

COMMENTARY

Prompt Launch of a Rapid Transitions Care Model Prevents Re-hospitalizations of Covid-19 Patients

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Vol. No. | December 3, 2020

DOI: 10.1056/CAT.20.0506

During the Covid-19 pandemic, New York City area hospitals were required to quickly and safely discharge hospitalized patients in a very challenging environment. Inpatient beds were in demand and the natural history and disease course of Covid-19 were incompletely understood. To meet this challenge, Northwell Health launched a Rapid Transitions Care Management (TCM) Program. In this program, patients discharged with Covid-19 were automatically identified and subsequently enrolled in a 14-day care transition protocol, which assessed patients in clinical, behavioral, and social domains. The rapid TCM program connected these patients post-discharge to corresponding medical advice, clinical care, and other needful resources. Over 3 months, the protocol was deployed to 1,979 Covid-19 patients across 14 hospitals. Patients who received rapid TCM were 30% less likely to be re-hospitalized within 14 days compared to 5,958 Covid-19 patients who did not receive this service, after adjusting for risks to readmission.

KEY TAKEAWAYS

- » Begin with the end in mind. The program was designed specifically to help transition patients quickly and effectively without increasing readmissions. The outcomes reflect that design.
 - » Catalogue and leverage existing IT, clinical, and operational infrastructure in order to scale a reliable clinical model. In this case, the use of our health information exchange, personnel, and communication infrastructure enabled a quick deployment and success.
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- » Adopt new technologies where there are gaps and iterate often through frequent evaluation of outcomes. In this case we added technologies to enhance our communication pathways.
- » Organize a framework for communications between clinicians and stakeholders. This facilitates rapid iterations at the local level that best meet patient needs.
- » Establish a care coordinator/navigator staffing pipeline.
- » Create a rapid guideline/guidebook that educates on the clinical and technical aspects of providing care. Do this training in advance.

The Challenges

Northwell Health is a New York-based health care organization with 74,000 employees, 23 hospitals, nearly 800 outpatient facilities, and an annual operating budget of \$13.5 billion. As the novel coronavirus reached the New York City metropolitan area in March 2020, we were presented with 3 key challenges presented by the number of patients admitted to our hospitals with Covid-19, a disease whose course was at the time largely unknown.

1. Transitioning hospitalized Covid-19 patients safely back into the community
2. Developing an evidence-based protocol for discharging Covid-19 patients
3. Creating a communication strategy with our network of hospitals regarding clinical outcomes and informing the care of Covid-19 patients

Transitioning hospitalized Covid-19 patients

Because Covid-19 represented an unknown clinical course, providers were reasonably cautious in transitioning patients from emergency departments (ED) and in-patient units to home. Planning appropriate discharge management was unclear because the disease course seemed to manifest differently from patient to patient, despite reports of general clinical outcomes.^{1,2} Much of the published literature focused on patients who were hospitalized, with very little regarding the fate of patients who were discharged from the hospital or who were never admitted from the ED. Thus, the first challenge identified by hospitals was to give providers confidence in safely discharging patients home.

Developing an evidence-based protocol for discharging Covid-19 patients

Another key challenge involved developing a promising protocol for discharging Covid-19 patients. The protocol needed to be clinically meaningful based on what was known at the time about the natural progression of Covid-19. The protocol needed to incorporate best practices of transitional care management. It also needed to ideally be consistent with standards of our existing hospital readmission reduction program.³ There was an acute awareness that these clinical resources were deployed in the ambulatory setting at a time of limited in-patient health care personnel. For that reason, achieving important outcomes was critical.⁴

Communicating with hospitals across our large network

Another challenge was to develop new ways to engage and enroll discharged patients, which we normally would do at bedside. We also had to find alternatives to the in-person presentations that normally would be used to let our hospital partners know how the programs are performing. The pandemic disrupted all of this, and other forms of information sharing.

The overall challenge that culminated from each of these and other novel challenges was how to keep Covid-19-positive patients safe and on a path to recovery after being discharged with this largely unknown disease in a disrupted health care environment.

