

## A Student Telephone Intervention for Primary Care Patient Safety During the COVID-19 Pandemic

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### Abstract

**Background and Objectives:** During the COVID-19 pandemic, medical students were unable to participate in clinical learning for several weeks. Many primary care patients no-showed to appointments and did not receive care. We implemented a telephone outreach program using medical students to call primary care patients who no-showed to appointments and did not receive care.

**Methods:** A brief plan-do-study-act cycle was used to establish protocols and supervision for the phone calls.

**Results:** In the first 5 weeks, of 3,274 scheduled patients there were 426 no-shows; 309 received outreach from students. We developed protocols for supervision, routing, and triage.

**Conclusion:** It is feasible and educationally valuable to collaborate with students to reach patients who are at home due to the pandemic. Other practices could adapt this tool in similar situations.

## Introduction

Primary care practices treat medical problems before they become severe. Past studies, for example, have documented the impact of primary care on decreasing hospital admissions for ambulatory-sensitive conditions.<sup>1</sup> Providers' ability to do this is hampered when patients no-show to appointments.<sup>2,3</sup> The overall no-show rate in primary care was reported at 23% in a meta-analysis.<sup>2</sup> Researchers note a correlation between no-shows and emergency department visits for all patients,<sup>3</sup> especially diabetic patients.<sup>4</sup>

In March 2020, the COVID-19 pandemic began in the Northeastern United States. Most states issued stay-at-home orders<sup>5</sup> and many patients avoided health care settings<sup>6</sup> for fear of contracting the coronavirus. Medical students were unable to participate in clinical learning.

We implemented an initiative to have students reach out by phone to the patients who no-showed in the first 5 weeks of the pandemic. We sought effective ways to (a) teach triage and management of phone calls, and (b) document communication with patients and link them back to primary care.

## Methods

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Our clinic is a family medicine teaching practice in Pawtucket, Rhode Island with approximately 12,000 patients. In 2019 there were 30,000 visits, about 600 per week. The clinic is staffed by 47 providers (37 residents).

In Rhode Island, schools were closed on March 13, 2020.<sup>7</sup> The Warren Alpert Medical School at Brown University also advised students to stay at home and not participate in clinical rotations. Medical student rotations were impacted; some used virtual learning.

We proposed an initiative for medical students familiar with the clinic and the electronic medical record (EMR). They reviewed the EMR from home, finding all the no-shows from March 13 through April 17 (these patients were deemed most likely to have active health issues), and reached out to these patients by phone. We did a rapid-cycle plan-do-study-act (PDSA)<sup>8,9</sup> over 2 days during which all the calls were precepted with the medical director in real time and we took notes to optimize subsequent calls. The students then called the remaining patients over 2 weeks.

We collected data on the types of calls that came up and how much supervision they required, as well as the students' learning curve about formatting and routing the notes. We also collected data on the number of scheduled appointments, number of no-shows, and number of patients called by each student from looking at the schedule page of the EMR and the students' notes.

We consulted with the institutional review board at our institution, which determined that this project did not meet the federal definition of human subjects research.

## Results

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Between March 13, 2020 and April 17, 2020, 3,274 patients were scheduled for in-person visits at our clinic; 426 of them no-showed during that time, the rate decreasing from 16% to 8% over time (Table 1).

Table 2 shows the output from the rapid-cycle PDSA in the first 2 days of the project. We focused on process measures to rapidly teach, develop, improve, and implement a short-term intervention. We identified types of problems (eg, patients who need appointments vs simply needed refills or labs), note routing issues, and follow-up issues.

Table 3 shows the supervision plan. While the students were not intended to exercise clinical judgment over the phone, we wanted to be sure they were adequately supported and that patient safety was prioritized. Table 4 details the routing protocol for calls. Feedback from providers indicated that the routing was overly cautious (many providers copied), but we felt that was reasonable given the uncertainty regarding who might be ill/quarantined and unavailable to do clinical work.

Table 5 shows data on the no-show volume and phone call volume. This shows an overall snapshot of the work done by the students and the amount of time it took. Most important was the educational aspect of this project. While all the learning occurred on the job, the students were asked to reflect on what they learned/gained from the project afterward (Table 6).

