

Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity, Updated 2026

Community Preventive Services Task Force Finding and Rationale Statement Ratified July 2022

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Suggested citation:

The Community Preventive Service Task Force (CPSTF). *Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity, Updated 2026*. The Community Guide [www.thecommunityguide.org]. The Community Preventive Service Task Force, Atlanta, Georgia, 2026. <https://doi.org/10.15620/cdc/168661>

CPSTF Finding and Rationale Statement

Context

Screenings for breast, cervical, and colorectal cancers, combined with appropriate follow-up, diagnosis and treatment, can reduce cancer mortality, and in some cases reduce cancer incidence (USPSTF [2016](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-screening) [<https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-screening>], [2018](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening) [<https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening>], [2021](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening) [<https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening>]). In 2018, cancer screening rates in the United States were below the Healthy People 2020 targets, and [Healthy People 2030](https://health.gov/healthypeople/objectives-and-data/browse-objectives/cancer/increase-proportion-adults-who-get-screened-colorectal-cancer-c-07) [<https://health.gov/healthypeople/objectives-and-data/browse-objectives/cancer/increase-proportion-adults-who-get-screened-colorectal-cancer-c-07>] adjusted their targets based on 2018 data. Rates were even lower among people from historically disadvantaged racial and ethnic groups, people who qualified for Medicaid, and people who did not have health insurance (Sabatino et al. 2021). Identifying and expanding the use of evidence-based interventions to increase screening could help reduce some of these screening disparities.

Patient navigation services aim to eliminate barriers and promote access to timely diagnosis and treatment of cancer (Freeman et al. 2011). These services guide patients through a healthcare system from screening through all phases of cancer treatment (Freeman et al. 2011). Barriers may be financial or structural, or they may be related to communication or access to information (CDC 2021). Barriers may also include patients' mistrust of the healthcare system or fear of possible cancer diagnoses ([CDC 2021](https://www.cdc.gov/cancer/php/interventions/patient-navigation.html) [<https://www.cdc.gov/cancer/php/interventions/patient-navigation.html>]; Freeman et al. 2011).

Intervention Definition

Patient navigation services provided through healthcare systems help patients overcome barriers to accessing breast, cervical, and colorectal cancer screenings. Services are offered to populations experiencing greater disparities in cancer screening, including people from historically disadvantaged racial and ethnic populations and people with lower incomes. Patient navigation services do one or more of the following:

- Provide [client reminders](https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#client-oriented) [<https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#client-oriented>]
- [Reduce structural barriers](https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#client-oriented) [<https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#client-oriented>] (e.g., modify administrative processes; assist with appointment scheduling, transportation, translation, or childcare; arrange alternative screening sites or hours)
- [Reduce patients' out-of-pocket costs](https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#client-oriented) [<https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#client-oriented>]

Services may also provide [one-on-one](https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#client-oriented) [<https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#client-oriented>] or [group education](https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#client-oriented) [<https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#client-oriented>] to inform patients' understanding of cancer and cancer screening.

Services may be delivered by [community health workers](https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#cancerscreening) [https://www.thecommunityguide.org/pages/task-force-findings-cancer-prevention-and-control.html#cancerscreening], healthcare professionals, nurses, patient navigators, social workers, or others. They are often designed to be culturally- and language-appropriate.

CPSTF Finding (July 2022)

The Community Preventive Services Task Force (CPSTF) recommends patient navigation services for historically disadvantaged racial and ethnic populations and people with lower incomes to increase

- Breast cancer screening by mammography based on strong evidence of effectiveness
- Cervical cancer screening by Pap test based on sufficient evidence of effectiveness
- Colorectal cancer screening by colonoscopy, fecal occult blood test (FOBT), or fecal immunochemical test (FIT) based on strong evidence of effectiveness

Patient navigation services are expected to advance health equity when implemented among historically disadvantaged racial and ethnic populations and people with lower incomes, who often have lower screening rates (Sabatino et al. 2021). With timely and appropriate follow-up care and treatment, patient navigation services may improve health and reduce cancer-related disparities for these groups.

CPSTF finds patient navigation services to increase breast and colorectal cancer screenings are cost-effective. Systematic review evidence shows estimates of cost per quality-adjusted life year (QALY) gained are below a conservative threshold of \$50,000. In addition, the CPSTF finds that the return on investment is favorable for patient navigation services to increase colorectal cancer screening by colonoscopy as estimated values for colonoscopy reimbursement exceed the cost of the intervention.

Rationale

Basis of Finding

The CPSTF recommendation is based on a systematic review of 34 studies. Studies were identified from a published systematic review (Nelson et al. 2020, 29 studies; search period January 1, 1996, to July 6, 2019) and an updated search (5 studies; search period July 1, 2019, to November 30, 2021). Included studies evaluated intervention effects on breast (11 studies), cervical (3 studies), or colorectal (27 studies) cancer screening use—services recommended by the U.S.

Preventive Services Task Force (USPSTF [2016](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-screening)

[https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-screening], [2018](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening)

[https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening], [2021](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening)

[https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening]).

The systematic review team conducted a random effects meta-analysis to evaluate intervention effectiveness for breast and colorectal cancer screenings. The team also calculated medians and interquartile intervals (IQI) to support the interpretation of results (Tables 1 and 3). There were not enough studies to conduct a meta-analysis for cervical cancer screening, so the team calculated the median and range (Table 2). One study reported narrative results with a favorable colorectal cancer screening outcome that could not be included in the summary effect estimate calculation.

Table 1. Summary of Findings for Breast Cancer Screening

Analysis Methods	Number of Studies	Results	Direction of Effect
Meta-analysis	10	RR: 1.32 95% CI: 1.08 to 1.62	Favors intervention
Median and IQI	11	Absolute difference or change: 12.0 pct pts IQI: 9.7 to 24.2 pct pts Relative difference or change: 54.5% IQI: 14.5% to 75.3%	Favors intervention

CI: confidence interval

IQI: interquartile interval

Pct pts: percentage points

RR: risk ratio

Table 2. Summary of Findings for Cervical Cancer Screening

Analysis Methods	Number of Studies	Results	Direction of Effect
Median and range	3	Absolute difference or change: 22.5 pct pts Range: 7.0 to 33.8 pct pts Relative difference or change: 64.5% Range: 9.9% to 67.6%	Favors intervention

Pct pts: percentage points

Table 3. Summary of Findings for Colorectal Cancer Screening

Test Used	Analysis Methods	Number of Studies	Results	Direction of Effect
Any test*	Meta-analysis	26	RR: 1.82 95% CI: 1.50 to 2.21	Favors intervention
Any test*	Median and IQI	26	Absolute difference or change: 13.6 pct pts IQI: 7.9 to 31.8 pct pts Relative difference or change: 76.2% IQI: 26.0% to 188.0%	Favors intervention
Colonoscopy	Meta-analysis	11	RR: 1.97 95% CI: 1.34 to 2.89	Favors intervention

Test Used	Analysis Methods	Number of Studies	Results	Direction of Effect
Colonoscopy	Median and IQI	12	Absolute difference or change: 13.9 pct pts IQI: 9.5 to 26.1 pct pts Relative difference or change: 109.9% IQI: 34.6% to 296.2%	Favors intervention
FOBT or FIT	Meta-analysis	12	RR: 1.65 95% CI: 1.38 to 1.99	Favors intervention
FOBT or FIT	Median and IQI	12	Absolute difference or change: 12.4 pct pts IQI: 4.9 to 18.8 pct pts Relative difference or change: 57.3% IQI: 37.5% to 126.8%	Favors intervention

*Received colorectal cancer screening based on most recent [USPSTF](https://uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening)

[<https://uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening>] guidelines

CI: confidence interval

IQI: interquartile interval

Pct pts: percentage points

RR: risk ratio

FOBT: fecal occult blood test

FIT: fecal immunochemical test

The remaining sections of the finding and rationale statement are based on analysis of all included studies across breast, cervical, or colorectal cancer screenings.

Applicability and Generalizability Considerations

Intervention Settings

All included studies were conducted in the United States (34 studies). Studies were conducted in clinic (22 studies) or clinic and community (12 studies) settings; and in urban (26 studies), rural (5 studies), or a mix of urban and rural areas (2 studies). Review findings are considered applicable across these settings.

Population Characteristics

Twenty-five studies reported participants' mean age with an overall median age of 59.5 years. Five of the 25 studies focused on breast cancer screening, and the median age for recruited participants was 54.5 years. Seventeen of the 25 studies focused on colorectal cancer screening, and the median age for recruited participants was 60.3 years. No study solely focused on cervical cancer screening. Eight studies reported age groups that could not be summarized, and one study did not report on age. Cancer screenings increased for all adults.

Of the 27 studies that assessed intervention effectiveness for colorectal cancer screening, 23 recruited both females (median 59%) and males (median 41%). Five studies performed stratified analyses and reported similar increases in colorectal cancer screening for both sexes.

Twenty-five studies only recruited participants who were not up to date with their breast (5 studies), cervical (1 study), or colorectal (22 studies) cancer screenings. Screening increased regardless of participants' baseline screening status, though a greater increase was observed for participants who were not up to date at baseline.

Thirty-one studies reported racial and ethnic distributions. Participants self-identified as American Indian or Alaska Native (42%; 1 study), Asian (median 3%; 4 studies), Black or African American (median 31%; 15 studies), Hispanic or Latino (median of 40%; 11 studies), Native Hawaiian (42%; 1 study); White (median 47%; 14 studies), or other or unknown race or ethnicity (median 8%; 16 studies). Some studies exclusively recruited participants who were American Indian (1 study), Asian (3 studies), Black or African American (5 studies), or Hispanic or Latino (2 studies); one study recruited immigrants from Serbia or Croatia. Three studies did not report on race or ethnicity. Increases in screenings were observed across all racial and ethnic groups.

Sixteen studies reported the majority of study participants had annual incomes below \$40,000, which is 150% of the federal poverty level (FPL) for a family of four in 2022. One study reported 32% of study participants had incomes less than 150% of FPL, and 19 studies did not report income. Eight studies reported a median of 41% of participants were employed; one study recruited only participants who were employed; and 25 studies did not report employment status. Nineteen studies reported participants' educational attainment. Participants had less than high school education (median 39%; 16 studies), graduated from high school (31%; 11 studies), or had more than high school education (37%; 13 studies); 15 studies did not report on education. Four studies performed stratified analyses and reported similar increases in screenings for participants with different income, employment, or education levels.

Studies that reported insurance type showed a median of 79% of participants had health insurance (20 studies) from private companies (median 37%; 14 studies), Medicaid (median 25%; 11 studies), or Medicare (23%; 10 studies). Eight studies recruited only participants with insurance, and five studies did not report on participants' insurance status. Increases in screenings were observed regardless of insurance status (5 studies), with slightly larger increases observed for participants with public insurance (2 studies) or without insurance (3 studies).

Participants preferred to use English (median 55%; 15 studies) or Spanish (median 41%; 11 studies) at home. Sixteen studies did not report on preferred language. Increases in screenings were observed regardless of participants' preferred language, with slightly larger increases observed for participants whose preferred language was not English (3 studies).

Intervention Characteristics

Interventions were implemented to increase screenings for breast cancer (6 studies), colorectal cancer (21 studies), or a mix of breast, cervical, and colorectal cancer (7 studies). Screenings increased whether interventions were focused on one or more cancer types.

Patient navigation services reduced structural barriers by assisting with appointment scheduling (20 studies), transportation (13 studies), or childcare (2 studies); reducing administrative barriers (23 studies); or providing alternative screening hours (1 study) or translation services (1 study). Two studies did not specify the services provided. Patient navigation services also included client reminders (10 studies); reduced patient out-of-pocket costs (mostly by providing stamped return envelopes for FIT or FOBT kits; 6 studies); provided one-on-one (24 studies) or group

education (4 studies); distributed small media (6 studies); or provided client incentives (1 study). Screenings increased across all services offered.

Interventions included one (4 studies), two (5 studies), three (10 studies), or four or more (16 studies) services. One study with two study arms offered three or four services. Screening rates increased regardless of the number of services offered.

Services were provided by patient navigators who worked alone (14 studies) or as part of a team (5 studies), by community health workers who worked alone (6 studies) or as part of a team (3 studies), or by others such as nurses or case managers (5 studies). One study engaged both patient navigators and community health workers as members of a team. Screening rates increased regardless of the deliverer used.

Services were delivered remotely (15 studies) or both remotely and face-to-face (18 studies). One study did not report methods of communication. Screening rates increased when services were delivered through either method.

Data Quality Issues

Study designs included randomized control trials (27 studies), pre-post with concurrent comparison groups (4 studies), a retrospective cohort (1 study), and single group pre-post (2 studies). The most common study limitation was lack of description of participant selection.

Other Benefits and Harms

One included study identified an additional benefit, reporting patients were referred to services to address other health issues (Hardin et al. 2020); no harms were identified in the included studies.

Economic Evidence

Economic evidence shows patient navigation services to increase breast and colorectal cancer screenings are cost-effective. In addition, the CPSTF finds that the return on investment is favorable for patient navigation services to increase colorectal cancer screening by colonoscopy as estimated values for colonoscopy reimbursement exceed the cost of the intervention. There were not enough economic studies on patient navigation to determine the cost-effectiveness of this intervention to increase cervical cancer screening.

The economic review (search period through December 2022) included studies of screening for breast cancer (3 studies), cervical cancer (2 studies), colorectal cancer (17 studies) and multiple cancers (2 studies). The multiple cancer studies screened each patient for breast, cervical, colorectal, and other cancers. All but one study was conducted in the United States.

Studies reported intervention cost, change in healthcare cost, and cost per quality-adjusted life year (QALY) gained. Economic estimates were judged to be of good quality based on Community Guide [methods](https://www.thecommunityguide.org/pages/community-guide-methodology.html) [https://www.thecommunityguide.org/pages/community-guide-methodology.html] adequate capture of components known to be drivers of the estimate and the quality of measurement methods used. All monetary values were adjusted to 2022 U.S. dollars.

Intervention Cost

The three breast cancer screening studies reported intervention costs per person were \$109, \$3,251, and \$10,245. There were large cost differences across studies because each considered different cost components as part of the services. The study with the lowest cost only included the personnel cost for six community health educators and a small

expenditure for mailing, transportation, and nonmonetary incentives. The study with the highest cost evaluated the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) and included screening, diagnostic, and treatment costs. The lowest and highest cost programs estimated costs specific to patient navigation services and reported a patient navigation cost per person of \$100 and \$147, respectively. Two studies reported the incremental cost per additional person screened to be \$154 and \$740.

The two studies that considered patient navigation services to increase cervical cancer screening reported intervention costs per person were \$103 and \$794 and costs per additional person screened were \$533 and \$56. The studies did not report patient navigation costs separately.

For studies that considered patient navigation services to increase colorectal cancer screening, the median intervention cost per person from 16 studies was \$150 (Interquartile Interval (IQI): \$66, \$338). The median intervention cost per additional person screened from 17 studies was \$663 (IQI: \$202, \$1711). The median costs for these two categories were higher for colonoscopy screening compared to fecal immunochemical test (FIT) (\$335 vs. \$80 and \$861 vs. \$245, respectively). The median cost per person and cost per additional person screened were also higher when the navigators offered five or more services compared to less than five services (\$268 vs. \$74 and \$885 vs. \$369, respectively).

A study that evaluated patient navigation services to increase breast, cervical, and colorectal cancer screenings reported an intervention cost of \$355 per person. Another study that aimed to increase breast, cervical, colorectal, lung, and prostate cancer screenings reported a median intervention cost per person of approximately \$5,000 across six sites funded by Medicare. The median patient navigation cost per person for this study was \$590.

Economic Benefit

An increase in screenings would increase healthcare cost initially through increases in diagnostic tests and follow up treatment costs. Economic benefits are achieved over time through treatment cost savings associated with early detection of cancer.

Two breast cancer screening studies reported changes in healthcare cost per person were \$202 and \$2,437.

The studies of cervical cancer screening programs did not report estimates of change in healthcare cost per person.

Three colorectal cancer screening studies modeled decreased long-term treatment cost net of intervention cost. Two of these studies reported net savings of \$173 and \$1,442 per person and the third reported net cost of \$42 per person.

One study that aimed to increase screenings for multiple cancers reported a median change in healthcare cost per person to be \$35 with an interquartile interval of -\$1,242 to \$468.

Cost-Effectiveness

Two of the three studies that evaluated breast cancer screening interventions used microsimulation models to calculate and report a cost per QALY gained of \$3,852 and \$39,159 with a lifetime horizon.

The third study used results from their program evaluation to provide a cost per life year gained. Based on diagnostic follow-up tests of 3.4% for all abnormal screening results, a cancer detection rate of 0.8%, and a mortality reduction of 25% through prevention of terminal cancer, the intervention led to a cost per life year gained (LYG) of \$22,889. A LYG can be converted to QALY after multiplication by the health utility score associated with a disease. A recent meta-regression analysis estimated utility scores from patients' responses for early and late-stage breast cancers using

different utility assessment methods and found these were all above 0.5 (Gong et al. 2020). Based on this evidence, \$22,889 per LYG would be below \$45,778 per QALY gained.

One of the cervical cancer screening studies reported a cost per QALY of \$924. The other cervical cancer study and the studies that addressed multiple cancer screenings did not report information about cost-effectiveness.

Two of the three studies that evaluated colorectal cancer screening interventions used microsimulation models and reported cost savings of \$173 and \$1,422 per patient and QALY gained per patient of 0.014 and 0.310. Since there were both improvements in QALYs and savings in cost, the studies showed that the patient navigation interventions dominated (i.e. resulted in cost-savings and increased life years saved) the usual care arms. The third study reported a net cost of \$42 and 0.013 life years gained per patient yielding a cost per life year gained (LYG) of \$3,231. Using the health utility value of 0.25 for the worst-case scenario of distant cancer from published literature (Wilson et al., 2015), the cost per QALY gained was computed to be \$12,293, which is less than a conservative \$50,000 threshold value for cost-effectiveness.

Rate of Return on Investment (ROI)

Three colorectal cancer screening studies reported six ROI estimates (Table 4). The authors compared actual or assumed Medicare reimbursement rates for colonoscopy screenings to the costs of patient navigation services to increase colonoscopies and found favorable ROIs. One ROI estimate at 579.1% was considered an outlier. The median ROI for the remaining 5 estimates without the outlier was 2.3% (IQI: 1.7%, 6.9%).

Table 4. Summary of ROI Estimates for Colorectal Screening by Colonoscopy

Reimbursement Method for Colonoscopy Intervention Implementers	Number of Studies (Number of Estimates)	Percent of Study Population Uninsured	Results Median (IQI)
Assumed reimbursement at Medicare rate Public hospital, state health department, endoscopy center	2 (5)	16.8%, 100%	2.3% (IQI: 1.7%, 6.9%)
Actual reimbursement based on average of private and public insurance rates Private medical center	1 (1)	0%	579.1% ¹

¹Outlier

ROI: return on investment

IQI: interquartile interval

The systematic economic review finds patient navigation services to increase breast and colorectal cancer screenings are cost-effective with all estimates of cost per QALY gained falling below a conservative threshold of \$50,000. The systematic review also finds the return on investment is favorable for patient navigation services to increase colorectal cancer screening by colonoscopy as estimated values for colonoscopy reimbursement exceed the cost of the intervention.

Cost-effectiveness of patient navigation to increase cervical cancer screening could not be determined because of limited body of evidence.

Considerations for Implementation

Evidence from the systematic review suggests patient navigation services adjusted to fit local needs and resources can increase cancer screenings among people from historically disadvantaged racial or ethnic groups and people with lower incomes. Evidence suggests programs with different intervention characteristics implemented in different settings will be effective.

Many of the included studies examined patient navigation services delivered to patients in both community and clinic settings. Programs may want to implement strategies to foster community and clinic collaboration. Ma et al. (2019) reported on-going clinic engagement improved delivery of screening tests and follow-up care and suggested long-term community engagement could help raise awareness about cancer screenings and available services and increase community members' motivation to get screened.

Integrating patient navigation services into existing healthcare systems requires coordination (Freeman et al. 2011). Programs might consider designating a navigation coordinator to oversee service delivery (Freeman et al. 2011). They might also assess whether they have adequate staff to provide services (Reuland et al. 2017) and electronic health record systems and tools in place to identify patients who would benefit from services (Coronado et al. 2018).

Patient navigation services examined in this review were delivered by a wide array of deliverers, including community health workers, trained lay patient or professional navigators, nurses, case managers, or clinic staff. They worked alone or as part of a team. Studies suggested delivery could be enhanced when deliverers had local knowledge, provided language-appropriate and culturally competent services, had flexible working hours to better fit patients' schedules, and worked closely with healthcare providers (Braun et al. 2015; Lasser et al. 2011; Ma et al. 2009; Percac-Lima et al. 2012). One study reported that wordless instructions for FOBT or FIT kits helped address language barriers (Haverkamp et al. 2020).

Patient navigation services can be delivered remotely, which might help in rural areas or other settings where transportation is difficult. Remote services are especially useful for colorectal cancer screening interventions that mail out FOBT and FIT kits and use automated voice calls or text reminders to patients to return them (Baker et al. 2014, Coronado et al. 2018; Goldman et al. 2015). Programs may combine face-to-face and remote interactions based on the unique needs of the deliverers and patients.

The cancer care continuum begins with prevention and appropriate screening and extends through follow-up diagnostic testing and treatment as appropriate (Freeman et al. 2011). Patients may face barriers to follow-up diagnostic testing or treatment including lack of privacy for bowel preparation prior to colonoscopy, competing health concerns, or lack of transportation (Freeman et al. 2011; Haverkamp et al. 2020; Nadel et al. 2019). Patient navigation services can be provided at every stage on the continuum to guide patients through the healthcare system and reduce cancer mortality, and in some cases, incidence (Freeman et al. 2011).

Evidence Gaps

CPSTF identified several areas that have limited information. Additional research and evaluation could help answer the following questions and fill existing gaps in the evidence base.

CPSTF identified the following questions as priorities for research and evaluation:

- How effective are patient navigation services in increasing the following?
 - Repeat screenings (USPSTF recommends repeating breast, cervical, and colorectal cancer screenings at appropriate intervals [USPSTF [2016](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-screening) [https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-screening], [2018](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening) [https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening], [2021](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening) [https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening]]); the included studies examined one-time screenings
 - The proportion of patients with positive screening tests who receive follow-up diagnostic tests
 - Cervical cancer screening for younger females (USPSTF recommends females start regular cervical cancer screening at age 21 years [USPSTF [2018](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening) [https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening]]); the included studies recruited participants with a median age of 59.5 years.
- What is the cost-effectiveness of patient navigation services to increase cervical cancer screening?
- What is the cost-effectiveness of patient navigation services to increase colorectal cancer screening for populations that were underrepresented in the economic review, including African Americans?

Remaining questions for research and evaluation identified by CPSTF:

- How effective and cost-effective are patient navigation services in increasing the following?
 - Cervical cancer screening that includes HPV tests (following the [2018](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening) [https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening] update from USPSTF that recommended high risk HPV testing alone or in combination with cytology for women aged 30 to 65 years)
 - Colorectal cancer screening for adults aged 45-49 years (following the [2021](https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening) [https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening] update from USPSTF that lowered the starting age for colorectal cancer screenings)
 - Colorectal cancer screening using other USPSTF-recommended tests such as the stool DNA test, flexible sigmoidoscopy, or computed tomography colonography
- Does intervention effectiveness vary by the following?
 - Participants' health literacy
 - Number of interactions between service deliverers and participants
- What is the precise economic impact of patient navigation services within comprehensive health promotion interventions?
- What is the cost-effectiveness of using patient navigation services to increase FOBT/FIT followed by diagnostic colonoscopy?

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Sabatino SA, Thompson TD, White MC et al. Cancer screening test receipt - United States, 2018. *MMWR* 2021;70(2):29-35.

U.S. Preventive Services Task Force (USPSTF). Breast cancer: screening. Bethesda (MD): 2016. Accessed June 15, 2022. www.uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-screening

USPSTF. Cervical cancer: screening. Bethesda (MD): 2018. Accessed June 15, 2022. URL: www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening

USPSTF. Colorectal cancer: screening. Bethesda (MD): 2021. Accessed June 15, 2022. www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening.

Wilson FA, Villarreal R, Stimpson JP, Pagán JA. Cost-effectiveness analysis of a colonoscopy screening navigator program designed for Hispanic men. *Journal of Cancer Education* 2015;30:260-7.

Disclaimer

The findings and conclusions on this page are those of the Community Preventive Services Task Force and do not necessarily represent those of CDC. Task Force evidence-based recommendations are not mandates for compliance or spending. Instead, they provide information and options for decision makers and stakeholders to consider when determining which programs, services, and policies best meet the needs, preferences, available resources, and constraints of their constituents.

Document last updated July 30, 2026

Appendices of Supporting Documents

Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

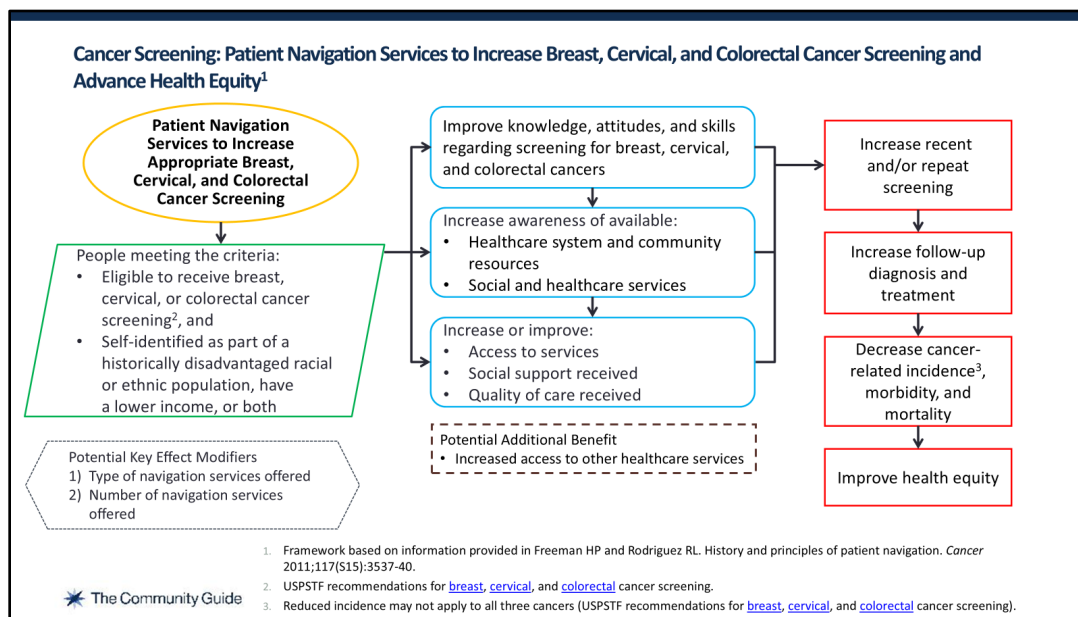
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Appendix A

Analytic Framework (Effectiveness Review)

Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

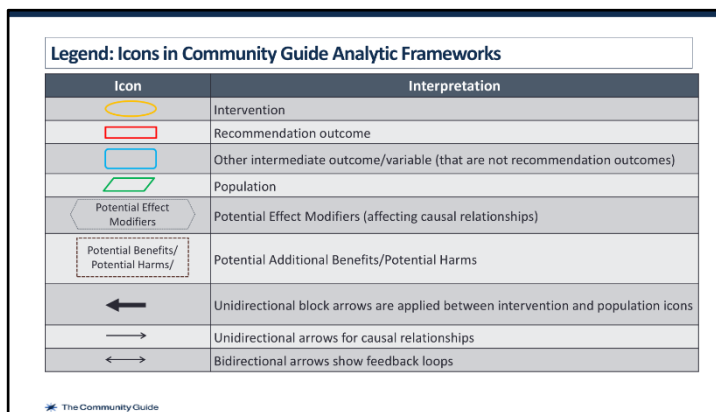


Analytic Framework Text Description

The analytic framework postulates the pathway leading from patient navigation services to increased breast, cervical, and colorectal cancer screening and improved health equity.¹

Patient navigation services are offered to people who (1) are eligible to receive breast, cervical, or colorectal cancer screening,² and (2) self-identified as part of a historically disadvantaged racial or ethnic population, have a lower income, or both. Patient navigation services improve participants' knowledge, attitudes, and skills regarding screening for breast, cervical, and colorectal cancers; increase their awareness of available healthcare system and community resources, and social and healthcare services; and increase or improve their access to services, social support, and quality of care received. These improvements can lead to increases in participants receiving recent or repeat cancer screenings; increases in follow-up diagnosis and treatment (if indicated by screening results); and decreases in cancer-related incidence,³ morbidity, and mortality; leading to improved health equity.

Potential key effect modifiers include type and number of navigation services offered. Potential additional benefit includes increases in access to other healthcare services.



Appendix B Search Strategy (Effectiveness Review):

Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

The review included studies from a published systematic review (Nelson et al. 2020, 29 studies; search period January 1, 1996, to July 6, 2019) and an updated search (5 studies; search period July 1, 2019, to November 30, 2021). The updated search used the same search strategy from Nelson et al., with detailed search strategy and results listed below. Two team members independently screened each paper identified to determine eligibility. Uncertainties and disagreements were resolved by consensus among review team members.