The Goal

The aims of our Covid-19 Rapid Transitions Care Management effort included:

- Improving clinical outcomes for patients by ensuring that those discharged from hospitals with a primary Covid-19 diagnosis had support for their clinical, behavioral, and social needs in the community post-discharge
- Improving pandemic bed capacity by preventing unnecessary readmissions and ED presentations
- Reassuring providers that their Covid-19 patients would not “fall through the cracks” of the health care system after discharge with potentially grave repercussions, by enabling the appropriate in-patient discharge management and providing a discharge safety net

The Execution

Prior to the pandemic, Northwell’s care management organization, Northwell Health Solutions, deployed a TCM team who navigated patients in at-risk cohorts being discharged from our hospitals in order to decrease readmissions and post-hospital complications. The first phase of execution to address the pandemic, therefore, was to pivot our existing TCM protocol to meet the needs of discharged patients with Covid-19. This new protocol needed to deliver meaningful assessments, escalations, and access to both clinical and social services based on existing Covid-19 knowledge. The new protocol was informed by literature on best practices for transitions of care and readmission in general.⁵

There were 5 major steps needed to adapt our traditional TCM navigation model:

- Develop workflow and clinical and social assessments that met the specific needs of this population and could work in light of the pandemic-related disruption to community resources.
- Train navigators with the workflow and protocol. Some navigators were deployed to us from other service lines and were unfamiliar with care navigation.

- Engage hospital leadership to accept the program for their discharged patients.
- Maintain clinical and care management excellence through specific escalation guidelines and weekly team meetings overseen by program leaders.
- Maintain weekly communication with hospital leadership. Provide hospital leadership updates on key process indicators and recurring themes in the community; e.g., no access to PPE. Provide specific clinical patient examples.

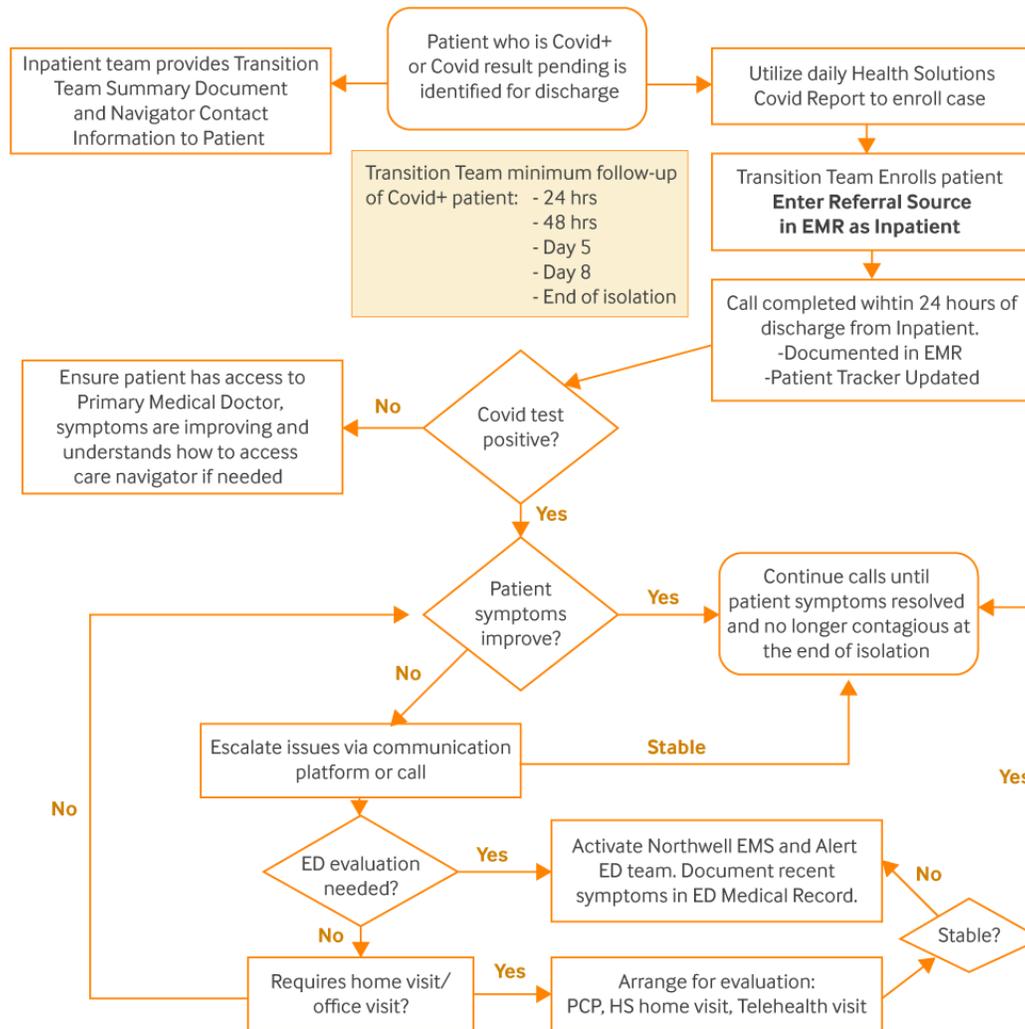
Develop workflow and clinical and social assessment

We adapted our complete workflow for navigating Covid-19 patients discharged from hospitals (Figure 1).

