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Perceptions of multi-cancer early detection tests among communities facing barriers to health care

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Abstract

Marginalized racial and ethnic groups and rural and lower income communities experience significant cancer inequities. Blood-based multi-cancer early detection tests (MCEDs) provide a simple and less invasive method to screen for multiple cancers at a single access point and may be an important strategy to reduce cancer inequities. In this qualitative study, we explored barriers and facilitators to MCED adoption among communities facing health care access barriers in Alaska, California, and Oregon. We used reflexive thematic analysis to analyze general barriers to cancer screening, MCED-specific barriers, facilitators of MCED adoption, and MCED communication strategies. We found barriers and facilitators to MCED adoption across 4 levels of the social-ecological model: (1) individual, (2) interpersonal, (3) health care system, and (4) societal. These included adverse psychological impacts, positive perceptions of MCEDs, information and knowledge about cancer screening, the quality of the patient–provider relationship, a lack of health care system trustworthiness, logistical accessibility, patient supports, and financial accessibility. Optimal MCED communication strategies included information spread through the medical environment and the community. These findings underscore the importance of understanding and addressing the multilevel factors that may influence MCED adoption among communities facing health care access barriers to advance health equity.

Key words: multi-cancer early detection; MCED; health equity; cancer screening; health care access barriers.

Introduction

Cancer is a leading cause of death worldwide.[1,2] Cancers without U.S. Preventive Services Task Force (USPSTF) Grade A or B recommended screening account for ∼75% of cancer deaths in the United States.[3] Improving cancer screening, diagnosis, and clinical care is a well-established priority as the US population ages.[4]

Racial and ethnic inequities in cancer diagnosis and mortality are significant in the United States, as marginalized racial and ethnic groups are less likely to receive USPSTF-recommended screenings and are more likely to be diagnosed with late-stage cancers.[5-7] Rural and lower income communities also experience significant cancer inequities, influenced by factors like limited health care infrastructure and geographic barriers to accessing specialty services.[8-12] For lower income communities, limited financial resources, a lack of health insurance, lower levels of education, and limited access to health care services are key factors contributing to cancer inequities.[10-12]

Blood-based multi-cancer early detection tests (MCEDs) use a single blood draw to screen for multiple cancer types by analyzing cell-free DNA to recognize patterns associated with cancer and localize the signals to specific tissues of origin.[6,13,14] Multi-cancer early detection tests, which are intended to complement existing screening tests, are minimally invasive and may provide a more acceptable method to screen for multiple cancer types at a single access point.[6,13,14]

Multi-cancer early detection tests may be an important strategy to reduce racial, ethnic, socioeconomic, and geographic cancer inequities by mitigating current screening access barriers.[5,6] Equity considerations are routinely an afterthought in the development, research, and implementation of novel health care technologies.[15] The purpose of this qualitative study was to explore barriers and facilitators to MCED adoption among communities facing health care access barriers to inform recommendations for the equitable future implementation of MCEDs.

Data and methods

Design

This qualitative study was conducted from September through November 2023 with individuals in Alaska, California, and Oregon. It was approved by the Providence Institutional Review Board (STUDY2023000379), and we followed the Standards for Reporting Qualitative Research reporting guidelines.[16]

Participants

Recruitment

Existing Providence patients were purposively recruited through an electronic health record query and invited to participate in the study via email or MyChart® message. Community members were recruited through existing community relationships using flyers, word of mouth, listservs, and community events.

Interested individuals were directed to an online eligibility questionnaire in REDCap®. Responses were used to (1) ensure

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eligibility for participation (see Supplementary Methods); (2) confirm cancer screening history; and (3) assign participants to appropriate focus groups.

Scheduling focus groups

Eligible respondents were contacted by phone or email to determine availability for a 75-min focus group.

Data collection

We conducted 15 focus groups stratified by state, racial and ethnic identity, cancer screening status, rural residence, gender identity, and preferred language (English and Spanish) as depicted in Figure 1. Focus groups were conducted virtually using Microsoft Teams, as most participants preferred virtual to in-person focus groups. We recruited and trained facilitators from Providence who either came from participant communities or held shared cultural identities with participants. The first author (K.L.R.) and a research coordinator (M.C.) took notes and provided logistical support during focus groups. A native Spanish speaker facilitated the Spanish focus group.

Participants provided verbal consent to participate and have the session recorded before each focus group. A semistructured discussion guide was used to explore general barriers to cancer screening, MCED-specific barriers, facilitators of MCED adoption, and MCED communication strategies (see Supplementary Appendix). Participants received a $50 electronic gift card for their time. Participants completed a 10-min questionnaire, which included measures of social determinants of health, medical mistrust, and cancer-related anxiety. Participants were not given information about MCEDs prior to participation, although they were not prohibited from looking up information on their own.