Overall Search Results:

Databases	Date	Results	Duplicates	Final Results
Medline (OVID) 1946 -	11/24/21	2735	0	2,735
APA PsycInfo (OVID)	11/24/21	907	91	816
Sociology Database Sogicolocial Abstracts (Proquest Central) 1952-	11/27/21	132	41	91
Scopus 1960	11/29/21	666	371	295
Cochrane Library	11/30/21	205	70	135
Total		4645	572	4073

Appendix A. Literature Search Strategies

Database: Ovid MEDLINE® July 2019 thru Nov 2021

Broad search:

- 1 Healthcare Disparities/
- 2 "Health Services Needs and Demand"/
- 3 exp Health Services Accessibility/
- 4 exp Socioeconomic Factors/
- 5 Minority Groups/
- 6 exp Population Groups/
- 7 vulnerable populations/ or working poor/

8 exp Disabled Persons/
 9 exp Sexual Minorities/
 10 Minority Health/
 11 cultural competency/ or cultural diversity/
 12 1 or 2 or 3
 13 or/4-11
 14 13 and (equity or equitable or equal* or fair or parity or unequal* or inequal* or inequit* or undertreat* or under-treat* or access* or disparit* or discriminat*).ti,ab,kw.
 15 12 or 14
 16 exp Preventive Health Services/
 17 exp Mass Screening/
 18 exp Health Promotion/
 19 ("United States Preventive Services Task Force" or "U.S. Preventive Services Task Force" or "U.S.P.S.T.F." or "USPSTF").ti,ab,kw,au.
 20 or/16-19
 21 exp diabetes mellitus, type 2/ or prediabetic state/
 22 exp Cardiovascular Diseases/
 23 Aspirin/
 24 exp breast neoplasms/ or exp colorectal neoplasms/ or exp lung neoplasms/ or uterine cervical neoplasms/
 25 exp Obesity/
 26 Smoking/
 27 exp "Tobacco Use Cessation"/
 28 21 or (22 and 23) or 24 or 25 or 26
 29 27 or 28
 30 29 and pc.fs.
 31 20 or 30
 32 15 and 31
 33 exp united states/ or baltimore/ or boston/ or chicago/ or "district of columbia"/ or los angeles/ or new york city/ or san francisco/
 34 ("united states" or "u.s." or alabama or alaska or arizona or arkansas or california or colorado or connecticut or delaware or florida or georgia or hawaii or idaho or illinois or indiana or iowa or kansas or kentucky or louisiana or maine or maryland or massachusetts or michigan or minnesota or mississippi or missouri or montana or nebraska or nevada or "new hampshire" or "new jersey" or "new mexico" or "new york" or "north carolina" or "north dakota" or ohio or oklahoma or oregon or pennsylvania or "rhode island" or "south carolina" or "south dakota" or tennessee or texas or utah or vermont or virginia or washington or "west virginia" or wisconsin or wyoming).ti,ab,kw.
 35 32 and (33 or 34)
 36 africa/ or caribbean region/ or central america/ or canada/ or greenland/ or mexico/ or south america/ or exp asia/ or exp europe/
 37 35 not 36
 38 limit 37 to (meta analysis or systematic reviews)
 39 (medline or systematic or metaanalysis or "meta analysis").ti,ab.
 40 37 and 39
 41 38 or 40
 42 limit 41 to english language
 43 37 not 42
 44 (201907* or 201908* or 201909* or 201910* or 201911* or 201912* or 2020* or 2021*).dt.
 45 43 and 44 867

Focused search: evidence gaps

- 1 Healthcare Disparities/ 20269
- 2 "Health Services Needs and Demand"/ 54678
- 3 exp Health Services Accessibility/ 120117
- 4 exp Socioeconomic Factors/ 481169
- 5 Minority Groups/ 15822
- 6 exp Population Groups/ 321010
- 7 vulnerable populations/ or working poor/ 12188
- 8 exp Disabled Persons/ 69810
- 9 exp Sexual Minorities/ 10967
- 10 Minority Health/ 861
- 11 cultural competency/ or cultural diversity/ 17597
- 12 1 or 2 or 3 180299
- 13 or/4-11 849167
- 14 13 and (equity or equitable or equal* or fair or parity or unequal* or inequal* or inequit* or undertreat* or under-treat* or access* or disparit* or discriminat*).ti,ab,kw. 120769
- 15 12 or 14 275025
- 16 exp Preventive Health Services/ 636769
- 17 exp Mass Screening/ 137402
- 18 exp Health Promotion/ 81963
- 19 ("United States Preventive Services Task Force" or "U.S. Preventive Services Task Force" or "U.S.P.S.T.F." or "USPSTF").ti,ab,kw,au. 3039
- 20 or/16-19 650299
- 21 exp diabetes mellitus, type 2/ or prediabetic state/ 154697
- 22 exp Cardiovascular Diseases/ 2555761
- 23 Aspirin/46715
- 24 exp breast neoplasms/ or exp colorectal neoplasms/ or exp lung neoplasms/ or uterine cervical neoplasms/ 833088
- 25 exp Obesity/ 235735
- 26 Smoking/ 145101
- 27 exp "Tobacco Use Cessation"/ 1324
- 28 21 or (22 and 23) or 24 or 25 or 26 1340617
- 29 27 or 28 1341591
- 30 29 and pc.fs. 119957
- 31 20 or 30 737319
- 32 15 and 31 31442
- 33 exp united states/ or baltimore/ or boston/ or chicago/ or "district of columbia"/ or los angeles/ or new york city/ or san francisco/ 1413746
- 34 ("united states" or "u.s." or alabama or alaska or arizona or arkansas or california or colorado or connecticut or delaware or florida or georgia or hawaii or idaho or illinois or indiana or iowa or kansas or kentucky or louisiana or maine or maryland or massachusetts or michigan or minnesota or mississippi or missouri or montana or nebraska or nevada or "new hampshire" or "new jersey" or "new mexico" or "new york" or "north carolina" or "north dakota" or ohio or oklahoma or oregon or pennsylvania or "rhode island" or "south carolina" or "south dakota" or tennessee or texas or utah or vermont or virginia or washington or "west virginia" or wisconsin or wyoming).ti,ab,kw. 1177507
- 35 32 and (33 or 34) 12684
- 36 "Social Determinants of Health"/ 4973
- 37 35 or 36 17553
- 38 37 and (gap* or limit* or lack* or barrier*).ti,ab. 4878

39 (201907* or 201908* or 201909* or 201910* or 201911* or 201912* or 2020* or 2021*).dt.
3543456
40 38 and 39 857
41 limit 40 to english language 849
849

Focused search: breast cancer screening

CG Nelson Updated CGO 112621 breast cancer final"

- . Healthcare Disparities/
2. "Health Services Needs and Demand"/
3. exp Health Services Accessibility/
4. exp Socioeconomic Factors/
5. Minority Groups/
6. exp Population Groups/
7. vulnerable populations/ or working poor/
8. exp Disabled Persons/
9. exp Sexual Minorities/
10. Minority Health/
11. cultural competency/ or cultural diversity/
12. 1 or 2 or 3
13. or/4-11
14. 13 and (equity or equitable or equal* or fair or parity or unequal* or inequal* or inequit* or undertreat* or under-treat* or access* or disparit* or discriminat*).ti,ab,kw.
15. 12 or 14
16. exp Preventive Health Services/
17. exp Mass Screening/
18. exp Health Promotion/
19. ("United States Preventive Services Task Force" or "U.S. Preventive Services Task Force" or "U.S.P.S.T.F." or "USPSTF").ti,ab,kw,au.
20. prevent*.ti,ab.
21. 16 or 17 or 18 or 19 or 20
22. 15 and 21
23. exp united states/ or baltimore/ or boston/ or chicago/ or "district of columbia"/ or los angeles/ or new orleans/ or new york city/ or philadelphia/ or san francisco/
24. exp africa/ or caribbean region/ or central america/ or latin america/ or canada/ or greenland/ or mexico/ or south america/ or exp antarctic regions/ or exp arctic regions/ or exp asia/ or exp europe/ or exp islands/ or exp oceania/
25. exp Breast Neoplasms/pc [Prevention & Control]
26. ((breast adj3 cancer) or mammogram or mammography or "clinical breast exam" or (breast adj3 self)).ti,ab,kw.
27. exp Mass Screening/ or exp early diagnosis/
28. screen*.ti,ab,kw.
29. (25 or 26) and (27 or 28)
30. 12 and 21 and 29
31. 14 and 21 and 29
32. 30 or 31
33. 23 and 32
34. 32 not 24

35. 33 or 34
36. (201907* or 201908* or 201909* or 201910* or 201911* or 201912* or 2020* or 2021*).dt.
37. 35 and 36
38. limit 37 to english language

Focused search: cervical cancer screening

1. Healthcare Disparities/
2. "Health Services Needs and Demand"/
3. exp Health Services Accessibility/
4. exp Socioeconomic Factors/
5. Minority Groups/
6. exp Population Groups/
7. vulnerable populations/ or working poor/
8. exp Disabled Persons/
9. exp Sexual Minorities/
10. Minority Health/
11. cultural competency/ or cultural diversity/
12. 1 or 2 or 3
13. or/4-11
14. 13 and (equity or equitable or equal* or fair or parity or unequal* or inequal* or inequit* or undertreat* or under-treat* or access* or disparit* or discriminat*).ti,ab,kw.
15. 12 or 14
16. exp Preventive Health Services/
17. exp Mass Screening/
18. exp Health Promotion/
19. ("United States Preventive Services Task Force" or "U.S. Preventive Services Task Force" or "U.S.P.S.T.F." or "USPSTF").ti,ab,kw,au.
20. prevent*.ti,ab.
21. 16 or 17 or 18 or 19 or 20
22. 15 and 21
23. exp united states/ or baltimore/ or boston/ or chicago/ or "district of columbia"/ or los angeles/ or new orleans/ or new york city/ or philadelphia/ or san francisco/
24. exp africa/ or caribbean region/ or central america/ or latin america/ or canada/ or greenland/ or mexico/ or south america/ or exp antarctic regions/ or exp arctic regions/ or exp asia/ or exp europe/ or exp islands/ or exp oceania/
25. Uterine Cervical Neoplasms/
26. ((cervical or cervix) adj3 cancer).ti,ab,kw.
27. exp Mass Screening/ or exp early diagnosis/
28. screen*.ti,ab,kw.
29. (25 or 26) and (27 or 28)
30. 12 and 21 and 29
31. 14 and 21 and 29
32. 30 or 31
33. 23 and 32
34. 32 not 24
35. 33 or 34
36. (201907* or 201908* or 201909* or 201910* or 201911* or 201912* or 2020* or 2021*).dt.
37. 35 and 36

38. limit 37 to english language

Focused search: colon cancer screening

CG Nelson Updated CGO 112621 colon cancer screenings"

1. Healthcare Disparities/
2. "Health Services Needs and Demand"/
3. exp Health Services Accessibility/ or health status disparities/ or "social determinants of health"/
4. exp Socioeconomic Factors/
5. Minority Groups/
6. exp Population Groups/
7. vulnerable populations/ or working poor/
8. exp Disabled Persons/
9. exp Sexual Minorities/
10. Minority Health/
11. cultural competency/ or cultural diversity/
12. 1 or 2 or 3
13. or/4-11
14. 13 and (equity or equitable or equal* or fair or parity or unequal* or inequal* or inequit* or undertreat* or under-treat* or access* or disparit* or discriminat*).ti,ab,kw.
15. 12 or 14
16. exp Preventive Health Services/
17. exp Mass Screening/
18. exp Health Promotion/
19. ("United States Preventive Services Task Force" or "U.S. Preventive Services Task Force" or "U.S.P.S.T.F." or "USPSTF").ti,ab,kw,au.
20. prevent*.ti,ab.
21. or/16-20
22. 15 and 21
23. exp united states/ or baltimore/ or boston/ or chicago/ or "district of columbia"/ or los angeles/ or new orleans/ or new york city/ or philadelphia/ or san francisco/
24. exp africa/ or caribbean region/ or central america/ or latin america/ or canada/ or greenland/ or mexico/ or south america/ or exp antarctic regions/ or exp arctic regions/ or exp asia/ or exp europe/ or exp islands/ or exp oceania/
25. exp Colorectal Neoplasms/pc [Prevention & Control]
26. (((colon or colorectal) adj3 cancer) or colonoscopy).ti,ab,kw.
27. exp Mass Screening/
28. screen*.ti,ab,kw.
29. (25 or 26) and (27 or 28)
30. 12 and 21 and 29
31. 14 and 21 and 29
32. 30 or 31
33. 23 and 32
34. 32 not 24
35. 33 or 34
36. (201907* or 201908* or 201909* or 201910* or 201911* or 201912* or 2020* or 2021*).dt.

37. 35 and 36
38. limit 37 to english language

Systematic reviews:

CG Nelson Updated CGO 112621 systematic reviews

1. Healthcare Disparities/
2. "Health Services Needs and Demand"/
3. exp Health Services Accessibility/ or health status disparities/ or "social determinants of health"/
4. exp Socioeconomic Factors/
5. Minority Groups/
6. exp Population Groups/
7. vulnerable populations/ or working poor/
8. exp Disabled Persons/
9. exp Sexual Minorities/
10. Minority Health/
11. cultural competency/ or cultural diversity/
12. 1 or 2 or 3
13. or/4-11
14. 13 and (equity or equitable or equal* or fair or parity or unequal* or inequal* or inequit* or undertreat* or under-treat* or access* or disparit* or discriminat*).ti,ab,kw.
15. 12 or 14
16. exp Preventive Health Services/
17. exp Mass Screening/
18. exp Health Promotion/
19. ("United States Preventive Services Task Force" or "U.S. Preventive Services Task Force" or "U.S.P.S.T.F." or "USPSTF").ti,ab,kw,au.
20. or/16-19
21. exp diabetes mellitus, type 2/ or prediabetic state/
22. exp Cardiovascular Diseases/
23. Aspirin/
24. exp breast neoplasms/ or exp colorectal neoplasms/ or exp lung neoplasms/ or uterine cervical neoplasms/
25. exp Obesity/
26. exp "Tobacco Use Cessation"/
27. 21 or (22 and 23) or 24 or 25
28. 26 or 27
29. 28 and pc.fs.
30. 15 and 29
31. exp united states/ or baltimore/ or boston/ or chicago/ or "district of columbia"/ or los angeles/ or new york city/ or san francisco/
32. ("united states" or "u.s." or alabama or alaska or arizona or arkansas or california or colorado or connecticut or delaware or florida or georgia or hawaii or idaho or illinois or indiana or iowa or kansas or kentucky or louisiana or maine or maryland or massachusetts or michigan or minnesota or mississippi or missouri or montana or nebraska or nevada or "new hampshire" or "new jersey" or "new mexico" or "new york" or "north carolina" or "north dakota" or ohio or oklahoma or oregon or pennsylvania or "rhode island" or "south carolina" or "south dakota" or tennessee or texas or utah or vermont or virginia or washington or "west virginia" or wisconsin or wyoming).ti,ab,kw.
33. 30 and (31 or 32)

34. africa/ or caribbean region/ or central america/ or canada/ or greenland/ or mexico/ or south america/ or exp asia/ or exp europe/
35. 33 not 34
36. limit 35 to (meta analysis or systematic reviews)
37. (medline or systematic or metaanalysis or "meta analysis").ti,ab.
38. 36 and 37
39. 36 or 38
40. (201907* or 201908* or 201909* or 201910* or 201911* or 201912* or 2020* or 2021*).dt.
41. 39 and 40
42. limit 41 to english language

Database: Ovid MEDLINE® Epub Ahead of Print , In-Process & Other Non-Indexed Citations to July 2019 to Nov 2021

1. ((health or healthcare or "health care" or care) and (equit* or disparit* or inequal* or accessibilit*)).ti,ab,kw.
2. (socioeconomic or economic or poor or vulnerable or disenfranchis* or (social adj3 class)).ti,ab,kw.
3. (divers* or minorit* or ethnicit* or race or racial or black* or "african american*" or asian* or "native american*" or indian or hispanic or latin*).ti,ab,kw.
4. (disabled or challenged or handicapped).ti,ab,kw.
5. ("sexual adj3 minorit*" or homosexual* or bisexual* or gay* or lesbian* or transgender* or queer or lbg*).ti,ab,kw.
6. ("cultural competency" or "cultural diversity").ti,ab,kw.
7. (preventive or prevention or prevent).ti,ab,kw.
8. screen*.ti,ab,kw.
9. ("United States Preventive Services Task Force" or "U.S. Preventive Services Task Force" or "U.S.P.S.T.F." or "USPSTF").ti,ab,kw,au.
10. or/2-6
11. 10 and (equit* or disparit* or inequal* or accessibilit*).ti,ab,kw.
12. 1 or 11
13. 12 and (7 or 8 or 9)
14. (diabetes or glucose or aspirin or cardiovascular or heart or coronary or "myocardial infarction" or stroke or colorectal or colon or breast or cervical or human papillomavirus or HPV or diet or exercise or "physical activity" or overweight or obese or obesity or metabolic or hypertension or "blood pressure" or lung or tobacco or smoke* or smoking).ti,ab,kw.
15. 13 and 14
16. ("united states" or "u.s." or alabama or AL or alaska or AK or arizona or AZ or arkansas or AR or california or CA or Colorado or CO or Connecticut or CT or delaware or DE or florida or FL or georgia or GA or hawaii or HI or Idaho or ID or Illinois or IL or indiana or iowa or IA or Kansas or KS or kentucky or KY or Louisiana or LA).ti,ab,kw,in.
17. (maine or ME or maryland or MD or Massachusetts or MA or michigan or MI or Minnesota or MN or mississippi or MS or missouri or MO or montana or MT or nebraska or NE or Nevada or NV or "new hampshire" or NH or "new jersey" or NJ or "new mexico" or NM or "new york" or NY or "north carolina" or NC or "north dakota" or ND).ti,ab,kw,in.
18. (ohio or OH or oklahoma or OK or oregon or pennsylvania or PA or "rhode island" or RI or "south carolina" or SC or "south dakota" or SD or tennessee or TN or texas or TX or Utah or UT or vermont or VT or Virginia or VA or Washington or WA or "west virginia" or WV or wisconsin or WI or Wyoming or WY).ti,ab,kw,in.
19. 15 and (16 or 17 or 18)

20. (201907* or 201908* or 201909* or 201910* or 201911* or 201912* or 2020* or 2021*).dt.
21. 19 and 20
22. limit 21 to english language

Database: PsycINFO 1806 to July 2019 thru Nov 2021

CG Nelson Updated CGO 112621 PsycINFO"

- 1 health disparities/ or treatment barriers/
- 2 (equit* or disparit* or inequal* or accessibilit*).ti,ab.
- 3 exp sociocultural factors/
- 4 exp group differences/
- 5 minority groups/ or alaska natives/ or american indians/ or asians/ or blacks/ or cultural sensitivity/ or hawaii natives/ or indigenous populations/ or "latinos/latinas"/ or pacific islanders/ or "race and ethnic discrimination"/ or "racial and ethnic groups"/
- 6 exp disabilities/
- 7 exp gender identity/
- 8 exp sexual orientation/
- 9 (divers* or minorit* or ethnicit* or race or racial or black* or "african american*" or asian* or "native american*" or indian or hispanic or latin*).ti,ab.
- 10 ("sexual adj3 minorit*" or homosexual* or bisexual* or gay* or lesbian* or transgender* or queer or lbg*).ti,ab.
- 11 (disabled or challenged or handicapped).ti,ab.
- 12 (1 or 2) and (or/3-11)
- 13 exp health promotion/
- 14 exp DIABETES/
- 15 exp cardiovascular disorders/
- 16 exp ASPIRIN/ 517
- 17 exp breast neoplasms/
- 18 cancer screening/
- 19 exp overweight/
- 20 tobacco smoking/ or smoking cessation/
- 21 (diabetes or glucose or aspirin or cardiovascular or heart or coronary or "myocardial infarction" or stroke or colorectal or colon or breast or cervical or human papillomavirus or HPV or diet or exercise or "physical activity" or overweight or obese or obesity or metabolic or hypertension or "blood pressure" or lung or tobacco or smoke* or smoking).ti,ab.
- 22 or/13-21
- 23 12 and 22
- 24 ("united states" or "u.s." or alabama or AL or alaska or AK or arizona or AZ or arkansas or AR or california or CA or Colorado or CO or Connecticut or CT or delaware or DE or florida or FL or georgia or GA or hawaii or HI or Idaho or ID or Illinois or IL or indiana or iowa or IA or Kansas or KS or kentucky or KY or Louisiana or LA).ti,ab,in.
- 25 (maine or ME or maryland or MD or Massachusetts or MA or michigan or MI or Minnesota or MN or mississippi or MS or missouri or MO or montana or MT or nebraska or NE or Nevada or NV or "new hampshire" or NH or "new jersey" or NJ or "new mexico" or NM or "new york" or NY or "north carolina" or NC or "north dakota" or ND).ti,ab,in.
- 26 (ohio or OH or oklahoma or OK or oregon or pennsylvania or PA or "rhode island" or RI or "south carolina" or SC or "south dakota" or SD or tennessee or TN or texas or TX or Utah or UT or vermont or VT or Virginia or VA or Washington or WA or "west virginia" or WV or wisconsin or WI or Wyoming or WY).ti,ab,in.
- 27 24 or 25 or 26
- 28 23 and (24 or 25 or 26)

29 (201907* or 201908* or 201909* or 201910* or 201911* or 201912* or 2020* or 2021*).up.
30 28 and 29
31 limit 30 to english language 907

Database ProQuest Sociological Abstracts July 2019 to Nov 021 (Ebsco Soc Index not available)

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8,651 document results

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TITLE-ABS-KEY (preventive OR prevention OR prevent)

2,221,984 document results

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357,715 document results

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#17 #15 AND #16

July 2019 thru Nov 2021

Appendix C

Included Studies – Breast Cancer (Effectiveness Review): Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

Braun KL, Thomas Jr WL, Domingo JLB, et al. Reducing cancer screening disparities in Medicare beneficiaries through cancer patient navigation. *Journal of American Geriatric Society* 2015;63(2):365-70.

Dietrich A, Tobin J, Cassells A, et al. Telephone care management to improve cancer screening among low-income women: a randomized, controlled trial. *Annals of Internal Medicine* 2006;144(8):563-71.

Fernandez-Esquer ME, Nguyen FM, Atkinson JS, et al. Suc Khoe la Hanh Phuc (Health is Happiness): promoting mammography and pap test adherence among Vietnamese nail salon workers. *Women & Health* 2020;60(10):1206-17.

Fiscella K, Humiston S, Hendren S, et al. A multimodal intervention to promote mammography and colorectal cancer screening in a safety-net practice. *Journal of the National Medical Association* 2011;103(8):762-8.

Fortuna RJ, Idris A, Winters P, et al. Get screened: a randomized trial of the incremental benefits of reminders, recall, and outreach on cancer screening. *Journal of General Internal Medicine* 2014;29(1):90-7.

Marshall JK, Mbah OM, Ford JG, et al. Effect of patient navigation on breast cancer screening among African American Medicare beneficiaries: a randomized controlled trial. *Journal of General Internal Medicine* 2016;31(1):68-76.

Paskett E, Tatum C, Rushing J, et al. Randomized trial of an intervention to improve mammography utilization among a triracial rural population of women. *Journal of National Cancer Institute* 2006;98(17):1226-37.

Percac-Lima S, Milosavljevic B, Oo SA, et al. Patient navigation to improve breast cancer screening in Bosnian refugees and immigrants. *Journal of Immigrant and Minority Health* 2012;14(4):727-30.

Phillips CE, Rothstein JD, Beaver K, et al. Patient navigation to increase mammography screening among inner city women. *Journal of General Internal Medicine* 2011;26(2):123-9.

Russell KM, Champion VL, Monahan PO, et al. Randomized trial of a lay health advisor and computer intervention to increase mammography screening in African American women. *Cancer Epidemiology Biomarkers and Prevention* 2010;19(1):201-10.

Weber BE, Reilly BM. Enhancing mammography use in the inner city: a randomized trial of intensive case management. *Archives of Internal Medicine* 1997;157(20):2345-9.

Appendix D**Included Studies – Cervical Cancer (Effectiveness Review):
Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal
Cancer Screenings and Advance Health Equity**

Braun KL, Thomas Jr WL, Domingo JLB, et al. Reducing cancer screening disparities in Medicare beneficiaries through cancer patient navigation. *Journal of American Geriatric Society* 2015;63(2):365-70.

Dietrich A, Tobin J, Cassells A, et al. Telephone care management to improve cancer screening among low-income women: a randomized, controlled trial. *Annals of Internal Medicine* 2006;144(8):563-71.

Fernandez-Esquer ME, Nguyen FM, Atkinson JS, et al. Suc Khoe la Hanh Phuc (Health is Happiness): promoting mammography and pap test adherence among Vietnamese nail salon workers. *Women & Health* 2020;60(10):1206-17.

Appendix E

Included Studies – Colorectal Cancer (Effectiveness Review): Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

Baker DW, Brown T, Buchanan DR, et al. Comparative effectiveness of a multifaceted intervention to improve adherence to annual colorectal cancer screening in community health centers: a randomized clinical trial. *JAMA Internal Medicine* 2014;174(8):1235-41.

Blumenthal D, Smith S, Majett C, et al. A trial of three interventions to promote colorectal cancer screening in African Americans. *Cancer* 2010;116(4):922-9.

Braun KL, Thomas Jr WL, Domingo JLB, et al. Reducing cancer screening disparities in Medicare beneficiaries through cancer patient navigation. *Journal of American Geriatric Society* 2015;63(2):365-70.

Christie J, Itzkowitz S, Lihau-Nkanza I, et al. A randomized controlled trial using patient navigation to increase colonoscopy screening among low-income minorities. *Journal of the National Medical Association* 2008;100(3):278-84.

Coronado GD, Petrik AF, Vollmer WM, et al. Effectiveness of a mailed colorectal cancer screening outreach program in community health clinics: the STOP CRC Cluster Randomized Clinical Trial. *JAMA Internal Medicine* 2018;178(9):1174-81.

Davis T, Arnold C, Rademaker A, et al. Improving colon cancer screening in community clinics. *Cancer* 2013;119(21):3879-86.

DeGroff A, Schroy III PC, Morrissey KG, et al. Patient navigation for colonoscopy completion: results of an RCT. *American Journal of Preventive Medicine* 2017;53(3):363-72.

Dietrich A, Tobin J, Cassells A, et al. Telephone care management to improve cancer screening among low-income women: a randomized, controlled trial. *Annals of Internal Medicine* 2006;144(8):563-71.

Dietrich AJ, Tobin JN, Robinson CM, et al. Telephone outreach to increase colon cancer screening in Medicaid managed care organizations: a randomized controlled trial. *Annals of Family Medicine* 2013;11(4):335-43.

Enard K, Nevarez L, Hernandez M, et al. Patient navigation to increase colorectal cancer screening among Latino Medicare enrollees: a randomized controlled trial. *Cancer Causes & Control* 2015;26(9):1351-9.

Fiscella K, Humiston S, Hendren S, et al. A multimodal intervention to promote mammography and colorectal cancer screening in a safety-net practice. *Journal of the National Medical Association* 2011;103(8):762-8.

Ford ME, Havstad S, Vernon SW, et al. Enhancing adherence among older African American men enrolled in a longitudinal cancer screening trial. *Gerontologist* 2006;46(4):545-50.

Fortuna RJ, Idris A, Winters P, et al. Get Screened: a randomized trial of the incremental benefits of reminders, recall, and outreach on cancer screening. *Journal of General Internal Medicine* 2014;29(1):90-7.

Goldman SN, Liss DT, Brown T, et al. Comparative effectiveness of multifaceted outreach to initiate colorectal cancer screening in community health centers: a randomized controlled trial. *Journal of General Internal Medicine* 2015;30(8):1178-84.

Hardin V, Tangka FK, Wood T, et al. The effectiveness and cost to improve colorectal cancer screening in a federally qualified homeless clinic in eastern Kentucky. *Health Promotion Practice* 2020;21(6):905-9.

Haverkamp D, English K, Jacobs-Wingo J, et al. Effectiveness of interventions to increase colorectal cancer screening among American Indians and Alaska Natives. *Preventing Chronic Disease* 2020;17:E62.

Honeycutt S, Green R, Ballard D, et al. Evaluation of a patient navigation program to promote colorectal cancer screening in rural Georgia, USA. *Cancer* 2013;119(16):3059-66.

Jandorf L, Gutierrez Y, Lopez J, et al. Use of a patient navigator to increase colorectal cancer screening in an urban neighborhood health clinic. *Journal of Urban Health* 2005;82(2):216-24.

Lasser KE, Murillo J, Lisboa S, et al. Colorectal cancer screening among ethnically diverse, low-income patients: a randomized controlled trial. *Archives Internal Medicine* 2011;171(10):906-12.

Leone LA, Reuland DS, Lewis CL, et al. Reach, usage, and effectiveness of a Medicaid patient navigator intervention to increase colorectal cancer screening, Cape Fear, North Carolina, 2011. *Preventing Chronic Disease* 2013;10:E82.

Ma GX, Shive S, Tan Y, et al. Community-based colorectal cancer intervention in underserved Korean Americans. *Cancer Epidemiology* 2009;33:381-6.

Ma GX, Lee M, Beeber M, et al. Community-clinical linkage intervention to improve colorectal cancer screening among underserved Korean Americans. *Cancer Health Disparities* 2019;3:e1-5.

Myers RE, Sifri R, Daskalakis C, et al. Increasing colon cancer screening in primary care among African Americans. *Journal of the National Cancer Institute* 2014;106(12):dju344.

Myers RE, Stello B, Daskalakis C, et al. Decision support and navigation to increase colorectal cancer screening among Hispanic patients. *Cancer Epidemiology Biomarkers and Prevention* 2019;28(2):384-91.

Percac-Lima S, Grant RW, Green AR, et al. A culturally tailored navigator program for colorectal cancer screening in a community health center: a randomized, controlled trial. *Journal of General Internal Medicine* 2009;24(2):211-7.

Percac-Lima S, López L, Ashburner JM, et al. The longitudinal impact of patient navigation on equity in colorectal cancer screening in a large primary care network. *Cancer* 2014;120(13):2025-31.

Reuland DS, Brenner AT, Hoffman R, et al. Effect of combined patient decision aid and patient navigation vs usual care for colorectal cancer screening in a vulnerable patient population: a randomized clinical trial. *JAMA Internal Medicine* 2017;177(7):967-74.

Appendix F

Summary Evidence Table– Breast Cancer (Effectiveness Review): Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

Abbreviations Used in This Document

- Intervention components:
 - CR: client reminder
 - GE: group education
 - OE: one-on-one education
 - RSB: reducing structural barriers
 - SM: small media
- Cancer types
 - BC: breast cancer
 - CC: cervical cancer
 - CRC: colorectal cancer
- Screening tests
 - MAM: mammography
- Others
 - CHW: community health worker
 - FQHC: federally qualified health center
 - HS: high school
 - N/A: not applicable
 - NR: not reported
 - PCP: primary care provider
 - Pct pts: percentage points
 - PN: patient navigator
 - RCT: randomized control trial
 - USPSTF: United States Preventive Services Task Force

Notes:

- **Suitability of design** includes three categories: greatest, moderate, or least suitable design. [Read more](#)
- **Quality of Execution** – Studies are assessed to have good, fair, or limited quality of execution. [Read more](#)
- **Race/ethnicity** of the study population: The Community Guide only summarizes race/ethnicity for studies conducted in the United States.

