Launching a Statewide COVID-19 Primary Care Hotline and Telemedicine Service for Oregon

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Abstract

Introduction: To respond to the COVID19 pandemic and recover from its aftermath, primary care teams will face waves of overwhelming demand for information and the need to significantly transform care delivery.

Innovation: Oregon Health & Science University's primary care team envisioned and implemented the COVID-19 Connected Care Center, a statewide telephone "hotline" service to offer technical assistance to Oregon primary care practices and to integrate within existing care services and augment care for all Oregonians. This paper describes the implementation of the COVID-19 Connected Care Center.

Results: The hotline has taken over 5,825 calls from patients in 33 of Oregon's 36 counties in less than 3 months. In preliminary survey data, 86% of patients said their questions were answered during the call, 90% would recommend this service to a friend or family member and 70% reported a reduction in stress levels about coronavirus. In qualitative interviews, patients reported their questions were answered, they are not asked to wait on hold for long periods of time, nurses spend as much time as they needed and appropriate follow up was arranged.

Conclusion: Academic health centers, like OHSU, may have the capacity to leverage their extensive research, clinical and educational resources to rapidly launch a multi-phased pandemic response that meets peoples' need for information and access to primary care, while minimizing risk of infection and emergency department utilization, and rapidly supporting primary care teams to make the necessary operational changes to do the same in their communities. Such efforts require external funding in a fee for service payment model.

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Introduction

The large number of people who have symptoms and questions about COVID-19 and heightened psychological[1] and physical distress[2] suggests a need for increased access to primary care. At the same time, the US has a shortage of primary care. Pandemic care requires sustained, rapid change.[3,4] Initially, changes were needed to avoid in-person healthcare encounters for virtual care-sensitive conditions. Now, primary care needs to plans to continue telehealth, and safe strategies to bring people back to the practice. Academic health systems may be in a position to augment less resource-rich primary care teams with regional telehealth services and facilitate information exchange for practice transformation.[5]

At the Oregon Health & Science University (OHSU), primary care nurses discontinued routine chronic disease management functions at the onset of the pandemic and answered thousands of COVID-related calls in the first weeks of the pandemic. Simultaneously, clinic leaders were rapidly adapting practice operations and population health activities. Practices across the state faced similar challenges; many had fewer resources to implement rapid change. There were community members without access to primary care. We wanted to help. The vision for the COVID-19 Connected Care Center, a statewide telephone "hotline," was shared with philanthropic organizations and institutional leaders on March 20, 2020, funded on the 23rd and launched on March 30th.

Innovation

Rapid policy changes provided financial support using telemedicine platforms. The Centers for Medicare and Medicaid Services (CMS) and many private payers increased payment rates for telehealth services and broadened the scope to include nearly all beneficiaries and situations. This allowed us to expand existing digital health, primary care and population health capabilities to include the hotline. The current

work systems and processes that we implemented are described using the SEIPS 2.0 Model, a human factors framework based on principles such as systems orientation, person-centeredness and design-driven improvements.[6,7] We maintained a strong evidence-base, minimized handoffs in our workflows, offered virtual visits when appropriate, and arranged care to be provided by patients' primary care clinicians whenever possible. We decided that clinic staff would schedule virtual visits to allow for local variations in workflows. Home-care was supported by online patient education resources and secure patient messaging portals. Almost all work of the hotline was conducted by staff working from home.

The hotline aligned efforts launched in response to the pandemic, including those to redeploy workforce, and keep learners engaged. The willingness of staff and faculty to redeploy and community members volunteer efforts was critical. We also aligned our work with community and state partners, including the Oregon Health Authority (OHA), Oregon's Poison Control Center, the Portland Fire Department, local Public Health Departments, and Oregon's social service's hotline (2-1-1) – a non-profit organization providing access to over 7,000 nonprofit, government and faith-based health and social service programs in Oregon and Southwest Washington.

[INSERT TABLE 1]

Launch Timeline

OHSU's COVID-19 Connected Care Center was launched in three phases.

Phase 1: OHSU Patient Hotline. On March 30, the hotline was opened to established OHSU patients, with hours 7 days a week from 8 AM to 8 PM. Patients calling the hospital's primary care and specialty clinics had the option to be routed to the hotline, where they would speak with a trained triage nurse who provided medical advice about clinical symptoms, scheduled virtual care, and referred to a mobile testing site, social worker or the emergency department. Hotline nurses managed COVID-19 test results from OHSU sites, including its Mobile Testing Sites, calling patient with positive results, and provided

education. Among patients positive for COVID-19, nurses called to re-assess symptoms. A small percentage of patients referred to virtual visits were then referred to our Respiratory Clinic for in-person evaluation.[8] Patients with questions pertaining to mental health care, social, and economic services were connected with an on-call social worker or social services.

