

# A Telemedicine Intervention for a Student-Run Free Clinic During COVID-19

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The Columbia Student Medical Outreach (CoSMO) clinic is a student-run free clinic in New York City that offers support for vulnerable patients without insurance. This model provides free student-run comprehensive primary care, psychiatry, social work, phlebotomy, and physical therapy for patients without the ability to otherwise access primary care resources. In addition, the clinic offers free medications through a partnership at a local community pharmacy, as well as specialty referrals and cancer screenings.

Fourth year medical students, who have completed a majority of their clinical training, work closely under the supervision of an attending provider licensed in internal medicine, family medicine, or psychiatry to follow up with patient care needs. The cost of all care and medication is free of charge for patients through donations and fundraising by student members.

Clinic administrative operations occur primarily through a general council leadership board, consisting of approximately 20 student members, who run all aspects of the clinic. These tasks include volunteer recruitment, fundraising and finances, pharmacy and specialty partnerships, events, and educational opportunities as outlined in **Figure 1**.

In addition to leadership roles, CoSMO offers a number of clinical roles that allow for uninsured patients to access interdisciplinary primary care services through volunteer efforts. All students work under close supervision from licensed attending clinicians in their respective discipline, including primary care, psychiatry, physical therapy, nursing, and social work. In addition, the CoSMO model allows for ongoing education for

students who are earlier in their clinical training, through robust teaching efforts. CoSMO offers a continuity clinic space for comprehensive primary care by establishing relationships and regular follow-up with chronically ill patients.

**Figure 1.** CoSMO Clinic Operations.

## CoSMO Clinic Model

LEADERSHIP	CLINICAL ROLES
Clinic Co-Chairs	Primary Care Attending
Behavioral Health Co-Chairs	Behavioral Health Attending
Associate Coordinator Chair	Primary Care Student Clinician
Student Education	Clinic Coordinator
Health Education	Behavioral Health Student Clinician
Social Work	Junior Clinicians
HR - Attendings	Associate Coordinators
HR - Students	Social Work Interns + Supervisor
Pharmacy Chair	Nursing Student + Supervisor
Finance Chair	Physical Therapy Student + Supervisor
Grantwriting Chair	Nutritional Health Coaches
Fundraising Chair	
Events Chair	
Institutional Relations Chair	
Information Technology Chair	
Q.I. Committee	

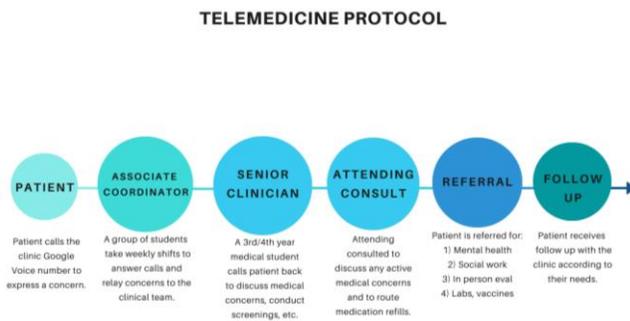
### Free Clinic Telemedicine Model

The free clinic telemedicine model included a rotating team of 6 student clinic members who managed a clinic phone line and scheduled patients for telehealth appointments. Subsequently, a team of 18 fourth-year medical students were assigned to call patients to assess medical problems and route medication refills.

Patients with any active medical problems were triaged for consultation with an attending physician via a two-way virtual platform (email, Zoom, or telephone call). However, all patient encounters were conducted via a telephone given the limited access to video-based technology and multiple barriers to its use in our clinic population.

During the era of COVID-19, outpatient clinics were closed to in-person appointments. Clinics were tasked with adapting to the circumstances by scaling up their telemedicine services. The purpose of this paper is to describe the impact of clinic telemedicine services for primary care, mental health, and social work outreach during the pandemic.

