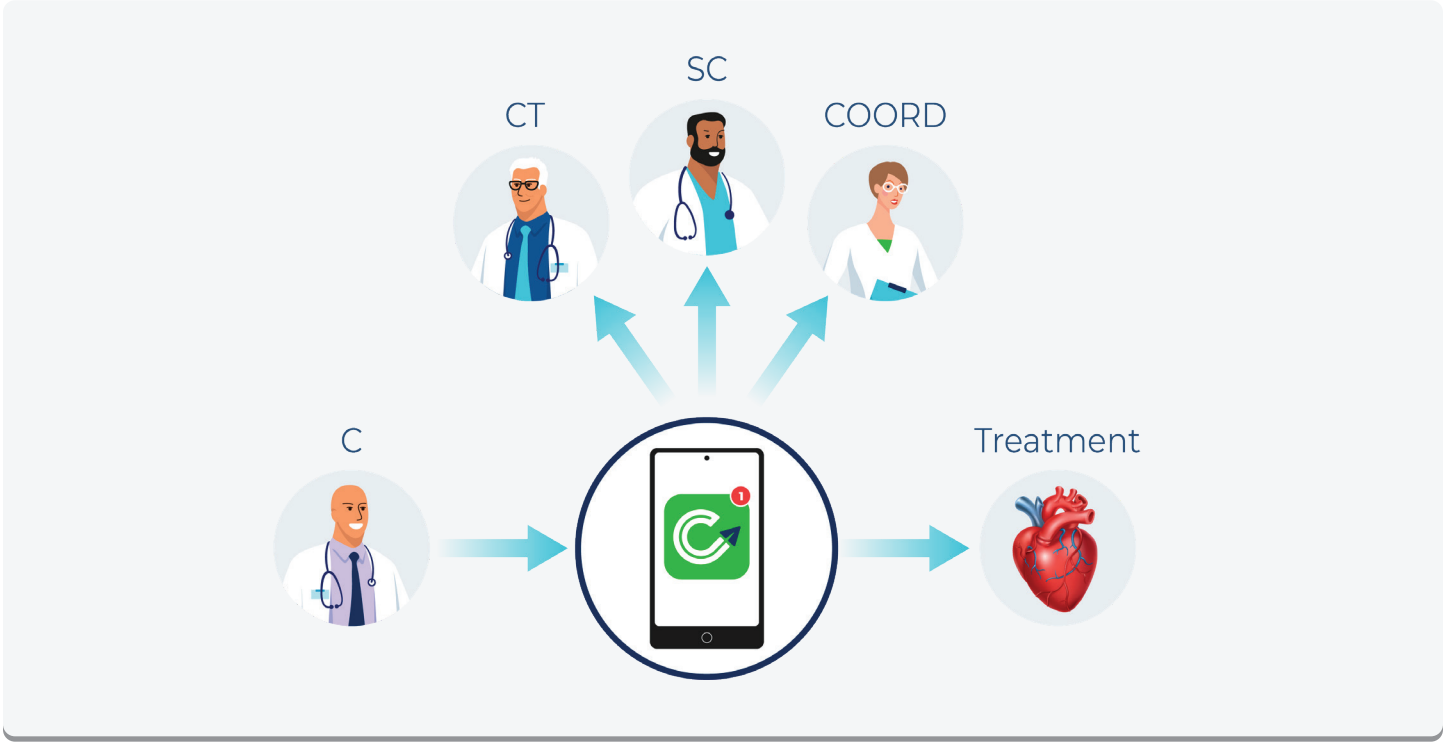
Managing a Covid 19 patient with sepsis, respiratory failure and acute renal failure in rural Nebraska

A 52 year old male with Covid 19 in January 2021 presented to the critical access hospital in Geneva, Nebraska with early signs of respiratory failure. His condition deteriorated quickly requiring intubation and mechanical ventilation. He subsequently developed pneumonia, sepsis, and acute renal failure. No beds were available in larger hospitals for transfer of this patient for higher level care.

