

## Themes and Illustrative Quotations

### Rapid adaptation of cancer screening practices during COVID-19: A multi-state qualitative study

Karim Hanna<sup>1</sup>, MD; Brandy Arredondo<sup>2</sup>, MA; Melody Chavez<sup>2</sup>, MPH; Carley Geiss<sup>2</sup>, PhD; Laura Szalacha<sup>4</sup>, EdD; Shannon Christy, PhD<sup>5</sup>; Susan Vadaparampil<sup>5</sup>, PhD; Usha Menon<sup>4</sup>, PhD, RN; Jessica Islam<sup>6</sup>, PhD; Young-Rock Hong<sup>7</sup>, PhD; Amir Alishahi Tabriz<sup>5</sup>, MD, PhD; Jennifer Kue<sup>4</sup>, PhD; Kea Turner<sup>5</sup>, PhD

1. Department of Family Medicine, Morsani College of Medicine, University of South Florida; 2. Participant Research, Interventions, and Measurement Core, Moffitt Cancer Center; 4. College of Nursing, University of South Florida;

5. Department of Health Outcomes and Behavior, Moffitt Cancer Center; 6. Department of Cancer Epidemiology, Moffitt Cancer Center; 7. Department of Health Services Research and Management, University of Florida

Contact: Karim Hanna @ [khanna@usf.edu](mailto:khanna@usf.edu)

Outer setting: Factors in the external environment that affect implementation		
Construct	Theme	Quotation
External policies	State-level stay-at-home orders	“After the pandemic hit, we had stay-at-home orders, so there were no in-house cancer screenings being done for about three or four months.” – Healthcare administrator
	State-level orders to delay elective procedures	“The hospitals were only performing emergency procedures. We had a lot of patients due for cancer screenings during that time and we could not schedule them ... and as a result, there’s a backlog.” – Advanced Practice Provider
	Reallocation of government employees for COVID-19-related work	“We are a Department of Public Health (DPH) clinic and so all the DPH staff that work in our clinic are civil servants, which means that they can get deployed at any time and that has impacted us greatly. So, probably, at least 25 percent of our staff have been deployed to do COVID work outside of our clinic.” – Physician
	Federal and state travel restrictions	“Because they are migrant, we always have to chase them down because they bounce between states. So, with the pandemic they got stuck in a state. We’ve had to do more outreaching and trying to locate where they’re at and so forth. So, that’s been another barrier for them to completing services or doing those annual screenings.” – Healthcare administrator / Advanced practice provider
Patient needs and resources	Loss of activation point to identify overdue patients	“The biggest barrier we had was the activation point for the workflow, cause usually when somebody comes in that’s when, they get our chart summary pops up or nurses see it, doctors see it, everything like that. Since they weren’t coming in, we didn’t have that kind of activation period. So, because we didn’t have that we really had a hard time pinpointing patient.” – Healthcare administrator
	Backlog of overdue cancer screenings within the primary care clinic	“The provider would have to put a follow-up in at the time the encounter was created, which is difficult because you might not get your mammogram or colonoscopy for three months, but I put a follow-up in for two months, then you come back, and we haven’t even done the test. So, a lot of providers don’t even put a follow-up in for fear they don’t know how backlogged everything is.” – Advanced practice provider
	Backlog of overdue cancer screenings at the referral site	“As soon as we were able to refer to GI [gastroenterology] again, it was actually a backlog in their system. They weren’t calling patients anymore and we didn’t know that. So, you would put in a referral, and it would wait. And the patients wouldn’t get any outreach. They were doing less

		colonoscopies per day just due to increase in sterilization in some of their ORs [operating rooms]. So, just more backlogs for just about every screening that we would try.” – Physician
External resources	Postal delays	“Unfortunately, with USPS they’ve have been a lot of delays in the mail and that has caused some delays in our FIT [fecal immunochemical test] kits getting processed.” – Resident
Inner setting: Factors internal to the organization that affect implementation		
Construct	Theme	Quotation
Organizational policies and procedures	Referral site policies regarding COVID-19 testing before elective procedures	“They [patients] have to get the [COVID] test, so they have to find somewhere to get the test and get the results before the appointment. That was a huge barrier... So, a lot of patients had trouble with the timing because of the labs and getting the COVID test back.” – Physician
	Primary care policies regarding COVID-19 testing before care receipt	“Before we had a rapid test, there was no way that we could bring a patient inside to do any of the physical exams. If they needed some type of screening done, we were able to do it through labs or referring them out.” – Advanced practice provider
	Guest restriction policies	“Also, during COVID they haven’t been allowing people’s kids to come, and I have many single parents who actually just can’t find childcare for their kids so they can’t come in for their screening, or they show up with their kid and are refused. So, that’s been really challenging for a lot of people during the pandemic” – Resident
	Service limitation policies	“It’s not that I don’t disagree with having to prioritize, but it does like make my heart hurt. I don’t think that we should blatantly right off like, ‘Oh pap should not be scheduled’”. – Resident
Available resources	Staffing shortages due to layoffs and absences	“The problem was we laid off so many people when it happened, we didn’t have manpower because we had such a decrease in volume.” – Healthcare administrator/ physician
		“Our nursing staff has been hit pretty hard by absences due to COVID or COVID contacts or children who’ve had contacts or children who are out of school. A lot of them are on intermittent FMLA [Family and Medical Leave Act] to help their kids with virtual learning. Lots and lots of absences from nursing.” – Physician
	Lack of resources to support telehealth	“They just don’t have the infrastructure setup. We can’t use our computers outside because we don’t have wireless internet that’ll reach there. And they don’t have anyone to go and train providers, or to even answer the phone when the patients don’t know how to log on. Sometimes, it might take a patient an hour of being on the phone to even get to a receptionist to make an appointment. So, telemedicine and our clinic, it would be a great idea, but we just don’t have the infrastructure.”
Relative priority	Acute conditions take priority over preventive care	“The primary care visits end up turning into acute complaint visits just because people don’t have another way of seeking care quickly or in a reasonable timeline. And so, then the cancer screening stuff ... is even more easily forgotten.” – Physician
	COVID-19 visits taking priority over primary care visits	“So, we maybe see eight primary care patients, and then 30 to 40-plus COVID patients. So, we have to condense our time with our primary care patients because we have so many COVID patients that we’re trying to see.” – Advanced practice provider
Individual characteristics: Factors at the individual level that may affect implementation		

Construct	Theme	Quotation
Knowledge and beliefs about the intervention	Patient beliefs about risk-benefit tradeoff of screening versus COVID-19 transmission	“I might say, ‘You’re due for your lung CT [computed tomography]’, and they’re like, ‘I have COPD, I don’t really want to go out to the hospital right now unless it’s absolutely necessary. Can we skip it?’” - Physician
	Provider beliefs about risk-benefit tradeoff of screening versus COVID-19 transmission	“There’s a lot of variation across providers. Some providers are more conservative and would rather push out cancer screening 5-6 months than to bring a patient into the clinic.” – Healthcare administrator
	Provider comfort with seeing patients during COVID-19	“Right now, I am prioritizing my pap smears for my patients that it’s been a long, well beyond the five years if they’re on that track, or if they’ve had an abnormal pap in the past or have significant risk factors. But I’m the only one [provider] who’s bringing patients [inside] to do paps right now.” – Advanced practice provider