

Cancer Prevention and Control, Client-Oriented Screening Interventions: Reducing Structural Barriers – Colorectal Cancer (2008 Archived Review)

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Review Summary

Intervention Definition

Many barriers can make it difficult for people to seek screening for cancer. They include distance from screening location, limited hours of operation, lack of daycare for children, and language and cultural factors. These types of interventions seek to increase screening by removing structural barriers.

Summary of Task Force Findings

The Community Preventive Services Task Force recommends interventions that reduce structural barriers based on strong evidence of their effectiveness in increasing colorectal cancer screening by fecal occult blood test (FOBT).

The Task Force has related findings for reducing structural barriers specific to the following:

- [Breast cancer](#) (recommended)
- [Cervical cancer](#) (insufficient evidence)
- [Colorectal cancer screening by flexible sigmoidoscopy, colonoscopy, or double contrast barium enema](#) (insufficient evidence)

Results from the Systematic Review

Colorectal Cancer

Seven studies of colorectal cancer screening by FOBT qualified for the systematic review.

- Proportion of study participants completing FOBT: median increase of 16.1 percentage points (7 studies)
- Three studies were found that assessed costs per increased screening by FOBT.
 - Costs per additional screening varied widely across studies, from \$0.64 for supplying a return FOBT kit envelope with prepaid postage versus usual in-person return to \$32.10 for mailing a return postage prepaid FOBT kit with a follow-up telephone reminder during a mass media campaign versus exposure to the mass media campaign alone which offered FOBT kit at no cost to client.

Findings should be applicable among many groups who would accept screening but have limited physical access to these services.

These findings were based on a systematic review of all available studies, conducted on behalf of the Task Force by a team of specialists in systematic review methods, and in research, practice and policy related to cancer prevention and control.

Publications

Baron RC, Rimer BK, Coates RJ, et al. [Client-directed interventions to increase community access to breast, cervical, and colorectal cancer screening: a systematic review](#) [www.thecommunityguide.org/cancer/screening/client-oriented/Cancer2008_ClientDirected_Access.pdf]. *Am J Prev Med* 2008;35(1S):56-66.

Task Force on Community Preventive Services. [Recommendations for client- and provider-directed interventions to increase breast, cervical, and colorectal cancer screening](#) [www.thecommunityguide.org/cancer/screening/client-oriented/Cancer2008_TaskForceRecs.pdf]. *Am J Prev Med* 2008;35(1S): S21-5.

The following Task Force finding and supporting materials are for reducing structural barriers to increase breast, cervical, and colorectal cancer screening.

Task Force Finding

Intervention Definition

Structural barriers are non-monetary obstacles that impede access to screening, such as inconvenient hours or locations for screening, complex administrative procedures, requirements for superfluous clinic visits, or lack of needed translation services. Efforts to reduce structural barriers may be combined with measures to provide client education, information about program availability, or measures to reduce out-of-pocket costs.