## Discussion

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The COVID-19 pandemic has caused many changes in the process of providing health care.<sup>10</sup> Most of these changes dealt with the care of patients with COVID and suspected COVID<sup>11</sup>; secondarily, some changes prioritized patient safety, for example cancelling elective surgery.<sup>12</sup>

In our clinic, we also worried about unintended consequences of COVID unique to primary care practices<sup>11,13</sup>—uncontrolled chronic illnesses, delays in testing or diagnosis for patients undergoing workups, and delayed/postponed routine screenings. The work from this initiative is only a first step in developing guidelines to pause and resume routine/nonurgent primary care should another pandemic occur, or any issue that forces patients away from in-person care temporarily (eg, a weather event, an environmental disaster).

The key element in our initiative was the collaboration with medical students. Similar to other ambulatory clinics and initiatives,<sup>14,15</sup> incorporating medical students provided learning opportunities for students to engage in interdisciplinary patient care, strengthening our efforts to reach vulnerable patient populations. We were fortunate to recruit two students for the initial phase who understood our clinic workflow, but the project could be replicated in the future with different volunteers. An important note is that the project was initially labor-intensive for the supervising faculty (here, the medical director). A more sustainable model might include the students precepting calls with whichever faculty member was on duty at the clinic.

Future directions for this work include the expansion of ability to include students in alternate workforce deployment in primary care settings, attention to vulnerable populations during similar emergencies, and the safest and most effective ways to resume in-person care. It would also be interesting to compare patients who received a telephone intervention like this with those who did not on outcomes such as emergency department visits. For this project, we primarily focused on the educational experience and the learning and process outcomes above.

It remains to be seen whether this intervention will result in improved long-term outcomes in our patients. However, the execution and setup of this initiative was thought to be potentially of value to other settings with learners, especially since the pandemic is not yet over. We anticipate that over the next several months, more recommendations and ideas will be developed as a result of creative use of primary care resources in times of crisis.

## Tables and Figures

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**Table 1: Scheduled Appointments and No-Shows by Week, March 16-April 17, 2020**

Week	Number of Patients Scheduled	Number of No-Shows (%)
March 16-20, 2020	617	101 (16.4%)
March 23-27, 2020	640	97 (15.2%)
March 30-April 3, 2020	658	90 (13.7%)
April 6-10, 2020	702	82 (11.7%)
April 13-17, 2020	657	56 (8.5%)

**Table 2: PDSA Cycle Output From First Few Days of Intervention**

	Implementation	Findings
Plan	Brief plan to check each no-show, verify contact info, try to call them Script: reaching out from primary care clinic, we are open, can do telehealth visit, do they need anything at this time	<ul style="list-style-type: none"> <li>• Use of doximity dialer was helpful; many patients will not answer call from a blocked number</li> <li>• Make calls during hours that clinic is open, to facilitate communication with staff if needed directly after phone call</li> <li>• Many patients asked for general information about COVID-19 (how to self-isolate, what activities are safe, where to get tested, what to do if symptoms)</li> </ul>
Do	10 phone calls over 2 days	<ul style="list-style-type: none"> <li>• Some patients were not home: came up with plan re how many times to try to reach them and how to document if they could not</li> <li>• Range of acuity of problems, unclear who to send the note to in the EMR for different range of acuity</li> <li>• Many phone calls very routine, raising question of which ones actually need to be 'precepted' in real time</li> </ul>
Study	Discussion—each student with medical director and then all three together, by phone	<ul style="list-style-type: none"> <li>• Came up with supervision plan (see Table 3)</li> <li>• Came up with routing protocol (see Table 4)</li> </ul>
Act	>300 calls in 2-3 weeks	<ul style="list-style-type: none"> <li>• Initiative was stopped after the April 17, 2020 patients as we decided that by then, the number of no-shows had dramatically decreased and most of our active patients knew how to access the clinic for care by phone.</li> </ul>

Abbreviations: PDSA, plan-do-study-act; EMR, electronic medical record.

**Table 3: Supervision Plan**

Week	Student 1	Student 2 <sup>a</sup>
March 16-20	Real time all calls	Real time all calls
March 23-27	Real time all calls	Real time all calls
March 30-April 3	Batch precepting with option for real time <sup>b</sup>	Real time all calls
April 6-10	Batch precepting as above; send notes for very simple calls <sup>c</sup>	Batch precepting with option for real time <sup>b</sup>
April 13-17	See above	Batch precepting as above; send notes for very simple calls <sup>c</sup>

<sup>a</sup> Student 2 was not available to begin the full initiative until a week after Student 1, so their switch to batch precepting happened later when they had attained the same volume of calls as Student 1.