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Author year: Braun et al., 2015 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Fair	Location: Moloka'i, Hawaii, US Population density: rural Setting: community and clinic Intervention duration: 48 months Intervention details: Type of cancer addressed: BC, CC, and CRC Type of services provided: CR + OE + RSB, appointment scheduling assistance + RSB, childcare assistance + RSB, reduce admin barriers + RSB, transportation assistance <i>CR:</i> mailed reminders to patients due for a cancer screening <i>OE:</i> outreach education <i>RSB, appointment scheduling assistance:</i> made appointments and follow-up appointments for patients <i>RSB, childcare assistance:</i> made arrangements to take care of family while participants were at appointment <i>RSB, reduce admin barriers:</i> communicated with providers and completed paperwork <i>RSB, transportation assistance:</i> arranged transportation to appointments Intervention intensity: 2 or more contacts	Type of deliverers engaged, and services delivered: CHWs (lay navigators): all intervention components Training: an initial 48-hour evidence-based navigator training program, with quarterly continuing education sessions Supervision: initial supervision by nurse, later by other healthcare professionals Matching to population: recruited from local community, one Hawaiian and one Filipino Educational background: NR Payment: NR Methods used to interact with participants: Both: CR by phone or mail and other services face-to-face	Population of focus: Asian American or Pacific Islander living in Hawaii Eligibility criteria: Medicare beneficiaries residing in Moloka'i, Hawaii Sample size: Intervention: 242 Control: 246 Attrition: N/A Demographics for intervention group (for all cancer types): <i>Age, mean:</i> 68 years <i>Gender:</i> 63% female; 47% male <i>Race/Ethnicity:</i> 50% Asian; 42% Native Hawaiian; 8% other <i>Employment:</i> NR <i>Income:</i> NR <i>Education:</i> 39% <HS; 33% HS; 28% >HS <i>Insurance:</i> 100% insured <i>Established source of care:</i> NR <i>Baseline screening of intervention group:</i> 25% for any CRC screening	Screening test: MAM Up to date or repeat screening: up to date Self-report or medical record: self-report Follow-up Time: NR Results: MAM: Intervention: Pre: 48/128 = 37.5% Post: 73/128 = 57.0% Change: 19.5 pct pts Control: Pre: 52/132 = 39.4% Post: 48/132 = 36.4% Change: -3.0 pct pts Absolute difference: +22.5 pct pts Relative difference: +64.5%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	Control group: alternative education on nutrition and relevant cancer education material from another healthcare facility on island			
Author year: Dietrich et al., 2006 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Fair	Location: New York City, New York, US Population density: urban Setting: community and clinic (FQHC) Intervention duration: 18 months Intervention details: Type of cancer addressed: BC, CC, and CRC Type of services provided: OE + RSB, appointment scheduling assistance + RSB, reduce admin barriers + RSB, transportation assistance + SM <i>OE:</i> trained prevention care manager provided information on screenings and barriers to care <i>RSB, appointment scheduling assistance:</i> prevention care manager helped with scheduling screening <i>RSB, reduce admin barriers:</i> for participants who reported difficulty communicating with their physicians, cards listing overdue screenings were sent as communication tools; provided direction to screening facilities	Type of deliverers engaged, and services delivered: Prevention care manager: all intervention components Training: 7 hours of training, including review of USPSTF recommendations, barriers to cancer screening, and role-playing telephone calls Supervision: calls to patients monitored to ensure quality and consistency; call logs reviewed at monthly meetings to ensure intervention fidelity Matching to population: based on patient language Educational background: mostly college graduates Payment: NR	Population of focus: Females receiving care from FQHCs serving communities with high proportions of people who were from historically disadvantaged groups and had lower incomes Eligibility criteria: Females 50-69 years of age who were overdue for at least 1 cancer screening, were patients of clinic for at least 6 months, had no plan to move or change clinic for 15 months, and spoke English, Spanish, or Haitian Creole Exclusion: females who were acutely ill or currently receiving cancer treatment Sample size: Intervention: 696 Control: 694 Attrition: 1% Demographics for intervention group: <i>Age, mean:</i> 58 years <i>Gender:</i> 100% female <i>Race/Ethnicity:</i> NR	Screening test: MAM Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 3 months Results: MAM: Intervention: Pre: 404/696 = 58.0% Post: 473/696 = 68.0% Change: 10.0 pct pts Control: Pre: 416/694 = 60.0% Post: 403/694 = 58.0% Change: -2.0 pct pts Absolute difference: +12.0 pct pts Relative difference: +21.3%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	<i>RSB, transportation assistance:</i> helped participants to find means of transportation to appointments <i>SM:</i> prevention care manager sent accurate information about screening via mail Intervention intensity: 2 more contacts Control group: usual care	Methods used to interact with participants: Remote: mail and telephone	<i>Employment:</i> NR <i>Income per year:</i> based on median income at participants' zip code: 34% <\$25,000; 39% \$25,000-\$40,000; 27% >\$40,000 <i>Education:</i> NR <i>Insurance:</i> 93% insured; 5% uninsured; 2% unknown <i>Established source of care:</i> 100% go to the clinics <i>Baseline screening of intervention group:</i> 39% up to date with any CRC test; 24% with FOBT	
Author year: Fernandez-Esquer et al., 2020 Study design: Pre-post with comparison Suitability of design: Greatest Quality of execution: Fair	Location: Houston, Texas, US Population density: urban Setting: community (FQHC) Intervention duration: 36 months Intervention details: Type of cancer addressed: BC and CC Type of services provided: OE1 or GE + OE2 + RSB, appointment scheduling assistance + RSB, reduce admin barriers + SM <i>OE1 or GE:</i> brief educational sessions delivered one-on-one or in small groups by Vietnamese lay health workers to their nail salon peers <i>OE2:</i> education and booster education; counseling on setting up appointment	Type of deliverers engaged, and services delivered: Lay health workers: OE1 or GE PN: navigation services Training: NR Supervision: NR Matching to population: NR Educational background: NR Payment: NR Methods used to interact with participants: Both: face-to-face and telephone	Population of focus: Vietnamese American females working in nail salons, majority with annual income <\$40,000 Eligibility criteria: Aged 18 years or older, self-identified as Vietnamese, located in the Houston, Texas area for at least 3 years, and currently working in a nail salon in Houston in a neighborhood with a dense population of Asian businesses and residences Sample size (for both BC and CC): Intervention: 186 Control: N/A Attrition (for both BC and CC): 10.2%	Screening test: MAM Up to date or repeat screening: up to date Self-report or medical record: self-reported Follow-up Time: 5 months Results: MAM: Intervention: Pre: 0% Post: 17/23 = 73.9% Change: 73.9 pct pts Control: Pre: 0% Post: 5/7 = 71.4% Change: 71.4 pct pts Absolute difference: +2.5 pct pts Relative difference: +3.5%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	<i>SM</i>: locally-developed cancer screening brochures given to each nail salon worker at the enrolled venues. Navigation services only provided to participants not up to date with screening <i>RSB, appointment scheduling assistance</i>: outreach coordinator set up appointment <i>RSB, reduce admin barriers</i>: teaching participants how to pose questions to the provider, requesting info about screening costs, and getting screening results, assist with paperwork Intervention intensity: 1 or more contacts Comparison group: OE1 or GE + SM		Demographics for intervention group (for both BC and CC): <i>Age, mean</i>: 47 years <i>Gender</i>: 100% female <i>Race/Ethnicity</i>: 100% Asian <i>Employment</i>: 100% nail salon employees <i>Income</i>: 46% <\$20,000; 43% \$20,000-\$39,999; 11% ≥\$40,000 <i>Education</i>: 26% grade 9 or less; 55% grade 10-12; 18% some college or more <i>Insurance</i>: 25% private; 3% Medicare; 23% county-level public insurance; 29% marketplace insurance; 2% self-pay; 17% uninsured; 2% other <i>Established source of care</i>: 75% have PCP <i>Baseline screening of intervention group</i>: 0%	
Author year: Fiscella et al., 2011 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Good	Location: upstate New York, US Population density: urban Setting: clinic Intervention duration: 19 months Intervention details: Type of cancer addressed: BC and CRC Type of services provided: CR1 + CR2 + PR + RSB, reduce admin barriers	Type of deliverers engaged, and services delivered: PN: CR1 + CR2 + RSB, reduce admin barriers Research or clinic staff: provider reminder Training: formal training on the intervention, use of a database, health promotion, and assisting patients navigate health and social services Supervision: social worker	Population of focus: Females receiving care from safety net clinic serving people with lower incomes Eligibility criteria: Females 40-75 years of age, past due for MAM with >18 months from last MAM Exclusion: no visit to the clinic in past 2 years or high risk for BC based on personal or family history Sample size (BC only): Intervention: 233	Screening test: MAM Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 12 months Results: MAM: Intervention: Pre: 0% Post: 55/134 = 41.0% Change: 41.0 pct pts

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	<i>CR1</i>: Letters were signed by PCP and indicated patient was overdue for MAM, CRC screening or both <i>CR2</i>: automated phone call, 2nd letter <i>PR</i>: clinician prompt sheet or electronic prompts to remind clinician that patients are past due for MAM, CRC screening, or both <i>RSB</i>, <i>reduce admin barriers</i>: mailed out FOBT or FIT kits to unscreened patients Intervention intensity: 2 or more contacts Comparison group: usual care	Matching to population: recruited from community Educational background: NR Payment: NR Methods used to interact with participants: Both: clinical point of care prompts, mail, telephone	Control: 236 Attrition: NR Demographics for intervention group (BC only): <i>Age groups</i>: 37% 40-59 years of age; 43% 50-59 years of age; 21% ≥60 years of age <i>Gender</i>: 100% female <i>Race/Ethnicity</i>: 26% Black or African American; 67% White; 8% other <i>Employment</i>: NR <i>Income per year</i>: 17% <\$30,000; 46% \$30,000-\$39,000; 37% >\$40,000 <i>Education</i>: NR <i>Insurance</i>: 43% private; 25% Medicaid; 24% Medicare; 8% uninsured <i>Established source of care</i>: 100% go to the intervention clinic <i>Baseline screening of intervention group</i>: 0%	Control: Pre: 0% Post: 23/137 = 16.8% Change: 16.8 pct pts Absolute difference: +24.2 pct pts Relative difference: +144.0%
Author year: Fortuna et al., 2014 Study design: Individual RCT Suitability of design: Greatest Quality of execution:	Location: Rochester, New York, US Population density: urban Setting: clinic Intervention duration: NR Intervention details: Type of cancer addressed: BC and CRC	Type of deliverers engaged, and services delivered: Clinic staff: CR(SM) Outreach worker: OE + RSB, appointment scheduling assistance + RSB, reducing admin barriers Training: NR Supervision: NR	Population of focus: Females receiving care from the intervention clinic, which served communities with high proportions of people who were from historically disadvantaged groups and had lower incomes Eligibility criteria: Being a registered patient at the study clinic, having at least 1 visit to the practice in	Screening test: MAM Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 13 months Results: MAM: Intervention:

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Good	Type of services provided: CR(SM) + OE + RSB, appointment scheduling assistance + RSB, reduce admin barriers <i>CR(SM)</i>: single letter from practice sent to remind patients they are overdue for screening, with follow-up, automated calls <i>OE</i>: trained outreach worker made telephone calls with up to 3 attempts, used motivational interview techniques to encourage screening <i>RSB, appointment scheduling assistance</i>: outreach worker offered to assist with scheduling an appointment <i>RSB, reduce admin barriers</i>: patients not wanting colonoscopy were offered a mailed FIT kit as an alternative method of CRC screening Intervention intensity: 2 contacts Comparison group: CR(SM)	Matching to population: NR Educational background: NR Payment: NR Methods used to interact with participants: Remote: telephone	the last 2 years, female 40–74 years of age, past due for BC screening Exclusion: higher risk for cancer, including prior cancer, premalignant conditions, inadequately evaluated breast masses, or first-degree relative with a previous diagnosis of BC Sample size: Intervention: 158 Control: 157 Attrition: NR Demographics for intervention group: <i>Age groups</i>: 53% 40–49 years of age; 32% 50–59 years of age; 15% ≥60 years of age <i>Gender</i>: 100% female <i>Race/Ethnicity</i>: 36% Black or African American; 47% White; 17% other <i>Employment</i>: NR <i>Income</i>: 27% <\$30,000; 44% \$30,000–39,000; 29% >\$40,000 <i>Education</i>: NR <i>Insurance</i>: 38% private; 34% Medicaid; 22% Medicare; 7% uninsured <i>Established source of care</i>: 100% go to the intervention clinic <i>Baseline screening of intervention group</i>: 0%	Pre: 0% Post: 42/153 = 27.5% Change: 27.5 pct pts Control: Pre: 0% Post: 28/157 = 17.8% Change: 17.8 pct pts Absolute difference: +9.7 pct pts Relative difference: +54.5%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Author year: Marshall et al., 2016 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Fair	Location: Baltimore, Maryland, US Population density: urban Setting: community and clinic Intervention duration: 48 months Intervention details: Type of cancer addressed: BC Type of services provided: OE(SM) + RSB, appointment scheduling assistance + RSB reduce admin barriers <i>OE(SM):</i> PN reviewed participants' baseline cancer screening status, discussed printed educational materials, identified potential barriers to cancer screening, using printed educational materials containing general information about cancer and preventive services covered by Medicare <i>RSB, appointment scheduling assistance:</i> PN helped arrange appointments <i>RSB, reduce admin barriers:</i> PN accompanied participants to screenings when necessary Intervention intensity: 3 or more contacts Comparison group: SM	Type of deliverers engaged, and services delivered: PN: all intervention components Training: 2-hour biweekly group meetings plus monthly one-hour individual meetings with supervisor Supervision: program supervisor provided training, supervision, and evaluation of navigators Matching to population: majority Black or African American women from Baltimore City and the greater Baltimore area Educational background: minimum of HS education or equivalent Payment: NR Methods used to interact with participants: Both: face-to-face and telephone	Population of focus: African American females with lower incomes Eligibility criteria: Aged 65 years or older, self-identified as African American, enrolled in fee-for-service Medicare Parts A & B, and a Baltimore City resident Exclusion: enrolled in a Medicare managed care plan, a diagnosis of cancer within past 5 years, or a diagnosis of cancer not in remission, inability to provide informed consent, current residence in a chronic care facility or otherwise institutionalized Sample size: Intervention: 638 Control: 720 Attrition: 32.1% Demographics for intervention group: <i>Age groups:</i> 28% >75 years of age; 72% ≤75 years of age <i>Gender:</i> 100% female <i>Race/Ethnicity:</i> 100% Black or African American <i>Employment:</i> NR <i>Income:</i> 52% <\$20,000; 48% ≥\$20,000 <i>Education:</i> 27% <HS; 26% HS graduate; 47% >HS	Screening test: MAM Up to date or repeat screening: up to date Self-report or medical record: self-report Follow-up Time: 17.8 months Results: MAM: Intervention: Pre: 566/638 = 88.7% Post: 595/638 = 93.3% Change: 4.6 pct pts Control: Pre: 629/720 = 87.3% Post: 630/720 = 87.5% Change: 0.2 pct pts Absolute difference: +4.4 pct pts Relative difference: +4.9%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
			<i>Insurance:</i> 100% enrolled in Medicare; 15% Medicaid; 60% Medigap <i>Established source of care:</i> NR <i>Baseline screening of intervention group:</i> 88.7%	
Author year: Paskett et al., 2006 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Good	Location: Robeson County, North Carolina, US Population density: rural Setting: community and clinic Intervention duration: 48 months Intervention details: Type of cancer addressed: BC Type of services provided: OE(SM) + RSB, appointment scheduling assistance <i>OE(SM):</i> 3 in-person visits with educational materials, and follow up phone calls and mailings after each visit; covered individual cancer risk and ways to overcome barriers to MAM, discussed MAM, BC, self-examination, and scheduling MAM <i>RSB, appointment scheduling assistance:</i> 2 phone calls to assist in making MAM appointments Intervention intensity: >2 contacts Comparison group: received information about CC screening	Type of deliverers engaged, and services delivered: CHW: all intervention components Training: extensive training over 1 week period, included general project information, training on breast development and abnormalities, BC screening, diagnosis treatment, and risk factors Supervision: weekly phone or in-person meetings with supervisor; supervisor periodically attended patient visits with each CHW Matching to population: American Indian and Black or African American women who lived in community Educational background: former nurse, social worker, and	Population of focus: Females who were from historically disadvantaged groups and had lower incomes Eligibility criteria: Women over 40 years of age, visited clinic within last 2 years, had not had mammogram in past 12 months Sample size: Intervention: 433 Control: 418 Attrition: 5.2% Demographics for intervention group: <i>Age, mean:</i> 55 years <i>Gender:</i> 100% female <i>Race/Ethnicity:</i> 42% American Indian; 33% Black or African American; 24% White; 1% other <i>Employment:</i> NR <i>Income:</i> NR <i>Education:</i> 42% <HS; 30% HS; 28% some college or more <i>Insurance:</i> 74% insured	Screening test: MAM Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 12 months Results: MAM: Intervention: Pre: 0% Post: 42.5% Change: 42.5 pct pts Control: Pre: 0% Post: 27.3% Change: 27.3 pct pts Absolute difference: +15.2 pct pts Relative difference: +55.7%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
		research study interviewer Payment: NR Methods used to interact with participants: Both: face-to-face and telephone	<i>Established source of care:</i> 100% go to the intervention clinic <i>Baseline screening of intervention group:</i> 0%	
Author year: Percac-Lima et al., 2012 Study design: Pre-post only Suitability of design: Least Quality of execution: Fair	Location: Chelsea, Massachusetts, US Population density: urban Setting: community and clinic Intervention duration: 12 months Intervention details: Type of cancer addressed: BC Type of services provided: GE + OE + RSB, appointment scheduling assistance+ RSB, reduce admin barriers + RSB, transportation assistance GE: PN organized breast health educational group sessions in community settings where women supported each other about getting their MAM OE: initial contact was made over the phone or in person in patients' native language; discussed preventive care and the importance of routine MAM, explored each patient's specific barriers to screening	Type of deliverers engaged, and services delivered: PN: all intervention components Training: extensive training in BC prevention, treatment and patient navigation, how to develop trusting relationships with patients, use motivational interviewing techniques to connect with and coach patients Supervision: supervised by the principal researcher, the training coordinator and community health team director Matching to population: young, bilingual people from former Yugoslavia Educational background: college educated	Population of focus: Females who were immigrants and spoke Serbo-Croatian Eligibility criteria: Women 40-79 years of age, self-identified as speaking Serbo-Croatian, receiving primary care at the health center and overdue or had never had a MAM Exclusion: acutely ill, had dementia, metastatic cancer, schizophrenia, end stage disease or bilateral mastectomy Sample size: Intervention + Control: 95 Attrition: 4.2% Demographics for intervention group: <i>Age, mean:</i> 54 years <i>Gender:</i> 100% female <i>Race/Ethnicity:</i> 100% Serbo-Croatian <i>Employment:</i> NR <i>Income:</i> NR	Screening test: MAM Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 12 months Results: MAM: Intervention: Pre: 40/95 = 42.1% Post: 61/95 = 64.2% Absolute change: +22.1 pct pts Relative change: +52.5%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	<i>RSB, appointment scheduling assistance:</i> supported patients in setting up a MAM appointment <i>RSB, reduce admin barrier:</i> accompanied patients who were afraid or felt unable to navigate the MAM appointment on their own <i>RSB, transportation assistance:</i> interventions may have included arranging transportation Intervention intensity: 2 or more Comparison group: pre intervention	Payment: NR Methods used to interact with participants: Both: face-to-face and telephone	<i>Education:</i> 58% HS graduate or more <i>Insurance:</i> 48% private insurance <i>Established source of care:</i> 100% go to the intervention clinic <i>Baseline screening of intervention group:</i> 42.1%	
Author year: Phillips et al., 2011 Study design: Group RCT Suitability of design: Greatest Quality of execution: Good	Location: Boston, Massachusetts, US Population density: urban Setting: clinic Intervention duration: 9 months Intervention details: Type of cancer addressed: BC Type of services provided: OE(CR) + RSB, appointment scheduling assistance + RSB, transportation assistance <i>OE(CR):</i> outreach telephone call to inform women of their need for MAM and the availability of the navigator to support them	Type of deliverers engaged, and services delivered: PN: all intervention components Training: training provided but no detailed description Supervision: NR Matching to population: bilingual English and Spanish; and English and Portuguese and Cape Verdean Creole Educational background: NR Payment: NR	Population of focus: Females receiving care from an inner-city safety net clinic serving a largely underinsured population from historically disadvantaged groups Eligibility criteria: Females 51-70 years of age, assigned a PCP, had a documented visit with that PCP in the previous 2 years Exclusion: documentation of bilateral mastectomy Sample size: Intervention: 1,817 Control: 2,078 Attrition: N/A	Screening test: MAM Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: NR Results: MAM: Intervention: Pre: 1,412/1,817 = 77.7% Post: 1,575/1,817 = 86.7% Change: 9.0 pct pts Control: Pre: 1,631/2,078 = 78.0% Post: 1,589/2,078 = 76.0% Change: -2.0 pct pts Absolute difference: +11.0 pct pts Relative difference: +14.5%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	<i>RSB, appointment scheduling assistance:</i> PN scheduled MAM directly <i>RSB, transportation assistance:</i> PN inquired about and addressed individual barriers to accessing care, including transportation needs Intervention intensity: 2 or more Comparison group: usual care	Methods used to interact with participants: Remote: mail and telephone	Demographics for intervention group: <i>Age, mean:</i> 60 years <i>Gender:</i> 100% female <i>Race/Ethnicity:</i> 51% Black or African American; 7% Hispanic or Latino; 28% White; 14% other <i>Employment:</i> NR <i>Income:</i> NR <i>Education:</i> 7% no school; 36% <HS; 20% HS or GED; 16% some college, vocational school, or technical school; 16% ≥college graduate <i>Insurance:</i> 37% private; 63% public <i>Established source of care:</i> 100% go to the intervention clinic <i>Baseline screening of intervention group:</i> 77.7%	
Author year: Russell et al., 2010 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Good	Location: Indianapolis, Indiana, US Population density: urban Setting: clinic (FQHC) Intervention duration: 4.5 months Intervention details: Type of cancer addressed: BC Type of services provided: OE(SM) + SM1 + RSB, appointment scheduling assistance + RSB, transportation assistance	Type of deliverers engaged, and services delivered: CHW: all intervention components Training: 2-hour training Supervision: periodic audiotape evaluation of counseling sessions to assure intervention fidelity throughout study Matching to population: recruited CHW from local communities	Population of focus: Black or African American females with lower incomes Eligibility criteria: African American females, 41-75 years of age, at or below 250% FPL, with no MAM within last 15 months, or history of BC, current patients at intervention clinic Sample size: Intervention: 89 Control: 90 Attrition: 2.2%	Screening test: MAM Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 1.5 months Results: MAM: Intervention: Pre: 0% Post: 45/89 = 50.6% Change: 50.6 pct pts Control:

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	<i>OE(SM)</i>: interactive computer program with information targeting individuals with little formal education, provided tailored message in response to knowledge and health beliefs, CHWs assessed understanding of program, reviewed barriers and provided tailored messages addressing each barrier <i>SM1</i>: after first intervention session, CHWs mailed post card tailored by stage of screening adoption to participants <i>RSB, appointment scheduling assistance</i>: assistance with scheduling screening appointments <i>RSB, transportation assistance</i>: assistance with transportation, including free bus passes and agency referrals Intervention intensity: 2 or more contacts Comparison group: SM2, received culturally appropriate pamphlet about BC and MAM screening and recommendation from CHW to contact clinic referral nurse to schedule MAM screening appointment	Educational background: NR Payment: small stipend, amount not specified Methods used to interact with participants: Both: face-to-face, mail, and telephone	Demographics for intervention group: <i>Age, mean</i>: 51 years <i>Gender</i>: 100% female <i>Race/Ethnicity</i>: 100% Black or African American <i>Employment</i>: 49% employed <i>Income per year</i>: mean of \$10,984 <i>Education</i>: mean highest grade was 12th grade <i>Insurance</i>: 60% insured <i>Established source of care</i>: 80% reported regular PCP <i>Baseline screening of intervention group</i>: 0%	Pre: 0% Post: 16/90 = 17.8% Change: 17.8 pct pts Absolute difference: +32.8 pct pts Relative difference: +184.4%
Author year: Weber et al., 1997 Study design: Individual RCT	Location: Rochester, New York, US Population density: urban	Type of deliverers engaged, and services delivered: CHW: all intervention components Training: NR	Population of focus: Females receiving care from intervention clinics serving communities with lower incomes Eligibility criteria:	Screening test: MAM Up to date or repeat screening: up to date Self-report or medical record: medical records

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Suitability of design: Greatest Quality of execution: Good	Setting: clinic (St Mary's Hospital 6 primary care practices in inner city Rochester) Intervention duration: 4 months Intervention details: Type of cancer addressed: BC Type of services provided: CR + OE + RSB, appointment scheduling assistance + RSB, childcare assistance + RSB, reduce admin barriers + RSB, transportation assistance <i>CR:</i> personalized letter from patients' PCP reminding they are overdue for MAM <i>OE:</i> structured outreach, using telephone calls, home visits, office visits, and mailed cards to provide patient education <i>RSB, appointment scheduling assistance:</i> facilitation of appointment scheduling <i>RSB, childcare assistance:</i> facilitation of dependents' care <i>RSB, reduce admin barriers:</i> accompanying patients to primary care office to diminish patients' fear of breast exam or MAM; practice's sliding scale fee application assistance <i>RSB, transportation assistance:</i> facilitation of transportation Intervention intensity: 2 or more contacts Comparison group: CR	Supervision: NR Matching to population: CHWs self-identified as Black or African American, Latino or Hispanic, and White, concordant with majority of the patients in the assigned practice Educational background: major recruitment criteria included literacy, communication skills, personal charisma, and concern about community health care Payment: personnel cost for 6 CHWs for the 16-week intervention was \$8294 Methods used to interact with participants: Both: face-to-face and telephone	Females 52-77 years of age, visited 1 of the clinics at least once in previous 2 years, not up to date with MAM in at least 2 years; no prior breast cancer or mastectomy Sample size: Intervention: 186 Control: 190 Attrition: 12.4% Demographics for intervention group: <i>Age, mean:</i> 63 years <i>Gender:</i> 100% female <i>Race/Ethnicity:</i> 4% Asian; 39% Black or African American; 40% White; 13% unknown <i>Employment:</i> NR <i>Income:</i> NR <i>Education:</i> NR <i>Insurance:</i> 30% private; 34% Medicare plus other; 6% Medicare alone; 5% uninsured; 0.5% unknown <i>Established source of care:</i> 100% go to the intervention clinics <i>Baseline screening of intervention group:</i> 12.4%	Follow-up Time: 4 months Results: MAM: Intervention: Pre: 23/186 = 12.4% Post: 41/163 = 25.2% Change: 12.8 pct pts Control: Pre: 16/190 = 8.4% Post: 17/174 = 9.8% Change: 1.3 pct pts Absolute difference: +11.4 pct pts Relative difference: +75.3%

Appendix G

Summary Evidence Table– Cervical Cancer (Effectiveness Review):

Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

Abbreviations Used in This Document

- Intervention components:
 - CR: client reminder
 - GE: group education
 - OE: one-on-one education
 - RSB: reducing structural barriers
 - SM: small media
- Cancer types
 - BC: breast cancer
 - CC: cervical cancer
 - CRC: colorectal cancer
- Screening tests
 - MAM: mammography
- Others
 - CHW: community health worker
 - FQHC: federally qualified health center
 - HS: high school
 - N/A: not applicable
 - NR: not reported
 - PCP: primary care provider
 - Pct pts: percentage points
 - PN: patient navigator
 - RCT: randomized control trial
 - USPSTF: United States Preventive Services Task Force

Notes:

- **Suitability of design** includes three categories: greatest, moderate, or least suitable design. [Read more](#)
- **Quality of Execution** – Studies are assessed to have good, fair, or limited quality of execution. [Read more](#)
- **Race/ethnicity** of the study population: The Community Guide only summarizes race/ethnicity for studies conducted in the United States.