The family practice doctor caring for the patient needed help from critical care physicians and nephrologists, though these services were not available in Geneva. The physician contacted her friend, a cardiothoracic surgery nurse practitioner in Wichita, KS, and was advised to use Coltrain to create a case with a critical care physician and nephrologist already on Coltrain in Wichita to help manage the patient. Using Coltrain, she was able to quickly describe the clinical scenario, upload relevant imaging with her phone camera, and provide critical patient information, such as ventilator setting and labs.

Within the Coltain case, multiple specialists in Wichita were able to help the on-site family practice physician in rural Nebraska manage the patient (helping adjust the ventilator and providing guidance on antibiotics, pressors, and inotropes). After multiple days of treatment in Geneva, this patient was transferred to Omaha when a bed became available and ultimately survived with a good outcome.

High level, complex cardiology care in a small rural hospital in Washington



A 68 year old man with a debilitating heart arrhythmia living in a remote part of Washington needed a high risk medication, typically only given as an inpatient in a monitored setting. Due to bed shortages in the closest tertiary cardiac care center in Wenatchee, Washington, he was not able to get the medication for months. This led to stress for the patient and the entire healthcare system due to numerous EMS calls and ER visits for symptomatic arrhythmia.

Using Coltrain, the patient was admitted to a small, critical access hospital near his home in Omak, Washington. His local care team in Omak was able to seamlessly communicate with the specialty cardiology team over 120 miles away in Wenatchee to assist in managing the patient's complex heart arrhythmia while he successfully received the medication. Lifesaving care administered through effective collaboration and information sharing via Coltrain.

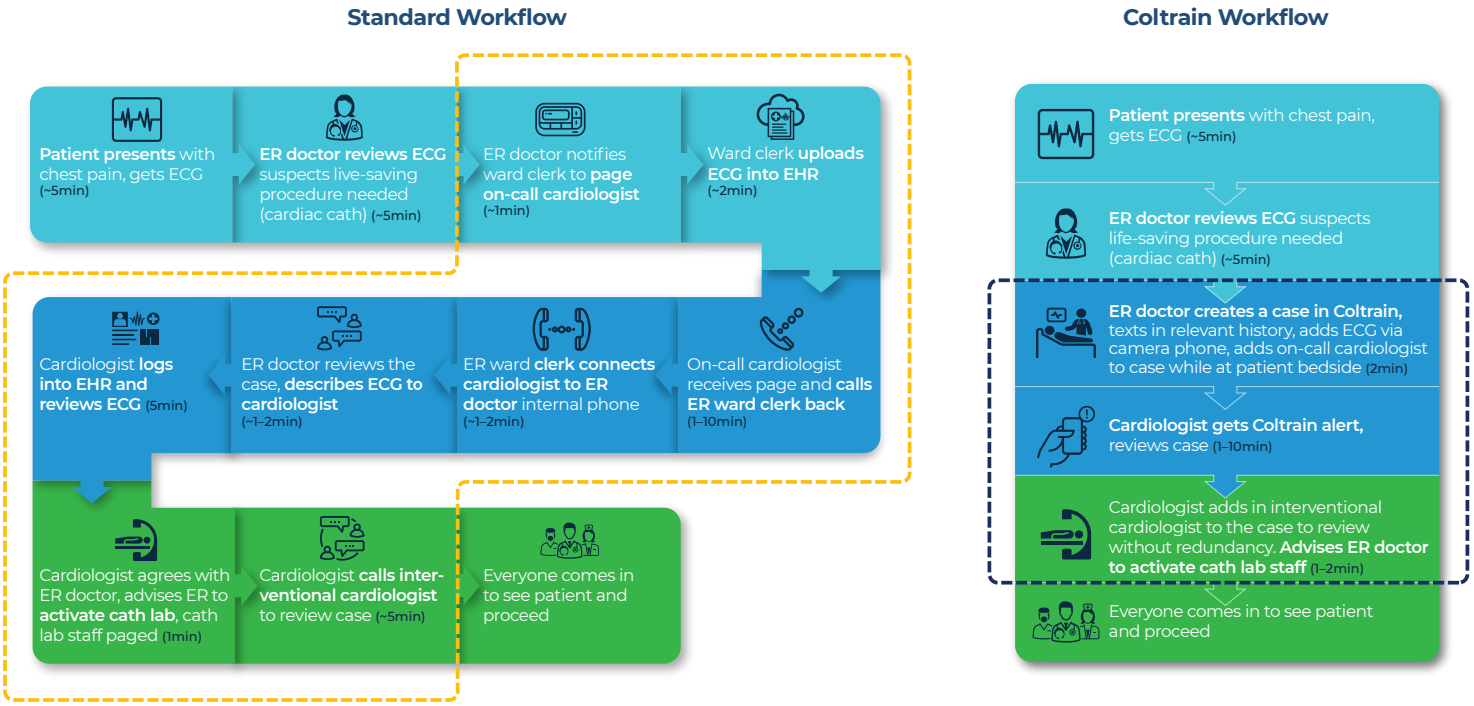
These cases highlight how Coltrain can be used by clinicians in smaller hospitals to effectively communicate with colleagues, often specialists, in larger centers to deliver life saving care. In some cases, this buys time for the larger center to allocate resources for the incoming patient, especially with bed shortages. In other cases, care can be kept entirely local through the support of specialists via a Coltrain case, utilizing valuable resources in smaller hospitals. In these scenarios, Coltrain overcomes barriers and simplifies what is typically a very complex, redundant, and time consuming workflow.