FIGURE 1

Northwell Health Solutions Rapid Transitions Protocol for High-risk Patients: Covid-19—Episode-Specific, Updated 07/28/2020

This workflow highlights the Health Solutions Covid-19 Rapid Transitions Protocol. Patients with a Covid-19—positive or pending test result are enrolled in a navigation program that provides community-based care management for 14 days post-discharge in an effort to increase safe discharges from the hospital.



Source: The authors

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Patients being discharged with Covid-19 were identified electronically with an automated report updated throughout the day. The team of transitional care navigators required close supervision and guidance managing patients in the home. This required being abreast of fluctuating recommendations of and guidance from the Centers for Disease Control and Prevention (CDC) or other publications. Assisting navigators was also needed oftentimes for making key clinical decisions, such as if a patient should return to an emergency room. In addition, the analytics team

was able to connect the patient census with real-time laboratory data in the Health Information Exchange, so that all patients who were discharged with either a positive or pending result would be followed. Initially, these cases were added manually to the care coordination platform, but within weeks this was fully integrated electronically with visual cues on Covid-19-positive cases as well as cases that had pending laboratory status.

Navigation protocol (Figure 2) consisted of a minimum telephonic intervention schedule of:

FIGURE 2

Covid-19 Follow-up Protocol

This table clarifies the medical and educational factors that must be covered post-discharge for the 4 touchpoints for each patient.

Medical Factors	Day 1	Day 2	Day 5–8	Day 14
Discharge Date	X			X
Previous Day's Temp	X	X	X	X
Shortness of Breath (Worse/Same/Better)	X	X	X	X
Cough (Worse/Same/Better)	X	X	X	X
Cough 1–10	X	X	X	X
Chest Pain Y/N	X	X	X	X
Confusion Y/N	X	X	X	X
Caregiving Y/N	X			
Medications Y/N	X			
Food/Toiletries Y/N	X			
Protective Equipment Y/N	X			
Educational Factors				
Isolation (Space and Mask)	X			X
Contacts	X			X
Environment	X			
End of Isolation (Timeframes)	X			
Patient Questions	X	X	X	X
Navigator Phone #	X	X	X	X
Isolation Clearance Check			X	X

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- Outreach assessment at 24 hours post-discharge
- Follow-up assessment at 48 hours post-discharge
- At 5–8 days post-discharge, a symptom or diagnosis assessment informed by clinical observations, given that patients can appear to clinically improve and then quickly decompensate at a later stage

- A 14-day close-out call to assess if the patient meets end-of-episode criteria including connection to health care network, resolution of symptoms, and end of isolation. If the patient did not meet criteria, the engagement would continue until criteria is met.

The call at 24 hours was the most intensive. It included clinical and social assessments, medication reconciliation, review of discharge instructions, and isolation protocols. In addition to the structured checklist, a key aspect of assessment was access to a primary medical doctor (PMD) with referral provided to PMD or other resources as needed. We also provided “bridge PMD” services if needed while facilitating connection to a new PMD.

Train navigators

We standardized our training of new navigators by creating a comprehensive guidebook. The guidebook includes the exact model of care, how to document that care, how to make patient referrals, and how to clinically escalate when appropriate. Our education department assisted developing and conducting these remote/virtual trainings. All new navigators were assigned a *buddy* who was already familiar with the protocols for managing our rapid transitions patients.

As a result of these processes, trainees were able to care manage patients within a week of training. Also, due to our advanced care providers being deployed to the hospital bedside, we were able to leverage physician clinical coverage from our other departments in our care management organization to help with clinical escalation.

Given social distancing and the remote work environment, Microsoft Teams Meetings was utilized to review the workflow, protocols, and referral sources.

Engage hospital leadership

Meetings were held between TCM leadership and hospital leadership to review the program and goals, and to ensure collaboration. There was already a base level of engagement and trust by hospital leadership in the quality of our care management teams because these teams existed prior to the pandemic and were aligned around the hospital value-based cohorts.