**Figure 2.** Primary Care Clinic Telemedicine Workflow.

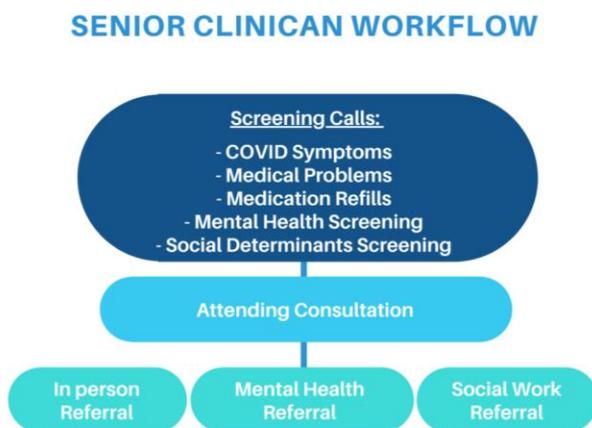


46 calls were made to 31 individual patients for primary care telemedicine from April 6 to July 31, with an average of 3 calls per week.

As part of their phone call, senior clinicians assessed:

1. COVID-19 symptom check and counselling
2. Current state of active medical problems
3. Need for any medication refills
4. Mental health screenings (PHQ)
5. Social needs assessment (housing, food, job insecurity)

**Figure 3.** Model for Senior Clinician Workflow.



**Baseline Patient Characteristics**

From April-July 2020, 31 patients were seen. The average age was 52. 18 patients had diabetes, 10 patients had insulin-dependent diabetes, 19 patients had hypertension, and 8 patients were seen through the mental health clinic.

**Problems Managed: COVID Hospitalization**

The clinic managed COVID-19 hospitalizations requiring post-discharge medical management. Patients with COVID-19 hospitalizations were followed up with greater frequency and were called more regularly by a clinic member or through our remote patient monitoring program to check for symptomatic improvement, emphasize home isolation, and assess need for changes to their medical plan. Additional patients had symptoms consistent with a COVID-19 infection not requiring hospitalization. In these patients, emphasis was placed on home-isolation, counseling on symptom severity, and the use of masks and social distancing practices.

**Triage for In-Person Referral**

The clinic managed escalations to in-person appointments. Telemedicine served as an effective initial triage tool to guide clinical decision making about the need for in-person follow up during a time when resources for in-person appointments were scarce.

**Diabetes and Hypertension Management**

Patients with diabetes were counseled on self-monitoring strategies namely through fasting blood glucose and home blood pressure monitoring. All patients without access to self-monitoring devices had a machine prescribed to the pharmacy at no cost to them. Medications, including oral antidiabetic and antihypertensive agents, injectable insulin, and other diabetes-related supplies, were electronically refilled to a partner pharmacy at no cost to the patient.

**Mental Health Evaluation and Treatment**

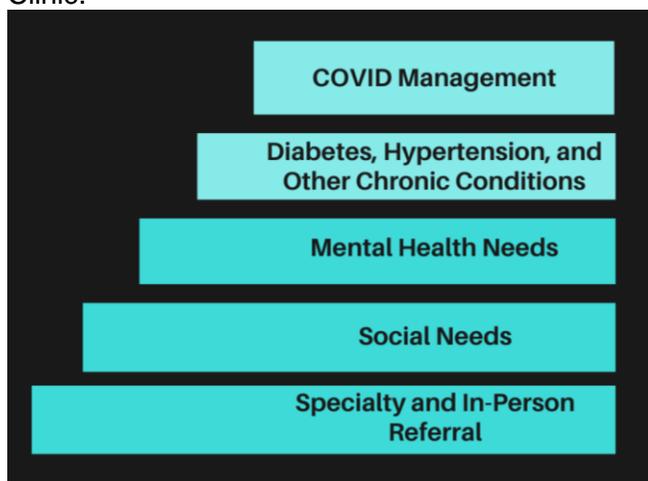
All patients received a PHQ-2 for depression screening as part of their initial triage call, and high-risk patients were referred for tele-psychiatry follow-up. Our primary care telemedicine initiative included referrals to a clinic psychiatry telemedicine service. In the psychiatry clinic, a fourth-year medical student, under the

supervision of a licensed attending psychiatrist, called patients for recurrent psychotherapy sessions and mental health screenings with a full PHQ-9. Additionally, psychiatric medications were refilled to the clinic partner pharmacy at no cost to the patient.