Task Force Finding (July 2008)*

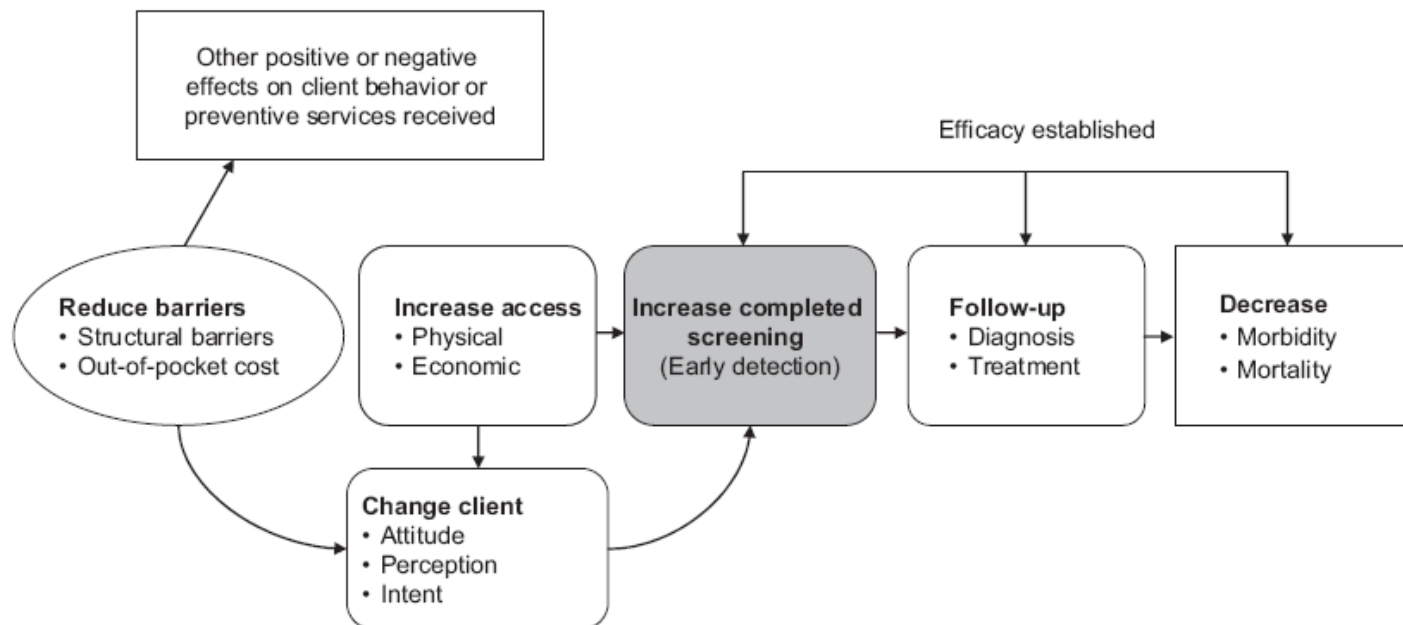
The Task Force recommends reducing structural barriers to increase screening for breast and colorectal cancers (by mammography and FOBT, respectively) on the basis of strong evidence of effectiveness. Evidence is insufficient, however, to determine whether reducing structural barriers is effective in increasing colorectal cancer screening by flexible sigmoidoscopy, colonoscopy, or double contrast barium enema, because no studies using these screening procedures were identified. Evidence was also insufficient to determine the effectiveness of the intervention in increasing screening for cervical cancer because only two relevant studies were identified, and these had some methodological limitations.

*From the following publication:

Task Force on Community Preventive Services. [Recommendations for client- and provider-directed interventions to increase breast, cervical, and colorectal cancer screening](http://www.thecommunityguide.org/cancer/screening/client-oriented/Cancer2008_TaskForceRecs.pdf) [www.thecommunityguide.org/cancer/screening/client-oriented/Cancer2008_TaskForceRecs.pdf]. *Am J Prev Med* 2008;35(1S): S21-5.

Supporting Materials

Analytic Framework



Evidence Gaps

What are Evidence Gaps?

Each Community Preventive Services Task Force (Task Force) review identifies critical evidence gaps—areas where information is lacking. Evidence gaps can exist whether or not a recommendation is made. In cases when the Task Force finds insufficient evidence to determine whether an intervention strategy works, evidence gaps encourage researchers and program evaluators to conduct more effectiveness studies. When the Task Force recommends an intervention, evidence gaps highlight missing information that would help users determine if the intervention could meet their particular needs. For example, evidence may be needed to determine where the intervention will work, with which populations, how much it will cost to implement, whether it will provide adequate return on investment, or how users should structure or deliver the intervention to ensure effectiveness. Finally, evidence may be missing for outcomes different from those on which the Task Force recommendation is based.

Identified Evidence Gaps

These reviews demonstrate the effectiveness of reducing structural barriers in increasing screening for breast and colorectal cancers (by mammography and FOBT, respectively) and the effectiveness of reducing out-of-pocket client costs in increasing screening for breast cancer. However, important questions not addressed in the reviews may have additional implications for the effectiveness of these interventions.

- How can public social and economic policies, along with private initiatives, direct resources to increase cost relief and structural accessibility to cancer screening services?

- What are effective ways to ensure that clients are informed that structural and economic barriers to cancer screening access have been or can be reduced?
- How can access problems caused by shortages of radiologists who read mammograms and closing of breast cancer screening facilities be addressed?
- Can the capacity to perform screening endoscopy be increased to meet current and future needs?

Because evidence was insufficient to determine whether reducing structural barriers is effective in increasing cervical cancer screening, or whether reducing out-of-pocket costs is effective in increasing both cervical and colorectal cancer screening, basic effectiveness research questions remain. These include questions about the role of reducing structural barriers and out-of-pocket costs in promoting screening by colorectal endoscopy and double contrast barium enema.