Maintain clinical and care management excellence

Because the team was composed of varied licensure, from Resource Coordinators to Nurse Practitioners, team members were given clear guidelines for clinical escalation. There were also daily and later weekly team meetings to review cases and answer questions. Clinical and care management protocols were adapted in response to changing and updated CDC and health organization recommendations (e.g., discontinued use of hydroxychloroquine in the community and initiation of prolonged anticoagulation to address the hypercoagulable state of high-risk patients in the community).

To help engage and enroll our patients, we leveraged the inpatient teams to hand out single-page information sheets to our patients explaining the program and letting the patient know we would reach out. To keep our overwhelmed hospital partners informed of what was happening with their

patients post-discharge, and any barriers we were up against, we sent weekly newsletters. In these newsletters we shared patient stories, relevant readmission data, and any barriers or needs we were assessing as we followed up with these patients in the community.

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We integrated post-discharge care documentation into the internal health information exchange and electronic health records. This provided real-time insights into the performance of the TCM program.”

We also integrated post-discharge care documentation into the internal health information exchange and electronic health records. This provided real-time insights into the performance of the TCM program. This was the very first step in the deployment of the program, engaging our Electronic Care Management platform team to create an instance where Covid-19–positive patients could be tracked, enrolled, and managed. Establishing such a unique instance was typically a 1- to 2-month process. In this case, the team was able to repurpose a previously created instance that was not heavily utilized, load the appropriate filters, user test, and go live within 1 week. The cosmetic naming conventions of the instance were managed at a later date and thereby did not impede program operations.

Maintain ongoing communication with hospital leadership

Weekly Covid-19 Rapid Transition Updates were emailed to each hospital’s leadership team. These updates included readmission rates of navigated Covid-19 patients and narrative regarding common themes in the community. Examples of community themes included lack of access to PPE or acetaminophen. Case examples were outlined that represented either good saves or potential gaps in care. In response to these updates, hospitals were able to make adjustments in discharge planning. An example adjustment included PPE being provided to patients upon discharge.

The Hurdles

The team did face several hurdles during this period related to IT, staffing and training, and ICD-10 codes.

Identifying Covid-19 patients being discharged

There were challenges identifying Covid-19–positive patients discharged from our hospitals and emergency departments.⁶ Early in the pandemic there were no Covid-19–specific ICD-10 codes, which would enable automatic reports to be generated based on diagnosis. When the ICD-10 codes became available, the utilization by clinicians could not be relied on to accurately capture the entire cohort. The analytics team addressed this by using lab data and case positivity by PCR to identify cases regardless of coding. This model of redundancy in case finding persists.

Staffing and training a workforce

Most of our clinical providers had skill sets that made them ideal to be deployed through our TCM program to hospitals to increase surge capacity. However, we also had staff in our TCM program who had never engaged in TCM work. We were faced with the challenge of how to efficiently train them in a remote environment. This was accomplished through leveraging online group trainings and developing a step-by-step guidebook. There were daily team huddles and a buddy system with a veteran TCM employee to reinforce the workflow and answer questions. Lastly, there was heavy utilization of the chat functionality within the application Microsoft Teams to keep people connected.

Establishing an IT infrastructure to enable remote electronic care coordination

Establishing even a basic IT infrastructure to manage these cases was an additional challenge. A standard in our navigation program is that every patient gets a direct line to a care coordinator available 24/7. To address this, we equipped our workforce, through remote protocols, with cell phones that could be used as direct lines, and with call forwarding capability. We also ensured that we could electronically document the various care coordination program standards around interaction intervals (e.g., a phone call 24 hours after discharge), visit types, and services provided.

The Team

The team that devised and launched the clinical protocol was made up of staff from the Care Management Organization of Northwell Health, referred to as [Health Solutions](#). It included the Medical Director and VP of Population Health Care Management; the Medical Director of Transitional Care; the AVP of Transitional Care; and program managers. The clinical work was performed by a group of navigators organized into teams that included Nurse Practitioners, Registered Nurses, Social Workers, and Resource Coordinators. The Resource Coordinators, similar in designation to community-based health workers, are non-licensed personnel, expert in the community resources and patient engagement. The total workforce trained was 139, with the total managing patients expanding and contracting in line with the total number of daily discharges.

The Metrics

We collected patient information for both TCM and non-TCM patients.

