Intensive COVID Community Management at Cambridge Health Alliance

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Overview

Cambridge Health Alliance (CHA) has identified a community-based management strategy to systematically manage the prevention, identification, and treatment of coronavirus (COVID) in the 130,000 patient members of CHA primary care. The aim of this strategy is to save as many lives as possible for our patients and in the surrounding communities. It aligns with the overall CHA COVID response objectives of efficient use of human resources, medical supplies, and personal protective equipment (PPE) and avoidance of unnecessary use of emergency departments and hospitals. This comprehensive management strategy for outpatients with COVID, guided by our understanding of the clinical features and course of this illness, provides comprehensive medical care to patients with suspected or confirmed COVID while simultaneously decreasing unnecessary use of hospital resources and mitigating the risk of continued community transmission. As COVID disproportionately affects populations with social determinants of illness risk factors, a core population served by CHA, this strategy provides value-based care that allows maximization of resources for vulnerable patient communities.

Deploying a Continuum of Care COVID Management Strategy

The pillars of the COVID community management plan are prevention, identification of cases, early management at home, escalated management in a specialty respiratory clinic, late management at home and, finally, escalated management in the ED and hospital.

Prevention is accomplished through scripted staff outreach to our 30,000 patients with identified risk factors for COVID complications. Patients are educated on social distancing and other measures like hand washing. In addition, trained staff review the patients’ medications, arrange for refills if necessary, and assess the need for further management of underlying medical conditions with subsequent primary care provider (PCP) televisits as appropriate.

Patients with symptoms concerning for COVID are referred to the centrally managed COVID Triage Center. A dedicated group of nurses determines whether the patient’s symptoms are clinically consistent with COVID and assigns a risk level based on risk for severe disease complications. Nurses also evaluate patients for symptoms requiring urgent in-person assessment at the Respiratory Clinic and determine whether patients meet criteria for testing. All patients receive robust education on home care with attention to self-isolation and self-quarantine which is about 10-15 minutes of nurse telephonic education.

After triage, patients at elevated risk for complications are centrally managed by a dedicated team of providers who follow a panel of COVID patients with frequent televist outreach. The management approach is not predicated on testing but rather on the presence of clinical COVID and the first day of symptoms. Multiple risk transition protocols help to identify patients who may need additional resources and, conversely, patients whose clinical course has sufficiently demonstrated that they are not likely to develop severe disease. These protocols are not based on underlying comorbidities alone but also on a nuanced understanding of social determinants of health. If symptoms concerning for severe disease develop during longitudinal care, or if they are identified at time of initial triage, care is escalated to the Respiratory Clinic.

The Respiratory Clinic has a highly optimized workflow that limits the amount of PPE required per patient to approximately one-fifth of what might be required in emergency care settings.
Unlike a typical urgent care setting in which disposition may be decided based on limited algorithms, the patients in the Respiratory Clinic setting are evaluated in context of their chronic disease and accompanying risks including medical, behavioral and social factors. In addition to providing appropriate medical care and advice to all patients, those even with moderate to severe symptoms are most often returned to community management with an increased intensity of provider monitoring through televisits and additional Respiratory Clinic re-evaluations as necessary. Patients who develop evidence of severe illness likely to require hospital-level resources such as oxygen are referred to the Emergency Department (ED).

All patients discharged from the inpatient hospital teams are linked back to community management, and all patients with results pending at the time of discharge from the ED or hospital are also referred, including those who do not have a primary care provider. This is likely to help with earlier discharge from the acute setting. Community management providers also have training in advance care planning conversations and, along with patient’s PCPs, connect patients and family to palliative care at home if that is the patient’s preferred management choice.

Combined, this strategy continues community-based care for patients who would be admitted in other health systems that are not able to provide the intensive, longitudinal remote care. Thus, CHA avoids excess PPE and material use, decreases ED visits, and leaves hospital beds open for the sickest patients. In the preliminary days of this strategy, CHA has avoided ED visits for over 500 patients who would have otherwise been triaged there, and initial data show our patients have outcomes at least as good as those seeking emergency care instead of community-based management.

The avoidance of excess costs and inpatient resource use show how a community-based strategy can help augment the capacity the health care system needs – perhaps avoiding inpatient settings from being overrun and collapsing during this outbreak. The appropriate compensation for this community-based strategy should be commensurate with an inpatient strategy in order to adequately incentivize health systems to take this approach.

