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Mobile Cancer Screening Integrated with Employer-Sponsored Clinics to Improve Screening Compliance in Working Populations

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Abstract

Cancer screening reduces mortality through early detection and prevention, yet screening adherence remains uneven among working-age adults, especially shift-based and hourly workforces. Employer-sponsored clinics improve access to primary care but often depend on offsite referrals for mammography, colonoscopy, and other diagnostic services—creating "referral leakage," where eligible individuals do not complete screening after recommendation. Mobile screening (e.g., mobile mammography units, onsite cervical screening events, or workplace-based stool-test distribution with navigation) may reduce structural barriers, increase convenience, and enable closed-loop follow-up through employer clinic care coordination. This narrative review synthesizes evidence on mobile screening units, workplace screening interventions, and navigation/outreach strategies that support screening completion. We propose an employer-integrated implementation framework and identify research gaps and operational considerations for scalable adoption.

Keywords: mobile screening, employer-sponsored clinics, workplace health, cancer screening adherence, mobile mammography, colorectal screening, patient navigation

1. Introduction

Breast, colorectal, and cervical cancer screening are foundational preventive services with robust evidence supporting reductions in cancer mortality and morbidity. Contemporary screening guidance includes biennial breast cancer screening beginning at age 40 through age 74 (average risk) [1,2], colorectal cancer screening for adults aged 45–75 (average risk) with multiple acceptable modalities [3], and cervical cancer screening for women aged 21–65 using cytology and/or high-risk HPV testing strategies [4,5].

Despite guideline clarity, screening completion remains suboptimal in many populations, including insured adults highlighting that coverage alone does not eliminate barriers. Employer-sponsored health coverage and employer-sponsored clinics (onsite/near-site) are uniquely positioned to reduce friction by integrating preventive outreach into the work environment. However, most employer clinics still rely on external imaging centers and specialty referral pathways for screening completion particularly for mammography and colonoscopy creating a multi-step process prone to drop-off.

Mobile screening services may reduce these barriers by bringing screening closer to employees' daily lives while enabling employer clinics to manage outreach, scheduling, results routing, and follow-up. Evidence supporting mobile screening has historically emerged from community and underserved settings, but its mechanisms align closely with workplace constraints—time scarcity, scheduling complexity, transportation, and competing demands.

2. Why screening compliance is difficult in working populations

2.1 Structural and logistical barriers

Working adults frequently face barriers that differ from those of retirees or patients with flexible schedules. Referral-based screening often requires time off work, travel, multi-step scheduling, and the ability to navigate health system logistics factors strongly associated with non-completion. Workplace-based interventions increasingly emphasize "access engineering" (making screening easier to do than to postpone), rather than solely education.

Workplaces have been used as platforms to promote cancer screening and address access constraints through policy, education, and facilitation. The CDC highlights employer-focused approaches such as workplace policies and outreach to reduce barriers to breast and cervical cancer screening [6]. However, policy and education alone may still not fully solve completion gaps when the "last mile" remains offsite scheduling and attendance.

2.2 Referral leakage in employer-sponsored clinics

Employer clinics can identify care gaps and recommend screening, but completion often depends on an employee scheduling and attending at an outside facility. Drop-off can occur at multiple points: lack of scheduling, missed appointments, confusion about coverage, and delays in receiving results back to the clinic. This "leakage" is especially relevant for colorectal cancer screening strategies requiring colonoscopy after an abnormal stool test where follow-up colonoscopy is essential for benefit [3].

3. Evidence base for mobile screening units

3.1 Mobile screening units across cancer types

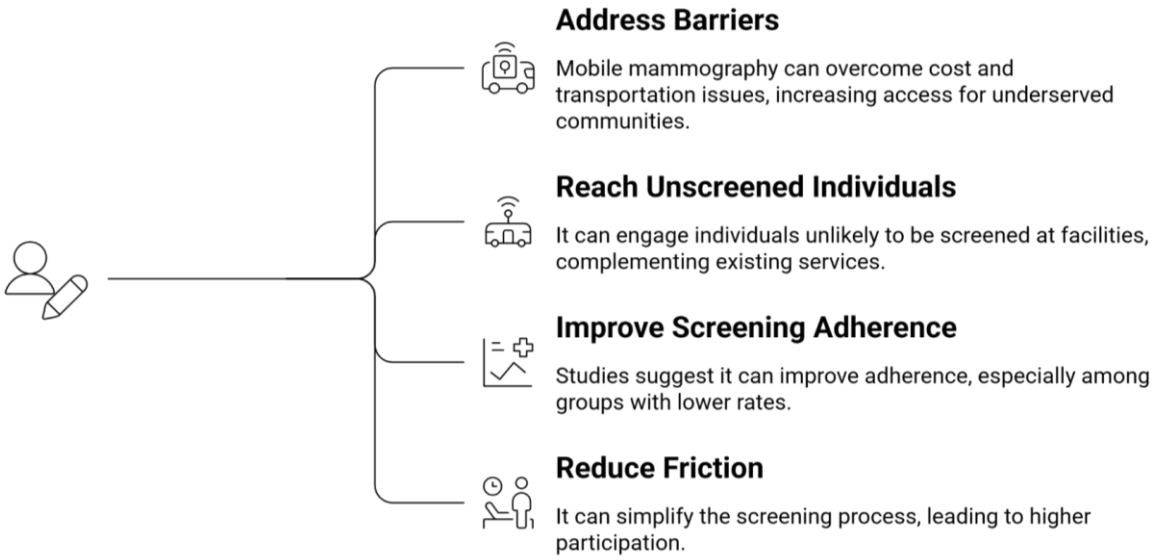
A systematic review in *Cancer Epidemiology, Biomarkers & Prevention* evaluated mobile screening units for early cancer detection and described how mobile units can expand access beyond fixed clinical sites, particularly for populations facing geographic and structural barriers [7]. While many studies in this space focus on underserved communities, the same mechanisms reducing travel, simplifying access, and providing screening where people already are apply to employer settings.