Summary Evidence Table

Author, Pub year, (Study Period), Intervention	Design, Category, Execution	Study Location, Setting type Population Description	Interventions Studied, Comparison, and Number of Participants	Outcome/Effect Size and Statistical Significance
Dolan 1999 (1995-1996) Intervention: Reduce structural barriers	Design: Non-randomized trial (individual) Design Category: Greatest suitability Execution: good	Chicago, IL; urban; Academic General Internal Med Practice; Women without mammogram in past year; ≥ 50 yrs; 40% Caucasian, 40% Black, 20% other	1. Eliminated time and distance by offering same day screening 2. Usual care N=920; FU: 3 months	Completed mammogram verified via computerized radiology records 1 versus 2: 15 pct pt ($p < .05$)
Kim 2004 (NR) Intervention: Reduce structural barriers	Design: Randomized trial (individual) Design Category: Greatest suitability Execution: Fair	Los Angeles, CA; urban; Korean churches; no mammogram in past year; 40-75 yrs; 100% Korean-American	1. Low-cost mobile mammography with peer group education (N=95) 2. Low-cost mobile mammography (N=96) 3. Usual Care;	Self-reported mammogram at 2-mo FU 1 versus 3 = 40 pct pt ($p < .05$) 2 versus 3 = 25 pct pt ($p < .05$)
King 1998 (1995 - 1995) Intervention: Reduce structural barriers	Design: Randomized trial (group) Design Category: Greatest suitability Execution: Fair	PA and N C; mixed urbanicity; Community; Age 65-84, residents of senior citizen facilities with no mammogram in two years; 77% White, 23% African American; 30% Low-mid SES	1. Appointment and transport 2. Appointment, transport and group education 3. Usual Care-Medicare mammography benefit flier N=436; FU: 6 months	Self-reported receipt of mammogram assessed via a questionnaire 1 versus 3: 8 pct pt (NS) 2 versus 3: 2 pct pt (NS)
Lane 1993 (1988-1990) Intervention: Reduce structural barriers	Design: Time series with no concurrent comparison group Design Category: Moderate suitability Execution: Fair	Suffolk County, NY; Community; Age 50-75, health center patients; 70% White, 13% African American, 15% Hispanic, 2% Other; 54% low SES (<15000)	1. Reduced or no-cost mobile mammography and small media 2. Pre-intervention (baseline) N=1592; FU: 2 yrs	Self-reported receipt of mammogram assessed via telephone interviews 17.7 pct pt ($p < .05$)
Young 2002 (NR) Intervention: Reduce structural barriers	Design: Randomized trial (individual) Design Category: Greatest suitability Execution: Fair	Detroit, MI; urban; 4 community-based primary care medical care sites; Women who had not a mammogram in the past year; age over 40; 94% African American; 16% No Health insurance, 31% Medicare/Medicaid, 22% Managed Care, 29% Private	1. Cost-free mobile mammography and group education 2. Usual care N=81;FU: 3 months	Completed mammogram verified via a medical chart review 1 versus 2 = 28 pct pt ($p < .05$)
Reuben 2002 (1998-2000) Intervention: Reduce structural barriers	Design: Randomized trial (group) Design Category: Greatest suitability Execution: good	Los Angeles, CA; urban; 60 community-based sites; age 60-84 and no mammogram in past year; 53% White, 12% Black, 11% Asian Am, 23% Hispanic, 1% Am Indian; 69% Low SES (<20000)	1. Mobile mammography units with group education 2. Group education, only (both groups covered for cost of mammography) N=499; FU: 3 months	Self-reported receipt of mammogram assessed via a telephone interview 1 versus 2: 15 pct pt ($p < .05$)