Phase 2: Statewide Provider Hotline. Beginning April 9th, a central email, website, and telephone consult line opened to primary care and specialty practices across Oregon. Clinicians were put in contact with and an attending team, who answered symptom, testing and operational questions.

Phase 3: Statewide Patient Hotline. Beginning April 16th, the patient hotline opened to Oregonians, with the target audience being people without access to a primary care. Patients requiring a visit were referred to their primary care clinician, regional practices open to new patients, or OHSU clinics. COVID-19-related care was provided free of charge. Partnerships were leveraged to reach patients; the hotline was advertised on the OHA website as part of its Healthcare Partner Resource and at c19.oregon.com, the Portland Metro Emergency Response for the Coronavirus Checker online tool. Figures 1 illustrates the flow of phone calls; Figure 2 management of symptoms and Figure 3 the handling of calls from providers and practice leaders.

[INSERT FIGURES 1, 2 and 3]

In all phases, call teams were supported by an attending, and nurses and attendings referred to a shared reference, the COVID-19 Connected Care Center Resource Guide (Appendix), which was developed in real-time by the School of Medicine COVID-19 Inquiry Group, an emergent "intellectual engine" providing evidence-based recommendations using rapidly evolving data.[9] This group consisted of volunteer clinical and research faculty, medical students and residents. Medical students' participation qualified as an elective. The group answered questions identified from hotline calls and clinicians participating in statewide Project ECHOs (Extension of Community Healthcare Outcomes)[10] on COVID-

19. ECHOS had more than 1000 registrants, 25% of whom served rural or frontier communities. The inquiry group validated information through an internal peer-review process prior to dissemination.

Preliminary Results and Evaluation Plan

The OHSU COVID-19 Connected Care Center has taken over 5,825 calls from patients and providers in 33 of Oregon's 36 counties (through June 1, 2020). Call volumes have been steady with an average of 141 triage calls and 68 results calls each weekday. We have handled 9,594 results and 916 patient email messages. An average triage call is 6 minutes; an average results call is 30 minutes. Of the patient callers, approximately 36% received education; 49% had mild, 19% had moderate and 1% had severe symptoms. In the first 2,488 calls, only seven resulted in an emergency care referral. Twenty-four fulltime nurses staffed the hotline.

To evaluate the Connected Care Center, we are using the RE-AIM Framework (Reach, Effectiveness, Adoption, Implementation and Maintenance) to answer the following questions: (1) Did the Connected Care Center reach the intended target populations? (2) Was the Connected Care Center effective? (3) What can we learn about what worked and what did not in order to refine this effort? (4) What aspects of the Connected Care Center can and should be maintained, and how? To answer these questions, we are collecting quantitative and qualitative data as shown in Table 2. Data collection is ongoing.

Preliminary data show that patients called the hotline seeking personalized information to translate publicly available information to their own situation. As a result of their call, patients reported feeling their stress and anxiety about COVID-19 reduced, receiving information and access to care and testing,

and education that included help developing plans to social distance in order to protect co-workers and family members from transmission. When surveyed (N=50), 86% of patients reported that their questions were answered during the call and 90% said they would recommend this service to a friend or family member.

[INSERT TABLE 2]

Discussion

Evaluation Plan

A nurse triage hotline to address patients concerns about the COVID-19 pandemic can relieve a caller burden on primary care practices,[11] and contribute to efforts to prevent mildly sick but contagious people from seeking in-person care. The majority of patients that called our hotline required education only and nurses talked to patients with mild symptoms, which were appropriately handled by a nurse telephonically.

In addition to patients, practice leaders from almost every Oregon county utilized the hotline to inform how they managed COVID-19. We shared resources, including almost 450 "frequently asked questions" and a Resource Guide, and have fielded 320 calls and 28 emails from primary care clinicians and practice leaders (through June 6, 2020). OHSU was a conduit for rapidly assimilating evidence and providing direct support to primary care practices across the state, helping them optimize patient care during this pandemic. [12,13,14,15,16,17,18,19] Involving learners allows them to contribute to the pandemic response, safely. The provider hotline served several of the functions envisioned for a primary care extension program, an unfunded mandate of the 2011 Patient Protection and Affordable Care Act. Where the

federal government left a funding gap, the Andrew and Corey Morris-Singer Foundation stepped in and made a generous donation. Our experience demonstrates how a state-based primary care extension model, if funded, can support pandemic preparedness.