Coordinating Care Rapidly for Critically Ill Patients

Treating a Heart Attack Faster and More Efficiently

When a patient presented to the ER in Wenatchee, Washington with an ST elevation myocardial infarction (heart attack), an ER physician used Coltrain to connect with the on call general cardiologist and an interventional cardiologist instantly to determine the next best steps.

The patient ultimately went to the Cath lab to open the acutely blocked artery. Using Coltrain, and avoiding pagers, scanners, and fax machines, the cardiology team in Wenatchee was able to streamline workflow, reduce steps, and get the patient's blockage open at least 15 minutes faster than usual care, reducing the patient's mortality by 15%.



8 steps simplified to 3 steps — Time saved with Coltrain = 15 minutes

Urgent Transfer to a Specialty Center for a Ruptured Thoracic Aneurysm

A 79 year old male farmer from rural Kansas presented to his local hospital with severe upper back pain and difficulty breathing. A CT scan showed a left hemothorax, prompting the ER physician to contact a transfer center and speak to a cardiothoracic surgeon in Wichita, Kansas. The surgeon needed to view the CT images to understand the condition, but was unable to due to a lack of connectivity between the two hospitals.

The surgeon asked the emergency room physician to download Coltrain, quickly create a case, and using the app take a video of the relevant CT scan images. Viewing these images in Coltrain, the surgeon quickly diagnosed a contained rupture of the descending thoracic aorta requiring open surgical repair. The cardiothoracic surgeon assessed that this highly complex surgical procedure could not be performed in Wichita, and the patient

needed to be transferred to a quaternary care institution in Houston, Texas for the optimal outcome. Using Coltrain, the cardiothoracic surgeon in Wichita simply added a cardiothoracic surgeon specializing in complex cases in Houston to the case.

The surgeon in Houston could immediately read the text stream which included the clinical scenario and the relevant images from the CT scan. The discussion in the Coltrain case took five minutes between all of the physicians involved, and the surgeon in Houston accepted the patient. Transfer arrangements were then quickly made, and the patient was subsequently air lifted to Houston directly from the rural hospital in Kansas, bypassing Wichita where the surgery could not be performed.

Prior to Coltrain, this scenario would have taken at least 2-3 days, with the patient transferring from the rural hospital to Wichita and then on to Houston, leading to needless delays and possibly a bad outcome. In this case, the process took minutes, and the patient received the emergent care he needed in an expedited fashion.