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Author year: Braun et al., 2015 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Fair	Location: Moloka'i, Hawaii, US Population density: rural Setting: community and clinic Intervention duration: 48 months Intervention details: Type of cancer addressed: BC, CC, and CRC Type of services provided: CR + OE + RSB, appointment scheduling assistance + RSB, childcare assistance + RSB, reduce admin barriers + RSB, transportation assistance <i>CR:</i> mailed reminders to patients due for a cancer screening <i>OE:</i> outreach education <i>RSB, appointment scheduling assistance:</i> made appointments and follow-up appointments for patients <i>RSB, childcare assistance:</i> made arrangements to take care of family while participants were at appointment <i>RSB, reduce admin barriers:</i> communicated with providers and completed paperwork <i>RSB, transportation assistance:</i> arranged transportation to appointments Intervention intensity: 2 or more contacts	Type of deliverers engaged, and services delivered: CHWs (lay navigators): all intervention components Training: an initial 48-hour evidence-based navigator training program, with quarterly continuing education sessions Supervision: initial supervision by nurse, later by other healthcare professionals Matching to population: recruited from local community, one Hawaiian and one Filipino Educational background: NR Payment: NR Methods used to interact with participants: Both: CR by phone or mail and other services face-to-face	Population of focus: Asian American or Pacific Islander living in Hawaii Eligibility criteria: Medicare beneficiaries residing in Moloka'i, Hawaii Sample size: Intervention: 242 Control: 246 Attrition: N/A Demographics for intervention group (for all cancer types): <i>Age, mean:</i> 68 years <i>Gender:</i> 63% female; 47% male <i>Race/Ethnicity:</i> 50% Asian; 42% Native Hawaiian; 8% other <i>Employment:</i> NR <i>Income:</i> NR <i>Education:</i> 39% <HS; 33% HS; 28% >HS <i>Insurance:</i> 100% insured <i>Established source of care:</i> NR <i>Baseline screening of intervention group:</i> 25% for any CRC screening	Screening test: pap test Up to date or repeat screening: up to date Self-report or medical record: self-report Follow-up Time: NR Results: Pap test: Intervention: Pre: 38/128 = 29.7% Post: 79/128 = 61.7% Change: 32.0 pct pts Control: Pre: 47/132 = 35.6% Post: 56/132 = 42.4% Change: 6.8 pct pts Absolute difference: +25.2 pct pts Relative difference: +64.5%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	Control group: alternative education on nutrition and relevant cancer education material from another healthcare facility on island			
Author year: Dietrich et al., 2006 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Fair	Location: New York City, New York, US Population density: urban Setting: community and clinic (FQHC) Intervention duration: 18 months Intervention details: Type of cancer addressed: BC, CC, and CRC Type of services provided: OE + RSB, appointment scheduling assistance + RSB, reduce admin barriers + RSB, transportation assistance + SM <i>OE:</i> trained prevention care manager provided information on screenings and barriers to care <i>RSB, appointment scheduling assistance:</i> prevention care manager helped with scheduling screening <i>RSB, reduce admin barriers:</i> for participants who reported difficulty communicating with their physicians, cards listing overdue screenings were sent as communication tools; provided direction to screening facilities	Type of deliverers engaged, and services delivered: Prevention care manager: all intervention components Training: 7 hours of training, including review of USPSTF recommendations, barriers to cancer screening, and role-playing telephone calls Supervision: calls to patients monitored to ensure quality and consistency; call logs reviewed at monthly meetings to ensure intervention fidelity Matching to population: based on patient language Educational background: mostly college graduates Payment: NR Methods used to interact with participants:	Population of focus: Females receiving care from FQHCs serving communities with high proportions of people who were from historically disadvantaged groups and had lower incomes Eligibility criteria: Females 50-69 years of age who were overdue for at least 1 cancer screening, were patients of the clinic for at least 6 months, had no plan to move or change clinic for 15 months, and spoke English, Spanish, or Haitian Creole Exclusion: females who were acutely ill or currently receiving cancer treatment Sample size: Intervention: 696 Control: 694 Attrition: 1% Demographics for intervention group: <i>Age, mean:</i> 58 years <i>Gender:</i> 100% female <i>Race/Ethnicity:</i> NR <i>Employment:</i> NR	Screening test: pap test Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 3 months Results: Pap test: Intervention: Pre: 494/696 = 71.0% Post: 543/696 = 78.0% Change: 7.0 pct pts Control: Pre: 486/694 = 70.0% Post: 486/694 = 70.0% Change: 0.0 pct pts Absolute difference: +7.0 pct pts Relative difference: +9.9%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	<i>RSB, transportation assistance:</i> helped participants to find means of transportation to appointments <i>SM:</i> prevention care manager sent accurate information about screening via mail Intervention intensity: 2 more contacts; series of telephone support calls Control group: usual care	Remote: mail and telephone	<i>Income per year:</i> based on median income at participants' zip code: 34% <\$25,000; 39% \$25,000-\$40,000; 27% >\$40,000 <i>Education:</i> NR <i>Insurance:</i> 93% insured; 5% uninsured; 2% unknown <i>Established source of care:</i> 100% go to the clinics <i>Baseline screening of intervention group:</i> 71% up to date with pap test	
Author year: Fernandez-Esquer et al., 2020 Study design: Pre-post with comparison Suitability of design: Greatest Quality of execution: Fair	Location: Houston, Texas, US Population density: urban Setting: community (FQHC) Intervention duration: 36 months Intervention details: Type of cancer addressed: BC and CC Type of services provided: OE1 or GE + OE2 + RSB, appointment scheduling assistance + RSB, reduce admin barriers + SM <i>OE1 or GE:</i> brief educational sessions delivered one-on-one or in small groups by Vietnamese lay health workers to their nail salon peers <i>OE2:</i> education and booster education; counseling on setting up appointment <i>SM:</i> locally-developed cancer screening brochures given to	Type of deliverers engaged, and services delivered: Lay health workers: OE1 or GE PN: navigation services Training: NR Supervision: NR Matching to population: NR Educational background: NR Payment: NR Methods used to interact with participants: Both: face-to-face and telephone	Population of focus: Vietnamese American females working in nail salons, majority with annual income <\$40,000 Eligibility criteria: Aged 18 years or older, self-identified as Vietnamese, located in the Houston, Texas area for at least 3 years, and currently working in a nail salon in Houston in a neighborhood with a dense population of Asian businesses and residences Sample size (for both BC and CC): Intervention: 186 Control: N/A Attrition (for both BC and CC): 10.2% Demographics for intervention group (for both BC and CC):	Screening test: pap test Up to date or repeat screening: up to date Self-report or medical record: self-reported Follow-up Time: 5 months Results: Pap test: Intervention: Pre: 0% Post: 31/37 = 83.8% Change: 83.8 pct pts Control: Pre: 0% Post: 14/28 = 50.0% Change: 50.0 pct pts Absolute difference: +33.8 pct pts Relative difference: +67.6%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	each nail salon worker at the enrolled venues. Navigation services only provided to participants not up to date with screening: <i>RSB, appointment scheduling assistance:</i> outreach coordinator set up appointment <i>RSB, reduce admin barriers:</i> taught participants how to pose questions to the provider, requested info about screening costs, and got screening results, assisted with paperwork Intervention intensity: 1 or more contacts Comparison group: OE1 or GE + SM		<i>Age, mean:</i> 47 years <i>Gender:</i> 100% female <i>Race/Ethnicity:</i> 100% Asian <i>Employment:</i> 100% nail salon employees <i>Income:</i> 46% <\$20,000; 43% \$20,000-\$39,999; 11% ≥\$40,000 <i>Education:</i> 26% grade 9 or less; 55% grade 10-12; 18% some college or more <i>Insurance:</i> 25% private; 3% Medicare; 2% self-pay; 23% county-level public insurance; 29% marketplace insurance; 17% no insurance; 2% other <i>Established source of care:</i> 75% have PCP <i>Baseline screening of intervention group:</i> 0%	

Appendix H

Summary Evidence Table– Colorectal Cancer (Effectiveness Review):

Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

Abbreviations Used in This Document

- Intervention components:
 - CI: client incentive
 - CR: client reminder
 - GE: group education
 - OE: one-on-one education
 - PAF: provider assessment and feedback
 - PI: provider incentive
 - PR: provider reminder
 - ROPC: reducing out-of-pocket costs
 - RSB: reducing structural barriers
 - SM: small media
- Cancer types
 - BC: breast cancer
 - CC: cervical cancer
 - CRC: colorectal cancer
- Screening tests
 - FIT: fecal immunochemical blood test
 - FS: flexible sigmoidoscopy
 - FOBT: fecal occult blood test
- Others
 - ACS: American Cancer Society
 - CHC: community health centers
 - CHR: community health representative
 - CHW: community health worker
 - EHR: electronic health record
 - FPL: federal poverty line
 - FQHC: federally qualified health center
 - GED: General Educational Development
 - HS: high school
 - N/A: not applicable
 - NR: not reported
 - PCP: primary care provider
 - Pct pts: percentage points
 - PN: patient navigator
 - RCT: randomized control trial
 - USPSTF: United States Preventive Services Task Force

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Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Author year: Baker et al., 2014 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Good	Location: Chicago, Illinois, US Population density: urban Setting: clinic (FQHC) Intervention duration: 12 months Intervention details: Type of cancer addressed: CRC Type of services provided: CR (follow-up) + PAF + PI + ROPC + RSB, reduce admin barriers <i>CR (follow-up):</i> letter sent to intervention patients due for CRC screening; automated phone calls and text messages 2 days later, to patients not returning kit 2 weeks later, and 3 months later <i>PAF:</i> feedback to clinicians on their CRC screening rates <i>PI:</i> CRC screening rates used as a quality metric to determine clinicians' incentive compensation formula <i>RSB, reduce admin barriers:</i> mailed FIT kit and replacement sent if needed <i>ROPC:</i> stamped envelope to return completed FIT kit Intervention intensity: 2 or more contacts Control group: CR (no follow-up) + PAF + PI	Type of deliverers engaged, and services delivered: Clinic staff: all intervention components PN: 3 months follow-up call Training: NR Supervision: NR Matching to population: NR Educational background: NR Payment: NR Methods used to interact with participants: Remote: telephone and text messages	Population of focus: Hispanic or Latino people without insurance Eligibility criteria: Patients 51-75 years of age, preferred language English or Spanish, negative FOBT results the previous year Exclusion: patients up to date with CRC screening, with medical conditions such as chronic diarrhea, inflammatory bowel disease, or iron deficiency Sample size: Intervention: 225 Control: 225 Attrition: N/A Demographics for intervention group: <i>Age, mean:</i> 60 years <i>Gender:</i> 70% female, 30% male <i>Race/Ethnicity:</i> 88% Hispanic, 12% other <i>Employment:</i> NR <i>Income:</i> NR <i>Education:</i> NR <i>Insurance:</i> 23% insured, 77% uninsured <i>Established source of care:</i> 100% goes to the intervention clinics <i>Baseline screening:</i> 0%	Screening test: FOBT Up to date or repeat screening: repeat screening; patients all have had FOBT in the previous year, and completed FOBT or FIT screening test within 6 months of repeat screening deadline Self-report or medical record: medical records Follow-up Time: 6 months Results: FOBT screening: Intervention: Pre: 0% Post: 185/225 = 82.2% Change: 82.2 pct pts Control: Pre: 0% Post: 84/225 = 37.3% Change: 37.3 pct pts Absolute difference: +44.9 pct pts Relative difference: +120.2% Positive FOBT results: Intervention: 10/185 = 5.4% Control: 19/84 = 23% Diagnostic colonoscopy for patients with positive FOBT results: Intervention: 6/10 = 60% Control: 11/19 = 53% Absolute difference: +7 pct pts
Author year: Blumenthal et al., 2010	Location: Atlanta, Georgia, US Population density: urban	Type of deliverers engaged, and services delivered:	Population of focus: Black or African American	Screening test: up to date using any CRC test Up to date or repeat screening: up to date

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Study design: Group RCT Suitability of design: Greatest Quality of execution: Fair	Setting: community and clinic Intervention duration: 27 months Intervention details: Type of cancer addressed: CRC Type of services provided: ROPC + RSB, reduce admin barriers + SM <i>ROPC:</i> reimbursement up to \$500 for out-of-pocket costs incurred for CRC screening <i>RSB, reduce admin barriers:</i> assistance for patients with negotiating direct payment; letters of introduction and guarantee of payment for patient to assist in scheduling test visit <i>SM:</i> gift bags to all participants, including pamphlets on CRC and screening Intervention intensity: 2 or more contacts Control group: SM	CHW: RSB, reduce admin barriers Research staff: SM + ROPC Training: researcher conducted training for staff responsible for recruiting participants and conducting interventions Supervision: NR Matching to population: NR Educational background: NR Payment: NR Methods used to interact with participants: Both: face-to-face, mail, and telephone	Eligibility criteria: African American, over 49 years of age, no history of CRC, and no previous CRC screening test within the recommended time interval Sample size: Intervention: 84 Control: 88 Attrition: 30.4% Demographics for intervention group: <i>Age, mean:</i> 66 years <i>Gender:</i> 73% female; 27% male <i>Race/Ethnicity:</i> 100% Black or African American <i>Employment:</i> NR <i>Income:</i> NR <i>Education:</i> 12% elementary school; 48% HS or technical; 40% ≥some college <i>Insurance:</i> 38% private; 58% Medicare or Medicaid; 4% uninsured <i>Established source of care:</i> NR <i>Baseline screening of intervention group:</i> 0%	Self-report or medical record: self-report Follow-up Time: 6 months Results: CRC screening with any test: Intervention: Pre: 0% Post: 14/84 = 16.7% Change: 16.7 pct pts Control: Pre: 0% Post: 11/88 = 12.5% Change: 12.5 pct pts Absolute difference: +4.2 pct pts Relative difference: +33.3%
Author year: Braun et al., 2015 Study design: Individual RCT Suitability of design: Greatest Quality of execution:	Location: Moloka'i, Hawaii, US Population density: rural Setting: community and clinic Intervention duration: 48 months Intervention details: Type of cancer addressed: BC, CC, and CRC	Type of deliverers engaged, and services delivered: CHWs (lay navigators): all intervention components Training: an initial 48-hour evidence-based navigator training program, with quarterly continuing education sessions Supervision: initial supervision by nurse, later by other healthcare professionals	Population of focus: Asian American or Pacific Islander living in Hawaii Eligibility criteria: Medicare beneficiaries residing in Moloka'i, Hawaii Sample size: Intervention: 242 Control: 246 Attrition: N/A	Screening test: colonoscopy or FOBT Up to date or repeat screening: up to date Self-report or medical record: self-report Follow-up Time: NR Results: Colonoscopy: Intervention: Pre: 60/242 = 24.8% Post: 104/242 = 43.0%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Fair	Type of services provided: CR + OE + RSB, appointment scheduling assistance + RSB, childcare assistance + RSB, reduce admin barriers + RSB, transportation assistance <i>CR</i>: mailed reminders to patients due for a cancer screening <i>OE</i>: outreach education <i>RSB, appointment scheduling assistance</i>: made appointments and follow-up appointments for patients <i>RSB, childcare assistance</i>: made arrangements to take care of family while participants were at appointment <i>RSB, reduce admin barriers</i>: communicated with providers and completed paperwork <i>RSB, transportation assistance</i>: arranged transportation to appointments Intervention intensity: 2 or more contacts Control group: alternative education on nutrition and relevant cancer education material from another healthcare facility on island	Matching to population: recruited from local community, one Hawaiian and one Filipino Educational background: NR Payment: NR Methods used to interact with participants: Both: face-to-face, mail, and telephone	Demographics for intervention group (for all cancer types): <i>Age, mean</i>: 68 years <i>Gender</i>: 63% female; 47% male <i>Race/Ethnicity</i>: 50% Asian; 42% Native Hawaiian; 8% other <i>Employment</i>: NR <i>Income</i>: NR <i>Education</i>: 39% <HS; 33% HS; 28% >HS <i>Insurance</i>: 100% insured <i>Established source of care</i>: NR <i>Baseline screening of intervention group</i>: 25% for any CRC screening	Change: 18.2 pct pts Control: Pre: 62/246 = 25.2% Post: 67/246 = 27.2% Change: 2.0 pct pts Absolute difference: +16.2 pct pts Relative difference: +60.4% FOBT: Intervention: Pre: 31/242 = 12.8% Post: 50/242 = 20.7% Change: 7.9 pct pts Control: Pre: 27/246 = 11.0% Post: 31/246 = 12.6% Change: 1.6 pct pts Absolute difference: +6.3 pct pts Relative difference: +41.2%
Author year: Christie et al., 2008 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Fair	Location: New York City, New York, US Population density: urban Setting: clinic Intervention duration: 5 months Intervention details: Type of cancer addressed: CRC Type of services provided: OE + RSB, appointment scheduling assistance + RSB, unspecified + SM	Type of deliverers engaged, and services delivered: PN: all intervention components Training: NR Supervision: NR Matching to population: NR Educational background: NR Payment: NR	Population of focus: Black or African American and Hispanic or Latino people with annual income <\$20,000 Eligibility criteria: Patients >50 years of age, asymptomatic for gastrointestinal symptoms, in need of screening, had primary care physician and referral for screening colonoscopy, not up to date with CRC screening Sample size: Intervention: 13	Screening test: colonoscopy Update or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 6 months Results: Colonoscopy: Intervention: Pre: 0% Post: 7/13 = 53.8% Change: 53.8 pct pts

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	<i>OE</i>: provided over the phone to discuss purpose of the procedure, risk and benefits, preparation required, and answered additional questions <i>RSB, appointment scheduling assistance</i>: PN contacted the gastrointestinal scheduler to arrange the colonoscopy for the patient <i>RSB, unspecified</i>: PN contacted patient multiple times to address barriers and solve problems, especially if patient did not complete the scheduled screening <i>SM</i>: PN mailed colonoscopy preparation instructions Intervention intensity: 2 or more contacts Control group: RSB, appointment scheduling + SM	Methods used to interact with participants: Remote: mail and telephone	Control: 8 Attrition: 0% Demographics for intervention and control group: <i>Age, mean</i>: 58 years <i>Gender</i>: 75% female; 25% male <i>Race/Ethnicity</i>: 21% Black or African American; 71% Hispanic or Latino; 8% other <i>Employment</i>: NR <i>Income per year</i>: 81% <\$20,000; 19% >\$20,000 <i>Education</i>: 71% <HS; 29% >HS <i>Insurance</i>: 36% Medicaid; 52% uninsured <i>Established source of care</i>: 100% attending community health clinic <i>Baseline screening of intervention group</i>: 0%	Control: Pre: 0% Post: 1/8 = 13.0% Change: 13.0 pct pts Absolute difference: +40.8 pct pts Relative difference: +313.8%
Author year: Coronado et al., 2018 Study design: Group RCT Suitability of design: Greatest Quality of execution: Good	Location: California and Oregon, US Population density: NR Setting: clinic (FQHCs) Intervention duration: 18 months Intervention details: Type of cancer addressed: CRC Type of services provided: CR(SM) + RSB, reduce admin barriers <i>CR(SM)</i>: adults due for CRC screening were identified; clinic staff generated mailing lists and materials for 3 sequential mailings: (1) an introductory letter; (2) a FIT kit packet that included wordless instructions on how to complete the test; and (3) a reminder letter	Type of deliverers engaged, and services delivered: Clinic staff: all intervention components Training: NR Supervision: NR Matching to population: NR Educational background: NR Payment: NR Methods used to interact with participants: Remote: mail	Population of focus: People with lower income receiving care from the intervention FQHCs Eligibility criteria: FQHC: willing to randomize clinics and use a single fecal test across all participating clinics, had an electronic interface with the lab that processed the kits, and had sufficient capacity for follow-up colonoscopy, among other factors Patients 50-74 years of age, had a clinic visit within the previous 12 months, due for CRC screening Exclusion: adults with evidence of relevant health conditions (e.g., colorectal cancer, colon disease, end-stage renal failure)	Screening test: FIT Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 12 months Results: FIT: Intervention: Pre: 0% Post: 2938/21,134 = 13.9% Change: 13.9 pct pts Control: Pre: 0% Post: 2086/20,059 = 10.4% Change: 10.4 pct pts

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	<i>RSB, reduce admin barriers:</i> FIT kits sent to patients due for a CRC screening Intervention intensity: 1 or more contact Control group: usual care		Sample size: Intervention: 21,134 Control: 20,059 Attrition: N/A Demographics for intervention group: <i>Age groups:</i> 80% 50-64 years of age <i>Gender:</i> 56% female; 44% male <i>Race/Ethnicity:</i> 8% Hispanic or Latino; 93% White; 3% other <i>Employment:</i> NR <i>Income per year:</i> 47% <FPL; 28% with 100-200% of FPL; 10% ≥200% of FPL; 17% unknown <i>Education:</i> NR <i>Insurance:</i> 10% private; 36% Medicaid; 24% Medicare; 26% uninsured <i>Established source of care:</i> 100% of patients from clinic <i>Baseline screening of intervention group:</i> 0%	Absolute difference: +3.5 pct pts Relative difference: +33.7%
Author year: Davis et al., 2013 Study design: Group RCT Suitability of design: Greatest Quality of execution: Fair	Location: Louisiana, US Population density: urban and rural Setting: clinic (FQHC) Intervention duration: 40 months Intervention details: Type of cancer addressed: CRC Type of services provided: OE(SM) + ROPC + RSB, unspecified <i>OE(SM):</i> provided if patients did not return their FOBT kit, called patients by	Type of deliverers engaged, and services delivered: Nurse manager: all intervention components Training: 2-hr in-service training on CRC screening and an orientation to study during a quarterly clinic meeting; nurse manager training included motivational interviewing techniques, use of a tracking system, and a protocol for contacting patients and assisting them with navigation if a test was positive	Population of focus: People with lower income without insurance receiving care from FQHCs that serve communities with majority Black or African American population Eligibility criteria: Patients 50-85 years of age, English speaking, current clinic patient, not requiring screening at an earlier age according to ACS guidelines, not up to date with USPSTF CRC screening recommendations, and not having an acute medical concern Sample size:	Screening test: FOBT Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 3 months Results: FOBT: Intervention: Pre: 0% Post: 245/404 = 60.6% Change: 60.6 pct pts Control:

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	telephone within 2 weeks and again in 1 month <i>ROPC</i>: pre-stamped envelope to mail back the completed FOBT kit <i>RSB, unspecified</i>: nurse manager used motivational interviewing techniques to identify and problem-solve barriers and motivate patients to complete FOBT Intervention intensity: 1 or more contact Control group: ROPC	Supervision: quarterly clinic meetings Matching to population: NR Educational background: nursing Payment: nurse salary; for 2 nurses \$106,280 (40% nurse salary, not full-time) Methods used to interact with participants: Both: face-to-face and telephone	Intervention: 404 Control: 275 Attrition: N/A Demographics for intervention group: <i>Age, mean</i>: 59 years <i>Gender</i>: 77% female; 23% male <i>Race/Ethnicity</i>: 83% Black or African American; 17% White or Hispanic <i>Employment</i>: NR <i>Income</i>: NR <i>Education</i>: 31% ≤HS; 47% HS graduate; 17% some college; 6% ≥college graduate <i>Insurance</i>: NR <i>Established source of care</i>: 100% patients attend the clinic <i>Baseline screening of intervention group</i>: 0%	Pre: 0% Post: 106/275 = 38.5% Change: 38.5 pct pts Absolute difference: +22.1 pct pts Relative difference: +57.3%
Author year: DeGroff et al., 2017 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Good	Location: Boston, Massachusetts, US Population density: urban Setting: clinic (safety net clinic) Intervention duration: 33 months Intervention details: Type of cancer addressed: CRC Type of services provided: OE + RSB, appointment scheduling assistance + RSB, reduce admin barriers + RSB, transportation assistance <i>OE</i>: informed and educated patients about colonoscopy procedure, bowel preparation, emotional concerns about the procedure	Type of deliverers engaged, and services delivered: PN: all intervention components Training: additional training in motivational interviewing Supervision: NR Matching to population: bilingual and familiar with population Educational background: one navigator trained at Outreach Worker Training Institute and motivational interviewing training through Cambridge Health Alliance; the other navigator trained through 2-day PN training at Harold P.	Population of focus: People from historically disadvantaged population groups who have lower incomes and receive care from the intervention clinic Eligibility criteria: Referral by a primary care provider for colonoscopy screening, English or Spanish speaking, 50–75 years of age; no previous diagnosis of colon cancer or adenomatous polyps, and no active substance abuse or acute psychiatric diagnosis as determined by medical records or primary care provider Sample size: Intervention: 419 Control: 421	Screening test: colonoscopy Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 6 months Results: Colonoscopy: Intervention: Pre: 0% Post: 256/419 = 61.1% Change: 61.1 pct pts Control: Pre: 0% Post: 224/421 = 53.2% Change: 53.2 pct pts

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	<i>RSB, appointment scheduling assistance:</i> made appointments, with follow up calls to participants to remind them of the appointment <i>RSB, reduce admin barriers:</i> assisted participants with obtaining bowel preparation materials, picked up the medication along with the appropriate type of liquid to mix with the medication and, if needed, accompanied them to the pharmacy <i>RSB, transportation assistance:</i> arranged for escorts and transportation services Intervention intensity: 3 contacts, on average navigators spent 14 minutes per patient Comparison group: RSB, appointment scheduling assistance	Freeman Patient Navigation Institute Payment: NR Methods used to interact with participants: Both: mainly through telephone, but also face-to-face and mail	Attrition: N/A Demographics for intervention group: <i>Age groups:</i> 53% 50-54 years of age; 34% 55-64 years of age; 13% 65-74 years of age <i>Gender:</i> 55% female; 46% male <i>Race/Ethnicity:</i> 41% Black or African American; 39% Hispanic or Latino; 15% White; 5% other <i>Employment:</i> 44% employed; 14% out of work; 14% not in labor force (student, retired, housewife); 29% unable to work <i>Income per year:</i> 32% \$0-\$9,999; 27% \$10,000 - \$19,999; 15% \$20,000 - \$34,999; 7% \$35,000-\$49,999; 9% \$50,000 or more; 11% NR <i>Education:</i> 34% <HS; 35% HS diploma or GED; 18% some college; 14% college degree or higher <i>Insurance:</i> 98% insured; 2% uninsured <i>Established source of care:</i> 100% go to BMC <i>Baseline screening of intervention group:</i> 0%	Absolute difference: +7.9 pct pts Relative difference: +14.8%
Author year: Dietrich et al., 2006 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Fair	Location: New York City, New York, US Population density: urban Setting: community and clinic (FQHC) Intervention duration: 18 months Intervention details: Type of cancer addressed: BC, CC, and CRC	Type of deliverers engaged, and services delivered: Prevention care manager: all intervention components Training: 7 hours of training, including review of USPSTF recommendations, barriers to cancer screening, and role-playing telephone calls	Population of focus: People receiving care from FQHCs that serve communities with high proportions of people who were from historically disadvantaged groups and had lower incomes Eligibility criteria: Females 50 to 69 years of age who were overdue for at least 1 cancer screening, were patients of clinic for at least 6 months, had no plan to	Screening test: up to date using any CRC test, FOBT Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 3 months Results: Up to date with any CRC test:

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	Type of services provided: OE + RSB, appointment scheduling assistance + RSB, reduce admin barriers + RSB, transportation assistance + SM <i>OE</i>: trained prevention care manager provided information on screenings and barriers to care <i>RSB, appointment scheduling assistance</i>: prevention care manager helped with scheduling screening <i>RSB, reduce admin barriers</i>: for participants who reported difficulty communicating with their physicians, cards listing overdue screenings were sent as communication tools; provided direction to screening facilities <i>RSB, transportation assistance</i>: helped participants to find means of transportation to appointments <i>SM</i>: prevention care manager sent accurate information about screening via mail Intervention intensity: 2 more contacts; series of telephone support calls Control group: usual care	Supervision: calls to patients monitored to ensure quality and consistency; call logs reviewed at monthly meetings to ensure intervention fidelity Matching to population: based on patient language Educational background: mostly college graduates Payment: NR Methods used to interact with participants: Remote: mail and telephone	move or change clinic for 15 months, and spoke English, Spanish, or Haitian Creole Exclusion: females who were acutely ill or currently receiving cancer treatment Sample size: Intervention: 696 Control: 694 Attrition: 1% Demographics for intervention group (for all cancer types): <i>Age, mean</i>: 58 years <i>Gender</i>: 100% female <i>Race/Ethnicity</i>: NR <i>Employment</i>: NR <i>Income per year</i>: based on median income at participants' zip code: 34% <\$25,000; 39% \$25,000-\$40,000; 27% >\$40,000 <i>Education</i>: NR <i>Insurance</i>: 93% insured; 5% uninsured; 2% unknown <i>Established source of care</i>: 100% go to the clinics <i>Baseline screening of intervention group</i>: 39% up to date with any CRC test; 24% with FOBT	Intervention: Pre: 271/696 = 39.0% Post: 438/696 = 63.0% Change: 24.0 pct pts Control: Pre: 271/694 = 39.0% Post: 347/694 = 50.0% Change: 11.0 pct pts Absolute difference: +13.0 pct pts Relative difference: +26.0% FOBT: Intervention: Pre: 166/696 = 23.9% Post: 296/696 = 42.5% Change: 18.7 pct pts Control: Pre: 177/694 = 25.5% Post: 213/694 = 30.7% Change: 5.2 pct pts Absolute difference: +13.5 pct pts Relative difference: +48.2%
Author year: Dietrich et al., 2013 Study design: Individual RCT Suitability of design: Greatest	Location: New York City, New York, US Population density: urban Setting: community and clinic (FQHC) Intervention duration: 18 months Intervention details: Type of cancer addressed: CRC	Type of deliverers engaged, and services delivered: Preventive care manager: all intervention components Training: initial half day training plus 4 additional trainings Supervision: NR	Population of focus: Females in Medicaid management system Eligibility criteria: Females speaking English, Spanish, or Russian as their primary language, 50-63 years of age, continuously enrolled with a	Screening test: up to date using any CRC, colonoscopy, FOBT Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: >6 months