3.2 Mobile mammography and screening uptake

Mobile mammography has one of the strongest evidence bases among mobile screening models. A CDC analysis of mobile mammography participation among medically underserved women described mobile mammography as a strategy to address cost and transportation barriers by bringing services to communities [8].

More recent work suggests mobile mammography may reach individuals otherwise unlikely to be screened, complementing facility-based mammography rather than simply shifting location. A *Clinical Breast Cancer* study examined mobile mammography utilization and breast cancer screening adherence in a large Medicare fee-for-service population, supporting the potential of mobile mammography to engage groups with lower adherence [9]. In an applied implementation/QI context, an evidence-based practice quality improvement report described large increases in screening when a mobile unit

was made available in a rural setting (notably, these are context-specific results but align with the "friction reduction" mechanism) [10].



3.3 Workplace cancer screening interventions (including facilitation models)

A 2024 systematic review in *BMC Cancer* examined workplace cancer screening interventions across multiple cancer types and assessed factors influencing effectiveness, supporting the role of workplace-based strategies in improving screening uptake [11]. While not all workplace interventions involve mobile units, the review reinforces that workplaces can be effective venues for screening promotion especially when interventions reduce access barriers rather than rely on passive education alone.

4. "Mobile" does not only mean a van: outreach, navigation, and at-home components as mobile-adjacent strategies

Mobile screening effectiveness often depends on pairing convenience with **active facilitation**: identification of eligible individuals, outreach, scheduling, and follow-up coordination. Evidence from colorectal cancer screening shows that "direct-to-patient" convenience models (mailing stool tests) can increase screening completion, and navigation improves follow-through after abnormal results.

A cluster randomized clinical trial in *JAMA Network Open* found that mailed FIT outreach plus patient navigation increased colorectal cancer screening compared with usual care in rural clinic settings [12]. Similarly, a randomized trial in *Clinical Gastroenterology and Hepatology* tested how "choice architecture" in mailed outreach (e.g., FIT vs colonoscopy options) influences response, underscoring that how screening is offered matters for completion [13]. Evidence-based program summaries (e.g., NCI's Evidence-Based Cancer Control Programs) also describe organized outreach with mailed FIT, educational materials, and reminders as an effective screening strategy [14].

These models are relevant to employer clinics because they demonstrate scalable, high-throughput screening approaches that can be integrated into workplace populations especially where colonoscopy capacity is limited or work schedules create attendance barriers.

5. Patient navigation and closed-loop completion

Navigation is often the difference between "screening recommended" and "screening completed." Meta-analysis in *JAMA Internal Medicine* evaluated navigation services for breast and cervical screening and follow-up, supporting navigation as a strategy to increase screening and equitable care access [15]. The Community Preventive Services Task Force recommends patient navigation to increase breast cancer screening and advance equity, reflecting synthesis across multiple studies and settings [16].

For employer-sponsored clinics, navigation can be operationalized as: (1) outreach to eligible employees, (2) simplified scheduling for mobile event slots, (3) results tracking, and (4)

follow-up appointment coordination when abnormalities occur. This is particularly important for colorectal screening programs using stool tests, where positive results require timely diagnostic colonoscopy for benefit [3].

6. Why mobile screening may be especially effective in employer-sponsored clinic models

The workplace is a high-frequency touchpoint. Mobile screening integrated with employer clinics can improve compliance through several mechanisms:

1. **Reduced logistical friction:** Screening on-site reduces travel and scheduling complexity core barriers described in mobile mammography participation research [8].
2. **Lower opportunity cost:** Onsite screening can be scheduled around shift changes or break windows, reducing time away from work.
3. **Trust and continuity:** Employer clinic clinicians can reinforce recommendations and answer concerns, increasing uptake (a plausible mechanism aligned with navigation evidence) [15,16].
4. **Higher "conversion" from eligibility to completion:** Mobile events compress multiple steps into one coordinated process, reducing referral leakage.
5. **Improved closed-loop follow-up:** Results can be routed back to the employer clinic and managed through a registry approach, consistent with navigation and outreach evidence [12,15,16].