Expedited Outpatient Evaluation for an Urgent Complex Valve Procedure

A 91 year old man presented to the Wenatchee cardiology clinic with chest pain that had been progressing for weeks, to the point that many daily activities at home brought on symptoms. He had a severe valve condition causing his limitations, known for the past year, but he had been lost to follow up and had been scheduled urgently with the on-call team to assess his situation. After determining a need for an urgent advanced valve procedure which would have to be done at a quaternary care center in Seattle, the on-call team considered admitting the patient and transferring him as an inpatient to Seattle. Unfortunately, there were no beds available in the hospital and 8 people were boarding in the hospital emergency room awaiting a bed. While the patient was having worsening symptoms, his condition was more chronic and he was not interested in waiting in the ER or the local hospital for days awaiting transfer.

Using Coltrain, the Wenatchee cardiologist and cardiology PA connected with a structural heart specialist in Seattle. The specialist was able to quickly understand the patient's history, review relevant imaging (tailored to the problem at-hand), and provide some immediate advice on next steps, which included a CT scan. The on-call Wenatchee team was then able to coordinate these tests through the ER and seamlessly integrate the other physicians caring for the patient within Coltrain to review the ongoing discussion with the structural cardiologist.

Once the final tests were done, the structural cardiologist in Seattle conducted a telemedicine visit with the patient while he was in the ER to review the findings and discuss next steps, which included an outpatient valve procedure the following week. The specialist then updated everyone within Coltrain and the patient's team in Wenatchee was able to discharge the patient home from the ER. The patient's son agreed to take the patient to Seattle the following week for the valve procedure, saving an inpatient admission for the patient while expediting a procedure that may have taken weeks to months to coordinate in other circumstances.

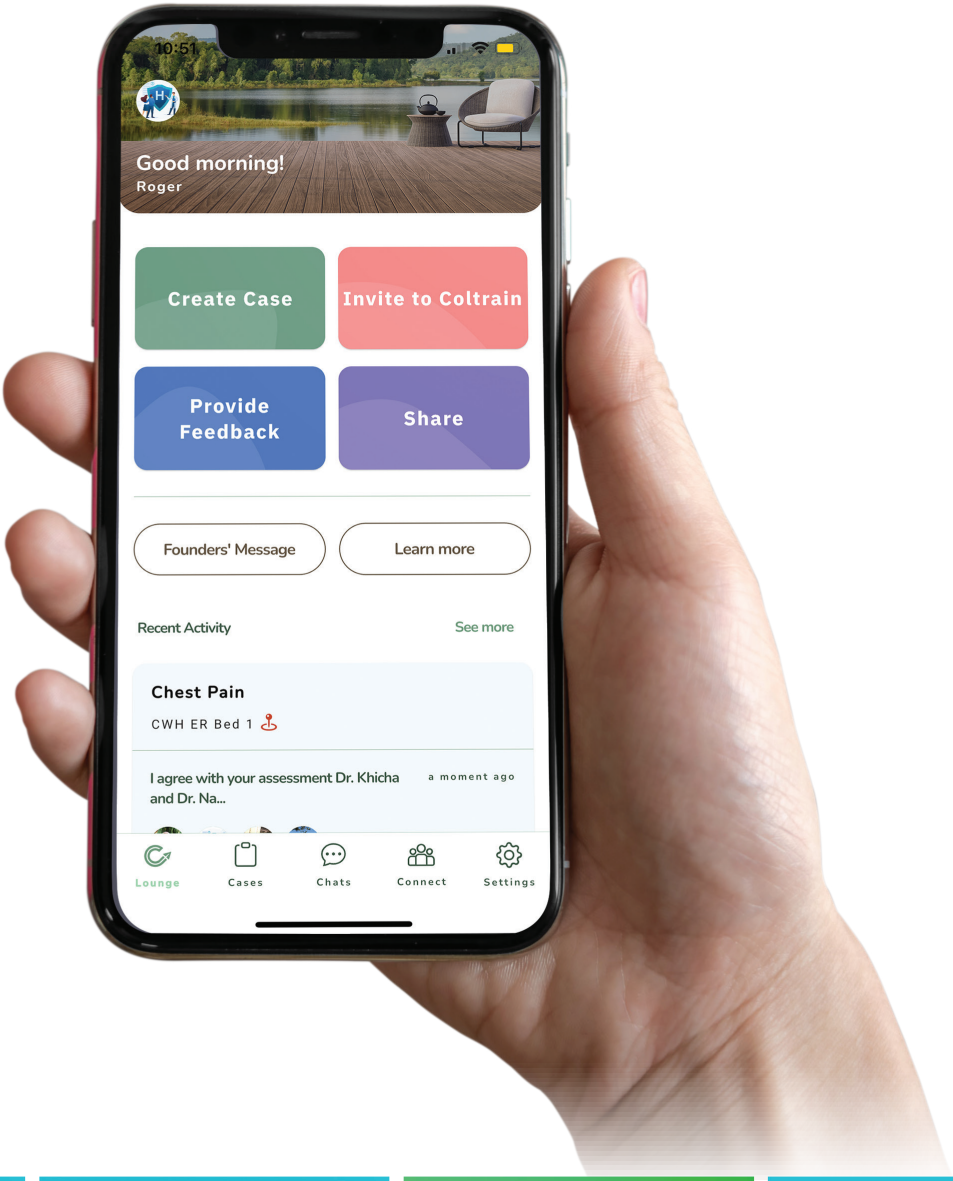
These cases highlight how Coltrain can quickly and efficiently integrate the care team, regardless of location or system. Eliminating redundancy and saving significant time empowers clinicians to get the right colleagues involved early, which often leads to better patient outcomes. Reducing steps in the process improves mortality in cardiac conditions, and also fosters faster care delivery.