Data analysis

Recordings were transcribed. K.L.R. reviewed and cleaned transcripts to ensure participant responses were transcribed verbatim. Transcripts were uploaded to ATLAS.ti Web version 5.21.2.[17]

K.L.R. led a collaborative reflexive thematic analysis (RTA) with 2 team members (K.M.K.B. and R.A.H.) using Braun and Clarke's 6-phase RTA process (see Supplementary Methods).[18] We organized barrier and facilitator themes by levels of the social-ecological model (SEM) to contextualize the multiple, interactive levels of influence that may shape MCED adoption.[19,20]

Because we aimed to understand similarities and differences across cancer screening statuses, we created 3 subdatasets assigned to K.L.R., K.M.K.B., and R.A.H. for analysis: (1) actively screening focus groups; (2) not actively screening focus groups; and (3) mixed status screening focus groups (rural, female-only, and Oregon Spanish speaking). Our analysis also sought to understand similarities and differences by racial and ethnic identity, rurality, and gender identity. Team members tracked if codes and themes were unique to specific identity and geographic groups in their reflexive analytic memos and discussed them during collaborative analytic meetings.

We conducted descriptive analyses of the focus group participants' characteristics and questionnaire responses using R, version 4.3.1.[21]

Results

Participant characteristics

We conducted 15 virtual focus groups (participant $n = 85$). Participant characteristics and select questionnaire responses are described in Table 1.

Thematic findings

Thematic findings are grouped into 3 domains: (1) barriers to MCED adoption, (2) facilitators to MCED adoption, and (3) MCED communication strategies. We organized barriers and facilitators to MCED adoption across the following SEM levels: individual, interpersonal, health care system, and societal (Figure 2 and Table 2). In most cases, we found more similarities across participant responses than differences. Themes cut across all stratified participant groups, unless otherwise noted.

Barriers to MCED adoption

Barriers to MCED adoption include general barriers to cancer screening and MCED-specific barriers. Multicancer early detection test-specific barriers overlapped with some of these general barriers and may amplify them, with the potential to deepen cancer screening inequities if not addressed prior to widespread MCED implementation.

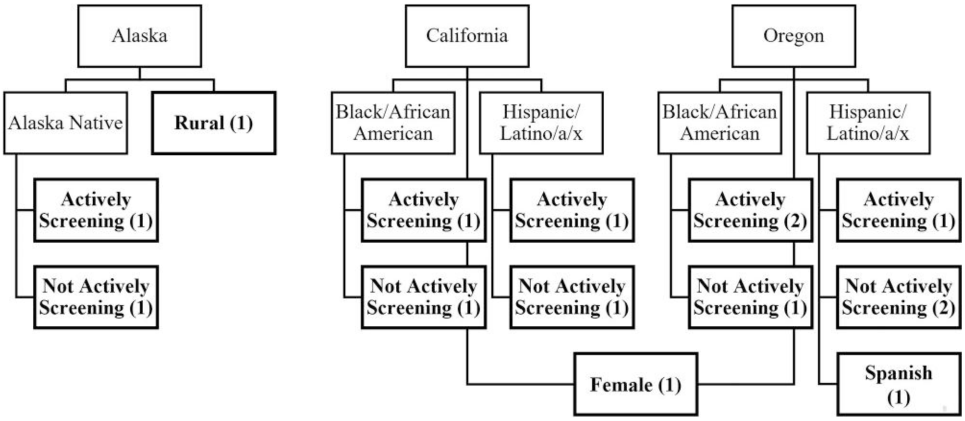

Figure 1. Stratified data collection approach and number of groups. Note: Bolded boxes are focus group categories. Numbers in parentheses represent the number of focus groups conducted within each category.

Table 1. Participant characteristics ($n = 85$).