**The COVID Intensive Community Management Model**

The CHA Community Management program is based on a clinical approach to outpatient COVID characterized by the following principles:

1) At this time in the state of Massachusetts, COVID cannot be excluded on the basis of clinical signs or symptoms alone, and that, conversely, it is important to avoid cognitive anchoring on COVID and missing other important disease processes.

2) There are risk factors that predispose patients to severe disease, and these risk factors should be used to guide how closely a patient is followed.

3) There are known “turning points” in the disease process when patients are more likely to develop new severe signs or symptoms, if they progress to severe disease.

4) In the outpatient setting, the manifestation of severe disease is pulmonary involvement.

Patients who present to CHA Primary Care with complaints related to COVID are triaged by the COVID Triage Center. Nurses use telephone interaction with patients to determine whether the patient’s symptoms are clinically consistent with COVID. Patients are then risk-stratified based on our understanding of patient characteristics and comorbidities predisposing to severe disease. As it is well-known that many patients experience mild disease, resources are focused instead on those patients most likely to develop severe disease.
Patients identified at moderate- or high-risk for severe disease are assigned to a community manager. Community managers are primary care providers, trained in COVID-related management, who devote their clinical time to managing a “panel” of suspected or confirmed COVID patients for the length of their illness. Community managers are in close contact with patients’ PCPs. Likewise, PCPs are also encouraged to refer patients with low-risk presentations to community management if they believe a patient requires closer monitoring.

Community managers reach out to patients based on a schedule guided by our understanding of the typical COVID clinical course at 24 hours after initial phone call and again at days 4, 7, and 10, with many patients receiving outreach significantly more frequently or for a longer course. Patients who could benefit from in-person are set up for a visit to Respiratory Clinic. CHA is additionally building capacity to provide additional services to patients at home, including mobile integrated health through partnerships with paramedics for patients requiring urgent evaluation and basic management. The combination of close telephonic management with the ability to provide in-person evaluation allows patients to be managed in a clinically appropriate way in the outpatient setting, while dramatically decreasing the need for patients to utilize emergency services.

The Community Management program is supported by additional staff, including administrative staff and a dedicated Outreach Team. This team is available to provide additional support to patients who request documentation for work or other resources in the setting of self-isolation, and to perform additional “symptom checks” for specific patients. The other main task of the Outreach Team is to amplify the messages of self-isolation and self-quarantine that are reinforced by all team members across the entire COVID Continuum of Care to help decrease the risk of disease spread. All patients who are identified as low risk and not requiring scheduled follow up by a dedicated provider receive a call at 24 hours after their original presentation to review self-isolation and self-quarantine precautions.

The Community Management approach to COVID is a comprehensive strategy using the well-honed tools of primary care to identify and follow patients most at risk for severe disease. This approach provides optimal outpatient care to patients with COVID while simultaneously reducing the pressure on broader system resources, both by minimizing use of higher levels of care unnecessarily and by working to ensure that we empower our patients to decrease the risk of further community spread.

The Respiratory Clinic Care Model

The CHA Respiratory Clinic focuses on in-person evaluation of patients with fever or new, concerning respiratory symptoms unable to be managed through televisits and for clinical management of COVID19 patients who are at risk for poor outcomes. This strategy leverages the strength of clinicians with robust acute and chronic care capabilities to provide an alternative to the emergency setting for patients without emergent symptoms.

CHA Respiratory Clinic has highly optimized workflows that allow evaluation of patients by trained primary care clinicians newly specializing in outpatient COVID19 management. Clinicians see patients for COVID19 infection, make clinical evaluations about other possible and comorbid presentations, and empirically treat various possible infections through guidelines co-developed with outpatient infectious disease specialists and pulmonologists. Through excellent clinical skills, they minimize use of diagnostics such as lab or imaging. The care model includes connecting patients to crisis counseling, palliative conversations, and seeks to transition patients to higher levels or palliative levels of care when clinically appropriate through shared decision making.
By bringing together family medicine, internal medicine, and infectious disease primary care clinicians along with nurses and medical assistants, the team leverages diverse experiences and perspectives. This, combined with a clear sense of purpose and continuous, iterative improvement, creates a team that has been able to rapidly adapt to changes in supply chain, emerging patient needs, and new clinical competencies. Nurses oversee codes, ED transfers, PPE management, and partner with MAs on the patient flow and risk stratification.