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Quality of execution: Fair	Type of services provided: CR(SM) + OE + PR + RSB, appointment scheduling assistance <i>CR(SM)</i>: women overdue for cancer screening were mailed language-appropriate educational materials and <i>OE</i>: mailed a personalized letter introducing Prevention Care Manager, strongly recommended cancer screening tests, and listed overdue screenings; telephone outreach began a week later using a script to confirm screening history, address barriers, and collect demographic information <i>PR</i>: women overdue for cancer screening were mailed a card listing overdue screenings to share with PCP <i>RSB, appointment scheduling assistance</i>: Prevention Care Managers scheduled appointments if women specifically requested help Intervention intensity: 2 or more contacts; telephone outreach with initial calls averaging 13.5 minutes and subsequent calls averaging 6.6 minutes Comparison group: usual care	Matching to population: NR Educational background: NR Payment: NR Methods used to interact with participants: Remote: mail and telephone	participating clinic for at least 12 months Exclusion: up to date for CRC screening according to USPSTF recommendations or with claims indicating any history of CRC, recent active cancer treatment, or a recent breast, cervical or lung cancer diagnosis Sample size: Intervention: 562 Control: 1,678 Attrition: Demographics for intervention group: <i>Age, mean</i>: 56 years <i>Gender</i>: 100% women <i>Race/Ethnicity</i>: NR <i>Employment</i>: NR <i>Income</i>: NR <i>Education</i>: NR <i>Insurance</i>: 100% insured <i>Established source of care</i>: 100% go to the clinics <i>Baseline screening of intervention group</i>: 0%	Results: Up to date using any CRC test: Intervention: Pre: 0% Post: 206/562 = 36.7% Change: 36.7 pct pts Control: Pre: 0% Post: 514/1678 = 30.6% Change: 30.6 pct pts Absolute difference: +6.1 pct pts Relative difference: +19.9% Colonoscopy: Intervention: Pre: 0% Post: 148/562 = 26.3% Change: 26.3 pct pts Control: Pre: 0% Post: 341/1678 = 20.3% Change: 20.3 pct pts Absolute difference: +6.0 pct pts Relative difference: +29.6% FOBT: Intervention: Pre: 0% Post: 70/562 = 12.5% Change: 12.5 pct pts Control: Pre: 0% Post: 205/1678 = 12.2% Change: 12.2 pct pts Absolute difference: +0.3 pct pts Relative difference: +2.5%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Author year: Enard et al., 2015 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Fair	Location: Houston, Texas, US Population density: urban Setting: community and clinic Intervention duration: 36 months Intervention details: Type of cancer addressed: BC, CC, CRC, lung, and prostate (only reported CRC screening) Type of services provided: GE + OE + RSB, appointment scheduling assistance + RSB, reduce admin barriers <i>GE:</i> information and counseling offered at family level <i>OE:</i> educated participants about screening tests available through Medicare, screening guidelines, Medicare's coverage of CRC screening; information and counseling offered to individuals <i>RSB, appointment scheduling assistance:</i> services offered; 18% of intervention participants received this service <i>RSB, reduce admin barriers:</i> referrals and assistance to participants to overcome barriers to screening Intervention intensity: 1 or more contact; median of 3 contacts ranging from 1-20 Comparison group: mailed educational materials outlining preventive services available through Medicare	Type of deliverers engaged, and services delivered: PN: all intervention components Training: 80 hours of standardized training on core PN competencies, attended at least one 3-day continuing education conference sponsored by ACS Supervision: NR Matching to population: bilingual Educational background: bachelor's degree in public health or related field and 2 years or more experience facilitating community-based support services or case management Payment: NR Methods used to interact with participants: Remote: telephone	Population of focus: Hispanic or Latinos, majority with less than HS education Eligibility criteria: Latino Medicare enrollees outside of primary care provider setting, 50 years or older, covered by Medicare parts A and B, could participate in English or Spanish, not diagnosed with any type of cancer within last 5 years For current study, focused on screening arm participants at the cancer center recruitment site, who were not adherent to CRC screening Sample size: Intervention: 135 Control: 168 Attrition: 38% Demographics for intervention group: <i>Age groups:</i> 27% 50-64 years of age; 73% 65-75 years of age <i>Gender:</i> 56% female; 44% male <i>Race/Ethnicity:</i> 100% Hispanic or Latino <i>Employment:</i> NR <i>Income:</i> NR <i>Education:</i> 66% <HS; 34% ≥HS <i>Insurance:</i> 100% insured (100% Medicare) <i>Established source of care:</i> 80% have established care <i>Baseline screening of intervention group:</i> 0%	Screening test: up to date using any CRC test, colonoscopy or FS Up to date or repeat screening: up to date Self-report or medical record: self-report Follow-up Time: >6 months Results: Up to date using any CRC test: Intervention: Pre: 0% Post: 59/219 = 26.9% Change: 26.9 pct pts Control: Pre: 0% Post: 54/230 = 23.5% Change: 23.5 pct pts Absolute difference: +3.5 pct pts Relative difference: +14.7% Colonoscopy or FS: Intervention: Pre: 0% Post: 35.6% Change: 35.6 pct pts Control: Pre: 0% Post: 23.8% Change: 23.8 pct pts Absolute difference: +11.8 pct pts Relative difference: +49.6%
Author year: Fiscella et al., 2011	Location: upstate New York, New York, US	Type of deliverers engaged, and services delivered:	Population of focus:	Screening test: up to date using any CRC test

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Study design: Individual RCT Suitability of design: Greatest Quality of execution: Good	Population density: urban Setting: clinic (safety net clinic) Intervention duration: 19 months Intervention details: Type of cancer addressed: BC and CRC Type of services provided: CR1 + CR2 + PR + RSB, reduce admin barriers CR1: Letters were signed by PCP and indicated patient was overdue for mammography, CRC screening or both CR2: automated phone call, 2nd letter PR: clinician prompt sheet or electronic prompts to remind clinician that patients were past due for mammography, CRC screening, or both RSB, <i>reduce admin barriers</i>: mailed out FOBT or FIT kits to unscreened patients Intervention intensity: 2 or more contacts Comparison group: usual care	PN: CR1 + CR2 + RSB, reduce admin barriers Research or clinic staff: provider reminder Training: formal training on the intervention, use of a database, health promotion, and assisting patients navigate health and social services Supervision: social worker Matching to population: recruited from community Educational background: NR Payment: NR Methods used to interact with participants: Both: clinical point of care prompts, mail, and telephone	People receiving care from safety net clinic serving people with lower income Eligibility criteria: Patients 50-75 years of age, past due for CRC screening, with >12 months from last FOBT or >5 years since last sig or >10 years since last colonoscopy Exclusion: no visit to the clinic in past 2 years or high risk for CRC based on personal or family history Sample size (CRC only): Intervention: 163 Control: 160 Attrition: NR Demographics for intervention group (CRC only): <i>Age groups:</i> 64% 50-59 years of age; 36% ≥60 years of age <i>Gender:</i> 55% female; 45% male <i>Race/Ethnicity:</i> 19% Black or African American; 69% White; 13% other <i>Employment:</i> NR <i>Income per year:</i> 18% <\$30,000; 44% \$30,000-\$39,000; 39% >\$40,000 <i>Education:</i> NR <i>Insurance:</i> 47% private; 19% Medicaid; 23% Medicare; 10% uninsured <i>Established source of care:</i> 100% go to clinic <i>Baseline screening of intervention group:</i> 0%	Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 12 months Results: Up to date using any CRC test: Intervention: Pre: 0% Post: 47/163= 28.8% Change: 28.8 pct pts Control: Pre: 0% Post: 16/160 = 10.0% Change: 10.0 pct pts Absolute difference: +18.8 pct pts Relative difference: +188.0%
Author year: Ford et al., 2006	Location: Detroit, Michigan, US	Type of deliverers engaged, and services delivered:	Population of focus: Black or African American males	Screening test: FS

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Study design: Individual RCT Suitability of design: Greatest Quality of execution: Fair	Population density: urban Setting: clinic Intervention duration: 36 months Intervention details: Type of cancer addressed: CRC, prostate, lung, and ovarian Type of services provided: RSB, appointment scheduling assistance + RSB, reduce admin barriers + RSB, transportation assistance <i>RSB, reduce admin barriers:</i> helped obtain health insurance information <i>RSB, appointment scheduling assistance:</i> assisted with scheduling screening appointment <i>RSB, transportation assistance:</i> provided health and financial support information Intervention intensity: 2 or more contacts Comparison group: usual care	Case manager: all intervention components Training: training in appointment scheduling procedures for cancer screening and procedures of the trial Supervision: NR Matching to population: African American case manager over 40 years of age Educational background: NR Payment: NR Methods used to interact with participants: Remote: telephone	Eligibility criteria: African American males aged 55 years or older, enrolled in the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial at the Henry Ford Health System site in Detroit, Michigan in 1999 Sample size: Intervention: 352 Control: 351 Attrition: NR Demographics for intervention group: <i>Age, mean:</i> 63 years <i>Gender:</i> 100% male <i>Race/Ethnicity:</i> 100% Black or African American <i>Employment:</i> 31% working; 60% retired; 6% extended sick leave or disabled; 4% unemployed <i>Income per year:</i> 32% <150% of FPL; 68% ≥150% of FPL <i>Education:</i> 23% <HS; 22% HS grad; 8% post HS (e.g., vocational); 28% some college; 8% college graduate; 12% post-graduate <i>Insurance:</i> NR <i>Established source of care:</i> NR <i>Baseline screening of intervention group:</i> 0%	Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 36 months Results: FS: Intervention: Pre: 0% Post: 81/352 = 23.0% Change: 23.0 pct pts Control: Pre: 0% Post: 80/351 = 22.8% Change: 22.8 pct pts Absolute difference: +0.2 pct pts Relative difference: +1.0%
Author year: Fortuna et al., 2014 Study design: Individual RCT Suitability of design:	Location: Rochester, New York, US Population density: urban Setting: clinic Intervention duration: NR	Type of deliverers engaged, and services delivered: Clinic staff: CR(SM) Outreach worker: OE + RSB, appointment scheduling assistance + RSB, reducing admin barriers	Population of focus: People receiving care from the intervention clinic which served communities with high proportions of people who were from historically disadvantaged groups and had lower incomes	Screening test: up to date using any CRC test Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 13 months

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Greatest Quality of execution: Good	Intervention details: Type of cancer addressed: BC and CRC Type of services provided: CR(SM) + OE + RSB, appointment scheduling assistance + RSB, reduce structural barriers <i>CR(SM)</i>: single letter from practice sent to remind patients they were overdue for screening, with follow-up, automated calls <i>OE</i>: trained outreach worker made telephone calls with up to 3 attempts, used motivational interview techniques to encourage screening <i>RSB, appointment scheduling assistance</i>: outreach worker offered to assist with scheduling an appointment <i>RSB, reduce admin barriers</i>: patients who did not want to undergo colonoscopy were offered a mailed FIT kit as an alternative method of CRC screening Intervention intensity: 2 contacts Comparison group: CR(SM)	Training: NR Supervision: NR Matching to population: NR Educational background: NR Payment: NR Methods used to interact with participants: Remote: telephone	Eligibility criteria: Registered patient at the study clinic, had at least 1 visit to the practice in the last 2 years, 50-74 years of age, past due for CRC screening Exclusion: patients at higher risk for cancer, including prior cancer, premalignant conditions, positive FOBT or FIT result at last testing, or first-degree relative with a previous diagnosis of CRC Sample size: Intervention: 158 Control: 156 Attrition: NR Demographics for intervention group: <i>Age groups</i>: 65% 50-59 years of age; 35% ≥60 years of age <i>Gender</i>: 54% female; 46% male <i>Race/Ethnicity</i>: 35% Black or African American; 48% White; 17% other <i>Employment</i>: NR <i>Income per year</i>: 34% <\$30,000; 40% \$30,000-39,000; 27% >\$40,000 <i>Education</i>: NR <i>Insurance</i>: 40% private; 20% Medicaid; 34% Medicare; 6% uninsured <i>Established source of care</i>: 100% go to clinic <i>Baseline screening of intervention group</i>: 0%	Results: Up to date using any CRC test: Intervention: Pre: 0% Post: 34/158 = 21.5% Change: 21.5 pct pts Control: Pre: 0% Post: 19/156 = 12.2% Change: 12.2 pct pts Absolute difference: +9.3 pct pts Relative difference: +76.2%
Author year: Goldman et al., 2015	Location: Chicago, Illinois, US Population density: urban	Type of deliverers engaged, and services delivered: Clinic staff: CR + PAF + PI PN: RSB, reduce admin barriers	Population of focus: People receiving care from the intervention FQHC serving communities with high proportions	Screening test: FOBT Up to date or repeat screening: up to date

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Study design: Individual RCT Suitability of design: Greatest Quality of execution: Good	Setting: clinic (FQHC) Intervention duration: NR Intervention details: Type of cancer addressed: CRC Type of services provided: CR + PAF + PI + RSB, reduce admin barriers <i>CR:</i> medical assistants identified and counseled patients due for screening <i>PAF:</i> provided routine quality measurement and feedback on CRC screening rates to providers <i>PI:</i> CRC screening added as a quality metric for providers' incentive compensation formula <i>RSB, reduce admin barriers:</i> FIT kits mailed to patients' homes, with follow-up calls, texts, and phone calls by the CRC Screening Navigator Intervention intensity: 1 or more contact Comparison group: CR + PAF + PI	Training: NR Supervision: NR Matching to population: NR Educational background: NR Payment: NR Methods used to interact with participants: Remote: mail, telephone, and text	of Hispanic or Latino residents without insurance Eligibility criteria: Patients 50-75 years of age, preferred language of English or Spanish, at least 2 clinic visits over 2 years before the study, no documentation of CRC screening Exclusion: patients inappropriate for FOBT (e.g., chronic diarrhea, inflammatory bowel disease, iron deficiency, metastatic cancer, and previous total colectomy), and those who had a pending or completed referral for colonoscopy, completed FIT, or precluding diagnosis Sample size: Intervention: 210 Control: 210 Attrition: N/A Demographics for intervention group: <i>Age, mean:</i> 58 years <i>Gender:</i> 66% female; 34% male <i>Race/Ethnicity:</i> 21% Black or African American; 61% Hispanic or Latino; 13% White; 5% other <i>Employment:</i> NR <i>Income:</i> NR <i>Education:</i> NR <i>Insurance:</i> 6% private; 15% Medicaid; 11% Medicare; 69% uninsured <i>Established source of care:</i> 100% go to the intervention clinic <i>Baseline screening of intervention group:</i> 0%	Self-report or medical record: medical records Follow-up Time: 12 months Results: FOBT: Intervention: Pre: 0% Post: 84/210 = 40.0% Change: 40.0 pct pts Control: Pre: 0% Post: 47/210 = 22.4% Change: 22.4 pct pts Absolute difference: +17.6 pct pts Relative difference: +78.6%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Author year: Hardin et al., 2020 Study design: Pre-post only Suitability of design: Least Quality of execution: Fair	Location: Hazard, Kentucky, US Population density: rural Setting: clinic (FQHC) Intervention duration: 12 months Intervention details: Type of cancer addressed: CRC Type of services provided: CI + OE + PR + RSB, reduce admin barriers <i>CI:</i> patients were given \$10 gift card when they returned the completed kit <i>OE:</i> nurse discussed appropriate screening options with patient; PNs follow-up biweekly with a phone or mail reminder to complete and return the kit; providing further instructions on using the kit <i>PR:</i> prior to a scheduled office visit, nurses or PNs would identify patients due for CRC screening and inform providers <i>RSB, reduce admin barriers:</i> follow-up with patients, provided further instructions if needed, and replaced kits that had been lost Intervention intensity: 1 or more contact Comparison group: pre intervention	Type of deliverers engaged, and services delivered: Clinic staff: CI Nurse + PN: OE + PR PN: RSB, reduce admin barriers Training: NR Supervision: NR Matching to population: NR Educational background: NR Payment: \$9,163 for PN Methods used to interact with participants: Both: face-to-face with nurse in clinic and remote follow up	Population of focus: People experiencing homelessness who were receiving care from the intervention FQHC Eligibility criteria: Patients of clinic who were eligible for and selected the FIT screening option, average risk adults aged 50–74, not up to date with screening Sample size: Intervention: 353 Attrition: NR Demographics for intervention group: <i>Age, mean:</i> NR <i>Gender:</i> NR <i>Race/Ethnicity:</i> NR <i>Employment:</i> NR <i>Income:</i> 80% homeless <i>Education:</i> NR <i>Insurance:</i> NR <i>Established source of care:</i> 100% go to the intervention clinic <i>Baseline screening of intervention group:</i> 21.7%	Screening test: FIT Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 13 months Results: FIT: Intervention: Pre: 40/184 = 21.7% Post: 168/353 = 47.6% Absolute change: +25.9 pct pts Relative change: +118.9%
Author year: Haverkamp et al., 2020 Study design: Individual RCT	Location: Western region, US Population density: rural Setting: clinic Intervention duration: 6-7 months	Type of deliverers engaged, and services delivered: CHR: OE Clinic staff: CR + ROPC + RSB, reduce admin barriers Training: CHR trained about CRC screening	Population of focus: American Indian Eligibility criteria: Patients who had obtained services at least once in the past 3 years from one of the participating clinics, 50-75 years of age, not up to date	Screening test: FIT Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 6-7 months

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Suitability of design: Greatest Quality of execution: Fair	Intervention details: Type of cancer addressed: CRC Intervention arm 1: mail + outreach Type of services provided: CR + OE + ROPC + RSB, reduce admin barriers <i>CR:</i> a letter sent with the FIT kit notifying participants that they were due for CRC screening <i>OE:</i> provided by American Indian CHR over the phone to discuss the importance of CRC screening, answer participants' questions, and offered to take the completed FIT kit to the clinic lab; home visit follow-up was conducted if participants did not return the completed test <i>ROPC:</i> FIT kit return envelope pre-stamped <i>RSB, reduce admin barriers:</i> mailed FIT kits with instructions; follow-up letter mailed to nonrespondents Intervention intensity, arm 1: 1 or more contact Intervention arm 2: mail Only Type of services provided: CR + RSB, reducing admin barriers + ROPC Intervention intensity, arm 2: 1 or 2 contacts Comparison group: usual care	recommendations and intervention protocol Supervision: NR Matching to population: CHRs self-identified as American Indian Educational background: NR Payment: NR Methods used to interact with participants: Intervention arm 1: Both: face-to-face, mail, and telephone Intervention arm 2: Remote: mail	with CRC screening per USPSTF criteria and had no history of CRC or total colectomy Sample size: Intervention arm 1: 361 Intervention arm 2: 361 Control: 566 Attrition: N/A Demographics for intervention group (both arms): <i>Age, mean:</i> 60 years <i>Gender:</i> 52% female; 48% male <i>Race/Ethnicity:</i> 100% American Indian <i>Employment:</i> NR <i>Income:</i> NR <i>Education:</i> NR <i>Insurance:</i> 100% American Indian tribal health center <i>Established source of care:</i> 100% go to clinic <i>Baseline screening of intervention group:</i> 0%	Results: FIT: Intervention arm 1: Pre: 0% Post: 68/361 = 18.8% Change: 18.8 pct pts Control: Pre: 0% Post: 36/566 = 6.4% Change: 6.4 pct pts Absolute difference: +12.4 pct pts Relative difference: +193.8% Intervention arm 2: Pre: 0% Post: 61/361 = 16.9% Change: 16.9 pct pts Control: Pre: 0% Post: 36/566 = 6.4% Change: 6.4 pct pts Absolute difference: +10.5 pct pts Relative difference: +164.1%
Author year: Honeycutt et al., 2013 Study design: Retrospective cohort	Location: southwest Georgia, US Population density: rural Setting: community and clinic Intervention duration: 18 months	Type of deliverers engaged, and services delivered: PN: all intervention components Training: trained profession health navigators	Population of focus: People who were underinsured or without insurance receiving care from CHCs serving communities with predominately African American population	Screening test: up to date using any CRC test, colonoscopy Up to date or repeat screening: up to date Self-report or medical record: medical records

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Suitability of design: Moderate Quality of execution: Fair	Intervention details: Type of cancer addressed: CRC Type of services provided: OE + PAF + PR + ROPC + RSB, transportation assistance <i>OE:</i> provided one-on-one patient education and appointment reminders <i>PAF:</i> gave provider feedback on screening referral patterns <i>PR:</i> managed provider reminder systems to prompt health care providers to refer patients for screening and coordinate screening and follow-up services <i>ROPC:</i> partnering gastroenterology practices provided colonoscopies at a reduced cost, which was paid entirely by the Community Cancer Screening Program for all patients <i>RSB, transportation assistance:</i> helped patients overcome barriers to screening (e.g., costs, transportation, literacy) Intervention intensity: 1 contact Comparison group: usual care	Supervision: NR Matching to population: NR Educational background: NR Payment: NR Methods used to interact with participants: NR	Eligibility criteria: Individuals 50-64 years of age, eligible for sliding-fee scale services (i.e., documented low-income, underinsured, or uninsured), visited a clinic at least once during the study period Exclusion: history of CRC, colorectal polyps, ulcerative colitis, Crohn's disease, or a first-degree relative with CRC or adenomatous polyps Sample size: Intervention: 289 Control: 520 Attrition: N/A Demographics for intervention group: <i>Age groups:</i> 43% 50-54 years of age; 34% 55-59 years of age; 23% 60-64 years of age <i>Gender:</i> 69% female; 31% male <i>Race/Ethnicity:</i> 76% Black or African American; 24% White <i>Employment:</i> NR <i>Income:</i> NR <i>Education:</i> NR <i>Insurance:</i> 100% eligible for sliding-fee scale services <i>Established source of care:</i> 100% go to CHCs <i>Baseline screening of intervention group:</i> 0%	Follow-up Time: 18 months Results: Up to date with any CRC test: Intervention: Pre: 0% Post: 123/289 = 42.6% Change: 42.6 pct pts Control: Pre: 0% Post: 56/520 = 10.8% Change: 10.8 pct pts Absolute difference: +31.8 pct pts Relative difference: +295.2% Colonoscopy: Intervention: Pre: 0% Post: 90/257 = 35.0% Change: 35.0 pct pts Control: Pre: 0% Post: 33/510 = 6.5% Change: 6.5 pct pts Absolute difference: +28.5 pct pts Relative difference: +441.2%
Author year: Jandorf et al., 2005 Study design: Individual RCT	Location: New York City, New York, US Population density: urban Setting: clinic (FQHC) Intervention duration: 3 months	Type of deliverers engaged, and services delivered: PN: all intervention components Training: trained to be PN Supervision: NR	Population of focus: People receiving care from the intervention FQHC serving people from historically disadvantaged groups and with lower income Eligibility criteria:	Screening test: colonoscopy, FOBT Up to date or repeat screening: up to date Self-report or medical record: medical records

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Suitability of design: Greatest Quality of execution: Good	Intervention details: Type of cancer addressed: CRC Type of services provided: PR + RSB, appointment scheduling assistance <i>PR:</i> charts were reviewed to confirm participants' eligibility, and FOBT cards were placed in the reviewed charts to remind physicians to order CRC test <i>RSB, appointment scheduling assistance:</i> PN assisted patients to schedule appointments if needed Intervention intensity: 1 or more contacts Comparison group: PR	Matching to population: recruited people with similar cultural background as participants Educational background: NR Payment: NR Methods used to interact with participants: Remote: telephone	Patients attending the intervention FQHC, 50 years of age or older, no FOBT within the past year, no FS or barium enema within past 3-5 years, no colonoscopy within past 10 years Sample size: Intervention: 38 Control: 40 Attrition: N/A Demographics for intervention group: <i>Age, mean:</i> 61 years <i>Gender:</i> 76% female; 24% male <i>Race/Ethnicity:</i> 79% Hispanic or Latino <i>Employment:</i> 8% employed <i>Income per year:</i> 72% <\$10,000 <i>Education:</i> 13% HS or more <i>Insurance:</i> 69% with public insurance <i>Established source of care:</i> 97.4% have primary care provider <i>Baseline screening of intervention group:</i> 0%	Follow-up Time: 6 months colonoscopy, 3 months FOBT Results: Colonoscopy: Intervention: Pre: 0% Post: 9/38 = 23.7% Change: 23.7 pct pts Control: Pre: 0% Post: 2/40 = 5.0% Change: 5.0 pct pts Absolute difference: +18.7 pct pts Relative difference: +374.0% FOBT: Intervention: Pre: 0% Post: 16/38 = 42.1% Change: 42.1 pct pts Control: Pre: 0% Post: 10/40 = 25.0% Change: 25.0 pct pts Absolute difference: +17.1 pct pts Relative difference: +68.4%
Author year: Lasser et al., 2011 Study design: Individual RCT Suitability of design: Greatest	Location: Cambridge, Somerville, and Everett, Massachusetts, US Population density: urban Setting: clinic Intervention duration: 6 months Intervention details:	Type of deliverers engaged, and services delivered: PN: all intervention components Training: 2-day training program that included lectures and role-playing scenarios for providing the services, with additional training when needed	Population of focus: People receiving care from the intervention clinics which served populations who were from historically disadvantaged groups and had lower incomes Eligibility criteria: Patients 52-74 years of age, had 1 visit to intervention clinic in the	Screening test: up to date using any CRC test, colonoscopy, FOBT Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 12 months

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Quality of execution: Fair	Type of cancer addressed: CRC Type of services provided: CR(SM) + OE + RSB, appointment scheduling assistance + RSB, reduce admin barriers <i>CR(SM)</i>: sent letters signed by the PCP notifying patients that they were overdue for CRC screening, with a CRC screening brochure <i>OE</i>: some patients received education about CRC, screening tests, motivating them to get screened, how to prepare for tests, and meeting them on the day of their colonoscopy as emotional support <i>RSB, appointment scheduling assistance</i>: helped patients make colonoscopy appointments <i>RSB, reduce admin barriers</i>: helped patients obtain health insurance coverage, mailed FOBT cards and instructions, and found someone to accompany patients back home after the procedure Intervention intensity: 1 or more contacts, average call lasting 107 minutes, ranging 4-335 minutes Comparison group: usual care	Supervision: project manager audited at least 5 calls and weekly meetings Matching to population: fluent in English, Spanish, Portuguese, or Haitian Creole Educational background: some college or college graduate Payment: NR Methods used to interact with participants: Remote: mail and telephone	previous 2 years, had not completed CRC screening, and spoke English, Haitian Creole, Portuguese, or Spanish as primary language Exclusion: patients with acute illness, an end-stage medical condition, severe psychiatric conditions, active substance abuse, or cognitive impairment Sample size: Intervention: 235 Control: 230 Attrition: N/A Demographics for intervention group: <i>Age, mean</i>: 61 years <i>Gender</i>: 60% female; 40% male <i>Race/Ethnicity</i>: 27% Black or African American; 48% White; 26% other or unknown <i>Employment</i>: NR <i>Income</i>: NR <i>Education</i>: NR <i>Insurance</i>: 32% private; 22% Medicare; 19% Medicaid; 13% Commonwealth Care; 10% Health Safety Net; 1% other; 3% uninsured <i>Established source of care</i>: 100% go to intervention clinics <i>Baseline screening of intervention group</i>: 0%	Results: Up to date using any CRC test: Intervention: Pre: 0% Post: 79/235 = 33.6% Change: 33.6 pct pts Control: Pre: 0% Post: 46/230 = 20.0% Change: 20.0 pct pts Absolute difference: +13.6 pct pts Relative difference: +68.0% Colonoscopy: Intervention: Pre: 0% Post: 62/235 = 26.4% Change: 26.4 pct pts Control: Pre: 0% Post: 30/230 = 13.0% Change: 13.0 pct pts Absolute difference: +13.4 pct pts Relative difference: +103.1% FOBT: Intervention: Pre: 0% Post: 17/235 = 7.2% Change: 7.2 pct pts Control: Pre: 0% Post: 15/230 = 6.5% Change: 6.5 pct pts Absolute difference: +0.7 pct pts Relative difference: +10.8%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Author year: Leone et al., 2013 Study design: Pre-post with comparison Suitability of design: Greatest Quality of execution: Fair	Location: Cape Fear, North Carolina, US Population density: urban and rural Setting: clinic Intervention duration: 6 months Intervention details: Type of cancer addressed: CRC Type of services provided: CR + SM + RSB, appointment scheduling assistance + RSB, transportation assistance <i>CR:</i> a letter from physician indicating that patients needed to be screened for CRC <i>SM:</i> CRC screening decision aid called CHOICE, an 11-minute DVD that provides information about CRC, different tests to screen, testimonials from people who have been screened and a comparison of colonoscopy and stool blood test screening <i>RSB, appointment scheduling assistance:</i> helped patients making appointments <i>RSB, transportation assistance:</i> assisted with transportation Intervention intensity: 1 or 2 contacts Comparison group: usual care	Type of deliverers engaged, and services delivered: PN: all intervention components Training: 2-day training course for PN with mock calls Supervision: research team monitored calls and provided feedback Matching to population: NR Educational background: NR Payment: staff, paid for job Methods used to interact with participants: Remote: mail and telephone	Population of focus: People receiving Medicaid benefits Eligibility criteria: Patients aged 50-74 years, currently enrolled in Medicaid and not Medicare, not up to date with CRC screening Sample size: Intervention: 240 Control: 174 Attrition: 0.8% Demographics for intervention group: <i>Age, mean:</i> 57 years <i>Gender:</i> 57% female; 43% male <i>Race/Ethnicity:</i> 31% African American; 62% White; 7% other <i>Employment:</i> NR <i>Income:</i> 89% with continuous eligibility for Medicaid during study <i>Education:</i> NR <i>Insurance:</i> 100% Medicaid <i>Established source of care:</i> 100% go to the intervention clinic <i>Baseline screening of intervention group:</i> 0%	Screening test: up to date using any CRC test Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 12 months Results: Up to date using CRC test: Intervention: Pre: 0% Post: 22/240 = 9.2% Change: 9.2 pct pts Control: Pre: 0% Post: 13/174 = 7.5% Change: 7.5 pct pts Absolute difference: +1.7 pct pts Relative difference: +22.7%
Author year: Ma et al., 2009 Study design: Pre-post with comparison Suitability of design:	Location: Pennsylvania, US Population density: urban Setting: community and clinic Intervention duration: 6 months Intervention details:	Type of deliverers engaged, and services delivered: CHW: GE Clinic staff: ROPC PN: RSB, appointment scheduling assistance + RSB, reduce admin barriers + RSB, translation assistance + RSB, transportation assistance	Population of focus: Korean American immigrants with lower income Eligibility criteria: Active members of the participating Korean churches, self-identified as Korean Americans, aged 50 years or more, no history of polyp, CRC	Screening test: up to date using any CRC test Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 12 months