Characteristic	No. (%)
Average age, years, mean (SD)	61 (7)
Gender identity	
Female	65 (76)
Male	20 (24)
Racial identity	
American Indian/Alaska Native	4 (5)
Black/African American	37 (44)
White	28 (33)
Other	12 (14)
More than one race	4 (5)
Ethnic identity	
Hispanic/Latino/a/x	35 (44)
Not Hispanic/Latino/a/x	45 (56)
Other/unknown/prefer not to say	5 (6)
Household income	
$25 000 or less	15 (18)
$25 001-$50 000	16 (19)
$50 001-$75 000	15 (18)
$75 001-$100,000	10 (12)
$100 001-$150 000	14 (16)
$150 001 or more	12 (14)
Missing response	3
Health insurance coverage (respondents could select more than one option)	
Indian Health Services	4 (5)
Medicaid	5 (6)
Medicare	33 (40)
Private plan	46 (56)
Other	9 (11)
No insurance	2 (2)
Missing response	3
Marital status	
Divorced	14 (17)
Living with partner	5 (6)
Married	39 (48)
Never married	12 (15)
Separated	5 (6)
Widowed	7 (9)
Missing response	3
Employment status	
Employed	35 (43)
Not employed	13 (16)
Retired	34 (41)
Missing response	3
Highest level of education	
Less than high school	1 (1)
High school diploma/GED/high school equivalent	10 (12)
Some college	17 (21)
Vocational training/2-year degree	10 (12)
4-year college degree	22 (27)
Advanced or Graduate Degree	22 (27)
Missing response	3
How often do you worry about getting cancer?	
Never	12 (15)
Occasionally	28 (34)
Sometimes	28 (34)
Often	9 (11)
Very often	5 (6)
Missing response	3
How anxious do you feel when you think about getting cancer?	
Not at all	12 (15)
Slightly	27 (33)
Somewhat	26 (32)
Quite a bit	15 (18)
Extremely	2 (2)
Missing response	3
Reason(s) why you haven't gotten a test for cancer? (respondents could select more than one option)	
Didn't need/didn't know was needed	13 (16)
Doctor didn't order it/didn't say I needed it	12 (15)
Haven't had any problems/no symptoms	12 (15)
Never heard of it/never thought about it	8 (10)
Put it off/didn't get around to it	3 (4)
Too expensive/no insurance/cost	2 (2)
Too painful, unpleasant, or embarrassing	2 (2)
Don't have a doctor	0 (0)
I am too young to receive a test	0 (0)
Doctor is opposite gender from me and that makes me uncomfortable	0 (0)
Other	4 (5)
No reason	10 (12)
I have gotten a test (not applicable)	26 (32)
Missing response	3
The health care system puts making money above patients' needs	
Strongly agree	11 (13)
Agree	28 (34)
Neither agree nor disagree	27 (33)
Disagree	11 (13)
Strongly disagree	5 (6)
Missing response	3
Patients get the same medical treatment from the health care system, no matter what the patient's race or ethnicity	
Strongly agree	6 (7)
Agree	14 (17)
Neither agree nor disagree	24 (29)
Disagree	26 (32)
Strongly disagree	12 (15)
Missing response	3

Individual factors

Adverse psychological impacts. Most participants cited fear as a key barrier to screening uptake. The fear of a cancer diagnosis was emphasized.

> "It's terrifying when you suspect something and then you think they could find something and people ignore that and just pretend nothing is happening and then later's too late."

For some, the fear of cancer is so strong that they avoid screening because "ignorance is bliss." For others, a fear of screening procedures, particularly how invasive and painful they are, and negative past experiences with screening also shape screening behaviors.

Participants reiterated fear of screening outcomes as a primary concern for MCEDs. Another source of potential stress and anxiety identified by participants is uncertainty about what comes after a positive test result. As one participant stated, "there's a whole 'nother burden that comes with trying to figure out what to do" if a positive signal is detected.

Multicancer early detection test accuracy was a prominent concern, possibly due to MCEDs being relatively new. Some participants indicated a false positive result may lead to fear and anxiety "that it doesn't need to" and those adverse psychological impacts could be "more dangerous than not knowing at all." Participants were also reluctant to take