Author, Pub year, (Study Period), Intervention	Design, Category, Execution	Study Location, Setting type Population Description	Interventions Studied, Comparison, and Number of Participants	Outcome/Effect Size and Statistical Significance
Rimer 1992 (NR) Intervention: Reduce structural barriers	Design: Randomized trial (group) Design Category: Greatest suitability Execution: good	Philadelphia, PA; 8 retirement communities; Age 65+ and no mammogram in past year; ~80% White, ~20% Non-White	1. Group ed w /small media, mobile mammography unit one week later w/ incentive (umbrella) + \$40 voucher/\$10 co-pay 2. Comparison: \$40 vouch/\$10 copay I=213, C= 199; FU: 3 months	Self-reported receipt of mammogram assessed via a interview 1 versus 2: 33 pct pt (p<.05)
White 1993 Intervention: Reduce structural barriers	Design: Non-randomized trial (group) Design Category: Greatest suitability Execution: fair	Pittsburgh, PA; urban; high rise apartment for elderly (at least one resident of each apartment >55 y/o);84% Afro-American; Selected women >55 y/o	1. Screening set up in non-clinical residential facility + group ed + small media 2. Comparison: high rise with no ed or onsite screening program N=114 FU: 5 month	Self-report of pap test by interview 1 vs. 2 = 28.6-10.8= 17.8 pct pt (p<.05)
Pritchard, D 1995 Intervention: Reduce structural barriers	Design: Randomized trial Design Category: Greatest suitability Execution: fair	Perth, Australia; urban; University general practice; Female patients; age 36 through 69 years; no hysterectomy, no record of having a Pap smear in the past two years, attended this practice within last 3 years, no known other practice and no terminal illness; 53% Aust/NZ, 20% UK, 8% European, 16% Asian, 3%Other; 55% Low SES	1. Invitation letter to attend a special Pap test screening clinic at a specified date and time 2. Usual care, opportunistic screening N=360	Medical chart audit for Pap test 1 vs 2 = 30.4–16.8 = 13.6 pct pt (p<.05)
Church 2004 (NR) Intervention: Reduce structural barriers	Design: Randomized trial (group) Design Category: Greatest suitability Execution: fair	Wright County, MN; non-urban; Community-wide; 47% men and 53% women; Age 50+; 15% Low SES (<15000)	1. Directly mailed FOBT kit and return postage-paid mailer w/o follow-up reminder (N=~1000) 2. Directly mailed FOBT kit and return postage-paid mailer with a follow up telephone call reminder, and additional kits if necessary) (N=~1000) 3. Comparison: Exposure to mass media campaign and access to reduced cost FOBT FU: 1 year	Self-reported receipt of FOBT assessed via a questionnaire 1 versus 3 = 15.4 pct pt (p<.05) 2 versus 3 = 21.7 pct pt (p<.05)
Freedman 1994 (1992-1993) Intervention: Reduce structural barriers	Design: Randomized trial (individual) Design Category: Greatest suitability Execution: good	Kentucky; urban; Internal Medicine Clinic; 68% women, average age 58.4; 80% Uninsured/Medicaid; ~65% Black	All received Hemocult card at clinic: 1. Return FOBT kit in prepaid postage envelope 2. Return FOBT kit in mailer without prepaid postage 3. Comparison: Return FOBT kit in person FU: 3 months	Completed FOBT verified with kit being returned to clinic by hand, mail, or prepaid mail 1 versus 3 = 34 pct pt (p<.05) 2 versus 3 = 20 pct pt (p<.05)
Miller 1993 (1992) Intervention: Reduce structural barriers	Design: Randomized trial (individual) Design Category: Greatest suitability Execution: good	Durham, NC; urban; Outpatient clinic; 72% female; Patients at indigent (25/74 White/Black) and private (74/26 White/Black) clinics	1. FOBT kit distributed at clinic with prepaid return postage (N=159) 2. Comparison: FOBT kit distributed at clinic without prepaid return postage (N=166) N=325; FU: 2 months	Completed FOBT verified with returned mailed kits 1 versus 2 = 13 pct pt (p<.05)

Author, Pub year, (Study Period), Intervention	Design, Category, Execution	Study Location, Setting type Population Description	Interventions Studied, Comparison, and Number of Participants	Outcome/Effect Size and Statistical Significance
King 1992 (NR) Intervention: Reduce structural barriers	Design: Non-randomized trial (group) Design Category: Greatest suitability Execution: fair	Menai/Illawong/Bangor South Sydney, Australia; suburban; general practices; Patients, age 45-75 with no pre-existing disease; Middle/Upper Class	1. FOBT kit sent home with stamped return envelope; letter from GP with dietary restrictions; (n=199) 2. FOBT kit sent home with stamped return envelope; letter from GP with no dietary restrictions; (N=190) 3. FOBT kit sent home with stamped return envelope; letter from GP with no dietary restrictions; brochure on CRC; (N=204) 4. Letter from GP with no dietary restrictions; client instructed to call and request FOBT kit with stamped return envelope (N=173) FU: 3 months	Completed FOBT verified with returned mailed kits 1 versus 4 = 17 pct pt (p<.05) 2 versus 4 = 24 pct pt (p<.05) 3 versus 4 = 15 pct pt (p<.05)
Mant 1992 (NR) Intervention: Reduce structural barriers	Design: Randomized trial (Individual) Design Category: Greatest suitability Execution: Fair	United Kingdom; both rural and urban; Clinic and home; 52% Male, 48% female; age 45-64; had not attended a health check or well woman clinic within the last 3 years and had to have no bowel problems and physically and emotionally able to perform the test; Race/ethnicity not reported	1. FOBT kit sent to home with stamped addressed envelope 2. FOBT kit sent to home with stamped addressed envelope + invite for a health check (HC) 3. Comparison: Invite for HC sent to home - kit offered only at the HC N=806; FU: 1 year	Completed FOBT verified through review of patient records 1 versus 3 = 4.9 pct pt (NS) 2 versus 3 = 11.1 pct pt (p<.05)
Ore 2001 (NR) Intervention: Reduce structural barriers	Design: Randomized trial (individual) Design Category: Greatest suitability Execution: good	Haifa, Israel; urban; HMO; Members, 50% male, 50% female; age 50-74; 54.6% Europe/America, 20.5% Israel, 24.9% Asia/Africa	1. Mailed FOBT kit in addition to letter inviting recipients to perform test annually, dietary restrictions for 48 hours prior to test (N~950) 2. Comparison: FOBT kit request card, only, in addition to a letter inviting recipients to perform the test annually, dietary restrictions for 48 hours prior to test performance (N~950); FU: 5 months	Completed FOBT verified via HMO database record review 1 versus 2 = 4 pct pt (p<.05)