Our next step is to fully evaluate this effort, including identifying factors that led to implementation success (e.g., alignment of institutional leadership; ability to adapt; visibly of the work across multiple levels of the institution) and determine the which elements of this approach were most effective and why. Of particular interest is the impact of the hotline on primary care teams in community practice, particularly in rural and underserved areas, and to understand the impact on, and the best strategies for reaching marginalized populations who suffer a disproportionately from COVID-19. This includes taking steps to expand our partnerships to include community-based organizations and community leaders with diverse perspectives.[20]

Conclusion

With adequate resources and funding, it is possible to rapidly implement a multi-phase coordinated approach to aid primary care teams on a state-wide level to respond to a pandemic. The COVID-19 Connected Care Center addressed patients, community members, and providers COVID-related concerns. The hotline is an example of how an academic health center can support population health state-wide practice adaptation.

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Table 1: COVID-19 Connected Care Center Hotline Work System. Here, we describe the COVID-19 Connected Care Center work system in terms of SEIPS 2.0 components, describing the persons involved, their tasks, the tools & technology they used and processes used to for adaptation.

Persons	Tasks	Tools & Technology	Adaptation
Implementation Team: A team of Clinical, Operations, and Call Center experts created and implemented the program. Workflows development sessions were led by internal performance improvement consultants.	• Define and implement workflows. • Produce resources needed to support standard work. • Align work with institutional and state-wide stakeholders.	• Intensive workflow development sessions were conducted in person. The remainder of meetings were conducted remotely.	• Institutional leaders were identified and convened into a daily Steering Committee to provide oversight of the implementation team and to rapidly identify and address barriers. This allowed us to navigate and influence the internal and external environment. For example, the steering committee helped us quickly develop Health IT tools within OHSU and identify areas for alignment with public health agencies. • Daily huddles occured for continuous process improvement.
Covid Inquiry Group: Medical students were not able to participate in clinical rotations and were offered this COVID elective course. Residents on suspended clinical rotations also participated. Clinical and Research faculty lead the group along with a project coordinator and administrative staff. Librarians and specialists provided consultative backing.	• Continuous research to create an organize a library of materials that is accessible to all hotline teams as well as primary care and ambulatory specialty practices at OHSU and across the state. • Update resource daily.	• Multiple tools were used to support the needs for large group, small group and individual work with synchronous and asynchronous communication in both text-based and audio-visual formats. • More information can be found about the inquiry group in a separate paper.[10]	• Products were reviewed by the medical branch of the OHSU Emergency Operations Center through a delegated internal review process. Feedback was returned to the inquiry group. (See Appendix A for the inquiry group review process)
Triage Nurses: The COVID Nurse Ambulatory Triage Line and COVID Nurse Results Teams are comprised of nurses from across OHSU who	• Assess Severity of Illness and Arrange appropriate disposition for patients. Disposition	• A centralized phone number and email address were created for the hotline. Phone trees were re-programmed to	• Dedicated EHR training teams and resources were made available in real time via conferencing software to support the nurses in the first three weeks after hotline implementation.

were reassigned from other duties. These nurses now take shifts to cover the hotline.	options include mobile testing, home care, virtual visits, referral to primary care respiratory clinic, and referral to an emergency department. • Answer phone calls and electronic messages directed to the hotline from OHSU Clinics. • Perform symptom assessments for COVID+ patients.	provide access points to the hotline from ambulatory clinics. The phone tree was integrated into other existing phone trees across the university as appropriate. • Nurses participated in an initial two-hour virtual training. • Nurses were given telephones, laptops, and headsets to allow them to work from home. • Goals of care scripting is provided for rapid assessment of patients prior to referral to the emergency department.	• Daily huddles occur for continuous process improvement. • Conferencing software and secure instant messaging allow constant communication among the nurses to create a collaborative culture with rapid dissemination of knowledge, and peer-to-peer learning. • Quality assurance activities are ongoing including review of live and recorded calls, operational data about the hotline (*e.g.,* hold times, abandonment rates), and patient experience surveys are collected. A more formal evaluation is also being developed (see Table 2 for more details).
<u>Hotline Attendings:</u> OHSU physicians agreed to be on-call and performed this work in addition to their normal duties.	• Provide consultation to triage nurses and support in navigating difficult clinical scenarios. • Answer clinical questions from providers across the state.	• Provider onboarding was performed remotely. • A dynamically updated frequently asked questions (FAQs) document was created through an internal peer-review process to provide evidence-based answers. This work was done by the OHSU	• Development of expertise was encouraged by participation in institutional and state-wide educational forums that occurred weekly.