<sup>b</sup> Batch precepting: the student would wait and precept several calls at once perhaps an hour or so after they had finished. They always had the option to call immediately if any clinical question (both students had the medical director's mobile number and unlimited access to her).

<sup>c</sup> Examples of very simple calls: tried three times and could not reach patient, so note documenting this was entered; patient had already scheduled a follow-up; patient had no acute needs and rescheduled a routine appointment for later in the summer.

**Table 4: Routing Protocol**

Type of Call	Example	Staff Routing	Provider Routing	Other
Very routine	Patient has already scheduled a followup or is unable to be reached		PCP only	Note routed to medical director in lieu of precepting
Routine/clerical	Patient would like to schedule appointment	Front desk pool	PCP only	
Routine/minor clinical	Patient needs prescription refill, labs, or wants general advice re COVID-19	Clinical support pool	PCP and microteam <sup>a</sup>	
Clinical	Patient does have an ongoing clinical issue that they would like help with—for example, their anxiety is worse since the pandemic started, or they have noticed their blood sugar readings have been higher	Front desk pool, +/- behavioral health clinician if indicated, diabetes team if indicated	PCP and microteam	Copy to nurse triage pool to confirm appt was eventually scheduled
Clinical acute	Patient has symptoms concerning for COVID-19 or other acute major illness (CHF exacerbation, pneumonia, worrisome rash or infection)	Front desk pool, nurse triage pool	PCP and microteam	PCMH team <sup>b</sup> also copied to clinically follow up with patient if PCP unable

Abbreviations: PCP, primary care provider; CHF, congestive heart failure; PCMH, patient-centered medical home.

<sup>a</sup> Microteams are comprised of an R1, R2, R3 and faculty member who share complex patients and cover for one another during busy rotations or vacations.

<sup>b</sup> PCMH team: clinical team of residents on the patient-centered medical home rotation who track and follow up with the sickest outpatients in the clinic during that month and liaise closely with triage nurse.

**Table 5: Number of Scheduled Visits, No-Shows, Patients Called Over the 5-Week Pandemic**

Student	Scheduled Visits	No-Shows (%)	Called by Student
1	1,637	238	159 <sup>a</sup>
2	1,637	188	149 <sup>b</sup>
<b>Total</b>	<b>3,274</b>	<b>426</b>	<b>309</b>

<sup>a</sup> Patients who no-showed but were not called by the student included nursing home visits, home visits, and patients who had already been called or seen by another provider in the interim.

<sup>b</sup> The numbers for Student 2 are an estimate; the students split the list of patients in half and Student 1 kept accurate details of how many were called each day. Student 2 did 1 day less of work overall.

**Table 6: Feedback Comments From Students About Educational Value of Experience**

I learned of the many, many different people in myriad clinical roles who play a role in clinical care and documentation (eg, contact [nurse manager] to remove deceased patients, contact this phone pool to schedule a visit, contact this person if it's a COVID visit, contact this person if it's an urgent COVID visit, etc). Helps to understand and grasp the complexity and breadth that goes into running a clinic, especially a resident clinic.
Sad, but I realized how patients have to see so many different physicians at our clinic and that continuity of care just isn't as possible as you would like it to be at a resident clinic.
Many, many patients assumed the clinic was closed or that it was not safe to come in due to COVID. Many missed appointments for this. Many did not know or guess that we would do telehealth visits.
Many had health questions unrelated to COVID that they were sitting on and waiting for a chance to tell someone. This emphasized for me the importance of regular well visits (the patient may not schedule it themselves but they still have issues they could benefit from seeing a doctor for) and the potential in random, unplanned phone check-ins. That's not something I've seen any other clinic do but could be a good thing in particular for high-risk patients.
It was helpful to have similar scripts that (the other student) and I used for sending pt letters, for leaving VMs, for introducing ourselves to every pt we called, etc.
I was surprised by how many pts switched PCPs, and how this was not reflected in our EMR.
I learned you have to be explicit in telling staff members what you want them to do. Can't just route saying call this patient to schedule. Have to say, call this patient and schedule with X doctor between Y-Z dates for a HTN check in visit.
Emphasis on the appreciation pts showed for calling and checking in with them
This was a great med student project because I was able to interact with pts and learn how to triage calls, who to go to for help, how to navigate the EMR, etc. This helped me to feel more comfortable with clinic as a resident.

Abbreviations: PCP, primary care provider; EMR, electronic medical record; HTN, hypertension.

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