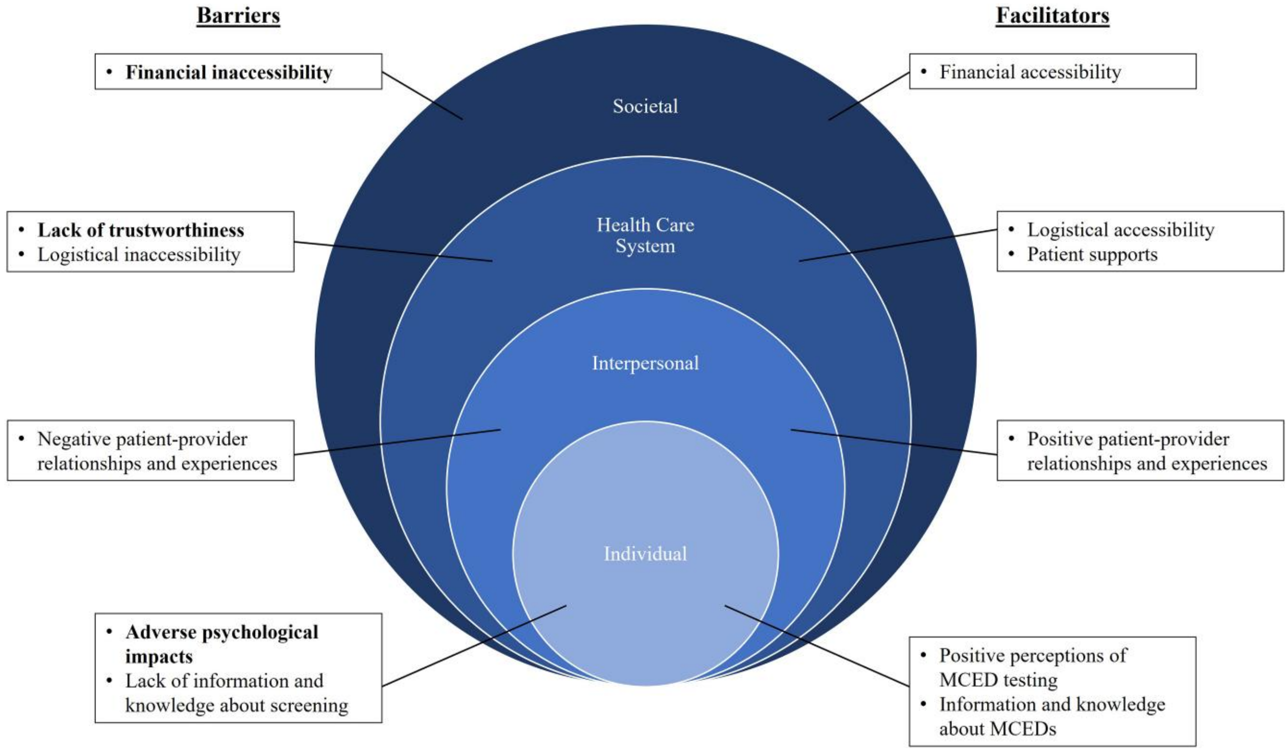

Figure 2. Barriers and facilitators to multicancer early detection test (MCED) adoption organized by social-ecological level. Note: Bolded barriers indicate thematic overlap of both general barriers to cancer screening and MCED-specific barriers.

MCEDs until they had clear information about accuracy, specifically rates for false positives and false negatives. One participant stated that they will "wait 10 years, once they've filtered out all the problems" to get an MCED "because of the fear of the false positive."

Lack of information and knowledge about screening. Participants cited cancer screening information and knowledge gaps as key barriers to uptake. Some participants indicated that lack of provider communication and advocacy about screening contribute to these gaps, which we discuss further as an interpersonal factor. Other participants described a general lack of knowledge about screening and "confusion and uncertainty" about screening recommendations and guidelines. Several participants discussed how a lack of a family history of cancer can limit screening knowledge because they think they "don't have to worry about that" or "might not have been aware of [screening]."

Similarly, a lack of awareness about the early detection benefits of screening, or belief that individuals only need care when they have symptoms, can also be a barrier. Some may believe "it's just a waste of time" if they do not have symptoms, while other may be "just living life…not realizing that they may be at risk."

Interpersonal factors

Negative patient–provider relationships and experiences. Participants indicated that a lack of provider trustworthiness influences their cancer screening behaviors. Some participants noted they "don't trust that they will be heard or believed" and that providers can be dismissive of patients' health concerns. One participant discussed the personally damaging impacts of discrimination and bias, specifically that her provider would not listen to her because she is Black and female; soon after, she found herself at the emergency room for the same health concerns her provider did not believe. Another participant shared the discriminatory and inferior care experienced by Black and Indigenous community members, who sought answers to long-lasting symptoms but were "not getting the right care… not one of their physicians alluded to anything being cancer."

Participant beliefs that providers receive "kickbacks" from pharmaceutical and insurance companies contribute to provider untrustworthiness. One participant described a time they were prescribed a medication for high cholesterol, which prompted them to research the necessity of this medication and challenge their provider about the prescription. When their provider responded, "You're right, you don't need the pill," the provider further undermined their trustworthiness and underscored how system-level factors like pharmaceutical incentives impact the patient–provider relationship.

Some participants discussed the negative impact of provider turnover and a lack of established care on cancer screening behaviors. A lack of provider communication about and advocacy for screening were also cited as key barriers to screening uptake. Some participants asserted that if their providers do not directly recommend screening to them during appointments, then they are not aware that screening options exist. One participant shared they were unaware of screenings because their "doctor's just never mentioned it." Other participants indicated there is a culture of patient deference to their providers, which can result in a lack of patient self-advocacy and participation in their health care. One participant stated "a doctor saying you shouldn't have it, you know, it's not recommended, a lot of people will go along with that without really looking around and saying, well, maybe the doctor's wrong or maybe the doctor has a bias or an agenda."