Included Studies

Reducing Structural Barriers (Colorectal Cancer—Fecal Occult Blood Test)

Church TR, Yeazel MW, Jones RM, et al. A randomized trial of direct mailing of fecal occult blood tests to increase colorectal cancer screening. *Journal of the National Cancer Institute* 96(10):770-80, 2004.

Freedman J, Mitchell C. A simple strategy to improve patient adherence to outpatient fecal occult blood testing. *J Gen Intern Med* 1994;9:462-4.

King J, Fairbrother G, Thompson C, Morris D. Colorectal cancer screening: optimal compliance with postal faecal occult blood test. *Australia & New Zealand J Surgery* 1992;62(9):714-9.

Mant D, Fuller A. Patient compliance with colorectal cancer screening in general practice. *Br J Gen Pract* 1992;42:18-20.

Miller M, Wong J. Reducing financial barriers enhances the return rate of stool Hemoccult packets. *Am J Med Sci* 1993;306(2):98-100.

Ore L, Hagoel L, Lavi I, Rennert G. Screening with faecal occult blood test (FOBT) for colorectal cancer: assessment of two methods that attempt to improve compliance. *European Journal of Cancer Prevention* 10(3):251-6, 2001.

Plaskon P, Fadden M. Cancer screening utilization: is there a role for social work in cancer prevention? *Social Work in Health Care* 1995;21(4):59-70.

Search Strategy

The following outlines the search strategy used for reviews of these interventions to increase breast, cervical, and colorectal cancer screening: *Client Reminders (archived)*; *Client Incentives (archived)*; *Mass Media Targeting Clients (archived)*; *Small Media Targeting Clients*; *Group Education for Clients (archived)*; *One-on-One Education for Clients (archived)*; *Reducing Structural Barriers for Clients (archived)*; *Reducing Client Out-of-Pocket Costs (archived)*; *Provider Assessment and Feedback (archived)*; *Provider Incentives (archived)*.

To establish the evidence base the team searched five computerized databases from the earliest entries in each through November 2004: MEDLINE, database of the National Library of Medicine (from 1966); the Cumulative Index to Nursing and Allied Health database (CINAHL, from 1982); the Chronic Disease Prevention database (CDP, Cancer Prevention and Control subfield, from 1988); PsycINFO (from 1967); and the Cochrane Library databases. Medical subject headings (MeSH) searched (including all subheadings) are shown below. The team also scanned bibliographies from key articles and solicited other citations from other team members and subject-matter experts. Conference abstracts were not included because, according to Community Guide criteria, they generally do not provide enough information to assess study validity and to address the research questions.

The search identified over 9000 citations whose titles and abstracts were screened for potential relevance to interventions and outcomes of interest; of these, 580 articles were retrieved for full-text review.

Search terms used in five electronic databases to find studies for inclusion in the systematic reviews of cancer screening. Searches were conducted to find all studies of cancer screening including those specific to screening for breast, cervical, or colorectal cancer.

General

Neoplasms—combined with any of the following headings:

Early detection

Mass screening

Multiphasic screening

Preventive health services

Screening

Breast cancer

Breast neoplasms

Mammography

Cervical cancer

Cervical intraepithelial neoplasia

(Uterine) cervical neoplasms
Cervix dysplasia
Vaginal smears

Colorectal cancer

Colonic neoplasms
Colorectal neoplasms
Occult blood
Sigmoid neoplasms
Sigmoidoscopy

From: Baron RC, Rimer BK, Coates RJ, et al. Methods for conducting systematic reviews of evidence on effectiveness and economic efficiency of interventions to increase screening for breast, cervical, and colorectal cancers. *Am J Prev Med* 2008;35(1S):26-33.

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.

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