		School of Medicine COVID19 Inquiry Group. • This work was supported by the COVID19 Connected Care Center Resource Guide (Appendix B), which collates workflows and protocols from across the university. This resource is dynamically updated.	
<u>Ambulatory COVID-19 Operations Team:</u> This team includes clinical managers and other medical operations experts representing medical delivery, front desk staff, and clinical support operations.	• Create and update a guide with information about running an ambulatory clinic under the constraints of social distancing (*e.g.,* workflows to postpone visits, transition to virtual visits, provide education to patients and communities) • Provide advice to state-wide practice leaders navigating areas of uncertainty. • Serve as a repository of best practices from outside institutions.	• In addition to the hotline phone number, a dedicated email address was created for primary care practices across the state to send questions to this group.	• Continuous review and updates to COVID-19 Connected Care Center Resource Guide (See Appendix B).

Table 2: COVID-19 Connected Care Center Evaluation Research Questions, Measures, and Data Collection Approach

RE-AIM element and Research Question (RQ)	Measures / data collection approach
Reach - The absolute number, proportion, and representativeness of individuals who are willing to participate in a given initiative RQ: To what extent does the hotline reach the intended target population?	**Numerators**: # target population for telephone hotline that called and spoke to someone; includes describing the following: Trend in use over time, description of user (OHSU patient or not, sex, age), user patterns (time of the day), user location. **Denominator**: # of OHSU patients and # of Oregonians without a primary care doctor Source**:** Data from phone system; demographics for OHSU patients, statewide estimate of patients without a primary care provider

Effectiveness - The impact of an intervention on important outcomes, including potential negative effects.
 	
RQ: Does the telephone hotline impact key outcomes?
 	
Primary outcomes:
 	
Patient and provider experience
Were questions answered?
Did patients feel reassured?
Would patients/providers recommend this service?
How much do patients value the service?
 	
Clinical Outcomes and Care Utilization
Care Utilization
• Was testing
  ○ Offered when indicated
  ○ Follow up rate
• In-person visit / video visit– follow-up rate
• Appropriate alignment of care level with severity – accuracy based on peer review
• Infection prevention – adherence to quarantine, isolation, return to work recommendations
• ED / Admission rates; total care cost
	Survey Data: Post-telephone surveys will be conducted with patients. Post-email and post-telephone surveys will be conducted with providers.
	
	Qualitative interviews: These can be used to explore patient experiences more deeply and to try to understand variations in outcomes. Specifically, we will examine other information seeking and support seeking, access to services, alignment of the center with patients' and providers' needs, the community value of the call center, and access from both patients and providers perspectives.
	
	Source: EHR, Medicaid Claims, Statewide data

Adoption – Willingness and experiences of staff implementing the hotline	Source**:** Semi-structured interviews with staff to understand enjoyment of role, perceived readiness for role after training, responsibilities consistent with top of licensure, enjoyment of other non-clinical peers, perceived value of the hotline, and confidence in the quality, and impact on well being
Implementation- At the setting level, implementation refers to the intervention agents' fidelity to the various elements of an intervention's protocol. This includes consistency of delivery as intended and the time and cost of the intervention.	Source**:** Qualitative data collection; interviews with key stakeholders; this will include understanding the staffing and functionality of the hotline; the staff FTE and change in staff FTE over time, the type of staff involved, barrier / facilitators to implementation (*e.g.,* opportunities, technical issues, drop

RQ: How was the hotline implemented? What were the key elements of the "intervention" and what processes were put in place to ensure fidelity of the hotline?	calls, hang up, hold times, and how these were resolved); partnership with the state and others that made this work possible
Maintenance - The extent to which a program or policy becomes institutionalized or part of the routine organizational practices and policies. RQ: Among key stakeholders, how would the hotline (if it is needed) be maintained, and what is needed to maintain it?	Source**:** Semi-structured interviews with key stakeholders, after the active implementation phase of the pilot has ended, assess factors related to maintenance.