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Greatest Quality of execution: Fair	Type of cancer addressed: CRC Type of services provided: GE + ROPC + RSB, appointment scheduling assistance + RSB, reduce admin barriers + RSB, translation assistance + RSB, transportation assistance <i>GE:</i> small group CRC education sessions in Korean <i>ROPC:</i> clinical partners provided services at reduced cost to patients who were uninsured or underinsured <i>RSB, appointment scheduling assistance:</i> helped set up appointments <i>RSB, reduce admin barriers:</i> provided assistance with registration, other paperwork, and medical results facilitation <i>RSB, translation assistance:</i> helped patients translating during appointment <i>RSB, transportation assistance:</i> assisted with arranging transportation Intervention intensity: 2 or more contacts Comparison group: non-cancer general health information	Training: NR Supervision: NR Matching to population: bilingual GE sessions Educational background: NR Payment: NR Methods used to interact with participants: Both: face-to-face for GE; follow-up through remote and face-to-face	cancer, or family history of CRC, and never had CRC screening or were overdue for screening Sample size: Intervention: 84 Control: 83 Attrition: N/A Demographics for intervention group: <i>Age, mean:</i> 63 years <i>Gender:</i> 61% female; 39% male <i>Race/Ethnicity:</i> 100% Asian <i>Employment:</i> NR <i>Income per year:</i> 40% <\$10,000; 11% \$10,000-\$20,000; 22% \$20,000-\$30,000; 28% >\$30,000-\$40,000 <i>Education:</i> 19% <HS; 44% HS; 38% college or more <i>Insurance:</i> 39% insured; 61% uninsured <i>Established source of care:</i> 50% with regular physician <i>Baseline screening of intervention group:</i> 13.1%	Results: Up to date using any CRC test: Intervention: Pre: 11/84 = 13.1% Post: 65/84 = 77.4% Change: 64.3 pct pts Control: Pre: 8/83 = 9.6% Post: 9/83 = 10.8% Change: 1.2 pct pts Absolute difference: +63.1 pct pts Relative difference: +427.5%
Author year: Ma et al., 2019 Study design: Group RCT Suitability of design: Greatest Quality of execution: Fair	Location: Philadelphia, Pennsylvania, New Jersey, US Population density: urban Setting: community and clinic Intervention duration: NR Intervention details: Type of cancer addressed: CRC	Type of deliverers engaged, and services delivered: CHW: GE Clinic staff: RSB, alternative screening hours PN: RSB, appointment scheduling assistance + RSB, reduce admin barriers Training: NR Supervision: NR	Population of focus: Korean American immigrants with lower income Eligibility criteria: Churches: Korean American churches in Philadelphia or NJ area, serving mainly immigrant population; 30 churches were paired by size and geographic location	Screening test: up to date using any CRC test Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 12 months Results: Up to date using any CRC test: Intervention: Pre: 0%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	Type of services provided: GE + RSB, alternative screening hours + RSB, appointment scheduling assistance + RSB, reduce admin barriers <i>GE</i>: group sessions facilitated by bilingual health educators to increase understanding of CRC screening methods and available resources <i>RSB, alternative screening hours</i>: offered more flexible hours of clinic operation with bilingual medical staff on site <i>RSB, appointment scheduling assistance</i>: provided assistance scheduling appointments with clinic partners for sigmoidoscopy or colonoscopy <i>RSB, reduce admin barriers</i>: offered FIT home kit to participants at education sessions, not at clinic with instructions in Korean; PN helped with paperwork Intervention intensity: 1 or more contacts Comparison group: non-cancer general health information	Matching to population: bilingual CHW Educational background: NR Payment: NR Methods used to interact with participants: Both: face-to-face for most interactions, follow-up through telephone	Participant: self-identified Korean Americans, 50 years of age or older, did not have a colorectal polyp, CRC cancer, or a family history of CRC, and non-adherent to CRC screening guidelines Sample size: Intervention: 470 Control: 455 Attrition: N/A Demographics for intervention group: <i>Age, mean</i>: 62 years <i>Gender</i>: 58% female; 42% male <i>Race/Ethnicity</i>: 100% Asian <i>Employment</i>: 56% employed; 44% unemployed or retired or homemaker <i>Income per year</i>: 37% <\$20,000; 42% \$20,000 - \$40,000; 21% >\$40,000 <i>Education</i>: 12% <HS; 33% HS; 55% college or more <i>Insurance</i>: 46% insured; 54% uninsured <i>Established source of care</i>: 57% with regular physician <i>Baseline screening of intervention group</i>: 0%	Post: 277/470 = 58.9% Change: 58.9 pct pts Control: Pre: 0% Post: 61/455 = 13.4% Change: 13.4 pct pts Absolute difference: +45.5 pct pts Relative difference: +339.6%
Author year: Myers et al., 2014 Study design: Individual RCT Suitability of design: Greatest	Location: Philadelphia, Pennsylvania, US Population density: urban Setting: clinic Intervention duration: 60 months Intervention details: Type of cancer addressed: CRC	Type of deliverers engaged, and services delivered: Clinic staff: CR(SM) + RSB, reduce admin barriers PN: OE Training: NR Supervision: NR	Population of focus: African Americans served by the intervention clinic Eligibility criteria: Patients at clinic self-identified as African Americans, 50 to 75 years of age, no prior diagnosis of colorectal neoplasia or inflammatory bowel disease, visited a participating	Screening test: up to date using any CRC test Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 12 months Results:

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Quality of execution: Good	Type of services provided: CR(SM) + OE + RSB, reduce admin barriers <i>CR(SM)</i>: CRC screening info booklet mailed to participants overdue for CRC screening, with a personalized message to get screened, also identified participants' preferred screening methods <i>OE</i>: trained PN called participants to discuss materials, assess screening preferences, concerns, and barriers to screening, developed a plan to complete the screening, and arrange a follow-up call <i>RSB, reducing admin barriers</i>: FIT kit sent to participants who expressed preference for this screening methods Intervention intensity: 1 or more contacts Comparison group: CR(SM) + RSB, reduce admin barriers	Matching to population: NR Educational background: NR Payment: NR Methods used to interact with participants: Remote: mail and telephone	practice within the previous 2 years, had complete contact information, and not compliant with ACS CRC screening guidelines Sample size: Intervention: 382 Control: 379 Attrition: NR Demographics for intervention group: <i>Age groups</i>: 75% 50-59 years of age; 25% ≥60 years of age <i>Gender</i>: 73% female; 27% male <i>Race/Ethnicity</i>: 100% Black or African American <i>Employment</i>: NR <i>Income</i>: NR <i>Education</i>: 59% ≤HS; 41% >HS <i>Insurance</i>: NR <i>Established source of care</i>: 100% go to intervention clinic <i>Baseline screening of intervention group</i>: 0%	Up to date using any CRC test: Intervention: Pre: 0% Post: 166/382 = 43.5% Change: 43.5 pct pts Control: Pre: 0% Post: 122/379 = 32.2% Change: 32.2 pct pts Absolute difference: +11.3 pct pts Relative difference: +35.1%
Author year: Myers et al., 2019 Study design: Individual RCT Suitability of design: Greatest Quality of execution: Good	Location: Pennsylvania, US Population density: urban Setting: clinic Intervention duration: 12 months Intervention details: Type of cancer addressed: CRC Type of services provided: CR(SM) + OE + RSB, reduce admin barriers	Type of deliverers engaged, and services delivered: Clinic staff: CR(SM) + RSB, reduce admin barriers PN: OE Training: NR Supervision: NR Matching to population: bilingual PN, fluent in both Spanish and English Educational background: NR	Population of focus: Hispanic or Latino populations who had lower incomes and were served by the intervention clinic Eligibility criteria: Clinic: 5 primary care practice with relatively large numbers of Hispanic or Latino patients Participants: EHR used to identify patients of Hispanic or Latino ethnicity, 50-75 years of age, not been diagnosed with CRC, no personal or family history of CRC or	Screening test: up to date using any CRC test, colonoscopy, FIT Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 12 months Results: Up to date using any CRC test: Intervention: Pre: 0% Post: 153/197 = 77.7%

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
	<i>CR(SM)</i>: CRC screening info booklet mailed to participants overdue for CRC screening, with a personalized message to get screened, also identified participants' preferred screening methods <i>OE</i>: trained PN called participants to discuss materials, assess screening preferences, concerns, and barriers to screening, developed a plan to complete the screening, and arrange a follow-up call <i>RSB, reducing admin barriers</i>: FIT kit sent to participants who expressed preference for this screening methods Intervention intensity: 1 or more contact Comparison group: CR(SM) + RSB, reduce admin barriers	Payment: NR Methods used to interact with participants: Remote: mail and telephone	polyps, not up to date with CRC screening Sample size: Intervention: 197 Control: 203 Attrition: NR Demographics for intervention group: <i>Age, mean</i>: 57 years <i>Gender</i>: 59% female; 41% male <i>Race/Ethnicity</i>: 100% Hispanic or Latino <i>Employment</i>: 21% full time; 18% part time; 23% keeping house; 31% unable to work/disability; 7% retired <i>Income per year</i>: 69% <\$14,999; 23% \$15,000 - \$29,999; 8% ≥\$30,000 <i>Education</i>: 52% <HS; 26% HS or GED; 22% >HS <i>Insurance</i>: 72% insured; 23% uninsured <i>Established source of care</i>: 100% go to the intervention clinic <i>Baseline screening of intervention group</i>: 0%	Change: 77.7 pct pts Control: Pre: 0% Post: 88/203 = 43.3% Change: 43.3 pct pts Absolute difference: +34.3 pct pts Relative difference: +79.2% Colonoscopy: Intervention: Pre: 0% Post: 40/197 = 20.3% Change: 20.3 pct pts Control: Pre: 0% Post: 12/203 = 5.9% Change: 5.9 pct pts Absolute difference: +14.4 pct pts Relative difference: +243.5% FIT: Intervention: Pre: 0% Post: 113/197 = 57.4% Change: 57.4 pct pts Control: Pre: 0% Post: 76/203 = 37.4% Change: 37.4 pct pts Absolute difference: +19.9 pct pts Relative difference: +53.2%
Author year: Percac-Lima et al., 2009 Study design:	Location: Chelsea, Massachusetts, US Population density: urban Setting: clinic	Type of deliverers engaged, and services delivered: PN: all intervention components	Population of focus: People receiving care from intervention clinic serving a predominantly immigrant population with lower incomes	Screening test: up to date using any CRC test, colonoscopy Up to date or repeat screening: up to date

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Individual RCT Suitability of design: Greatest Quality of execution: Good	Intervention duration: 9 months Intervention details: Type of cancer addressed: CRC Type of services provided: OE + SM + RSB, appointment scheduling assistance + RSB, reduce admin barriers + RSB, transportation assistance <i>OE:</i> initial interview with patients to identify and explore barriers, educating patients about CRC screening, motivating and coaching patients <i>SM:</i> introductory letter in patients' native language explaining the project and educational materials related to CRC screening <i>RSB, appointment scheduling assistance:</i> scheduling <i>RSB, reduce admin barriers:</i> accompanying patients to colonoscopy testing <i>RSB, transportation assistance:</i> providing a free shuttle service directly to the main hospital, and in some cases, taxicab vouchers were provided to get home after the procedure Intervention intensity: 2 or more contacts Comparison group: usual care	Training: 6 hours of training addressing PN and CRC screening Supervision: principal investigator and community health director supervised PN Matching to population: bilingual PN Educational background: college educated Payment: NR Methods used to interact with participants: Both: face-to-face, mailing and telephone	Eligibility criteria: Patients 52-79 years of age, had not undergone CRC screening Exclusion: patients who were acutely ill, or had dementia, metastatic cancer, schizophrenia, or any end stage disease Sample size: Intervention: 409 Control: 814 Attrition: 6.5% Demographics for intervention group: <i>Age, mean:</i> 63 years <i>Gender:</i> 58% female; 42% male <i>Race/Ethnicity:</i> 2% Asian; 6% Black or African American; 40% Hispanic or Latino; 47% White; 5% other or unknown <i>Employment:</i> NR <i>Income:</i> authors stated "low-income neighborhood" <i>Education:</i> NR <i>Insurance:</i> 54% private; 29% public; 14% free care; 4% uninsured <i>Established source of care:</i> 100% go to the intervention clinic <i>Baseline screening of intervention group:</i> 0%	Self-report or medical record: medical records Follow-up Time: 9 months Results: Up to date using any CRC test: Intervention: Pre: 0% Post: 112/409 = 27.4% Change: 27.4 pct pts Control: Pre: 0% Post: 97/814 = 11.9% Change: 11.9 pct pts Absolute difference: +15.5 pct pts Relative difference: +130.3% Colonoscopy: Intervention: Pre: 0% Post: 85/409 = 20.8% Change: 20.8 pct pts Control: Pre: 0% Post: 78/814 = 9.6% Change: 9.6 pct pts Absolute difference: +11.2 pct pts Relative difference: +116.7%
Author year: Percac-Lima et al., 2014 Study design: Pre-post with comparison	Location: Chelsea, Massachusetts, US Population density: urban Setting: clinic Intervention duration: 48 months	Type of deliverers engaged, and services delivered: PN: all intervention components Training: received training	Population of focus: People receiving care from intervention clinic which served communities with large proportions of people who were from historically disadvantaged groups and had lower incomes	Screening test: colonoscopy Up to date or repeat screening: up to date or repeat screening Self-report or medical record: medical records

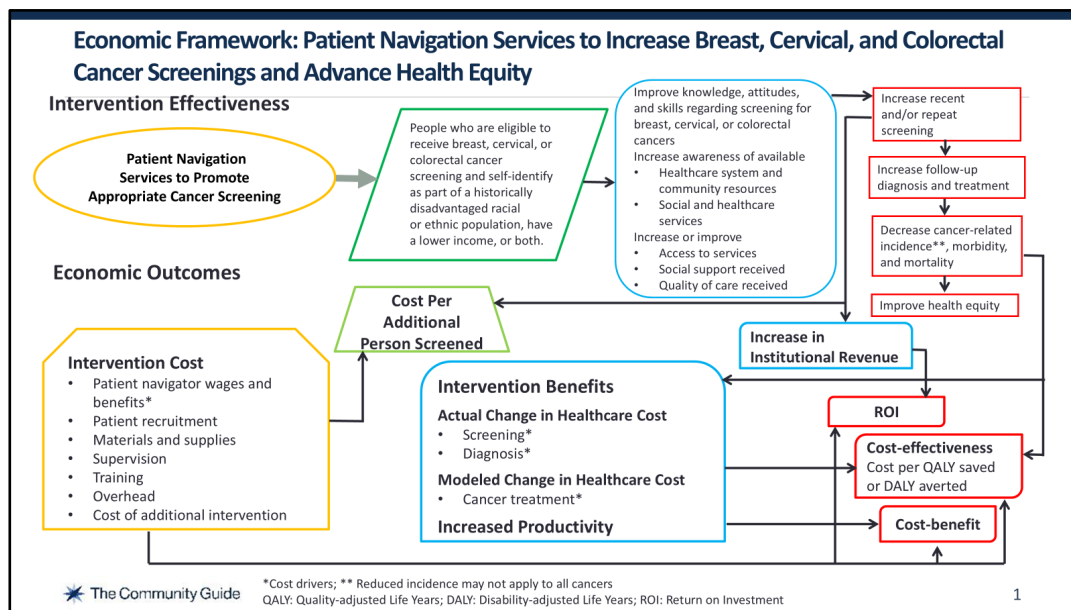
Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Suitability of design: Greatest Quality of execution: Fair	Intervention details: Type of cancer addressed: CRC Type of services provided: CR(SM) + OE + RSB, appointment scheduling assistance + RSB, reduce admin barriers + RSB, transportation assistance <i>CR(SM):</i> overdue patients were sent letters in their native language that explained the project and included educational materials related to CRC screening <i>OE:</i> PN called or met the patient in the health center, educated the patient about CRC screening and explored the patient's barriers to screening <i>RSB, appointment scheduling assistance:</i> PN helped schedule appointments <i>RSB, reduce admin barriers:</i> PN accompanied patients without available family members <i>RSB, transportation assistance:</i> PN helped organize transportation Intervention intensity: 3 or more contacts Comparison group: usual care	Supervision: principal investigator and community health director Matching to population: spoke the same language as the patients Educational background: college educated Payment: NR Methods used to interact with participants: Both: face-to-face, mail, and telephone	Eligibility criteria: Patients attending the intervention clinic, not up to date with CRC screening Sample size: Intervention: 3,115 Control: 43,905 Attrition: N/A Demographics for intervention group: <i>Age, mean:</i> 61 years <i>Gender:</i> 57% female; 43% male <i>Race/Ethnicity:</i> 2% Asian; 5% Black or African American; 39% Hispanic or Latino; 50% White; 4% other <i>Employment:</i> NR <i>Income:</i> authors stated "low-income neighborhood" <i>Education:</i> NR <i>Insurance:</i> 37% private; 17% Medicaid; 33% Medicare; 11% free care; 2% self-pay <i>Established source of care:</i> 100% go to the intervention clinic <i>Baseline screening of intervention group:</i> 49.2%	Follow-up Time: 48 months Results: Colonoscopy: Intervention: Pre: 1533/3115 = 49.2% Post: 2156/3115 = 69.2% Change: 20.0 pct pts Control: Pre: 27441/43905 = 62.5% Post: 32314/43905 = 73.6% Change: 11.1 pct pts Absolute difference: +8.9 pct pts Relative difference: +151.9%
Author year: Reuland et al., 2017 Study design: Individual RCT Suitability of design: Greatest Quality of execution:	Location: Charlotte, North Carolina and Albuquerque, New Mexico, US Population density: urban Setting: clinic Intervention duration: 26 months Intervention details: Type of cancer addressed: CRC	Type of deliverers engaged, and services delivered: Clinic staff: SM PN: OE + RSB, reduce admin barriers Training: 6 hours of initial training in CRC navigation, and monthly check-ins with study team member Supervision: monthly check-ins	Population of focus: People receiving care from the intervention clinics which served communities with large proportions of Hispanic or Latino residents who had lower incomes Eligibility criteria: Patients 50-75 years of age, spoke English or Spanish, without personal or family history of CRC, polyps, or inflammatory bowel disease, not up	Screening test: up to date using any CRC test, FOBT or FIT, colonoscopy Up to date or repeat screening: up to date Self-report or medical record: medical records Follow-up Time: 6 months Results: Up to date using any CRC test:

Study	Intervention Characteristics	Intervention Deliverer Details	Population Characteristics	Results
Good	Type of services provided: OE + SM + RSB, reduce admin barriers <i>OE</i>: information was tailored based on individual patient factors, including preferred CRC test, screening barriers, and stage of readiness for screening <i>SM</i>: CRC screening decision aid video about 15 minutes long, overviewing the importance of CRC screening, CRC tests, and selection of a colored brochure corresponding to patients' screening readiness <i>RSB, reduce admin barriers</i>: PNs offered and distributed FOBT or FIT kits using standing order, and were able to replace lost kits Intervention intensity: 2 or more contacts Comparison group: alternative intervention showing food safety video, usual care with PCP	Matching to population: bilingual PNs Educational background: trained as medical assistants, social workers, or have master's degree in public health Payment: NR Methods used to interact with participants: Both: face-to-face and with remote follow-up for patients not completing screening	to date with recommended CRC screening, and had upcoming appointments in the intervention clinics Sample size: Intervention: 133 Control: 132 Attrition: N/A Demographics for intervention group: <i>Age, mean</i>: 58 years <i>Gender</i>: 66% female; 34% male <i>Race/Ethnicity</i>: 27% Black or African American; 56% Hispanic or Latino; 17% White <i>Employment</i>: 74% employed <i>Income per year</i>: 78% <\$20,000; 22% ≥\$20,000 <i>Education</i>: 46% <HS; 54% ≥HS <i>Insurance</i>: 14% private; 29% Medicaid; 23% Medicare; 35% no health insurance <i>Established source of care</i>: 100% go to the intervention clinics <i>Baseline screening of intervention group</i>: 0%	Intervention: Pre: 0% Post: 90/133 = 68.0% Change: 68.0 pct pts Control: Pre: 0% Post: 36/132 = 27.0% Change: 27.0 pct pts Absolute difference: +41.0 pct pts Relative difference: +151.9% FOBT or FIT: Intervention: Pre: 0% Post: 72/133 = 54.0% Change: 54.0 pct pts Control: Pre: 0% Post: 28/132 = 21.0% Change: 21.0 pct pts Absolute difference: +33.0 pct pts Relative difference: +157.1% Colonoscopy: Intervention: Pre: 0% Post: 19/133 = 14.0% Change: 14.0 pct pts Control: Pre: 0% Post: 8/132 = 6.0% Change: 6.0 pct pts Absolute difference: +8.0 pct pts Relative difference: +133.3%

Appendix I

Analytic Framework (Economic Review)

Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

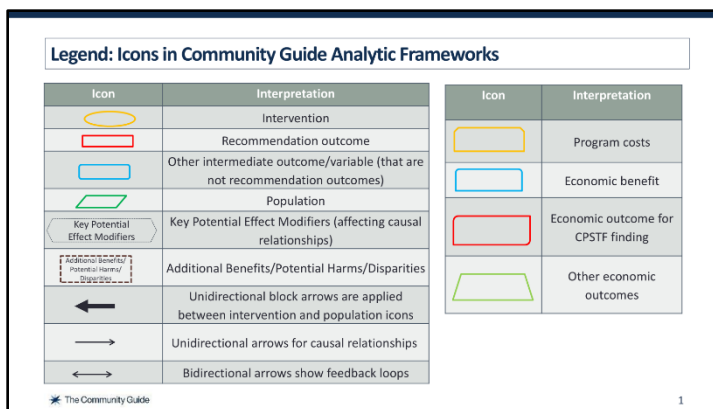


Analytic Framework Text Description

The analytic framework postulates the pathway leading from patient navigation services to increased breast, cervical, and colorectal cancer screening, improved health equity, and associated economic outcomes.¹

Patient navigation services are offered to people who (1) are eligible to receive breast, cervical, or colorectal cancer screening,² and (2) self-identified as part of a historically disadvantaged racial or ethnic population, have a lower income, or both. Patient navigation services improve participants' knowledge, attitudes, and skills regarding screening for breast, cervical, and colorectal cancers; increase their awareness of available healthcare system and community resources, and social and healthcare services; and increase or improve their access to services, social support, and quality of care received. These improvements can lead to increases in participants receiving recent or repeat cancer screenings; increases in follow-up diagnosis and treatment (if indicated by screening results); and decreases in cancer-related incidence,³ morbidity, and mortality; leading to improved health equity.

The economic framework postulates seven components of intervention cost of patient navigation services. Patient navigators' wages and benefits constitute the main driver of cost; other components include patient recruitment, materials and supplies, supervision, training, overhead, and cost of additional intervention. Cost per additional person screened captures the incremental cost of each additional screening resulting from the intervention. Intervention benefits include actual change in healthcare cost (i.e., screening and diagnosis – both considered cost drivers), modeled change in healthcare cost (i.e., cancer treatment – considered a cost driver), and increase in productivity.



The framework conceptualizes summary economic outcomes as cost-effectiveness, cost-benefit, or return on investment. Cost-effectiveness is intervention cost net of averted healthcare cost per quality-adjusted life year saved or disability-adjusted life year averted. Increases in institutional revenue are postulated to increase the return on investment.

Analytic Framework References

1. Framework based on information provided in Freeman HP and Rodriguez RL. History and principles of patient navigation. *Cancer* 2011;117(S15):3537-40.
2. USPSTF recommendations for breast, cervical, and colorectal cancer screening.
3. Reduced incidence may not apply to all three cancers (USPSTF recommendations for breast, cervical, and colorectal cancer screening)

Appendix J Search Strategy (Economic Review):

Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

Databases searched for this review included Medline, EconLit, PsycINFO, Cochrane, CINAHL, and ERIC, with search period from inception of databases through October 30, 2023. Two team members independently screened each paper identified to determine eligibility. Uncertainties and disagreements were resolved by consensus among review team members.

Overall Search Results

Databases	Date	Results	Duplicates	Final Results
Medline (OVID) 1946 –	10/30/23	550	5	545
EconLit (EbscoHost)	10/30/23	26	7	19
PsycINFO (OVID) 1806-	10/30/23	261	100	161
Cochrane Library	10/30/23	201	76	125
CINAHL (EbscoHost)	10/30/23	290	194	96
ERIC (ProQuest)	10/30/23	121	12	109
Total		1449	394	1055

Ovid MEDLINE(R)

- 1 Adolescent/ 2224284
- 2 (adolescen* or teen* or youth).ti,ab. 427800
- 3 1 or 2 2336705
- 4 exp family/ or exp parents/ or family relations/ or parent-child relations/ or parenting/ 370939
- 5 (family or families or parent*).ti,ab. 1536886
- 6 4 or 5 1710918
- 7 ((parent adj2 training) or (clinical adj2 trials) or intervention*).mp. 1870187
- 8 6 and 7 157578
- 9 ((alcohol* or drug or prescription or opiate* or substance) adj2 (abuse or misuse)).ti,ab. 70140

- 10 (marijuana or smoking or opiate* or vaping or tobacco or cocaine or heroin or methamphetamine or amphetamine).ti,ab. 450404
- 11 exp Alcoholism/ or exp Illicit Drugs/ or exp Tobacco Smoking/ or exp Substance-Related Disorders/ 323129
- 12 or/9-11 728456
- 13 3 and 12 118775
- 14 8 and 13 4859
- 15 exp animals/ not humans.sh. 5163742
- 16 14 not 15 4857
- 17 exp "Costs and Cost Analysis"/ 266732
- 18 exp Cost-Benefit Analysis/ 93247
- 19 exp Quality-Adjusted Life Years/15873
- 20 (cost-effective* or cost-benefit* or cost or QALY or DALY or quality-adjusted life year* or disability-adjusted life year* or return on investment or ROI).ti,ab. 585916
- 21 exp economics/ 666142
- 22 exp budgets/ 14152
- 23 exp cost savings/ 12746
- 24 budget*.ti,ab,kf. 36704
- 25 (economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or pharmaco-economic* or expenditure or expenditures or expense or expenses or financial or finance or finances or financed).ti,ab,kf. 1247739
- 26 or/17-25 1685924
- 27 16 and 26 568
- 28 limit 27 to english language 550

EconLit (EbscoHost)

- S36 S33 AND S35
- S35 S30 AND S34
- S34 TX ((marijuana or smoking or opiate* or vaping or tobacco or cocaine or heroin or methamphetamine* or amphetamine*)) OR TX (((alcohol* or drug or prescription or opiate* or substance) N2 (abuse or misuse)))
- S33 S31 AND S32

- S32 TX ((parent* N2 training) Or (clinical N2 trial*) OR intervention)
- S31 TX (family Or families OR parent* OR "family relations" OR "parent child relations")
- S30 AB (adolescen* or teen* or youth) OR TI (adolescen* or teen* or youth)

PsycINFO (OVID) 1806-

APA PsycInfo <1806 to October Week 3 2023>

- 1 (adolescen* or teen* or youth).ti,ab. 349971
- 2 exp family/ or exp parents/ or family relations/ or parent child relations/ or parenting/ 367757
- 3 (family or families or parent*).ti,ab. 620699
- 4 2 or 3 716574
- 5 ((parent adj2 training) or (clinical adj2 trial*) or intervention*).mp. 549416
- 6 4 and 5 123510
- 7 ((alcohol* or drug or prescription or opiate* or substance) adj2 (abuse or misuse)).ti,ab. 62579
- 8 (marijuana or smoking or opiate* or vaping or tobacco or cocaine or heroin or methamphetamine* or amphetamine*).ti,ab. 122981
- 9 exp Alcoholism/ or exp Drugs/ or "Substance Use Disorder"/ or Tobacco Smoking/ 490411
- 10 or/7-9 567696
- 11 1 and 10 43144
- 12 6 and 11 3219
- 13 exp animals/ not humans.sh. 378226
- 14 12 not 13 3216
- 15 exp "Costs and Cost Analysis"/ 49800
- 16 (cost-effective* or cost-benefit* or cost or QALY or DALY or quality-adjusted life year* or disability-adjusted life year* or return on investment or ROI).ti,ab. 77905
- 17 exp economics/93041
- 18 exp budgets/ 1452
- 19 budget*.ti,ab. 10038
- 20 (economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or pharmaco-economic* or expenditure or expenditures or expense or expenses or financial or finance or finances or financed).ti,ab. 315564

21	or/15-20	365359
22	14 and 21	267
23	limit 22 to english language	261

Cochrane Library

#1	MeSH descriptor: [Adolescent] this term only	125922
#2	(adolescen* OR teen* OR youth):ti,ab	41210
#3	#1 OR #2	150565
#4	MeSH descriptor: [Family] explode all trees	13439
#5	MeSH descriptor: [Parenting] explode all trees	1857
#6	MeSH descriptor: [Family Relations] this term only	327
#7	MeSH descriptor: [Parent-Child Relations] this term only	1432
#8	(family OR families OR parent*):ti,ab	87245
#9	#4 OR #5 OR #6 OR #7 OR #8	91668
#10	((parent NEAR/2 training) or (clinical NEAR/2 trials) or intervention*)	915240
#11	#9 AND #10	62076
#12	((alcohol* or drug or prescription or opiate* or substance) NEAR/2 (abuse or misuse)):ti,ab	7475
#13	(marijuana or smoking or opiate* or vaping or tobacco or cocaine or heroin or methamphetamine or amphetamine):ti,ab	46451
#14	MeSH descriptor: [Alcohols] explode all trees	41935
#15	MeSH descriptor: [Illicit Drugs] explode all trees	304
#16	MeSH descriptor: [Tobacco Smoking] explode all trees	503
#17	MeSH descriptor: [Substance-Related Disorders] explode all trees	19846
#18	#12 OR #13 OR #14 OR #15 OR #16 OR #17	102972
#19	#3 AND #18	13859
#20	#11 AND #19	1260
#21	(cost-effective* or cost-benefit* or cost or QALY or DALY or quality-adjusted life year* or disability-adjusted life year* or return on investment or ROI):ti,ab	65315
#22	MeSH descriptor: [Costs and Cost Analysis] explode all trees	14632

#23 MeSH descriptor: [Cost-Benefit Analysis] explode all trees 9866

#24 MeSH descriptor: [Quality-Adjusted Life Years] explode all trees 1945

#25 MeSH descriptor: [Economics] explode all trees 18332

#26 MeSH descriptor: [Budgets] explode all trees 56

#27 MeSH descriptor: [Cost Savings] explode all trees 538

#28 budget*:ti,ab 1458

#29 (economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or pharmaco-economic* or expenditure or expenditures or expense or expenses or financial or finance or finances or financed):ti,ab 107528

#30 #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 113636

#31 #20 AND #30 201

CINAHL (EbscoHost)

S20 S12 AND S18 Expanders - Apply equivalent subjects

Narrow by Language: - english

Search modes - Boolean/Phrase

S19 S12 AND S18

S18 S15 OR S16 OR S17

S17 TI ((economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or pharmaco-economic* or expenditure or expenditures or expense or expenses or financial or finance or finances or financed)) OR AB ((economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or pharmaco-economic* or expenditure or expenditures or expense or expenses or financial or finance or finances or financed))

S16 TI ((cost-effective* or cost-benefit* or cost or QALY or DALY or quality-adjusted life year* or disability-adjusted life year* or return on investment or ROI)) AND AB ((cost-effective* or cost-benefit* or cost or QALY or DALY or quality-adjusted life year* or disability-adjusted life year* or return on investment or ROI))

S15 S13 OR S14

S14 (MH "Costs and Cost Analysis") OR (MH "Cost Benefit Analysis")

S13 (MM "Cost Effectiveness Analysis") OR (MH "Quality-Adjusted Life Years") OR (MH "Disability-Adjusted Life Years") OR (MH "Economics") OR (MH "Cost Savings") OR (MH "Budgets")

S12 S6 AND S11

S11 S2 AND S10

S10 S7 OR S8 OR S9

S9 (MH "Alcoholism") OR (MH "Street Drugs+") OR (MH "Smoking+") OR (MH "Substance Use Disorders+")

S8 TI ((marijuana or smoking or opiate* or vaping or tobacco or cocaine or heroin or methamphetamine* or amphetamine*)) OR AB ((marijuana or smoking or opiate* or vaping or tobacco or cocaine or heroin or methamphetamine* or amphetamine*))

S7 TI (((alcohol* or drug or prescription or opiate* or substance) N2 (abuse or misuse))) OR AB (((alcohol* or drug or prescription or opiate* or substance) N2 (abuse or misuse)))

S6 S4 AND S5

S5 TX ((parent* N2 training) OR (clinical N2 trial) OR intervention*)

S4 ((MH "Family+") OR (MH "Parents+") OR (MH "Family Relations") OR (MH "Parent-Child Relations") OR (MH "Parenting")) OR TI ((family OR families OR parent*)) OR AB ((family OR families OR parent*))

S3 (MH "Family+") OR (MH "Parents+") OR (MH "Family Relations") OR (MH "Parent-Child Relations") OR (MH "Parenting") Results (271,786)

S2 (MH "Adolescence+") OR TI ((adolescen* or teen* or youth)) OR AB ((adolescen* or teen* or youth)) Results (666,303)

S1 (MH "Adolescence+")

ERIC (ProQuest)

MAINSUBJECT.EXACT.EXPLODE("Adolescents") OR noft((adolescen* OR teen* OR youth))

Set#: S2

MAINSUBJECT.EXACT.EXPLODE("Family (Sociological Unit)") OR MAINSUBJECT.EXACT.EXPLODE("Parents") OR MAINSUBJECT.EXACT.EXPLODE("Parent Child Relationship") OR MAINSUBJECT.EXACT.EXPLODE("Child Rearing") OR noft((family OR families Or parent*))

Set#: S3

noft(((parent* NEAR/2 training) OR (clinical NEAR/2 trial*) OR intervention*))

Set#: S4

[S2] AND [S3]

Set#: S5

noft(((alcohol* or drug or prescription or opiate* or substance) NEAR/2 (abuse or misuse)))

Set#: S6

noft((marijuana or smoking or opiate* or vaping or tobacco or cocaine or heroin or methamphetamine* or amphetamine*))

Set#: S7

MAINSUBJECT.EXACT.EXPLODE("Alcoholism") OR MAINSUBJECT.EXACT.EXPLODE("Drug Abuse") OR
MAINSUBJECT.EXACT.EXPLODE("Smoking") OR MAINSUBJECT.EXACT.EXPLODE("Substance Abuse")

Set#: S8

: [S5] OR [S6] OR [S7]

Set#: S9

[S1] AND [S8]

Set#: S10

[S4] AND [S9]

Set#: S11

MAINSUBJECT.EXACT.EXPLODE("Cost Effectiveness") OR noft((cost-effective* or cost-benefit* or cost or QALY
or DALY or quality-adjusted life year* or disability-adjusted life year*

Set#: S12

MAINSUBJECT.EXACT.EXPLODE("Economics") OR MAINSUBJECT.EXACT.EXPLODE("Budgets") OR noft((economic*
or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or pharmaco-economic*
or expenditure or expenditures or expense or expenses or financial or finance or finances or financed)) OR
noft(budgets)

Set#: S13

[S11] OR [S12]

Set#: S14

[S10] AND [S13]

Set#: S15

: ([S10] AND [S13]) AND la.exact("ENG")

Results: 121

Appendix K

**Included Studies – Breast and Cervical Cancers (Economic Review):
Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal
Cancer Screenings and Advance Health Equity**

Allaire BT, Ekweme D, Hoerger TJ, DeGroff A, Rim SE, Subrahmanian S, et al. Cost-effectiveness of patient navigation for breast cancer screening in the National Breast and Cervical Cancer Early Detection Program. *Cancer Causes & Control* 2019;30:923-9. <https://doi.org/10.1007/s10552-019-01200-3>.