Patient Characteristics and Readmission Rates

The first table in the [Appendix](#) compares the characteristics of our non-TCM and TCM patients, and characteristics of the discharge dispositions of non-TCM patients; 7,937 total patients discharged with Covid-19 from 14 hospitals were included in final analyses. A notable proportion of patients included in this study were discharged with Covid-19 and navigated post-index discharge by our TCM team in a short period of less than 3 months (24.9%, n = 5,958; 3/9/20–7/1/20). (Figure 3)

FIGURE 3

Characteristics of Patients Discharged with Confirmed SARS-CoV-2, by Presence of Rapid Transitional Care Management Received Following Index Discharge, at Select Northwell Health New York Hospitals, 3/9/20–7/1/20 (N = 7937).

Non-TCM and TCM patients were not statistically different by gender. The mean age of TCM patients was slightly younger than non-TCM patients (non-TCM, M = 62.6; TCM, M = 56.5, $p < 0.001$). TCM patients were more racially diverse compared to non-TCM patients. TCM patients had a slightly lower LACE risk score compared to non-TCM patients (non-TCM, M risk score = 9.7; TCM, M = 8.7, $p < 0.001$). Additional detail is provided in Appendix Table 1.



Note: Risk scores are LACE scores for predisposed risk of readmitting, where higher scores indicate greater risk.⁷

Source: The authors

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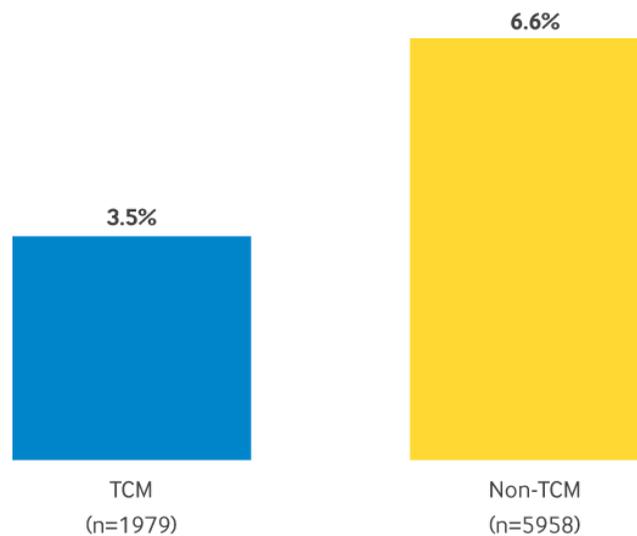
Impact of Rapid Transitional Care Management on 14-day Readmission

There is a significantly lower percentage of patients navigated by TCM who were readmitted to the ED within 14 days of index discharge compared to non-TCM patients (non-TCM, 6.6%; TCM, 3.5%, $p < 0.001$). (Figure 4 This was consistent across demographics and initial predisposed risk of readmitting. [Appendix Table 2](#) includes more details.

FIGURE 4

14-day ED Readmission Rates of Patients Previously Discharged with Confirmed SARS-CoV-2, by Presence of Rapid Transitional Care Management (TCM) Received Following Index Discharge, at Select Northwell Health New York Hospitals, 3/9/20–7/1/20 (N = 7937).

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Note: Risk scores are LACE scores, where higher scores indicate greater risk for morbidity including readmission.⁷ Statistical tests of differences available in Appendix Table 2.

Source: The authors

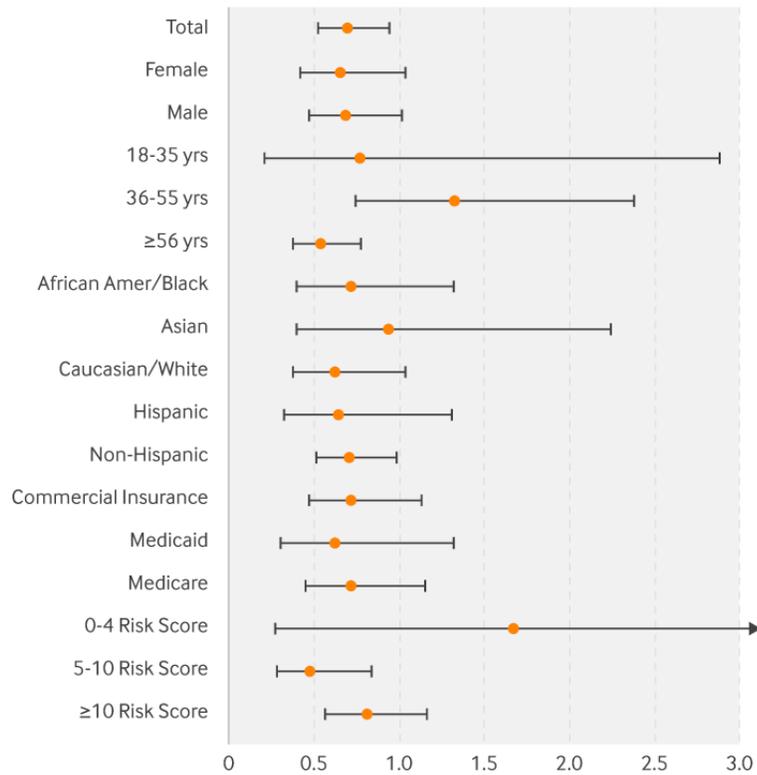
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The TCM patients were 30% less likely to readmit to the ED within 14 days post-index discharge compared to non-TCM patients, after adjusting for demographics and otherwise predisposed readmission risk. TCM patients least likely to readmit compared to non-TCM patients included those >55 years (46% less likely), non-Hispanic (29% less likely), and those with medium risk for readmission (52% less likely). (Figure 5 [Appendix Table 3](#) includes more details).