The care of COVID19 patients is highly dependent on a fragile and shifting supply chain to provider appropriate staff protection and infection control. The Respiratory Clinic optimizes use of a single-entry point, immediate patient rooming, and evaluation by one provider in N95 and gown, thus avoiding time in any common spaces or mixing with other patients. The number of gowns used per patient in this model is 1 per patient per evaluation compared to at least 5 per patient per evaluation in an ED setting for suspected COVID, and 25-50 in a hospital inpatient setting. Areas in the clinic are designated as clean and dirty to signify what PPE and precautions should be used. All staff use procedure masks to limit community exposure between asymptomatic health care workers.

Of the patients that are positive for COVID, roughly 50% present to the Respiratory Clinic on day 5-8 which is considered a high-risk time for early onset of ARDS. They are risk stratified by the treating provider and only those most likely to benefit from admission or intubation are directed to the hospital. The decisions to transfer to an ED setting are made in close collaboration with ED admitting criteria, which are in sync with more conservative admissions standards adopted later in community spread in cities like Seattle and NYC. Respiratory Clinic only sends patients to ED when they would meet ED criteria for admission. This means that comparable patients are admitted for observation in other hospital systems which tend towards supply sensitive care, while CHA continues intensive management of fluids, fever, and other symptoms in the outpatient setting and uses the ED only when an oxygen requirement develops. Respiratory clinic provides an important in-person clinical assessment, including monitoring oxygen levels. In addition, there is not clear evidence that early admission improves outcomes, but it does come at the cost of increased healthcare worker exposures, increased use of acute care services and may eventually lead to rationing of beds and ventilators.

The Respiratory Care clinic, grounded in patient-centered care, considers patients’ medical acuity, underlying chronic disease risk, and social risk factors, and synthesizes the holistic information to impact their clinical course. The judicious use of PPE and human and equipment resources creates the health system capacity to care for more patients in total and sicker patients in acute settings. As primary care clinicians develop COVID management specialist skills, they are able to do whole person care in a time when care is difficult to come by - seeing newborns of COVID positive mothers, prenatal patients with COVID, and the entire age spectrum as well as comorbidities. Continued education about risk for spread helps us to mitigate risks in the communities. In addition, the emerging roles in palliative care and crisis management are unique to this respiratory clinic model.

Financial Impact of Intensive Community Management

The cost of this model is notably less that equivalent care done in an ED setting in terms of staffing and equipment. The financial impact of the Respiratory Clinic alone could be measured through reduced ED transfers compared with other academic medical centers, as well as the number of days of hospitalization avoided at CHA compared to other nearby health systems.

Initial data, not yet reaching statistical significance in the first three weeks of this care model, indicate that nearly half the first 100 COVID cases seen in the Respiratory Clinic would have met admission criteria in academic health systems. Only 5 of these ended up needing
hospitalization and the others progressed through their course and recovered at home, continuing to do well now. A subsequent analysis examined respiratory clinic patients with oxygen saturation less than 94%, a relatively conservative ED criteria. Of the 20 initial patients who met this criterion, ten were admitted to the hospital after ED evaluation and one was admitted after three days of home follow up. The other 9 patients entered the intensive community management model and avoided hospitalizations that would have lasted on average four days for comparable patients managed elsewhere. They also continue to recover well from their illness.

There is further financial benefit from managing patients by televisit alone which is possible to do safely with a continuity provider checking on their “panel” of COVID patients from daily to every few days and escalating care only if needed. Most other respiratory clinic models in our local area are evaluating nearly all patients with respiratory symptoms in-person first regardless of risk and asking them to return to the clinic if they worsen.

Paying for value takes on greater importance in times of scarcity and crisis. Rather than a strategy to be aspired to when the crisis is over, payers, especially stewards of public funding, should embrace paying for value now. It will not only achieve optimized use of financial resources to impact more patients and save more lives, it will also incentivize medically appropriate use of durable goods such as hospital beds, PPE, and medical equipment that may otherwise tragically run out over the sustained course of the COVID outbreak.