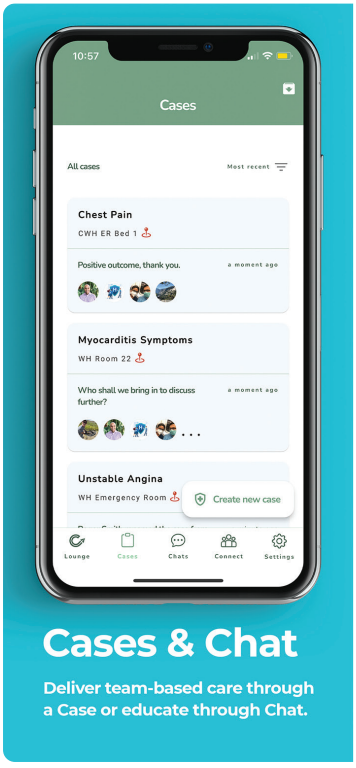
Fostering A Community, Despite Familiarity Hurdles

Bringing Clinicians Together in a Public Health Emergency

During the early stages of the COVID-19 pandemic, a physician assistant from Washington traveled to Yonkers, NY to assist in a struggling, underserved community ravaged by the then-deadly virus. He arrived to find he was working with numerous clinicians from all over the country, as well as local clinicians in the community, and communication was a challenge. Using Coltrain, he was able to coordinate care and securely communicate with a community of clinicians he had just met, but were integral to successful patient care during his time in Yonkers. Coltrain enabled the physician assistant to create an instant clinical community in a public health emergency, focused on delivering excellent team-based care and saving lives, despite the different regions and institutions from where they all hailed. Coltrain worked independent of the EMR, and all the clinicians were able to easily join the community to collaborate for patient care.

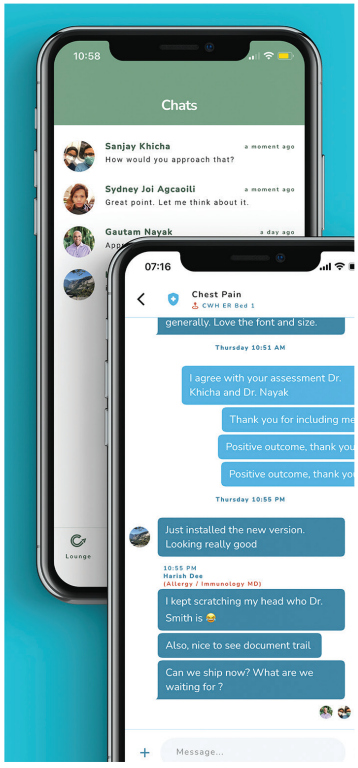
This case highlights the Coltrain community. Coltrain is creating distributed clinical networks that can come together at any point to care for a patient. This is critical in rural communities, where clinicians are often doing locums work or do not have established relationships with specialists or other colleagues in the region. Leveraging technology to bridge this divide enables clinicians to quickly and effectively bring a team together to care for patients, especially in an emergency situation, irrespective of whether they know the clinician or have their contact information.