Lairson DR, Huo J, Ricks KAB, Savas L, Fernandez ME. The cost of implementing a 2-1-1 call center-based cancer control navigator program. *Evaluation and Program Planning* 2013;39:51-6. <https://doi.org/10.1016/j.evalprogplan.2013.04.001>.

Li Y, Carlson E, Hernandez DA, Green B, Calle T, Kumaresan T, et al. Patient perception and cost-effectiveness of a patient navigation program to improve breast cancer screening for Hispanic women. *Health Equity* 2019;3(1):280-6. <https://doi.org/10.1089/heq.2018.0089>.

Li Y, Carlson E, Villarreal R, Meraz L, Pagan JA. Cost-effectiveness of a patient navigation program to improve cervical cancer screening. *American Journal of Management Care* 2017;23(7):429-34.

Mitchell JB, Bir A, Hoover S, Subrahmanian S. Evaluation of the Cancer Prevention and Treatment Demonstration for Ethnic and Racial Minorities. In *Final Report to Congress*. Waltham, MA: RTI International; 2013. Available from URL: <https://innovation.cms.gov/files/reports/cptd-final.pdf>. Accessed 7/17/23.

Thompson B, Carosso EA, Jhingan E, Wang L, Holte SE, Byrd TL, et al. Results of a randomized controlled trial to increase cervical cancer screening among rural Latinas. *Cancer* 2017;123(4):666-74. <https://doi.org/10.1002/cncr.30399>.

Weber, BE, Reilly BM. Enhancing mammography use in the inner city: a randomized trial of intensive case management. *Archives of internal medicine* 1997;157(20):2345-9. <https://doi.org/10.1001/archinte.1997.00440410077008>.

Appendix L**Included Studies – Colorectal Cancer (Economic Review):****Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity**

Baker DW, Brown T, Buchanan DR, Weil J, Balsley K, Ranalli L, et al. Comparative effectiveness of a multifaceted intervention to improve adherence to annual colorectal cancer screening in community health centers: a randomized clinical trial. *JAMA Intern Med* 2014;174(8):1235-1241.

Davis T, Arnold C, Rademaker A, Bennett C, Bailey S, Platt D, et al. Improving colon cancer screening in community clinics. *Cancer* 2013;119(21):3879-86.

Davis MM, Nambiar S, Mayorga ME, Sullivan E, Hicklin K, O'Leary MC, et al. Mailed FIT (fecal immunochemical test), navigation or patient reminders? Using microsimulation to inform selection of interventions to increase colorectal cancer screening in Medicaid enrollees. *Prev Med* 2019;129:105836.

De Mil R, Guillaume E, Guittet L, Dejardin O, Bouvier V, Pornet C, et al. Cost-effectiveness analysis of a navigation program for colorectal cancer screening to reduce social health inequalities: a French cluster randomized controlled trial. *Value Health* 2018;21(6):685-691.

Elkin EB, Shapiro E, Snow JG, Zauber AG, Krauskopf MS. The economic impact of a patient navigator program to increase screening colonoscopy. *Cancer* 2012;118(23):5982-5988.

Hardin V, Tangka FK, Wood T, Boisseau B, Hoover S, DeGroff A, et al. The effectiveness and cost to improve colorectal cancer screening in a federally qualified homeless clinic in eastern Kentucky. *Health Promot Pract* 2020;21(6):905-909.

Herman PM, Bucho-Gonzalez J, Menon U, Szalacha LA, Larkey L. Cost-Effectiveness of Community-to-Clinic Tailored Navigation for Colorectal Cancer Screening in an Underserved Population: Economic Evaluation Alongside a Group-Randomized Trial. *Am J Health Promot* 2022;36(4):678-686.

Jandorf L, Stossel LM, Cooperman JL, Graff Zivin J, Ladabaum U, Hall D, et al. Cost analysis of a patient navigation system to increase screening colonoscopy adherence among urban minorities. *Cancer* 2013;119(3):612-620.

Kim KE, Randal F, Johnson M, Quinn M, Maene C, Hoover S, et al. Economic assessment of patient navigation to colonoscopy-based colorectal cancer screening in the real-world setting at the University of Chicago Medical Center. *Cancer* 2018;124(21):4137-4144.

Ladabaum U, Mannalithara A, Jandorf L, Itzkowitz SH. Cost-effectiveness of patient navigation to increase adherence with screening colonoscopy among minority individuals. *Cancer* 2015;121(7):1088-1097.

Lairson DR, Kim J, Byrd T, Salaiz R, Shokar NK. Cost-effectiveness of community interventions for colorectal cancer screening: low-income Hispanic population. *Health Promot Pract* 2018;19(6):863-872.

Percac-Lima S, Grant RW, Green AR, Ashburner JM, Gamba G, Oo S, et al. A culturally tailored navigator program for colorectal cancer screening in a community health center: a randomized, controlled trial. *J Gen Intern Med* 2009;24:211-217.

Percac-Lima S, López L, Ashburner JM, Green AR, Atlas SJ. The longitudinal impact of patient navigation on equity in colorectal cancer screening in a large primary care network. *Cancer* 2014;120(13):2025-2031.

Qian F, Gates M, Bisner S, Collins E, Vora S, Dacus H. Benefits, cost, and activities of patient navigation (PN) program for colorectal cancer screening at the Charles B. Wang Community Health Center (CBWCHC). *J Immigr Minor Health* 2020;22:476-483.

Rice K, Sharma K, Li C, Butterly L, Gersten J, DeGroff A. Cost-effectiveness of a patient navigation intervention to increase colonoscopy screening among low-income adults in New Hampshire. *Cancer* 2019;125(4):601-609.

Wilson FA, Villarreal R, Stimpson JP, Pagán JA. Cost-effectiveness analysis of a colonoscopy screening navigator program designed for Hispanic men. *J Cancer Educ* 2015;30:260-267.

Wolf HJ, Dwyer A, Ahnen DJ, Pray SL, Rein SM, Morwood KD, et al. Colon cancer screening for Colorado's underserved: a community clinic/academic partnership. *Am J Prev Med* 2015;48(3):264-270.

Appendix M

Summary Evidence Table -- Breast and Cervical Cancers (Economic Review): Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

This table outlines information from the studies included in the Community Guide economic review of patient navigation services to increase breast and cervical cancers. It details study design and economic analysis, population and intervention characteristics, and economic outcomes considered in this review. Complete references for each study can be found in the Included Studies section of the review summaries for [breast cancer](#) and [cervical cancer](#).

Abbreviations Used in This Document:

- Economic outcomes:
 - QALY: quality-adjusted life year
 - ROI: return on investment
- Study design:
 - RCT: randomized controlled trial
- Measurement terms:
 - DiD: difference in difference
 - Pct pt: percentage point
- Other terms:
 - Conversion Factor: Consumer Price Index/Purchasing Power Parity
 - ED: emergency department
 - EHR: electronic health record
 - HCUP: Healthcare Cost and Utilization Project
 - MEPS: Medical Expenditure Panel Survey
 - NHS, National Health Service, UK
 - NA, not applicable
 - NR: not reported
 - PCP: primary care provider
 - PN: patient navigator

Notes:

Quality of economic estimates – Studies are assessed to be of good, fair, or limited quality. This valuation is based on two domains: Quality of Capture, and Quality of Measurement. [Read more *Methods Manual - Part 2: Economic Review Process* | *The Community Guide*](#)

Race/ethnicity of the study population: The Community Guide only summarizes race/ethnicity for studies conducted in the United States.

y Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
Author (Year): Allaire et al. (2019) Design: Modeled Cancer Types: Breast Economic Method: Cost per QALY gained Funding Source: Centers for Disease Control and Prevention Monetary Values: Reported in 2018 U.S. dollars	Location: Cost information from Colorado and modeled for U.S. using National Breast and Cervical Cancer Early Detection program (NBCCEDP) data Setting: Network of providers, health care systems, and partner organizations across all 50 states of NBCCEDP Program Population: Modeled for medically underserved women aged 40-64 years with annual income $\leq$ 250% federal poverty level Sample Size: 2 million women randomly drawn from NBCCEDP Characteristics: NR Time Horizon: NBCCEDP data from 1997 through 2006	Intervention: NBCCEDP program when using patient navigation may include some of these services: education, language translation services, reimbursement for transportation, guidance in interpreting doctor recommendations, emotional support, and help completing required documents. Navigation provided by non-clinical staff for screening and clinical staff after an abnormal screening result. Study ran three models. Review included the model that compared screening with patient navigation to screening without patient navigation (Model 1). Type of screening test: Mammogram Comparison: No patient navigation	Incremental QALY gained 0.006	Intervention cost per patient: Total intervention cost per patient \$8,791 Cost for screening with patient navigation compared to screening without patient navigation: \$202 Cost of patient navigation: \$126 Components: Navigator wages, screening, diagnostic resolution, treatment Source: Colorado NBCCEDP data Quality: Good	Change in healthcare cost per patient: \$173	Cost per quality- adjusted life year gained: \$33,600 Modeling Method: Cancer Intervention and Surveillance Modeling Network (CISNET) Model Quality: Good
Author (Year): Lairson et al. (2013)	Location: Houston and Weslaco, Texas, USA	Intervention: Patient navigation and referral system through free 211 community call	NR	Intervention cost: \$294.90 per patient per year	NR	NR

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
Author (Year): Allaire et al. (2019) Design: Modeled Cancer Types: Breast Economic Method: Cost per QALY gained Funding Source: Centers for Disease Control and Prevention Monetary Values: Reported in 2018 U.S. dollars	Location: Cost information from Colorado and modeled for U.S. using National Breast and Cervical Cancer Early Detection program (NBCCEDP) data Setting: Network of providers, health care systems, and partner organizations across all 50 states of NBCCEDP Program Population: Modeled for medically underserved women aged 40-64 years with annual income $\leq$ 250% federal poverty level Sample Size: 2 million women randomly drawn from NBCCEDP Characteristics: NR Time Horizon: NBCCEDP data from 1997 through 2006	Intervention: NBCCEDP program when using patient navigation may include some of these services: education, language translation services, reimbursement for transportation, guidance in interpreting doctor recommendations, emotional support, and help completing required documents. Navigation provided by non-clinical staff for screening and clinical staff after an abnormal screening result. Study ran three models. Review included the model that compared screening with patient navigation to screening without patient navigation (Model 1). Type of screening test: Mammogram Comparison: No patient navigation	Incremental QALY gained 0.006	Intervention cost per patient: Total intervention cost per patient \$8,791 Cost for screening with patient navigation compared to screening without patient navigation: \$202 Cost of patient navigation: \$126 Components: Navigator wages, screening, diagnostic resolution, treatment Source: Colorado NBCCEDP data Quality: Good	Change in healthcare cost per patient: \$173	Cost per quality-adjusted life year gained: \$33,600 Modeling Method: Cancer Intervention and Surveillance Modeling Network (CISNET) Model Quality: Good
Author (Year): Lairson et al. (2013)	Location: Houston and Weslaco, Texas, USA	Intervention: Patient navigation and referral system through free 211 community call	NR	Intervention cost: \$294.90 per patient per year	NR	NR

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
Design: RCT Cancer Types: Breast, cervical, colorectal Economic Method: Intervention cost Funding Source: Cancer Prevention Research Institute of Texas Monetary Values: Assumed reported in 2011 U.S. dollars	Setting: 211 call centers linked to free or low-cost facilities providing cancer screening Population: Callers to 211 community phone line who were aged 18 to 75 and spoke English or Spanish. Sample Size: Intervention: 732 Control: 2,201 Characteristics: Age: 18-26 years: 19.2% 27-30 years: 11.8% 31-39 years: 25.2% 40-49 years: 19.8% ≥50 years: 24.1% Females: 90.1% Hispanic or Latino: 39.3% Non-Hispanic: 58.6% Unknown race: 2.0% Less than High School: 20.1% Annual income less than \$15,000: 63.0% Unemployed: 53.8% Time Horizon: Cost data from November 2010 to May 2012	center. Cancer risk assessment during call by motivational interviewing to determine screening and prevention needs. Referral by information specialist to accessible and affordable services. Select callers referred to patient navigation based on response to questions. Navigators provided ongoing logistical and personalized support to overcome barriers such as access to healthcare. Navigators tracked all interactions. Mean risk assessment time was 41 minutes and mean navigation time was 94 minutes. Type of screening tests were mammography, pap, colonoscopy, sigmoidoscopy, FOBT. Comparison: Cancer risk assessment and referral to usual care		Cost for Control: \$35.90 per patient per year Components: Navigator wages, navigator training, database, other staff including supervisors and managers, participant time, tele-communications and computer, transportation Source: Study records, weekly navigator time logs, call center log, purchase orders Quality: Good		

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
Author (Year): Li et al. (2017) Design: Modeled from program outcomes Cancer Types: Cervical Economic Method: Intervention Cost, cost per QALY Funding Source: Cancer Prevention and Research Institute of Texas Monetary Values: Reported in 2015 U.S. dollars	Location: San Antonio, Texas, USA Setting: University Health System – Bexar County Hospital District Population: Hispanic women 40 years and older enrolled in financial assistance program for people without insurance Sample Size: Approximately 4,500 women Characteristics: Uninsured: 100% Hispanic: 100% Time Horizon: Program implemented 2012 through 2015. Modeled through lifetime.	Intervention: Community-based patient navigation program to improve cervical cancer screening Newsletters, public service announcements, and automated messages reminded participants to call and schedule appointments. Bilingual female navigator disseminated health information. Navigators assessed patients' knowledge about cervical cancer and screening and provided personalized education about the potential benefits of screening. Additional elements included a mass media health promotion campaign that helped women assess their subjective cervical cancer risk and align that with their actual risk, which they did using health education and information messages provided by patient navigators. Navigators were similar to, or representative of, the target population. All	Intervention effects: Screening increased by 15 pct pt from baseline of 65% Modeled lifetime per patient incremental QALY of 0.06 when compared with no program Source: Program data for screening rate. Modeled for QALY Measure Type: DiD for QALY	Intervention cost: \$311 per patient Cost per additional person screened: \$44.90 Components: Wages for patient navigator and other staff for screening-related activities, media, outreach Source: Intervention cost from program data Quality: Good	Healthcare cost: Modeled but estimate not reported Components: Includes cost of cancer treatment	Lifetime Cost per QALY gained \$748 Incremental QALY: 0.06 Modeling Method: Microsimulation Quality: Good

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
		screening tests were free. Type of screening test: Pap Comparison: No program				
Author (Year): Li et al. (2019) Design: Modeled from program outcomes Cancer Types: Breast Economic Method: Intervention Cost, cost per QALY Funding Source: Cancer Prevention and Research Institute of Texas Monetary Values: Assumed reported in 2015 U.S. dollars	Location: San Antonio, Texas, USA Setting: University Health System – Bexar County Hospital District Population: Hispanic women 40 years and older enrolled in financial assistance program for people without insurance. Patients had never been screened for breast cancer or had not been screened in the last 5 years. Sample Size: Approximately 2,100 women Characteristics: Uninsured: 100% Hispanic: 100% Less than High School: 30%	Intervention: <i>A Su Salud</i> Breast Health Program Program included patient navigation and mammography service components to remove social, cultural, and economic barriers by supporting patients through the screening system and providing free service for eligible women. Program also included media campaign and educational outreach activities. Type of screening test: Mammogram Comparison: No program	Intervention effects: Screening increased by 20 pct pt from baseline of 60% Modeled lifetime per patient incremental QALY of 0.04 when compared with no program Source: Program data for screening rate and modeled for QALY Measure Type: DiD for QALY	Intervention cost: Lifetime per patient cost of program: \$2,633. Lifetime per patient cost \$2,508 for status quo (no program). Incremental lifetime cost: \$124.80 Incremental cost per additional person screened: \$124 Components: No details provided Source: Intervention cost from program data Quality: Good	Healthcare cost: NR	Lifetime Cost per QALY gained: \$3,120 Modeling Method: Microsimulation using model developed by University of Minnesota and University of California, San Francisco Quality: Good

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
	Less than \$18,000 annual income: 83% Time Horizon: Program implemented 2013 through 2016. Modeled through lifetime.					
Author (Year): Mitchell et al. (2012) Design: RCT; not random assignment in Arizona, Montana Cancer Types: Breast, cervical, colorectal, lung, prostate Economic Method: Intervention cost, healthcare cost Funding Source: Centers for Medicare and Medicaid Services Monetary Values:	Location: Arizona, Montana; Baltimore, Maryland; Detroit, - Michigan; Houston, Texas; Newark, New Jersey; Molokai, Hawaii Setting: On Molokai, Hawaii the program was in a small general hospital; in Detroit a large health system. All other locations were academic health centers with major cancer centers. Population: Sites chosen to focus on American Indian, Asian, Native Hawaiian or Pacific Islander, African American, or Hispanic populations. Excluded Health Maintenance Organization patients. Patients selected from baseline cancer assessment survey. Treatment arms	Intervention: Centers for Medicare and Medicaid Services demonstration projects. Patient navigation in screening and cancer treatment. Recruitment for treatment arm of navigation was very poor in most sites with less than 30 patients. Screening navigation at all sites followed CMS guidelines for screening, for the most part. Most contacts were by phone except for Arizona, Montana which was mostly in-person. Only Detroit had lay navigators with nurse supervision. Nurse assessed patient needs, interacted with providers, and ensured services were received while navigators focused on scheduling and patient access to related services; clinical oversight provided by	Incremental pct pt increase Mammogram Arizona, Montana: 2.4 Baltimore: 3.7 Detroit: 8.5 Houston: 1.6 Newark: 12.8 Molokai: 34.0 Pap Arizona, Montana: 1.6 Baltimore: 6.0 Detroit: 0.9 Houston: -2.5 Newark: 13.3 Molokai: 30.3 Colonoscopy Arizona, Montana: 2.4 Baltimore: 2.4 Detroit: 0.7 Houston: -0.4 Newark: 4.3 Molokai: 19.3 FOBT	Intervention cost per enrollee: Arizona, Montana: \$6,127 Baltimore: \$3,287 Detroit: \$1,239 Houston: \$3,333 Newark: \$3,586 Molokai: \$3,974 Patient navigation cost per enrollee: Arizona, Montana: \$269 Baltimore: \$384 Detroit: \$96 Houston: \$453 Newark: \$429 Molokai: \$579 Components of intervention cost: Patient navigation, program management, outreach, recruitment, professional development, data	Change in healthcare cost per patient: Arizona, Montana: -\$47 Baltimore: \$398 Detroit: -\$1,125 Houston: \$95 Newark: \$453 Molokai: -\$2,369 Components: Inpatient, outpatient, medication, ED, cancer treatment Source: Claims data Measure Type: DiD Productivity: NR Quality: Good	NR

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
Assumed reported in 2006 U.S. dollars	recruited patients with cancer diagnosis. All other patients assigned to screening arms. Cancers included breast, cervical, colorectal, prostate, and lung. Sample Size: Intervention: Arizona, Montana: 1540 Baltimore: 2313 Detroit: 4809 Houston: 1915 Newark: 1071 Molokai: 377 Control: matched controls Characteristics: Age: <65 years: Arizona, Montana: 26.3% Baltimore: 0.1% Detroit: 22.7% Houston: 20.7% Newark: 24.6% Molokai: 21.8% Age 65-74 years: Arizona, Montana: 48.2% Baltimore: 64.6% Detroit: 43.9% Houston: 50.2% Newark: 50.2% Molokai: 50.2%	senior staff. Other 5 sites had navigators provide bulk of services directly to participants with no direct clinical oversight except for access to physician on as-needed basis. Navigators addressed patient barriers across all 6 sites: fear of diagnosis, distrust of system, transport issues, multiple chronic diseases. Type of screening tests were mammogram, pap, prostate-specific antigen test, colonoscopy, FOBT Comparison: Usual care with cancer education materials	Arizona, Montana: 0.9 Baltimore: 0.7 Detroit: -0.4 Houston: 1.5 Newark: 1.3 Molokai: 0.0	collection, tracking, program evaluation, other activities, administrative overhead Source: Data submitted annually from 6 sites, Medicare claims data. Quarterly PN activity surveys. Quality: Good		

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
	Female percent: Arizona, Montana: 58.5% Baltimore: 73.4% Detroit: 68.4% Houston: 60.0% Newark: 62.8% Molokai: 51.7% Income less than \$10,000: Arizona, Montana: 44.2% Baltimore: 23.6% Detroit: 25.6% Houston: 21.4% Newark: 48.6% Molokai: 27.8% Prioritized Race/Ethnicity: African American - Baltimore and Detroit Native American - Arizona, Montana Pacific Islander - Molokai Hispanic - Houston and Newark Time Horizon: Enrollment began October 1, 2006. Study period was 4 years. Claims from 2002 through 2010.					
Author (Year): Thompson et al. (2017)	Location: Yakima Valley, Washington, USA	Intervention: Partnership with federally qualified	Incremental pct pt increase in Pap	Intervention cost per navigated	NR	NR

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
Design: RCT Cancer Types: Cervical Economic Method: Intervention cost Funding Source: National Institutes of Health Monetary Values: Assumed reported in 2013 U.S. dollars	Setting: Clinics associated with YVFWC (Yakima Valley Farms Workers Clinic) Population: Latina residents of Yakima Valley seen in past 5 years at YVFWC, aged 21 to 64 years who had not had Pap test in past 3 years. Patients recruited by YVFWC staff. Sample Size: Intervention: Patient Navigation: 146 Video: 150 Control: 147 Characteristics: Mean Age: 43.2 years Uninsured: 75% Less than High School: 64.8% Rural percent: 100% Race/Ethnicity: Hispanic: 100% Time Horizon: Data collected from September 2011 through April 2015.	Yakima Valley Farm Workers Clinic (YVFWC) and state Breast, Cervical, and Colon Health Program. Free to low-cost cancer screening for individuals with lower incomes in cooperation with local clinics. Intervention 1: Spanish-language video about importance of Pap test mailed to homes, Intervention 2: video plus home-visits by <i>promotoras</i> who provided information on importance of Pap tests. <i>Promotora</i> watched video with patient. Patient made commitment to have Pap test done and/or <i>promotora</i> made appointment. Patient received local resource list for financial aid, transportation, and childcare; reminder refrigerator magnet; and appointment card. <i>Promotoras</i> navigated those with abnormal screenings to diagnostic resolution or initial treatment. Project health worker conducted baseline survey for demographics, acculturation, and	screening versus control: 19.39 pct pt	patient versus control: \$82.32 Intervention cost per additional person screened: \$4.24 (reported by authors) \$424.55 (calculated by reviewers) Components of intervention cost: Navigator time, training, transport, materials Source: Trial data and navigator time diaries Quality: Good		

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
		cervical cancer knowledge. Type of screening: Pap test. Comparison: Usual care				
Author (Year): Weber et al. (1997) Design: RCT Cancer Types: Breast Economic Method: Cost per QALY gained Funding Source: Grant from NY Department of Health Monetary Values: Reported in 1994 U.S. dollars	Location: Rochester, New York, USA Setting: 6 primary care practices located throughout Rochester and affiliated with St. Mary's Hospital, which serves diverse patient populations that are socioeconomically disadvantaged. Population: Urban women aged 52 to 77 years who had not had a mammogram in at least 2 years Sample Size: Intervention 163 Control 190 Characteristics: Mean age: 63 years Black: 36% Hispanic: 7% Asian: 4% White: 042%	Intervention: Community Health Educator (CHE) navigation case-management program after a reminder letter from the patient's primary care provider. The structured outreach protocol by CHEs included patient education and reminders (using telephone calls, home visits, office visits, and mailed cards) and identification and removal of barriers to care (facilitation of appointment scheduling, transportation, and dependents' care). Type of screening test: Mammogram Comparison: Personalized reminder letters from primary care provider only for	Intervention effects: Screening increased from 14% in the reminders-only group to 41% in the CHE group, resulting in 24 additional mammograms in the CHE group. Modeled 500 women similar to study patients to save 1 additional life (0.8% cancer detection rate, 25% mortality reduction per cancer detected). Source: Program data	Intervention cost: Incremental cost of CHE program \$8,994. Intervention cost per patient \$55.18 Patient navigation cost per patient \$50.64 Incremental cost per additional person screened: \$375 Components: Salaries, fringe benefits (20%) for CHEs; mailing, transportation, nonmonetary incentive costs Source: Program data Quality: Good	Healthcare cost: Change in healthcare cost per patient \$1234. Screening cost \$375; workup diagnostic cost \$1000; Averted cost of \$25,000 per case of terminal cancer avoided Source: Program data	Cost per life year gained (LYG): \$11,591 (Reviewers converted to cost per QALY using health utility weights from literature for early- and late-stage breast cancers) Modeling Method: Patients' cancer detection and terminal cancer data extended to 500 patients Quality: Good

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
	Medicaid: 21% Medicare: 40% (31% Medicare+ Other insurance, 9% Medicare alone) Commercial insurance: 30% Uninsured: 5% Time Horizon: Program implemented in 1993 to 1994. Modeled through lifetime.	scheduling mammography.	for screening rate and modeled for life year gained.			

Appendix N

Summary Evidence Table -- Colorectal Cancers (Economic Review): Cancer Screening: Patient Navigation Services to Increase Breast, Cervical, and Colorectal Cancer Screenings and Advance Health Equity

This table outlines information from the studies included in the Community Guide economic review of patient navigation services to increase breast and cervical cancers. It details study design and economic analysis, population and intervention characteristics, and economic outcomes considered in this review. Complete references for each study can be found in the Included Studies section of the review summaries for [Colorectal cancer](#).

Abbreviations Used in This Document:

- Economic outcomes:
 - QALY: quality-adjusted life year
 - ROI: return on investment
- Study design:
 - RCT: randomized controlled trial
- Measurement terms:
 - DiD: difference in difference
 - Pct pt: percentage point
- Other terms:
 - CRC, colorectal cancer
 - EMR: electronic medical record
 - FIT, fecal immunochemical test
 - FOBT: fecal occult blood test
 - NA, not applicable
 - NR: not reported
 - PN, patient navigator

Notes:

Quality of economic estimates – Studies are assessed to be of good, fair, or limited quality. This valuation is based on two domains: Quality of Capture, and Quality of Measurement. [Read more *Methods Manual - Part 2: Economic Review Process* | *The Community Guide*](#)

Race/ethnicity of the study population: The Community Guide only summarizes race/ethnicity for studies conducted in the United States.