Table 2. Barriers and facilitators to MCED adoption with representative quotes organized by social-ecological level.

Themes	Subthemes	Representative quotes
Barriers		
Individual		
Adverse psychological impacts	Fear of screening outcomes	"You do have the psychological aspect. 'Oh my God, I can't sleep at night. Do I have cancer? Am I gonna die tomorrow?'"
	Stress and anxiety about what comes after positive results	"What would we do with the results of that test?"
	Worry about MCED accuracy	"Well, I like the whole idea of it until you mentioned false positives and then it's like, OK, that could be more dangerous than not knowing at all."
	Negative prior experience	"I had a mammogram because they found a lump, and it was one of the most horrific experiences I've had in my life…I would never voluntarily do that again."
Lack of information and knowledge about screening	Lack of information on procedural aspects of screenings	"A lot of it is just not knowing what the procedure actually is and what's going to happen to you. If you're well informed, it does help."
	General lack of knowledge about screening recommendations and eligibility	"I didn't know about it. I didn't know that we were having testing for cancer like you, you get tested for a cold or your eyes. So, there's a lack of awareness."
	Limited knowledge due to no family history of cancer	"One of the things that I've heard also is like, 'Oh in my family nobody has cancer, so I don't have to worry about that.'"
	Lack of awareness about prevention benefits	"I think a lot of people possibly need the explanation that by the time you get any symptomology or pain, you're, I won't say you're in trouble, but you're really close to being in trouble and so preventative is better."
Interpersonal		
Negative patient–provider relationships and experiences	Lack of provider trustworthiness	"And we all know that doctors are in the loop with pharmacies and insurance companies on kickbacks and, you know, saying 'oh, I think this [medication] is better than that.' I don't necessarily trust it because I don't know if he's got stock in the company or if they're just giving him, you know, stipends to get more people on whatever it is they want."
	Lack of established or consistent care with provider	"And then what about our people, our community members that are obviously, something is going on in their health with their health and they don't have not established care with the provider or have not seen a doctor, what I don't know, six months, nine months?"
	Lack of provider communication about and advocacy for screening	"My doctor didn't even tell me that there's screenings."
	Lack of patient self-advocacy due to culture of deference to providers	"'My doctor didn't say I need that, so I'm not gonna do it.' So, [patients] kind of follow, they're not proactive about their health."
Health care system		
Lack of trustworthiness	Racism, sexism, and discrimination in health care	"There's still quite a bit of distrust relating to medicine and doctors and so many stories on the news about people whose diagnoses were down, not downgraded, but, you know, people's symptoms were dismissed. You know, in primarily African American or Latinx communities."
	Untrustworthy biomedical research and technology	"Right now, honestly, people don't trust science and so, to tell someone we have a test out here that's gonna cure and you're gonna know everything… it's not believable. It's almost like, almost far-fetched."
	Fears about confidentiality, privacy, and misuse of MCED results	"I was denied [an insurance policy] because they pointed out that I had a medical situation. It shook me to my core, to be honest. And what, I have been paying insurance for over 25 years while I'm in this country and all of a sudden, I cannot increase my life insurance because of that. So, you know, if you go through the process of running this test and it happens to be positive, that will definitely be used against you."
Logistical inaccessibility	Time constraints and lack of time off work	"Sometimes it's, I can't take that kind of time off my job. You know…I can't go back five times to the doctor's office."
	Geographical barriers	"The accessibility is a lot more difficult being in the village, and then the cost to get somewhere, even though it's covered when you get to Anchorage."
	Lack of transportation	"Nobody has cars, especially elderly people, that they just can't go."
Societal		
Financial inaccessibility	Lack of or inadequate health insurance coverage and out-of-pocket costs	"For the Latinx community, the people that I work with, mostly my concern would be the cost…a lot of our community members are still facing a lot of challenges and just basic needs like putting food on the table and putting gas in their cars."
Facilitators		
Individual		
Positive perceptions of MCEDs	Simple and less invasive is good	"You're not cutting someone open and opening up the body and spreading things, so if this is something that's out there, that going to be useful for us."
	One-stop shop to detect multiple cancers is convenient	"I like the idea of sort of one and done. One test sounds like it's pretty easy. You get results and then proceed from there."