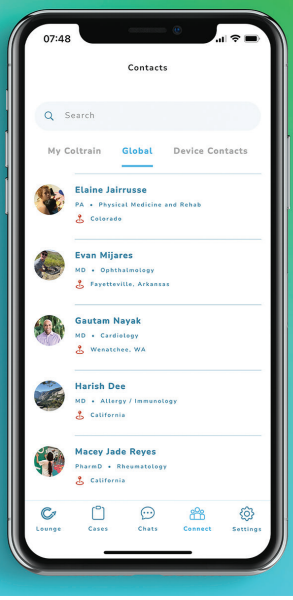
Cases & Chat

Deliver team-based care through a Case or educate through Chat.



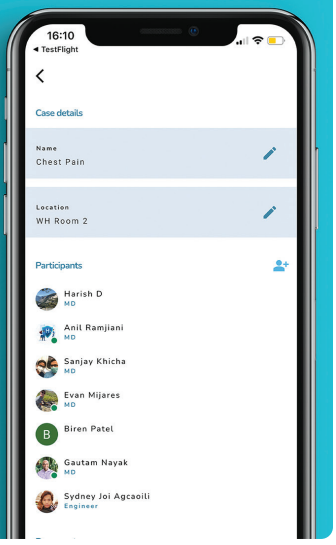
Connect

Invite and view colleagues through the Coltrain Address Book. *"Simply Connect."*



Eliminate Redundancies

Update Case name and location. Participants added on the fly can view the entire case discussion history.

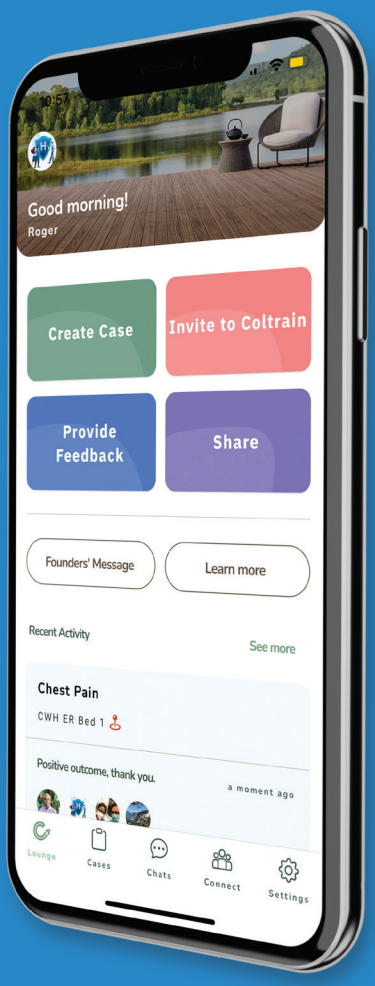


Future Vision and Partnerships

As we grow our professional community, we will unlock innovations centered around natural language processing, machine learning, and identity management. We have built a streamlined team of clinicians, engineers, and data scientists.

Our team has broad experience in multiple industries. We want to iterate the Coltrain rapidly and keep it flexible. This is mandatory for our quickly evolving health care environment. We are also committed to creating a more equitable health care ecosystem, allowing individual physicians within organizations to create their own networks.

We want to enable health care professionals to take care of patients with less hassle, more speed, optimal security, and better information. That's changing the rules using modern technology.



Coltrain

For more information, please contact us!

Gautam Nayak, MD FACC
Co-Founder and CEO, Cognition Med
gautam@coltrain.io

Sanjay Khicha, MD FACS
Co-Founder and Chief Clinical Officer, Cognition Med
sanjay@coltrain.io