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
Author (Year): Baker et al. (2014) Design: RCT Cancer Types: Colorectal Economic Outcome: Intervention Incremental cost Funding Source: Agency for Healthcare Research and Quality (AHRQ) Monetary Values: Assumed reported in 2011 U.S. dollars.	Location: Chicago, Illinois, USA Setting: Clinic - Federally qualified health center Population: Inclusion of average-risk adults ages 50–74 not up-to-date with screening in mostly Hispanic/Latino population. Sample Size: Usual care 255 Intervention 255 Characteristics: Mean Age: 59.5 years Female 70.2% Hispanic/Latino 87% Other 13% Uninsured 77% Time Horizon: started in 2011	Intervention: Patients due for annual FOBT were mailed FOBT kits. If the FOBT was not returned in 2 weeks, they received an automated call and text. After 3 months, the CRC screening navigator called patients who failed to complete the FOBT; a second FOBT was sent to patients who could be contacted and who said they would complete it if sent again. If a returned FOBT result was negative, patients were informed by mail; if the FOBT result was positive, colonoscopy was arranged, and the patient was tracked until completion. Type of screening test: FOBT Comparison: Usual care	Incremental pct pt increase in colorectal cancer screening versus enhanced usual care: 44.1 pct pts Intervention 82.2% vs Control 37.3% Data Source: Erie Family Health Center systems electronic health records	Intervention cost per person: \$45.00 Intervention cost per additional person screened: \$56 Components of intervention cost: Navigator outreach cost. Source: Electronic health records Quality: Good	NR	NR
Author (Year): Davis T et al. (2013) Design: Pre to post with control Cancer Types: Colorectal	Location: North Louisiana, Louisiana, USA Setting: Health centers Population: Current English-speaking health center patients age 50 to 85 years not up to date with CRC screening.	Intervention: Patient navigation by trained nurse. Structured interview before physician visit and education materials regarding FOBT. The nurses used motivational interviewing techniques to identify and problem-solve barriers and	Incremental pct pt increase in colorectal cancer screening versus enhanced usual care: 22 pct pt	Intervention cost per person: \$295.48 Intervention cost per additional person screened: \$1,337	NR	NR

Economic Outcome: Intervention cost Funding Source: National Institutes of Health, National Cancer Institute Monetary Values: Assumed reported in 2011 U.S. dollars.	Sample Size: Intervention: 404 Enhanced usual care: 275 Education only: 282 Characteristics: Mean Age 59.2 years Female 77% African American 83% Other 17% Uninsured 100% Less than High School 31% Mostly rural Time Horizon: Study period May 2008 through August 2011	motivate patients to complete FOBTs. If patients did not return their FOBT, the nurses followed up by telephone within 2 weeks and again in 1 month. For results that were positive, the nurse called patients to discuss the results, facilitate appointments with their primary care provider, and, if indicated, schedule patients for a diagnostic colonoscopy at the appropriate treatment center. Type of screening test: FOBT Comparison: Enhanced usual care	Baseline screening rate was <3%. Nurse patient navigation 60.6% Enhanced usual care 38.6% Education 57.1% Data Source: Documented by navigator.	Components of intervention cost: Navigator wages, mailings. Source: Labor costs: Study time logs; Non-labor costs: Expense Reports; Costs of office visits & screening tests: Participating clinics Quality: Good		
Author (Year): Davis MM et al. (2019) Design: Modeled Cancer Types: Colorectal Economic Outcome: Cost per Life Year Gained Funding Source: Centers for Disease Control and Prevention,	Location: Oregon, USA Setting: NA, simulated Population: Oregon Medicaid population under Affordable Care Act of 2010 and Medicaid expansion in 2014. Sample Size: Intervention: 68,077 Control: NA Characteristics: Age: 50-54 years 46.3%; 55-59 years 30.8%; 60-64 years 23% Female 50.4%	Intervention: Modeled mailed FIT kit and patient navigation by professional patient navigator. Baseline up to date status based on Oregon Medicaid demographics and claims data. Type of screening test was FIT. Comparison: No FIT kit and no patient navigation	Incremental pct pt increase in colorectal cancer screening versus control: 20.2 pct pt Data Source: Annual screening reports from Oregon Accountable Care Organizations. Intervention	Intervention cost per person: \$285 Intervention cost per additional person screened: \$1,425 Components of intervention cost: Navigator wages, technical staff for tracking,	Total 5-year Costs Procedures Cost: FIT+Navigation \$25,263,119 Usual care \$25,177,732 Cancer Treatment: FIT+Navigation \$2,514,842 Usual care \$3,008,082 Source: Claims data Quality: Good	5-year net cost: \$35 per person 5-year life years gained: 0.013 per person 5-year net cost per life year gained: \$2,706 Quality: Fair

National Cancer Institute Monetary Values: Assumed reported in 2017 U.S. dollars.	African American race 2.9% White race 82.6% Other race 14.4% Hispanic Ethnicity 7.1% Medicaid 100% Rural 40.5% Time Horizon: Simulation over 5 years from Jan 1, 2019 through Dec 31, 2023. Based on Medicaid claims from 2010-2013.		effectiveness from literature.	navigator training, FIT kit, mailing, tracking, phone reminders. Source: Evaluation literature and expert opinion. Quality: Good		
Author (Year): De Mil et al. (2018) Design: RCT Cancer Types: Colorectal Economic Outcome: Intervention cost Funding Source: French National Institute of Cancer and Cancéropole Nord-Ouest Monetary Values: Reported in 2013 Euros	Location: Picardy Region, France Setting: Clinic-Community Population: Patients aged 50 to 74 with phones who were unresponsive to 2 rounds of reminders by mail to get screened. Patients segmented into rural/urban and high-affluence/low-affluence. Sample Size: Intervention: 8,105 Control: 8,145 Characteristics: Age: ≤55 years 38.8%; 56-60 years 23%; 61-65 years 19.8%; 66-70 years 11.1%; 70-75 years 7.2% Female 51.5% Time Horizon: April 2011 to April 2013	Intervention: FOBT was recommended every 2 years in France. Intervention added navigation by social workers to the national screening program protocol. Navigation began with an informational postal mail about 4 months after screening invitation, with a toll-free number and e-mail address to contact navigator. After 10 days, initiated structured phone call to identify barriers to screening. Services were phone follow-ups, home visits, and mailed FOBT kit. If phone contact failed after 4 attempts, a postal reminder sent asking for phone number and whether home visit is preferred. Type of screening test was FOBT.	Increment in screening at 24 months: Incremental screening across all patients 3.3 pct pt (24.4% v 21.1%). Incremental screening in low- affluence population 0.9 pct pt (22.9% versus 22.0%). Data Source: Project records.	2-year intervention cost Total cost €321,787 Cost per person €39.70 Intervention cost per additional screened: Global €1,212. For deprived subset €1,527. For affluent subset €967. Components of intervention cost: Navigator wages, hiring and training, supplies, supervision, administrative support.	NR	NR

		Comparison: Control patients under national screening program received mailed reminder to see general practitioner who decided whether to hand them an FOBT kit.		Source: Navigator logs, staff interviews, project tasks and area wages. Quality: Good		
Author (Year): Elkin et al. (2012) Design: Pre to post with control Cancer Types: Colorectal Economic Outcome: Intervention cost, ROI Funding Source: New York Community Trust Monetary Values: Assumed reported in 2006 U.S. dollars.	Location: New York, New York, USA Setting: Hospital – government owned Population: Patients for navigation identified from appointment schedules for colonoscopy. Sample Size: Intervention: 25,481 Control: 18,845 Characteristics: Age < 50 12.1%, 50-64 60%, => 65 27.9% Female 60.3% African American 16.4% Hispanic 70.8% Asian 6.3% White 3.9% Other 6.4% Uninsured 16.8% Less than high school 69.3% Rural 0% Time Horizon: Pre is 12 month before implementation and and post is month of program implementation through June 2007. Implementation dates	Intervention: Lay health educators trained and hired as full-time navigators, recruited from within New York City-owned hospital system or surrounding community. Activities of navigator included patient reminder about appointment for colonoscopy, patient education about bowel preparation and colonoscopy procedure, address patient concerns, linking to financial services. Interaction by phone or in person. Type of screening test was colonoscopy. Comparison: 3 government hospitals with navigation program	Additional colonoscopies per month: Hospital A 44, Hospital B 48, Hospital C 67. Incremental probability of completed colonoscopy was 0.2 for each hospital. Data Source: Department of Health, Hospital colonoscopy records, navigation tracking system	Monthly cost per patient referred to navigation: Hospital A \$74 Hospital B \$287 Hospital C \$51 Intervention cost per additional colonoscopy completed: Hospital A \$369 Hospital B \$1,434 Hospital C \$254 Components of intervention cost: Navigator wages, pagers. Source: Patient navigation tracking system, navigator logs, staff interviews Quality: Good	NR	Net Financial Benefit (Medicare reimbursement-average cost of colonoscopy - program cost per additional colonoscopy): Hospital A: \$16 (=697-461-220), Hospital B: -\$446 (=697-435-708), Hospital C: \$45 (=697-453-199) ROI: Hospital A 2.3% Hospital B -39.1% Hospital C 6.9% Quality: Good

	were: Hospital B May 2003; Hospital A October 2005; Hospital C January 2006.					
Author (Year): Hardin et al (2022) Design: Pre to post with control Cancer Types: Colorectal Economic Outcome: Intervention cost Funding Source: CDC Monetary Values: 2018 US dollars (assumed)	Location: Appalachian town of Hazard, KY Setting: Health Center - federally qualified Population: Nurses or patient navigators would identify patients due for CRC screening Inclusion of average-risk adults ages 50–74 not up-to- date with screening Sample Size: FIT kits distributed: Intervention: 353 Usual care 184 Characteristics: Mean Age Range 50 to 74 years Female: NR Race/ethnicity: NR SES: 79.7% of patients report homelessness	Intervention: Nurses or patient navigators would identify patients due for CRC screening During the visit, the nurse would discuss the appropriate screening options with the patient If an eligible patient chose the FIT kit, the nurse then explained how to complete and return it. Patient navigators were responsible for tracking the FIT kits. If a kit was not returned, the navigator followed up biweekly with a phone or mail reminder to complete and return it. This allowed the navigators to assist patients to address relatively simple barriers, such as arranging transportation to the clinic, providing further instructions on using the kit, or replacing kits that had been lost Patient navigators continued to follow up until the kit was completed and returned or the patient indicated unwillingness to complete the test.	Additional Persons Screened: 91 based on the 353 FIT kits distributed during implement- ation Data Source: CDC	Intervention cost per person: \$38 Intervention cost per additional person screened: \$149 Components of intervention cost: Patient navigator costs, Processing cost of FIT kits, Postage for mailing reminders, Incentives payments for returned FIT kits . Source: Kentucky Department for Public Health and Little Flower Clinic (LFC), a federally qualified health center (FQHC) Quality: Good	NR	NR

		Type of screening test: FIT Comparison: Usual care (September 2016–August 2017) and implementation (September 2017–September 2018)				
Author (Year): Herman et al. (2022) Design: Group RCT Cancer Types: Colorectal Economic Outcome: Intervention cost Funding Source: National Cancer Institute Monetary Values: 2014 U.S. dollars.	Location: Phoenix, Arizona, USA Setting: Multicultural, underinsured communities in the Phoenix, Arizona, area. Population: Participants were eligible for the study if they were 50 years of age or older, English- or Spanish-speaking, and were out of compliance for CRC screening guidelines at that time. Sample Size: Intervention (Group Education + Tailored Navigation): 211 Group Education: 134 Characteristics: Mean Age 58.7 years Female 64.9% White 77.3% Hispanic 70% Other 17% Uninsured/Don't know 44.2% Less than High School 41.4% Rural 0%	Intervention: Community sites were recruited and randomized to group education (GE) and GE plus tailored navigation. All those who kept a clinic appointment (no matter their randomized group) received tailored navigation to complete screening (Phase II). Type of screening test: FIT, FOBT, and Colonoscopy Comparison: Group education	Incremental pct pt increase in colorectal cancer screening versus control: 16.1 pct pt Data Source: Documented by the community to clinic navigation	Intervention cost per person: \$271 Intervention cost per additional person screened: \$646 Components of intervention cost: Labor costs for navigation, non-labor costs, and the costs of office visits and screening tests. Source: Evaluation literature and expert opinion. Quality: Good	NR	NR

Author (Year): Jandorf et al. (2013) Design: Pre to post Cancer Types: Colorectal Economic Outcome: Intervention cost, ROI Funding Source: National Cancer Institute, Doris Duke Charitable Foundation, Mount Sinai School of Medicine Monetary Values: Assumed reported in 2006 U.S. dollars.	Location: New York, New York, USA Setting: Hospital clinic Population: Physician ordered colonoscopy based on review of EMR during non-acute primary care visit. Sample Size: Intervention: 604 Control: None Characteristics: Age ≥ 65 year 24.5%. Age < 65 years and ≥ 50 years 75.5% Female 68% African American 46.3% Hispanic 45.7% Asian 6.3% Other 8.0% Medicaid 52.7% Medicare 26.8% Annual income < \$10K 43.5% Rural 0% Time Horizon: Patient recruitment and data from May 2008 to May 2010.	Intervention: For African American patients, the professional and peer PNs were African American. Three scripted phone calls. Reminder postcard and bowel preparation instructions mailed after first call. The calls assisted with scheduling, provided education about CRC, queried and addressed patient concerns, provided information about preparations before procedure, reminded about appointment, queried about receipt of mailed instruction, and assessed transport needs. For non-African American patients, only 1 arm addressed patient barriers. Type of screening test was colonoscopy. Comparison: National 2008 NHANES data	Additional persons screened: 90.6 Navigation resulted in 15 pct pt increase in persons screened by colonoscopy. Data Source: Pre to post compared to NHANES data for baseline.	Total intervention cost: \$14,027 Intervention cost per person: \$23 Cost per additional person screened: \$154.80 Components of intervention cost: Navigator wages, transport, bowel prep, training, supplies. Source: Navigator call logs, study records, and institutional data Quality: Good	NR	Revenue minus direct cost was \$95,266. The net revenue minus cost of PN was \$81,239 (\$95,266-\$14,027) ROI: 579% = (81239/14027) *100 Quality: Good
Author (Year): Kim et al. (2018) Design: Observational study of PN implementation in a real-world setting without a	Location: University of Chicago Medical Center, Illinois (Midwest), USA Setting: Urban academic medical center serving primarily racial/ethnic minority groups	Intervention: In the non-nurse patient navigation program implemented at UCMC, individuals who received navigation were compared with a historic cohort of non-navigated patients. In addition, a	Incremental pct pt increase in colorectal cancer screening versus control:	Intervention cost per additional person screened: \$1337 Components of	NR	NR

comparison cohort Cancer Types: Colorectal Economic Outcome: Intervention cost Funding Source: CDC Monetary Values: Assumed 2017 U.S. dollars.	Population: Patients selected for navigation services included those with a prior history of a no-show, poor bowel preparation, previous cancellation, and/or multiple comorbidities, based on provider assessment, and were referred by several mechanisms including recommendation by primary care or GI faculty, through prerecorded telephone-based bowel preparation instructions, which allowed patients to self-refer; and identification through a nurse pre procedure call. Sample Size: Intervention: 536 Control: 2713 Characteristics: Mean Age NR (Range 50-75 years) Female 60% Black 65% Medicare or private insurance >80% Time Horizon: August 2016 and April 2017	previously validated data-collection instrument was tailored and used to collect all costs related to developing, implementing, and administering the program; and the incremental cost per patient successfully navigated. Type of screening test: Colonoscopy Comparison: Historic cohort of patients from UCMC who were scheduled to receive screening colonoscopies during the period from January to December 2016 and did not receive any navigation services	10.81 (85.1-74.3) pct pt Data Source: Program data	intervention cost: Development, implementation, administration and management, evaluation, research and reporting, data, quality, and assessment Source: Program data Quality: Good		
Author (Year): Ladabaum et al. (2015) Design: Modeled	Location: Northeast ((Used inputs from New York City (Mount Sinai Hospital)) Setting: NA, simulated (Hypothetical cohort followed the race distribution of	Intervention: For African American patients, the professional and peer PNs were African American. Three scripted phone calls. Reminder postcard and bowel	Incremental pct pt increase in colorectal cancer screening versus control:	Intervention cost per additional person screened: \$2422 (PN), \$2558 (without	NR	Net cost per patient -\$173 Incremental QALY gained 0.014

Cancer Types: Colorectal Economic Outcome: Cost per Life Year Gained Funding Source: NCI and Icahn SOM (Mount Sinai) Monetary Values: 2012 U.S. dollars.	authors' PN study from Mount Sinai hospital) Population: Informed with inputs from navigation studies in New York City (unscreened individuals ≥ 50 years) Sample Size: Intervention: 10,000 hypothetical cohort Control: NA Characteristics: Age: 57% (50-59 years), 33% (60-69 years), 9% (70-79 years), 1% (80 years) African American 43% Hispanic 49% White 4% Other 4% Rural 0% Time Horizon: Simulation over 50 to 100 years or death.	preparation instructions mailed after first call. The calls assisted with scheduling, provided education about CRC, queried and addressed patient concerns, provided information about preparations before procedure, reminded about appointment, queried about receipt of mailed instruction, and assessed transport needs. For non-African American patients, only 1 arm addressed patient barriers. Type of screening test was colonoscopy. Comparison: No navigation	25% (increase from 40% without PN to 65% with PN) for one-time colonoscopy screening. Data Source: Base case from Mount Sinai hospital before availability of PN and observed uptake from earlier studies.	PN), 2814 (No screening) Components of intervention cost: Navigation plus screening costs Source: Derived from Medicare reimbursement rates and estimated CRC care costs. Quality: Good		Patient navigation intervention was dominant strategy because it was cost-saving and increased QALY.
Author (Year): Lairson et al. (2018) Design: Quasi-experimental with a Control Group Cancer Types: Colorectal Economic Outcome: Intervention cost	Location: El Paso, Texas, USA Setting: Clinic-Community (ACCION program was a community-wide service and research program designed to educate and facilitate colorectal cancer screening compliance) Population: 50 to 75 years old, due for colorectal cancer screening, self-reported Texas address, and uninsured without rectal bleeding in the prior 3	Intervention: Against Colorectal Cancer in Our Neighborhoods (ACCION) intervention consisted of education, navigation, and provision of no-cost colorectal cancer screening and diagnostic testing, if needed and delivered to participants 50 to 75 years old who were due for screening, were uninsured, and had a Texas address, randomized to promotora, video, or	Incremental pct pt increase in colorectal cancer screening versus control: 65% to 77% (The interventions achieved screening rates of between 75% and 87% compared to	Intervention cost per person: The cost per participant ranged from \$73 for group sessions to \$93 for the individual video sessions with video and promotora Intervention cost per additional	NR	NR

Funding Source: Cancer Prevention and Research Institute of Texas Monetary Values: 2012 U.S. dollars.	months recruited by “promotoras” (navigators) who visited partnering clinic waiting rooms and community sites Sample Size: Intervention: 467 (Video 160; Promotora: 148; Video + Promotora: 159) Control: 317 Characteristics: Mean Age NR (More than 90% of the participants were younger than 65 years) Hispanic 100% (90.3% born in Mexico) Uninsured 100% Medicare or private insurance >80% Time Horizon: August 2016 and April 2017	promotora and video interventions. Type of screening test: FIT and Colonoscopy Comparison: The concurrent comparison group was from a similar county in Texas.	10% in the comparison group). Data Source: Self-reported data confirmed with program database	person screened: Compared to the no cost controls, the cost per additional person screened in the video only group was \$105.41 (CI: \$91.18, \$128.77). Moving from the Video in the group session to the Promotora in the individual session, the ICER was \$268.12 (CI: \$266.12, \$273.42) Components of intervention cost: Navigation plus screening costs Source: Program data Quality: Good		
Author (Year): Percac-Lima et al. (2009) Design: RCT	Location: Chelsea, Massachusetts, USA Setting: Health Center Population:	Intervention: Culturally tailored intervention by outreach worker for colonoscopy among low income and non-English speaking patients in	Pre to post incremental over control for colonoscopy: 11.2 pct pt	Annual intervention cost per person: \$171	NR	NR

Cancer Types: Colorectal Economic Outcome: Intervention cost Funding Source: Massachusetts General Hospital, Jane's Trust, National Cancer Institute, Massachusetts Cancer Prevention Community Research Network Monetary Values: Assumed reported in 2007 U.S. dollars.	Patients 52-79 years of age not up to date with CRC screening. Sample Size: Intervention: 409 Control: 814 Characteristics: Mean Age 63 years Female 60% African American 5% Hispanic 40% Asian 2% White 50% Other 5% Medicaid 3% Medicare 27% Non-English speakers 40% Rural 0% Time Horizon: 1-year study in 2007. 9-month intervention.	Massachusetts General's Chelsea healthcare center. Patients received an introductory letter with educational material followed by phone or in-person contact by a language-concordant individually tailored intervention. Activities included patient education, procedure scheduling, translation and explanation of bowel preparation, and help with transportation and insurance coverage. Type of screening test was colonoscopy. Comparison: No navigation.	Additional person screened: 45.8 Data Source: Program records	Intervention cost per additional person screened: \$1,528 Components of intervention cost: Navigator wages, training Source: NR Quality: Good		
Author (Year): Percac-Lima et al. (2014) Design: Pre to post with control Cancer Types: Colorectal Economic Outcome: Intervention cost Funding Source:	Location: Chelsea, Massachusetts, USA Setting: Health Center – primary care Population: Patients in Chelsea Health Center (CHC) who are overdue for CRC screening. Sample Size: Intervention: 3,115 Control: 43,905 Characteristics: Mean Age 61.4 years	Intervention: Patient navigation program for Chelsea Healthcare Center (CHC). Navigators were Latino and Serbo-Croatian, English-speaking and college educated. Also staffed by trained language translators. Patients sent initial letter plus educational materials in native language, followed by navigator call or in-person meeting at clinic, with 7 attempts over 3 months. Initial	Pre to post incremental screening over control was 8.9 pct pt for all and 10.8 pct pt for Hispanics. Adjusted pre to post incremental screening over control: 1.9 pct pt for all and 3.7 pct pt for Hispanics.	Annual total intervention cost: \$75,000 Annual intervention cost per person: \$171 Intervention cost per additional person screened: \$1,267 for all patients	NR	NR

Massachusetts Cancer Prevention Community Research Network, Trefler Foundation, Agency for Healthcare Research and Quality Monetary Values: Assumed reported in 2008 U.S. dollars.	Female 57.1% African American 5.2% Hispanic 39.5% Asian 1.8% White 49.6% Other 4.0% Medicaid 17.5% Medicare 33.0% Uninsured 10.9% Rural 0% Time Horizon: Data from 1-year pre in 2006 with 4-year follow-up to end of 2010.	meeting covered education about CRC screening and exploration of barriers. Further tailored interventions reviewed all testing methods, help with appointment scheduling, review of bowel preparation, organizing transport, and accompanying patient to procedure where family unavailable. Navigator encouraged colonoscopy among the tests and entered results into medical records. Type of screening test was colonoscopy. Comparison: Primary care with no navigation.	Data Source: Program records	\$651 for Hispanic patients Components of intervention cost: Navigator wages, training Source: NR Quality: Good		
Author (Year): Qian et al. (2020) Design: Pre to post Cancer Types: Colorectal Economic Outcome: Intervention cost Funding Source:	Location: New York, New York, USA Setting: Health Center Population: Eligible patients of health center identified as not up to date on CRC screening. Sample Size: Intervention: 3,723 Characteristics: Mean Age 57.5 Female 64% Asian 97.5%	Intervention: Two PNs employed by health center focused on Chinese American population in NYC areas of Flushing, Lower Manhattan, and Queens. CRC-specific training and workshop. PNs maintained database of patient characteristics, barriers, whether screening pursued, type of screening chosen. PNs worked with healthcare center staff to update electronic medical records. Other staff	Number of persons screened: 2,552 Data Source: Navigation tracking system	Total intervention cost over 3 years \$295,297 Intervention cost per patient \$79.31 Intervention cost per person screened: \$115.71	NR	NR

Centers for Disease Control and Prevention Monetary Values: Reported in 2014 U.S. dollars.	Other 2.5% Medicaid 31.3% Uninsured 57.1% Mandarin/Cantonese 97.0% Rural 0% Time Horizon: June 30, 2012 through May 31, 2015.	included program manager/coordinator, and internal medicine chief. PN activities were patient education on CRC and navigating and advocating for health system resources, completing paperwork, referrals for uninsured for free colonoscopy, and access to culturally competent physician. Type of screening test was colonoscopy or FIT. Comparison: None		Components of intervention cost: Salary and benefits, supplies, colonoscopy preps, patient transportation. Source: State budget data and navigation program records. Quality: Good		
Author (Year): Rice et al. (2019) Design: Modeled from Trial Cancer Types: Colorectal Economic Outcome: Intervention cost Funding Source: None Monetary Values: Reported in 2012 U.S. dollars.	Location: New Hampshire, USA Setting: Endoscopy centers and community Population: Referred by primary care or self-referred. Sample Size: Endoscopy centers 131 Public health program 443 Control 75 Characteristics: Age: 50-59 years 82.4%, 60-64 years 17.6% Female 62.6% African American 5.3% Hispanic 24.4% Asian 21.4% White 61.1% Other 0.8% <250% of FPL 100%	Intervention: Two interventions modeled for New Hampshire Colorectal Cancer Screening Program (NHCRCSP) with Nurse PNs within endoscopy centers statewide and as a statewide public health program. Means-tested free colonoscopies. Supported by endoscopist, registered nurse for management, program director, and secretary. PNs worked for NHCRCSP and external to clinics. All navigation by telephone including translation. Patients referred by PCPs or self-referred. Eligible patients referred to a geographically	Incremental Screening From the trial, completion rates were 69.4% usual care and 96.2% in intervention starting from 0%. Data Source: Trial records	Navigation cost per patient Endoscopy center scenario \$231. Public health program scenario \$275 Intervention cost per additional colonoscopy completed: Endoscopy center scenario \$548 Public health program scenario \$725 Components of intervention cost:	NR	Reimbursement per colonoscopy: \$737 ROI: Endoscopy center scenario 34.5% Public health scenario 1.7% Quality: Good

	Urbanicity Mixed Time Horizon: 15 months from start of program in 2009.	convenient endoscopy center and PN. Protocol covered: obtain agreement, confirm appointment, establish rapport, assess barriers; review bowel preparation and materials and confirm transport and patient escort; review bowel preparation in detail and remaining barriers; re-confirm appointment details and address remaining barriers; evaluate colonoscopy experience; go over results. Type of screening test was colonoscopy. Comparison: Usual care for coloscopy (mailed information, reminders, bowel preparation materials).		Navigator wages, start-up costs, training, supplies, technology, colonoscopy. Source: PN program cost from NHCRCSP Quality: Good		
Author (Year): Wilson et al. (2015) Design: Modeled Cancer Types: Colorectal Economic Outcome: Cost per Life Year Gained	Location: San Antonio, Texas Setting: University Health System, Bexar County Population: PN contacted eligible members (50 years or more, Male, CareLink member, didn't have CRC screening in last 10 years) Sample Size: Intervention: 461	Intervention: (1) no-cost screening colonoscopy referrals for Hispanic men 50 years of age and older, (2) program navigation provided by bilingual patient navigators, (3) open-access endoscopy through the removal of system barriers and assisted transportation, and (4) colonoscopy services provided by a bilingual, male Hispanic	Incremental pct pt increase in colorectal cancer screening versus control: 25% (increase from 40% without PN to 65% with PN) for one-time colonoscopy screening.	Intervention cost per person: \$399.91 Intervention cost per additional person screened: \$498 Components of intervention cost:	NR	Incremental cost - \$1,148 per patient and QALY increase of 0.31 per patient indicating that the PN is the dominant strategy.

Funding Source: Cancer Prevention and Research Institute of Texas Monetary Values: 2013 U.S. dollars.	Control: NR Characteristics: Age: NR; initial age 50 years Male: 100% Hispanic 100% Uninsured 100% Time Horizon: Simulation of disease progression, detection and treatment over a 40-year period starting at age 50.	surgeon. Type of screening test was colonoscopy. Comparison: Usual care for Hispanic men in CareLink	Data Source: Base case from Mount Sinai hospital before availability of PN and observed uptake from earlier studies.	Salaries, travel, and other costs Source: Navigator Program Quality: Good		
Author (Year): Wolf et al. (2015) Design: Modeled Cancer Types: Colorectal Economic Outcome: Intervention cost and healthcare cost averted Funding Source: Colorado Department of Public Health and Environment, University of Colorado. Program funded by Prevent Cancer Foundation.	Location: Colorado, USA Setting: Clinic-Community. Population: Lawfully present Colorado residents age ≥ 50 years below 250% of federal poverty line, uninsured, and in need of screening per American Cancer Society guidelines. Sample Size: Intervention: 13,744 received colonoscopy. Characteristics: Age: < 50 years 9%; 50-54 years 40%, 55-59 years 30%; 60-64 years 19%; ≥ 65 years 2% Female 62.0% African American 3.0% Hispanic 32.0% White 61.0% Other 3.0% Uninsured 100% < 250% of FPL 100% Urbanicity Mixed	Intervention: Free colonoscopy or sigmoidoscopy. Clinic-based patient navigation and coordination of care. Training for providers and PNs. Navigator activities were: clinic in-reach, patient education, scheduling appointments, reminder call, and ensuring ride home after procedure. Navigator also followed-up about results and recommendations and assisted with coordinating treatment plan for abnormal results. Type of screening test was colonoscopy or sigmoidoscopy. Comparison: None	Analysis based on colonoscopy s completed.	Intervention cost per colonoscopy completed: \$1,475 Components of intervention cost: Navigator wages, colonoscopy, polyp removal, training, awareness and media, screening equipment. Source: Patient tracking data. Quality: Good	Change in healthcare cost over 20 years: \$32 million Components of intervention cost: Colorectal cancer treatment cost. Source: Based on modeled 325 averted colorectal cancer cases. Assumed treatment cost of \$100,000 per case. Quality: Good	Authors report 20-year Averted healthcare cost/Cost of program 1.34 (=\$32.5 million/\$24.3 million) Quality: Good

Monetary Values: Assumed reported in 2009 U.S. dollars.	Time Horizon: Implemented 2006-2008. Data from January 2006 through June 2012.					
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