(*continued*)

Table 2. Continued

Themes	Subthemes	Representative quotes
	A chance to treat it and beat it	"Early is important to me because the theory is the earlier you catch it, the better the results."
	Targeting further screening and treatment	"In my opinion, I think we would buy time by having a test to tell us specifically where the cancer is so we can focus on that organ and not try to figure out where that cell is. Sometimes they think it's in one place and it turns out that it's somewhere else and then by the time they get to detect it's too late because they realize that the person is invaded, that it has branched out and I think it would save lives more quickly and effectively."
	Staying on top of health	"I think by having this test available, it's gonna make the patient be more aware of their health care if they notice something else. Hopefully, they will be able to go forth and have that conversation and explain concerns they have about other health care."
	Knowledge is power	"If I knew there was such thing as an MCED in January, I'd have done it just because I don't like surprises."
	Culture of health[a]	"Me being in my 60s, I wanna know people in their 90s. If I wanna make it to 90 there are a lot of things that I probably should have did 20 years ago. However, now for the next 30 years, there are a lot of things I wanna do to make sure I can get to 90 independent, as healthy as I can be, and if it means a MCED every year. Yeah."
Information and knowledge about MCEDs	Comprehensive information about MCEDs	"I wanna know like how often it would have to be done. Like, you know, mammograms are annual, and colonoscopies are every what, ten years or whatever, unless you have something abnormal. So, I mean, how often would I need to take that test to stay in a preventative mode?" "And I would want to know how long this has been tested. How long has it been out there? What have been the results?" "I think people need to understand why it's important, like the significance of early detection."
Interpersonal		
Positive patient–provider relationships and experiences	Inclusive, equitable, and culturally responsive providers	"So, you have to deal with the disparity in the way that we're treated in health care to bridge the communication gap to be able to even start getting a doctor to filter this information down to the people that need it."
	Established, trusting relationships that center patient voice and expertise	"Practitioners need to allow their patients to be heard so that they can feel valued, so that together they could make the right decision for that patient."
	Proactive provider communication and advocacy for MCEDs	"Doctors also have to be proactive about it too, in terms of letting their patients know that these things exist, you know."
Health care system		
Logistical accessibility	Convenient access points for MCEDs, like primary care offices, pharmacies, and mobile clinics, and during routine visits like annuals/physicals	"I go in obviously once a year for my physical and they do bloodwork and it's just one of those things where the doctor could say, 'Oh, by the way, we're going to take an extra vial of blood for this test.' And I'd be like, 'Oh yeah, definitely, let's do it.'"
	Transportation supports	"Just like we bus people to vote, we can bus them to get health care."
Patient supports[a]	Need for patient navigators and resources to help patients navigate MCED process	"…you tell somebody that they're positive for cancer, but then they're uninsured and they don't know how to navigate health care system. Then what do we do? I think we owe it to them to help them navigate the health care system."
	Need for emotional supports	"As this starts to take root and people start using it and there are success stories, and there's people that have gone through the process, the clinicians can have support groups. You know, 'I have other patients that have already had this done and this is what happened. If you want to meet with them.' Sort of like AA meetings, you know, to help people not be so afraid and give them some idea from another person's perspective of what the process is gonna be."
Societal		
Financial accessibility	MCEDs covered as preventive service with low or no out-of-pocket costs	"I think you guys need to start advocating for the insurance to cover it as a preventative, because if you guys start fighting in that direction would be much easier for people to be willing to screen themselves."

[a]These themes were specific to not actively screening focus groups.

Health care system factors

Lack of trustworthiness. Participants underscored the untrustworthiness of the health care system as a general barrier to cancer screening. Institutionalized racism, sexism, and discrimination in US health care were cited as root causes of this untrustworthiness. Black participants referenced the damaging intergenerational effects of unethical and exploitative historical medical research, specifically the Tuskegee experiment and use of Henrietta Lacks' cells.

> "Because we're Black people and because the medical industry has not been historically very fair…and they've done, you know, like the Tuskegee, and doing things without our knowing about it, there tends to be a I don't trust the doctors, period."

Other participants mentioned the ongoing harm of sexism and bias toward Spanish-speaking patients in health care, which manifest through system-level policies and norms and provider interactions.

When discussing MCEDs specifically, some participants expressed reluctance to use MCEDs out of concern that themselves or members of their communities were or could be the "guinea pig" in MCED clinical trials. Other participants expressed concern that the Theranos scandal "might play on some people's minds" and deter MCED adoption, a consequence of its erosion of the trustworthiness of diagnostic blood-based tests.

Participants also expressed concern around the confidentiality, privacy, and potential misuse of their MCED results. For some participants, there was confusion between genetic testing and MCEDs. Some participants wanted to know how results would be stored, accessed, and used. Others specified potential misuses of their results that could lead to adverse personal outcomes, including the documentation of a preexisting condition and subsequent denial of health or life insurance policies. There was also concern about the potential impact of a positive result on employability, particularly for older adults nearing retirement but in need of employment for several more years.