Importantly, mobile mammography may add screened individuals rather than simply shift them from facilities, suggesting potential net gains in adherence [9].

7. Implementation framework for employer-integrated mobile screening

Evidence across mobile screening and workplace interventions supports an operational framework that employer clinics can adopt:

Step 1: Identify eligible employees using a screening registry

Eligibility should align with screening recommendations (e.g., USPSTF) [1–5].

Step 2: Segment outreach by risk and prior non-compliance

Targeted reminders and messaging can prioritize individuals overdue for screening, those with prior missed referrals, and shift-based employees. Workplace facilitation principles are supported by workplace intervention evidence [11].

Step 3: Enable frictionless scheduling

Use QR-code sign-ups, SMS reminders, and manager-supported release time where appropriate (consistent with workplace policy approaches) [6].

Step 4: Deliver screening onsite via mobile services

- **Breast:** mobile mammography events [8,10]
- **Colorectal:** onsite FIT distribution or mailing supported by clinic outreach + navigation [12–14]
- **Cervical:** onsite screening events or HPV-based strategies as guidelines evolve (screening framework based on USPSTF recommendations) [4,5]

Step 5: Route results and close the loop

Step 6: Measure and improve

Key metrics:

- Eligible-to-completed conversion within 90/180 days
- Time-to-completion
- No-show rate
- Abnormal-result follow-up completion
- Disparities by shift type, job class, and site

8. Operational considerations and risks

1. **Data sharing and privacy:** Mobile vendors and employer clinics require clear data-routing, consent, and secure exchange protocols.
2. **Shift coverage:** Scheduling across multiple shifts is essential for equitable access.
3. **Follow-up capacity:** Increased screening may increase diagnostic demand; navigation protocols must ensure capacity and timeliness.
4. **Selection bias:** Employees who attend mobile events may differ from those who do not; evaluation design should consider matched-site or stepped-wedge rollouts.
5. **Sustainability:** Optimal cadence (quarterly, semiannual) depends on workforce turnover and baseline screening gaps.

9. Research gaps and future directions

Despite strong evidence for mobile units in underserved settings [7,8] and for workplace interventions [11], direct studies of mobile screening embedded within employer-sponsored clinic ecosystems remain limited. Key gaps include:

- controlled comparative evaluations (mobile-integrated vs referral-only) in employer settings
- long-term effects on stage at diagnosis and downstream costs
- best practices for multi-site scaling and standardization
- equity impacts by job class, shift type, and geographic worksite distributionFuture studies should use pragmatic designs (stepped-wedge, matched controls) and include both clinical and implementation outcomes.

10. Conclusion

Mobile cancer screening, particularly mobile mammography, has demonstrated potential to increase screening uptake by reducing access barriers and reaching individuals with lower baseline adherence [8–10]. Workplace cancer screening interventions also show promise, especially when they address practical barriers rather than relying solely on education [11]. When integrated with employer-sponsored clinics, mobile screening can reduce referral leakage and strengthen closed-loop care through navigation and registry-based outreach [12,15,16]. Beyond improving screening rates, employer-integrated mobile screening represents a structural redesign of preventive care delivery for working populations. By embedding screening within the workflow of employment rather than requiring employees to navigate external systems, this model aligns preventive services with the realities of shift work, time constraints, and competing responsibilities. The integration of registry-driven identification, proactive outreach, onsite or mobile service delivery, and coordinated follow-up transforms screening from an episodic recommendation into a managed population health process.Importantly, the value proposition extends beyond compliance metrics. Earlier detection may translate into reduced treatment intensity, improved workforce productivity, lower absenteeism, and potential long-term cost containment for employers and health plans. Although downstream economic outcomes require further study, the alignment between preventive health optimization and

employer-sponsored care models is strategically compelling. From an equity perspective, mobile-integrated workplace screening may help address disparities linked to job class, shift schedules, transportation limitations, and healthcare navigation complexity. By reducing structural barriers rather than focusing solely on individual behavior change, this model supports more equitable access to evidence-based preventive services.

However, implementation must be deliberate. Screening expansion without navigation capacity risks incomplete diagnostic follow-up. Data integration, privacy safeguards, vendor coordination, and outcome tracking are essential to ensure that increased screening translates into meaningful clinical benefit. Rigorous employer-based evaluations, including pragmatic and comparative designs, are needed to quantify impact on adherence, stage at diagnosis, healthcare utilization, and total cost of care.

In summary, mobile cancer screening integrated within employer-sponsored clinic ecosystems represents a scalable, operationally feasible, and clinically grounded strategy to improve screening compliance in working populations. By combining convenience, structured outreach, and closed-loop follow-up, this model has the potential to shift cancer screening from a fragmented referral process to a coordinated population health intervention. Further employer-specific research will be critical to define best practices, optimize implementation, and validate long-term clinical and economic outcomes.

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