FIGURE 5

Multivariate-Adjusted Odds of Re-Presenting at the ED Within 14 Days After Being Discharged with Confirmed SARS-CoV-2, by Presence of Rapid Transitional Care Management Received Following Index Discharge, at Select Northwell Health New York Hospitals, 3/9/20–7/1/20 (N = 7937)

The TCM patients were 30% less likely to readmit to the ED within 14 days post-index discharge compared to non-TCM patients, after adjusting for demographics and otherwise predisposed readmission risk. TCM patients least likely to readmit compared to non-TCM patients included those >55 years (46% less likely), non-Hispanic (29% less likely), and those with medium risk for readmission (52% less likely). Appendix Table 3 includes more details.



Note: Odds adjusted for predisposed risk of re-presenting and all other patient characteristics included in figure. Risk scores are LACE scores for predisposed risk of readmitting, where higher scores indicate greater risk.⁷

Source: The authors

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Where to Start

For those who do not have an established transitional care program, a care coordination/navigation team should be recruited and oriented in advance of a Covid-19 surge, or for a different pandemic altogether. The team can be from any discipline that is unable to be on the front lines and/or whose services are not operating during the pandemic (e.g., elective surgical teams, ambulatory clinical

administration, clinical staff with physical limitation or who are at high clinical risk for Covid-19-related morbidity and mortality).

While most of the volunteer requests during the Covid-19 pandemic were hospital-based, a volunteer core of non-employed people could also be trained ahead of a surge to perform this valuable work. In addition to the people needed for the team, be sure to develop the IT infrastructure and open the pipeline for supplies and equipment needed to launch and sustain a clinical program remotely.

Next Steps

Our Covid-19 Rapid Transitions Care Program continues to follow patients who have been hospitalized for Covid-19. Volume of patients with Covid-19 has, however, significantly decreased in the NYC Metropolitan Area between March and August of 2020. Our TCM team has resumed our regular work transitioning at-risk patients and those in our value-based arrangements. We have integrated the Covid-19 work into our team's usual workflow and continue to review Covid-19 patients on a weekly basis. We strive to remain current with recommendations about isolation protocols, clinical presentations, and treatment.

Another variable favorable to staffing has been the rulemaking of CMS and its Center for Medicare & Medicaid Innovation, which excludes Covid-19-related spend in many of its value-based programs where staff were deployed prior to the pandemic (e.g., MSSP, ACO, BPCI-A, and CJR).⁸ Clinically, the program is better prepared to recognize symptoms, decompensation, and needed resources. Key resources include having a pulse oximeter at home and anticoagulation for hypercoagulable states to help monitor and maintain patients at home or escalate clinical care as needed.

In the event of a second Covid-19 surge, we feel the operational foundation has been laid. The program is now positioned to be quickly redeployed to manage a higher volume of patients discharged with Covid-19. Of note, the inverse relationship between normal hospital volume and Covid-19 volume has been key to ensuring adequate staffing; should that pattern change, we would be facing an additional challenge.

Appendix

[Northwell Health's Covid-19 rapid transitional care management initiative](#)

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Disclosures: Zenobia Brown, Choukri Messaoudi, Anne Flynn, Hallie Bleau, Erlind Leska, Macsood Khalilullah, Amparo Abel-Bey, and Trever Ball have nothing to disclose.

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