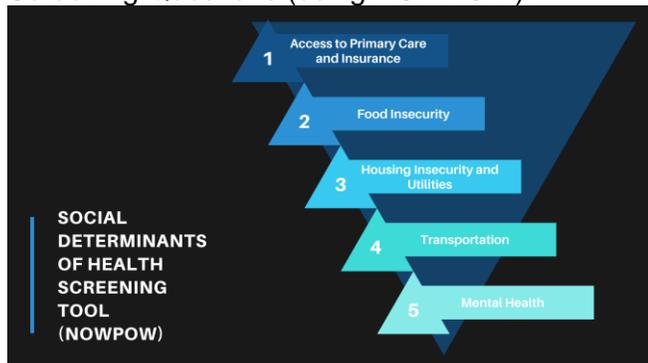
**Social Needs Assessment**

All patients received a basic social needs assessment including screening questions for issues with housing, food, and income during the pandemic. Patients with positive screens were referred to social work outreach services and received a follow-up call for a more in-depth screening using the NowPow social determinants of health tool. From there, patients were provided with personalized referrals to community resources, such as food banks and rent assistance programs.

**Figure 4.** Problems Managed via Telemedicine at Clinic.



**Figure 5.** Social Determinants of Health Screening Questions (using NOWPOW).



**Discussion**

Telemedicine was implemented early during the COVID-19 pandemic at the first epicenter of the U.S. outbreak in New York City. This paper describes the model implemented by the CoSMO student-run free clinic to adapt to these changes.

Telemedicine was beneficial in the outpatient setting for a variety of issues, including COVID-19 symptom screenings and post-discharge management, for which the clinic adapted regular follow-up for patients and counseled them regarding the importance of safety practices like social distancing and masks. Additionally, the telemedicine protocol allowed for management of chronic medical conditions, namely hypertension and diabetes, as well as medication refills and self-monitoring devices via a virtual platform.

The clinic saw a high burden of mental health and social needs as a result of the COVID-19 pandemic. The clinic offered regular counselling, psychotherapy, and psychiatric medication refills. For patients with social needs, the clinic offered an extended social determinants screening assessment with personalized referrals to social services for patients with food, housing, rent, and other needs. Additionally, it allowed for effective triage of patients to be seen for in-person appointments.

The clinic faced many challenges in its implementation of telemedicine. These included the difficulty of adapting telemedicine platforms in a way that was accessible for vulnerable populations with lower access to video-based platforms. The program was also limited by lack of objective clinical data like vitals, blood pressure for hypertensive and other high-risk patients, and physical exams to evaluate patient-reported symptoms. In addition, the clinic faced the challenge of obtaining labs and imaging for management of patient care. Specialty referrals for chronic conditions and work-up (i.e. routine diabetic eye exams and cancer screenings) were another challenge given the reduction in capacity of specialty clinics to facilitate in-person appointments.

Finally, a number of ethical challenges were faced in light of issues like limited ED referrals for

work-up of potentially concerning acute symptoms and the use of information self-reported by the patient to titrate medications on a telehealth platform during a time when clinics were unable to collect in-person data like A1Cs and blood pressures to guide medical management.

In the future, the clinic hopes to work through the ongoing challenges of patient care and safety during the pandemic, including a low volume of in-person sessions for essential lab draws and flu shots. Quality improvement evaluation will serve as a vital avenue to quantitatively assess patient outcomes during the pandemic and to assess the ongoing impact of COVID-19 on other chronic medical conditions in our patient population.