Logistical inaccessibility. Logistical barriers to screening included transportation, busy schedules, limited or no time off from work, and "going through the hoops" to get screening referrals and appointments. Geographic proximity to health care was particularly salient for Alaskan participants living in villages and other rural areas, who described a costly "overnight process" to access and complete screening in Anchorage.

Societal factors

Financial inaccessibility. Participants indicated a lack of or inadequate insurance coverage and high out-of-pocket costs play a significant role in screening uptake. As one participant stated, "I don't wanna use up all my money doing tests if I might need it for something else."

Financial barriers were identified as prominent MCED concerns as well. Some participants noted they would be willing to pay for MCEDs, "contingent on the cost." There was skepticism MCEDs would benefit Black, Native American, or Latino communities, who, "nine times out of 10," lack coverage for "tests that are not basic." For community members struggling to meet basic needs, MCEDs are even further out of reach financially.

Facilitators to MCED adoption

Individual factors

Positive perceptions of MCED testing. Participants expressed excitement about the potential of MCEDs, specifically that simple screening and early detection are powerful because they are less invasive compared to other types of screening. Participants emphasized the convenience and uniqueness of the "one stop shop" to detect multiple cancers simultaneously and then "proceed from there" because MCEDs locate cancer in the body and further diagnostics can be tailored accordingly. Participants discussed the importance of detecting cancer early and optimism that MCEDs may give people diagnosed with cancer a chance to treat it and survive. Some participants also indicated MCEDs may help users "be more aware of their health" and "keep on top of what's happening" in their bodies. Participants asserted that "knowledge is power" and that MCEDs can empower people to take care of their health and reduce their cancer-related fear.

Participants in the not actively screening group discussed the importance of having preventive health goals and the potential for MCEDs to encourage them to do "things in advance instead of waiting until it's a problem." They described a culture of health, specifically a desire to be healthy and live longer. Participants indicated that MCEDs could help them make it to 90 years old independently and "stay around for my kids."

Information and knowledge about MCEDs. Participants indicated that having comprehensive information and knowledge about MCEDs would facilitate adoption. Participants described key information needs, including eligibility guidelines, how MCEDs fit with other recommended cancer screenings, whether insurance will cover them and possible out-of-pocket costs, how the testing process works, results from clinical trials, and information on why early detection matters.

Interpersonal factors

Positive patient–provider relationships and experiences. Participants underscored the importance of patient–provider relationships built on trust where patients are heard and providers proactively communicate about screening.

> "[My provider] gave me options, he told me the benefits, and he gave me a recommendation. And he said, 'I'm here to do what you feel comfortable doing. What would you like to do?' And then we talked and figured it out. So, I felt very heard. And then, because I felt heard and valued, it was easier for me to connect and make a decision."

Participants also emphasized how critical it is that providers are inclusive, equitable, and culturally responsive to ensure *all* patients receive information about MCEDs. As one participant stated, "Get doctors that aren't going to be selective about who they suggest the test for."

Health care system factors

Logistical accessibility. Participants recommended convenient access points for MCEDs, including primary care offices, pharmacies, and mobile clinics. Participants also suggested adding MCEDs to bloodwork ordered at annual wellness exams.

> "When screenings are included with other regular checkups, that helps me to not only remember but to follow through. When I'm asked to do something outside of that, I may forget."

Addressing transportation barriers was also identified as an important strategy to increase access and facilitate MCED adoption.

Patient supports. A variety of patient supports were suggested to facilitate MCED adoption by participants in the not actively screening group. Patient navigators can help patients "walk through the process." Having an option to speak with someone who can explain the process in a clear, direct way and provide "reassurance," emotional validation, and direction will help patients "feel a little bit better" about taking an MCED. One participant suggested a hotline with accessible hours and multilingual staff to "validate [patient] fears and their anxieties and then direct them."

Ensuring patients have the information and resources to navigate follow-up care if they have a positive result is essential, as is providing emotional support so they have "some way of dealing" with the emotional impacts of that outcome. Local support groups sponsored in communities or through health systems may be one resource that can alleviate patients' fears about MCEDs.

Societal factors

Financial accessibility. Low or no out-of-pocket costs for MCEDs were cited as facilitators to adoption. Ensuring financial access through comprehensive health insurance that covers MCEDs as a preventive service is optimal. Participants noted "while it's not covered under insurance," minimizing out-of-pocket costs for MCEDs might encourage people to get screened.

MCED communication strategies

As discussed at the individual level, information and awareness about MCEDs are critical for adoption. Participants discussed the importance of proactively and intentionally providing comprehensive information about and building awareness of MCEDs to prevent information and knowledge gaps. Participants saw this as a 2-pronged strategy, as follows.

Participants expressed a preference that MCED information and recommendations come directly from their own providers, health care systems, and medical authorities like health departments and cancer associations. One participant said they "would feel most comfortable hearing about this from my doctor," while another said they "would pay attention if it was the AMA." Providers need to be "informed" and "educated" about MCEDs to ensure they have the knowledge to equitably discuss and recommend MCEDs for eligible patients and address questions from patients who bring MCEDs up during appointments.

Participants also stressed the importance of providing information and building awareness of MCEDs through community-based campaigns to reach community members less or not engaged in health care. They emphasized intentional engagement with communities through trusted messengers who can "relate to the community" through shared identities and lived experiences and underscored the role of mass and social media.

Discussion

Our findings provide insight on the multilevel factors that shape cancer screening behaviors and may influence MCED adoption among communities facing health care access barriers. To our knowledge, this is the first qualitative study of its kind. Our study builds on recent studies about the acceptability of MCEDs[13,14] by exploring MCEDs as a potential population health strategy and tool to advance health equity.

Participants overwhelmingly expressed positive attitudes toward the simplicity and potential of MCEDs to detect and target multiple cancers through a single blood draw, consistent with 2 recent studies.[13,14] Participants emphasized the power of early detection and the need to address the common misconception that cancer screenings are unnecessary for asymptomatic people.[14] Stressing the importance of preventive screenings and describing how MCEDs complement and fit into the current screening paradigm may facilitate adoption, especially among those who are either disengaged from health care or seek it only when symptomatic.[14]

Our findings align with prior studies highlighting lack of information and knowledge about screenings as key barriers to screening uptake. For our participants, these findings extended to MCEDs.[1,22] Our findings suggest that intentionally increasing knowledge and awareness of MCEDs may reduce psychological barriers to adoption. Beyond fear of screening procedures and outcomes, participants expressed distinctive fears and worries related to MCEDs. Concerns about accuracy, specifically rates of false positives and false negatives, were particularly salient and consistent with findings from 2 recent studies.[13,14] Participants also shared concerns about the privacy and potential misuse of their results that could jeopardize their insurability and employability. Early, transparent communication about MCED accuracy[14] and privacy protections may be an important strategy to reduce these concerns and improve the trustworthiness of MCEDs. Additionally, outlining MCED procedures and providing patient supports like patient navigators[23] were identified as pathways to diffuse patient anxiety and increase adoption.

Participants reinforced the importance of disseminating comprehensive and culturally appropriate information about MCEDs through trusted messengers and multimodal communication strategies.[1,22] Participants preferred to hear about MCEDs from their medical providers and underscored the importance of medical providers proactively and equitably discussing and recommending MCEDs. This may require targeted efforts to educate medical providers and to address potential inequities in these providers' adoption of MCEDs.[6] Strengthening medical providers' cultural competency and reducing bias are strategies that may yield higher quality and more equitable health care for these communities[10,22,24] and potentially increase the trustworthiness of providers and the health care system more broadly.

Participants emphasized the importance of convenient access points for MCEDs, including mobile clinics, primary care offices, pharmacies, and local hospitals in rural Alaska. Because MCEDs can be completed relatively easily, they may have a key role to play in reducing logistical barriers to cancer screening.[6]

Finally, participants indicated MCED cost would be a critical factor in their decision process. Consistent with well-documented findings for cancer screening, insurance coverage for MCEDs, particularly coverage as a preventive service, and low or no out-of-pocket costs were identified as impactful facilitators to adoption.

Limitations

We experienced challenges recruiting non-Providence linked community members and Alaska Native participants, possibly reflecting logistical barriers to participation and mistrust of the health care system. Consequently, our findings may not be transferable to the hardest-to-reach communities. Future research should focus on recruiting underrepresented groups not represented in our findings. Additionally, we used Microsoft Teams to conduct focus groups. Focus group facilitators and participants provided feedback that Microsoft Teams is less familiar than Zoom in participants' communities, which may have caused technical challenges and impacted participation rates.

Despite these limitations, our study's strength is that by offering multiple focus group formats, training facilitators from the respective communities, and including individuals with different levels of connection to a health care system, our groups were inclusive of communities facing access barriers.

Conclusion

In this study, we explored barriers and facilitators to MCED adoption among communities facing health care access barriers. These factors are vital to understand and address prior to widespread MCED implementation.[15,25] Failure to do so runs the risk of exacerbating existing cancer inequities and missing the potential opportunity to leverage MCEDs as a population health strategy and tool to advance health equity.[15]

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Supplementary material

Supplementary material is available at *Health Affairs Scholar* online.

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Conflicts of interest

Please see ICMJE form(s) for author conflicts of interest. These have been provided as supplementary materials.

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